ETSI TS 102 901 V5.1.1 (2013-10)



Core Network and Interoperability Testing (INT); IMS NNI Interoperability Test Specifications; IMS NNI interoperability test descriptions for RCS (3GPP Release 10)

Reference

RTS/INT-00086

Keywords

IMS, interoperability, NNI, RCS, testing

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Foreword

This Technical Specification (TS) has been produced by ETSI Technical Committee IMS Network Testing (INT).

1 Scope

The present document specifies interoperability Test Descriptions (TDs) for Inter-IMS Network to Network Interface (II-NNI) interoperability testing for the Rich Communication Suite (RCS) related services based on RCS V5.1 Advanced Communications Services and Client Specification [12] and the related endorsement documents [13], [14], [15], [16] and [17]. The Stage 3 Session Initiation Protocol (SIP) and Session Description Protocol (SDP) standard, TS 124 229 [1] and Inter-IMS Network to Network Interface, TS 129 165 [6] *define the functionalities on which the RCS services are based. TDs have been specified on the basis of the Test Purposes (TPs) and Test Suite Structure (TSS) presented in TS 186 011-1 [2].* TP fragments presented in the present document as part of TDs are defined using the TPLan notation of ES 202 553 [5]. TDs have been written based on the test specification framework described in TS 102 351 [3] and the interoperability testing methodology defined in TS 102 237-1 [4], i.e. interoperability testing with a conformance relation.

NOTE: Requirements pertaining to a UE or an AS implementation or IMS core network requirements that can only be observed at the interface between UE and IMS CN are explicitly not within the scope of the present document.

2 References

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the reference document (including any amendments) applies.

Referenced documents which are not found to be publicly available in the expected location might be found at http://docbox.etsi.org/Reference.

NOTE: While any hyperlinks included in this clause were valid at the time of publication, ETSI cannot guarantee their long term validity.

2.1 Normative references

The following referenced documents are necessary for the application of the present document.

- [1] ETSI TS 124 229 (V10.10.0): "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); LTE; IP multimedia call control protocol based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP); Stage 3 (3GPP TS 24.229 V10.10.0 Release 10)".
- [2] ETSI TS 186 011-1 (V5.1.1): "Core Network and Interoperability Testing (INT); IMS NNI Interoperability Test Specifications (3GPP Release 10); Part 1: Test Purposes for IMS NNI Interoperability".
- [3] ETSI TS 102 351: "Methods for Testing and Specification (MTS); Internet Protocol Testing (IPT); IPv6 Testing: Methodology and Framework".
- [4] ETSI TS 102 237-1: "Telecommunications and Internet Protocol Harmonization Over Networks (TIPHON) Release 4; Interoperability test methods and approaches; Part 1: Generic approach to interoperability testing".
- [5] ETSI ES 202 553: "Methods for Testing and Specification (MTS); TPLan: A notation for expressing Test Purposes".
- [6] ETSI TS 129 165 (V10.10.0): "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); LTE; Inter-IMS Network to Network Interface (NNI) (3GPP TS 29.165 V10.10.0 Release 10)".
- [7] ETSI TS 186 011-2 (V5.1.1): "Core Network and Interoperability Testing (INT); IMS NNI Interoperability Test Specifications (3GPP Release 10); Part 2: Test Description for IMS NNI Interoperability".

[8]	IETF RFC 4975: "The Message Session Relay Protocol (MSRP)".
[9]	IETF RFC 4976: "Relay Extensions for the Message Session Relay Protocol (MSRP)".
[10]	IETF RFC 6135: "An Alternative Connection Model for the Message Session Relay Protocol (MSRP)".
[11]	IETF RFC 5547: "A Session Description Protocol (SDP) Offer/Answer Mechanism to Enable File Transfer".
[12]	GSMA TM RCS V5.1: "Rich Communication Suite 5.1; Advanced Communications Services and Client Specification; Version 1.0; 13 August 2012".
NOTE:	Available at: http://www.gsma.com/rcs/wp-content/uploads/2012/10/RCS5.1-UNI-V1.0.zip .
[13]	GSMA TM RCS V5.1: "Rich Communication Suite 5.1; Endorsement of 3GPP TS 29.311 Service Level Interworking for Messaging Services; Version 1.0; 13 August 2012".
NOTE:	Available at: http://www.gsma.com/rcs/wp-content/uploads/2012/10/RCS5.1-UNI-V1.0.zip .
[14]	GSMA TM RCS V5.1: "Rich Communication Suite 5.1; Endorsement of OMA CPM 1.0 Message Storage; Version 1.0; 13 August 2012".
NOTE:	Available at: http://www.gsma.com/rcs/wp-content/uploads/2012/10/RCS5.1-UNI-V1.0.zip .
[15]	GSMA TM RCS V5.1: "Rich Communication Suite 5.1; Endorsement of OMA CPM 1.0 Interworking; Version 1.0; 13 August 2012".
NOTE:	Available at: http://www.gsma.com/rcs/wp-content/uploads/2012/10/RCS5.1-UNI-V1.0.zip .
[16]	GSMA TM RCS V5.1: "Rich Communication Suite 5.1; Endorsement of OMA CPM 1.0 Conversation Functions; Version 1.0; 13 August 2012".
NOTE:	Available at: http://www.gsma.com/rcs/wp-content/uploads/2012/10/RCS5.1-UNI-V1.0.zip .
[17]	GSMA TM RCS V5.1: "Rich Communication Suite 5.1; Endorsement of OMA SIP/SIMPLE IM 1.0; Version 1.0; 13 August 2012".
NOTE:	Available at: http://www.gsma.com/rcs/wp-content/uploads/2012/10/RCS5.1-UNI-V1.0.zip .
[18]	Void.
[19]	ETSI TS 103 189: "IMS Network Testing (INT); Specification of end-to-end QoS assessment for VoLTE and RCS Interop Events or Plugtests".

2.2 Informative references

The following referenced documents are not necessary for the application of the present document but they assist the user with regard to a particular subject area.

Not applicable.

3 Abbreviations

For the purposes of the present document, the following abbreviations apply:

3GPP	3 rd Generation Partnership Project
AS	(IMS) Application Server
CF	(Test) ConFiguration
CFW	Call FloW
CN	Core Network
CPIM	Common Presence & Instant Messaging (Protocol)
CPM	Converged IP Messaging

CSCF Call Session Control Function
DNS Domain Name System
FQDN Full Qualified Domain Name
HSS Home Subscriber Server

IBCF Interconnection Border Control Gateway
II-NNI Inter-IMS Network to Network Interface

IM Instant Messaging
 IMS IP Multimedia Subsystem
 IOI Inter Operator Identifier
 IP Internet Protocol
 ISC IMS Service Control
 LBS Location Based Services

MRFC Multimedia Resource Function Controller MRFP Multimedia Resource Function Processor

MSRP Message Sending Relay Protocol NNI Network-to-Network Interface

P-CSCF Proxy CSCF
PO Point of Observation
PS Presence Server

RCS Rich Communication Suite
RLS Resource List Server
S-CSCF Serving CSCF

SDP Session Description Protocol
SIP Session Initiation Protocol
SUT System Under Test
TD Test Description
TP Test Purpose

TPLan Test Purpose Notation
TSS Test Suite Structure

UC Use Case
UE User Equipment

URI Uniform Record Identifier

XMDS XML Document Management Server

4 IMS NNI Interoperability Test Specification

4.1 Introduction

The IMS NNI Interoperability Test Descriptions (TDs) defined in the following clauses are derived from the Test Purposes (TPs) specified in TS 186 011-1 [2]. The TDs cover the services as defined in the RCS V5.1 specification [12] and the related endorsement documents [13], [14], [15], [16] and [17].

4.2 Test Prerequisites

The test prerequisites as described in TS 186 011-2 [7], clause 4.2, apply.

4.3 Test Infrastructure

The test infrastructure as described in TS 186 011-2 [7], clause 4.3, applies with the following additions.

4.3.1 Core IMS Nodes

4.3.2 External IMS core Nodes

4.3.2.1 HSS

Table 1 of TS 186 011-2 [7], clause 4.3.1.5.2, has to be extended by the following users for RCS services.

Table 1: Additional HSS sample user profiles for RCS

Private Identity	Public Identity 1 (SIP URI)	Public Identity 2 (Tel URI)	Default Public Identity	Filter criteria
userPRES_priv	userPRES	na	1	contact Presence AS
userIM_priv	userIM	na	1	contact IM AS for Instant Messaging
userFT_priv	userFT	na	1	contact IM AS for File Transfer
userSHARE_priv	userSHARE	na	1	

4.3.2.2 Specific Application Servers for RCS

Interworking between external Application Servers (AS) and the IMS core is under the scope of the present document. The ISC interface between the S-CSCF and the AS is used as a Point of Observation (PO) for NNI interoperability tests.

4.3.2.2.1 Presence Server

The presence server is an optional AS that acts as an intermediate for the user to provide Social Presence information to other users and other users to subscribe or get Social Presence information of a certain user, i.e. Presentity.

4.3.2.2.2 IM Server

The IM server is an AS within the IMS architecture that provides the IM service for the subscribers. It is responsible for a set of functions such as the control of the session setup, the enforcement of policies related to incoming or outgoing IM, the provision of information related to group members. Optionally the IM server may support "store and forward" feature.

4.3.2.2.3 Node Configuration

The AS should be configured to support the pre-requisites outlined in TS 186 011-2 [7], clause 4.2. The test descriptions in the present document assume that an AS supports the use of the IM/chat service and the following optional services: Social Presence, RCS services during a call and File transfer (see RCS V5.1 descriptions in [12] and the related endorsement documents [13], [14], [15], [16] and [17]). In the case that an AS does not support one or more of these services, only a selected subset of the test descriptions in the present document should be used for IMS core network interoperability testing, i.e. test descriptions which do not contain any pass criteria related to these supplementary services.

4.3.3 Test Configurations

The test configurations as described in TS 186 011-2 [7] clause 4.3.4 apply. It should be mentioned that test configurations for roaming scenarios are considered as optional.

4.4 Use Cases

In addition to the Use Cases in the present clause the Use Cases as described in TS 186 011-2 [7], clause 4.4 apply. It should be mentioned that Use Cases for roaming scenarios are considered as optional.

4.4.1 Capability discovery

4.4.1.1 General description

According to the RCS V5.1 specification [12] the capability or service discovery mechanism as the main process for retrieving the subset RCS services available for other contacts is based on two methods:

- capability discovery process through OPTIONS message;
- capability discovery via presence.

Capability discovery process through OPTIONS message is the default mechanism in [12] and Use Cases are described in clauses 4.4.1.2 and 4.4.1.3.

The use of capability discovery via presence method assumes that user additionally subscribed to an optional Social Presence service. In this case capability discovery can be performed using Social Presence service procedures. Use Cases for Social Presence services including capability discovery issues are described in clause 4.4.2.

It should be mentioned that in both capability discovery methods UE A and UE B should be registered on corresponding IMS networks A and B depending on the test scenarios (interworking and roaming).

4.4.1.2 UC_RCS_1_I: SIP message flow for Capability discovery process through OPTIONS message with CF_INT_CALL

The test sequence typically associated with this use case is as follows (CFW step numbers refer the call flow step numbering).

Step	Action	CF_INT_CALL
1	User A selects a contact of user B in the phone address book	Step 1
2	User B is informed about user A capabilities	Step 7
3	User A is informed about user B capabilities	Step 13

Step	Direction								Message	Comment
	D w e r ∢	UEA	M S A	I B C F A	I B C F B	I M S B	U E B	U s e r B		
1										User A selects a contact of user B in the phone address book
2			\rightarrow						OPTIONS	UE_A sends OPTIONS to IMS_A with Accept-contact header containing user A capabilities (RCS services Tags(RCS services Tags)
3			_	\rightarrow					OPTIONS	IMS_A forwards OPTIONS to IBCF_A
4					\rightarrow				OPTIONS	IBCF_A forwards OPTIONS to IBCF_B
5						\rightarrow			OPTIONS	IBCF_B forwards OPTIONS to IMS_B
6							\rightarrow		OPTIONS	IMS_B forwards OPTIONS to UE_B
7										User B is informed about user A capabilities
8						←			200 OK	UE_B responds with 200 OK to IMS_B with Contact header containing user B capabilities (RCS services Tags(RCS services Tags)
9					\leftarrow				200 OK	IMS_B forwards 200 OK to IBCF_B
10				\leftarrow					200 OK	IBCF_B forwards 200 OK to IBCF_A

Step		Direction									Message	Comment
	U		U	ı	-	I		_	ū	U		
	s e		E A	M S	B	B		M S	E B	s e		
	r		^	A	F	F		В		r		
	Α				Α	В				В		
11											200 OK	IBCF_A forwards 200 OK to IMS_A
12									200 OK	IMS_A forwards 200 OK to UE_A		
13												User A is informed about user B capabilities

4.4.1.3 UC_RCS_1_R: SIP message flow for Capability discovery process through OPTIONS message with CF_ROAM_CALL

The test sequence typically associated with this use case is as follows (CFW step numbers refer the call flow step numbering).

Step	Action	CF_ROAM_CALL
1	User A selects a contact of user B in the phone address book	Step 1
2	User B is informed about user A capabilities	Step 10
3	User A is informed about user B capabilities	Step 19

Step				Dire	ction				Message	Comment
	U s e r A	U E A	M S A	I B C F A	I B C F B	M S B	U E B	U s e r B		
1										User A selects a contact of user B in the phone address book
2			\rightarrow						OPTIONS	UE_A sends OPTIONS to IMS_A with Accept- contact header containing user A capabilities (RCS services Tags(RCS services Tags)
3				\rightarrow					OPTIONS	IMS_A forwards OPTIONS to IBCF_A
4					\rightarrow				OPTIONS	IBCF_A forwards OPTIONS to IBCF_B
5						\rightarrow			OPTIONS	IBCF_B forwards OPTIONS to IMS_B
6					←				OPTIONS	IMS_B forwards OPTIONS to IBCF_B
7				\leftarrow					OPTIONS	IBCF_B forwards OPTIONS to IBCF_A
8			\leftarrow	_					OPTIONS	IBCF_A forwards OPTIONS to IMS_A
9							\rightarrow		OPTIONS	IMS_A forwards OPTIONS to UE_B
10										User B is informed about user A capabilities
11			←	_					200 OK	UE_B responds with 200 OK to IMS_A with Contact header containing user B capabilities (RCS services Tags(RCS services Tags)
12				\rightarrow					200 OK	IMS_A forwards 200 OK to IBCF_A
13					\rightarrow				200 OK	IBCF_A forwards 200 OK to IBCF_B
14						\rightarrow			200 OK	IBCF_B forwards 200 OK to IMS_B
15					\leftarrow				200 OK	IMS_B forwards 200 OK to IBCF_B

Step		Direction								Comment
	U s e r A	U E A	I M S A	I B C F A	I B C F B	I M S B	U E B	U s e r B		
16									200 OK	IBCF_B forwards 200 OK to IBCF_A
17			\leftarrow	_					200 OK	IBCF_A forwards 200 OK to IMS_A
18		\leftarrow							200 OK	IMS_A forwards 200 OK to UE_A
19										User A is informed about user B capabilities

4.4.2 Social Presence service

4.4.2.1 General description

According to RCS specification [12] the Social Presence service is assumed to be optional.

If the Social Presence service is implemented on the network there could be also provided the capability discovery mechanism via presence as mentioned in the clause 4.4.1. In all Social Presence service Use Cases provided below the capability discovery issues are considered.

The list of Use Cases for Social Presence service include:

- Watcher subscription to presence event notification
- Watcher subscription to resource list

All of the Use Cases for Social Presence service in the present document include procedures of one user authorizing another user to see its Social Presence information.

4.4.2.2 Watcher subscription to presence event notification

4.4.2.2.1 Description

UE_B publishes its presence information and subscribes to receive notifications with watcher information. UE_A subscribes to presence information state changes of UE_B. This test requires the use of application server in IMS_B (Presence Server). The call flow path and node configuration for this use case corresponds to CF_INT_AS in case of interworking and CF_ROAM_AS in case of roaming.

The test sequence typically associated with this use case is as follows (CFW step numbers refer the call flow step numbering):

Step	Action	CF_INT_AS	CF_ROAM_AS (OPTIONAL)
1	User B publishes presence and capability information including	Step 1	Step 1
	capabilities		
2	User B is informed of its presence status update	Step 6	Step 12
3	User A selects a contact of user B in the phone address book	Step 16	Step 34
4	User B is informed about user A capabilities	Step 22	Step 43
5	User A is informed about user B capabilities	Step 28	Step 52
6	User A subscribes to presence and capability information from	Step 29	Step 53
	User B		
7	SUBSCRIPTION triggers the AS to send a NOTIFY to UE_B	Step 48	Step 72
	indicating the change to the watcher information subscriber		
8	User B receives an authorization request from User A to see its	Step 53	Step 83
	own presence and capability information		
9	User B authorizes user A to be informed of its own presence and	Step 54	Step 84
	capability information		
10	User A is informed of user B presence and capability information	Step 63	Step 93
11	User A sees user B presence and capability information	Step 68	Step 104

NOTE: These flows show presence information and capabilities being retrieved via subscription (SIP SUBSCRIBE). Due to the sensitive nature of presence information, users would only typically share such information with a "buddy list". On the other hand, sharing of capabilities would typically be permitted to be shared to all users and thus would be retrieved via an anonymous SUBSCRIBE.

4.4.2.2.2 UC_RCS_2_I: SIP message flow for watcher subscription to presence event notification with CF_INT_AS

Step					Direc	tion					Message	Comment
	U s e r A	U E A	A S A	→ 8 8 −	I B C F A	I B C F B	ш о ⊠ –	A S B	U E B	U s e r B		
1												User B publishes presence and capability information including capabilities and optionally a list of users entitled to access the presence info (a "buddy list").
2							←				PUBLISH	UE_B sends PUBLISH with information for all commonly supported presence elements and capabilities
3								\rightarrow			PUBLISH	IMS_B forwards the PUBLISH to IMS_B AS (PS)
4							\leftarrow				200 OK	IMS_B AS responds with a 200 OK to IMS_B
5									\rightarrow		200 OK	IMS_B forwards the 200 OK response to UE_B
6												User B is informed of its presence status update
7												User B subscribes to watcher event notification
8							—				SUBSCRIBE	UE_B sends a SUBSCRIBE to be informed of event watcher information (Event: presence.winfo)
9								\rightarrow			SUBSCRIBE	IMS_B forwards the SUBSCRIBE to IMS_B AS (PS)
10							\leftarrow	\dashv			200 OK	IMS_B AS responds with a 200 OK to IMS_B
11									\rightarrow		200 OK	IMS_B forwards the 200 OK response to IBCF_B

Step					Directi	on					Message	Comment
	U s	U E	A S	I M	I B	I B	I M	A S	U E	U s		
	e	Ā	Ā	S	С	С	S	В	В	e		
	r A			Α	F A	F B	В			r B		
12											NOTIFY	IMS_B AS send a NOTIFY to
							←					IMS_B containing watcher info
13											NOTIFY	(XML body of "watcherinfo+XML"). IMS_B forwards the NOTIFY
									\rightarrow			response to UE_B
14											200 OK	UE_B sends 200 OK to the NOTIFY
15)			200 OK	IMS_B forwards the 200 OK to IMS_B AS (PS)
16												User A selects a contact of user B in the phone address book
17											OPTIONS	UE_A sends OPTIONS to IMS_A
												with Accept-contact header containing user A capabilities
				\rightarrow								(RCS services Tags and the Tag
												indicating support of social
18											OPTIONS	presence) IMS_A forwards OPTIONS to
					7							IBCF_A
19						>					OPTIONS	IBCF_A forwards OPTIONS to IBCF_B
20							\rightarrow				OPTIONS	IBCF_B forwards OPTIONS to IMS_B
21									\rightarrow		OPTIONS	IMS_B forwards OPTIONS to UE_B
22												User B is informed about user A capabilities
23											200 OK	UE_B responds with 200 OK to
												IMS_B with Contact header containing user B capabilities
												(RCS services Tags and the Tag
												indicating support of social presence)
24						-					200 OK	IMS_B forwards 200 OK to IBCF_B
25					—	4					200 OK	IBCF_B forwards 200 OK to
26											200 OK	IBCF_A IBCF_A forwards 200 OK to
				•								IMS_A
27		\leftarrow									200 OK	IMS_A forwards 200 OK to UE_A User A is informed about user B
28												capabilities
29												User A subscribes to social presence information from User B
30				\rightarrow							SUBSCRIBE	UE_A sends SUBSCRIBE for "User B presence" event to IMS_A
31					>						SUBSCRIBE	IMS_A forwards the SUBSCRIBE to IBCF_A
32						>					SUBSCRIBE	IBCF_A forwards the SUBSCRIBE
33							\rightarrow				SUBSCRIBE	to IBCF_B IBCF_B forwards the SUBSCRIBE
34								\rightarrow			SUBSCRIBE	to IMS_B IMS_B forwards the SUBSCRIBE
35							<u></u>				200 OK	to IMS_B AS (PS) IMS_B AS responds with a 200 OK
36						—					200 OK	to IMS_B IMS_B forwards the 200 OK
37											200 OK	response to IBCF_B IBCF_B forwards the 200 OK
31					K	1					200 010	response to IBCF_A

Step						Direc	tion					Message	Comment
		J	טו	A	I	J –	J –	I	A	υ	U		
		s e	E A	SA	M S	B C	B C	M S	S	E B	s e		
		r	^	^	Ā	F	F	В			r		
	-	4				Α	В				В		
38												200 OK	IBCF_A forwards the 200 OK
20					ľ							200 OK	response to IMS_A
39			\leftarrow									200 OK	IMS_A forwards the 200 OK response to UE_A
40												NOTIFY	IMS_B AS sends NOTIFY to
							\leftarrow						IBCF_B indicating that the
41												NOTIFY	subscription state is pending. IBCF_B forwards NOTIFY to
41						\leftarrow						INOTH 1	IBCF_A
42					—							NOTIFY	IBCF_A forwards NOTIFY to
43												NOTIFY	IMS_A IMS_A forwards the NOTIFY to
43			\leftarrow									INOTIFT	UE A
44					_							200 OK	UE_A responds with a 200 OK to
					1								IMS_A
45						\rightarrow						200 OK	IMS_A forwards the 200 OK to IBCF_A
46												200 OK	IBCF_A forwards the 200 OK to
							\rightarrow						IBCF_B
47									\rightarrow			200 OK	IBCF_B forwards the 200 OK
48													response to IMS_B AS SUBSCRIPTION triggers the AS to
40													send a NOTIFY to UE_B indicating
													the change to the watcher
													information subscriber
49												NOTIFY	IMS_B AS sends NOTIFY to
								\leftarrow	_				IMS_B to indicate UE_B the change to the watcher information
													subscriber
50										\longrightarrow		NOTIFY	IMS_B forwards the NOTIFY to UE_B
51												200 OK	UE_B responds with a 200 OK to
													IMS_B
52									\rightarrow			200 OK	IMS_B forwards the 200 OK
53													response to IMS_B AS User B receives an authorization
33													request from User A to see its own
													presence and capability
													information (e.g. by sending a
54													PUBLISH as in step 2) User B authorizes user A to be
34													informed of its own presence and
													capability information
55												NOTIFY	IMS_B AS sends NOTIFY to
													IBCF_B with a subscription state set to active and an XML body
													containing UE_B's presence
													information ("pidf+XML").
56						\leftarrow						NOTIFY	IBCF_B sends NOTIFY to IBCF_A
57					←	_						NOTIFY	IBCF_A forwards NOTIFY to IMS_A
58												NOTIFY	IMS_A forwards the NOTIFY to
													UE_A
59					\rightarrow							200 OK	UE_A responds with a 200 OK to
60												200 OK	IMS_A IMS_A forwards the 200 OK
						7							response to IBCF_A

Step					Direc	tion					Message	Comment
	U s e r A	U E A	A S A	M S A	I B C F A	I B C F B	I M S B	A S B	U E B	U s e r B		
61						\rightarrow					200 OK	IBCF_A forwards the 200 OK response to IBCF_B
62								\rightarrow			200 OK	IBCF_B forwards the 200 OK response to IMS_B AS
63												User A is informed of user B presence and capability information

4.4.2.2.3 UC_RCS_2_R: SIP message flow for watcher subscription to presence event notification with CF_ROAM_AS

Step					Direc	tion					Message	Comment
	U s e r A	U E A	A S A	I M S A	I B C F A	I B C F B	I M S B	A S B	U E B	U s e r B		
1												User B publishes presence and capability information and optionally a list of users entitled to access the presence info (a "buddy list").
2				-							PUBLISH	UE_B sends PUBLISH with information for all commonly supported presence elements
3					\rightarrow						PUBLISH	IMS_A forwards the PUBLISH to IBCF_A
4						\rightarrow					PUBLISH	IBCF_A forwards the PUBLISH to IBCF_B
5							\rightarrow				PUBLISH	IBCF_B forwards the PUBLISH to IMS_B
6								\rightarrow			PUBLISH	IMS_B forwards the PUBLISH to IMS_B AS (PS)
7							←				200 OK	IMS_B AS responds with a 200 OK to IMS_B
8						—					200 OK	IMS_B forwards the 200 OK response to IBCF_B
9					\leftarrow						200 OK	IBCF_B forwards the 200 OK response to IBCF_A
10											200 OK	IBCF_A forwards the 200 OK response to IMS_A
11									\rightarrow		200 OK	IMS_A forwards the 200 OK response to UE_B
12												User B is informed of its presence status update
13												User B subscribes to be informed of watcher information.
14				-							SUBSCRIBE	UE_B sends a SUBSCRIBE to be informed of event watcher information (Event: presence.winfo)
15					\rightarrow						SUBSCRIBE	IMS_A forwards the SUBSCRIBE to IBCF_A
16						\rightarrow					SUBSCRIBE	IBCF_A forwards the SUBSCRIBE to IBCF_B
17							\rightarrow				SUBSCRIBE	IBCF_B forwards the SUBSCRIBE to IMS_B

Step					Direc	tion					Message	Comment
	U s	U E	A S	I M	I B	I B	I M	A S	U	U		
	e	Ā	A	S	C	C	S	В	В	e		
	r			Α	F	F B	В			r B		
18	A				A	В		\rightarrow		В	SUBSCRIBE	IMS_B forwards the SUBSCRIBE to IMS_B AS (PS)
19								_			200 OK	IMS_B AS responds with a 200 OK to IMS_B
20						\leftarrow					200 OK	IMS_B forwards the 200 OK response to IBCF_B
21					—						200 OK	IBCF_B forwards the 200 OK response to IBCF_A
22				-	\dashv						200 OK	IBCF_A forwards the 200 OK response to IMS_A
23					+				\rightarrow		200 OK	IMS_A forwards the 200 OK response to UE_B
24							—				NOTIFY	IMS_B AS send a NOTIFY to IMS_B containing watcher info (XML body of "watcherinfo+XML").
25						—					NOTIFY	IMS_B forwards the NOTIFY response to IBCF_B
26	·										NOTIFY	IBCF_B forwards the NOTIFY response to IBCF_A
27				←	-						NOTIFY	IBCF_A forwards the NOTIFY response to IMS_A
28	·							_	\rightarrow		NOTIFY	IMS_A forwards the NOTIFY response to UE_B
29				←							200 OK	UE_B sends a 200 OK to the NOTIFY
30	·				\rightarrow						200 OK	IMS_A forwards the 200 OK to IBCF_A
31	·					\rightarrow					200 OK	IBCF_A forwards the 200 OK to
32	·						\rightarrow				200 OK	IBCF_B forwards the 200 OK to IMS_B
33						·		\rightarrow			200 OK	IMS_B forwards the 200 OK to
34												User A selects a contact of user B in the phone address book
35											OPTIONS	UE_A sends OPTIONS to IMS_A with Accept-contact header containing user A capabilities (RCS services Tags and the Tag indicating support of social presence)
36											OPTIONS	IMS_A forwards OPTIONS to IBCF_A
37											OPTIONS	IBCF_A forwards OPTIONS to IBCF_B
38											OPTIONS	IBCF_B forwards OPTIONS to IMS_B
39											OPTIONS	IMS_B forwards OPTIONS to IBCF_B
40											OPTIONS	IBCF_B forwards OPTIONS to IBCF_A
41											OPTIONS	IBCF_A forwards OPTIONS to IMS_A
42											OPTIONS	IMS_A forwards OPTIONS to UE_B
43												User B is informed about user A capabilities

Step					Direc	tion					Message	Comment
	U	ר כ	A S	M –	J –		I	A	Ū	U		
	s e	E A	S A	M S	B C	B C	M S	S B	E B	s e		
	r			Ä	F	F	В	_		r		
	Α				Α	В			1,	В		
44											200 OK	UE_B responds with 200 OK to IMS_A with Contact header
												containing user B capabilities
												(RCS services Tags and the Tag
												indicating support of social
45											200 OK	presence) IMS_A forwards 200 OK to
45											200 OK	IBCF_A
46											200 OK	IBCF_A forwards 200 OK to
												IBCF_B
47											200 OK	IBCF_B forwards 200 OK to
48											200 OK	IMS_B IMS_B forwards 200 OK to
											200 011	IBCF_B
49											200 OK	IBCF_B forwards 200 OK to
											000 014	IBCF_A
50											200 OK	IBCF_A forwards 200 OK to IMS_A
51											200 OK	IMS_A forwards 200 OK to UE_A
52												User A is informed about user B
53						·						capabilities User A subscribes to social
55												presence information from User B
54											SUBSCRIBE	UE_A sends SUBSCRIBE for
				1							2112222122	"User B presence" info to IMS_A
55					\rightarrow						SUBSCRIBE	IMS_A forwards the SUBSCRIBE to IBCF_A
56											SUBSCRIBE	IBCF_A forwards the SUBSCRIBE
						7						to IBCF_B
57							\rightarrow				SUBSCRIBE	IBCF_B forwards the SUBSCRIBE
58											SUBSCRIBE	to IMS_B IMS_B forwards the SUBSCRIBE
								\rightarrow			CODOCINIDE	to IMS_B AS (PS)
59							<u> </u>				200 OK	IMS_B AS responds with a 200 OK
60					ļ						200 OK	to IMS_B IMS_B forwards the 200 OK
80						\leftarrow					200 OK	response to IBCF_B
61											200 OK	IBCF_B forwards the 200 OK
											222 014	response to IBCF_A
62				\leftarrow							200 OK	IBCF_A forwards the 200 OK response to IMS_A
63											200 OK	IMS_A forwards the 200 OK
												response to UE_A
64											NOTIFY	IMS_B AS sends NOTIFY to IBCF_B indicating a subscription
												state of pending.
65					,						NOTIFY	IBCF_B forwards NOTIFY to
												IBCF_A
66				\leftarrow							NOTIFY	IBCF_A forwards NOTIFY to IMS_A
67											NOTIFY	IMS_A forwards the NOTIFY to
												UE_A
68		-		\rightarrow							200 OK	UE_A responds with a 200 OK to
69											200 OK	IMS_A forwards the 200 OK to
					\rightarrow							IBCF_A
70						\rightarrow					200 OK	IBCF_A forwards the 200 OK to
71											200 OK	IBCF_B IBCF_B forwards the 200 OK
								\rightarrow				response to IMS_B AS

Step					Directi	ion					Message	Comment
	Us	UE	AS	I M	I B	I B	M	A S	U	Us		
	е	Ā	Ā	S	С	С	S	В	В	e		
	r A			Α	F A	F B	В			r B		
72	Ĥ											SUBSCRIPTION triggers the AS to
												send a NOTIFY to UE_B indicating the change to the watcher
												information subscriber
73											NOTIFY	IMS_B AS sends NOTIFY to IMS_B to indicate UE_B the
							—					change to the watcher information
74											NOTIFY	subscriber IMS_B forwards the NOTIFY to
/4											INOTIFY	IBCF_B
75											NOTIFY	IBCF_B forwards the NOTIFY to
76											NOTIFY	IBCF_A IBCF_A forwards the NOTIFY to
												IMS_A
77)		NOTIFY	IMS_A forwards the NOTIFY to UE_B
78				—							200 OK	UE_B responds with a 200 OK to
79			ļ				ļ				200 OK	IMS_A IMS A forwards the 200 OK
			ļ		\rightarrow		ļ					response to IBCF_A
80						>					200 OK	IBCF_A forwards the 200 OK response to IBCF_B
81							→					IBCF_B forwards the 200 OK
82											200 OK	response to IMS_B IMS_B forwards the 200 OK
02)			200 OK	response to IMS_B AS
83												User B receives an authorization request from User A to see its own
												presence and capability
84												information User B authorizes user A to be
04												informed of its own presence and
												capability information (e.g. by
85											NOTIFY	sending a PUBLISH as in step 2) IMS_B AS sends NOTIFY to
												IBCF_B with subscription state set
												to active and containing User B's presence information in a XML
												body (pidf+XML).
86					\leftarrow	-					NOTIFY	IBCF_B sends NOTIFY to IBCF_A
87				\leftarrow							NOTIFY	IBCF_A forwards NOTIFY to IMS_A
88											NOTIFY	IMS_A forwards the NOTIFY to
89											200 OK	UE_A UE_A responds with a 200 OK to
09				\rightarrow								IMS_A
90					\rightarrow						200 OK	IMS_A forwards the 200 OK response to IBCF_A
91						_					200 OK	IBCF_A forwards the 200 OK
92						1					200 OK	response to IBCF_B IBCF_B forwards the 200 OK
)			200 OK	response to IMS_B AS
93												User A is informed of user B
												presence and capability information
94												
95						\leftarrow						
96 97												
98								1)			

Step						Direc	tion					Message	Comment
	U	U	-	A	-	ı	_	ı	Α	U	U		
	s	E		S	М	В	В	M	S	E	s		
	е	Α	1	A	S	С	С	S	В	В	е		
	r				Α	F	F	В			r		
	Α					Α	В				В		
99					\leftarrow								
100						⇛							
101	ĺ		ĺ				\rightarrow	ĺ		ĺ			
102								\rightarrow					
103									\rightarrow				
104													User A sees user B presence and capability information

4.4.2.3 Watcher subscription to resource list

4.4.2.3.1 Description

UE_B publishes its presence information and subscribes to receive notifications with watcher information. User B has also authorized User A to see its presence information. User A is authorized to use resource lists which are considered to be XDMS lists of contacts provisioned in the user client and AS. UE_A subscribes to presence information state changes of a list of users containing UE_B. This test requires the use of application server in IMS_B, having the role of Presence Server (PS), and the use of application server in IMS_A, having the role of Resource List Server (RLS). The RLS and PS have also previously exchanged capabilities. The call flow path and node configuration for this use case corresponds to CF_INT_AS in case of interworking and CF_ROAM_AS in case of roaming.

The test sequence typically associated with this use case is as follows (CFW step numbers refer the call flow step numbering):

Step	Action	CF_INT_AS	CF_ROAM_AS (OPTIONAL)
1	User B publishes presence and capability information	Step 1	Step 1
2	User B is informed of its presence status update	Step 6	Step 12
3	User A subscribes to resource list previously stored in the	Step 16	Step 34
	User A client as XDMS list of contacts		
4	RLS performs authorization checks to ensure that User A	Step 19	Step 37
	is authorized to use resource lists		
5	RLS resolves watcher resource's address and subscribes	Step 26	Step 44
	for presence event notification for all the presentities		
	represented by the resource list SIP URI		
6	PS performs authorization checks on the originator to	Step 32	Step 50
	ensure it is allowed to watch the presentity		
7	RLS notifies with presence and capability information for	Step 46	Step 64
	all the presentities represented by the resource list SIP		
	URI		
8	User A sees user B presence and capability information	Step 51	Step 69

4.4.2.3.2 UC_RCS_3_I: SIP message flow for watcher subscription to resource list with CF_INT_AS

Step					Direc	ction					Message	Comment
	U s e r A	U E A	A S A	I M S A	I B C F A	I B C F B	M S B	A S B	U E B	U s e r B		
1												User B publishes presence and capability information
2							-				PUBLISH	UE_B sends PUBLISH with information for all commonly supported presence and capability elements

Step					Direct	tion					Message	Comment
	U s	U E	A S	I M	I B	I B	I M	AS	UE	U s		
	e	Ā	A	S	C	C	S	В	В	e		
	r A			Α	F A	F B	В			r B		
3	A							\rightarrow		B	PUBLISH	IMS_B forwards the PUBLISH to IMS_B AS (PS)
4							←				200 OK	IMS_B AS responds with a 200 OK to IMS_B
5									\rightarrow		200 OK	IMS_B forwards the 200 OK response to UE_B
6												User B is informed of its presence status update
7												User B subscribes to watcher event notification
8							—				SUBSCRIBE	UE_B sends a SUBSCRIBE to be informed of event watcher information (Event: presence.winfo)
9								\rightarrow			SUBSCRIBE	IMS_B forwards the SUBSCRIBE to IMS_B AS (PS)
10							\leftarrow				200 OK	IMS_B AS responds with a 200 OK to IMS_B
11									\rightarrow		200 OK	IMS_B forwards the 200 OK response to IBCF_B
12							\leftarrow				NOTIFY	IMS_B AS send a NOTIFY to IMS_B containing watcher info (XML body of "watcherinfo+XML").
13									\rightarrow		NOTIFY	IMS_B forwards the NOTIFY response to UE_B
14							\leftarrow				200 OK	UE_B sends 200 OK to the NOTIFY
15								\rightarrow			200 OK	IMS_B forwards the 200 OK to IMS_B AS (PS)
16												User A subscribes to resource list previously stored in the User A client as XDMS list of contacts
17				-							SUBSCRIBE	UE_A sends ANONYMOUS SUBSCRIBE for "presence" event with expiry time of 0 to IMS_A indicating support to "eventlist" to a resource list SIP URI
18			←	4							SUBSCRIBE	IMS_A forwards the SUBSCRIBE to IMS_A AS (RLS)
19												RLS performs authorization checks to ensure that User A is authorized to use resource lists
20				>							200 OK	IMS_A AS responds with a 200 OK to IMS_A
21											200 OK	IMS_A forwards the 200 OK response to UE_A
22				\rightarrow							NOTIFY	IMS_A AS sends NOTIFY to IMS_A
23				-							NOTIFY	IMS_A forwards the NOTIFY to UE_A
24				\rightarrow							200 OK	UE_A responds with a 200 OK to IMS_A
25				_							200 OK	IMS_A forwards the 200 OK response to IMS_A AS
26												RLS resolves watcher resource's address and subscribes for presence event notification for all the presentities represented by the resource list SIP URI

Step					Direct	ion					Message	Comment
7.00	U	U	Α	I	ı	I	I	Α	U	U	scoage	
	S	E	S	M	В	В	M	S	E	s		
	e r	Α	Α	S A	C F	C F	S B	В	В	e r		
	A			,,	A	В				В		
27											SUBSCRIBE	IMS_A AS (RLS) sends
				7								SUBSCRIBE for "presence" event to IMS_A
28											SUBSCRIBE	IMS_A forwards the SUBSCRIBE
												to IBCF_A
29						\rightarrow					SUBSCRIBE	IBCF_A forwards the SUBSCRIBE to IBCF_B
30							\rightarrow				SUBSCRIBE	IBCF_B forwards the SUBSCRIBE to IMS_B
31								\rightarrow			SUBSCRIBE	IMS_B forwards the SUBSCRIBE to IMS_B AS (PS)
32												PS performs authorization checks
												on the originator to ensure it is allowed to watch the presentity. In
												this case, User A is already
												authorized to access the presence
22											200 OK	info of User B. IMS_B AS (PS) responds with a
33							\leftarrow	_			200 OK	200 OK to IMS_B
34						\leftarrow					200 OK	IMS_B forwards the 200 OK response to IBCF_B
35											200 OK	IBCF_B forwards the 200 OK
												response to IBCF_A
36				\leftarrow							200 OK	IBCF_A forwards the 200 OK response to IMS_A
37											200 OK	IMS_A forwards the 200 OK
			<u> </u>									response to IMS_A AS (RLS)
38											NOTIFY	IMS_B AS sends a NOTIFY to
						←						IBCF_B with the presence and capability information of UE_B
												(XML body of "pidf+XML").
39					-						NOTIFY	IBCF_B forwards the NOTIFY to IBCF_A
40				—								IBCF_A forwards the NOTIFY to IMS_A
41											NOTIFY	IMS_A forwards the NOTIFY to
42				ŀ		ŀ					200 OK	IMS_A AS (RLS) IMS_A AS responds with a 200 OK
42				\rightarrow							200 OK	to IMS_A
43					\rightarrow						200 OK	IMS_A forwards the 200 OK response to IBCF_A
44						\rightarrow					200 OK	IBCF_A forwards the 200 OK
45								\rightarrow			200 OK	response to IBCF_B IBCF_B forwards the 200 OK
46												response to IMS_B AS RLS notifies with presence and
+0												capability information for all the
												presentities represented by the
47											NOTIFY	resource list SIP URI IMS_A AS sends NOTIFY to
				\rightarrow								IMS_A
48		\leftarrow		\dashv							NOTIFY	IMS_A forwards the NOTIFY to UE_A
49				\rightarrow							200 OK	UE_A responds with a 200 OK to IMS_A
50				_							200 OK	IMS_A forwards the 200 OK
51												response to IMS_A AS User A sees presence and
01												capability information of the users in the resource list.

4.4.2.3.3 UC_RCS_3_R: SIP message flow for watcher subscription to resource list with CF_ROAM_AS

Step					Directi	on					Message	Comment
	U	U E	A S	I NA	I	Ī	l M	A S	U	U		
	s e	A	A	M S	B C	B C	M S	ъ В	В	s e		
	r			Α	F	F	В			r		
4	_A_				Α	В				В		
1												User B publishes presence and capability information
2											PUBLISH	UE_B sends PUBLISH with
												information for all commonly
				Ì								supported presence and capability
3											PUBLISH	elements IMS_A forwards the PUBLISH to
					7							IBCF_A
4						→					PUBLISH	IBCF_A forwards the PUBLISH to
											DI IDI IOI I	IBCF_B
5							\rightarrow				PUBLISH	IBCF_B forwards the PUBLISH to IMS_B
6											PUBLISH	IMS_B forwards the PUBLISH to
								7				IMS_B AS (PS)
7							\leftarrow				200 OK	IMS_B AS responds with a 200 OK to IMS_B
8											200 OK	IMS_B forwards the 200 OK
												response to IBCF_B
9						4					200 OK	IBCF_B forwards the 200 OK
10											200 OK	response to IBCF_A IBCF_A forwards the 200 OK
				—								response to IMS_A
11									\rightarrow		200 OK	IMS_A forwards the 200 OK
12												response to UE_B User B is informed of its presence
												status update
13												User B subscribes to be informed
14											SUBSCRIBE	of watcher information. UE B sends a SUBSCRIBE to be
											COBCONIDE	informed of event watcher
												information (Event:
15											SUBSCRIBE	presence.winfo) IMS_A forwards the SUBSCRIBE
13)						SOBSCINIBL	to IBCF_A
16			Î			>	Ì				SUBSCRIBE	IBCF_A forwards the SUBSCRIBE
17											SUBSCRIBE	to IBCF_B IBCF_B forwards the SUBSCRIBE
17							\rightarrow				SUBSCRIBE	to IMS_B
18								\rightarrow			SUBSCRIBE	IMS_B forwards the SUBSCRIBE
19											200 OK	to IMS_B AS (PS) IMS_B AS responds with a 200 OK
												to IMS_B
20						—	4				200 OK	IMS_B forwards the 200 OK
21						1	}				200 OK	response to IBCF_B IBCF B forwards the 200 OK
					K	1						response to IBCF_A
22					4						200 OK	IBCF_A forwards the 200 OK
23						}					200 OK	response to IMS_A IMS_A forwards the 200 OK
					1	1			\rightarrow			response to UE_B
24											NOTIFY	IMS_B AS send a NOTIFY to
												IMS_B containing watcher info (XML body of "watcherinfo+XML").
25						_					NOTIFY	IMS_B forwards the NOTIFY
												response to IBCF_B

Step					Directio	n					Message	Comment
	U s	U E	A S	I M	I B	I B	I M	A S	U E	U s		
	e	Ā	Ā	S	С	С	S	В	В	e		
	r A			Α	F A	F B	В			r B		
26					<u> </u>						NOTIFY	IBCF_B forwards the NOTIFY response to IBCF_A
27				←							NOTIFY	IBCF_A forwards the NOTIFY response to IMS_A
28									\rightarrow		NOTIFY	IMS_A forwards the NOTIFY response to UE_B
29									\dashv		200 OK	UE_B sends a 200 OK to the NOTIFY
30					•						200 OK	IMS_A forwards the 200 OK to IBCF_A
31					\longrightarrow						200 OK	IBCF_A forwards the 200 OK to IBCF_B
32						 ;					200 OK	IBCF_B forwards the 200 OK to IMS_B
33								\rightarrow			200 OK	IMS_B forwards the 200 OK to IMS_B AS (PS)
34												User A subscribes to resource list previously stored in the User A client as XDMS list of contacts
35				→							SUBSCRIBE	UE_A sends ANONYMOUS SUBSCRIBE for "presence" event with expiry time of 0 to IMS_A indicating support to "eventlist" to a resource list SIP URI
36											SUBSCRIBE	IMS_A forwards the SUBSCRIBE to IMS_A AS (RLS)
37												RLS performs authorization checks to ensure that User A is authorized to use resource lists
38				\rightarrow							200 OK	IMS_A AS responds with a 200 OK to IMS_A
39		\leftarrow									200 OK	IMS_A forwards the 200 OK response to UE_A
40				\rightarrow							NOTIFY	IMS_A AS sends NOTIFY to
41		\leftarrow									NOTIFY	IMS_A forwards the NOTIFY to UE_A
42				\rightarrow							200 OK	UE_A responds with a 200 OK to IMS_A
43											200 OK	IMS_A forwards the 200 OK response to IMS_A AS
44												RLS resolves watcher resource's address and subscribes for presence event notification for all the presentities represented by the resource list SIP URI
45				\rightarrow							SUBSCRIBE	IMS_A AS (RLS) sends SUBSCRIBE for "presence" event to IMS_A
46											SUBSCRIBE	IMS_A forwards the SUBSCRIBE to IBCF_A
47					\longrightarrow						SUBSCRIBE	IBCF_A forwards the SUBSCRIBE to IBCF_B
48						 ;					SUBSCRIBE	IBCF_B forwards the SUBSCRIBE to IMS_B
49								\rightarrow			SUBSCRIBE	IMS_B forwards the SUBSCRIBE to IMS_B AS (PS)

Step					Direct	ion					Message	Comment
	U	U	Α	I	ı	I	I	Α	U	U		
	S	E	S	M	В	В	M	S B	E	S		
	e r	Α	Α	S A	C F	C F	S B	В	В	e r		
	Å			^	A	В				В		
50												PS performs authorization checks
												on the originator to ensure it is
												allowed to watch the presentity. In
												this case, User A is already
												authorized to access the presence info of User B.
51											200 OK	IMS_B AS (PS) responds with a
							\leftarrow					200 OK to IMS_B
52											200 OK	IMS_B forwards the 200 OK
												response to IBCF_B
53					←						200 OK	IBCF_B forwards the 200 OK
54											200 OK	response to IBCF_A IBCF A forwards the 200 OK
54				\leftarrow							200 OK	response to IMS_A
55											200 OK	IMS A forwards the 200 OK
			—									response to IMS_A AS (RLS)
56											NOTIFY	IMS_B AS sends a NOTIFY to
						←						IBCF_B with the presence and
												capability information of UE_B in
57											NOTIFY	an XML body ("pidf+XML"). IBCF_B forwards the NOTIFY to
31					←						NOTH 1	IBCF_A
58				,								IBCF_A forwards the NOTIFY to
												IMS_A
59			-								NOTIFY	IMS_A forwards the NOTIFY to
						ŀ	ŀ				000 014	IMS_A AS (RLS)
60				\rightarrow							200 OK	IMS_A AS responds with a 200 OK to IMS_A
61			ŀ			ŀ					200 OK	IMS_A forwards the 200 OK
					\rightarrow						200 011	response to IBCF_A
62											200 OK	IBCF_A forwards the 200 OK
						1						response to IBCF_B
63									\rightarrow		200 OK	IBCF_B forwards the 200 OK
64												response to IMS_B AS RLS notifies with presence and
04												capability information for all the
												presentities represented by the
												resource list SIP URI
65				\rightarrow							NOTIFY	IMS_A AS sends NOTIFY to
											NOTIEN	IMS_A
66		\leftarrow		\dashv							NOTIFY	IMS_A forwards the NOTIFY to UE_A
67											200 OK	UE_A responds with a 200 OK to
",			\dashv	\rightarrow							200 010	IMS_A
68											200 OK	IMS_A forwards the 200 OK
												response to IMS_A AS
69												User A sees presence and
												capability information for all of the
												users in the resource list.

4.4.3 IM/chat service

4.4.3.1 General description

IM/chat service session assumes the possibility for users to receive the following types of services:

- 1-to-1 chat (including support of notifications and file transfer within 1-to-1 chat);
- 1-to-many chat.

For all Use Cases it is assumed that UEs registered on the corresponding IMS networks and they have already performed capability discovery procedures. In particular, users subscribed to IM/chat service.

4.4.3.2 1-to-1 chat standard procedure

Following there are the expected common call flow sequences for the standard procedures of 1-to-1 chat service between RCS users.

4.4.3.2.1 UC_RCS_4_I: SIP message flow for 1-to-1 chat standard procedure with CF_INT_AS

The test sequence typically associated with this use case is as follows (CFW step numbers refer the call flow step numbering):

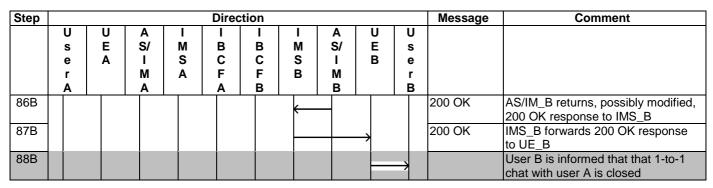
Step	Action	CF_INT_AS
1	User A selects User B in the phone address book and sends him an	Step 1
	initial message	
2	User B is informed of incoming message	Step 20
3	User A is informed that initial message was delivered to user B	Step 39
4	User B reads the initial message from user A and opens the 1-to-1 chat	Step 49
5	Users perform chatting	Step 68
6A	User A closes the 1-to-1 chat	Step 69A
6B	User B closes the 1-to-1 chat	Step 69B
7A	User A is informed that 1-to-1 chat with user B is closed	Step 88A
7B	User B is informed that 1-to-1 chat with user A is closed	Step 88B

Step					Direc	tion					Message	Comment
	U s e r A	U E A	A S/ I M A	M S A	- B C F A	- B C F B	M S B	A S/ I M B	U E B	U s e r B		
1		\rightarrow										User A selects User B in the phone address book and sends him an initial message
2				\rightarrow							INVITE	UE_A sends INVITE to IMS_A with user A initial message in the Subject header, CPIM/IMND headers and the first SDP offer indicating all specific data for MSRP connection set up
3		\leftarrow									100 Trying	IMS_A responds with a 100 Trying provisional response
4			\leftarrow								INVITE	IMS_A forwards INVITE to AS/IM_A
5				\rightarrow							100 Trying	AS/IM_A responds with a 100 Trying provisional response
6				\rightarrow							INVITE	AS/IM_A returns, possibly modified, INVITE to IMS_A
7			\leftarrow								100 Trying	IMS_A responds with a 100 Trying provisional response
8					\rightarrow						INVITE	IMS_A forwards INVITE to IBCF_A

Step					Direc	tion					Message	Comment
	U	U	A	I	Ī	Ī	I	Α	U	U		
	s e	E A	S/	M S	B C	B C	M S	S/ I	E B	s e		
	r	^	M	A	F	F	В	M		r		
	Α		Α		Α	В		В		В		
9				\leftarrow							100 Trying	IBCF_A responds with a 100 Trying
10						_					INVITE	provisional response IBCF_A forwards INVITE to IBCF_B
11						1					100 Trying	IBCF_B responds with a 100 Trying
											, ,	provisional response
12							\rightarrow				INVITE	IBCF_B forwards INVITE to IMS_B
13						←					100 Trying	IMS_B responds with a 100 Trying provisional response
14								\rightarrow			INVITE	IMS_B forwards INVITE to AS/IM_B
15											100 Trying	AS/IM_B responds with a 100
												Trying provisional response
16							←	_			INVITE	AS/IM_B returns, possibly modified, INVITE to IMS_B
17											100 Trying	IMS_B responds with a 100 Trying
								\rightarrow			, ,	provisional response
18									\rightarrow		INVITE	IMS_B forwards INVITE to UE_B
19							—				100 Trying	UE_B optionally responds with a 100 Trying provisional response
20										\rightarrow		User B is informed of incoming message
21											180 Ringing	UE_B responds to initial INVITE
							\leftarrow					with 180 Ringing to indicate that
												invitation to a 1-to-1 chat session has reached the invited user
22											180 Ringing	IMS_B forwards 180 Ringing
								7				response to AS/IM_B
23							\leftarrow				180 Ringing	AS/IM_B returns, possibly modified, 180 Ringing response to IMS_B
24						\leftarrow					180 Ringing	IMS_B forwards 180 Ringing
25											180 Ringing	response to IBCF_B IBCF_B forwards 180 Ringing
											122 51	response to IBCF_A
26				←							180 Ringing	IBCF_A forwards 180 Ringing response to IMS_A
27			\leftarrow								180 Ringing	IMS_A forwards 180 Ringing response to AS/IM_A
28											180 Ringing	AS/IM_A returns, possibly modified,
				7								180 Ringing response to IMS_A
29		\leftarrow		\dashv							180 Ringing	IMS_A forwards 180 Ringing response to UE_A
30											MESSAGE	UE B sends MESSAGE to IMS B
							\leftarrow					with delivery notification of initial
31											MESSAGE	message from user A IMS_B forwards MESSAGE to
								\rightarrow				AS/IM_B
32											MESSAGE	AS/IM_B returns, possibly modified, MESSAGE to IMS_B
33						—	_				MESSAGE	IMS_B forwards MESSAGE to
34											MESSAGE	IBCF_B IBCF_B forwards MESSAGE to
35											MESSAGE	IBCF_A IBCF_A forwards MESSAGE to
				—								IMS_A
36			\leftarrow								MESSAGE	IMS_A forwards MESSAGE to AS/IM_A
37				\rightarrow							MESSAGE	AS/IM_A returns, possibly modified, MESSAGE to IMS_A
38											MESSAGE	IMS_A forwards MESSAGE to
		`										UE_A

Step					Direct	ion					Message	Comment
	U	Ū	Α	: –	Ī	Ī	1	Α	Ū	U		
	s e	E A	S/ I	M S	B C	B C	M S	S/ I	E B	s e		
	r	^	M	A	F	F	В	М	-	r		
	A		Α		Α	В		В		В		
39												User A is informed that initial
40											200 OK	message was delivered to user B UE_A responds MESSAGE with
40				\rightarrow							200 OK	200 OK response
41			,								200 OK	IMS_A forwards 200 OK response
			`									to AS/IM_A
42				\rightarrow							200 OK	AS/IM_A returns, possibly modified, 200 OK response to IMS_A
43					\rightarrow						200 OK	IMS_A forwards 200 OK response to IBCF_A
44)					200 OK	IBCF_A forwards 200 OK response to IBCF_B
45											200 OK	IBCF_B forwards 200 OK response
							7					to IMS_B
46								\rightarrow			200 OK	IMS_B forwards 200 OK response to AS/IM_B
47											200 OK	AS/IM_B returns, possibly modified, 200 OK response to IMS_B
48									_		200 OK	IMS_B forwards 200 OK response
40									1			to UE_B
49									<u> </u>			User B reads the initial message from user A and opens the 1-to-1
									Ì			chat
50											200 OK	UE_B responds INVITE with 200
							_					OK response with SDP to indicate that the session has been accepted
												and inform A-side with specific data
												for MSRP connection set up
51								\rightarrow			200 OK	IMS_B forwards 200 OK response to AS/IM_B
52											200 OK	AS/IM_B returns, possibly modified, 200 OK response to IMS_B
53											200 OK	IMS_B forwards 200 OK response
<i></i>											200 014	to IBCF_B
54					←						200 OK	IBCF_B forwards 200 OK response to IBCF_A
55											200 OK	IBCF_A forwards 200 OK response
												to IMS_A
56			\leftarrow								200 OK	IMS_A forwards 200 OK response to AS/IM_A
57											200 OK	AS/IM_A returns, possibly modified,
				7								200 OK response to IMS_A
58		\leftarrow		\dashv							200 OK	IMS_A forwards 200 OK response to UE_A
59				\rightarrow							ACK	UE_A acknowledges the receipt of 200 OK for INVITE
60			—								ACK	IMS_A forwards ACK to AS/IM_A
61				\rightarrow							ACK	AS/IM_A returns, possibly modified,
62											ACK	ACK to IMS_A IMS_A forwards ACK to IBCF_A
63					1	→					ACK	IBCF_A forwards ACK to IBCF_B
64							\rightarrow				ACK	IBCF_B forwards ACK to IMS_B
65								\rightarrow			ACK	IMS_B forwards ACK to AS/IM_B
66											ACK	AS/IM_B returns, possibly modified,
											1.016	ACK to IMS_B
67									\rightarrow		ACK	IMS_B forwards ACK to UE_B
68										\rightarrow		Users perform chatting (see clause 5.3.1 Chat 1 to 1 via MSRP and
604												use 5.4.1 test description)
69A		7										User A closes the 1-to-1 chat

Step					Direc	tion					Message	Comment
	U	U	A	I	I	Ī	l 	A	U	U		
	s e	E A	S/ I	M S	B C	B C	M	S/	E B	s e		
	r	^	М	A	F	F	В	м	Ь	r		
	Α		Α		Α	В		В		В		
70A				\rightarrow							BYE	UE_A releases the 1-to-1 chat session with BYE
71A			\leftarrow								BYE	IMS_A forwards BYE to AS/IM_A
72A											BYE	AS/IM A returns, possibly modified,
				7								BYE to IMS_A
73A					\rightarrow						BYE	IMS_A forwards BYE to IBCF_A
74A						\rightarrow					BYE	IBCF_A forwards BYE to IBCF_B
75A							\rightarrow				BYE	IBCF_B forwards BYE to IMS_B
76A								\rightarrow			BYE	IMS_B forwards BYE to AS/IM_B
77A							\leftarrow				BYE	AS/IM_B returns, possibly modified, BYE to IMS_B
78A									\rightarrow		BYE	IMS_B forwards BYE to UE_B
79A							←				200 OK	UE_B sends 200 OK for BYE
80A											200 OK	IMS_B forwards 200 OK response
								1				to AS/IM_B
81A							\leftarrow				200 OK	AS/IM_B returns, possibly modified, 200 OK response to IMS_B
82A						\leftarrow					200 OK	IMS_B forwards 200 OK response to IBCF_B
83A											200 OK	IBCF_B forwards 200 OK response to IBCF_A
84A				—							200 OK	IBCF_A forwards 200 OK response
85A											200 OK	to IMS_A IMS_A forwards 200 OK response
86A											200 OK	to AS/IM_A AS/IM_A returns, possibly modified,
				\rightarrow								200 OK response to IMS_A
87A		\leftarrow									200 OK	IMS_A forwards 200 OK response to UE_A
88A												User A is informed that 1-to-1 chat with user B is closed
69B									—			User B close the 1-to-1 chat
70B							←				BYE	UE_B releases the 1-to-1 chat session with BYE
71B								\rightarrow			BYE	IMS_B forwards BYE to AS/IM_B
72B							←				BYE	AS/IM_B returns, possibly modified, BYE to IMS_B
73B											BYE	IMS_B forwards BYE to IBCF_B
74B					—	_ `					BYE	IBCF_B forwards BYE to IBCF_A
75B				—							BYE	IBCF_A forwards BYE to IMS_A
76B			\leftarrow	_							BYE	IMS_A forwards BYE to AS/IM_A
77B				\rightarrow							BYE	AS/IM_A returns, possibly modified, BYE to IMS_A
78B		\leftarrow		_							BYE	IMS_A forwards BYE to UE_A
79B				\rightarrow							200 OK	UE_A sends 200 OK for BYE
80B			—	_							200 OK	IMS_A forwards 200 OK response to AS/IM_A
81B				\rightarrow							200 OK	AS/IM_A returns, possibly modified,
82B					\rightarrow						200 OK	200 OK response to IMS_A IMS_A forwards 200 OK response
83B						\rightarrow					200 OK	to IBCF_A IBCF_A forwards 200 OK response
84B											200 OK	to IBCF_B IBCF_B forwards 200 OK response
85B											200 OK	to IMS_B IMS_B forwards 200 OK response
000								\rightarrow			200 UK	to AS/IM_B



4.4.3.2.2 UC_RCS_4_R: SIP message flow for 1-to-1 chat standard procedure with CF_ROAM_AS

The test sequence typically associated with this use case is as follows (CFW step numbers refer the call flow step numbering):

Step	Action	CF_ROAM_AS
1	User B selects User A in the phone address book and sends him an initial message	Step 1
2	User A is informed of incoming message	Step 26
3	User B is informed that initial message was delivered to user A	Step 51
4	User A reads the initial message from user B and opens the 1-to-1 chat	Step 64
5	Users perform chatting	Step 89
6A	User B closes the 1-to-1 chat	Step 90A
6B	User A closes the 1-to-1 chat	Step 90B
7A	User B is informed that that 1-to-1 chat with user A is closed	Step 115A
7B	User A is informed that that 1-to-1 chat with user B is closed	Step 115B

Step					Direct	tion					Message	Comment
	U s e r A	U E A	A S/ I M A	M S A	I B C F A	I B C F B	M S B	A S/ I M B	U E B	U s e r B		
1									(User B selects User A in the phone address book and sends him an initial message
2				←							INVITE	UE_B sends INVITE to IMS_A with user B initial message in the Subject header, CPIM/IMND headers and the first SDP offer indicating all specific data for MSRP connection set up
3									\rightarrow		100 Trying	IMS_A responds with a 100 Trying provisional response
4					\rightarrow						INVITE	IMS_A forwards INVITE to IBCF_A
5											100 Trying	IBCF_A responds with a 100 Trying provisional response
6						\rightarrow					INVITE	IBCF_A forwards INVITE to IBCF_B
7					←						100 Trying	IBCF_B responds with a 100 Trying provisional response
8						_	\rightarrow				INVITE	IBCF_B forwards INVITE to IMS_B
9						←					100 Trying	IMS_B responds with a 100 Trying provisional response
10								\rightarrow			INVITE	IMS_B forwards INVITE to AS/IM_B
11							\leftarrow				100 Trying	AS/IM_B responds with a 100 Trying provisional response
12							\leftarrow				INVITE	AS/IM_B returns, possibly modified, INVITE to IMS_B
13								\rightarrow			100 Trying	IMS_B responds with a 100 Trying provisional response

Step					Direc	tion					Message	Comment
	U	U	Α	ı	ı	ı	I	Α	U	U	J	
	S	E	S/	M	В	В	M	S/	E	S		
	e r	Α	M	S A	C F	C F	S	I M	В	e r		
	À		Ä	^	Ä	В		B		В		
14											INVITE	IMS_B forwards INVITE to IBCF_B
15											100 Trying	IBCF_B responds with a 100 Trying
												provisional response
16					\leftarrow						INVITE	IBCF_B forwards INVITE to IBCF_A
17						\rightarrow					100 Trying	IBCF_A responds with a 100 Trying provisional response
18											INVITE	IBCF_A forwards INVITE to IMS_A
19				ľ							100 Trying	IMS_A responds with a 100 Trying
					7							provisional response
20			\leftarrow	_							INVITE	IMS_A forwards INVITE to AS/IM_A
21				\rightarrow							100 Trying	AS/IM_A responds with a 100 Trying
22											INVITE	provisional response AS/IM_A returns, possibly modified,
22				\rightarrow							IIIVIIE	INVITE to IMS_A
23			,								100 Trying	IMS_A responds with a 100 Trying
												provisional response
24		\leftarrow									INVITE	IMS_A forwards INVITE to UE_A
25				\rightarrow							100 Trying	UE_A optionally responds with a 100 Trying provisional response
26												User A is informed of incoming
20	K											message
27											180 Ringing	UE_A responds to initial INVITE with
				\rightarrow								180 Ringing to indicate that invitation
												to a 1-to-1 chat session has reached the invited user
28											180 Ringing	IMS_A forwards 180 Ringing
20			\leftarrow									response to AS/IM_A
29				\rightarrow							180 Ringing	AS/IM_A returns, possibly modified,
											400 Dia sis s	180 Ringing response to IMS_A
30)						180 Ringing	IMS_A forwards 180 Ringing response to IBCF_A
31											180 Ringing	IBCF_A forwards 180 Ringing
						7					l so sangang	response to IBCF_B
32							→				180 Ringing	IBCF_B forwards 180 Ringing
							1				400 Dia sis s	response to IMS_B
33								\rightarrow			180 Ringing	IMS_B forwards 180 Ringing response to AS/IM_B
34											180 Ringing	AS/IM_B returns, possibly modified,
												180 Ringing response to IMS_B
35						\leftarrow					180 Ringing	IMS_B forwards 180 Ringing
26											180 Ringing	response to IBCF_B IBCF_B forwards 180 Ringing
36					\leftarrow						180 Ringing	response to IBCF_A
37											180 Ringing	IBCF_A forwards 180 Ringing
												response to IMS_A
38									\longrightarrow		180 Ringing	IMS_A forwards 180 Ringing
20											MESSACE	response to UE_B
39				\rightarrow							MESSAGE	UE_A sends MESSAGE to IMS_A with delivery notification of initial
												message from user B
40											MESSAGE	IMS_A forwards MESSAGE to
			`								MECCACE	AS/IM_A
41				\rightarrow							MESSAGE	AS/IM_A returns, possibly modified, MESSAGE to IMS_A
42											MESSAGE	IMS_A forwards MESSAGE to
					7							IBCF_A
43						\rightarrow					MESSAGE	IBCF_A forwards MESSAGE to
						1					14500405	IBCF_B
44							\rightarrow				MESSAGE	IBCF_B forwards MESSAGE to
	I	l	I	I	I	l	I	I	1	I		IMS_B

Step					Direct	ion					Message	Comment
	U	Ū	A C/	I		1	l N	A	U L	U		
	s e	E A	S/	M S	B C	B C	M S	S/	E B	s e		
	r	,	M	A	F	F	В	M		r		
45	Α		Α		Α	В		В		В	MECCACE	IMC D forwards MECCACE to
45								\rightarrow			MESSAGE	IMS_B forwards MESSAGE to AS/IM_B
46							\leftarrow				MESSAGE	AS/IM_B returns, possibly modified, MESSAGE to IMS_B
47											MESSAGE	IMS_B forwards MESSAGE to IBCF_B
48					←						MESSAGE	IBCF_B forwards MESSAGE to IBCF_A
49					4						MESSAGE	IBCF_A forwards MESSAGE to IMS_A
50									\rightarrow		MESSAGE	IMS_A forwards MESSAGE to UE_B
51									\vdash	\rightarrow		User B is informed that initial message was delivered to user A
52											200 OK	UE_B responds MESSAGE with 200 OK response
53					-						200 OK	IMS_A forwards 200 OK response to IBCF_A
54)					200 OK	IBCF_A forwards 200 OK response to IBCF_B
55							\rightarrow				200 OK	IBCF_B forwards 200 OK response to IMS_B
56								\rightarrow			200 OK	IMS_B forwards 200 OK response to AS/IM_B
57							←				200 OK	AS/IM_B returns, possibly modified, 200 OK response to IMS_B
58							_				200 OK	IMS_B forwards 200 OK response to IBCF_B
59											200 OK	IBCF_B forwards 200 OK response to IBCF_A
60				←	_						200 OK	IBCF_A forwards 200 OK response to IMS_A
61											200 OK	IMS_A forwards 200 OK response to AS/IM_A
62				\rightarrow							200 OK	AS/IM_A returns, possibly modified,
63		\leftarrow									200 OK	ACK to IMS_A IMS_A forwards ACK to UE_A
64												User A reads the initial message
		7										from user B and opens the 1-to-1 chat
65											200 OK	UE_A responds INVITE with 200 OK
				\rightarrow								response with SDP to indicate that the session has been accepted and
												inform B-side with specific data for
66											200 OK	MSRP connection set up IMS_A forwards 200 OK response to
67			Ĺ								200 OK	AS/IM_A AS/IM_A returns, possibly modified,
68					_						200 OK	200 OK response to IMS_A IMS_A forwards 200 OK response to
69						١					200 OK	IBCF_A IBCF_A forwards 200 OK response
70											200 OK	to IBCF_B IBCF_B forwards 200 OK response
71											200 OK	to IMS_B IMS_B forwards 200 OK response to
								-				AS/IM_B
72							\leftarrow				200 OK	AS/IM_B returns, possibly modified, 200 OK response to IMS_B

Step					Direct	ion					Message	Comment
	U	ا 0	A	ı	1		: –	A	Ū	U		
	s e	E A	S/ I	M S	B C	B C	M S	S/ I	E B	s e		
	r	^	М.	Ă	F	F	В	M		r		
	Α		Α		Α	В		В		В		
73						\leftarrow					200 OK	IMS_B forwards 200 OK response to IBCF_B
74					←						200 OK	IBCF_B forwards 200 OK response to IBCF_A
75											200 OK	IBCF_A forwards 200 OK response to IMS_A
76									\rightarrow		200 OK	IMS_A forwards 200 OK response to UE_B
77											ACK	UE_B acknowledges the receipt of 200 OK for INVITE
78					\rightarrow						ACK	IMS_A forwards ACK to IBCF_A
79						\rightarrow					ACK	IBCF_A forwards ACK to IBCF_B
80							\rightarrow				ACK	IBCF_B forwards ACK to IMS_B
81								\rightarrow			ACK	IMS B forwards ACK to AS/IM B
82								1			ACK	AS/IM_B returns, possibly modified,
02							\leftarrow				, tort	ACK to IMS_B
83											ACK	IMS_B forwards ACK to IBCF_B
84											ACK	IBCF_B forwards ACK to IBCF_A
85					_ `						ACK	IBCF_A forwards ACK to IMS_A
86				_ `							ACK	IMS_A forwards ACK to AS/IM_A
87			ì								ACK	AS/IM_A returns, possibly modified,
				\rightarrow								ACK to IMS_A
88		\leftarrow		-							ACK	IMS_A forwards ACK to UE_A
89												Users perform chatting (see clause
	\vdash									\rightarrow		5.3.1 Chat 1 to 1 via MSRP and
004												use 5.4.1 test description)
90A									\leftarrow		5)/5	User B closes the 1-to-1 chat
91A				\leftarrow				+			BYE	UE_B releases the 1-to-1 chat session with BYE
92A)						BYE	IMS_A forwards BYE to IBCF_A
93A						\rightarrow					BYE	IBCF_A forwards BYE to IBCF_B
94A							\rightarrow				BYE	IBCF_B forwards BYE to IMS_B
95A								\rightarrow			BYE	IMS_B forwards BYE to AS/IM_B
96A								_			BYE	AS/IM_B returns, possibly modified, BYE to IMS_B
97A											BYE	IMS_B forwards BYE to IBCF_B
98A											BYE	IBCF_B forwards BYE to IBCF_A
				,								
99A											BYE	IBCF_A forwards BYE to IMS_A
100A			\leftarrow								BYE	IMS_A forwards BYE to AS/IM_A
101A				\rightarrow							BYE	AS/IM_A returns, possibly modified,
1004		,									BYE	BYE to IMS_A IMS_A forwards BYE to UE_A
102A				_								
103A				7							200 OK	UE_A sends 200 OK for BYE
104A			-	\dashv							200 OK	IMS_A forwards 200 OK response to AS/IM_A
105A				\rightarrow							200 OK	AS/IM_A returns, possibly modified, 200 OK response to IMS_A
106A)						200 OK	IMS_A forwards 200 OK response to IBCF_A
107A)					200 OK	IBCF_A forwards 200 OK response to IBCF_B
108A							\rightarrow				200 OK	IBCF_B forwards 200 OK response to IMS_B
109A								\rightarrow			200 OK	IMS_B forwards 200 OK response to
	I		1	l	1	I	l	l	I	1		AS/IM_B

Step					Direct	ion					Message	Comment
	U	U	A		1	_	ı	Α	U	U		
	S	E A	S/	M S	В	B C	M S	S/	E B	S		
	e r	A	м	A	C F	F	ъ В	M	P	e r		
	À		A	^	À	В		В		В		
110A							<u> </u>				200 OK	AS/IM_B returns, possibly modified, 200 OK response to IMS_B
111A						—					200 OK	IMS_B forwards 200 OK response to IBCF_B
112A											200 OK	IBCF_B forwards 200 OK response
113A				.							200 OK	to IBCF_A IBCF_A forwards 200 OK response
114A									\rightarrow		200 OK	to IMS_A IMS_A forwards 200 OK response to UE_B
115A										\rightarrow		User B is informed that that 1-to-1
90B		_										chat with user A is closed User A closes the 1-to-1 chat
90B 91B											BYE	UE A releases the 1-to-1 chat
916				\rightarrow							BIC	session with BYE
92B			\leftarrow	_							BYE	IMS_A forwards BYE to AS/IM_A
93B				\rightarrow							BYE	AS/IM_A returns, possibly modified, BYE to IMS_A
94B)						BYE	IMS_A forwards BYE to IBCF_A
95B						\rightarrow					BYE	IBCF_A forwards BYE to IBCF_B
96B							\rightarrow				BYE	IBCF_B forwards BYE to IMS_B
97B								\rightarrow			BYE	IMS_B forwards BYE to AS/IM_B
98B							←				BYE	AS/IM_B returns, possibly modified, BYE to IMS_B
99B						<u> </u>					BYE	IMS_B forwards BYE to IBCF_B
100B						_ [`					BYE	IBCF_B forwards BYE to IBCF_A
101B											BYE	IBCF_A forwards BYE to IMS_A
102B									\rightarrow		BYE	IMS_A forwards BYE to UE_B
103B											200 OK	UE B sends 200 OK for BYE
104B)						200 OK	IMS_A forwards 200 OK response to IBCF_A
105B						→					200 OK	IBCF_A forwards 200 OK response to IBCF_B
106B							\rightarrow				200 OK	IBCF_B forwards 200 OK response to IMS_B
107B								\rightarrow			200 OK	IMS_B forwards 200 OK response to AS/IM_B
108B							—	_			200 OK	AS/IM_B returns, possibly modified, 200 OK response to IMS_B
109B						←	_				200 OK	IMS_B forwards 200 OK response to IBCF_B
110B											200 OK	IBCF_B forwards 200 OK response to IBCF_A
111B					_						200 OK	IBCF_A forwards 200 OK response to IMS_A
112B											200 OK	IMS_A forwards 200 OK response to AS/IM_A
113B				\rightarrow							200 OK	AS/IM_A returns, possibly modified, 200 OK response to IMS_A
114B				4							200 OK	IMS_A forwards 200 OK response to UE_A
115B												User A is informed that that 1-to-1 chat with user B is closed

4.4.3.3 File transfer within 1-to-1 chat

Following there are the expected common call flow sequences for IM/chat service when the incoming one-to-one IM session requests is accepted prior to a FT session occurring.

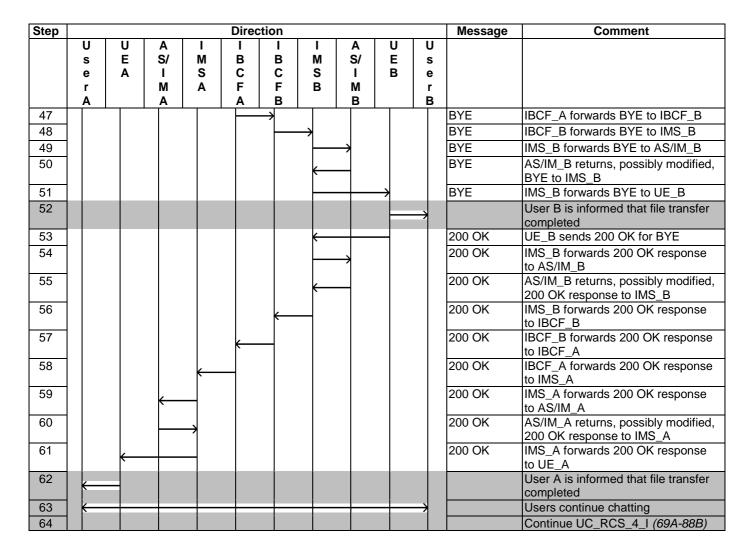
4.4.3.3.1 UC_RCS_5_I: SIP message flow for file transfer within 1-to-1 chat with CF_INT_AS

The test sequence typically associated with this use case is as follows (CFW step numbers refer the call flow step numbering):

Step	Action	CF_INT_AS
1	User A selects User B in the phone address book and sends	UC_RCS_4_I Step 1
	him an initial message	
2	User B is informed of incoming message	UC_RCS_4_I Step 20
3	User A is informed that initial message was delivered to user B	UC_RCS_4_I Step 39
4	User B reads the initial message from user A and opens the 1-to-1 chat	UC_RCS_4_I Step 49
5	Users perform chatting	UC_RCS_4_I Step 68
6	User A initiates a file transfer to user B	Step 2
7	User B is informed of incoming file and accepts the transfer	Step 21
8	User A is informed that file transfer has been accepted by user B	Step 31
9	File transfer starts	Step 41
10	File transfer completed (size checked)	Step 42
11	User B is informed that file transfer completed	Step 52
12	User A is informed that file transfer completed	Step 62
13	Users continue chatting	Step 63
14A	User A closes the 1-to-1 chat	UC_RCS_4_I Step 69A
14B	User B closes the 1-to-1 chat	UC_RCS_4_I Step 69B
15A	User A is informed that 1-to-1 chat with user B is closed	UC_RCS_4_I Step 88A
15B	User B is informed that 1-to-1 chat with user A is closed	UC_RCS_4_I Step 88B

Step					Direct	ion					Message	Comment
опор	U s e	U E A	A S/ I	I M S	I B C	I B C	I M S	A S/ I	U E B	U s e	meeage	
	r A		M A	Α	F A	F B	В	M B		r B		
1					A	<u> </u>						Follow UC_RCS_4_I (1-68)
2		\rightarrow										User A initiates a file transfer to user B
3				→							INVITE	UE_A sends INVITE to IMS_A to establish a new session with the SDP offer indicating all specific data for a new MSRP connection set up
4		\leftarrow									100 Trying	IMS_A responds with a 100 Trying provisional response
5			\leftarrow								INVITE	IMS_A forwards INVITE to AS/IM_A
6				\rightarrow							100 Trying	AS/IM_A responds with a 100 Trying provisional response
7				\rightarrow							INVITE	AS/IM_A returns, possibly modified, INVITE to IMS_A
8			\leftarrow								100 Trying	IMS_A responds with a 100 Trying provisional response
9					\rightarrow						INVITE	IMS_A forwards INVITE to IBCF_A
10				←							100 Trying	IBCF_A responds with a 100 Trying provisional response
11						\rightarrow					INVITE	IBCF_A forwards INVITE to IBCF_B
12											100 Trying	IBCF_B responds with a 100 Trying provisional response
13							\rightarrow				INVITE	IBCF_B forwards INVITE to IMS_B

Step					Direct	ion					Message	Comment
	U s	U E	A S/	I M	I B	I B	I M	A S/	U E	U		
	e	Ā	I	S	C	C	S	Ī	В	e		
	r		M	Α	F	F	В	M		r B		
14	A		A		A	B ←		В		B	100 Trying	IMS_B responds with a 100 Trying
15								_			INVITE	provisional response IMS_B forwards INVITE to AS/IM_B
16											100 Trying	AS/IM_B responds with a 100
												Trying provisional response
17							←				INVITE	AS/IM_B returns, possibly modified, INVITE to IMS_B
18								\rightarrow			100 Trying	IMS_B responds with a 100 Trying provisional response
19									\rightarrow		INVITE	IMS_B forwards INVITE to UE_B
20											100 Trying	UE_B optionally responds with a 100 Trying provisional response
21										\rightarrow		User B is informed of incoming file and accepts the transfer
22											200 OK	UE_B responds INVITE with 200
							_					OK response with SDP to indicate that the session has been accepted
							(and inform A-side with specific data for a new MSRP connection set up
23								\rightarrow			200 OK	IMS_B forwards 200 OK response
24							_				200 OK	to AS/IM_B AS/IM_B returns, possibly modified,
25											200 OK	200 OK response to IMS_B IMS_B forwards 200 OK response
26											200 OK	to IBCF_B IBCF_B forwards 200 OK response
27											200 OK	to IBCF_A IBCF_A forwards 200 OK response
21					-							to IMS_A
28			\leftarrow								200 OK	IMS_A forwards 200 OK response to AS/IM_A
29				\rightarrow							200 OK	AS/IM_A returns, possibly modified, 200 OK response to IMS_A
30		\leftarrow									200 OK	IMS_A forwards 200 OK response to UE_A
31	←											User A is informed that file transfer has been accepted by user B
32				\rightarrow							ACK	UE_A acknowledges the receipt of 200 OK for INVITE
33			—								ACK	IMS_A forwards ACK to AS/IM_A
34				\rightarrow							ACK	AS/IM_A returns, possibly modified, ACK to IMS_A
35					\rightarrow						ACK	IMS_A forwards ACK to IBCF_A
36)					ACK	IBCF_A forwards ACK to IBCF_B
37							\rightarrow				ACK	IBCF_B forwards ACK to IMS_B
38								\rightarrow			ACK	IMS_B forwards ACK to AS/IM_B
39							←				ACK	AS/IM_B returns, possibly modified, ACK to IMS_B
40									\rightarrow		ACK	IMS_B forwards ACK to UE_B
41	—									\rightarrow		File transfer starts (see clause 5.3.3 and use 5.4.1 test description)
42												File transfer completed (size checked)
43				-							BYE	UE_A releases the file transfer session with BYE
44				4							BYE	IMS_A forwards BYE to AS/IM_A
45				\rightarrow							BYE	AS/IM_A returns, possibly modified,
46					\rightarrow						BYE	BYE to IMS_A IMS_A forwards BYE to IBCF_A
	1		1	1	1		1	1	1		1	, –

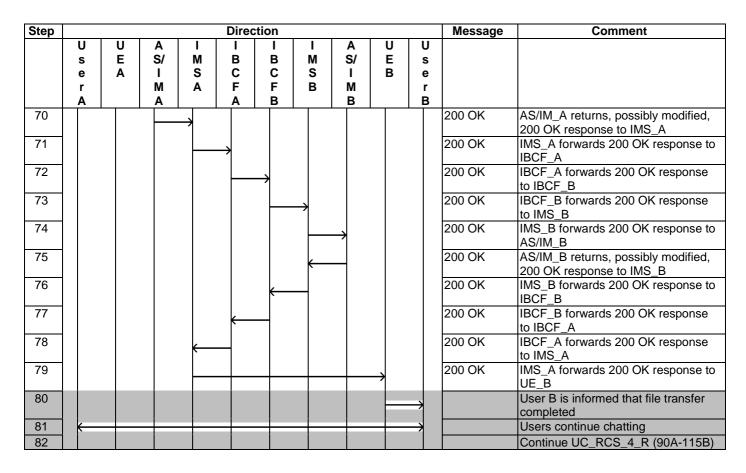


4.4.3.3.2 UC_RCS_5_R: SIP message flow for file transfer within 1-to-1 chat with CF_ROAM_AS

Step	Action	CF_INT_AS
1	User B selects User A in the phone address book and sends him an initial message	UC_RCS_4_R Step 1
2	User A is informed of incoming message	UC_RCS_4_R Step 26
3	User B is informed that initial message was delivered to user A	UC_RCS_4_R Step 51
4	User A reads the initial message from user B and opens the 1-to-1 chat	UC_RCS_4_R Step 64
5	Users perform chatting	UC_RCS_4_R Step 89
6	User B initiates a file transfer to user A	Step 2
7	User A is informed of incoming file and accepts the transfer	Step 27
8	User B is informed that file transfer has been accepted by user B	Step 40
9	File transfer starts	Step 53
10	File transfer completed (size checked)	Step 54
11	User A is informed that file transfer completed	Step 67
12	User B is informed that file transfer completed	Step 80
13	Users continue chatting	Step 81
14A	User B closes the 1-to-1 chat	UC_RCS_4_R Step 90A
14B	User A closes the 1-to-1 chat	UC_RCS_4_R Step 90B
15A	User B is informed that that 1-to-1 chat with user A is closed	UC_RCS_4_R Step 115A
15B	User A is informed that that 1-to-1 chat with user B is closed	UC_RCS_4_R Step 115B

Step					Direction	on					Message	Comment
	U	חר	A	I	_ D	J –	I) A	ΜС	U		
	s e	E A	S/	M S	B C	B C	M S	S/ I	B	s e		
	r		M	Ā	F	F	В	M		r		
4	_ A _		Α _		A	В		В		В		F-II IIO DOG 4 D (4 00)
2	ŀ											Follow UC_RCS_4_R (1-89) User B initiates a file transfer to user
									\leftarrow			A
3											INVITE	UE_B sends INVITE to IMS_A to
				←								establish a new session with the SDP offer indicating all specific data
												for a new MSRP connection set up
4									\rightarrow		100 Trying	IMS_A responds with a 100 Trying
5											INVITE	provisional response IMS_A forwards INVITE to IBCF_A
6					1						100 Trying	IBCF_A responds with a 100 Trying
ŭ					1						, ,	provisional response
7											INVITE	IBCF_A forwards INVITE to IBCF_B
8											100 Trying	IBCF_B responds with a 100 Trying provisional response
9							>				INVITE	IBCF_B forwards INVITE to IMS_B
10											100 Trying	IMS_B responds with a 100 Trying provisional response
11								→			INVITE	IMS_B forwards INVITE to AS/IM_B
12							,				100 Trying	AS/IM_B responds with a 100 Trying
4.0											IN 0.475	provisional response
13											INVITE	AS/IM_B returns, possibly modified, INVITE to IMS_B
14)			100 Trying	IMS_B responds with a 100 Trying provisional response
15											INVITE	IMS_B forwards INVITE to IBCF_B
16							>				100 Trying	IBCF_B responds with a 100 Trying provisional response
17						_					INVITE	IBCF_B forwards INVITE to IBCF_A
18						•					100 Trying	IBCF_A responds with a 100 Trying
19											INVITE	provisional response IBCF_A forwards INVITE to IMS_A
20											100 Trying	IMS_A responds with a 100 Trying
24											INIV/ITE	provisional response
21											INVITE 100 Trying	IMS_A forwards INVITE to AS/IM_A AS/IM_A responds with a 100 Trying
)							100 Trying	provisional response
23				>							INVITE	AS/IM_A returns, possibly modified, INVITE to IMS_A
24				4							100 Trying	IMS_A responds with a 100 Trying provisional response
25		\leftarrow									INVITE	IMS_A forwards INVITE to UE_A
26				→							100 Trying	UE_A optionally responds with a 100
27												Trying provisional response User A is informed of incoming file
00											200 011	and accepts the transfer
28											200 OK	UE_A responds INVITE with 200 OK response with SDP to indicate that
				*								the session has been accepted and
												inform B-side with specific data for a new MSRP connection set up
29											200 OK	IMS_A forwards 200 OK response to
				1								AS/IM_A
30				*							200 OK	AS/IM_A returns, possibly modified, 200 OK response to IMS_A
31											200 OK	IMS_A forwards 200 OK response to
	I	I	I	1	I		1	1	1	J		IBCF_A

Step					Direction	on					Message	Comment
	U	Ū	A	I		I	ı	A	U	U		
	s e	E A	S/	M S	B C	B C	M S	S/ I	E B	s e		
	r	^	M	Ā	F	F	В	M	"	r		
	Α		Α		Α	В		В		В		
32						•					200 OK	IBCF_A forwards 200 OK response to IBCF_B
33							\rightarrow				200 OK	IBCF_B forwards 200 OK response to IMS_B
34								\rightarrow			200 OK	IMS_B forwards 200 OK response to AS/IM_B
35							—				200 OK	AS/IM_B returns, possibly modified, 200 OK response to IMS_B
36											200 OK	IMS_B forwards 200 OK response to IBCF_B
37											200 OK	IBCF_B forwards 200 OK response to IBCF_A
38											200 OK	IBCF_A forwards 200 OK response to IMS_A
39									\rightarrow		200 OK	IMS_A forwards 200 OK response to UE_B
40												User B is informed that file transfer
41				,							ACK	has been accepted by user B UE_B acknowledges the receipt of
												200 OK for INVITE
42				\rightarrow	1						ACK	IMS_A forwards ACK to IBCF_A
43					—	•					ACK	IBCF_A forwards ACK to IBCF_B
44							\rightarrow				ACK	IBCF_B forwards ACK to IMS_B
45								\rightarrow			ACK	IMS_B forwards ACK to AS/IM_B
46											ACK	AS/IM_B returns, possibly modified, ACK to IMS_B
47						\leftarrow	_				ACK	IMS_B forwards ACK to IBCF_B
48					\longleftarrow	-					ACK	IBCF_B forwards ACK to IBCF_A
49					-						ACK	IBCF_A forwards ACK to IMS_A
50			←—	_							ACK	IMS_A forwards ACK to AS/IM_A
51				>							ACK	AS/IM_A returns, possibly modified, ACK to IMS_A
52		\leftarrow									ACK	IMS_A forwards ACK to UE_A
53	—									\rightarrow		File transfer starts (see clause 5.3.3
54												and use 5.4.1 test description) File transfer completed (size
											DVE	checked)
55				K			+				BYE	UE_B releases the file transfer session with BYE
56					ł						BYE	IMS_A forwards BYE to IBCF_A
57				1	\longmapsto						BYE	IBCF_A forwards BYE to IBCF_B
58				1			\rightarrow				BYE	IBCF_B forwards BYE to IMS_B
59				1			-	\rightarrow			BYE	IMS_B forwards BYE to AS/IM_B
60							—	_			BYE	AS/IM_B returns, possibly modified, BYE to IMS_B
61											BYE	IMS_B forwards BYE to IBCF_B
62				1		4					BYE	IBCF_B forwards BYE to IBCF_A
63											BYE	IBCF_A forwards BYE to IMS_A
64				<u> </u>							BYE	IMS_A forwards BYE to AS/IM_A
65				>							BYE	AS/IM_A returns, possibly modified, BYE to IMS_A
66											BYE	IMS_A forwards BYE to UE_A
67											512	User A is informed that file transfer
												completed
68				>							200 OK	UE_A sends 200 OK for BYE
69											200 OK	IMS_A forwards 200 OK response to AS/IM_A
	Ţ	1	I	l	1	1	1	I	Ţ	I		70/11VI_7



4.4.3.4 1-to-many chat

4.4.3.4.1 UC_RCS_6_I: SIP message flow for 1-to-many chat with CF_INT_AS

Following there are the expected common call flow sequences for normal procedure of 1-to-many chat. It is assumed that in 1-to-many chat there should be at least one additional user C, but for the clarity in the call flow sequences only two users presented since the message flow for UE_C is the same as for the UE_B.

NOTE 1: In this Use Case AS/IM_A server assumes to be a Controlling IM server for 1-to-many Chat sessions and UE_A should have configured IM CONF-FCTY-URI (conference factory uri).

NOTE 2: According to RCS specification [12] delivery and display notifications in 1-to-many Chat are not required and therefore not presented in this Use Case CFW.

Step	Action	CF_INT_AS
1	User A initiates a 1-to-many Chat with User B and User C by sending initial message	Step 1
2	User A is informed that the 1-to-many Chat is established	Step 8
3	User B is informed of incoming invitation from User A to join the 1-to-many Chat	Step 25
4	User B reads the initial message and accepts the 1-to-many Chat invitation	Step 26
5	User A is notified with list of 1-to-many Chat participants	Step 47
6	User B is notified with list of 1-to-many Chat participants	Step 71
7	Users perform messaging in the 1-to-many Chat	Step 79
8A	User B leaves the 1-to-many Chat	Step 80A
8B	User A leaves the 1-to-many Chat	Step 80B
9A	User B is informed that he has left the 1-to-many Chat	Step 95A
9B	User A is informed that he has left the 1-to-many Chat	Step 85B
10A	User A is notified that all other users have left the 1-to-many Chat	Step 98A
10B	User B is notified that all other users have left the 1-to-many Chat	Step 93B

Step	Action	CF_INT_AS
11A	User A leaves the 1-to-many Chat	Step 101A
11B	User B leaves the 1-to-many Chat	Step 101B
12A	User A is informed that the 1-to-many Chat has ended	Step 106A
12B	User B is informed that the 1-to-many Chat has ended	Step 116B

Step					Direct	ion					Message	Comment
	U		Α	. –	_	I	I	Α	Ū	U		
	S		S/	M	В	В	M	S/	E	S		
	e	A	М	S	C F	C F	S B	M	В	e		
	r A		A	A	Ā	В	В	B		r B		
1												User A initiates a 1-to-many Chat
												with User B and User C by
												sending initial message
2											INVITE	UE_A sends INVITE to IMS_A
												with Request-URI set to IM
												CONF-FCTY-URI (conference factory uri), MIME resource-list
				1								body including invited IM Users
												and the first SDP offer indicating
												all specific data for MSRP
												connection set up
3		\leftarrow		-							100 Trying	IMS_A responds with a 100
4			,								INVITE	Trying provisional response IMS A forwards INVITE to
4											IIIVIIE	AS/IM_A
5											100 Trying	AS/IM_A responds with a 100
				1								Trying provisional response
6											200 OK	AS/IM_A responds INVITE with
												200 OK response with IM session
												Identity allocated for the current
												1-to-many Chat to indicate that the session has been accepted
												and SDP to inform A-side with
												specific data for MSRP
												connection set up
7				4							200 OK	IMS_A forwards 200 OK
												response to AS/IM_A
8	-											User A is informed that the 1-to-
9											ACK	many Chat is established
9				7							ACK	UE_A acknowledges the receipt of 200 OK for INVITE
10											ACK	IMS_A forwards ACK to AS/IM_A
11											INVITE	AS/IM_A sends INVITE to UE_B
''											III VIIL	with IM session identity (allocated
				7								for the current 1-to-many Chat)
												and IM address of the Inviting IM
												UE (UE_A)
12				1							100 Trying	IMS_A responds with a 100
13											INVITE	Trying provisional response IMS_A forwards INVITE to
												IBCF_A
14											100 Trying	IBCF_A responds with a 100 Trying provisional response
15						>					INVITE	IBCF_A forwards INVITE to
40											100 T :	IBCF_B
16					—						100 Trying	IBCF_B responds with a 100 Trying provisional response
17						-	\rightarrow				INVITE	IBCF_B forwards INVITE to
												IMS_B
18						\leftarrow	\exists				100 Trying	IMS_B responds with a 100
<u></u>		I		I		l	I	l	l	l		Trying provisional response

Step					Direc	tion					Message	Comment
	U	Ū	A	I	I	Ī	I 	A	Ū	U		
	s e	E A	S/	M S	B C	B C	M S	S/	E B	s e		
	r	^	М	A	F	F	В	M		r		
	Α		Α		Α	В		В		В		
19								\rightarrow			INVITE	IMS_B forwards INVITE to AS/IM_B
20							←				100 Trying	AS/IM_B responds with a 100 Trying provisional response
21							\leftarrow				INVITE	AS/IM_B returns, possibly modified, INVITE to IMS_B
22								\rightarrow			100 Trying	IMS_B responds with a 100 Trying provisional response
23)		INVITE	IMS_B forwards INVITE to UE_B
24							\leftarrow				100 Trying	UE_B optionally responds with a 100 Trying provisional response
25												User B is informed of incoming
												invitation from User A to join the 1-to-many Chat
26												User B reads the initial message
												and accepts the 1-to-many Chat invitation
27											200 OK	UE_B responds INVITE with 200
							_					OK response with SDP to indicate that the session has
												been accepted and inform
												AS/IM_A with specific data for
												MSRP connection set up
28								\rightarrow			200 OK	IMS_B forwards 200 OK response to AS/IM_B
29											200 OK	AS/IM_B returns, possibly
							\leftarrow					modified, 200 OK response to
											222 214	IMS_B
30						\leftarrow					200 OK	IMS_B forwards 200 OK response to IBCF_B
31					\leftarrow						200 OK	IBCF_B forwards 200 OK response to IBCF_A
32				<u> </u>							200 OK	IBCF_A forwards 200 OK
												response to IMS_A
33			\leftarrow								200 OK	IMS_A forwards 200 OK response to AS/IM_A
34				\rightarrow							ACK	AS/IM_A acknowledges the
												receipt of 200 OK for INVITE
35					\rightarrow						ACK	IMS_A forwards ACK to IBCF_A
36						\rightarrow					ACK	IBCF_A forwards ACK to IBCF_B
37							\rightarrow				ACK	IBCF_B forwards ACK to IMS_B
38								\rightarrow			ACK	IMS_B forwards ACK to AS/IM_B
39							\leftarrow				ACK	AS/IM_B returns, possibly modified, ACK to IMS_B
40									\rightarrow		ACK	IMS_B forwards ACK to UE_B
41				\rightarrow							SUBSCRIBE	UE_A subscribes to the
42			—								SUBSCRIBE	conference event package IMS_A forwards SUBCRIBE to
												AS/IM_A
43				7							200 OK	AS/IM_A sends 200 OK for SUBSCRIBE
44											200 OK	IMS_A forwards 200 OK response to UE_A

Step					Directi	on					Message	Comment
	U	Ū	A	I	I	1	I	Α	Ū	U		
	s e	E A	S/	M S	B C	B C	M S	S/ I	E B	s e		
	r		M	A	F	F	В	M	"	r		
	Α		Α		Α	В		В	1	В		
45				\rightarrow							NOTIFY	AS/IM_A sends NOTIFY to UE_A with list of 1-to-many Chat
												participants
46											NOTIFY	IMS_A forwards the NOTIFY to UE_A
47	(User A is notified with list of 1-to- many Chat participants
48				\rightarrow							200 OK	UE_A responds with 200 OK to IMS_A
49			\leftarrow								200 OK	IMS_A forwards the 200 OK
50											SUBSCRIBE	response to AS/IM_A UE_B subscribes to the
							(conference event package
51)			SUBSCRIBE	IMS_B forwards SUBSCRIBE to AS/IM_B
52											SUBSCRIBE	AS/IM_B returns, possibly
												modified, SUBSCRIBE to IMS_B
53						\leftarrow					SUBSCRIBE	IMS_B forwards SUBSCRIBE to IBCF_B
54					—						SUBSCRIBE	IBCF_B forwards SUBSCRIBE to
												IBCF_A
55				←							SUBSCRIBE	IBCF_A forwards SUBSCRIBE to IMS_A
56			-								SUBSCRIBE	IMS_A forwards SUBSCRIBE to AS/IM_A
57				→							200 OK	AS/IM_A sends 200 OK for SUBSCRIBE
58					\rightarrow						200 OK	IMS_A forwards 200 OK response to IBCF_A
59						>					200 OK	IBCF_A forwards 200 OK response to IBCF_B
60							\rightarrow				200 OK	IBCF_B forwards 200 OK
											222 214	response to IMS_B
61								7			200 OK	IMS_B forwards 200 OK response to AS/IM_B
62											200 OK	AS/IM_B returns, possibly
												modified, 200 OK response to IMS_B
63								+	\rightarrow		200 OK	IMS_B forwards 200 OK
0.4											NOTIEV	response to UE_B
64				\rightarrow							NOTIFY	AS/IM_A sends NOTIFY to UE_B with list of 1-to-many Chat
65					\rightarrow						NOTIFY	participants IMS_A forwards BYE to IBCF_A
66						>					NOTIFY	IBCF_A forwards BYE to IBCF_B
67							\rightarrow				NOTIFY	IBCF_B forwards BYE to IMS_B
68											NOTIFY	IMS_B forwards BYE to AS/IM_B
								1				
69							—	1			NOTIFY	AS/IM_B returns, possibly modified, BYE to IMS_B
70								+	\rightarrow		NOTIFY	IMS_B forwards BYE to UE_B
71										\rightarrow		User B is notified with list of 1-to- many Chat participants
72							(200 OK	UE_B sends 200 OK for NOTIFY
						1						

Step					Direct	ion						Message	Comment
	U	Ū	A	1		J –	I	A	חו	Ų	-		
	s e	E A	S/	M S	B C	B C	M S	S/	E B	8			
	r	.	M	Ă	F	F	В	M		1	•		
70	Α	1	Α	1	Α	В		B	1	<u> </u>	3	200 OK	IMS_B forwards 200 OK
73								7				200 OK	response to AS/IM_B
74							,					200 OK	AS/IM_B returns, possibly
													modified, 200 OK response to IMS_B
75						\leftarrow						200 OK	IMS_B forwards 200 OK response to IBCF_B
76					\leftarrow							200 OK	IBCF_B forwards 200 OK response to IBCF_A
77				\leftarrow	_							200 OK	IBCF_A forwards 200 OK response to IMS_A
78				1								200 OK	IMS_A forwards 200 OK response to AS/IM_A
79													Users perform messaging in the
	—		\star							\longrightarrow			1-to-many Chat (see
													clause 5.3.2.1 Chat 1 to many via MSRP - Interworking and use
													5.4.2 test description)
80A									←				User B leaves the 1-to-many Chat
81A												BYE	UE_B sends BYE to IMS_B to leave the 1-to-many Chat
82A								\rightarrow				BYE	IMS_B forwards BYE to AS/IM_B
83A							←					BYE	AS/IM_B returns, possibly modified, BYE to IMS_B
84A												BYE	IMS_B forwards BYE to IBCF_B
85A					\leftarrow							BYE	IBCF_B forwards BYE to IBCF_A
86A				\leftarrow	-							BYE	IBCF_A forwards BYE to IMS_A
87A				-								BYE	IMS_A forwards BYE to AS/IM_A
88A				>								200 OK	AS/IM_A sends 200 OK for BYE
89A					>							200 OK	IMS_A forwards 200 OK response to IBCF_A
90A						>						200 OK	IBCF_A forwards 200 OK
91A							\rightarrow					200 OK	response to IBCF_B IBCF_B forwards 200 OK
92A								\rightarrow				200 OK	response to IMS_B IMS_B forwards 200 OK
93A												200 OK	response to AS/IM_B AS/IM_B returns, possibly
93A							←					200 OK	modified, 200 OK response to
94A									→			200 OK	IMS_B IMS_B forwards 200 OK
95A										\rightarrow			response to UE_B User B is informed that he has
													left the 1-to-many Chat
96A				>								NOTIFY	AS/IM_A sends NOTIFY to IMS _A to inform UE_A that User B
074												NOTIFY	has left the 1-to-many Chat
97A												NOTIFY	IMS_A forwards the NOTIFY to UE_A
98A													User A is notified that all other users have left the 1-to-many Chat
99A				>								200 OK	UE_A responds with 200 OK to
													IMS_A

Step						Directio	on					Message	Comment
	U s		U E	A S/	I M	I B	I B	I M	A S/	U	U s		
	e		Ā	1	S	С	С	S	1	В	e		
	r A			M A	Α	F A	F B	В	M B		r B		
100A	Ť			<u> </u>					Ť		Ť	200 OK	IMS_A forwards the 200 OK
101A													response to AS/IM_A User A leaves the 1-to-many
													Chat
102A					\rightarrow							BYE	UE_A sends BYE to IMS_A to leave the 1-to-many Chat
103A												BYE	IMS_A forwards BYE to AS/IM_A
104A)							200 OK	AS/IM_A sends 200 OK for BYE
105A												200 OK	IMS_A forwards 200 OK response to UE_A
106A	+												User A is informed that the 1-to-
80B													many Chat has ended User A leaves the 1-to-many
OOD		,											Chat
81B					\rightarrow							BYE	UE_A sends BYE to IMS_A to leave the 1-to-many Chat
82B												BYE	IMS_A forwards BYE to AS/IM_A
83B					\rightarrow							200 OK	AS/IM_A sends 200 OK for BYE
84B					_							200 OK	IMS_A forwards 200 OK
85B													response to UE_A User A is informed that he has
													left the 1-to-many Chat
86B					\rightarrow							NOTIFY	AS/IM_A sends NOTIFY to IMS_A to inform UE_B that User
													A has left the 1-to-many Chat
87B						•						NOTIFY	IMS_A forwards BYE to IBCF_A
88B												NOTIFY	IBCF_A forwards BYE to IBCF_B
89B								>				NOTIFY	IBCF_B forwards BYE to IMS_B
90B)			NOTIFY	IMS_B forwards BYE to AS/IM_B
91B								\leftarrow	-			NOTIFY	AS/IM_B returns, possibly modified, BYE to IMS_B
92B										\rightarrow		NOTIFY	IMS_B forwards BYE to UE_B
93B													User B is notified that all other
											1		users have left the 1-to-many Chat
94B										_		200 OK	UE_B sends 200 OK for NOTIFY
95B									>			200 OK	IMS_B forwards 200 OK
96B								,				200 OK	response to AS/IM_B AS/IM_B returns, possibly
													modified, 200 OK response to IMS_B
97B								-				200 OK	IMS_B forwards 200 OK response to IBCF_B
98B							-					200 OK	IBCF_B forwards 200 OK response to IBCF_A
99B					←	1						200 OK	IBCF_A forwards 200 OK response to IMS_A
100B					\dashv							200 OK	IMS_A forwards 200 OK response to AS/IM_A
101B										(User B leaves the 1-to-many
													Chat

Step					Direc	tion					Message	Comment
	n a w C	U E A	A S/ I M	I M S A	I вс F	B C F	I M S B	A S/ I M	U E B	U s e r		
	Α		Α		Α	В		В		В		
102B							\leftarrow				BYE	UE_B sends BYE to IMS_B to leave the 1-to-many Chat
103B								\rightarrow			BYE	IMS_B forwards BYE to AS/IM_B
104B							\leftarrow				BYE	AS/IM_B returns, possibly modified, BYE to IMS_B
105B						\leftarrow					BYE	IMS_B forwards BYE to IBCF_B
106B					\leftarrow						BYE	IBCF_B forwards BYE to IBCF_A
107B											BYE	IBCF_A forwards BYE to IMS_A
108B			(BYE	IMS_A forwards BYE to AS/IM_A
109B				\rightarrow							200 OK	AS/IM_A sends 200 OK for BYE
110B					\rightarrow						200 OK	IMS_A forwards 200 OK response to IBCF_A
111B						\rightarrow					200 OK	IBCF_A forwards 200 OK response to IBCF_B
112B							\rightarrow				200 OK	IBCF_B forwards 200 OK response to IMS_B
113B								\rightarrow			200 OK	IMS_B forwards 200 OK response to AS/IM_B
114B							←				200 OK	AS/IM_B returns, possibly modified, 200 OK response to IMS_B
115B									\rightarrow		200 OK	IMS_B forwards 200 OK response to UE_B
116B										\rightarrow		User B is informed that the 1-to- many Chat has ended

NOTE: Steps in above figure with letters A and B are alternative message flows showing UEA and UEB leaving 1-to-many chat respectively.

4.4.3.4.2 UC_RCS_6_R: SIP message flow 1-to-many chat with CF_ROAM_AS

NOTE 1: In this Use Case AS/IM_B server assumes to be a Controlling IM server for 1-to-many Chat sessions and UE_B should have configured IM CONF-FCTY-URI (conference factory uri).

NOTE 2: According to RCS specification [12] delivery and display notifications in 1-to-many Chat are not required and therefore not presented in this Use Case CFW.

Step	Action	CF_ROAM_AS
1	User B initiates a 1-to-many Chat with User A and User C by sending initial message	Step 1
2	User B is informed that the 1-to-many Chat is established	Step 17
3	User A is informed of incoming invitation from User B to join the 1-to-many Chat	Step 37
4	User A reads the initial message and accepts the 1-to-many Chat invitation	Step 38
5	User B is notified with list of 1-to-many Chat participants	Step 68
6	User A is notified with list of 1-to-many Chat participants	Step 95
7	Users perform messaging in the 1-to-many Chat	Step 103
A8	User A leaves the 1-to-many Chat	Step 104A
8B	User B leaves the 1-to-many Chat	Step 104B
9A	User A is informed that he has left the 1-to-many Chat	Step 119A
9B	User B is informed that he has left the 1-to-many Chat	Step 115B
10A	User B is notified that all other users have left the 1-to-many Chat	Step 125A

Step	Action	CF_ROAM_AS
10B	User A is notified that all other users have left the 1-to-many Chat	Step 123B
11A	User B leaves the 1-to-many Chat	Step 131A
11B	User A leaves the 1-to-many Chat	Step 131B
12A	User B is informed that the 1-to-many Chat has ended	Step 142A
12B	User A is informed that the 1-to-many Chat has ended	Step 146B

Step					Directi	on					Message	Comment
	U	חו	Α ,	1	- 0		_	A	1 C	U		
	s e	E A	S/	M S	B C	B C	M S	S/	E B	s e		
	r		M	Ā	F	F	В	M		r		
	Α		Α		Α	В		В		В		
1									\leftarrow			User B initiates a 1-to-many Chat with User A and User C by sending
												initial message
2											INVITE	UE_B sends INVITE to IMS_A with
												Request-URI set to IM CONF-
				←		+			_			FCTY-URI (conference factory uri), MIME resource-list body including
												invited IM Users and the first SDP
												offer indicating all specific data for
												MSRP connection set up
3									\rightarrow		100 Trying	IMS_A responds with a 100 Trying provisional response
4					•						INVITE	IMS_A forwards INVITE to IBCF_A
'												inio_, thormando internal to ibor _, t
5				←	-						100 Trying	IBCF_A responds with a 100 Trying
											IND/ITE	provisional response
6						7					INVITE	IBCF_A forwards INVITE to IBCF_B
7					\leftarrow	_					100 Trying	IBCF_B responds with a 100 Trying
												provisional response
8							>				INVITE	IBCF_B forwards INVITE to IMS_B
9							-				100 Trying	IMS_B responds with a 100 Trying
10								_			INVITE	provisional response IMS_B forwards INVITE to
								1				AS/IM_B
11							\leftarrow	-			100 Trying	AS/IM_B responds with a 100
12											200 OK	Trying provisional response
12											200 OK	AS/IM_B responds INVITE with 200 OK response with IM session
												Identity allocated for the current 1-
												to-many Chat to indicate that the
												session has been accepted and
												SDP to inform A-side with specific data for MSRP connection set up
13						—					200 OK	IMS_B forwards 200 OK response
												to IBCF_B
14					\leftarrow	1					200 OK	IBCF_B forwards 200 OK response
15					_						200 OK	to IBCF_A IBCF_A forwards 200 OK response
				(to IMS_A
16									\rightarrow		200 OK	IMS_A forwards 200 OK response to UE B
17										\rightarrow		User B is informed that the 1-to- many Chat is established
18				(ACK	UE_B acknowledges the receipt of 200 OK for INVITE
19					*						ACK	IMS_A forwards ACK to IBCF_A
20						*					ACK	IBCF_A forwards ACK to IBCF_B

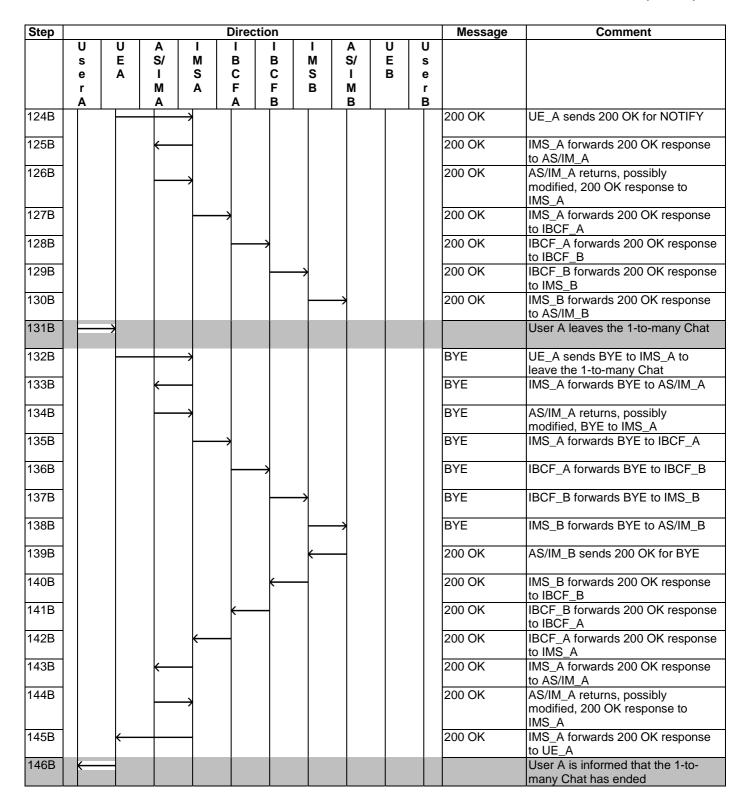
Step					Direct	ion					Message	Comment
	U	1 C	Α		- (1	_	A	U	U		
	s e	E A	S/ I	M S	B C	B C	M	S/	E B	s e		
	r	^	M	A	F	F	В	M		r		
	Α		Α		Α	В		В	1	В		
21							\rightarrow				ACK	IBCF_B forwards ACK to IMS_B
22								\rightarrow			ACK	IMS_B forwards ACK to AS/IM_B
23							←				INVITE	AS/IM_B sends INVITE to UE_A with IM session identity (allocated for the current 1-to-many Chat) and IM address of the Inviting IM UE (UE_B)
24								\rightarrow			100 Trying	IMS_B responds with a 100 Trying provisional response
25						←					INVITE	IMS_B forwards INVITE to IBCF_B
26							\rightarrow				100 Trying	IBCF_B responds with a 100 Trying provisional response
27					←						INVITE	IBCF_B forwards INVITE to IBCF_A
28						\rightarrow					100 Trying	IBCF_A responds with a 100 Trying provisional response
29				←							INVITE	IBCF_A forwards INVITE to IMS_A
30					\rightarrow						100 Trying	IMS_A responds with a 100 Trying provisional response
31			\leftarrow								INVITE	IMS_A forwards INVITE to AS/IM_A
32				\rightarrow							100 Trying	AS/IM_A responds with a 100 Trying provisional response
33				\rightarrow							INVITE	AS/IM_A returns, possibly modified, INVITE to IMS_A
34			\leftarrow								100 Trying	IMS_A responds with a 100 Trying provisional response
35											INVITE	IMS_A forwards INVITE to UE_A
36				\rightarrow							100 Trying	UE_A optionally responds with a 100 Trying provisional response
37	—											User A is informed of incoming invitation from User B to join the 1-to-many Chat
38		*										User A reads the initial message and accepts the 1-to-many Chat invitation
39				\rightarrow							200 OK	UE_A responds INVITE with 200 OK response with SDP to indicate that the session has been accepted and inform AS/IM_A with specific data for MSRP connection set up
40			\leftarrow								200 OK	IMS_A forwards 200 OK response to AS/IM_A
41				\rightarrow							200 OK	AS/IM_A returns, possibly modified, 200 OK response to
42					\rightarrow						200 OK	IMS_A IMS_A forwards 200 OK response to IBCF_A
43						\rightarrow					200 OK	IBCF_A forwards 200 OK response to IBCF_B
44							\rightarrow				200 OK	IBCF_B forwards 200 OK response to IMS_B
45								\rightarrow			200 OK	IMS_B forwards 200 OK response to AS/IM_B
46							—	\dashv			ACK	AS/IM_B acknowledges the receipt of 200 OK for INVITE

Step					Direc	tion					Message	Comment
	U	Ū	A S/	ı	J –	1	I	Α	Ū	U		
	s e	E A	3/ 	M S	B C	B C	M S	S/ I	E B	s e		
	r		M	Α	F	F	В	М		r		
47	A		A		<u> </u>	B		В		<u>B</u>	ACK	IMS_B forwards ACK to IBCF_B
48					—						ACK	IBCF_B forwards ACK to IBCF_A
49				(ACK	IBCF_A forwards ACK to IMS_A
50											ACK	IMS_A forwards ACK to AS/IM_A
51				\rightarrow							ACK	AS/IM_A returns, possibly modified, ACK to IMS_A
52		\leftarrow		\dashv							ACK	IMS_A forwards ACK to UE_A
53											SUBSCRIBE	UE_B subscribes to the conference event package
54					\rightarrow						SUBSCRIBE	IMS_A forwards SUBSCRIBE to
55						\rightarrow					SUBSCRIBE	IBCF_A forwards SUBSCRIBE to
56							\rightarrow				SUBSCRIBE	IBCF_B forwards SUBSCRIBE to IMS_B
57								\rightarrow			SUBSCRIBE	IMS_B forwards SUBSCRIBE to AS/IM_B
58											200 OK	AS/IM_B sends 200 OK for SUBSCRIBE
59						\leftarrow					200 OK	IMS_B forwards 200 OK response to IBCF_B
60					\leftarrow						200 OK	IBCF_B forwards 200 OK response to IBCF_A
61				\leftarrow							200 OK	IBCF_A forwards 200 OK response to IMS_A
62									\rightarrow		200 OK	IMS_A forwards 200 OK response to UE_B
63							←				NOTIFY	AS/IM_B sends NOTIFY to UE_B with list of 1-to-many Chat participants
64						←					NOTIFY	IMS_B forwards NOTIFY to IBCF_B
65					\leftarrow						NOTIFY	IBCF_B forwards NOTIFY to IBCF_A
66				\leftarrow							NOTIFY	IBCF_A forwards NOTIFY to IMS_A
67									\rightarrow		NOTIFY	IMS_A forwards NOTIFY to UE_B
68										\rightarrow		User B is notified with list of 1-to- many Chat participants
69											200 OK	UE_B responds with 200 OK to IMS_A
70					\rightarrow						200 OK	IMS_A forwards 200 OK response to IBCF_A
71						\rightarrow					200 OK	IBCF_A forwards 200 OK response to IBCF_B
72							\rightarrow				200 OK	IBCF_B forwards 200 OK response to IMS_B
73								\rightarrow			200 OK	IMS_B forwards 200 OK response to AS/IM_B
74				\rightarrow							SUBSCRIBE	UE_A subscribes to the conference event package
75											SUBSCRIBE	IMS_A forwards SUBSCRIBE to AS/IM_A
76				\rightarrow							SUBSCRIBE	AS/IM_A returns, possibly modified, SUBSCRIBE to IMS_A

Step					Directi	on					Message	Comment
	U	πС	A S/	I M	- P	I B	I M	A S/	U E	U		
	s e	A	اد ا	S	B C	C	S	S/ I	В	s e		
	r		M	Α	F	F	В	М		r		
77	A		A		A	В		В		В	SUBSCRIBE	IMS_A forwards SUBSCRIBE to
78						>					SUBSCRIBE	IBCF_A IBCF_A forwards SUBSCRIBE to IBCF_B
79							>				SUBSCRIBE	IBCF_B forwards SUBSCRIBE to IMS_B
80)			SUBSCRIBE	IMS_B forwards SUBSCRIBE to AS/IM_B
81								1			200 OK	AS/IM_B sends 200 OK for SUBSCRIBE
82											200 OK	IMS_B forwards 200 OK response to IBCF_B
83					—	_					200 OK	IBCF_B forwards 200 OK response to IBCF_A
84				(200 OK	IBCF_A forwards 200 OK response to IMS_A
85			\leftarrow								200 OK	IMS_A forwards 200 OK response to AS/IM_A
86				\rightarrow							200 OK	AS/IM_A returns, possibly modified, 200 OK response to IMS_A
87		←									200 OK	IMS_A forwards 200 OK response to UE_A
88											NOTIFY	AS/IM_B sends NOTIFY to UE_A with list of 1-to-many Chat participants
89											NOTIFY	IMS_B forwards BYE to IBCF_B
90					—	_					NOTIFY	IBCF_B forwards BYE to IBCF_A
91											NOTIFY	IBCF_A forwards BYE to IMS_A
92											NOTIFY	IMS_A forwards BYE to AS/IM_A
93				\rightarrow							NOTIFY	AS/IM_A returns, possibly modified, BYE to IMS_A
94											NOTIFY	IMS_A forwards BYE to UE_A
95	—											User A is notified with list of 1-to- many Chat participants
96				\rightarrow							200 OK	UE_A sends 200 OK for NOTIFY
97			(200 OK	IMS_A forwards 200 OK response to AS/IM_A
98				\rightarrow							200 OK	AS/IM_A returns, possibly modified, 200 OK response to IMS_A
99					>						200 OK	IMS_A forwards 200 OK response to IBCF_A
100						>					200 OK	IBCF_A forwards 200 OK response to IBCF_B
101							>				200 OK	IBCF_B forwards 200 OK response to IMS_B
102)			200 OK	IMS_B forwards 200 OK response to AS/IM_B
103												Users perform messaging in the 1- to-many Chat (see clause 5.3.2.2
								*		→		Chat 1 to many via MSRP - Roaming and use 5.4.2 test
												description)

Step				I	Direction	on					Message	Comment
	U s	U	A S/	I M	I B	I B	I M	A S/	U	U s		
	e	Ā	ı	S	С	С	S	I	В	e		
	r A		M A	Α	F A	F B	В	M B		r B		
104A		*										User A leaves the 1-to-many Chat
105A		-									BYE	UE_A sends BYE to IMS_A to leave the 1-to-many Chat
106A				1							BYE	IMS_A forwards BYE to AS/IM_A
107A				•							BYE	AS/IM_A returns, possibly modified, BYE to IMS_A
108A											BYE	IMS_A forwards BYE to IBCF_A
109A						>					BYE	IBCF_A forwards BYE to IBCF_B
110A							>				BYE	IBCF_B forwards BYE to IMS_B
111A											BYE	IMS_B forwards BYE to AS/IM_B
112A											200 OK	AS/IM_B sends 200 OK for BYE
113A							1				200 OK	IMS_B forwards 200 OK response to IBCF_B
114A											200 OK	IBCF_B forwards 200 OK response to IBCF_A
115A											200 OK	IBCF_A forwards 200 OK response to IMS_A
116A				1							200 OK	IMS_A forwards 200 OK response to AS/IM_A
117A				*							200 OK	AS/IM_A returns, possibly
1100											222 014	modified, 200 OK response to IMS_A
118A											200 OK	IMS_A forwards 200 OK response to UE_A
119A												User A is informed that he has left the 1-to-many Chat
120A											NOTIFY	AS/IM_B sends NOTIFY to IMS _B to inform UE_B that User A has left the 1-to-many Chat
121A							1				NOTIFY	IMS_B forwards NOTIFY to
122A					\longleftarrow						NOTIFY	IBCF_B forwards NOTIFY to IBCF_A
123A											NOTIFY	IBCF_A forwards NOTIFY to IMS_A
124A									>		NOTIFY	IMS_A forwards NOTIFY to UE_B
125A										\rightarrow		User B is notified that all other users have left the 1-to-many Chat
126A				(200 OK	UE_B responds with 200 OK to IMS_A
127A											200 OK	IMS_A forwards 200 OK response to IBCF_A
128A											200 OK	IBCF_A IBCF_A forwards 200 OK response to IBCF_B
129A											200 OK	IBCF_B forwards 200 OK response
130A											200 OK	to IMS_B IMS_B forwards 200 OK response
131A									—			to AS/IM_B User B leaves the 1-to-many Chat
132A											BYE	UE_B sends BYE to IMS_A to leave the 1-to-many Chat
	I	1	1		I	1		I	1	ı		leave the 1-to-Illany Chat

Step					Directi	on					Message	Comment
	U s	U E	A S/	I M	В	I B	М	A S/	υE	Us		
	e	Ā	ı	S	С	С	S	I	В	e		
	r A		M A	Α	F A	F B	В	M B		r B		
133A					*					Ī	BYE	IMS_A forwards BYE to IBCF_A
134A						>					BYE	IBCF_A forwards BYE to IBCF_B
135A							→				BYE	IBCF_B forwards BYE to IMS_B
136A								\rightarrow			BYE	IMS_B forwards BYE to AS/IM_B
137A							\leftarrow				200 OK	AS/IM_B sends 200 OK for BYE
138A						←					200 OK	IMS_B forwards 200 OK response to IBCF_B
139A					\leftarrow						200 OK	IBCF_B forwards 200 OK response to IBCF_A
140A				←	-						200 OK	IBCF_A forwards 200 OK response to IMS_A
141A									\rightarrow		200 OK	IMS_A forwards 200 OK response to UE_B
142A										\rightarrow		User B is informed that the 1-to- many Chat has ended
104B									←			User B leaves the 1-to-many Chat
105B											BYE	UE_B sends BYE to IMS_A to leave the 1-to-many Chat
106B					>						BYE	IMS_A forwards BYE to IBCF_A
107B						>					BYE	IBCF_A forwards BYE to IBCF_B
108B)				BYE	IBCF_B forwards BYE to IMS_B
109B								→			BYE	IMS_B forwards BYE to AS/IM_B
110B											200 OK	AS/IM_B sends 200 OK for BYE
111B											200 OK	IMS_B forwards 200 OK response to IBCF_B
112B					\leftarrow	-					200 OK	IBCF_B forwards 200 OK response to IBCF_A
113B											200 OK	IBCF_A forwards 200 OK response to IMS_A
114B									\rightarrow		200 OK	IMS_A forwards 200 OK response to UE_B
115B										\rightarrow		User B is informed that he has left the 1-to-many Chat
116B								-			NOTIFY	AS/IM_B sends NOTIFY to IMS_B to inform UE_A that User B has left
117B						-					NOTIFY	the 1-to-many Chat IMS_B forwards NOTIFY to
118B											NOTIFY	IBCF_B IBCF_B forwards NOTIFY to
119B											NOTIFY	IBCF_A IBCF_A forwards NOTIFY to
120B			—								NOTIFY	IMS_A forwards NOTIFY to
121B				\rightarrow							NOTIFY	AS/IM_A AS/IM_A returns, possibly
122B											BYE	modified, NOTIFY to IMS_A IMS_A forwards NOTIFY to UE_A
123B	K											User A is informed that User B has
1205	Ì											left the 1-to-many Chat



4.4.3.5 Switching to 1-to-many chat

Following there are the expected common call flow sequences for switching from 1-to-1 chat to 1-to-many chat. Initially, a 1:1 chat is established as shown in UC_RCS_4_I. Subsequently, a chat conference server is invoked and a third user C is added to a group chat via the conference server.

4.4.3.5.1 UC_RCS_7_I: SIP message flow for switching to 1-to-many chat with CF_INT_AS

NOTE 1: In this Use Case AS/IM_A server assumes to be a Controlling IM server for 1-to-many Chat sessions and UE_A should have configured IM CONF-FCTY-URI (conference factory uri).

NOTE 2: According to RCS specification [12] delivery and display notifications in 1-to-many Chat are not required and therefore not presented in this Use Case CFW.

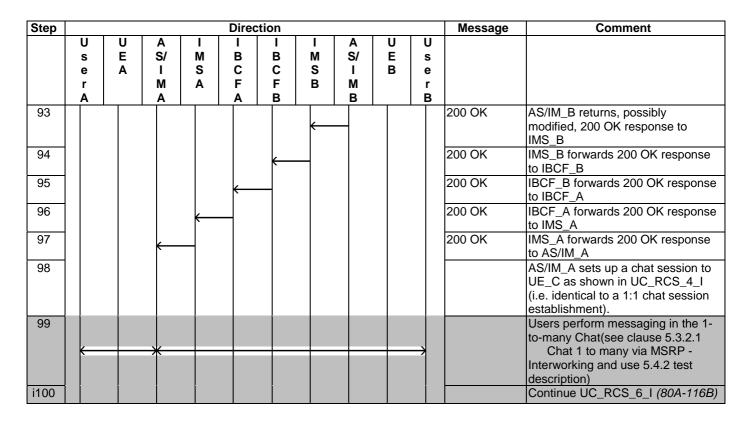
Step	Action	CF_INT_AS
1	User A selects User B in the phone address book and sends him an initial message	UC_RCS_4_I Step 1
2	User B is informed of incoming message	UC_RCS_4_I Step 20
3	User A is informed that initial message was delivered to user B	UC_RCS_4_I Step 39
4	User B reads the initial message from user A and opens the 1-to-1 chat	UC_RCS_4_I Step 49
5	Users perform 1-to-1 chatting	UC_RCS_4_I Step 68
6	User A initiates a 1-to-many Chat with User B and User C by sending initial	Step 2
	message	
7	User A is informed that the 1-to-many Chat is established	Step 9
8	User B is informed of incoming invitation from User A to join the 1-to-many Chat	Step 26
9	User B reads the initial message and accepts the 1-to-many Chat invitation	Step 27
10	User A is notified with list of 1-to-many Chat participants	Step 66
11	User B is notified with list of 1-to-many Chat participants	Step 90
12	Users perform messaging in the 1-to-many Chat	Step 98
13A	User B leaves the 1-to-many Chat	UC_RCS_6_I Step 80A
13B	User A leaves the 1-to-many Chat	UC_RCS_6_I Step 80B
14A	User B is informed that he has left the 1-to-many Chat	UC_RCS_6_I Step 95A
14B	User A is informed that he has left the 1-to-many Chat	UC_RCS_6_I Step 85B
15A	User A is notified that all other users have left the 1-to-many Chat	UC_RCS_6_I Step 98A
15B	User B is notified that all other users have left the 1-to-many Chat	UC_RCS_6_I Step 93B
16A	User A leaves the 1-to-many Chat	UC_RCS_6_I Step 101A
16B	User B leaves the 1-to-many Chat	UC_RCS_6_I Step 101B
17A	User A is informed that the 1-to-many Chat has ended	UC_RCS_6_I Step 106A
17B	User B is informed that the 1-to-many Chat has ended	UC_RCS_6_I Step 116B

Step					Direc	tion					Message	Comment
	U s e r A	U E A	A % - M A	I M S A	I B C F A	н н о в –	I M S B	A S/ I M B	U E B	U s e r B		
1												Follow UC_RCS_4_I (1-68)
2		\rightarrow										User A initiates a 1-to-many Chat with User B and User C by sending initial message
3				→							INVITE	UE_A sends INVITE to IMS_A with Request-URI set to IM CONF-FCTY-URI (conference factory uri), MIME resource-list body including invited IM Users, the first SDP offer indicating all specific data for MSRP connection set up and the identity of User B in the Session-Replaces header
4		\leftarrow									100 Trying	IMS_A responds with a 100 Trying provisional response
5											INVITE	IMS_A forwards INVITE to AS/IM_A
6				\rightarrow							100 Trying	AS/IM_A responds with a 100 Trying provisional response

Step					Direct	ion					Message	Comment
	U	U	A	I	1	Ī	I	A	U	U		
	s e	E A	S/	M S	B C	B C	M S	S/	E B	s e		
	r	^	M	Ä	F	F	В	M	_	r		
_	Α		Α		Α	В		В		В	222 014	100000
7											200 OK	AS/IM_A responds INVITE with 200 OK response with IM session
												Identity allocated for the current 1-
				7								to-many Chat to indicate that the
												session has been accepted and SDP to inform A-side with specific
												data for MSRP connection set up
8		\leftarrow									200 OK	IMS_A forwards 200 OK response to AS/IM_A
9	-											User A is informed that the 1-to- many Chat is established
10				\rightarrow							ACK	UE_A acknowledges the receipt of 200 OK for INVITE
11			\leftarrow								ACK	IMS_A forwards ACK to AS/IM_A
12											INVITE	AS/IM_A sends INVITE to UE_B
												with IM session identity (allocated
				\rightarrow								for the current 1-to-many Chat), IM address of the Inviting IM UE
												(UE_A) and Session-Replaces
												header identifying the original
13											100 Trying	1-to-1 session identity IMS_A responds with a 100 Trying
			(provisional response
14					\rightarrow						INVITE	IMS_A forwards INVITE to IBCF_A
15				\leftarrow							100 Trying	IBCF_A responds with a 100 Trying provisional response
16)					INVITE	IBCF_A forwards INVITE to IBCF_B
17					←						100 Trying	IBCF_B responds with a 100 Trying provisional response
18							\rightarrow				INVITE	IBCF_B forwards INVITE to IMS_B
19						\leftarrow					100 Trying	IMS_B responds with a 100 Trying provisional response
20								\rightarrow			INVITE	IMS_B forwards INVITE to AS/IM_B
21							\leftarrow				100 Trying	AS/IM_B responds with a 100 Trying provisional response
22								\dashv			INVITE	AS/IM_B returns, possibly modified, INVITE to IMS_B
23								\rightarrow			100 Trying	IMS_B responds with a 100 Trying provisional response
24									\rightarrow		INVITE	IMS_B forwards INVITE to UE_B
25							←		_		100 Trying	UE_B optionally responds with a 100 Trying provisional response
26										\rightarrow		User B is informed of incoming invitation from User A to join the 1-
67												to-many Chat
27									—			User B reads the initial message and accepts the 1-to-many Chat invitation
28											200 OK	UE_B responds INVITE with 200
							—					OK response with SDP to indicate that the session has been accepted
												and inform AS/IM_A with specific data for MSRP connection set up
29								\rightarrow			200 OK	IMS_B forwards 200 OK response
				- 1				1				to AS/IM_B

Step					Direc	tion					Message	Comment
	U	U	Α	I	I	Ī	I	A	U	U		
	S	E	S/	M	B C	B C	M	S/	E B	S		
	e r	Α	I M	S A	F	F	B	M	B	e r		
	À		A	^	A	В		В		В		
30											200 OK	AS/IM_B returns, possibly modified, 200 OK response to
												IMS_B
31						\leftarrow					200 OK	IMS_B forwards 200 OK response to IBCF_B
32											200 OK	IBCF_B forwards 200 OK response to IBCF_A
33											200 OK	IBCF_A forwards 200 OK response to IMS_A
34			←								200 OK	IMS_A forwards 200 OK response to AS/IM_A
35				\rightarrow							ACK	AS/IM_A acknowledges the receipt of 200 OK for INVITE
36					_						ACK	IMS_A forwards ACK to IBCF_A
37					1	→					ACK	IBCF_A forwards ACK to IBCF_B
38						1	\rightarrow				ACK	IBCF_B forwards ACK to IMS_B
39							1	\rightarrow			ACK	IMS_B forwards ACK to AS/IM_B
40							←	_			ACK	AS/IM_B returns, possibly modified, ACK to IMS_B
41									\longrightarrow		ACK	IMS_B forwards ACK to UE_B
42											BYE	UE_B releases the 1-to-1 IM
							\leftarrow					session with BYE
43								\rightarrow			BYE	IMS_B forwards BYE to AS/IM_B
44							←				BYE	AS/IM_B returns, possibly modified, BYE to IMS_B
45						\leftarrow					BYE	IMS_B forwards BYE to IBCF_B
46					\leftarrow						BYE	IBCF_B forwards BYE to IBCF_A
47				←—	-						BYE	IBCF_A forwards BYE to IMS_A
48			←	_							BYE	IMS_A forwards BYE to AS/IM_A
49				\rightarrow							BYE	AS/IM_A returns, possibly modified, BYE to IMS_A
50		\leftarrow									BYE	IMS_A forwards BYE to UE_A
51				\rightarrow							200 OK	UE_A sends 200 OK for BYE
52											200 OK	IMS_A forwards 200 OK response
53											200 OK	to AS/IM_A AS/IM_A returns, possibly
				\rightarrow								modified, 200 OK response to IMS_A
54					\rightarrow						200 OK	IMS_A forwards 200 OK response to IBCF_A
55						\rightarrow					200 OK	IBCF_A forwards 200 OK response to IBCF_B
56							\rightarrow				200 OK	IBCF_B forwards 200 OK response
57								\rightarrow			200 OK	to IMS_B IMS_B forwards 200 OK response
58											200 OK	to AS/IM_B AS/IM_B returns, possibly
												modified, 200 OK response to IMS_B
59								+	\longrightarrow		200 OK	IMS_B forwards 200 OK response to UE_B
60				\rightarrow							SUBSCRIBE	UE_A subscribes to the conference event package
61			←	4							SUBSCRIBE	IMS_A forwards SUBCRIBE to AS/IM_A
62				\rightarrow							200 OK	AS/IM_A sends 200 OK for
63											200 OK	SUBSCRIBE IMS_A forwards 200 OK response
03				\dashv							200 OK	to UE_A

Step					Direct	ion					Message	Comment
	U	πС	A S/	I M	I B	I B	I M	A S/	U	U		
	s e	Ā	3) 	S	C	C	S	J	В	s e		
	r		M	Α	F	F	В	M		r		
64	A		A		A	В		В		В	NOTIFY	AS/IM_A sends NOTIFY to UE_A
04				\rightarrow								with list of 1-to-many Chat
											NOTIEN	participants
65		\leftarrow		_							NOTIFY	IMS_A forwards the NOTIFY to UE A
66												User A is notified with list of 1-to-
07											200 014	many Chat participants
67				\rightarrow							200 OK	UE_A responds with 200 OK to IMS_A
68											200 OK	IMS_A forwards the 200 OK
											0110000105	response to AS/IM_A
69							\leftarrow				SUBSCRIBE	UE_B subscribes to the conference event package
70											SUBSCRIBE	IMS_B forwards SUBSCRIBE to
74								1			OLIDOODIDE.	AS/IM_B
71							\leftarrow	\dashv			SUBSCRIBE	AS/IM_B returns, possibly modified, SUBSCRIBE to IMS_B
72											SUBSCRIBE	IMS_B forwards SUBSCRIBE to
70											CLIDOODIDE	IBCF_B
73					←	_					SUBSCRIBE	IBCF_B forwards SUBSCRIBE to IBCF_A
74				_							SUBSCRIBE	IBCF_A forwards SUBSCRIBE to
75											SUBSCRIBE	IMS_A IMS_A forwards SUBSCRIBE to
75			\leftarrow	_							SUBSCRIBE	AS/IM_A
76				_							200 OK	AS/IM_A sends 200 OK for
77											200 OK	SUBSCRIBE IMS_A forwards 200 OK response
' '					\rightarrow						200 OK	to IBCF_A
78						\rightarrow					200 OK	IBCF_A forwards 200 OK response
79											200 OK	to IBCF_B IBCF_B forwards 200 OK response
13							\rightarrow				200 OK	to IMS_B
80								\rightarrow			200 OK	IMS_B forwards 200 OK response
81											200 OK	to AS/IM_B AS/IM_B returns, possibly
							\leftarrow	_			200 010	modified, 200 OK response to
00											000 014	IMS_B
82									\longrightarrow		200 OK	IMS_B forwards 200 OK response to UE_B
83											NOTIFY	AS/IM_A sends NOTIFY to UE_B
				\rightarrow								with list of 1-to-many Chat participants
84											NOTIFY	IMS_A forwards NOTIFY to
												IBCF_A
85						\rightarrow					NOTIFY	IBCF_A forwards NOTIFY to IBCF_B
86											NOTIFY	IBCF_B forwards NOTIFY to
07											NOTIEN	IMS_B
87							-	\rightarrow			NOTIFY	IMS_B forwards NOTIFY to AS/IM_B
88											NOTIFY	AS/IM_B returns, possibly
00											NOTIFY	modified, NOTIFY to IMS_B
89 90											NOTIFY	IMS_B forwards NOTIFY to UE_B User B is notified with list of 1-to-
90										\rightarrow		many Chat participants
91							\leftarrow				200 OK	UE_B sends 200 OK for NOTIFY
92								\rightarrow			200 OK	IMS_B forwards 200 OK response to AS/IM_B
		l	ļ	ļ	1	ı		ı	J	1		IO MO/IIVI_D



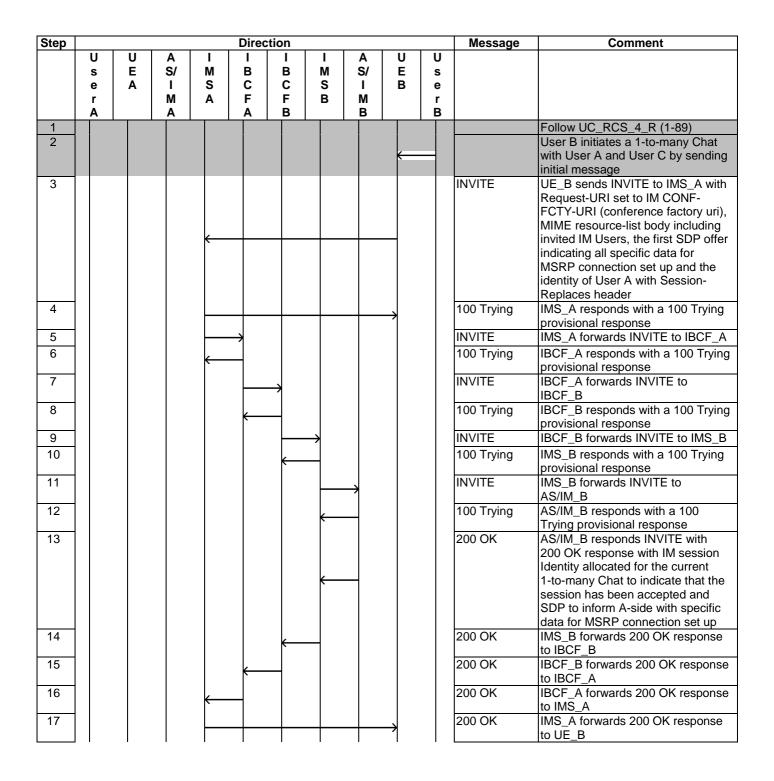
4.4.3.5.2 UC_RCS_7_R: SIP message flow for switching to 1-to-many chat with CF_ROAM_AS

NOTE 1: In this Use Case AS/IM_B server assumes to be a Controlling IM server for 1-to-many Chat sessions and UE_B should have configured IM CONF-FCTY-URI (conference factory uri).

NOTE 2: According to RCS specification [12] delivery and display notifications in 1-to-many Chat are not required and therefore not presented in this Use Case CFW.

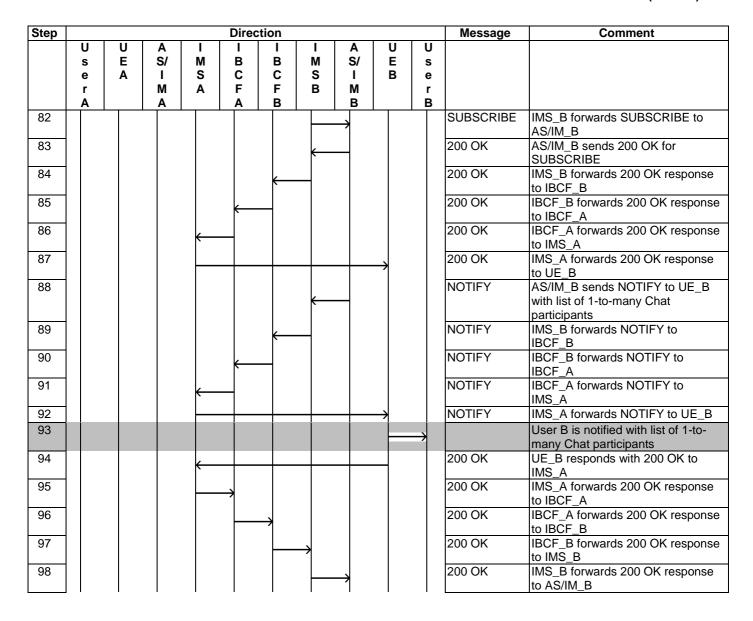
Step	Action	CF_ROAM_AS
1	User B selects User A in the phone address book and sends	UC_RCS_4_R Step 1
	him an initial message	
2	User A is informed of incoming message	UC_RCS_4_R Step 26
3	User B is informed that initial message was delivered to user A	UC_RCS_4_R Step 51
4	User A reads the initial message from user B and opens the 1-to-1 chat	UC_RCS_4_R Step 64
5	Users perform 1-to-1 chatting	UC_RCS_4_R Step 89
6	User B initiates a 1-to-many Chat with User A and User C by sending initial message	Step 2
7	User B is informed that the 1-to-many Chat is established	Step 18
8	User A is informed of incoming invitation from User B to join the 1-to-many Chat	Step 38
9	User A reads the initial message and accepts the 1-to-many Chat invitation	Step 39
10	User B is notified with list of 1-to-many Chat participants	Step 93
11	User A is notified with list of 1-to-many Chat participants	Step 120
12	Users perform messaging in the 1-to-many Chat	Step 128
13A	User A leaves the 1-to-many Chat	UC_RCS_6_R Step 104A
13B	User B leaves the 1-to-many Chat	UC_RCS_6_R Step 104B
14A	User A is informed that he has left the 1-to-many Chat	UC_RCS_6_R Step 119A
14B	User B is informed that he has left the 1-to-many Chat	UC_RCS_6_R Step 115B

Step	Action	CF_ROAM_AS
15A	User B is notified that all other users have left the 1-to-many Chat	UC_RCS_6_R Step 125A
15B	User A is notified that all other users have left the 1-to-many Chat	UC_RCS_6_R Step 123B
16A	User B leaves the 1-to-many Chat	UC_RCS_6_R Step 131A
16B	User A leaves the 1-to-many Chat	UC_RCS_6_R Step 131B
17A	User B is informed that the 1-to-many Chat has ended	UC_RCS_6_R Step 142A
17B	User A is informed that the 1-to-many Chat has ended	UC_RCS_6_R Step 146B



Step					Direct	ion					Message	Comment
	U	U	A	I	1		I	A	U	U		
	s e	E A	S/	M S	B C	B C	M S	S/	E B	s e		
	r	^	м	Ā	F	F	В	М		r		
	Α		Α		Α	В		В		В		
18									Н	\rightarrow		User B is informed that the 1-to- many Chat is established
19				—	_		-		_		ACK	UE_B acknowledges the receipt of 200 OK for INVITE
20					_						ACK	IMS_A forwards ACK to IBCF_A
21						→					ACK	IBCF_A forwards ACK to IBCF_B
22						<u></u>	\rightarrow				ACK	IBCF_B forwards ACK to IMS_B
23								\rightarrow			ACK	IMS_B forwards ACK to AS/IM_B
24											INVITE	AS/IM_B sends INVITE to UE_A
							←					with IM session identity (allocated for the current 1-to-many Chat), IM address of the Inviting IM UE (UE_B) and Session-Replaces
												header with the original 1-to-1 session identity
25								\rightarrow			100 Trying	IMS_B responds with a 100 Trying
26											INVITE	provisional response IMS_B forwards INVITE to IBCF_B
27											100 Trying	IBCF_B responds with a 100 Trying
							\rightarrow				, ,	provisional response
28					←	_					INVITE	IBCF_B forwards INVITE to IBCF_A
29)					100 Trying	IBCF_A responds with a 100 Trying provisional response
30				←	_						INVITE	IBCF_A forwards INVITE to IMS_A
31					\rightarrow						100 Trying	IMS_A responds with a 100 Trying provisional response
32											INVITE	IMS_A forwards INVITE to AS/IM_A
33				\rightarrow							100 Trying	AS/IM_A responds with a 100
34				_							INVITE	Trying provisional response AS/IM_A returns, possibly
35			←								100 Trying	modified, INVITE to IMS_A IMS_A responds with a 100 Trying provisional response
36		\longleftarrow									INVITE	IMS_A forwards INVITE to UE_A
37				\rightarrow							100 Trying	UE_A optionally responds with a 100 Trying provisional response
38	—											User A is informed of incoming invitation from user B to join the 1-to-many Chat
39	\longrightarrow											User A reads the initial message and accepts the 1-to-many Chat invitation
40				→							200 OK	UE_A responds INVITE with 200 OK response with SDP to indicate that the session has been accepted
												and inform AS/IM_A with specific data for MSRP connection set up
41				\dashv							200 OK	IMS_A forwards 200 OK response to AS/IM_A
42				→							200 OK	AS/IM_A returns, possibly modified, 200 OK response to IMS_A
43					\rightarrow						200 OK	IMS_A forwards 200 OK response to IBCF_A
44)					200 OK	IBCF_A forwards 200 OK response to IBCF_B
45							\rightarrow				200 OK	IBCF_B forwards 200 OK response
							1					to IMS_B

Step					Direc	tion					Message	Comment
	U	U	Α	ı	I	ı	I	Α	U	U		
	S	E	S/	M	В	В	M	S/	E	S		
	e	Α	I I	S	C	C	S	I	В	е		
	r A		M A	Α	F A	F B	В	M B		r B		
46								\rightarrow		Ì	200 OK	IMS_B forwards 200 OK response to AS/IM_B
47							—				ACK	AS/IM_B acknowledges the receipt of 200 OK for INVITE
48						\leftarrow					ACK	IMS_B forwards ACK to IBCF_B
49					\leftarrow	_					ACK	IBCF_B forwards ACK to IBCF_A
50				←							ACK	IBCF_A forwards ACK to IMS_A
51			←								ACK	IMS_A forwards ACK to AS/IM_A
52				\rightarrow							ACK	AS/IM_A returns, possibly modified, ACK to IMS_A
53		←									ACK	IMS_A forwards ACK to UE_A
54				\rightarrow							BYE	UE_A releases the 1-to-1 IM session with BYE
55			-								BYE	IMS_A forwards BYE to AS/IM_A
56				\rightarrow							BYE	AS/IM_A returns, possibly modified, BYE to IMS_A
57					_						BYE	IMS_A forwards BYE to IBCF_A
58					<u> </u>	_					BYE	IBCF_A forwards BYE to IBCF_B
59						<u> </u>	\rightarrow				BYE	IBCF_B forwards BYE to IMS_B
60							´L	_			BYE	IMS B forwards BYE to AS/IM B
61								1			BYE	AS/IM_B returns, possibly
							\leftarrow					modified, BYE to IMS_B
62						\leftarrow					BYE	IMS_B forwards BYE to IBCF_B
63					\leftarrow	_					BYE	IBCF_B forwards BYE to IBCF_A
64				←							BYE	IBCF_A forwards BYE to IMS_A
65									\rightarrow		BYE	IMS_A forwards BYE to UE_B
66				←			_				200 OK	UE_B sends 200 OK for BYE
67					\rightarrow						200 OK	IMS_A forwards 200 OK response to IBCF_A
68						\rightarrow					200 OK	IBCF_A forwards 200 OK response to IBCF_B
69							\rightarrow				200 OK	IBCF_B forwards 200 OK response to IMS_B
70								\rightarrow			200 OK	IMS_B forwards 200 OK response to AS/IM_B
71							←				200 OK	AS/IM_B returns, possibly modified, 200 OK response to IMS_B
72						←					200 OK	IMS_B forwards 200 OK response to IBCF_B
73					←	_					200 OK	IBCF_B forwards 200 OK response to IBCF_A
74											200 OK	IBCF_A forwards 200 OK response to IMS_A
75			←								200 OK	IMS_A forwards 200 OK response
76				\rightarrow							200 OK	to AS/IM_A AS/IM_A returns, possibly modified, 200 OK response to
77											200 OK	IMS_A IMS_A forwards 200 OK response
78											SUBSCRIBE	to UE_A UE_B subscribes to the conference
79											SUBSCRIBE	event package IMS_A forwards SUBSCRIBE to
					\rightarrow						SUBSCRIBE	IBCF_A forwards SUBSCRIBE to
80						\rightarrow						IBCF_B
81							\rightarrow				SUBSCRIBE	IBCF_B forwards SUBSCRIBE to IMS_B



Step					Direc	tion					Message	Comment
	U	Ū	A	I	Ī	Ī	I	A	Ū	U		
	s e	E A	S/	M S	B C	B C	M S	S/	E B	s e		
	r		M	A	F	F	В	M	_	r		
	Α		Α		Α	В		В		В	OLIDOODIDE.	115 4 1 1 1
99			_	\rightarrow							SUBSCRIBE	UE_A subscribes to the conference event package
100											SUBSCRIBE	IMS_A forwards SUBSCRIBE to AS/IM_A
101				\rightarrow							SUBSCRIBE	AS/IM_A returns, possibly
102					→						SUBSCRIBE	modified, SUBSCRIBE to IMS_A IMS_A forwards SUBSCRIBE to
103						—					SUBSCRIBE	IBCF_A IBCF_A forwards SUBSCRIBE to
104											SUBSCRIBE	IBCF_B IBCF_B forwards SUBSCRIBE to
105											SUBSCRIBE	IMS_B IMS_B forwards SUBSCRIBE to
106											200 OK	AS/IM_B AS/IM_B sends 200 OK for
							\leftarrow					SUBSCRIBE
107						\leftarrow					200 OK	IMS_B forwards 200 OK response to IBCF_B
108					-	_					200 OK	IBCF_B forwards 200 OK response to IBCF_A
109											200 OK	IBCF_A forwards 200 OK response to IMS_A
110											200 OK	IMS_A forwards 200 OK response to AS/IM_A
111											200 OK	AS/IM_A returns, possibly modified, 200 OK response to
												IMS_A
112		\leftarrow									200 OK	IMS_A forwards 200 OK response to UE_A
113											NOTIFY	AS/IM_B sends NOTIFY to UE_A
												with list of 1-to-many Chat participants
114						\leftarrow					NOTIFY	IMS_B forwards NOTIFY to IBCF_B
115						_					NOTIFY	IBCF_B forwards NOTIFY to IBCF_A
116				←							NOTIFY	IBCF_A forwards NOTIFY to IMS_A
117											NOTIFY	IMS_A forwards NOTIFY to AS/IM_A
118				\rightarrow							NOTIFY	AS/IM_A returns, possibly modified, NOTIFY to IMS_A
119											NOTIFY	IMS_A forwards NOTIFY to UE_A
120	(User A is notified with list of 1-to- many Chat participants
121				\rightarrow							200 OK	UE_A sends 200 OK for NOTIFY
122			\leftarrow								200 OK	IMS_A forwards 200 OK response to AS/IM_A
123											200 OK	AS/IM_A returns, possibly
				\rightarrow								modified, 200 OK response to IMS_A
124					\rightarrow						200 OK	IMS_A forwards 200 OK response to IBCF_A
125						\rightarrow					200 OK	IBCF_A forwards 200 OK response to IBCF_B
126							\rightarrow				200 OK	IBCF_B forwards 200 OK response
127											200 OK	to IMS_B IMS_B forwards 200 OK response
								\rightarrow				to AS/IM_B

Step					Direc	tion					Message	Comment
	U s e r A	U E A	A S/ I M A	I M S A	I B C F A	I B C F B	M S B	A S/ I M B	U E B	U s e r B		
128												AS/IM_B sets up a chat session to UE_C as shown in UC_RCS_4_R (i.e. identical to a 1:1 chat session establishment).
129	←							*		\rightarrow		Users perform messaging in the 1- to-many Chat (see clause 5.3.2.2 Chat 1 to many via MSRP - Roaming and use 5.4.2 test description)
130												Continue UC_RCS_6_R (104A-146B)

4.4.4 RCS services during a call (In-Call Services)

RCS services during a call include two main types of Content sharing:

- Video sharing;
- Pictures sharing.

The main difference between these types of Content sharing is in the media session protocol. In case of Video sharing users establish RTP media session and for the Pictures sharing purposes MSRP connection is used. Since the call flow sequences for Pictures and Video sharing are similar in the Use Cases below there is only a common procedure of Content sharing described.

It should also be noted that content sharing can also be performed without a parallel voice session. The Use Case of sharing a file (picture) without a parallel voice session is provided in the File transfer service clause 4.4.5. The Use Case of a Video Share without a parallel voice session is identical to a voice session establishment apart from the SDP exchanging video codecs rather than audio codecs for the related RTP flow.

For Use Cases of Content sharing during a call it is assumed that UEs registered on the corresponding IMS networks and they have already performed capability discovery procedures. In particular, users subscribed to RCS services during a call such as video and pictures sharing.

4.4.4.1 Content sharing

4.4.4.1.1 UC_RCS_8_I: SIP message flow for Content sharing with CF_INT_CALL

Step	Action	CF_INT_CALL
1A	User A establishes voice call with user B	Step 1A
1B	User B establishes voice call with user A	Step 1B
2	User A requests to share content with user B	Step 2
3	User B is requested to accept to share content	Step 13
4	User B accepts to share content with user A	Step 19
5	User A is informed that request has been answered	Step 25
6	Content sharing starts	Step 31
7A	User A ends content sharing	Step 32A
8A	User B is informed that content sharing has terminated	Step 38A
9A	User A is informed that content sharing has terminated	Step 44A
10A	User A initiates voice call termination	Step 55A
7B	User B ends content sharing	Step 32B
8B	User A is informed that content sharing has terminated	Step 38B
9B	User B is informed that content sharing has terminated	Step 44B
10B	User B initiates voice call termination	Step 55B

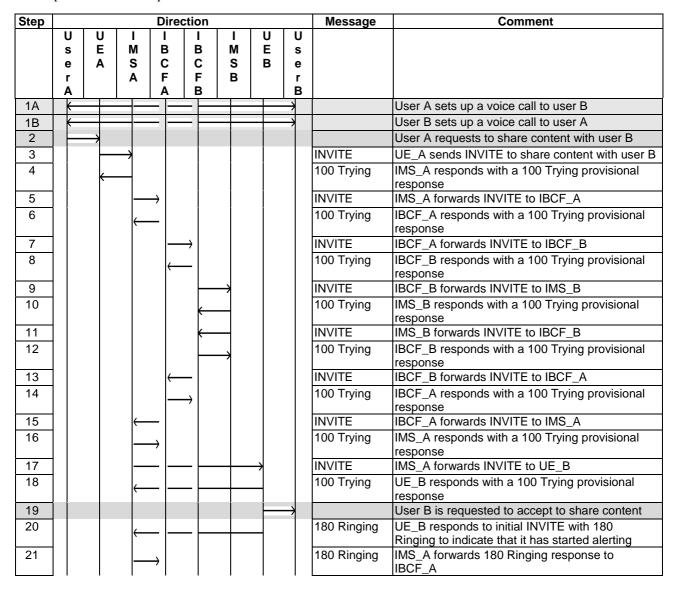
Ston				Dir	ectic	<u>. n</u>				Mossage	Commont
Step	U	U	ı	Dire	ectic		ı	U	U	Message	Comment
	s	E	M	В	Ė		M	E	s		
	е	Α	S	С	(S	В	е		
	r		Α	F	F		В		r		
1A	A 			_ A		3			B		User A establishes a voice call to user B
1B											User B establishes a voice call to user A
2		_							1		User A requests to share content with user B
3		1	_							INVITE	UE A sends INVITE to share content with user B
4			1							100 Trying	IMS_A responds with a 100 Trying provisional
										, ,	response
5				\rightarrow			ļ			INVITE	IMS_A forwards INVITE to IBCF_A
6			\leftarrow	_						100 Trying	IBCF_A responds with a 100 Trying provisional response
7				-	\longrightarrow					INVITE	IBCF_A forwards INVITE to IBCF_B
8				←						100 Trying	IBCF_B responds with a 100 Trying provisional response
9						- :	*			INVITE	IBCF_B forwards INVITE to IMS_B
10						<u> </u>]			100 Trying	IMS_B responds with a 100 Trying provisional
						•				IN IV // TE	response
11 12								7		INVITE 100 Trying	IMS_B forwards INVITE to UE_B UE_B responds with a 100 Trying provisional
12							\leftarrow	-		100 Trying	response
13									\rightarrow		User B is requested to accept to share content
14								-		180 Ringing	UE_B responds to initial INVITE with 180 Ringing to indicate that it has started alerting
15							_			180 Ringing	IMS_B forwards 180 Ringing response to IBCF_B
16				←						180 Ringing	IBCF_B forwards 180 Ringing response to IBCF_A
17			\leftarrow	_						180 Ringing	IBCF_A forwards 180 Ringing response to IMS_A
18										180 Ringing	IMS_A forwards the 180 Ringing response to UE_A
19								\leftarrow			User B accepts to share content
20										200 OK	UE_B responds INVITE with 200 OK to indicate
6.1							[000 011	that the request has been accepted
21							1			200 OK	IMS_B forwards 200 OK response to IBCF_B
22			_	_						200 OK 200 OK	IBCF_B forwards 200 OK response to IBCF_A
23		_		_						200 OK 200 OK	IBCF_A forwards 200 OK response to IMS_A IMS_A forwards 200 OK response to UE_A
25										200 OK	User A is informed that request has been
	-									ACK	answered UE_A acknowledges the receipt of 200 OK for
26			\rightarrow								INVITE
27				\rightarrow	,					ACK	IMS_A forwards ACK to IBCF_A
28				-	\longrightarrow					ACK	IBCF_A forwards ACK to IBCF_B
29							1			ACK	IBCF_B forwards ACK to IMS_B
30								7		ACK	IMS_B forwards ACK to UE_B Content sharing starts (see clause 5.3.3 Image
31				- -					\rightarrow		Content sharing starts (see clause 5.3.3 Image data via MSRP and use 5.4.3 test description)
32A		\rightarrow									User A ends content sharing
33A			\rightarrow							BYE	UE_A releases the call with BYE
34A				\rightarrow						BYE	IMS_A forwards BYE to IBCF_A
35A				-	\longrightarrow					BYE	IBCF_A forwards BYE to IBCF_B
36A						- :	1			BYE	IBCF_B forwards BYE to IMS_B
37A)		BYE	IMS_B forwards BYE to UE_B
38A									\rightarrow		User B is informed that content sharing has ended
39A								-		200 OK	UE_B sends 200 OK for BYE

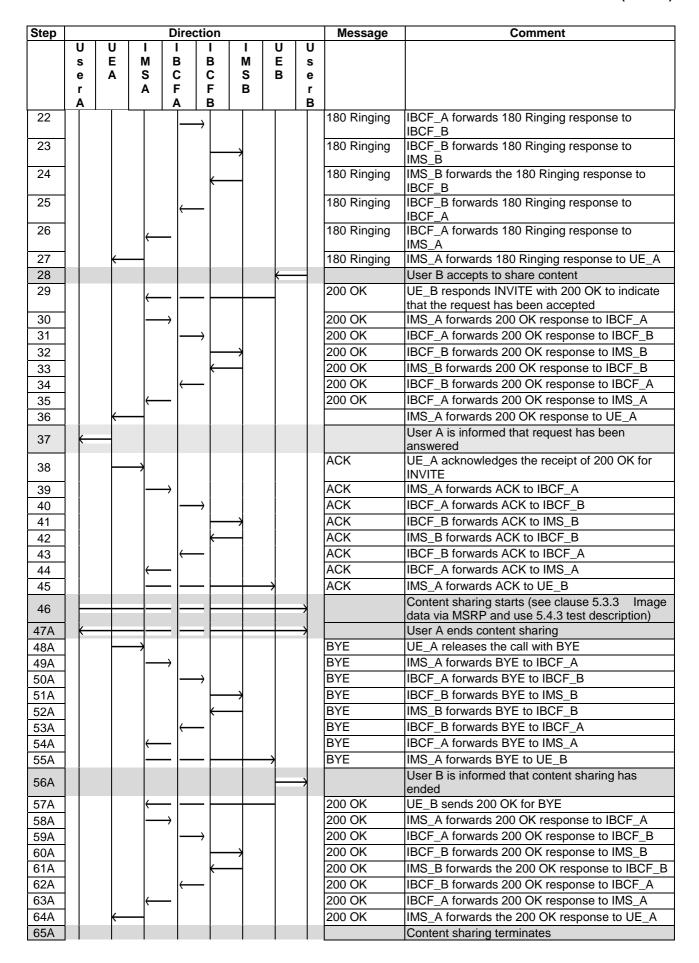
Step				Direc	tion				Message	Comment
	U	U	I	I	ı	I	U	U		
	S	E		В	В	M	E	S		
	e r	Α	S A	C F	C F	S	В	e r		
	À			A	В			В		
40A					\leftarrow				200 OK	IMS_B forwards 200 OK response to IBCF_B
41A				\leftarrow	-				200 OK	IBCF_B forwards 200 OK response to IBCF_A
42A			\leftarrow						200 OK	IBCF_A forwards 200 OK response to IMS_A
43A		←	-						200 OK	IMS_A forwards the 200 OK response to UE_A
44A										User A is informed that content sharing has ended
45A									OPTIONS	UE_B sends OPTIONS to IMS_B to verify
						\leftarrow				availability of video sharing capability of the UE_A
46A					\leftarrow				OPTIONS	IMS_B forwards OPTIONS to IBCF_B
47A				\leftarrow	-				OPTIONS	IBCF_B forwards OPTIONS to IBCF_A
48A			\leftarrow	.					OPTIONS	IBCF_A forwards OPTIONS to IMS_A
49A		\leftarrow	-						OPTIONS	IMS_A forwards OPTIONS to UE_A
50A)						200 OK	UE_A responds 200 OK to IMS_A with updated capabilities
51A			$ \longrightarrow$,					200 OK	IMS_A forwards 200 OK to IBCF_A
52A					→				200 OK	IBCF_A forwards 200 OK to IBCF_B
53A						\rightarrow			200 OK	IBCF_B forwards 200 OK to IMS_B
54A							\rightarrow		200 OK	IMS_B forwards 200 OK to UE_B
55A	—			-				\rightarrow		Voice call termination initiated by user A
32B							\leftarrow			User B ends content sharing
33B					ļ	\leftarrow	\neg		BYE	UE_B releases the call with BYE
34B					\vdash				BYE	IMS_B forwards BYE to IBCF_B
35B				\leftarrow	-				BYE	IBCF_B forwards BYE to IBCF_A
36B			\leftarrow		ŀ				BYE	IBCF_A forwards BYE to IMS_A
37B									BYE	IMS_A forwards BYE to UE_A
38B	\vdash									User A is informed that content sharing has ended
39B			,						200 OK	UE_A sends 200 OK for BYE
40B			1	,	ŀ				200 OK	IMS_A forwards 200 OK response to IBCF_A
41B			'		→		ŀ		200 OK	IBCF_A forwards 200 OK response to IBCF_B
42B					` 	\rightarrow	Ì		200 OK	IBCF_B forwards 200 OK response to IMS_B
43B					Î		\rightarrow		200 OK	IMS_B forwards the 200 OK response to UE_B
44B										User B is informed that content sharing has
								1		ended
45									OPTIONS	UE_A sends OPTIONS to IMS_A to verify
			7							availability of video sharing capability of the UE_B
46			$ \rangle$	•					OPTIONS	IMS_A forwards OPTIONS to IBCF_A
47					→				OPTIONS	IBCF_A forwards OPTIONS to IBCF_B
48						\rightarrow			OPTIONS	IBCF_B forwards OPTIONS to IMS_B
49							\rightarrow		OPTIONS	IMS_B forwards OPTIONS to UE_B
50						\leftarrow	\dashv		200 OK	UE_B responds with 200 OK to IMS_B with updated capabilities
51					K				200 OK	IMS_B forwards 200 OK to IBCF_B
52				\leftarrow	_ [200 OK	IBCF_B forwards 200 OK to IBCF_A
53			\leftarrow	.					200 OK	IBCF_A forwards 200 OK to IMS_A
54		\longleftarrow	-						200 OK	IMS_A forwards 200 OK to UE_A
55B										Voice call termination initiated by user B

4.4.4.1.2 UC_RCS_8_R: SIP message flow for Content sharing with CF_ROAM_CALL (OPTIONAL)

The test sequence typically associated with this use case is as follows (CFW step numbers refer the call flow step numbering).

Step	Action	CF_ROAM_CALL
1A	User A establishes voice call with user B	Step 1A
1B	User B establishes voice call with user A	Step 1B
2	User A requests to share content with user B	Step 2
3	User B is requested to accept to share content	Step 19
4	User B accepts to share content with user A	Step 28
5	User A is informed that request has been answered	Step 37
6	Content sharing starts	Step 46
7A	User A ends content sharing	Step 47A
8A	User B is informed that content sharing has terminated	Step 56A
9A	User A is informed that content sharing has terminated	Step 65A
10A	User A initiates voice call termination	Step 82A
7B	User B ends content sharing	Step 47B
8B	User A is informed that content sharing has terminated	Step 56B
9B	User B is informed that content sharing has terminated	Step 65B
10B	User B initiates voice call termination	Step 82B





Step				Dire	ection				Message	Comment
	U	U	I	ı	I	I	U	U		
	S	E	M	В	В	M	E	S		
	e r	Α	S	C F	C	S	В	e r		
	À		^	Ä	В	-		В		
66A			<u> </u>						OPTIONS	UE_B sends OPTIONS to IMS_A to verify
			\leftarrow	-						availability of video sharing capability of the
074									ODTIONO	UE_A
67A				→	,				OPTIONS	IMS_A forwards OPTIONS to IBCF_A
68A					→				OPTIONS	IBCF_A forwards OPTIONS to IBCF_B
69A 70A					_	\rightarrow			OPTIONS OPTIONS	IBCF_B forwards OPTIONS to IMS_B IMS_B forwards OPTIONS to IBCF_B
70A 71A									OPTIONS	
71A 72A			,	(OPTIONS	IBCF_B forwards OPTIONS to IBCF_A IBCF_A forwards OPTIONS to IMS_A
73A									OPTIONS	IMS_A forwards OPTIONS to UE_A
74A									200 OK	UE_A responds 200 OK to IMS_A with updated
			\longrightarrow							capabilities
75A			-	\rightarrow					200 OK	IMS_A forwards 200 OK to IBCF_A
76A					\rightarrow				200 OK	IBCF_A forwards 200 OK to IBCF_B
77A						\rightarrow			200 OK	IBCF_B forwards 200 OK to IMS_B
78A					\vdash				200 OK	IMS_B forwards 200 OK to IBCF_B
79A				←	_				200 OK	IBCF_B forwards 200 OK to IBCF_A
80A			\leftarrow	_					200 OK	IBCF_A forwards 200 OK to IMS_A
81A							7		200 OK	IMS_A forwards 200 OK to UE_B
82A 47B										User A terminates voice call User B ends content sharing
47B			←	_ _					BYE	UE_B releases the call with BYE
49B				\rightarrow					BYE	IMS_A forwards BYE to IBCF_A
50B				´ _	\rightarrow				BYE	IBCF_A forwards BYE to IBCF_B
51B					· L	\longrightarrow			BYE	IBCF_B forwards BYE to IMS_B
52B					\leftarrow				BYE	IMS_B forwards BYE to IBCF_B
53B				(BYE	IBCF_B forwards BYE to IBCF_A
54B			\leftarrow	-					BYE	IBCF_A forwards BYE to IMS_A
55B		+							BYE	IMS_A forwards BYE to UE_A
56B	←									User A is informed that content sharing has ended
57B			\longrightarrow						200 OK	UE_A sends 200 OK for BYE
58B				\rightarrow					200 OK	IMS_A forwards 200 OK response to IBCF_A
59B					\rightarrow				200 OK	IBCF_A forwards 200 OK response to IBCF_B
60B						\longrightarrow			200 OK	IBCF_B forwards 200 OK response to IMS_B
61B					\leftarrow				200 OK	IMS_B forwards 200 OK response to IBCF_B
62B				(←	—				200 OK	IBCF_B forwards 200 OK response to IBCF_A
63B			\leftarrow	— [200 OK	IBCF_A forwards 200 OK response to IMS_A
64B				_ -			\rightarrow		200 OK	IMS_A forwards the 200 OK response to UE_B
65B				- -				\rightarrow		Content sharing terminates
66B			\longrightarrow						OPTIONS	UE_A sends OPTIONS to IMS_A to verify availability of video sharing capability of the
67B				_					OPTIONS	UE_B IMS_A forwards OPTIONS to IBCF_A
68B				´ _					OPTIONS	IBCF_A forwards OPTIONS to IBCF_B
69B					´ L				OPTIONS	IBCF_B forwards OPTIONS to IMS_B
70B					<u>_</u>				OPTIONS	IMS_B forwards OPTIONS to IBCF_B
71B				←	<u> </u>				OPTIONS	IBCF_B forwards OPTIONS to IBCF_A
72B			←	_ [`					OPTIONS	IBCF_A forwards OPTIONS to IMS_A
73B				_ _			\rightarrow		OPTIONS	IMS_A forwards OPTIONS to UE_B
74B				_	[200 OK	UE_B responds with 200 OK to IMS_A with
			<u> </u>	_						updated capabilities
75B				\rightarrow					200 OK	IMS_A forwards 200 OK to IBCF_A
76B				-	\rightarrow				200 OK	IBCF_A forwards 200 OK to IBCF_B
77B					\vdash	\rightarrow			200 OK	IBCF_B forwards 200 OK to IMS_B

Step	Direction								Message	Comment		
	U	U	ı	ı	-	ı	U	U				
	S	E	M	В	В	M	E	S				
	е	Α	S	С	С	S	В	е				
	r		Α	F	F	В		r				
	Α			Α	В			В				
78B					\downarrow				200 OK	IMS_B forwards 200 OK to IBCF_B		
79B				\leftarrow	-				200 OK	IBCF_B forwards 200 OK to IBCF_A		
80B			\leftarrow	-					200 OK	IBCF_A forwards 200 OK to IMS_A		
81B		\leftarrow							200 OK	IMS_A forwards 200 OK to UE_A		
82B	oxed				_			\rightarrow		User B terminates voice call		

4.4.5 File transfer service

Following there are the expected common call flow sequences for a standalone File transfer service.

For all Use Cases it is assumed that UEs registered on the corresponding IMS networks and they have already performed capability discovery procedures. In particular, users subscribed to standalone File transfer service.

NOTE: According to RCS specification [12] File Transfer is a standalone service. In the mean time sharing picture during a call from the 'Media gallery' of the user terminal or file transfer during 1-to-1 chat ultimately equals to File transfer service procedures from a call flow sequences point of view.

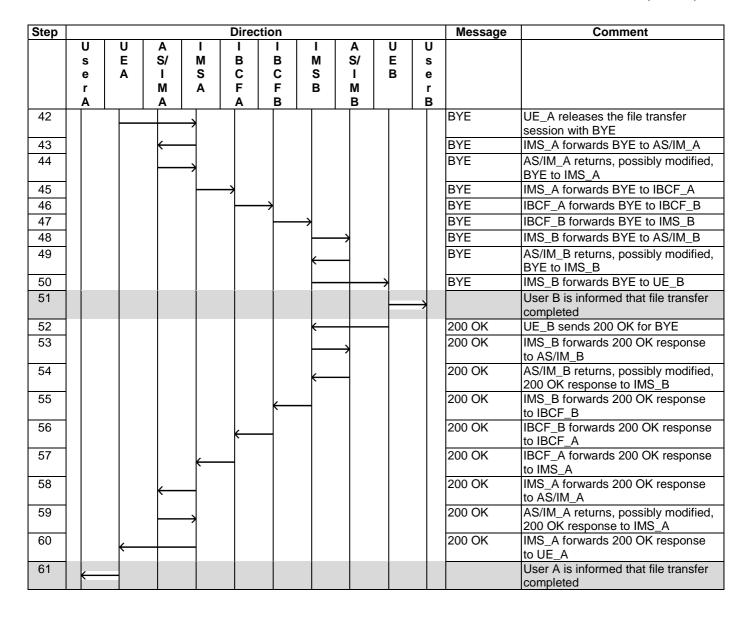
4.4.5.1 UC_RCS_9_I: SIP message flow for File transfer with CF_INT_AS

The test sequence typically associated with this use case is as follows (CFW step numbers refer the call flow step numbering):

Step	Action	CF_INT_AS
1	User A initiates a file transfer to user B	Step 1
2	User B is informed of incoming file and accepts the transfer	Step 20
3	User A is informed that file transfer has been accepted by user B	Step 30
4	File transfer starts	Step 40
5	File transfer completed (size checked)	Step 41
6	User B is informed that file transfer completed	Step 51
7	User A is informed that file transfer completed	Step 61

Step	Direction											Comment
	U s e r A	U E A	A S/ I M A	I M S A	I B C F A	I B C F B	M S B	A S/ I M B	U E B	U s e r B		
1		\rightarrow										User A initiates a file transfer to user B
2				\rightarrow							INVITE	UE_A sends INVITE to IMS_A to establish a session with the SDP offer indicating all specific data for a MSRP connection set up
3		\leftarrow									100 Trying	IMS_A responds with a 100 Trying provisional response
4			\leftarrow	_							INVITE	IMS_A forwards INVITE to AS/IM_A
5				\rightarrow							100 Trying	AS/IM_A responds with a 100 Trying provisional response
6				\rightarrow							INVITE	AS/IM_A returns, possibly modified, INVITE to IMS_A
7			\leftarrow								100 Trying	IMS_A responds with a 100 Trying provisional response
8					\rightarrow						INVITE	IMS_A forwards INVITE to IBCF_A

Step					Direct	ion					Message	Comment
	U	U	Α	I	ı	ı	I	Α	U	U		
	s	E	S/	M	В	В	M	S/	E	S		
	e	Α	I M	S A	C F	C F	S	I M	В	e		
	r A		A	^	Ā	В		B		r B		
9				k	1						100 Trying	IBCF_A responds with a 100 Trying provisional response
10						\rightarrow					INVITE	IBCF_A forwards INVITE to IBCF_B
11						1					100 Trying	IBCF_B responds with a 100 Trying
					\leftarrow						100 Trying	provisional response
12							\rightarrow				INVITE	IBCF_B forwards INVITE to IMS_B
13						\leftarrow					100 Trying	IMS_B responds with a 100 Trying provisional response
14								\rightarrow			INVITE	IMS_B forwards INVITE to AS/IM_B
15											100 Trying	AS/IM_B responds with a 100
												Trying provisional response
16							-				INVITE	AS/IM_B returns, possibly modified, INVITE to IMS_B
17											100 Trying	IMS_B responds with a 100 Trying
												provisional response
18									\longrightarrow		INVITE	IMS_B forwards INVITE to UE_B
19							←				100 Trying	UE_B optionally responds with a
20							-					100 Trying provisional response
20									-	\rightarrow		User B is informed of incoming file and accepts the transfer
21											200 OK	UE_B responds INVITE with 200
											200 011	OK response with SDP to indicate
							←					that the session has been accepted
												and inform A-side with specific data
											000 014	for a MSRP connection set up
22								\rightarrow			200 OK	IMS_B forwards 200 OK response to AS/IM_B
23							←				200 OK	AS/IM_B returns, possibly modified, 200 OK response to IMS_B
24						\leftarrow					200 OK	IMS_B forwards 200 OK response to IBCF_B
25					—						200 OK	IBCF_B forwards 200 OK response to IBCF_A
26											200 OK	IBCF_A forwards 200 OK response
27												to IMS_A IMS_A forwards 200 OK response
				1							200 OK	to AS/IM_A
28)							200 OK	AS/IM_A returns, possibly modified, 200 OK response to IMS_A
29											200 OK	IMS_A forwards 200 OK response to UE_A
30												User A is informed that file transfer
	—											has been accepted by user B
31				>							ACK	UE_A acknowledges the receipt of 200 OK for INVITE
32			←—	_							ACK	IMS_A forwards ACK to AS/IM_A
33)							ACK	AS/IM_A returns, possibly modified,
34											ACK	ACK to IMS_A IMS_A forwards ACK to IBCF_A
35											ACK	IBCF_A forwards ACK to IBCF_B
36											ACK	IBCF_B forwards ACK to IMS_B
37											ACK	IMS_B forwards ACK to IMS_B
38											ACK	AS/IM_B returns, possibly modified,
							K					ACK to IMS_B
39									\rightarrow		ACK	IMS_B forwards ACK to UE_B
40	—									\rightarrow		File transfer starts (see clause 5.3.3 Image data via MSRP
												and use 5.4.3 test description)
41												File transfer completed (size checked)
												on on our



4.4.5.2 UC_RCS_9_R: SIP message flow for File transfer with CF_ROAM_AS (OPTIONAL)

The test sequence typically associated with this use case is as follows (CFW step numbers refer the call flow step numbering):

Step	Action	CF_ROAM_AS
1	User B initiates a file transfer to user A	Step 1
2	User A is informed of incoming file and accepts the transfer	Step 26
3	User B is informed that file transfer has been accepted by user A	Step 39
4	File transfer starts	Step 52
5	File transfer completed (size checked)	Step 53
6	User A is informed that file transfer completed	Step 66
7	User B is informed that file transfer completed	Step 79

Step					Direc	tion	Message	Comment				
	U	U	Α	I	I	I	I	Α	U	U		
	s	Е	S/	М	В	В	М	S/	Е	s		
	е	Α	ı	S	С	С	S	I	В	е		
	r		M	Α	F	F	В	M		r		
	Α		Α		Α	В		В		В		

Step					Directi	on					Message	Comment
	U	U	Α	ı	ı	ı	I	Α	U	U		
	s	E	S/	M	В	В	M	S/	E	S		
	e r	Α	I M	S A	C F	C F	S B	I M	В	e r		
	À		A	^	A	В		В		В		
1									—			User B initiates a file transfer to user A
2											INVITE	UE_B sends INVITE to IMS_A to
												establish a new session with the
												SDP offer indicating all specific data for a new MSRP connection set up
3											100 Trying	IMS_A responds with a 100 Trying
									\rightarrow		, ,	provisional response
4					•						INVITE	IMS_A forwards INVITE to IBCF_A
5					_						100 Trying	IBCF_A responds with a 100 Trying
6											INVITE	provisional response IBCF_A forwards INVITE to IBCF_B
7						7					100 Trying	IBCF_B responds with a 100 Trying
'					\leftarrow	-					100 Trying	provisional response
8)				INVITE	IBCF_B forwards INVITE to IMS_B
9						<u></u>					100 Trying	IMS_B responds with a 100 Trying
40											INDUITE	provisional response
10								\rightarrow			INVITE	IMS_B forwards INVITE to AS/IM_B
11							\leftarrow				100 Trying	AS/IM_B responds with a 100 Trying provisional response
12											INVITE	AS/IM_B returns, possibly modified,
												INVITE to IMS_B
13								\rightarrow			100 Trying	IMS_B responds with a 100 Trying
14											INVITE	provisional response IMS_B forwards INVITE to IBCF_B
15											100 Trying	IBCF_B responds with a 100 Trying
)				, ,	provisional response
16					\leftarrow	-					INVITE	IBCF_B forwards INVITE to IBCF_A
17						>					100 Trying	IBCF_A responds with a 100 Trying
18											INVITE	provisional response IBCF_A forwards INVITE to IMS_A
19											100 Trying	IMS_A responds with a 100 Trying
					•						l co rrying	provisional response
20											INVITE	IMS_A forwards INVITE to AS/IM_A
21				→							100 Trying	AS/IM_A responds with a 100 Trying
20											INVITE	provisional response
22				\rightarrow								AS/IM_A returns, possibly modified, INVITE to IMS_A
23			←	_							100 Trying	IMS_A responds with a 100 Trying provisional response
24		\leftarrow									INVITE	IMS_A forwards INVITE to UE_A
25				_							100 Trying	UE_A optionally responds with a 100
				1								Trying provisional response
26	-											User A is informed of incoming file and accepts the transfer
27											200 OK	UE_A responds INVITE with 200 OK
				_								response with SDP to indicate that the session has been accepted and
				1								inform B-side with specific data for a
												new MSRP connection set up
28				\dashv							200 OK	IMS_A forwards 200 OK response to AS/IM_A
29				\rightarrow							200 OK	AS/IM_A returns, possibly modified, 200 OK response to IMS_A
30											200 OK	IMS_A forwards 200 OK response to
					7							IBCF_A
31						>					200 OK	IBCF_A forwards 200 OK response to IBCF_B
32)				200 OK	IBCF_B forwards 200 OK response to IMS_B
	ı	ı	1	1	I	ı	ı	1	ı	ı	L	

Step					D	irecti	on					Message	Comment
	U	Ū	A			I	1	I	A	Ū	U		
	S	E	S/	M		B C	B C	M S	S/	E B	s e		
	e r	A	Ь	A		F	F	B	M		r		
	A		Α	'		A	В	_	В		В		
33					•	•			\rightarrow			200 OK	IMS_B forwards 200 OK response to AS/IM_B
34								—				200 OK	AS/IM_B returns, possibly modified, 200 OK response to IMS_B
35												200 OK	IMS_B forwards 200 OK response to IBCF_B
36						(200 OK	IBCF_B forwards 200 OK response to IBCF_A
37				←								200 OK	IBCF_A forwards 200 OK response to IMS_A
38										\rightarrow		200 OK	IMS_A forwards 200 OK response to
39											\rightarrow		UE_B User B is informed that file transfer
40				<u></u>								ACK	has been accepted by user B UE_B acknowledges the receipt of
41												ACK	200 OK for INVITE IMS_A forwards ACK to IBCF_A
42					1	,						ACK	IBCF_A forwards ACK to IBCF_B
43						•		_				ACK	IBCF_B forwards ACK to IMS_B
44								1				ACK	IMS_B forwards ACK to AS/IM_B
45									1			ACK	AS/IM_B returns, possibly modified,
10								\leftarrow				, tort	ACK to IMS_B
46							\leftarrow					ACK	IMS_B forwards ACK to IBCF_B
47					k	(-					ACK	IBCF_B forwards ACK to IBCF_A
48				\leftarrow								ACK	IBCF_A forwards ACK to IMS_A
49			←									ACK	IMS_A forwards ACK to AS/IM_A
50				\rightarrow								ACK	AS/IM_A returns, possibly modified, ACK to IMS_A
51		\leftarrow										ACK	IMS_A forwards ACK to UE_A
52	•										\rightarrow		File transfer starts (see clause 5.3.3 Image data via MSRP and use 5.4.3 test description)
53													File transfer completed (size checked)
54				\leftarrow								BYE	UE_B releases the file transfer session with BYE
55					\longrightarrow							BYE	IMS_A forwards BYE to IBCF_A
56					-		•					BYE	IBCF_A forwards BYE to IBCF_B
57								\rightarrow				BYE	IBCF_B forwards BYE to IMS_B
58									\rightarrow			BYE	IMS_B forwards BYE to AS/IM_B
59								\leftarrow				BYE	AS/IM_B returns, possibly modified, BYE to IMS_B
60							—	_				BYE	IMS_B forwards BYE to IBCF_B
61						(-					BYE	IBCF_B forwards BYE to IBCF_A
62				\leftarrow								BYE	IBCF_A forwards BYE to IMS_A
63			\leftarrow									BYE	IMS_A forwards BYE to AS/IM_A
64				\rightarrow								BYE	AS/IM_A returns, possibly modified, BYE to IMS_A
65		\leftarrow										BYE	IMS_A forwards BYE to UE_A
66													User A is informed that file transfer completed
67				\rightarrow								200 OK	UE_A sends 200 OK for BYE
68			←									200 OK	IMS_A forwards 200 OK response to AS/IM_A
69				\rightarrow								200 OK	AS/IM_A returns, possibly modified, 200 OK response to IMS_A
70					\longrightarrow							200 OK	IMS_A forwards 200 OK response to IBCF_A
	I	I	I	l	I		1	1	I	ı	I	<u> </u>	1551_1

Step					Direc	tion					Message	Comment
	s C	ШС	A S/	⊿ –	– в	– в	I M	A S/	υш	U s		
	е	Α	ı	S	С	С	S	- 1	В	е		
	r		M	Α	F	F	В	M		r		
	Α		Α		Α	В	<u> </u>	В		В		
71						\rightarrow					200 OK	IBCF_A forwards 200 OK response
						1						to IBCF_B
72							\rightarrow				200 OK	IBCF_B forwards 200 OK response
							1					to IMS_B
73											200 OK	IMS_B forwards 200 OK response to
								1				AS/IM_B
74							_				200 OK	AS/IM_B returns, possibly modified,
							l`					200 OK response to IMS_B
75						_					200 OK	IMS_B forwards 200 OK response to
												IBCF_B
76					,						200 OK	IBCF_B forwards 200 OK response
												to IBCF_A
77				,							200 OK	IBCF_A forwards 200 OK response
												to IMS_A
78											200 OK	IMS_A forwards 200 OK response to
												UE_B
79												User B is informed that file transfer
										7		completed

4.4.6 Geo-Location Services

Following there are the expected common call flow sequences for a standalone Geo-Location services.

According to RCS specification [12] there are two types of Geo-Location service:

- Geo-Location Push;
- Geo-Location Pull.

The Geo-Location Push service is based on the FT service (and thus the RCS user shall also have the FT service) - albeit with the Geo-Location Push service identified by a specific RCS tag.

The Geo-Location Pull service has two variants, each identified by specific RCS tags:

- Via FT. As for the push variant, the RCS user shall also have the FT service again with the Geo-Location Pull service identified by a specific RCS tag.
- Via Geo-Location API GW and LBS infrastructure. This is out of scope for the present document.

For all Use Cases it is assumed that UEs registered on the corresponding IMS networks and they have already performed capability discovery procedures. In particular, users subscribed to standalone File transfer service and the specific Geo-Location Push and Pull (via FT) services.

It should also be noted that Geo-Location information can be exchanged as part of the Social Presence service (see clause 4.4.2).

Finally, the mechanism by which the user obtains location information is out of scope for the present document.

4.4.6.1 UC_RCS_10_I: SIP message flow for Geo-Location Push with CF_INT_AS

The test sequence typically associated with this use case is as follows (CFW step numbers refer the call flow step numbering):

Step	Action	CF_INT_AS
1	User A initiates a geo-location push file transfer to user B	Step 1
2	User B is informed of incoming file and accepts the transfer.	Step 20
3	User A is informed that file transfer has been accepted by user B	Step 30
4	File transfer starts	Step 40
5	File transfer completed (size checked)	Step 41
6	User B is informed that file transfer completed	Step 51
7	User A is informed that file transfer completed	Step 61

The expected call flow sequence is:

Step					Direc	tion					Message	Comment
	U	U	A	I	1	1	I	Α	U	U		
	S	E	S/	M	В	В	M	S/	E	S		
	е	Α	<u> </u>	S	C	<u> </u>	S	<u> </u>	В	е		
	r		M	Α	F	<u> </u>	В	M		r		
	A		A		A	<u> B</u>		В		В		
1-61												As UC_RCS_9_I (1-61) with the following differences: User A initiates a geo-location push to user B. The Accept-Contact header in the SIP INVITE includes the tag for geo-location push. The file type to be transferred is specified as application/rcspushlocation+xml.

4.4.6.2 UC_RCS_10_I: SIP message flow for Geo-Location Pull via File transfer with CF_INT_AS

The test sequence typically associated with this use case is as follows (CFW step numbers refer the call flow step numbering):

Step	Action	CF_INT_AS
1	User A initiates a geo-location pull via file transfer to user B	Step 1
2	User B is informed of incoming file and agrees to share geo-location	Step 20
	information.	
3	User A is informed that file transfer request has been accepted by user B	Step 30
4	File transfer starts (B to A)	Step 40
5	File transfer completed (size checked)	Step 41
6	User B is informed that file transfer completed	Step 51
7	User A is informed that file transfer completed	Step 61

Step					Direc	tion	Message	Comment				
	U	U	Α	ı	-	ı	ı	Α	U	U		
	s	Ε	S/	M	В	В	M	S/	E	s		
	е	Α	ı	S	С	С	S	- 1	В	е		
	r		M	Α	F	F	В	М		r		
	Α		Α		Α	В		В		В		

Step					Direc	tion					Message	Comment
	U s e r A	U E A	A S/ I M A	I M S A	I B C F A	I B C F B	I M S B	A S/ I M B	U E B	U s e r B		
1-19												As UC_RCS_9_I (1-19) with the following differences: User A initiates a geo-location pull to user B. The Accept-Contact header in the SIP INVITE includes the tag for geo-location pull (via FT). The SDP media attribute is set to recvonly. The file type to be transferred is specified as application/rcspushlocation+xml.
20												User B is informed of incoming request and agrees to share geolocation information.
21- 61												As UC_RCS_9_I (21-61) with the following differences: FT occurs from B to A.

4.4.6.3 UC_RCS_10_R: SIP message flow for Geo-Location Push with CF_ROAM_AS

The test sequence typically associated with this use case is as follows (CFW step numbers refer the call flow step numbering):

Step	Action	CF_ROAM_AS
1	User B initiates a file transfer to user A	Step 1
2	User A is informed of incoming file and accepts the transfer	Step 26
3	User B is informed that file transfer has been accepted by user A	Step 39
4	File transfer starts	Step 52
5	File transfer completed (size checked)	Step 53
6	User A is informed that file transfer completed	Step 66
7	User B is informed that file transfer completed	Step 79

Step					Direc	tion					Message	Comment
	U s e r A	U E A	A S/ I M A	M S A	I B C F A	I B C F B	M S B	A S/ I M B	U E B	U s e r B		
1-79												As UC_RCS_9_R (1-79) with the following differences: User B initiates a geo-location push to user A. The Accept-Contact header in the SIP INVITE includes the tag for geo-location push. The file type to be transferred is specified as application/rcspushlocation+xml.

4.4.6.4 UC_RCS_10_R: SIP message flow for Geo-Location Pull via File Transfer with CF_ROAM_AS

The test sequence typically associated with this use case is as follows (CFW step numbers refer the call flow step numbering):

Step	Action	CF_ROAM_AS
1	User B initiates a file transfer to user A	Step 1
2	User A is informed of incoming file and agrees to share geo-location information.	Step 26
3	User B is informed that file transfer request has been accepted by user A	Step 39
4	File transfer starts	Step 52
5	File transfer completed (size checked)	Step 53
6	User A is informed that file transfer completed	Step 66
7	User B is informed that file transfer completed	Step 79

The expected call flow sequence is:

Step					Direct	ion					Message	Comment
	U s e r A	U E A	A S/ I M A	I M S A	I B C F A	- B C F B	- M В	A % – M B	U E B	U s e r B		
1-25												As UC_RCS_9_R (1-25) with the following differences: User A initiates a geo-location pull to user B. The Accept-Contact header in the SIP INVITE includes the tag for geo-location pull (via FT). The SDP media attribute is set to recvonly. The file type to be transferred is specified as application/rcspushlocation+xml.
26												User A is informed of incoming file transfer request and agrees to share geo-location information.
27- 79												As UC_RCS_9_R (27-79) with the following differences: FT occurs from A to B.

4.4.7 Standalone Messaging

CPM permits messages under 1 300 bytes to be conveyed via a the Standalone Messaging service via a single SIP transaction. This is the so-called pager-mode. Larger messages shall be conveyed via a MSRP session as described in clause 4.4.

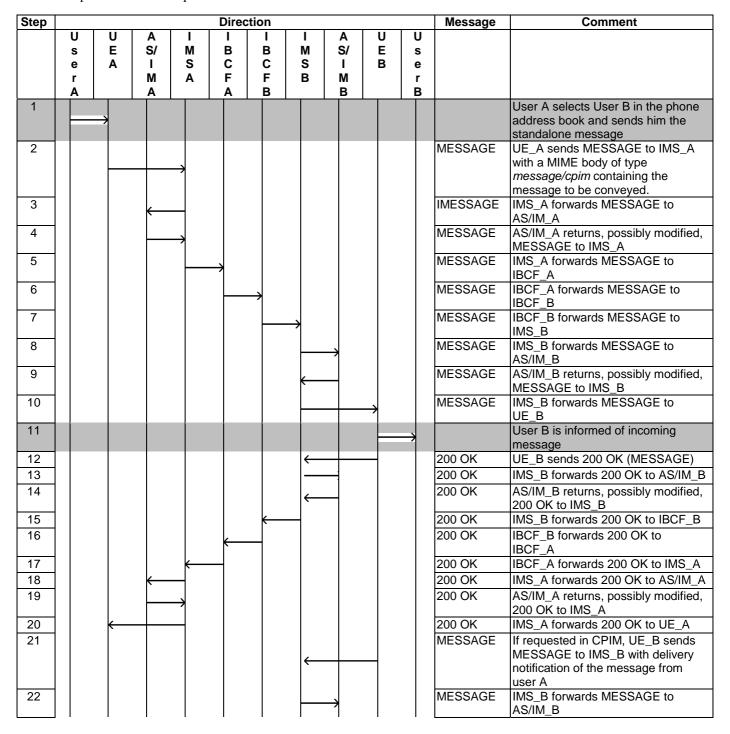
There is a discrete RCS tag defined for the Standalone Message Service.

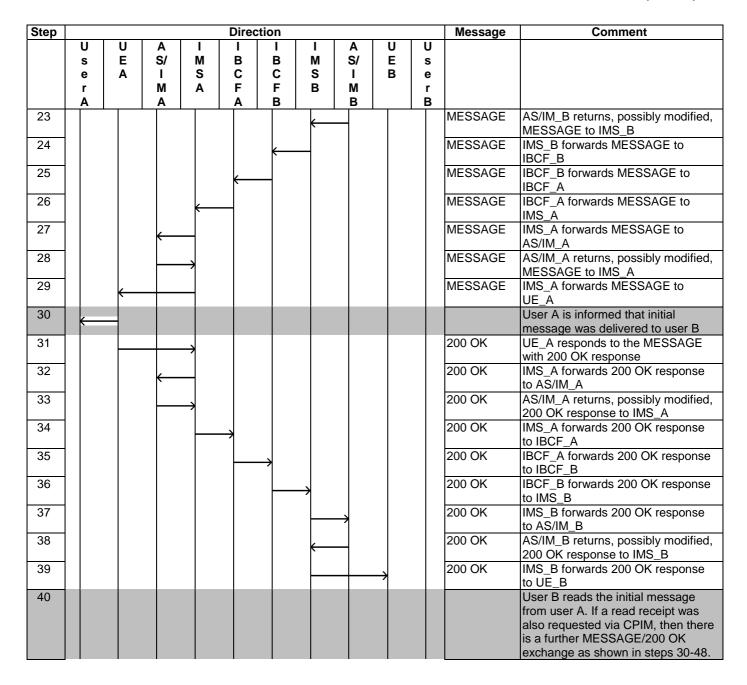
For all Use Cases it is assumed that UEs registered on the corresponding IMS networks and they have already performed capability discovery procedures. In particular, users subscribed to the Standalone Message service and the size of the message to be conveyed is under the pager-mode threshold.

4.4.7.1 UC_RCS_11_I: SIP message flow for Standalone Messaging procedure with CF_INT_AS

The test sequence typically associated with this use case is as follows (CFW step numbers refer the call flow step numbering):

Step	Action	CF_INT_AS
	User A selects User B in the phone address book and sends him	Step 1
	an initial message	
2	User B is informed of incoming message	Step 11
3	User A is informed that initial message was delivered to user B	Step 29
4	User B reads the initial message from user A.	Step 40



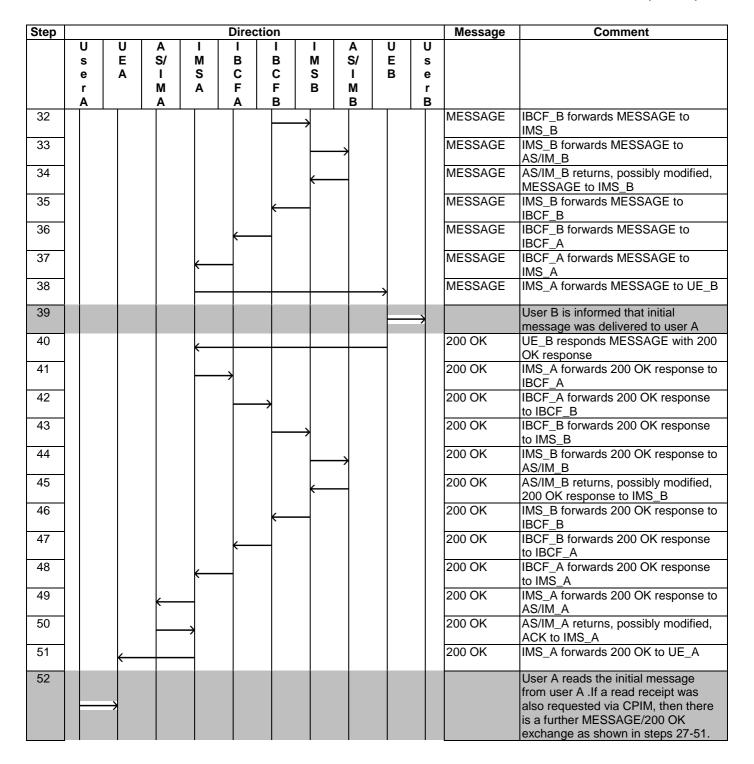


4.4.7.2 UC_RCS_11_R: SIP message flow for Standalone Messaging procedure with CF_ROAM_AS

The test sequence typically associated with this use case is as follows (CFW step numbers refer the call flow step numbering):

Step	Action	CF_ROAM_AS
1	User B selects User A in the phone address book and sends him	Step 1
	an initial message	
2	User A is informed of incoming message	Step 14
3	User B is informed that the message was delivered to user A	Step 39
4	User A reads the message from user B.	Step 52

Step					Direct	ion					Message	Comment
	U	Ū	A	ı	I	Ī	I	A	Ū	U		
	s e	E A	S/	M S	B C	B C	M S	S/	E B	s e		
	r	^	M	A	F	F	В	M	"	r		
	Α		Α		Α	В		В		В		
1									_			User B selects User A in the phone address book and sends him a
												standalone message
2											MESSAGE	UE_B sends MESSAGE to IMS_A
				\leftarrow			_					with a MIME body of type message/cpim containing the
												message to be conveyed.
3					\rightarrow						MESSAGE	IMS_A forwards MESSAGE to
4											MESSAGE	IBCF_A IBCF_A forwards MESSAGE to
-						\rightarrow					WEGO/ (GE	IBCF_B
5							\rightarrow				MESSAGE	IBCF_B forwards MESSAGE to
6											MESSAGE	IMS_B IMS_B forwards MESSAGE to
0								\rightarrow			MESSAGE	AS/IM_B
7											MESSAGE	AS/IM_B returns, possibly modified,
											MEGGAGE	MESSAGE to IMS_B
8						←					MESSAGE	IMS_B forwards MESSAGE to IBCF_B
9											MESSAGE	IBCF_B forwards MESSAGE to
10											MEGGAGE	IBCF_A
10				\leftarrow							MESSAGE	IBCF_A forwards MESSAGE to IMS_A
11											MESSAGE	IMS_A forwards MESSAGE to
40											MESSAGE	AS/IM_A
12				\rightarrow							MESSAGE	AS/IM_A returns, possibly modified, MESSAGE to IMS_A
13		\leftarrow		_							MESSAGE	IMS_A forwards MESSAGE to UE_A
14	—											User A is informed of incoming
15											200 OK	message UE_A sends 200 OK to IMS_A in
				\rightarrow							200 011	response to receipt of MESSAE from
10											000 014	UE B.
16 17			\leftarrow								200 OK 200 OK	IMS_A forwards 200 OK to AS/IM_A AS/IM_A returns, possibly modified,
17				\rightarrow							200 OK	200 OK to IMS_A
18					\rightarrow						200 OK	IMS_A forwards 200 OK to IBCF_A
19						\rightarrow					200 OK	IBCF_A forwards 200 OK to IBCF_B
20							\rightarrow				200 OK	IBCF_B forwards 200 OK to IMS_B
21								\rightarrow			200 OK	IMS_B forwards 200 OK to AS/IM_B
22							\leftarrow	\dashv			200 OK	AS/IM_B returns, possibly modified, 200 OK to IMS_B
23						—	_				200 OK	IMS_B forwards 200 OK to IBCF_B
24					←	\dashv					200 OK	IBCF_B forwards 200 OK to IBCF_A
25				\leftarrow	\dashv						200 OK	IBCF_A forwards 200 OK to IMS_A
26					+		+		\longrightarrow		200 OK	IMS_A forwards 200 OK to UE_B
27											MESSAGE	If requested in the CPIM, UE_A
				\rightarrow								sends MESSAGE to IMS_A with delivery notification of initial message
												from user B
28			\leftarrow	4							MESSAGE	IMS_A forwards MESSAGE to
29											MESSAGE	AS/IM_A AS/IM_A returns, possibly modified,
				\rightarrow								MESSAGE to IMS_A
30					\rightarrow						MESSAGE	IMS_A forwards MESSAGE to
31											MESSAGE	IBCF_A IBCF_A forwards MESSAGE to
						7						IBCF_B



4.4.8 Multi-Tasking

Multi tasking is where an RCS service occurs in parallel to a voice session involving a separate user (e.g. A-B in speech and then an additional RCS session involving A or B with a separate user C. Flows can be derived for multi-tasking scenarios with reference to previous clauses 4.4.1 through 4.4.7 in conjunction with flows documented in TS 186 011-2 [7] and RFC 4976 [9].

4.5 Test Descriptions

This clause introduces interoperability test descriptions (TDs) which realize one or more IMS NNI test purposes of TS 186 011-1 [2].

Each TD is defined on the basis of one of the generic use cases forms presented in the previous clause and in TS 186 011-2 [7], clause 4.4. Each test sequence step in a TD includes also a reference to a specific call flow step of the generic use case. Call flow steps which are associated with the test body are repeated after each TD and include any modifications necessary to adapt the generic use case. In the adapted call flow steps that are associated with user interactions are shown shaded and steps which have pass criteria are shown in bold.

Note that the expected test sequence may only show the Call Flow that affects the test.

In the tabulations which follow, all references are to TS 124 229 [1] or GSMATM RCS V5.1 [12].

4.5.1 Capability discovery

4.5.1.1 Capability discover through OPTIONS - User B is Registered - interworking

		Interoperability Te	est Description						
Identifier:	TD_IMS_CAP_0001								
Summary:	IMS network supports capability discovery and OPTIONS messages exchange								
	between two users in their home network can be performed. User B is registered.								
Configuration:	CF_INT_CALL								
SUT	IMS_B								
References	Test Purpose	9	Specification Reference						
	TP_IMS_5097	7_15	TS 124 229 [1], clause 5.4.3.2 ¶11 (1 st numbered list)						
	TP_IMS_5117	7_02	TS 124 229 [1], clause 5.4.3.3 ¶100 (item 2 in 5 th numbered list)						
	TP_IMS_5118	8_01	TS 124 229 [1], clause 5.4.3.3 ¶105 (item 2 in 6 th numbered list)						
Use Case ref.:	UC_RCS_1_I		I/main 2 in a main action many						
conditions:	per TS 18 UE_A is 1 UE_B is 1 IMS_A is IMS_B is IMS_A is	JE_A and UE_B have IP bearers established to their respective IMS networks as per TS 186 011-2 [7], clause 4.2.1 JE_A is registered in IMS_A optionally using userPRES according to table 1 JE_B is registered in IMS_B optionally using userPRES according to table 1 MS_A is configured to contact AS_A MS_B is configured to contact AS_B MS_A is within the trust domain of IMS_B MS_A not configured for topology hiding							
Took Common									
Test Sequence:	Step								
rest Sequence:	1 Us		of user B in the phone address book						
rest Sequence:	1 Us	er B is informed abou	t user A capabilities						
rest Sequence:	1 Us		t user A capabilities						
rest Sequence:	1 Us	er B is informed abou	t user A capabilities						
Conformance	1 Us 2 Us 3 Us	er B is informed abou er A is informed abou	t user A capabilities t user B capabilities						
	1 Us 2 Us 3 Us Check 1 TP	er B is informed abou er A is informed abou 2_IMS_5097_15 in CF	t user A capabilities						
Conformance	1 Us 2 Us 3 Us Check 1 TP	er B is informed abouter A is informed about	t user A capabilities t user B capabilities W step 4 (OPTIONS):						
Conformance	1 Us 2 Us 3 Us Check 1 TP ens wh	er B is informed abouter A is informed about	t user A capabilities t user B capabilities W step 4 (OPTIONS): OPTIONS to UE_B }						
Conformance	1 Us 2 Us 3 Us Check 1 TP ens wh	er B is informed abouter A in A is informed about A is informed about A is informed A in	t user A capabilities t user B capabilities W step 4 (OPTIONS): OPTIONS to UE_B } the OPTIONS						
Conformance	1 Us 2 Us 3 Us Check 1 TP ens wh	er B is informed abouter A is informed and information A is informed about a information A is informed abouter A	t user A capabilities t user B capabilities W step 4 (OPTIONS): OPTIONS to UE_B } the OPTIONS Route_header						
Conformance	1 Us 2 Us 3 Us Check 1 TP ens wh	er B is informed abouter A is informed abouter A is informed abouter A is informed abouter B in CF sure that { sure that { sure that { sure {UE_A sends an informed {IMS_B receives not containing a indicating the S	t user A capabilities t user B capabilities W step 4 (OPTIONS): OPTIONS to UE_B } the OPTIONS Route_header S-CSCF_SIP_URI of IMS_A						
Conformance	1 Us 2 Us 3 Us Check 1 TP ens wh	er B is informed abouter A is informed abouter A is informed abouter A is informed abouter B in CF sure that { inen { UE_A sends an inen { IMS_B receives not containing a indicating the S containing a P-C	t user A capabilities t user B capabilities W step 4 (OPTIONS): OPTIONS to UE_B } the OPTIONS Route_header S-CSCF_SIP_URI of IMS_A charging-Vector_header						
Conformance	1 Us 2 Us 3 Us Check 1 TP ens wh	er B is informed abouter A is informed abouter A is informed abouter A is informed abouter B in CF and S in CF are that { In the first and th	t user A capabilities t user B capabilities W step 4 (OPTIONS): OPTIONS to UE_B } the OPTIONS Route_header S-CSCF_SIP_URI of IMS_A charging-Vector_header icid-value_parameter and						
Conformance	1 Us 2 Us 3 Us Check 1 TP ens wh	er B is informed abouter A is informed abouter A is informed abouter A is informed abouter B in CF sure that { then { UE_A sends an informed { IMS_B receives not containing a indicating the Secontaining a P-C (containing a or containing a co	t user A capabilities t user B capabilities W step 4 (OPTIONS): OPTIONS to UE_B } the OPTIONS Route_header S-CSCF_SIP_URI of IMS_A charging-Vector_header icid-value_parameter and cig-ioi_parameter indicating IMS_A and						
Conformance	1 Us 2 Us 3 Us Check 1 TP ens wh	er B is informed abouter A is informed abouter A is informed abouter A is informed abouter B in CF sure that { then { UE_A sends an informed { IMS_B receives not containing a indicating the Secontaining a P-C (containing a information about a informed abouter B informed abou	t user A capabilities t user B capabilities W step 4 (OPTIONS): OPTIONS to UE_B } the OPTIONS Route_header S-CSCF_SIP_URI of IMS_A charging-Vector_header icid-value_parameter and ing-ioi_parameter indicating IMS_A and an access-network-charging-info_parameter and						
Conformance	1 Us 2 Us 3 Us Check 1 TP ens wh	er B is informed abouter A is informed abouter A is informed abouter A is informed abouter B in CF sure that { In Example 1	t user A capabilities t user B capabilities W step 4 (OPTIONS): OPTIONS to UE_B } the OPTIONS Route_header S-CSCF_SIP_URI of IMS_A tharging-Vector_header icid-value_parameter and ing-ioi_parameter indicating IMS_A and an access-network-charging-info_parameter and a term-ioi_parameter) and						
Conformance	1 Us 2 Us 3 Us Check 1 TP ens wh	er B is informed abouter A is informed abouter A is informed abouter A is informed abouter B is informed abouter B is informed a information and indicating a P-C (containing a information a information and containing a or information and containing a Recontaining a Recontaini	t user A capabilities t user B capabilities W step 4 (OPTIONS): OPTIONS to UE_B } the OPTIONS Route_header S-CSCF_SIP_URI of IMS_A charging-Vector_header icid-value_parameter and ing-ioi_parameter indicating IMS_A and an access-network-charging-info_parameter and						

	Interoperability Test Description				
	}				
2	TP_IMS_5117_02 in CFW step 10 (200 OK)				
	ensure that {				
	when { UE_B sends a 2xx_response to UE_A }				
	then { IMS_A receives the 2xx_response				
	containing a P-Charging-Vector_header				
	not containing an access-network-charging-info_parameter }				
	}				
3	TP_IMS_5118_01 in CFW step 10 (200 OK)				
	ensure that {				
	when { UE_B sends 200_response to UE_A }				
	then { IMS_A receives the 200_response				
	containing a P-Charging-Vector_header				
	containing a orig-ioi_parameter				
	indicating operator_identifier of IMS_A and				
	containing a term-ioi_parameter				
	indicating operator_identifier of IMS_B }				
	}				

Step				Dire	ction				Message	Comment
	C	U	ı	I	I	ı	U	U		
	S	E	M	В	В	M	E	S		
	e	Α	S	C	C	S	В	е		
	r A		Α	A	B	В		r B		
1										User A selects a contact of user B in the phone
										address book
2									OPTIONS	UE_A sends OPTIONS to IMS_A with Accept-
			\rightarrow							contact header containing user A capabilities
										(RCS services Tags(RCS services Tags)
3				\rightarrow					OPTIONS	IMS_A forwards OPTIONS to IBCF_A
4					\longrightarrow				OPTIONS	IBCF_A forwards OPTIONS to IBCF_B
5						\rightarrow			OPTIONS	IBCF_B forwards OPTIONS to IMS_B
6							\rightarrow		OPTIONS	IMS_B forwards OPTIONS to UE_B
7										User B is informed about user A capabilities
8									200 OK	UE_B responds with 200 OK to IMS_B with
						\leftarrow				Contact header containing user B capabilities
										(RCS services Tags(RCS services Tags)
9					⊬				200 OK	IMS_B forwards 200 OK to IBCF_B
10				\leftarrow					200 OK	IBCF_B forwards 200 OK to IBCF_A
11			\leftarrow						200 OK	IBCF_A forwards 200 OK to IMS_A
12		\leftarrow	_						200 OK	IMS_A forwards 200 OK to UE_A
13										User A is informed about user B capabilities

4.5.1.2 Capability discover through OPTIONS - User B is Registered - roaming

	Interoperability Test Description								
Identifier:	TD_IMS_CAP_0002								
Summary:	IMS network supports capability discovery and OPTIONS messages exchange								
	between one user in its home r	network and another in visited network can be							
	performed. User B is registered	i.							
Configuration:	CF_ROAM_CALL (OPTIONAL	CF_ROAM_CALL (OPTIONAL)							
SUT	IMS_B	, ,							
References	Test Purpose	Specification Reference							
	TP_IMS_5108_01	TS 124 229 [1], clause 5.4.3.3 ¶5							
		(1 st numbered list)							
	TP_IMS_5117_02	TS 124 229 [1], clause 5.4.3.3 ¶100							
		(item 2 in 5 th numbered list)							
	TP_IMS_5118_01	TS 124 229 [1], clause 5.4.3.3 ¶105							
		(item 2 in 6 th numbered list)							
Use Case ref.:	UC_RCS_1_R								

		Interoperability Test Description
Pre-test	• HSS	of IMS_A and of IMS B is configured according to table 1
conditions:		A and UE_B have IP bearers established to their respective IMS networks as
conditions.		S 186 011-2 [7], clause 4.2.1
		A is registered in IMS_A optionally using userPRES according to table 1
		B is registered in IMS_B via IMS A optionally using userPRES according to
	table	
		A is configured to contact AS_A
		B is configured to contact AS_B
		A is within the trust domain of IMS_B
	• IMS_	A not configured for topology hiding
Test Sequence:	Step	
	1	User A selects a contact of user B in the phone address book
	2	User B is informed about user A capabilities
	3	User A is informed about user B capabilities
Conformance	Check	
Criteria:	1	TP_IMS_5108_01 in CFW step 7 (OPTIONS):
		ensure that {
		when { UE_B sends an OPTIONS to UE_A
		IMS A sends the OPTIONS to IMS B
		containing a P-Charging-Vector_header
		containing an icid-value_parameter }
		then { IMS_B sends the OPTIONS to IMS_A
		containing no Route_header
		indicating the S-CSCF_SIP_URI of IMS_B and
		containing a P-Charging-Vector_header
		containing the same icid-value_parameter and
		not containing ioi_parameters
		containing a Record-Route_header
		containing the S-CSCF_SIP_URI of IMS_B }
]}
	2	TP_IMS_5117_02 in CFW step 16 (200 OK)
		ensure that {
		when { UE_B sends a 2xx_response to UE_A }
		then { IMS_A receives the 2xx_response
		containing a P-Charging-Vector_header
		not containing an access-network-charging-info_parameter }
		}
	3	TP_IMS_5118_01 in CFW step 16 (200 OK)
		ensure that {
		when { UE_B sends 200_response to UE_A }
		then { IMS_A receives the 200_response
		containing a P-Charging-Vector_header
		containing a orig-ioi_parameter
		indicating operator_identifier of IMS_A and
		containing a term-ioi_parameter
		indicating operator_identifier of IMS_B }
		}
	1	. IZ

Step				Dire	ction				Message	Comment
	U s	U E	I M	I B	I B	I M	U	U		
	e	Ā	S	C	C	S	В	e		
	r		Ā	F	F	В		r		
	Α			Α	В			В		
1										User A selects a contact of user B in the phone
										address book
									OPTIONS	UE_A sends OPTIONS to IMS_A with Accept-
2			\rightarrow							contact header containing user A capabilities
									ODTIONO	(RCS services Tags(RCS services Tags)
3				→					OPTIONS	IMS_A forwards OPTIONS to IBCF_A
4					\rightarrow				OPTIONS	IBCF_A forwards OPTIONS to IBCF_B
5						\rightarrow			OPTIONS	IBCF_B forwards OPTIONS to IMS_B
6					\leftarrow				OPTIONS	IMS_B forwards OPTIONS to IBCF_B
7				\leftarrow					OPTIONS	IBCF_B forwards OPTIONS to IBCF_A
8			\leftarrow	-					OPTIONS	IBCF_A forwards OPTIONS to IMS_A
9				_ -	_		\rightarrow		OPTIONS	IMS_A forwards OPTIONS to UE_B
10										User B is informed about user A capabilities
									200 OK	UE_B responds with 200 OK to IMS_A with
11			←	_ _						Contact header containing user B capabilities
									222 214	(RCS services Tags(RCS services Tags)
12				→					200 OK	IMS_A forwards 200 OK to IBCF_A
13					\rightarrow				200 OK	IBCF_A forwards 200 OK to IBCF_B
14						\rightarrow			200 OK	IBCF_B forwards 200 OK to IMS_B
15					\leftarrow	-			200 OK	IMS_B forwards 200 OK to IBCF_B
16				\leftarrow	-				200 OK	IBCF_B forwards 200 OK to IBCF_A
17			\leftarrow	-					200 OK	IBCF_A forwards 200 OK to IMS_A
18		\leftarrow	_						200 OK	IMS_A forwards 200 OK to UE_A
19	\leftarrow									User A is informed about user B capabilities

4.5.1.3 Capability discover through OPTIONS- User B is not Registered - interworking

	Interoperability Test Description									
Identifier:	TD_IMS_CAP_0003									
Summary:	between two users in their home network can be performed. User B is not registered.									
Configuration:	CF_INT_CALL									
SUT	IMS_B									
References	Test Purpose	Specification Reference								
	TP_IMS_5097_15	TS 124 229 [1], clause 5.4.3.2 ¶11 (1 st numbered list)								
	TP_IMS_5114_03 TS 124 229 [1], clause 5.4.3.3 (item 3 in 3 rd numbered list) and GSMA TM RCS V5.1 [12], clause									
Use Case ref.:	UC_RCS_1_I									
Pre-test conditions:	 HSS of IMS_A and of IMS B is configured according to table 1 UE_A and UE_B have IP bearers established to their respective IMS networks as per TS 186 011-2 [7], clause 4.2.1 UE_A is registered in IMS_A optionally using userPRES according to table 1 UE_B is not registered in IMS_B IMS_A is configured to contact AS_A IMS_B is configured to contact AS_B IMS_A is within the trust domain of IMS_B IMS_A not configured for topology hiding 									

		Interoperability Test Description
Test Sequence:	Step	
	1	User A selects a contact of user B in the phone address book
	2	User A is informed that user B is offline (not registered)
Conformance	Check	
Criteria:	2	TP_IMS_5097_15 in CFW step 4 (OPTIONS): ensure that { when { UE_A sends an OPTIONS to UE_B } then { IMS_B receives the OPTIONS not containing a Route_header indicating the S-CSCF_SIP_URI of IMS_A containing a P-Charging-Vector_header (containing an icid-value_parameter and containing a orig-ioi_parameter indicating IMS_A and not containing an access-network-charging-info_parameter and not containing a term-ioi_parameter) and containing a Record-Route_header indicating the originating S-CSCF_SIP_URI and not containing a P- access-network-info header} } TP_IMS_5114_03 in CFW step 7 (480 or 408 Response) ensure that { when { UE_A sends a OPTIONS to UE_B and IMS_A sends the OPTIONS to IMS_B } then { IMS_B sends a 480 or 408_response to IMS_A }

Step		Direction							Message	Comment
	DøerA	U E A	M S A	I B C F A	- B C F B	I M S B	U E B	U s e r B		
1										User A selects a contact of user B in the phone address book
2			\rightarrow						OPTIONS	UE_A sends OPTIONS to IMS_A with Accept- contact header containing user A capabilities (RCS services Tags(RCS services Tags)
3				\rightarrow					OPTIONS	IMS_A forwards OPTIONS to IBCF_A
4				_	\rightarrow				OPTIONS	IBCF_A forwards OPTIONS to IBCF_B
5						\rightarrow			OPTIONS	IBCF_B forwards OPTIONS to IMS_B
6									480 Not	IMS_B responds OPTIONS with 480 Not
					<u> </u>				Registered/ 408 Request Timeout	Registered/408 Request Timeout to IBCF_B
7									480 Not	IBCF_B forwards 480 Not Registered/408
				\leftarrow	-				Registered/ 408 Request Timeout	Request Timeout response to IBCF_A
8			←	_					480 Not Registered/ 408 Request Timeout	IBCF_A forwards 480 Not Registered/408 Request Timeout response to IMS_A
9		←							480 Not Registered/ 408 Request Timeout	IMS_A forwards 480 Not Registered/408 Request Timeout response to UE_A
10										User A is informed that user B is offline (not registered)

4.5.1.4 Capability discover through OPTIONS - User B is not provisioned for RCS - interworking

		Interoperability Test Descr	iption										
Identifier:		CAP_0004											
Summary:			nd OPTIONS messages exchange										
			n be performed. User B is not provisioned										
	for RCS so												
Configuration:	CF_INT_C	CALL											
SUT	IMS_B												
References	Test Purpose Specification Reference												
	TP_IMS_5097_15 TS 124 229 [1], clause 5.4.3.2 ¶11												
			(1 st numbered list)										
	TP_IMS_5132_02 GSMA TM RCS V5.1 [12], clause 2.3.1												
Use Case ref.:	UC_RCS_1_I												
Pre-test	• HSS	of IMS_A and of IMS B is configure	ed according to table 1										
conditions:			lished to their respective IMS networks as										
		S 186 011-2 [7], clause 4.2.1	iished to their respective livio hetworks as										
			using userPRES according to table 1										
		is registered in IMS_X optionally to its registered in IMS_B without RC											
			23 Capabilities										
		A is configured to contact AS_A											
		B is configured to contact AS_B	D										
	_	A is within the trust domain of IMS											
	• IMS_/	A not configured for topology hidin	g										
-	lo:												
Test Sequence:	Step												
	1	User A selects a contact of user E											
	2	User A is informed that user B is a	not provisioned for RCS										
Conformance	Check												
Criteria:	1	TP_IMS_5097_15 in CFW step 4	(OPTIONS):										
		ensure that {											
		when { UE_A sends an OPTIONS											
		then { IMS_B receives the OPTI											
		not containing a Route_he											
		indicating the S-CSCF_											
		containing a P-Charging-\											
		(containing an icid-value											
			rameter indicating IMS_A and										
			s-network-charging-info_parameter and										
		not containing a term-io											
		containing a Record-Rout											
			g S-CSCF_SIP_URI and										
		not containing a P- acces	s-network-info header}										
		}											
	2	TP_IMS_5132_02 in CFW step 7	(404 Not Found):										
		ensure that {											
		when { UE_A sends an OPTION											
		containing a Request_U											
		indicating a non- RCS											
		IMS_A sends the OPTIONS	- ,										
		then { IMS_B sends an appropri	ate 404 response to IMS_A }										

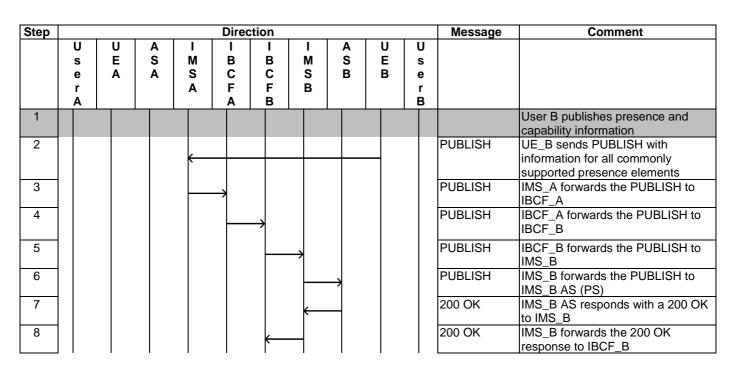
Step		Direction							Message	Comment
	C	U	ı	ı	ı	ı	U	U		
	S	Ε	M	В	В	M	Е	S		
	е	Α	S	С	С	S	В	е		
	r		Α	F	F	В		r		
4	Α			I A	В			В		
1										User A selects a contact of user B in the phone
_										address book
2									OPTIONS	UE_A sends OPTIONS to IMS_A with Accept-
			\rightarrow							contact header containing user A capabilities
										(RCS services Tags(RCS services Tags)
3				\rightarrow					OPTIONS	IMS_A forwards OPTIONS to IBCF_A
4					\rightarrow				OPTIONS	IBCF_A forwards OPTIONS to IBCF_B
5						\rightarrow			OPTIONS	IBCF_B forwards OPTIONS to IMS_B
6									404 Not	IMS_B responds OPTIONS with 404 Not Found
					`				Found	to IBCF_B
7				,					404 Not	IBCF_B forwards 404 Not Found response to
									Found	IBCF_A
8									404 Not	IBCF_A forwards 404 Not Found response to
				_					Found	IMS_A
9		_							404 Not	IMS_A forwards 404 Not Found response to
									Found	UE_A
10										User A is informed that user B is not provisioned for RCS

4.5.2 Social Presence

4.5.2.1 Watcher subscription for presence event notification in visited network

		Interoperability Test Descr	ription								
Identifier:	TD_IMS_PRES_0001										
Summary:			rvice when a watcher subscribes to								
	presence information for a presentity that it's located in a different network.										
Configuration:	CF_ROAM_AS (OPTIONAL)										
SUT	IMS_B										
References	Test Purpose Specification Reference										
	TP_IMS_		TS 124 229 [1], clause 5.4.3.2 ¶1								
	TP_IMS_	5108_07	TS 124 229 [1], clause 5.4.3.3 ¶1								
	TP_IMS_	5115_08	TS 124 229 [1], clause 5.4.3.3 ¶65								
Use Case ref.:	UC_RCS	_2_R									
Pre-test conditions:	 UE_/ per 1 UE_/ table IMS_ IMS_ IMS_ 	 UE_A and UE_B have IP bearers established to their respective IMS networks as per TS 186 011-2 [7], clause 4.2.1 UE_A is registered in IMS_A optionally using userPRES according to table 1 UE_B is registered in IMS_B via IMS_A optionally using userPRES according to table 1 IMS_A is configured to contact AS_A IMS_B is configured to contact AS_B IMS_A is within the trust domain of IMS_B 									
Test Sequence:	Step										
rest ocquerioc.	1	User B publishes presence and c	anability information								
	2	User B is informed of its presence									
	3	User A selects a contact of user I									
	4	User B is informed about user A									
	5 User A is informed about user B capabilities										
	6 User A subscribes to presence and capability information from User B										
	7		to send a NOTIFY to UE_B indicating the								
		change to the watcher informatio									
	8		request from User A to see its own								
		presence and capability informati	on								

		Interoperability Test Description
	9	User B authorizes user A to be informed of its own presence and capability information
	10	User A is informed of user B presence and capability information
	11	User A sees user B presence and capability information
	11	Oser A sees user b presence and capability information
Conformance	Check	
Criteria:	1	TP_IMS_5097_13 in CFW step 6 (PUBLISH):
Ciliteria.	'	lensure that {
		when { IUT receives a PUBLISH from IMS_A from UE_B }
		then {IUT sends the PUBLISH to AS B
		containing a Route_header
		indicating the SIP_URI of AS_B and
		containing a P-Charging-Function-Addresses_header and
		containing a P-Charging-Vector_header
		(containing an orig-ioi_parameter
		indicating IMS_A and
		not containing a term-ioi_parameter and
		containing an access-network-charging-info_parameter) }
]}
	2	TP_IMS_5108_07 in CFW step 58 (SUBSCRIBE):
		ensure that {
		when { IUT receives a SUBSCRIBE from IMS_A addressed_to UE_B}
		then { IUT sends the SUBSCRIBE to AS_B
		containing a topmost Route_header
		indicating the SIP_URI of AS_B and
		containing a Route_header
		indicating the S-CSCF_SIP_URI of IUT_
		containing a P-Charging-Vector_header
		(containing an orig-ioi_parameter
		indicating IMS_A and
		not containing a term-ioi_parameter) }
		}
	3	TP_IMS_5115_08 in CFW step 59 (200 OK):
		ensure that {
		when { AS_B sends a 200 response to UE_A } then { IMS_B receives the 200 response
		containing a P-Charging-Vector_header
		containing a P-Charging-vector_neader containing a orig-ioi_parameter indicating IMS_A and
		containing a ong-ioi_parameter indicating IMS_A and containing a term-ioi_parameter indicating IMS_B }
		Containing a term-ioi_parameter indicating livio_b }
		If



Step					Direc	tion					Message	Comment
	U	U E	A S	I M	I B	I B	M	A S	U	U		
	s e	A	A	S	С	С	S	B	В	s e		
	r			Α	F	F	В			r		
9	Α		1		Α	В				В	200 OK	IBCF B forwards the 200 OK
9					\leftarrow						200 OK	response to IBCF_A
10											200 OK	IBCF_A forwards the 200 OK
11											200 OK	response to IMS_A IMS_A forwards the 200 OK
' '									\rightarrow		200 OK	response to UE_B
12												User B is informed of its presence
13							ļ					status update User B subscribes to be informed
13												of watcher information
14											SUBSCRIBE	UE_B sends a SUBSCRIBE to be
				←		_			_			informed of event watcher information (Event:
												presence.winfo)
15					_						SUBSCRIBE	IMS_A forwards the SUBSCRIBE
10					1						OUBOORIES	to IBCF_A
16						\rightarrow					SUBSCRIBE	IBCF_A forwards the SUBSCRIBE to IBCF_B
17											SUBSCRIBE	IBCF_B forwards the SUBSCRIBE
40							1				CLIDCCDIDE	to IMS_B
18								\rightarrow			SUBSCRIBE	IMS_B forwards the SUBSCRIBE to IMS_B AS (PS)
19							_				200 OK	IMS_B AS responds with a 200 OK
- 20											200 OK	to IMS_B IMS_B forwards the 200 OK
20						\leftarrow					200 OK	response to IBCF_B
21											200 OK	IBCF_B forwards the 200 OK
00											000 014	response to IBCF_A
22				←							200 OK	IBCF_A forwards the 200 OK response to IMS_A
23									_		200 OK	IMS_A forwards the 200 OK
0.4											NOTIEV	response to UE_B
24											NOTIFY	IMS_B AS send a NOTIFY to IMS_B containing watcher info
												(XML body of "watcherinfo+XML").
25						\leftarrow					NOTIFY	IMS_B forwards the NOTIFY
26											NOTIFY	response to IBCF_B IBCF_B forwards the NOTIFY
												response to IBCF_A
27				←—							NOTIFY	IBCF_A forwards the NOTIFY
28											NOTIFY	response to IMS_A IMS_A forwards the NOTIFY
									\rightarrow			response to UE_B
29				←	+				\dashv		200 OK	UE_B sends a 200 OK to the NOTIFY
30											200 OK	IMS_A forwards the 200 OK to
					7							IBCF_A
31					\vdash	\rightarrow					200 OK	IBCF_A forwards the 200 OK to IBCF_B
32											200 OK	IBCF_B forwards the 200 OK to
							7					IMS_B
33							<u> </u>	\rightarrow			200 OK	IMS_B forwards the 200 OK to
34												IMS_B AS (PS) User A selects a contact of user B
												in the phone address book
35											OPTIONS	UE_A sends OPTIONS to IMS_A
												with Accept-contact header containing user A capabilities
												(RCS services Tags and the Tag
												indicating support of social
	I	I	1	l	I	I	1	l	l	l		presence)

Step					Directi	on					Message	Comment
	U s	U E	A S	I M	I B	I B	I M	A S	U	U		
	e	Ā	A	S	C	C	S	В	В	e		
	r			Α	F	F	В			r		
36	A				A	В				B	OPTIONS	IMS_A forwards OPTIONS to
37						>					OPTIONS	IBCF_A IBCF_A forwards OPTIONS to
38							→				OPTIONS	IBCF_B IBCF_B forwards OPTIONS to
39											OPTIONS	IMS_B IMS_B forwards OPTIONS to
40											OPTIONS	IBCF_B IBCF_B forwards OPTIONS to
					\leftarrow							IBCF_A
41				\leftarrow	1						OPTIONS	IBCF_A forwards OPTIONS to IMS_A
42									\rightarrow		OPTIONS	IMS_A forwards OPTIONS to UE_B
43												User B is informed about user A capabilities
44											200 OK	UE_B responds with 200 OK to IMS_A with Contact header
												containing user B capabilities
												(RCS services Tags and the Tag indicating support of social
45											200 OK	presence) IMS_A forwards 200 OK to
46					7						200 OK	IBCF_A IBCF_A forwards 200 OK to
						>						IBCF_B
47							\rightarrow				200 OK	IBCF_B forwards 200 OK to IMS_B
48											200 OK	IMS_B forwards 200 OK to IBCF_B
49											200 OK	IBCF_B forwards 200 OK to IBCF_A
50					_						200 OK	IBCF_A forwards 200 OK to IMS_A
51		\leftarrow									200 OK	IMS_A forwards 200 OK to UE_A
52												User A is informed about user B capabilities
53									ĺ			User A subscribes to presence information from User B
54)							SUBSCRIBE	UE_A sends SUBSCRIBE for
55											SUBSCRIBE	"User B presence" event to IMS_A IMS_A forwards the SUBSCRIBE
56											SUBSCRIBE	to IBCF_A IBCF_A forwards the SUBSCRIBE
57						7					SUBSCRIBE	to IBCF_B IBCF_B forwards the SUBSCRIBE
)					to IMS_B
58							-	\rightarrow			SUBSCRIBE	IMS_B forwards the SUBSCRIBE to IMS_B AS (PS)
59							\leftarrow				200 OK	IMS_B AS responds with a 200 OK to IMS_B
60							-				200 OK	IMS_B forwards the 200 OK response to IBCF_B
61					<u></u>						200 OK	IBCF_B forwards the 200 OK
62				<u></u>							200 OK	response to IBCF_A IBCF_A forwards the 200 OK
63											200 OK	response to IMS_A IMS_A forwards the 200 OK
03		\leftarrow									200 OK	response to UE_A

Step					Direc	tion					Message	Comment
	U	ט ר	A		_ L	– 0	I	A	טו	U		
	s e	E	S	M S	B C	B C	M S	S	E B	s e		
	r	, ,	, ,	Ä	F	F	В			r		
	Α				Α	В			1	В	NOTITY	INC. D. A.C L. NOTIEVA
64						_					NOTIFY	IMS_B AS sends NOTIFY to IBCF_B with subscription state set
						(to pending.
65					\leftarrow						NOTIFY	IBCF_B forwards NOTIFY to IBCF_A
66											NOTIFY	IBCF_A forwards NOTIFY to IMS_A
67		←									NOTIFY	IMS_A forwards the NOTIFY to UE_A
68				\rightarrow							200 OK	UE_A responds with a 200 OK to IMS_A
69					\rightarrow						200 OK	IMS_A forwards the 200 OK to IBCF_A
70						\rightarrow					200 OK	IBCF_A forwards the 200 OK to
71								\rightarrow			200 OK	IBCF_B forwards the 200 OK response to IMS_B AS
72												SUBSCRIPTION triggers the AS to
												send a NOTIFY to UE_B indicating the change to the watcher
												information subscriber
73											NOTIFY	IMS_B AS sends NOTIFY to
							\leftarrow					IMS_B to indicate UE_B the change to the watcher information
												subscriber
74						_					NOTIFY	IMS_B forwards the NOTIFY to
75						ľ					NOTIFY	IBCF_B IBCF_B forwards the NOTIFY to
75					\leftarrow						NOTIFI	IBCF_A
76				\leftarrow							NOTIFY	IBCF_A forwards the NOTIFY to IMS_A
77									\rightarrow		NOTIFY	IMS_A forwards the NOTIFY to UE_B
78											200 OK	UE_B responds with a 200 OK to IMS_A
79					\rightarrow						200 OK	IMS_A forwards the 200 OK response to IBCF_A
80						\rightarrow					200 OK	IBCF_A forwards the 200 OK response to IBCF_B
81							\rightarrow					IBCF_B forwards the 200 OK response to IMS_B
82								\rightarrow			200 OK	IMS_B forwards the 200 OK response to IMS_B AS
83												User B receives an authorization
												request from User A to see its own presence information
84												User B authorizes user A to be
												informed of its presence information
85											NOTIFY	IMS_B AS sends NOTIFY to
												IBCF_B with a subscription state
												set to active and an XML body containing User_B's presence
												information ("pidf+XML").
86					\leftarrow	_					NOTIFY	IBCF_B sends NOTIFY to IBCF_A
87				\leftarrow							NOTIFY	IBCF_A forwards NOTIFY to IMS_A
88		\leftarrow									NOTIFY	IMS_A forwards the NOTIFY to UE_A
89				\rightarrow							200 OK	UE_A responds with a 200 OK to
	I	I	ı	1	1	I	1	l	I	ı		IMS_A

Step					Direc	tion					Message	Comment
	U s e r A	U E A	A S A	I M S A	I B C F A	I B C F B	M S B	A S B	U E B	U s e r B		
90		•			—						200 OK	IMS_A forwards the 200 OK response to IBCF_A
91						\rightarrow					200 OK	IBCF_A forwards the 200 OK response to IBCF_B
92								\rightarrow			200 OK	IBCF_B forwards the 200 OK response to IMS_B AS
93												User A is informed of user B presence and capability information

4.5.2.2 Watcher subscription to presence event notification in home network

		Interoperability Test D	Description									
Identifier:		PRES_0002										
Summary:			e service when a watcher subscribes to									
		presence information for a presentity that it's located in a home network.										
Configuration:		F_INT_AS										
SUT	IMS_A											
References	Test Purpose Specification Reference											
	TP_IMS_		TS 124 229 [1], clause 5.4.3.3 ¶1									
	TP_IMS_		TS 124 229 [1], clause 5.4.3.3 ¶65									
Use Case ref.:	UC_RCS	_2_I										
Pre-test		of IMS_A and of IMS B is con										
conditions:			established to their respective IMS networks as									
		S 186 011-2 [7], clause 4.2.1										
	 UE_A 	A is registered in IMS_A option	nally using userPRES according to table 1									
	• UE_E	B is registered in IMS_B option	nally using userPRES according to table 1									
	IMS	A is configured to contact AS	A									
		B is configured to contact AS										
		A is within the trust domain of										
	_	A not configured for topology										
	- 11VIO_	2 that comigared for topology	riiding									
Test Sequence:	Step											
Tool Goquence:	1	User B publishes presence a	and capability information including capabilities									
	2	User B is informed of its pres										
	3		ser B in the phone address book									
	4	User B is informed about use										
	5	User A is informed about use										
	6		ce and capability information from User B									
	7		e AS to send a NOTIFY to UE_B indicating the									
	,											
	8	change to the watcher information subscriber 8 User B receives an authorization request from User A to see its own										
		presence and capability information										
	9 User B authorizes user A to be informed of its own presence and capability											
		information	so informed of its own proscribe and capability									
	10		presence and capability information									
	11	User A sees user B presence										
	11	Toda Wacaa aaa D bieaeno	o and oupdomity information									

		Interoperability Test Description
Conformance Criteria:	Check	
	1	TP_IMS_5108_07 in CFW step 21 (SUBSCRIBE): ensure that { when { IUT receives a SUBSCRIBE from IMS_A addressed_to UE_B} then { IUT sends the SUBSCRIBE to AS_B containing a topmost Route_header indicating the SIP_URI of AS_B and containing a Route_header indicating the S-CSCF_SIP_URI of IUT_ containing a P-Charging-Vector_header (containing an orig-ioi_parameter indicating IMS_A and not containing a term-ioi_parameter) } }
	2	TP_IMS_5115_08 in CFW step 22 (200 OK): ensure that { when { AS_B sends a 200 response to UE_A } then { IMS_B receives the 200 response

Step					Direc	tion					Mossago	Comment
Step	U	U	Α	l 1	Direc	l	ı .	Α	U	U	Message	Comment
	s	E	S	м	В	В	М	ŝ	E	s		
	e	Ā	A	S	Č	Č	S	В	B	e		
	r	-	-	Ä	F	F	В		_	r		
	Α				Α	В				В		
1												User B publishes presence and
												capability information including
												capabilities
2											PUBLISH	UE_B sends PUBLISH with
							\leftarrow					information for all commonly
												supported presence elements and
3											PUBLISH	capabilities IMS_B forwards the PUBLISH to
3								\rightarrow			FUBLISH	IMS_B AS (PS)
4											200 OK	IMS_B AS responds with a 200 OK
'							\leftarrow					to IMS_B
5											200 OK	IMS_B forwards the 200 OK
												response to IBCF_B
6												User B is informed of its presence
												status update
7												User B subscribes to watcher
											OLID GODIDE	event notification
8											SUBSCRIBE	UE_B sends a SUBSCRIBE to be informed of event watcher
							\leftarrow		_			informed of event watcher
												presence.winfo)
9											SUBSCRIBE	IMS_B forwards the SUBSCRIBE
								\rightarrow			0020011122	to IMS_B AS (PS)
10											200 OK	IMS_B AS responds with a 200 OK
												to IMS_B
11									\rightarrow		200 OK	IMS_B forwards the 200 OK
									1			response to IBCF_B
12											NOTIFY	IMS_B AS send a NOTIFY to
							\leftarrow					IMS_B containing watcher info
40											NOTIFY	(XML body of "watcherinfo+XML").
13									\rightarrow		INUTIFY	IMS_B forwards the NOTIFY
14											200 OK	response to UE_B UE_B sends 200 OK to the
14							←		_		200 OK	NOTIFY
	I	I	I	I	I	I	I	I	I	I		1101111

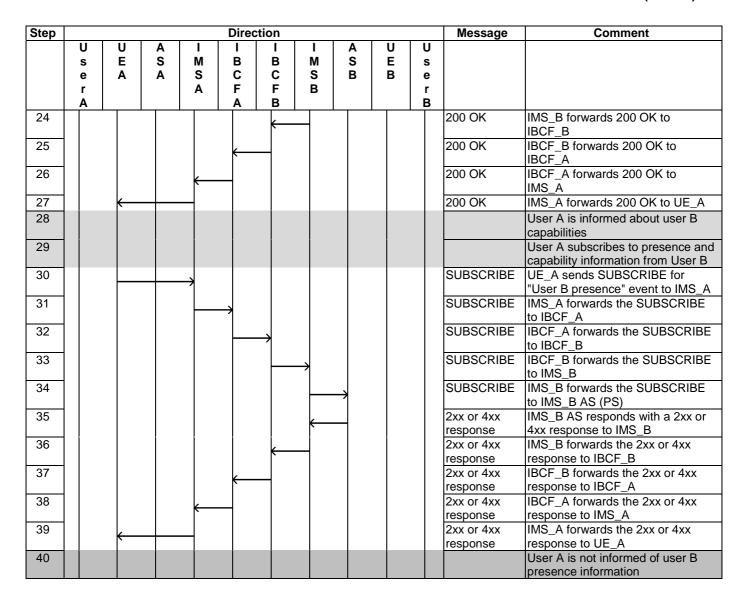
Step					Directi	on					Message	Comment
	U	U	A S	l M	J –	J –	I	A S	UE	U		
	s e	Ā	A	M S	B C	B C	M S	S B	В	s e		
	r			A	F	F	В			r		
4.5	Α				Α	В				В	200 01	IMC D formered the 200 OK to
15								\rightarrow			200 OK	IMS_B forwards the 200 OK to IMS_B AS (PS)
16												User A selects a contact of user B
17											OPTIONS	in the phone address book UE_A sends OPTIONS to IMS_A
17											OFTIONS	with Accept-contact header
				→								containing user A capabilities
												(RCS services Tags and the Tag
												indicating support of social presence)
18					•						OPTIONS	IMS_A forwards OPTIONS to
19											OPTIONS	IBCF_A IBCF_A forwards OPTIONS to
19)					OI HONS	IBCF_B
20							\rightarrow				OPTIONS	IBCF_B forwards OPTIONS to
21											OPTIONS	IMS_B IMS_B forwards OPTIONS to
21									\rightarrow		01 110140	UE_B
22												User B is informed about user A
23											200 OK	capabilities UE_B responds with 200 OK to
20											200 011	IMS_B with Contact header
							\leftarrow					containing user B capabilities
												(RCS services Tags and the Tag indicating support of social
												presence)
24						\leftarrow					200 OK	IMS_B forwards 200 OK to
25											200 OK	IBCF_B IBCF_B forwards 200 OK to
												IBCF_A
26				←							200 OK	IBCF_A forwards 200 OK to IMS_A
27		\leftarrow									200 OK	IMS_A forwards 200 OK to UE_A
28												User A is informed about user B
29												Capabilities User A subscribes to presence
29												information from User B
30				_							SUBSCRIBE	UE_A sends SUBSCRIBE for
31				1							SUBSCRIBE	"User B presence" event to IMS_A IMS_A forwards the SUBSCRIBE
31				-	7						SUBSCRIBE	to IBCF_A
32						→					SUBSCRIBE	IBCF_A forwards the SUBSCRIBE
33											SUBSCRIBE	to IBCF_B IBCF_B forwards the SUBSCRIBE
33							\rightarrow				SOBSCRIBE	to IMS_B
34								\rightarrow			SUBSCRIBE	IMS_B forwards the SUBSCRIBE
35											200 OK	to IMS_B AS (PS) IMS_B AS responds with a 200 OK
							K					to IMS_B
36						—					200 OK	IMS_B forwards the 200 OK
37											200 OK	response to IBCF_B IBCF_B forwards the 200 OK
						1						response to IBCF_A
38				—	4						200 OK	IBCF_A forwards the 200 OK
39											200 OK	response to IMS_A IMS_A forwards the 200 OK
		\leftarrow		7								response to UE_A
40											NOTIFY	IMS_B AS sends NOTIFY to
												IBCF_B indicating that the subscription is pending.
	1	1	1	1	1	İ	1	1	ı	ı	1	

Step					Directi	on					Message	Comment
	U s	ШС	A S	I M	I B	I B	I M	A S	U	Us		
	е	Ā	Ä	S	С	С	S	В	В	е		
	r A			A	F A	F B	В			r B		
41					<u> </u>						NOTIFY	IBCF_B forwards NOTIFY to
42											NOTIFY	IBCF_A IBCF_A forwards NOTIFY to
												IMS_A
43		\leftarrow									NOTIFY	IMS_A forwards the NOTIFY to UE_A
44				_							200 OK	UE_A responds with a 200 OK to
45											200 OK	IMS_A IMS_A forwards the 200 OK to
					7							IBCF_A
46)					200 OK	IBCF_A forwards the 200 OK to IBCF_B
47								\rightarrow			200 OK	IBCF_B forwards the 200 OK
48												response to IMS_B AS SUBSCRIPTION triggers the AS to
.0												send a NOTIFY to UE_B indicating
												the change to the watcher information subscriber
49											NOTIFY	IMS_B AS sends NOTIFY to
							←					IMS_B to indicate UE_B the change to the watcher information
												subscriber
50									\rightarrow		NOTIFY	IMS_B forwards the NOTIFY to UE_B
51											200 OK	UE_B responds with a 200 OK to
52											200 OK	IMS_B IMS_B forwards the 200 OK
53												response to IMS_B AS User B receives an authorization
00												request from User A to see its presence information
54												User B authorizes user A to be
												informed of its own presence and capability information (e.g. by sending a PUBLISH as in step 2).
55											NOTIFY	IMS_B AS sends NOTIFY to
						,						IBCF_B with a subscription state set to active and an XML body
												containing UE_B's presence
56											NOTIFY	information ("pidf+XML"). IBCF_B sends NOTIFY to IBCF_A
											NOTIFY	IBCF_A forwards NOTIFY to
57					_							IMS_A
58		←									NOTIFY	IMS_A forwards the NOTIFY to UE_A
59				\rightarrow							200 OK	UE_A responds with a 200 OK to IMS_A
60					\rightarrow						200 OK	IMS_A forwards the 200 OK
61						>					200 OK	response to IBCF_A IBCF_A forwards the 200 OK
62											200 OK	response to IBCF_B IBCF_B forwards the 200 OK
								—				response to IMS_B AS
63												User A is informed of user B presence and capability
												information

4.5.2.3 Unsuccessful watcher subscription to presence event notification in home network

		Interoperability Test Descr	iption						
Identifier:		RES_0003							
Summary:	presence in not authorize	nformation for a presentity that it's ze the watcher to be informed of h	vice when a watcher subscribes to located in a different network and does his presence information.						
Configuration:	CF_INT_A	S							
SUT	IMS_B								
References	Test Purpo		Specification Reference						
	TP_IMS_5		TS 124 229 [1], clause 5.4.3.3 ¶1						
Use Case ref.:	UC_RCS_2	2_I							
Pre-test conditions:	 HSS of IMS_A and of IMS B is configured according to table 1 UE_A and UE_B have IP bearers established to their respective IMS networks as per TS 186 011-2 [7], clause 4.2.1 UE_A is registered in IMS_A optionally using userPRES according to table 1 UE_B is registered in IMS_B optionally using userPRES according to table 1 User A is not authorized to see presence information of User B IMS_A is configured to contact AS_A IMS_B is configured to contact AS_B IMS_A is within the trust domain of IMS_B IMS_A not configured for topology hiding 								
Test Sequence:	Step								
rest esquence.	1 2 3 4 5 6	User B is informed of its presence User A selects a contact of user B User B is informed about user A of User A is informed about user B of	B in the phone address book capabilities capabilities and capability information from User B						
Conformance Criteria:	Check								
		TP_IMS_5108_07 in CFW step 9 ensure that { when { IUT receives a SUBSCR! then { IUT sends the SUBSCR!E containing a topmost Rous indicating the SIP_URI of containing a Route_heade indicating the S-CSCF_c containing a P-Charging-\ (containing an orig-ioi_p indicating IMS_A and not containing a term-io }	IBE from IMS_A addressed_to UE_B} BE to AS_B te_header of AS_B and er SIP_URI of IUT_ //ector_header barameter						

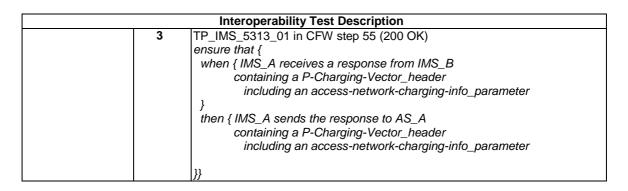
Step					Directi	on					Message	Comment
	U s	U E	A S	M	I B	I B	I M	A S	U	U s		
	е	Ā	Ā	S	С	С	S	В	В	е		
	r A			A	F A	F B	В			r B		
1												User B publishes presence and
												capability information including capabilities
2											PUBLISH	UE_B sends PUBLISH with information for all commonly
							\leftarrow					supported presence elements and
3											PUBLISH	capabilities IMS_B forwards the PUBLISH to
3								\rightarrow				IMS_B AS (PS)
4							←				200 OK	IMS_B AS responds with a 200 OK to IMS_B
5									\rightarrow		200 OK	IMS_B forwards the 200 OK
6												response to IBCF_B User B is informed of its presence
												status update
7												User B subscribes to watcher event notification
8											SUBSCRIBE	UE_B sends a SUBSCRIBE to be
							\leftarrow		_			informed of event watcher information (Event:
											OLIDOODIDE.	presence.winfo)
9								\rightarrow			SUBSCRIBE	IMS_B forwards the SUBSCRIBE to IMS_B AS (PS)
10							←				200 OK	IMS_B AS responds with a 200 OK to IMS_B
11									\rightarrow		200 OK	IMS_B forwards the 200 OK
12											NOTIFY	response to IBCF_B IMS_B AS send a NOTIFY to
'-							←					IMS_B containing watcher info
13											NOTIFY	(XML body of "watcherinfo+XML"). IMS_B forwards the NOTIFY
									\rightarrow			response to UE_B
14							←				200 OK	UE_B sends 200 OK to the NOTIFY
15								\rightarrow			200 OK	IMS_B forwards the 200 OK to
16												User A selects a contact of user B
17											OPTIONS	in the phone address book UE_A sends OPTIONS to IMS_A
''											OI HONS	with Accept-contact header
				\rightarrow								containing user A capabilities (RCS services Tags and the Tag
												indicating support of social
18											OPTIONS	presence) IMS_A forwards OPTIONS to
					1							IBCF_A
19)					OPTIONS	IBCF_A forwards OPTIONS to IBCF_B
20							\rightarrow				OPTIONS	IBCF_B forwards OPTIONS to
21											OPTIONS	IMS_B IMS_B forwards OPTIONS to
22												UE_B User B is informed about user A
												capabilities
23											200 OK	UE_B responds with 200 OK to IMS_B with Contact header
							—					containing user B capabilities
												(RCS services Tags and the Tag indicating support of social
												presence)

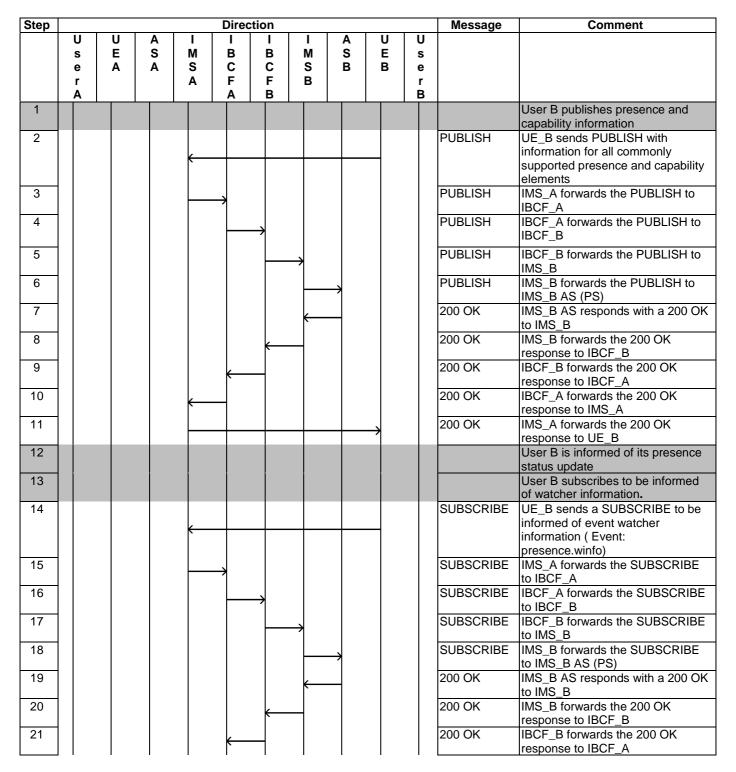


4.5.2.4 Watcher subscription to resource list in visited network

Interoperability Test Description										
Identifier:	TD_IMS_PRES_0004									
Summary:	IMS network supports properly presence service when a watcher subscribes to a									
	resource list containing one or more presentities located in different networks.									
Configuration:	CF_ROAM_AS (OPTIONAL)									
SUT	IMS_B									
References	Test Purpose	Specification Reference								
	TP_IMS_5097_13	TS 124 229 [1], clause 5.4.3.2 ¶1								
	TP_IMS_5108_07	TS 124 229 [1], clause 5.4.3.3 ¶1								
	TP_IMS_5313_01	TS 124 229 [1], clause 5.4.6.1.3 ¶2								
Use Case ref.:	UC_RCS_3_R	-								

		Interoperability Test Description								
Pre-test conditions:	 HSS of IMS_A and of IMS B is configured according to table 1 UE_A and UE_B have IP bearers established to their respective IMS network per TS 186 011-2 [7], clause 4.2.1 UE_A is registered in IMS_A optionally using userPRES according to table UE_B is registered in IMS_B via IMS_A optionally using userPRES according to table 1 IMS_A is configured to contact AS_A IMS_B is configured to contact AS_B RLS and PS have previously exchanged capabilities User A is authorized to access the presence info of User B IMS_A is within the trust domain of IMS_B IMS_A not configured for topology hiding UE_A is authorized to use the resource list userPRES_list 									
Test Sequence: Conformance Criteria:	Step	User B publishes presence and capability information User B is informed of its presence status update User A subscribes to resource list previously stored in the User A client as XDMS list of contacts RLS performs authorization checks to ensure that User A is authorized to use resource lists RLS resolves watcher resource's address and subscribes for presence event notification for all the presentities represented by the resource list SIP URI PS performs authorization checks on the originator to ensure it is allowed to watch the presentity RLS notifies with presence and capability information for all the presentities represented by the resource list SIP URI User A sees user B presence and capability information TP_IMS_5097_13 in CFW step 6 (PUBLISH): ensure that { when { IUT receives a PUBLISH from IMS_A from UE_B } then { IUT receives a PUBLISH to AS_B								





Step					Direc	ction					Message	Comment
	U	U	Α	ı	1	ı	ı	Α	U	U		
	S	E	S	M	В	В	M	S	E	s		
	е	Α	Α	S	C	C	S	В	В	е		
	r			Α	F	F B	В			r		
22	Α				<u> </u>	В			_	В	200 OK	IBCF_A forwards the 200 OK
22				\leftarrow							200 OK	response to IMS_A
23											200 OK	IMS_A forwards the 200 OK
									\rightarrow			response to UE_B
24											NOTIFY	IMS_B AS send a NOTIFY to
							\leftarrow					IMS_B containing watcher info (XML body of "watcherinfo+XML").
25						_					NOTIFY	IMS_B forwards the NOTIFY
						(response to IBCF_B
26					←						NOTIFY	IBCF_B forwards the NOTIFY
27											NOTIFY	response to IBCF_A IBCF_A forwards the NOTIFY
21				\leftarrow							NOTH 1	response to IMS_A
28											NOTIFY	IMS_A forwards the NOTIFY
												response to UE_B
29				←							200 OK	UE_B sends a 200 OK to the
				(222 014	NOTIFY
30					\rightarrow						200 OK	IMS_A forwards the 200 OK to IBCF_A
31											200 OK	IBCF_A forwards the 200 OK to
01						\rightarrow					200 010	IBCF_B
32											200 OK	IBCF_B forwards the 200 OK to
							7					IMS_B
33								\rightarrow			200 OK	IMS_B forwards the 200 OK to IMS_B AS (PS)
34												User A subscribes to resource list
												previously stored in the User A
0.5											CLIDOODIDE	client as XDMS list of contacts
35											SUBSCRIBE	UE_A sends ANONYMOUS SUBSCRIBE for "presence" event
				→								with expiry time of 0 to IMS_A
				1								indicating support to "eventlist" to a
												resource list SIP URI
36											SUBSCRIBE	IMS_A forwards the SUBSCRIBE to IMS_A AS (RLS)
37												RLS performs authorization checks
												to ensure that User A is authorized
20											200 OK	to use resource lists
38				\rightarrow							200 OK	IMS_A AS responds with a 200 OK to IMS_A
39											200 OK	IMS_A forwards the 200 OK
		\leftarrow										response to UE_A
40				\rightarrow							NOTIFY	IMS_A AS sends NOTIFY to IMS_A
41		\leftarrow									NOTIFY	IMS_A forwards the NOTIFY to UE_A
42				\rightarrow							200 OK	UE_A responds with a 200 OK to
43											200 OK	IMS_A forwards the 200 OK
43			\leftarrow	\dashv							200 OK	response to IMS_A AS
	I	I	1	1	I	I	I	ı	1	I	<u> </u>	1.00poilod to livio_/(/(O

Step					Direc	tion					Message	Comment
oreh	U	U	Α	ı	Juec.	I	ı	Α	U	U	Message	Comment
	s	Ē	S	M	В	В	M	S	Ē	s		
	е	Α	Α	S	С	С	S	В	В	е		
	r			Α	F	F	В			r		
	Α				A	В			Ц	В		
44												RLS resolves watcher resource's
												address and subscribes for presence event notification for all
												the presentities represented by the
												resource list SIP URI
45											SUBSCRIBE	IMS_A AS (RLS) sends
				\rightarrow								SUBSCRIBE for "presence" event
												to IMS_A
46					\rightarrow						SUBSCRIBE	IMS_A forwards the SUBSCRIBE
47											SUBSCRIBE	to IBCF_A IBCF_A forwards the SUBSCRIBE
41						\rightarrow					SUBSCRIBE	to IBCF_B
48											SUBSCRIBE	IBCF_B forwards the SUBSCRIBE
							\rightarrow					to IMS_B
49								_			SUBSCRIBE	IMS_B forwards the SUBSCRIBE
												to IMS_B AS (PS)
50												PS performs authorization checks
												on the originator to ensure it is allowed to watch the presentity
51											200 OK	IMS_B AS (PS) responds with a
01							\leftarrow				200 010	200 OK to IMS_B
52											200 OK	IMS_B forwards the 200 OK
												response to IBCF_B
53					←						200 OK	IBCF_B forwards the 200 OK
54											200 OK	response to IBCF_A IBCF_A forwards the 200 OK
54				\leftarrow							200 OK	response to IMS_A
55											200 OK	IMS_A forwards the 200 OK
												response to IMS_A AS (RLS)
56											NOTIFY	IMS_B AS sends a NOTIFY to
						\leftarrow						IBCF_B with the presence and
												capability information of UE_B in XML body ("pidf+XML").
57											NOTIFY	IBCF_B forwards the NOTIFY to
37					←						INOTH 1	IBCF_A
58												IBCF_A forwards the NOTIFY to
												IMS_A
59			—								NOTIFY	IMS_A forwards the NOTIFY to
											200 014	IMS_A AS (RLS)
60				\rightarrow							200 OK	IMS_A AS responds with a 200 OK to IMS_A
61	ŀ						ŀ				200 OK	IMS_A forwards the 200 OK
					\rightarrow						200 010	response to IBCF_A
62											200 OK	IBCF_A forwards the 200 OK
												response to IBCF_B
63								\rightarrow			200 OK	IBCF_B forwards the 200 OK
6.4												response to IMS_B AS
64												RLS notifies with presence and capability information for all the
												presentities represented by the
												resource list SIP URI

Step					Direc	tion			Message	Comment		
	U s e r A	U E A	A S A	I M S A	I B C F A	I B C F B	I M S B	A S B	U E B	U s e r B		
65				\rightarrow							NOTIFY	IMS_A AS sends NOTIFY to IMS_A
66		←									NOTIFY	IMS_A forwards the NOTIFY to UE_A
67				\rightarrow							200 OK	UE_A responds with a 200 OK to IMS_A
68			\leftarrow								200 OK	IMS_A forwards the 200 OK response to IMS_A AS
69												User A sees presence and capability information of the list of users.

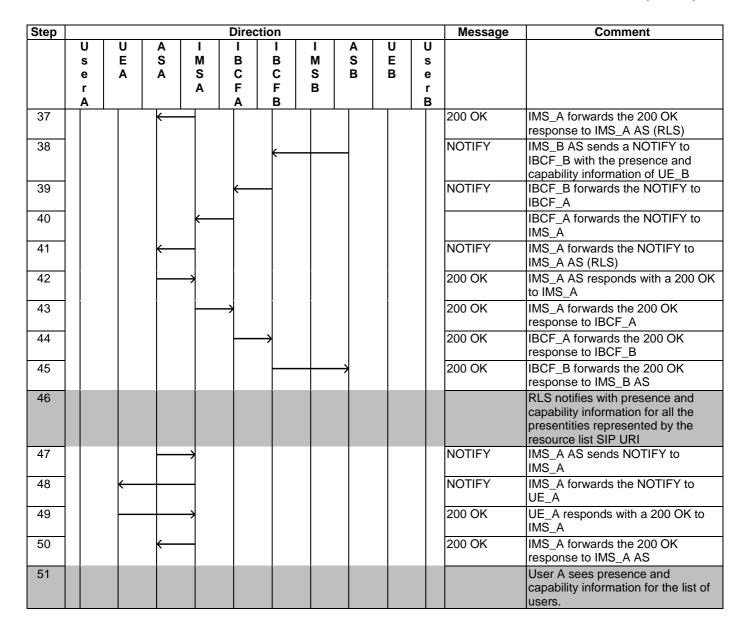
4.5.2.5 Watcher subscription to resource list in home network

i		Interoperability Tes	st Description									
Identifier:	TD_IMS_	_PRES_0005	•									
Summary:			ence service when a watcher subscribes to a									
-	resource	list containing one or more	presentities located in different networks.									
Configuration:	CF_INT_	_AS										
SUT	IMS_A											
References	Test Pur	rpose	Specification Reference									
		_5108_07	TS 124 229 [1], clause 5.4.3.3 ¶1									
		_5313_01	TS 124 229 [1], clause 5.4.6.1.3 ¶2									
Use Case ref.:	UC_RCS_3_I											
Pre-test	HSS	S of IMS_A and of IMS B is	configured according to table 1									
conditions:	UE_A and UE_B have IP bearers established to their respective IMS networks a											
	 per TS 186 011-2 [7], clause 4.2.1 UE_A is registered in IMS_A optionally using userPRES according to table 1 UE_B is registered in IMS_B optionally using userPRES according to table 1 IMS_A is configured to contact AS_A IMS_B is configured to contact AS_B 											
	IMS_B is configured to contact AS_B IMS_A is within the trust domain of IMS_B											
		_A not configured for topolo										
		A is authorized to use the r										
		71 13 ddthonzed to dae the i	COURTE HOL GOOT TYLO_HOL									
Test Sequence:	Step											
Test Sequence:	Step 1	User B publishes presen	ce and capability information									
Test Sequence:	1		ce and capability information									
Test Sequence:		User B is informed of its	presence status update									
Test Sequence:	1 2	User B is informed of its User A subscribes to res										
Test Sequence:	1 2	User B is informed of its User A subscribes to reso	oresence status update ource list previously stored in the User A client as									
Test Sequence:	1 2 3	User B is informed of its User A subscribes to reso	presence status update									
Test Sequence:	1 2 3 4	User B is informed of its User A subscribes to res XDMS list of contacts RLS performs authorizati use resource lists	oresence status update ource list previously stored in the User A client as on checks to ensure that User A is authorized to									
Test Sequence:	1 2 3	User B is informed of its User A subscribes to resexDMS list of contacts RLS performs authorizations resource lists RLS resolves watcher resources.	oresence status update ource list previously stored in the User A client as on checks to ensure that User A is authorized to source's address and subscribes for presence									
Test Sequence:	1 2 3 4	User B is informed of its User A subscribes to resexDMS list of contacts RLS performs authorization use resource lists RLS resolves watcher resevent notification for all the	oresence status update ource list previously stored in the User A client as on checks to ensure that User A is authorized to									
Test Sequence:	1 2 3 4	User B is informed of its User A subscribes to resexDMS list of contacts RLS performs authorization use resource lists RLS resolves watcher resevent notification for all the URI	oresence status update ource list previously stored in the User A client as on checks to ensure that User A is authorized to source's address and subscribes for presence ne presentities represented by the resource list SIP									
Test Sequence:	1 2 3 4 5	User B is informed of its User A subscribes to resign XDMS list of contacts RLS performs authorization use resource lists RLS resolves watcher resevent notification for all the URI PS performs authorization	oresence status update ource list previously stored in the User A client as on checks to ensure that User A is authorized to source's address and subscribes for presence									
Test Sequence:	1 2 3 4 5	User B is informed of its User A subscribes to resign XDMS list of contacts RLS performs authorization use resource lists RLS resolves watcher resevent notification for all the URI PS performs authorization watch the presentity	oresence status update ource list previously stored in the User A client as on checks to ensure that User A is authorized to source's address and subscribes for presence ne presentities represented by the resource list SIP on checks on the originator to ensure it is allowed to									
Test Sequence:	1 2 3 4 5	User B is informed of its User A subscribes to resign XDMS list of contacts RLS performs authorization use resource lists RLS resolves watcher resevent notification for all the URI PS performs authorization watch the presentity	oresence status update ource list previously stored in the User A client as on checks to ensure that User A is authorized to source's address and subscribes for presence ne presentities represented by the resource list SIP on checks on the originator to ensure it is allowed to see and capability information for all the presentities									

		Interoperability Test Description
Conformance Criteria:	Check	
	1	TP_IMS_5108_07 in CFW step 31 (SUBSCRIBE): ensure that { when { IUT receives a SUBSCRIBE from IMS_A addressed_to UE_B} then { IUT sends the SUBSCRIBE to AS_B containing a topmost Route_header indicating the SIP_URI of AS_B and containing a Route_header indicating the S-CSCF_SIP_URI of IUT_ containing a P-Charging-Vector_header (containing an orig-ioi_parameter indicating IMS_A and not containing a term-ioi_parameter) } }
	2	TP_IMS_5313_01 in CFW step 37 (200 OK) ensure that { when { IMS_A receives a response from IMS_B

Step		Direction									Message	Comment
	U s e r A	U E A	A S A	I M S A	- B C F A	- B C F B	- M % B	A S B	UEB	U s e r B		
1												User B publishes presence and capability information
2							(PUBLISH	UE_B sends PUBLISH with information for all commonly supported presence and capability elements
3								\rightarrow			PUBLISH	IMS_B forwards the PUBLISH to IMS_B AS (PS)
4							←				200 OK	IMS_B AS responds with a 200 OK to IMS_B
5									\rightarrow		200 OK	IMS_B forwards the 200 OK response to UE_B
6												User B is informed of its presence status update
7												User B subscribes to watcher event notification
8							←				SUBSCRIBE	UE_B sends a SUBSCRIBE to be informed of event watcher information (Event: presence.winfo)
9								\rightarrow			SUBSCRIBE	IMS_B forwards the SUBSCRIBE to IMS_B AS (PS)
10							←				200 OK	IMS_B AS responds with a 200 OK to IMS_B
11									\rightarrow		200 OK	IMS_B forwards the 200 OK response to IBCF_B
12											NOTIFY	IMS_B AS send a NOTIFY to IMS_B containing watcher info (XML body of "watcherinfo+XML").

Step				, I	Directio	on					Message	Comment
	U s	U E	A S		B	I B	M	A S	U E	U s		
	e r	Α	Α	S A	C F	C F	S B	В	В	e r		
13	Α			<u> </u>	A	В				В	NOTIFY	IMS_B forwards the NOTIFY
									1			response to UE_B
14							-				200 OK	UE_B sends 200 OK to the NOTIFY
15								>			200 OK	IMS_B forwards the 200 OK to IMS_B AS (PS)
16												User A subscribes to resource list previously stored in the User A client as XDMS list of contacts
17)							SUBSCRIBE	UE_A sends ANONYMOUS SUBSCRIBE for "presence" event with expiry time of 0 to IMS_A indicating support to "eventlist" to a resource list SIP URI
18				_							SUBSCRIBE	IMS_A forwards the SUBSCRIBE to IMS_A AS (RLS)
19												RLS performs authorization checks to ensure that User A is authorized to use resource lists
20)							200 OK	IMS_A AS responds with a 200 OK to IMS_A
21		\leftarrow									200 OK	IMS_A forwards the 200 OK response to UE_A
22				>							NOTIFY	IMS_A AS sends NOTIFY to
23		←									NOTIFY	IMS_A forwards the NOTIFY to UE_A
24)							200 OK	UE_A responds with a 200 OK to IMS_A
25											200 OK	IMS_A forwards the 200 OK response to IMS_A AS
26												RLS resolves watcher resource's address and subscribes for presence event notification for all the presentities represented by the
27											SUBSCRIBE	resource list SIP URI IMS_A AS (RLS) sends
				7								SUBSCRIBE for "presence" event to IMS_A
28											SUBSCRIBE	IMS_A forwards the SUBSCRIBE to IBCF_A
29					 						SUBSCRIBE	IBCF_A forwards the SUBSCRIBE to IBCF_B
30							>				SUBSCRIBE	IBCF_B forwards the SUBSCRIBE to IMS_B
31								*			SUBSCRIBE	IMS_B forwards the SUBSCRIBE to IMS_B AS (PS)
32												PS performs authorization checks on the originator to ensure it is allowed to watch the presentity
33							\leftarrow	1			200 OK	IMS_B AS (PS) responds with a 200 OK to IMS_B
34							-				200 OK	IMS_B forwards the 200 OK response to IBCF_B
35						-					200 OK	IBCF_B forwards the 200 OK response to IBCF_A
36											200 OK	IBCF_A forwards the 200 OK response to IMS_A



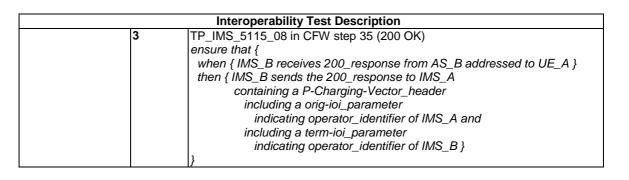
4.5.3 IM/Chat service

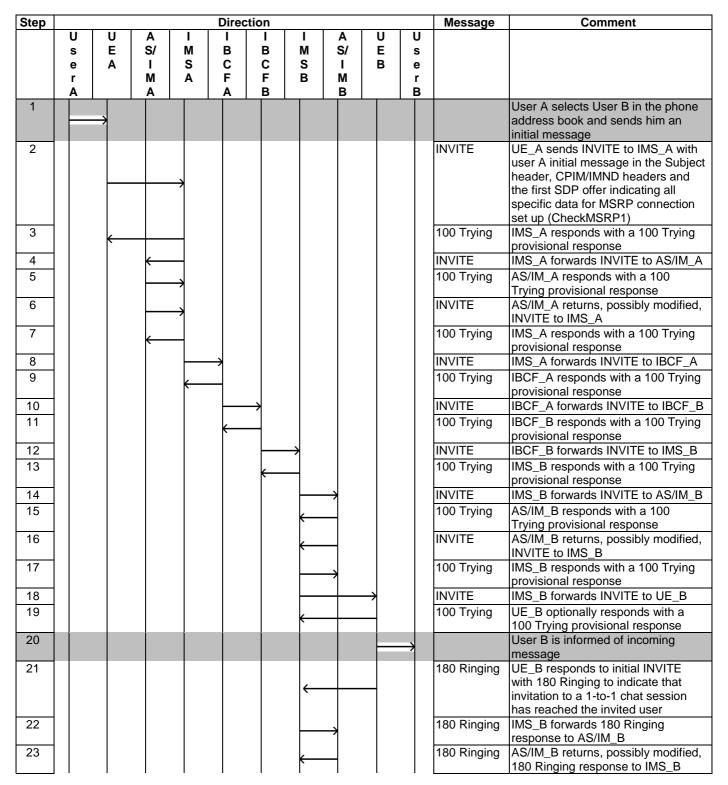
4.5.3.1 1-to-1 chat standard procedure

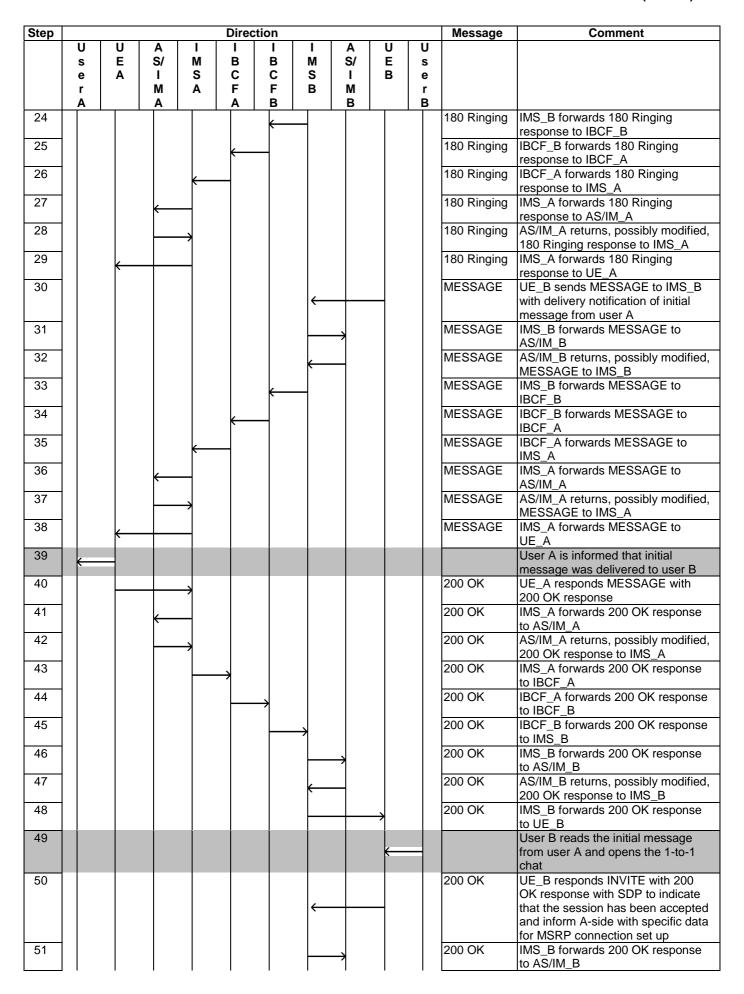
4.5.3.1.1 1-to-1 chat standard procedure - interworking

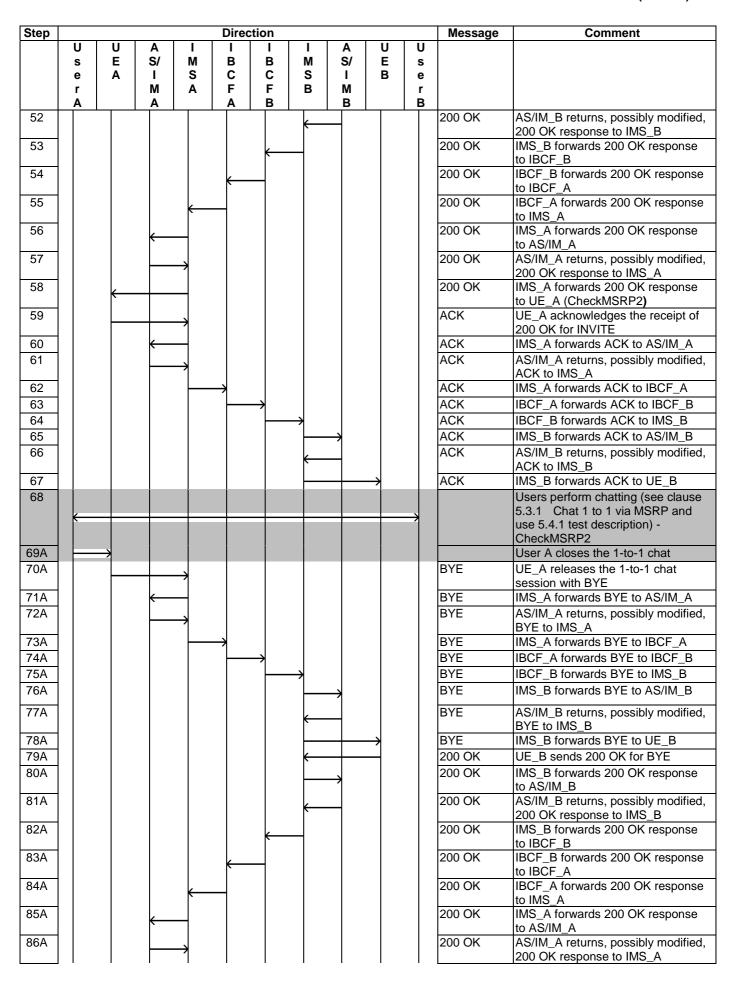
	Interoperabilit	y Test Description				
Identifier:	TD_IMS_CHAT_0001					
Summary:	IMS network supports 1-to-1 IM/Chat service and messages exchange between two users in their home network can be performed.					
Configuration:	CF_INT_AS					
SUT	IMS_A and IMS_B					
References	Test Purpose	Specification Reference				
	TP_IMS_5097_01	TS 124 229 [1], clause 5.4.3.2 ¶11				
		(1 st numbered list)				

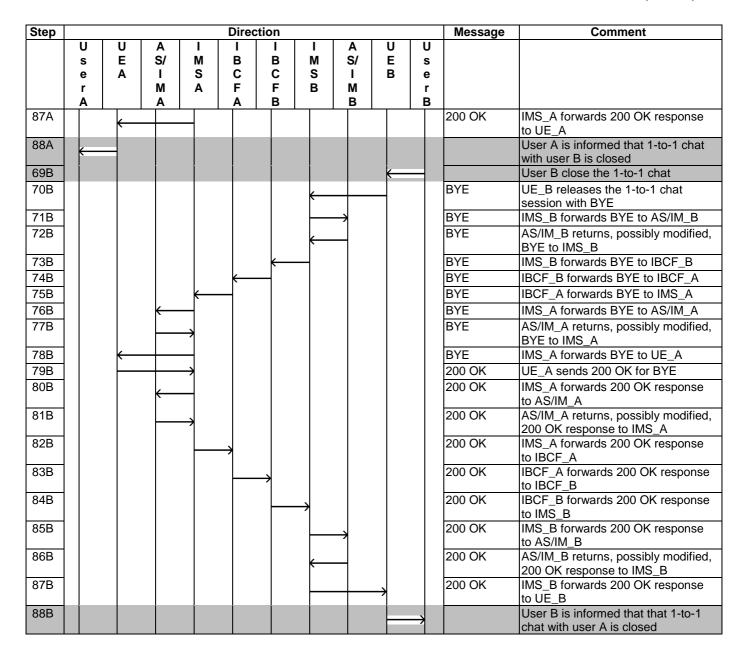
	Interoperability Test Desc	rintion						
TP IMS		TS 124 229 [1], clause 5.4.3.3 ¶5						
	0.00_00	(item 4 in 1 st numbered list)						
TP IMS	5115 08	TS 124 229 [1], clause 5.4.3.3 ¶89						
	_	(4 th numbered list)						
TD_MSRI	P_CHAT_0001	RFC 4975 [8],						
		clauses 5.4, 7.1 and 7.2						
UC_RCS	_4_I & UC_MSRP_01							
1								
 HSS of IMS_A and of IMS B is configured according to table 1 UE_A and UE_B have IP bearers established to their respective IMS networks as per TS 186 011-2 [7], clause 4.2.1 UE_A and UE_B shall support MSRP UE_A is registered in IMS_A optionally using userPRES according to table 1 UE_B is registered in IMS_B optionally using userPRES according to table 1 IMS_A is configured to contact AS_A IMS_B is configured to contact AS_B IMS_A is within the trust domain of IMS_B UE_A and UE_B have already performed capability discovery process IMS_A not configured for topology hiding 								
01								
Step 1 User A selects User B in the phone address book and sends him an in message with MSRP indication								
	6331011)							
7A		at with user B is closed						
7B								
Check	TD IMO 5007 04 : 000 4	LO (INDUITE)						
2	ensure that { when { UE_A sends an initial INV then { IMS_B receives the initia not containing a Route_h indicating the S-CSCF_ containing a P-Charging- (containing an icid-value containing a orig-ioi_pa not containing an acces not containing a term-ic containing a Record-Rou indicating the originatin } TP_IMS_5108_03 in CFW step 1 ensure that {	VITE to UE_B } I INVITE leader Leader Leader Leaperameter and Learenter indicating IMS_A and Learenter indicating IMS_A and Learenter indicating IMS_B and Learenter indicating IMS_B and Leader indicating IMS_B and Leader Leader indicating IMS_B and Leade						
	TP_IMS_: TD_MSRI UC_RCS_	TP_IMS_5108_03 TP_IMS_5115_08 TD_MSRP_CHAT_0001 UC_RCS_4_I & UC_MSRP_01 • HSS of IMS_A and of IMS B is configure to UE_A and UE_B have IP bearers estall per TS 186 011-2 [7], clause 4.2.1 • UE_A and UE_B shall support MSRP to UE_A is registered in IMS_A optionally to UE_B is registered in IMS_B optionally to IMS_A is configured to contact AS_B to IMS_A is configured to contact AS_B to IMS_A is within the trust domain of IMS_because to UE_A and UE_B have already perform to IMS_A not configured for topology hiding to UE_A and UE_B have already perform to IMS_A not configured for topology hiding to UE_A and UE_B have already perform to IMS_A not configured for topology hiding to UE_A and UE_B have already perform to IMS_A not configured for topology hiding to UE_A and UE_B have already perform to IMS_B informed that initial message to User B is informed that initial message to User B reads the initial message to User B closes the 1-to-1 chate the User B closes the 1-to-1 chate the User B closes the 1-to-1 chate then { USer B closes the 1-to-1 chate then { USer B closes the 1-to-1 chate then { USer B is informed that 1-to-1 chate then { USer B is informed that 1-to-1 chate then { USer B closes the initial use then { USer B closes the initial u						







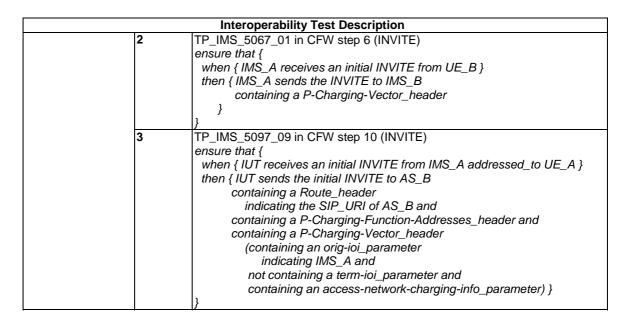


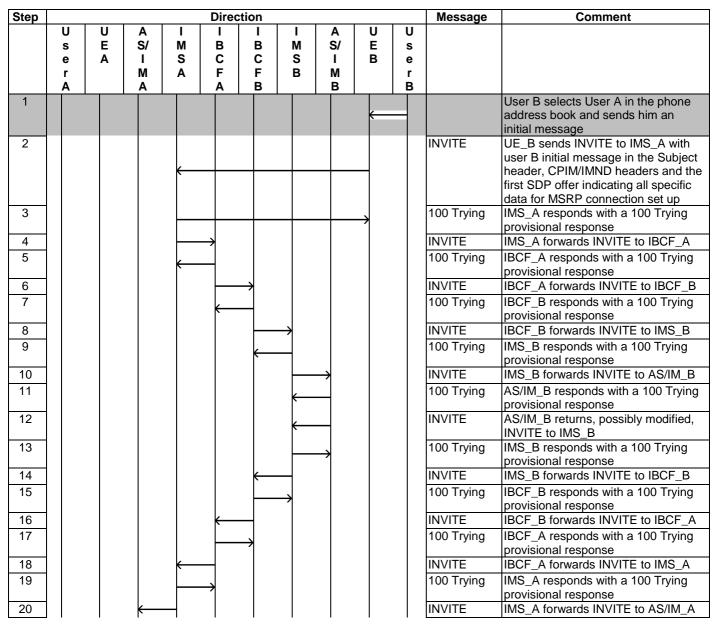


4.5.3.1.2 1-to-1 chat standard procedure - roaming (optional)

	Interoperability Te	est Description					
ldentifier:	TD_IMS_CHAT_0002						
Summary:	IMS network supports 1-to-1 IM/Chat service and messages exchange between two						
	users, one user in its home network and one user roaming can be performed.						
Configuration:	CF_ROAM_AS (OPTIONAL)						
SUT	IMS_A and IMS_B						
References	Test Purpose	Specification Reference					
	TP_IMS_5046_01	TS 124 229 [1], clause 5.2.6.3.3 ¶1					
		(1 st numbered list)					
	TP_IMS_5067_01	TS 124 229 [1], clause 5.2.7.2 ¶5					
	TP_IMS_5097_09	TS 124 229 [1], clause 5.4.3.2 ¶11					
		(items 5 and 8 in 1st numbered list)					
	TD_MSRP_CHAT_0001	RFC 4975 [8],					
		clauses 5.4, 7.1 and 7.2					
Use Case ref.:	UC_RCS_4_R & UC_MSRP_01						

Interoperability Test Description Pre-test HSS of IMS A and of IMS B is configured according to table 1 conditions: UE A and UE B have IP bearers established to their respective IMS networks as per TS 186 011-2 [7], clause 4.2.1 UE_A and UE_B shall support MSRP UE_A is registered in IMS_A optionally using userPRES according to table 1 UE_B is registered in IMS_B via IMS_A optionally using userPRES according to IMS_A is configured to contact AS_A IMS B is configured to contact AS B IMS A is within the trust domain of IMS B UE_A and UE_B have already performed capability discovery process IMS_A not configured for topology hiding **Test Sequence:** Step User B selects User A in the phone address book and sends him an initial message with MSRP indication User A is informed of incoming message 2 3 User B is informed that initial message was delivered to user A User A reads the initial message from user B and opens the 1-to-1 chat 4 5 Users perform chatting (MSRP session) User B closes the 1-to-1 chat 6A 6B User A closes the 1-to-1 chat User B is informed that that 1-to-1 chat with user A is closed **7A** 7B User A is informed that that 1-to-1 chat with user B is closed Conformance Check Criteria: TP_IMS_5046_01 in CFW step 6 (INVITE) ensure that { when { IMS_A receives an initial INVITE from UE_B } then { IMS_A sends the INVITE to IMS_B containing a Route_header not indicating the P-CSCF_SIP_URI of IMS_A and containing a Route_header indicating the "list of Service Route header URIs from the registration" and containing an additional Via_header containing (the P-CSCF_via_port_number and (the P-CSCF-FQDN_address or the P-CSCF-IP_address)) of IMS_A and containing an additional topmost Record-Route_header indicating (the P-CSCF_port_number 'where it awaits subsequent requests' from UE_A and (the P-CSCF-FQDN address or the P-CSCF-IP_address)) of IMS_A and not containing P-Preferred-Identity_header and containing a P-Asserted-Identity_header containing an address of UE B and containing a P-Charging-Vector_header containing an icid-value_parameter }

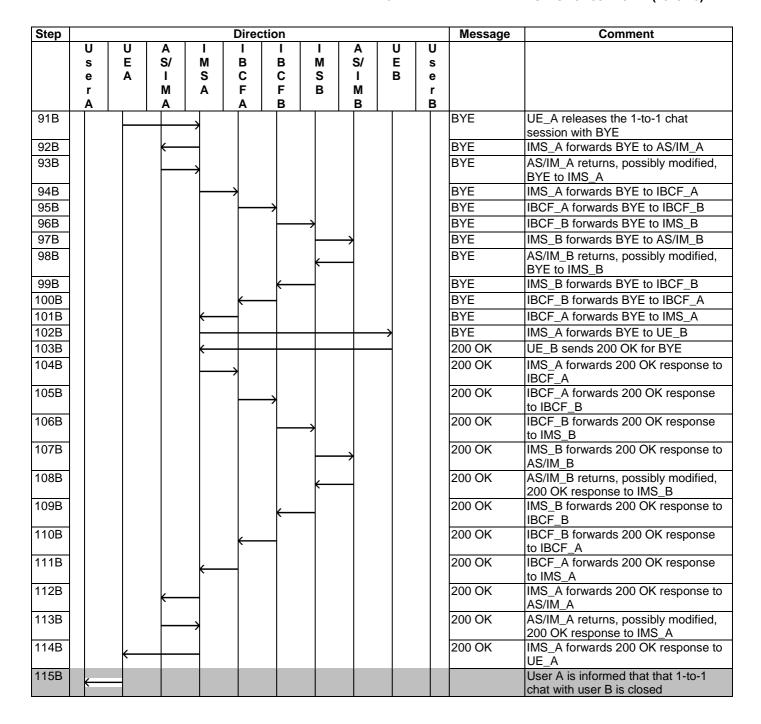




U	Step					Direc	tion				Message	Comment
Coloration					I	Ţ	I	I				
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21 22 23 24 25 26 27 28 28 29 29 29 29 29 29			^	-	-	_	-	_	-	В		
Invite				Α		Α	В		В			
100 Trying Mis. A responds with a 100 Trying provisional response Mis. A responds with a 100 Trying provisional response Mis. A responds with a 100 Trying provisional response Mis. A responds to Initial NIVITE to UE A 100 Trying UE A optionally response with a 100 Trying provisional response User A is informed of incoming message User A is informed of incoming message User A is informed of incoming message 180 Ringing UE A responds to initial NIVITE with 100 Ringing to indicate that invitation to a 1-to-1 chat session has reached the invited user 180 Ringing Mis. A forwards 180 Ringing Rin	21				\rightarrow						100 Trying	
190 Trying IMS. A responds with a 100 Trying provisional response	22				\rightarrow						INVITE	
INVITE	23			\leftarrow							100 Trying	IMS_A responds with a 100 Trying
Trying provisional response User A is informed of incoming message User A is informed of incoming message User A is informed to incoming message 180 Ringing UE. A responds to initial INVITE with 180 Ringing to indicate that invitation to a 1-to-1 chat session has reached the invited user 180 Ringing IMS_A forwards 180 Ringing response to MS_A 180 Ringing in Response to ASIM_A returns, possibly modified, 180 Ringing response to IMS_A 180 Ringing in IMS_A forwards 180 Ringing response to IBGF_A 180 Ringing IBGF_A forwards 180 Ringing IBGF_A forwards 180 Ringing IBGF_B forwards MESSAGE to IBGF_B forwards ME	24		\leftarrow								INVITE	
180 Ringing 180 Ringing to indicate that invitation to a 1-to-1 chaeseson has reached the invited user 180 Ringing 180 Ringing to indicate that invitation to a 1-to-1 chaeseson has reached the invited user 180 Ringing 180 Ringin					\rightarrow						100 Trying	Trying provisional response
180 Ringing to indicate that invitation to a 14-0-1 chat session has reached the invited user 180 Ringing esponse to AS/IM_A 180 Ringing as passed to IMS_A 180 Ringing as passed to IMS_B 180 Ringing	26											message
180 Ringing MS_A forwards 180 Ringing response to MASIM_A 180 Ringing Response to MASIM_A 180 Ringing response to MASIM_A 180 Ringing response to IMS_A 180 Ringing IMS_A forwards 180 Ringing response to IMS_A 180 Ringing IMS_B forwards 180 Ringing response to IMS_B 180 Ringing IMS_B forwards 180 Ringing response to IMS_B 180 Ringing IMS_B forwards 180 Ringing response to IMS_B 180 Ringing IMS_B forwards 180 Ringing response to IMS_B 180 Ringing IMS_B forwards 180 Ringing response to IMS_B 180 Ringing IMS_B forwards 180 Ringing response to IMS_B 180 Ringing IMS_B forwards 180 Ringing response to IMS_B 180 Ringing IMS_B forwards 180 Ringing response to IMS_B 180 Ringing IMS_B forwards 180 Ringing response to IMS_B 180 Ringing IMS_B forwards 180 Ringing response to IMS_B IMS_A forwards 180 Ringing response to IMS_B IMS_B forwards IMS_B Ringing response to IMS_B Ringing response to IMS_B IMS_B Ringing response to I	27				\rightarrow						180 Ringing	180 Ringing to indicate that invitation to a 1-to-1 chat session has reached
180 Ringing 180 Ringing response to IMS A 180 Ringing 180 Ringing response to IMS A 180 Ringing 180 Ringing response to IBCF A 180 Ringing response to IBCF A 180 Ringing response to IBCF A 180 Ringing response to IBCF B 180 Ringing response to	28			-							180 Ringing	IMS_A forwards 180 Ringing
Solution	29				\rightarrow						180 Ringing	AS/IM_A returns, possibly modified,
180 Ringing IBCF_A forwards 180 Ringing response to IBCF_B	30					\rightarrow					180 Ringing	IMS_A forwards 180 Ringing
180 Ringing IBCF_B forwards 180 Ringing response to IMS_B	31						\rightarrow				180 Ringing	IBCF_A forwards 180 Ringing
180 Ringing IMS_B forwards 180 Ringing response to AS/IM_B returns, possibly modified, 180 Ringing AS/IM_B returns, possibly modified, 180 Ringing response to IMS_B 180 Ringing response to IMS_A 180 Ringing IBCF_A forwards 180 Ringing response to IMS_A 180 Ringing IMS_A forwards 180 Ringing response to IMS_A 180 Ringing response to IM	32							\rightarrow			180 Ringing	IBCF_B forwards 180 Ringing
180 Ringing	33								\rightarrow		180 Ringing	IMS_B forwards 180 Ringing
35 36 37 38 38 39 40 40 41 41 42 43 44 45 45 46 47 48 48 49	34							-			180 Ringing	AS/IM_B returns, possibly modified,
180 Ringing IBCF_B forwards 180 Ringing response to IBCF_A 180 Ringing IBCF_A forwards 180 Ringing response to IMS_A 180 Ringing IMS_A forwards 180 Ringing response to IMS_A 180 Ringing IMS_A forwards 180 Ringing response to IMS_A 180 Ringing IMS_A forwards 180 Ringing response to IMS_A with delivery notification of initial message from user B MESSAGE UE_A sends MESSAGE to IMS_A with delivery notification of initial message from user B MESSAGE IMS_A forwards MESSAGE to IMS_A	35						—				180 Ringing	IMS_B forwards 180 Ringing
180 Ringing IBCF_A forwards 180 Ringing response to IMS_A 180 Ringing IMS_A forwards 180 Ringing response to IMS_A 180 Ringing IMS_A forwards 180 Ringing response to UE_B MESSAGE UE_A sends MESSAGE to IMS_A with delivery notification of initial message from user B MESSAGE IMS_A forwards MESSAGE to AS/IM_A returns, possibly modified, MESSAGE to IMS_A MESSAGE IMS_A forwards MESSAGE to IBCF_A forwards MESSAGE to IBCF_B forwards MESSAGE to IBCF_B forwards MESSAGE to IMS_B MESSAGE IBCF_B forwards MESSAGE to IMS_B MESSAGE IMS_B forwards MESSAGE to IMS_B MESSAGE IMS_B forwards MESSAGE to IBCF_B forwards MESSAGE to IBCF_B MESSAGE IMS_B forwards MESSAGE to IBCF_B forwards MESSAGE to IBCF_B MESSAGE IBCF_B forwards MESSAGE to IBCF_B forwards MESSAGE to IBCF_B MESSAGE IBCF_B forwards MESSAGE to IBCF_B forwards MESSAGE to IBCF_B MESSAGE IBCF_B forwards MESSAGE to IBCF_A forwards	36					←					180 Ringing	IBCF_B forwards 180 Ringing
180 Ringing IMS_A forwards 180 Ringing response to UE_B MESSAGE UE_A sends MESSAGE to IMS_A with delivery notification of initial message from user B MESSAGE IMS_A forwards MESSAGE to AS/IM_A MESSAGE IMS_A forwards MESSAGE to AS/IM_A MESSAGE IMS_A forwards MESSAGE to IMS_A MESSAGE IMS_A forwards MESSAGE to IMS_A MESSAGE IMS_A forwards MESSAGE to IMS_B MESSAGE IMS_B forwards MESSAGE to IMS_B	37										180 Ringing	IBCF_A forwards 180 Ringing
MESSAGE UE_A sends MESSAGE to IMS_A with delivery notification of initial message from user B MESSAGE IMS_A forwards MESSAGE to AS/IM_A MESSAGE AS/IM_A returns, possibly modified, MESSAGE to IMS_A MESSAGE IMS_A forwards MESSAGE to IBCF_A MESSAGE IBCF_A forwards MESSAGE to IBCF_B MESSAGE IBCF_B forwards MESSAGE to IMS_B MESSAGE IMS_B forwards MESSAGE to IMS_B MESSAGE IMS_B forwards MESSAGE to IMS_B MESSAGE IMS_B forwards MESSAGE to IBCF_B MESSAGE IMS_B forwards MESSAGE to IBCF_B MESSAGE IMS_B forwards MESSAGE to IBCF_B MESSAGE IBCF_B forwards MESSAGE to IBCF_B MESSAGE IBCF_A forwards MESSAGE to IBCF_A MESSAGE IBCF_A forwards MESSAGE to IBCF_A MESSAGE IBCF_A forwards MESSAGE to IBCF_A MESSAGE IBCF_A forwards MESSAGE to	38									\rightarrow	180 Ringing	IMS_A forwards 180 Ringing
41 42 43 44 45 46 47 48 48 49 40 41 41 41 42 43 44 45 46 46 47 48 48 46 47 48 48 48 48 48 48 48 48 48 48 48 48 48	39				\rightarrow						MESSAGE	UE_A sends MESSAGE to IMS_A with delivery notification of initial
41 42 43 44 45 46 47 48 48 49 41 41 42 44 45 46 47 48 48 48 48 48 48 48 48 48 48 48 48 48	40			\leftarrow							MESSAGE	IMS_A forwards MESSAGE to
42 43 44 45 46 47 48 48 49 MESSAGE IMS_A forwards MESSAGE to IBCF_A MESSAGE IBCF_A forwards MESSAGE to IBCF_B MESSAGE IBCF_B forwards MESSAGE to IMS_B MESSAGE IMS_B forwards MESSAGE to AS/IM_B MESSAGE AS/IM_B returns, possibly modified, MESSAGE to IMS_B MESSAGE IMS_B forwards MESSAGE to IBCF_B MESSAGE IBCF_B forwards MESSAGE to IBCF_B MESSAGE IBCF_B forwards MESSAGE to IBCF_A MESSAGE IBCF_A forwards MESSAGE to	41				\rightarrow						MESSAGE	AS/IM_A returns, possibly modified,
MESSAGE IBCF_A forwards MESSAGE to IBCF_B	42					\rightarrow					MESSAGE	IMS_A forwards MESSAGE to
44 45 46 47 48 49 MESSAGE IBCF_B forwards MESSAGE to IMS_B MESSAGE IMS_B forwards MESSAGE to IBCF_B MESSAGE IBCF_B forwards MESSAGE to IBCF_A MESSAGE IBCF_A forwards MESSAGE to IBCF_A forwards MESSAGE to IBCF_A MESSAGE IBCF_A forwards MESSAGE to	43						\rightarrow				MESSAGE	IBCF_A forwards MESSAGE to
45 46 47 48 49 MESSAGE IMS_B forwards MESSAGE to AS/IM_B message to IMS_B forwards MESSAGE to IMS_B message image. MESSAGE IMS_B forwards MESSAGE to IMS_B message image. MESSAGE IMS_B forwards MESSAGE to IBCF_B forwards MESSAGE to IBCF_A message image. MESSAGE IBCF_A forwards MESSAGE to IBCF_A forwards MESSAGE to IBCF_A message.	44							\rightarrow			MESSAGE	IBCF_B forwards MESSAGE to
46 47 48 49 MESSAGE AS/IM_B returns, possibly modified, MESSAGE to IMS_B MESSAGE IMS_B forwards MESSAGE to IBCF_B MESSAGE IBCF_B forwards MESSAGE to IBCF_A MESSAGE IBCF_A forwards MESSAGE to	45								\rightarrow		MESSAGE	IMS_B forwards MESSAGE to
47 48 49 MESSAGE IMS_B forwards MESSAGE to IBCF_B MESSAGE IBCF_B forwards MESSAGE to IBCF_A MESSAGE IBCF_A forwards MESSAGE to	46							—			MESSAGE	AS/IM_B returns, possibly modified,
48 49 MESSAGE IBCF_B forwards MESSAGE to IBCF_A MESSAGE IBCF_A forwards MESSAGE to	47						-	4			MESSAGE	IMS_B forwards MESSAGE to
49 MESSAGE IBCF_A forwards MESSAGE to	48					—	4				MESSAGE	IBCF_B forwards MESSAGE to
	49				—	4					MESSAGE	IBCF_A forwards MESSAGE to

Step					Directi	on					Message	Comment
	U s	U E	A S/	I M	I B	I B	I M	A S/	U E	U s		
		Α	I M	S A	C F	C F	S B	I M	В	e r		
	Å		A		Ä	В		В		В		
50									\rightarrow		MESSAGE	IMS_A forwards MESSAGE to UE_B
51										\rightarrow		User B is informed that initial message was delivered to user A
52											200 OK	UE_B responds MESSAGE with 200
53					>						200 OK	OK response IMS_A forwards 200 OK response to
54						•					200 OK	IBCF_A IBCF_A forwards 200 OK response
55)				200 OK	to IBCF_B IBCF_B forwards 200 OK response
56								>			200 OK	to IMS_B IMS_B forwards 200 OK response to
57							—				200 OK	AS/IM_B AS/IM_B returns, possibly modified,
58											200 OK	200 OK response to IMS_B IMS_B forwards 200 OK response to
59											200 OK	IBCF_B IBCF_B forwards 200 OK response to IBCF_A
60					-						200 OK	IBCF_A forwards 200 OK response to IMS_A
61			←								200 OK	IMS_A forwards 200 OK response to AS/IM_A
62				\rightarrow							200 OK	AS/IM_A returns, possibly modified, ACK to IMS_A
63											200 OK	IMS_A forwards ACK to UE_A (CheckMSRP2)
64												User A reads the initial message from user B and opens the 1-to-1 chat
65				\rightarrow							200 OK	UE_A responds INVITE with 200 OK response with SDP to indicate that the session has been accepted and inform B-side with specific data for MSRP connection set up
66			←	_							200 OK	IMS_A forwards 200 OK response to AS/IM_A
67				\rightarrow							200 OK	AS/IM_A returns, possibly modified, 200 OK response to IMS_A
68					\						200 OK	IMS_A forwards 200 OK response to IBCF_A
69											200 OK	IBCF_A forwards 200 OK response to IBCF_B
70							>				200 OK	IBCF_B forwards 200 OK response to IMS_B
71								>			200 OK	IMS_B forwards 200 OK response to AS/IM_B
72											200 OK	AS/IM_B returns, possibly modified, 200 OK response to IMS_B
73							-				200 OK	IMS_B forwards 200 OK response to IBCF_B
74						-					200 OK	IBCF_B forwards 200 OK response to IBCF_A
75				←	-						200 OK	IBCF_A forwards 200 OK response to IMS_A
76									\rightarrow		200 OK	IMS_A forwards 200 OK response to UE_B
77											ACK	UE_B acknowledges the receipt of 200 OK for INVITE
78				-	┥						ACK	IMS_A forwards ACK to IBCF_A

U U A I I I A U U S E S/ M B B M S/ E S E S F C C S I B E F B M F C F B M F C F B M F C F B M F C F C F B M F C F F B M F C F B M F C F F F B M F C F F F B M F C F F F B M F C F F F B M F C F F F B M F C F F F B M F C F F F B M F C F F F B M F C F F F B M F C F F F B M F C F F F B M F C F F F B M F C F F F B M F C F F F B M F C F F F B M F C F F F F B M F C F F F F B M F C F F F F B M F C F F F F B M F C F F F F B M F C F F F F B M F C F F F F F B M F C F F F F F F B M F C F F F F F F F F F F F F F F F F F	
e A I S C C S I B e	
A A A B B B	
	_A forwards ACK to IBCF_B
	_B forwards ACK to IMS_B
81 ACK IMS_I	B forwards ACK to AS/IM_B
	M_B returns, possibly modified,
ACK	to IMS_B
	B forwards ACK to IBCF_B
	_B forwards ACK to IBCF_A _A forwards ACK to IMS_A
	A forwards ACK to AS/IM_A
	M_A returns, possibly modified,
	to IMS_A
	A forwards ACK to UE_A
	s perform chatting (see clause Chat 1 to 1 via MSRP and
	5.4.1 test description) -
	kMSRP2
90A User	B closes the 1-to-1 chat
	3 releases the 1-to-1 chat
	on with BYE A forwards BYE to IBCF_A
	_A forwards BYE to IBCF_B
	B forwards BYE to IMS_B
	B forwards BYE to AS/IM_B
	M_B returns, possibly modified,
	to IMS_B
	B forwards BYE to IBCF_B
	_B forwards BYE to IBCF_A
	_A forwards BYE to IMS_A
	A forwards BYE to AS/IM_A
	M_A returns, possibly modified, to IMS_A
	A forwards BYE to UE_A
103A 200 OK UE_A	A sends 200 OK for BYE
	A forwards 200 OK response to
AS/IN	
	M_A returns, possibly modified,
106A 200 OK IMS_/	OK response to IMS_A A forwards 200 OK response to
107A	_A _A forwards 200 OK response
	CF_B
108A 200 OK IBCF. to IMS	_B forwards 200 OK response S_B
	B forwards 200 OK response to
110A 200 OK AS/IN	M_B returns, possibly modified, DK response to IMS_B
111A 200 OK IMS_I	B forwards 200 OK response to
	_B forwards 200 OK response
	_A forwards 200 OK response
	A forwards 200 OK response to
UE_B	
	B is informed that that 1-to-1 with user A is closed
	A closes the 1-to-1 chat

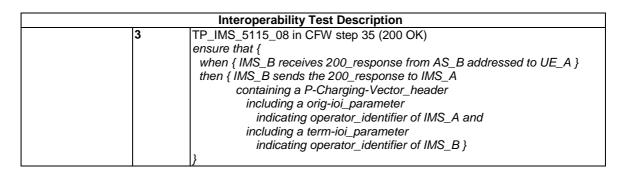


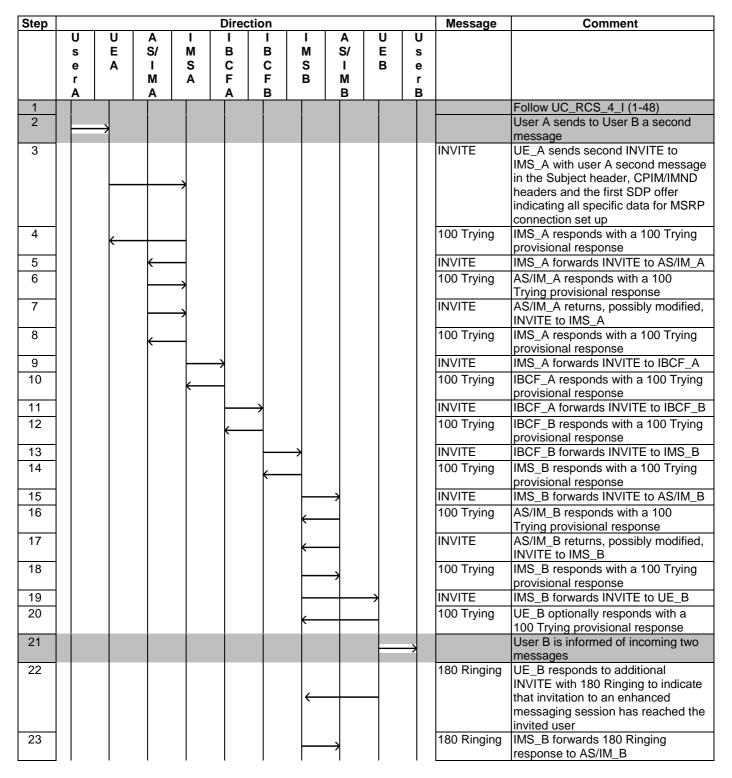
4.5.3.2 Several messages prior to establishment of 1-to-1 chat

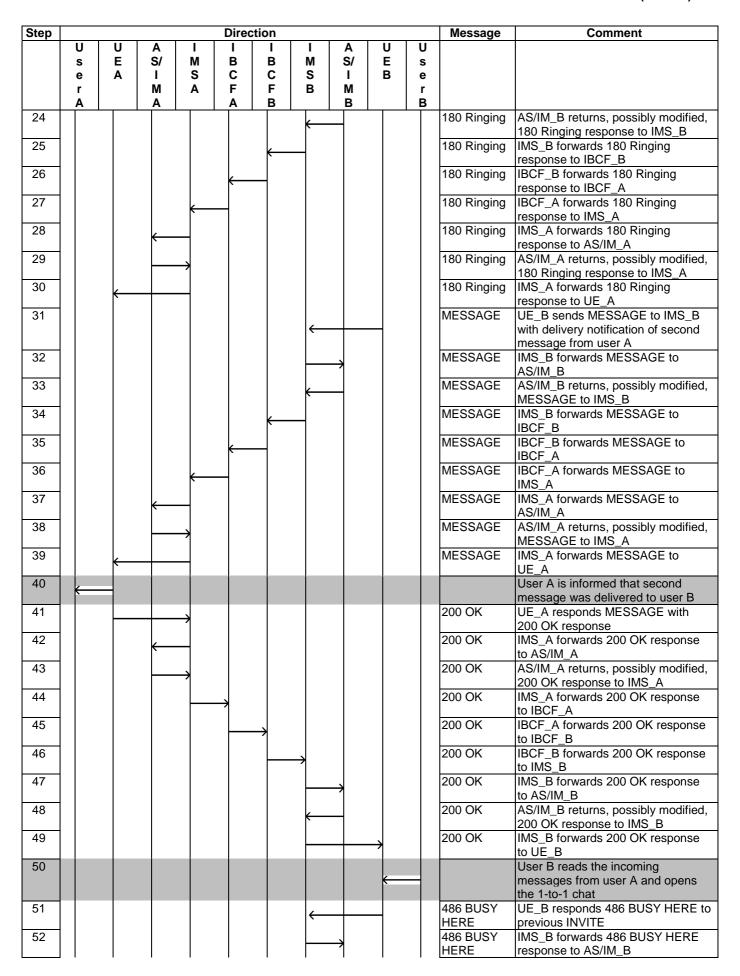
4.5.3.2.1 Several messages prior to establishment of 1-to-1 chat - interworking

	Interoperabilit	y Test Description					
Identifier:	TD_IMS_CHAT_0003						
Summary:	IMS network supports 1-to-1 IM/Chat service and messages exchange between two users in their home network can be performed. User B waits until receiving several messages from User A before accepting the chat invitation						
Configuration:	CF_INT_AS						
SUT	IMS_A and IMS_B						
References	Test Purpose	Specification Reference					
	TP_IMS_5097_01	TS 124 229 [1], clause 5.4.3.2 ¶11					
		(1 st numbered list)					

	TD IMO	Interoperability Test Desci									
	TP_IMS_	5108_03	TS 124 229 [1], clause 5.4.3.3 ¶5								
	TD 1840	5445 00	(item 4 in 1 st numbered list)								
	TP_IMS_	5115_08	TS 124 229 [1], clause 5.4.3.3 ¶89								
	TD 1400	D. OLIVE COOK	(4 th numbered list)								
	ID_MSRI	P_CHAT_0001	RFC 4975 [8],								
Usa Casa raf :	LIO DOO	4 L 0 LIO MODD 04	clauses 5.4, 7.1 and 7.2								
Use Case ref.:	UC_RCS_	S_4_I & UC_MSRP_01									
Pre-test	• HSS	of IMS. A and of IMS B is configur	ed according to table 1								
conditions:		 HSS of IMS_A and of IMS B is configured according to table 1 UE_A and UE_B have IP bearers established to their respective IMS networks as 									
		S 186 011-2 [7], clause 4.2.1	iished to their respective livio hetworks as								
		A and UE_B shall support MSRP									
			using userPRES according to table 1								
			using userPRES according to table 1								
		A is configured to contact AS_A	and a second sec								
		B is configured to contact AS_B									
		A is within the trust domain of IMS	В								
		A and UE_B have already performed									
		A not configured for topology hidin									
Test Sequence:	Step										
	1		ne address book and sends him an initial								
	<u> </u>	message with MSRP indication									
	2	User B is informed of incoming m									
	3	User A is informed that initial mes									
	4	User A sends to User B a second message									
	5	User B is informed of incoming two messages User A is informed that second message was delivered to user B									
	6										
	7	User B reads the incoming messages from user A and opens the 1-to-1 chat Users perform chatting (MSRP session)									
	8 9A	User A closes the 1-to-1 chat									
		User B closes the 1-to-1 chat									
i	IOR	Il lear R closes the 1-to-1 chat									
	9B 10A		at with user R is closed								
	10A	User A is informed that 1-to-1 cha									
Conformance	10A	User A is informed that 1-to-1 cha									
Conformance Criteria:	10A 10B	User A is informed that 1-to-1 cha	at with user A is closed								
	10A 10B	User A is informed that 1-to-1 cha User B is informed that 1-to-1 cha TP_IMS_5097_01 in CFW step 1	at with user A is closed								
	10A 10B	User A is informed that 1-to-1 cha User B is informed that 1-to-1 cha TP_IMS_5097_01 in CFW step 1 ensure that {	at with user A is closed 0 (INVITE):								
	10A 10B	User A is informed that 1-to-1 cha User B is informed that 1-to-1 cha TP_IMS_5097_01 in CFW step 1 ensure that { when { UE_A sends an initial INV	at with user A is closed 0 (INVITE): ITE to UE_B }								
	10A 10B	User A is informed that 1-to-1 cha User B is informed that 1-to-1 cha TP_IMS_5097_01 in CFW step 1 ensure that { when { UE_A sends an initial INV then { IMS_B receives the initial	of with user A is closed O (INVITE): ITE to UE_B } INVITE								
	10A 10B	User A is informed that 1-to-1 cha User B is informed that 1-to-1 cha TP_IMS_5097_01 in CFW step 1 ensure that { when { UE_A sends an initial INV then { IMS_B receives the initial not containing a Route_he	at with user A is closed 0 (INVITE): ITE to UE_B } INVITE eader								
	10A 10B	User A is informed that 1-to-1 cha User B is informed that 1-to-1 cha TP_IMS_5097_01 in CFW step 1 ensure that { when { UE_A sends an initial INV then { IMS_B receives the initial not containing a Route_he indicating the S-CSCF_	at with user A is closed 0 (INVITE): ITE to UE_B } INVITE eader SIP_URI of IMS_A								
	10A 10B	User A is informed that 1-to-1 cha User B is informed that 1-to-1 cha TP_IMS_5097_01 in CFW step 1 ensure that { when { UE_A sends an initial INV then { IMS_B receives the initial not containing a Route_he indicating the S-CSCF_ containing a P-Charging-	at with user A is closed 0 (INVITE): ITE to UE_B } INVITE eader SIP_URI of IMS_A Vector_header								
	10A 10B	User A is informed that 1-to-1 cha User B is informed that 1-to-1 cha TP_IMS_5097_01 in CFW step 1 ensure that { when { UE_A sends an initial INV then { IMS_B receives the initial not containing a Route_he indicating the S-CSCF_ containing a P-Charging- (containing an icid-value	at with user A is closed 0 (INVITE): ITE to UE_B } INVITE eader SIP_URI of IMS_A Vector_header _parameter and								
	10A 10B	User A is informed that 1-to-1 chat User B is informed that 1-to-1 chat TP_IMS_5097_01 in CFW step 1 ensure that { when { UE_A sends an initial INV then { IMS_B receives the initial not containing a Route_h indicating the S-CSCF_ containing a P-Charging- (containing an icid-value containing a orig-ioi_pa	at with user A is closed O (INVITE): ITE to UE_B } INVITE eader SIP_URI of IMS_A Vector_header _parameter and rameter indicating IMS_A and								
	10A 10B	User A is informed that 1-to-1 chat User B is informed that 1-to-1 chat TP_IMS_5097_01 in CFW step 1 ensure that { when { UE_A sends an initial INV then { IMS_B receives the initial not containing a Route_h indicating the S-CSCF_ containing a P-Charging- (containing an icid-value containing a orig-ioi_pa	at with user A is closed O (INVITE): ITE to UE_B } INVITE eader SIP_URI of IMS_A Vector_header _parameter and rameter indicating IMS_A and s-network-charging-info_parameter and								
	10A 10B	User A is informed that 1-to-1 characteristics TP_IMS_5097_01 in CFW step 1 ensure that { when { UE_A sends an initial INV then { IMS_B receives the initial not containing a Route_h indicating the S-CSCF_ containing a P-Charging- (containing a orig-ioi_pat not containing an access	at with user A is closed O (INVITE): ITE to UE_B } INVITE eader SIP_URI of IMS_A Vector_header _parameter and rameter indicating IMS_A and s-network-charging-info_parameter and i_parameter) and								
	10A 10B	User A is informed that 1-to-1 characteristics TP_IMS_5097_01 in CFW step 1 ensure that { when { UE_A sends an initial INV then { IMS_B receives the initial not containing a Route_h indicating the S-CSCF_ containing a P-Charging- (containing an icid-value containing a orig-ioi_pai not containing an acces not containing a term-io	at with user A is closed O (INVITE): ITE to UE_B } INVITE eader SIP_URI of IMS_A Vector_header _parameter and rameter indicating IMS_A and s-network-charging-info_parameter and i_parameter) and e_header								
	10A 10B Check	User A is informed that 1-to-1 characteristics TP_IMS_5097_01 in CFW step 1 ensure that { when { UE_A sends an initial INV then { IMS_B receives the initial not containing a Route_h indicating the S-CSCF_ containing a P-Charging- (containing an icid-value containing a orig-ioi_pai not containing an access not containing a term-io containing a Record-Rout indicating the originating }	at with user A is closed O (INVITE): ITE to UE_B } INVITE eader SIP_URI of IMS_A Vector_header _parameter and rameter indicating IMS_A and s-network-charging-info_parameter and i_parameter) and e_header g S-CSCF_SIP_URI }								
	10A 10B	User A is informed that 1-to-1 char User B is informed that 1-to-1 char TP_IMS_5097_01 in CFW step 1 ensure that { when { UE_A sends an initial INV then { IMS_B receives the initial not containing a Route_h indicating the S-CSCF_ containing a P-Charging- (containing an icid-value containing a orig-ioi_pa not containing an acces not containing a term-io containing a Record-Rout indicating the originating } TP_IMS_5108_03 in CFW step 1	at with user A is closed O (INVITE): ITE to UE_B } INVITE eader SIP_URI of IMS_A Vector_header _parameter and rameter indicating IMS_A and s-network-charging-info_parameter and i_parameter) and e_header g S-CSCF_SIP_URI }								
	10A 10B Check	User A is informed that 1-to-1 chat User B is informed that 1-to-1 chat TP_IMS_5097_01 in CFW step 1 ensure that { when { UE_A sends an initial INV then { IMS_B receives the initial not containing a Route_h indicating the S-CSCF_ containing a P-Charging- (containing an icid-value containing a orig-ioi_pa not containing an acces not containing a term-io containing a Record-Rout indicating the originating } TP_IMS_5108_03 in CFW step 1 ensure that {	at with user A is closed O (INVITE): ITE to UE_B } INVITE eader SIP_URI of IMS_A Vector_header _parameter and rameter indicating IMS_A and s-network-charging-info_parameter and i_parameter) and e_header g S-CSCF_SIP_URI }								
	10A 10B Check	User A is informed that 1-to-1 char User B is informed that 1-to-1 char TP_IMS_5097_01 in CFW step 1 ensure that { when { UE_A sends an initial INV then { IMS_B receives the initial not containing a Route_h indicating the S-CSCF_ containing a P-Charging- (containing an icid-value containing a orig-ioi_pai not containing an acces not containing a term-io containing a Record-Rout indicating the originating } TP_IMS_5108_03 in CFW step 1 ensure that { when { IUT receives an initial IN	at with user A is closed O (INVITE): ITE to UE_B } INVITE eader SIP_URI of IMS_A Vector_header _parameter and rameter indicating IMS_A and s-network-charging-info_parameter and i_parameter) and e_header g S-CSCF_SIP_URI } 4 (INVITE)								
	10A 10B Check	User A is informed that 1-to-1 char User B is informed that 1-to-1 char TP_IMS_5097_01 in CFW step 1 ensure that { when { UE_A sends an initial INV then { IMS_B receives the initial not containing a Route_h indicating the S-CSCF_ containing a P-Charging- (containing an icid-value containing a orig-ioi_pa. not containing an acces not containing a term-io containing a Record-Rout indicating the originating } TP_IMS_5108_03 in CFW step 1 ensure that { when { IUT receives an initial IN then { IUT sends the INVITE to the	at with user A is closed O (INVITE): ITE to UE_B } INVITE eader SIP_URI of IMS_A Vector_header _parameter and rameter indicating IMS_A and s-network-charging-info_parameter and i_parameter) and e_header g S-CSCF_SIP_URI } 4 (INVITE) VITE from IMS_A addressed_to UE_B} AS_B								
	10A 10B Check	User A is informed that 1-to-1 char User B is informed that 1-to-1 char TP_IMS_5097_01 in CFW step 1 ensure that { when { UE_A sends an initial INV then { IMS_B receives the initial not containing a Route_h indicating the S-CSCF_ containing a P-Charging- (containing an icid-value containing a orig-ioi_pa not containing an acces not containing a term-io containing a Record-Rout indicating the originating } TP_IMS_5108_03 in CFW step 1 ensure that { when { IUT receives an initial IN then { IUT sends the INVITE to containing a topmost Rout containing a topmos	at with user A is closed O (INVITE): ITE to UE_B } INVITE eader SIP_URI of IMS_A Vector_header _parameter and rameter indicating IMS_A and s-network-charging-info_parameter and i_parameter) and e_header g S-CSCF_SIP_URI } 4 (INVITE) IVITE from IMS_A addressed_to UE_B} AS_B te_header								
	10A 10B Check	User A is informed that 1-to-1 characteristics are that { When { UE_A sends an initial INV then { IMS_B receives the initial not containing a Route_haracteristics and containing an icid-value containing an icid-value containing an access not containing a rem-ior containing a rem-ior containing a rem-ior containing an access not containing a topmost Routenstein { When { IUT receives an initial IN then { IUT sends the INVITE to containing a topmost Routenstein indicating the SIP_URITED.	at with user A is closed O (INVITE): ITE to UE_B } INVITE eader SIP_URI of IMS_A Vector_header _parameter and rameter indicating IMS_A and s-network-charging-info_parameter and i_parameter) and e_header g S-CSCF_SIP_URI } VITE from IMS_A addressed_to UE_B} AS_B te_header of AS_B and								
	10A 10B Check	User A is informed that 1-to-1 char User B is informed that 1-to-1 char TP_IMS_5097_01 in CFW step 1 ensure that { when { UE_A sends an initial INV then { IMS_B receives the initial not containing a Route_ha indicating the S-CSCF_ containing a P-Charging- (containing an icid-value containing a orig-ioi_pa. not containing an acces not containing a term-io containing a Record-Rout indicating the originating } TP_IMS_5108_03 in CFW step 1 ensure that { when { IUT receives an initial IN then { IUT sends the INVITE to containing a topmost Rou indicating the SIP_URI containing a Route_head	at with user A is closed O (INVITE): ITE to UE_B } INVITE eader SIP_URI of IMS_A Vector_header _parameter and rameter indicating IMS_A and s-network-charging-info_parameter and i_parameter) and e_header g S-CSCF_SIP_URI } IVITE from IMS_A addressed_to UE_B} AS_B te_header of AS_B and er								
	10A 10B Check	User A is informed that 1-to-1 char User B is informed that 1-to-1 char TP_IMS_5097_01 in CFW step 1 ensure that { when { UE_A sends an initial INV then { IMS_B receives the initial not containing a Route_he indicating the S-CSCF_ containing a P-Charging- (containing an icid-value containing a orig-ioi_pa. not containing an acces not containing a term-io containing a Record-Rout indicating the originating } TP_IMS_5108_03 in CFW step 1 ensure that { when { IUT receives an initial IN then { IUT sends the INVITE to containing a topmost Rou indicating the SIP_URI containing a Route_head indicating the S-CSCF_	at with user A is closed O (INVITE): ITE to UE_B } INVITE eader SIP_URI of IMS_A Vector_header _parameter and rameter indicating IMS_A and s-network-charging-info_parameter and i_parameter) and e_header g S-CSCF_SIP_URI } IVITE from IMS_A addressed_to UE_B} AS_B te_header of AS_B and er SIP_URI of IUT_								
	10A 10B Check	User A is informed that 1-to-1 char User B is informed that 1-to-1 char TP_IMS_5097_01 in CFW step 1 ensure that { when { UE_A sends an initial INV then { IMS_B receives the initial not containing a Route_he indicating the S-CSCF_ containing an icid-value containing an icid-value containing a orig-ioi_pai not containing an acces not containing a term-io containing a Record-Rout indicating the originating } TP_IMS_5108_03 in CFW step 1 ensure that { when { IUT receives an initial IN then { IUT sends the INVITE to containing a topmost Rou indicating the SIP_URI containing a Route_head indicating the S-CSCF_ containing a P-Charging-	at with user A is closed O (INVITE): ITE to UE_B } INVITE eader SIP_URI of IMS_A Vector_header _parameter and rameter indicating IMS_A and s-network-charging-info_parameter and i_parameter) and ie_header g S-CSCF_SIP_URI } VITE from IMS_A addressed_to UE_B} AS_B te_header of AS_B and er SIP_URI of IUT_ Vector_header								
	10A 10B Check	User A is informed that 1-to-1 char User B is informed that 1-to-1 char TP_IMS_5097_01 in CFW step 1 ensure that { when { UE_A sends an initial INV then { IMS_B receives the initial not containing a Route_he indicating the S-CSCF_ containing a P-Charging- (containing an icid-value containing a orig-ioi_pa. not containing an acces not containing a term-io containing a Record-Rout indicating the originating } TP_IMS_5108_03 in CFW step 1 ensure that { when { IUT receives an initial IN then { IUT sends the INVITE to containing a topmost Rou indicating the SIP_URI containing a Route_head indicating the S-CSCF_	at with user A is closed O (INVITE): O (IN								
	10A 10B Check	User A is informed that 1-to-1 chat User B is informed that 1-to-1 chat TP_IMS_5097_01 in CFW step 1 ensure that { when { UE_A sends an initial INV then { IMS_B receives the initial not containing a Route_h indicating the S-CSCF_ containing an icid-value containing an icid-value containing a orig-ioi_pa not containing an acces not containing a term-io containing a Record-Rout indicating the originating } TP_IMS_5108_03 in CFW step 1 ensure that { when { IUT receives an initial IN then { IUT sends the INVITE to containing a topmost Rou indicating the SIP_URI containing a Route_head indicating the S-CSCF_ containing a P-Charging- (containing an orig-ioi_pa	at with user A is closed O (INVITE): O (IN								
	10A 10B Check	User A is informed that 1-to-1 chat User B is informed that 1-to-1 chat TP_IMS_5097_01 in CFW step 1 ensure that { when { UE_A sends an initial INV then { IMS_B receives the initial not containing a Route_h indicating the S-CSCF_ containing an icid-value containing an icid-value containing a orig-ioi_pa not containing an acces not containing a term-io containing a Record-Rout indicating the originating } TP_IMS_5108_03 in CFW step 1 ensure that { when { IUT receives an initial IN then { IUT receives an initial IN then { IUT receives an initial IN then { IUT sends the INVITE to containing a topmost Rou indicating the SIP_URI containing a Route_head indicating the S-CSCF_ containing an orig-ioi_p indicating IMS_A and	at with user A is closed O (INVITE): O (IN								







Step					Direc	tion					Message	Comment
	U	U	Α	I	I	ı	I	Α	U	U		
	s	E	S/	M	В	В	M	S/	E	S		
	e	Α	M	SA	C F	C F	S B	I M	В	e		
	r A		A	A	A	г В	В	B		r B		
53					<u> </u>					T	486 BUSY	AS/IM_B returns, possibly modified,
							←				HERE	486 BUSY HERE response to
												IMS_B
54						<u></u>					486 BUSY	IMS_B forwards 486 BUSY HERE
						ľ					HERE	response to IBCF_B
55					\leftarrow	_					486 BUSY HERE	IBCF_B forwards 486 BUSY HERE response to IBCF_A
56											486 BUSY	IBCF_A forwards 486 BUSY HERE
				\leftarrow							HERE	response to IMS_A
57			_								486 BUSY	IMS_A forwards 486 BUSY HERE
											HERE	response to AS/IM_A
58											486 BUSY	AS/IM_A returns, possibly modified,
				7							HERE	486 BUSY HERE response to IMS_A
59											486 BUSY	IMS_A forwards 486 BUSY HERE
39		\leftarrow									HERE	response to UE_A
60						1			1		ACK	UE_A acknowledges the receipt of
				7								486 BUSY HERE for INVITE
61			\leftarrow								ACK	IMS_A forwards ACK to AS/IM_A
62				→							ACK	AS/IM_A returns, possibly modified,
				1							1014	ACK to IMS_A
63					7						ACK	IMS_A forwards ACK to IBCF_A
64						7					ACK	IBCF_A forwards ACK to IBCF_B
65							\rightarrow				ACK	IBCF_B forwards ACK to IMS_B
66								7			ACK	IMS_B forwards ACK to AS/IM_B
67							←				ACK	AS/IM_B returns, possibly modified, ACK to IMS_B
68									\rightarrow		ACK	IMS_B forwards ACK to UE_B
69									1		200 OK	UE_B responds initial INVITE with
												200 OK response with SDP to
							_					indicate that the session has been
							`					accepted and inform A-side with
												specific data for MSRP connection
70											200 OK	set up IMS_B forwards 200 OK response
10								\rightarrow			200 OK	to AS/IM_B
71											200 OK	AS/IM_B returns, possibly modified,
												200 OK response to IMS_B
72						←					200 OK	IMS_B forwards 200 OK response
70						ľ			1		200 014	to IBCF_B
73					\leftarrow	\dashv			1		200 OK	IBCF_B forwards 200 OK response to IBCF_A
74						1			1		200 OK	IBCF_A forwards 200 OK response
' '				K		1			1			to IMS_A
75						1			1		200 OK	IMS_A forwards 200 OK response
						1			1			to AS/IM_A
76				\rightarrow							200 OK	AS/IM_A returns, possibly modified,
77						1			1		200 OK	200 OK response to IMS_A IMS_A forwards 200 OK response
' '		\leftarrow		\dashv		1			1		200 UK	to UE_A
78						1			1		ACK	UE_A acknowledges the receipt of
				\rightarrow								200 OK for the initial INVITE
79			\leftarrow	\dashv		1			1		ACK	IMS_A forwards ACK to AS/IM_A
80				\rightarrow		1			1		ACK	AS/IM_A returns, possibly modified,
				1		1			1			ACK to IMS_A
81					\rightarrow						ACK	IMS_A forwards ACK to IBCF_A
82						\rightarrow			1		ACK	IBCF_A forwards ACK to IBCF_B
83							\rightarrow		1		ACK	IBCF_B forwards ACK to IMS_B
84	- 1			1		1		\rightarrow	1		ACK	IMS_B forwards ACK to AS/IM_B

Step					Direc	tion					Message	Comment
	U s e r A	U E A	A S/ I M A	M S A	I B C F A	I B C F B	I M S B	A S/ I M B	U E B	U s e r B		
85							—				ACK	AS/IM_B returns, possibly modified, ACK to IMS_B
86									\rightarrow		ACK	IMS_B forwards ACK to UE_B
87	←									\rightarrow		Users perform chatting (see clause 5.3.1 Chat 1 to 1 via MSRP CheckMSRP3)
88												Continue UC_RCS_4_I (69A-88B)

4.5.3.2.2 Several messages prior to establishment of 1-to-1 chat - roaming (optional)

		Interoperability Test Desc	ription							
Identifier:	TD_IMS_0	CHAT_0004								
Summary:			e and messages exchange between two							
	users, one	e user in its home network and one	e user roaming can be performed. User B							
	waits until receiving several messages from User A before accepting the chat inv									
Configuration:	CF_ROAM	CF_ROAM_AS (OPTIONAL)								
SUT	IMS_A and IMS_B									
References	Test Purp	oose	Specification Reference							
	TP_IMS_	5046_01	TS 124 229 [1], clause 5.2.6.3.3 ¶1							
			(1st numbered list)							
	TP_IMS_	5067 01	TS 124 229 [1], clause 5.2.7.2 ¶5							
	TP_IMS_		TS 124 229 [1], clause 5.4.3.2 ¶11							
		_	(items 5 and 8 in 1st numbered list)							
Use Case ref.:	UC_RCS_	4 R	There is a sing o in 1 manifested not)							
	100_100_	<u></u>								
Pre-test	• HSS	of IMS_A and of IMS B is configu	red according to table 1							
conditions:										
conditions.	 UE_A and UE_B have IP bearers established to their respective IMS networks as per TS 186 011-2 [7], clause 4.2.1 									
	THE ATT THE PROPERTY OF THE PR									
	 UE_B is registered in IMS_B via IMS_A optionally using userPRES according to table 1 									
		IMS_A is configured to contact AS_A								
	IMS_B is configured to contact AS_B									
	IMS_A is within the trust domain of IMS_B									
	• UE_A	and UE_B have already perform	ed capability discovery process							
	• UE_A		ed capability discovery process							
	• UE_A • IMS_	and UE_B have already perform	ed capability discovery process							
Test Sequence:	• UE_A	A and UE_B have already perform A not configured for topology hidir	ed capability discovery process							
Test Sequence:	• UE_A • IMS_	A and UE_B have already perform A not configured for topology hidir	ed capability discovery process							
Test Sequence:	• UE_A • IMS_	A and UE_B have already perform A not configured for topology hidir User B selects User A in the phomessage with MSRP indication	ed capability discovery process ng ne address book and sends him an initial							
Test Sequence:	• UE_A • IMS_	A and UE_B have already perform A not configured for topology hidir	ed capability discovery process ng ne address book and sends him an initial							
Test Sequence:	• UE_A • IMS_ Step 1	A and UE_B have already perform A not configured for topology hidir User B selects User A in the phomessage with MSRP indication	ed capability discovery process ng ne address book and sends him an initial nessage							
Test Sequence:	• UE_A • IMS_ Step 1	A and UE_B have already perform A not configured for topology hidir User B selects User A in the phomessage with MSRP indication User A is informed of incoming manual contents.	ne address book and sends him an initial nessage ssage was delivered to user A							
Test Sequence:	• UE_A • IMS_ Step 1 2 3	A and UE_B have already perform A not configured for topology hidir User B selects User A in the phomessage with MSRP indication User A is informed of incoming models.	ne address book and sends him an initial nessage ssage was delivered to user A d message							
Test Sequence:	• UE_A • IMS_ Step 1 2 3 4	A and UE_B have already perform A not configured for topology hidir User B selects User A in the phomessage with MSRP indication User A is informed of incoming muser B is informed that initial meduser B sends to User A a second	ne address book and sends him an initial nessage ssage was delivered to user A d message wo messages							
Test Sequence:	• UE_A • IMS_ Step 1 2 3 4 5	A and UE_B have already perform A not configured for topology hidir User B selects User A in the phomessage with MSRP indication User A is informed of incoming muser B is informed that initial meuser B sends to User A a second User A is informed of incoming to User B is informed that second muser B is informed in the configuration in the c	ne address book and sends him an initial nessage sage was delivered to user A d message wo messages nessage was delivered to user A							
Test Sequence:	• UE_A • IMS_ Step 1 2 3 4 5 6	A and UE_B have already perform A not configured for topology hidir User B selects User A in the phomessage with MSRP indication User A is informed of incoming muser B is informed that initial meuser B sends to User A a second User A is informed of incoming to User B is informed that second muser B is informed that second muser A reads the incoming mess	ne address book and sends him an initial nessage sage was delivered to user A d message wo messages nessage was delivered to user A ages from user B and opens the 1-to-1 cha							
Test Sequence:	• UE_A • IMS_ Step 1 2 3 4 5 6 7	A and UE_B have already perform A not configured for topology hidir User B selects User A in the phomessage with MSRP indication User A is informed of incoming muser B is informed that initial meuser B sends to User A a second User A is informed of incoming to User B is informed that second muser A reads the incoming messure Users perform chatting (MSRP second material processes and the incoming messures are second material processes.	ne address book and sends him an initial nessage sage was delivered to user A d message wo messages nessage was delivered to user A ages from user B and opens the 1-to-1 cha							
Test Sequence:	• UE_A • IMS_ Step 1 2 3 4 5 6 7 8 9A	A and UE_B have already perform A not configured for topology hidir User B selects User A in the phomessage with MSRP indication User A is informed of incoming muser B is informed that initial meuser B sends to User A a second User A is informed of incoming to User B is informed that second muser B is informed that second muser A reads the incoming messure users perform chatting (MSRP seconds).	ne address book and sends him an initial nessage sage was delivered to user A d message wo messages nessage was delivered to user A ages from user B and opens the 1-to-1 cha							
Test Sequence:	• UE_A • IMS_ Step 1 2 3 4 5 6 7 8	A and UE_B have already perform A not configured for topology hidir User B selects User A in the phomessage with MSRP indication User A is informed of incoming muser B is informed that initial meuser B sends to User A a second User A is informed of incoming to User B is informed that second muser A reads the incoming messure Users perform chatting (MSRP second material processes and the incoming messures are second material processes.	ne address book and sends him an initial nessage ssage was delivered to user A d message wo messages nessage was delivered to user A ages from user B and opens the 1-to-1 chaession)							

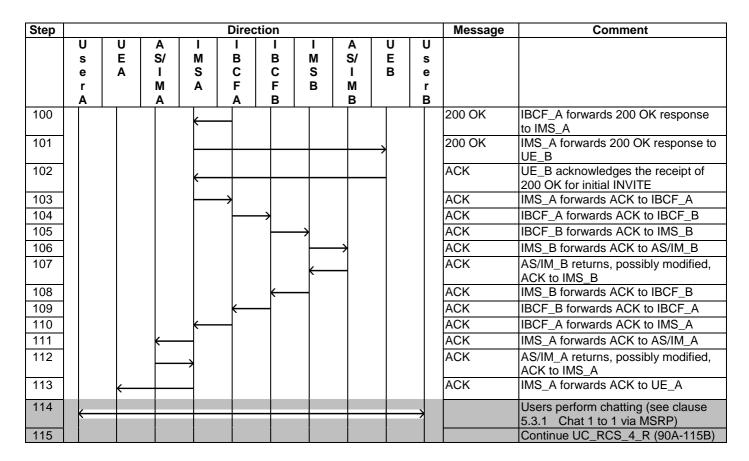
		Interoperability Test Description
Conformance Criteria:	Check	
Cinteria.	1	TP_IMS_5046_01 in CFW step 6 (INVITE) ensure that { when { IMS_A receives an initial INVITE from UE_B } then { IMS_A sends the INVITE to IMS_B containing a Route_header not indicating the P-CSCF_SIP_URI of IMS_A and containing a Route_header indicating the "list of Service Route header URIs from the registration" and containing an additional Via_header containing (the P-CSCF_via_port_number and
	2	TP_IMS_5067_01 in CFW step 6 (INVITE) ensure that { when { IMS_A receives an initial INVITE from UE_B } then { IMS_A sends the INVITE to IMS_B containing a P-Charging-Vector_header } }
	3	TP_IMS_5097_09 in CFW step 10 (INVITE) ensure that { when { IUT receives an initial INVITE from IMS_A addressed_to UE_A } then { IUT sends the initial INVITE to AS_B containing a Route_header indicating the SIP_URI of AS_B and containing a P-Charging-Function-Addresses_header and containing a P-Charging-Vector_header (containing an orig-ioi_parameter indicating IMS_A and not containing a term-ioi_parameter and containing an access-network-charging-info_parameter) } }

Step					Direc	tion					Message	Comment
	U s e r A	U E A	A S/ I M A	I M S A	I B C F A	I B C F B	I M S B	A S/ I M B	U E B	U s e r B		
2									(Follow UC_RCS_4_R (1-63) User B sends to User A a second message
3											INVITE	UE_B sends second INVITE to IMS_A with user A second message in the Subject header, CPIM/IMND
												headers and the first SDP offer indicating all specific data for MSRP connection set up
4									\rightarrow		100 Trying	IMS_A responds with a 100 Trying provisional response
5				-	\rightarrow						INVITE	IMS_A forwards INVITE to IBCF_A

Step					Direct	ion					Message	Comment
	U	Ū	Α	I	7 –	, –	: <u> </u>	A	Ū	U		
	s e	E A	S/	M S	B C	B C	M S	S/ I	E B	s e		
	r		M	Ă	F	F	В	M		r		
	Α		Α		Α	В		В		В		
6				\leftarrow							100 Trying	IBCF_A responds with a 100 Trying provisional response
7						\rightarrow					INVITE	IBCF_A forwards INVITE to IBCF_B
8											100 Trying	IBCF_B responds with a 100 Trying
												provisional response
9							\rightarrow				INVITE	IBCF_B forwards INVITE to IMS_B
10						\leftarrow					100 Trying	IMS_B responds with a 100 Trying provisional response
11								\rightarrow			INVITE	IMS_B forwards INVITE to AS/IM_B
12							<u> </u>				100 Trying	AS/IM_B responds with a 100 Trying
13											INVITE	provisional response AS/IM_B returns, possibly modified,
13							\leftarrow				IIIVIIE	INVITE to IMS_B
14											100 Trying	IMS_B responds with a 100 Trying
45								1			IND CITE	provisional response
15 16											INVITE 100 Trying	IMS_B forwards INVITE to IBCF_B IBCF_B responds with a 100 Trying
10							\rightarrow				100 Trying	provisional response
17					←						INVITE	IBCF_B forwards INVITE to IBCF_A
18						\rightarrow					100 Trying	IBCF_A responds with a 100 Trying
19											INVITE	provisional response IBCF_A forwards INVITE to IMS_A
20											100 Trying	IMS_A responds with a 100 Trying
)							provisional response
21			\leftarrow	_							INVITE	IMS_A forwards INVITE to AS/IM_A
22				\rightarrow							100 Trying	AS/IM_A responds with a 100 Trying provisional response
23				\rightarrow							INVITE	AS/IM_A returns, possibly modified, INVITE to IMS_A
24			\leftarrow	_							100 Trying	IMS_A responds with a 100 Trying
25		,									INVITE	provisional response IMS A forwards INVITE to UE A
26											100 Trying	UE_A optionally responds with a 100
				7								Trying provisional response
27	(User A is informed of incoming two messages
28											180 Ringing	UE_A responds second INVITE with
			+	\rightarrow								180 Ringing to indicate that invitation to an enhanced messaging session
												has reached the invited user
29			—	_							180 Ringing	IMS_A forwards 180 Ringing
30											180 Ringing	response to AS/IM_A AS/IM_A returns, possibly modified,
30				\rightarrow							100 Kinging	180 Ringing response to IMS_A
31					_						180 Ringing	IMS_A forwards 180 Ringing
20											100 Diai	response to IBCF_A
32						\rightarrow					180 Ringing	IBCF_A forwards 180 Ringing response to IBCF_B
33							\rightarrow				180 Ringing	IBCF_B forwards 180 Ringing response to IMS_B
34								\rightarrow			180 Ringing	IMS_B forwards 180 Ringing
35											180 Ringing	response to AS/IM_B AS/IM_B returns, possibly modified,
20							<u> </u>				100 Diai	180 Ringing response to IMS_B
36						\leftarrow					180 Ringing	IMS_B forwards 180 Ringing response to IBCF_B
37						_					180 Ringing	IBCF_B forwards 180 Ringing
38											180 Ringing	response to IBCF_A IBCF_A forwards 180 Ringing
					┑							response to IMS_A

Step				ı	Direction	on					Message	Comment
-	U	Ū	A C/	I	1	I	l M	A	U	U		
	s e	E A	S/	M S	B C	B C	M S	S/ I	E B	s e		
	r		M	Α	F	F	В	M		r B		
39	A		A		A	В	<u> </u>	В	\rightarrow	В	180 Ringing	IMS_A forwards 180 Ringing response to UE_B
40											MESSAGE	UE_A sends MESSAGE to IMS_A
				7								with delivery notification of initial message from user B
41											MESSAGE	IMS_A forwards MESSAGE to AS/IM_A
42											MESSAGE	AS/IM_A returns, possibly modified, MESSAGE to IMS_A
43					•						MESSAGE	IMS_A forwards MESSAGE to IBCF_A
44						\					MESSAGE	IBCF_A forwards MESSAGE to IBCF_B
45							>				MESSAGE	IBCF_B forwards MESSAGE to
46								→			MESSAGE	IMS_B IMS_B forwards MESSAGE to AS/IM_B
47							,				MESSAGE	AS/IM_B returns, possibly modified,
48											MESSAGE	MESSAGE to IMS_B IMS_B forwards MESSAGE to
49											MESSAGE	IBCF_B IBCF_B forwards MESSAGE to IBCF_A
50											MESSAGE	IBCF_A forwards MESSAGE to IMS_A
51									\rightarrow		MESSAGE	IMS_A forwards MESSAGE to UE_B
52										\rightarrow		User B is informed that second message was delivered to user A
53				k							200 OK	UE_B responds MESSAGE with 200
54											200 OK	OK response IMS_A forwards 200 OK response to IBCF_A
55						>					200 OK	IBCF_A IBCF_A forwards 200 OK response to IBCF_B
56							>				200 OK	IBCF_B forwards 200 OK response to IMS_B
57								>			200 OK	IMS_B forwards 200 OK response to AS/IM_B
58											200 OK	AS/IM_B returns, possibly modified, 200 OK response to IMS_B
59						-					200 OK	IMS_B forwards 200 OK response to IBCF_B
60					<u> </u>						200 OK	IBCF_B forwards 200 OK response
61											200 OK	to IBCF_A IBCF_A forwards 200 OK response to IMS_A
62			←—								200 OK	IMS_A forwards 200 OK response to AS/IM_A
63											200 OK	AS/IM_A returns, possibly modified, ACK to IMS_A
64											200 OK	IMS_A forwards ACK to UE_A
65)										User A reads the incoming messages from user B and opens the 1-to-1 chat
66				*							486 BUSY	UE_A responds with 486 BUSY
67											HERE 486 BUSY	HERE to previous INVITE IMS_A forwards 486 BUSY HERE
				1							HERE	response to AS/IM_A

Step					Direc	tion					Message	Comment
-	U	U	Α	I	ı	ı	ı	Α	U	U		
	S	E	S/	M	В	В	M	S/	E	S		
	е	Α	M	SA	C F	C F	S B	I M	В	е		
	r A		A	A	Ā	В	В	B		r B		
68				\rightarrow						Ī	486 BUSY HERE	AS/IM_A returns, possibly modified, 486 BUSY HERE response to IMS_A
69											486 BUSY	IMS_A forwards 486 BUSY HERE
					7						HERE	response to IBCF_A
70						\rightarrow					486 BUSY HERE	IBCF_A forwards 486 BUSY HERE response to IBCF_B
71											486 BUSY	IBCF_B forwards 486 BUSY HERE
							\rightarrow				HERE	response to IMS_B
72								\rightarrow			486 BUSY HERE	IMS_B forwards 486 BUSY HERE response to AS/IM_B
73							_				486 BUSY	AS/IM_B returns, possibly modified,
											HERE	486 BUSY HERE response to IMS_B
74						\leftarrow					486 BUSY HERE	IMS_B forwards 486 BUSY HERE response to IBCF_B
75											486 BUSY	IBCF_B forwards 486 BUSY HERE
											HERE	response to IBCF_A
76				—							486 BUSY	IBCF_A forwards 486 BUSY HERE
77											HERE 486 BUSY	response to IMS_A IMS_A forwards 486 BUSY HERE
//									\rightarrow		HERE	response to UE_B
78											ACK	UE_B acknowledges the receipt of
				\leftarrow								486 BUSY HERE for the previous INVITE
79					_						ACK	IMS_A forwards ACK to IBCF_A
80					`—	\rightarrow					ACK	IBCF_A forwards ACK to IBCF_B
81						<u> </u>	\rightarrow				ACK	IBCF_B forwards ACK to IMS_B
82								\rightarrow			ACK	IMS_B forwards ACK to AS/IM_B
83							←	_			ACK	AS/IM_B returns, possibly modified,
84											ACK	ACK to IMS_B IMS_B forwards ACK to IBCF_B
85						`					ACK	IBCF_B forwards ACK to IBCF_A
86					`						ACK	IBCF_A forwards ACK to IMS_A
87			\leftarrow	_ `							ACK	IMS_A forwards ACK to AS/IM_A
88			ľ								ACK	AS/IM_A returns, possibly modified,
				7								ACK to IMS_A
89		\leftarrow									ACK	IMS_A forwards ACK to UE_A
90											200 OK	UE_A responds initial INVITE with
												200 OK response with SDP to indicate that the session has been
				\rightarrow								accepted and inform B-side with
												specific data for MSRP connection
												set up
91			\leftarrow	_							200 OK	IMS_A forwards 200 OK response to
92				\rightarrow							200 OK	AS/IM_A AS/IM_A returns, possibly modified,
93				1							200 OK	200 OK response to IMS_A IMS_A forwards 200 OK response to
					\rightarrow							IBCF_A
94						\rightarrow					200 OK	IBCF_A forwards 200 OK response to IBCF_B
95							\rightarrow				200 OK	IBCF_B forwards 200 OK response
96											200 OK	to IMS_B IMS_B forwards 200 OK response to
07												AS/IM_B
97							\leftarrow	-			200 OK	AS/IM_B returns, possibly modified, 200 OK response to IMS_B
98						—					200 OK	IMS_B forwards 200 OK response to
99					_						200 OK	IBCF_B IBCF_B forwards 200 OK response
												to IBCF_A



4.5.3.3 Switching to 1-to-many chat

4.5.3.3.1 Switching to 1-to-many chat - interworking

	Interoperability Test Des	cription								
Identifier:	TD_IMS_CHAT_0007									
Summary:	IMS network supports 1-to-many IM/Chat s two users in their home network can be pe 1-to-many chat by inviting User C	•								
Configuration:	CF_INT_AS									
SUT	IMS_A and IMS_B									
References	Test Purpose Specification Reference									
	TP_IMS_5107_01	TS 124 229 [1], clause 5.4.3.2 ¶119								
		(item 1 in 6 th numbered list)								
	TD_MSRP_CHAT_0002	RFC 4975 [8],								
		clauses 5.4, 7.1 and 7.2								
Use Case ref.:	UC_RCS_7_I & UC_MSRP_02									
Pre-test conditions:	networks as per TS 186 011-2 [7], cla UE_A is registered in IMS_A optionall UE_B and UE_C are registered in IMS table 1 UE_A, UE_B and UE_C shall support IMS_A is configured to contact AS_A IMS_B is configured to contact AS_B IMS_A is within the trust domain of IMS	ers established to their respective IMS use 4.2.1 y using userPRES according to table 1 S_B optionally using userPRES according to MSRP S_B performed capability discovery process								

		Interoperability Test Description
Test Sequence:	Step	
	1	User A selects User B in the phone address book and sends him an initial message with MSRP indication
	2	User B is informed of incoming message
	3	User A is informed that initial message was delivered to user B
	4	User B reads the initial message from user A and opens the 1-to-1 chat
	5	Users perform 1-to-1 chatting
	6	User A initiates a 1-to-many Chat with User B and User C by sending initial message
	7	User A is informed that the 1-to-many Chat is established
	8	User B is informed of incoming invitation from User A to join the 1-to-many Chat
	9	User B reads the initial message and accepts the 1-to-many Chat invitation
	10	User A is notified with list of 1-to-many Chat participants
	11	User B is notified with list of 1-to-many Chat participants
	12	Users perform messaging in the 1-to-many Chat (MSRP session)
	13	User B leaves the 1-to-many Chat
	14	User B is informed that he has left the 1-to-many Chat
	15	User A is notified that User B has left the 1-to-many Chat
	16A	User A leaves the 1-to-many Chat
	16B	User C leaves the 1-to-many Chat
	17A	User A is informed that the 1-to-many Chat has ended
	17B	User B is informed that the 1-to-many Chat has ended
	17C	User C is informed that the 1-to-many Chat has ended
Conformance Criteria:	Check	
	1	TP_IMS_5107_01 in CFW step 46 (BYE):
		ensure that {
		when { UE_B sends BYE to UE_A }
		then { IMS_A receives the BYE
		not containing Route_header
		indicating the S-CSCF_SIP_URI of IMS_A
		} }

Step					Direc	tion					Message	Comment
	U s e r A	U E A	A S/ I M A	I M S A	I B C F A	I B C F B	M S B	A S/ I M B	U E B	U s e r B		
2		\rightarrow										Follow UC_RCS_4_I (1-68) User A initiates a 1-to-many Chat with User B and User C by sending initial message
3				-							INVITE	UE_A sends INVITE to IMS_A with Request-URI set to IM CONF-FCTY-URI (conference factory uri), MIME resource-list body including invited IM Users, the first SDP offer indicating all specific data for MSRP connection set up and the identity of User B with Session-Replaces header (CheckMSR1)
4		\leftarrow									100 Trying	IMS_A responds with a 100 Trying provisional response
5			—								INVITE	IMS_A forwards INVITE to AS/IM_A
6				\rightarrow							100 Trying	AS/IM_A responds with a 100 Trying provisional response

Step					Direct	ion					Message	Comment
	U	Ū	A	I	Ī	I	Ţ	A	U	U		
	s e	E A	S/	M S	B C	B C	M S	S/	E B	s e		
	r	^	M	A	F	F	В	M		r		
	Α		Α	ı	Α	В		В		В		
7											200 OK	AS/IM_A responds INVITE with
												200 OK response with IM session Identity allocated for the current 1-
				\rightarrow								to-many Chat to indicate that the
												session has been accepted and
												SDP to inform A-side with specific data for MSRP connection set up
8											200 OK	IMS_A forwards 200 OK response
		\leftarrow									200 011	to AS/IM_A
9	<u> </u>											User A is informed that the 1-to-
10											ACK	many Chat is accepted UE_A acknowledges the receipt of
10				\rightarrow							ACK	200 OK for INVITE
11			\leftarrow								ACK	IMS_A forwards ACK to AS/IM_A
12											INVITE	AS/IM_A sends INVITE to UE_B
												with IM session identity (allocated for the current 1-to-many Chat), IM
				\rightarrow								address of the Inviting IM UE
												(UE_A) and Session-Replaces
												header with the original 1-to-1 session identity
13											100 Trying	IMS_A responds with a 100 Trying
											, ,	provisional response
14					\rightarrow						INVITE	IMS_A forwards INVITE to IBCF_A
15				\leftarrow	_						100 Trying	IBCF_A responds with a 100 Trying provisional response
16											INVITE	IBCF_A forwards INVITE to
47											100 To do o	IBCF_B
17					\leftarrow	-					100 Trying	IBCF_B responds with a 100 Trying provisional response
18							\rightarrow				INVITE	IBCF_B forwards INVITE to IMS_B
19											100 Trying	IMS_B responds with a 100 Trying
20											INVITE	provisional response IMS_B forwards INVITE to
								\rightarrow				AS/IM_B
21											100 Trying	AS/IM_B responds with a 100
22											INVITE	Trying provisional response AS/IM_B returns, possibly
												modified, INVITE to IMS_B
23								\rightarrow			100 Trying	IMS_B responds with a 100 Trying provisional response
24									\rightarrow		INVITE	IMS_B forwards INVITE to UE_B
25											100 Trying	UE_B optionally responds with a
												100 Trying provisional response
26										_		User B is informed of incoming invitation from User A to join the 1-
										1		to-many Chat
27												User B reads the initial message
												and accepts the 1-to-many Chat invitation
28											200 OK	UE_B responds INVITE with 200
												OK response with SDP to indicate
							K					that the session has been accepted and inform AS/IM_A with specific
												data for MSRP connection set up
29								\rightarrow			200 OK	IMS_B forwards 200 OK response
20								1			200 OK	to AS/IM_B
30							—				200 OK	AS/IM_B returns, possibly modified, 200 OK response to
												IMS_B

Step					Direc	tion					Message	Comment
	U	U	Α	I	I	I	I	Α	U	U		
	s e	E A	S/ I	M S	B	B C	M S	S/	E B	s e		
	r		M	A	F	F	В	M	-	r		
	Α		Α		Α	В		В		В		
31						←					200 OK	IMS_B forwards 200 OK response to IBCF_B
32											200 OK	IBCF_B forwards 200 OK response to IBCF_A
33				←							200 OK	IBCF_A forwards 200 OK response
34			—								200 OK	to IMS_A IMS_A forwards 200 OK response
35				_							ACK	to AS/IM_A AS/IM_A acknowledges the receipt
				1							1014	of 200 OK for INVITE
36 37					\rightarrow						ACK ACK	IMS_A forwards ACK to IBCF_A
						\rightarrow					ACK	IBCF_A forwards ACK to IBCF_B
38							7					IBCF_B forwards ACK to IMS_B
39								\rightarrow			ACK	IMS_B forwards ACK to AS/IM_B
40							\leftarrow	-			ACK	AS/IM_B returns, possibly modified, ACK to IMS_B
41											ACK	IMS_B forwards ACK to UE_B
42											7.0.1	Users perform messaging in the 1-
	←		*						\rightarrow			to-many Chat (see clause 5.3.2.1 Chat 1 to many via MSRP - Interworking)
43											BYE	UE_B releases the 1-to-1 IM session with BYE
43A								\rightarrow			BYE	IMS_B forwards BYE to AS/IM_B
44							←	4			BYE	AS/IM_B returns, possibly modified, BYE to IMS_B
45						←					BYE	IMS_B forwards BYE to IBCF_B
46					<u></u>	`					BYE	IBCF_B forwards BYE to IBCF_A
47				<u></u>							BYE	IBCF_A forwards BYE to IMS_A
48				`							BYE	IMS_A forwards BYE to AS/IM_A
49				\rightarrow							BYE	AS/IM_A returns, possibly modified, BYE to IMS_A
50											BYE	IMS_A forwards BYE to UE_A
51				_							200 OK	UE_A sends 200 OK for BYE
52			-								200 OK	IMS_A forwards 200 OK response
53				\rightarrow							200 OK	to AS/IM_A AS/IM_A returns, possibly modified, 200 OK response to IMS_A
54					\rightarrow						200 OK	IMS_A forwards 200 OK response to IBCF_A
55						\rightarrow					200 OK	IBCF_A forwards 200 OK response to IBCF_B
56							\rightarrow				200 OK	IBCF_B forwards 200 OK response to IMS_B
57								\rightarrow			200 OK	IMS_B forwards 200 OK response to AS/IM_B
58							-				200 OK	AS/IM_B returns, possibly modified, 200 OK response to
59											200 OK	IMS_B IMS_B forwards 200 OK response
60									1		SUBSCRIBE	to UE_B UE_A subscribes to the conference
61											SUBSCRIBE	event package IMS_A forwards SUBCRIBE to
												AS/IM_A
62				\rightarrow							200 OK	AS/IM_A sends 200 OK for SUBSCRIBE

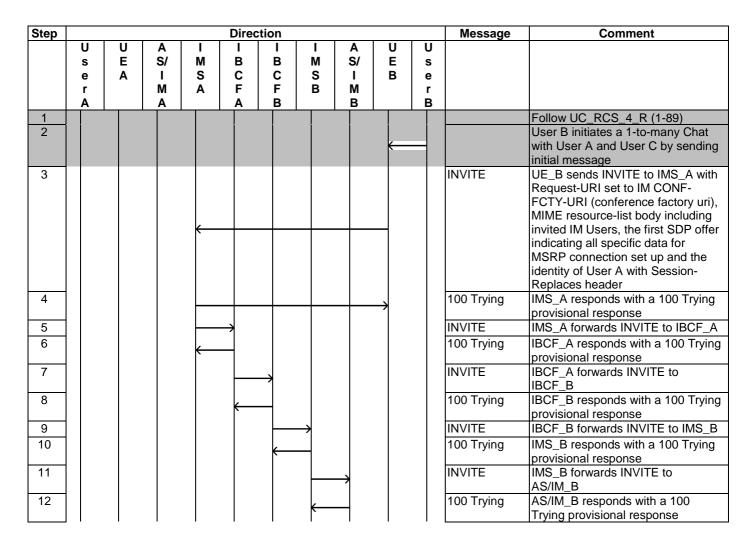
Step					Direc	tion					Message	Comment
	U	ū	A	I		Ī	I	A	Ū	U		
	s e	E A	S/	M S	B C	B C	M S	S/	E B	s e		
	r		M	Ā	F	F	В	M		r		
	Α		Α		Α	В		В		В	200 OK	IMC A familiarda 200 OK raanana
63		\leftarrow	+								200 OK	IMS_A forwards 200 OK response to UE_A
64											NOTIFY	AS/IM_A sends NOTIFY to UE_A
				\rightarrow								with list of 1-to-many Chat
65											NOTIFY	participants IMS_A forwards the NOTIFY to
												UE_A
66												User A is notified with list of 1-to- many Chat participants
67				\rightarrow							200 OK	UE_A responds with 200 OK to
68											200 OK	IMS_A forwards the 200 OK
00			\leftarrow									response to AS/IM_A
69											SUBSCRIBE	UE_B subscribes to the conference event package
70								_			SUBSCRIBE	IMS_B forwards SUBSCRIBE to
71								1			SUBSCRIBE	AS/IM_B AS/IM_B returns, possibly
												modified, SUBSCRIBE to IMS_B
72						←					SUBSCRIBE	IMS_B forwards SUBSCRIBE to IBCF_B
73					←						SUBSCRIBE	IBCF_B forwards SUBSCRIBE to IBCF_A
74											SUBSCRIBE	IBCF_A forwards SUBSCRIBE to
75											SUBSCRIBE	IMS_A IMS_A forwards SUBSCRIBE to
			\leftarrow									AS/IM_A
76				\rightarrow							200 OK	AS/IM_A sends 200 OK for SUBSCRIBE
77					\rightarrow						200 OK	IMS_A forwards 200 OK response to IBCF_A
78						\rightarrow					200 OK	IBCF_A forwards 200 OK response
79											200 OK	to IBCF_B IBCF_B forwards 200 OK response
70							\rightarrow					to IMS_B
80								\rightarrow			200 OK	IMS_B forwards 200 OK response to AS/IM_B
81											200 OK	AS/IM_B returns, possibly
							\leftarrow					modified, 200 OK response to
82											200 OK	IMS_B IMS_B forwards 200 OK response
02									\rightarrow		200 010	to UE_B
83											NOTIFY	AS/IM_A sends NOTIFY to UE_B
				\rightarrow								with list of 1-to-many Chat participants
84					\rightarrow						NOTIFY	IMS_A forwards BYE to IBCF_A
85						\rightarrow					NOTIFY	IBCF_A forwards BYE to IBCF_B
86							\rightarrow				NOTIFY	IBCF_B forwards BYE to IMS_B
87								\rightarrow			NOTIFY	IMS_B forwards BYE to AS/IM_B
88							—	_			NOTIFY	AS/IM_B returns, possibly
89											NOTIFY	modified, BYE to IMS_B IMS_B forwards BYE to UE_B
90											NOTH I	User B is notified with list of 1-to-
											222.017	many Chat participants
91							(200 OK	UE_B sends 200 OK for NOTIFY
92								\rightarrow			200 OK	IMS_B forwards 200 OK response to AS/IM_B
93											200 OK	AS/IM_B returns, possibly
												modified, 200 OK response to IMS_B
			•	•						•		

Step					Direc	tion					Message	Comment
	U s e r	U E A	A S/ I M	I M S A	I B C F	I B C F	I M S B	A S/ I M	U E B	U s e r		
0.4	Α		Α		Α	В		В		В	222 214	1140 D (
94						\leftarrow					200 OK	IMS_B forwards 200 OK response to IBCF_B
95					\leftarrow						200 OK	IBCF_B forwards 200 OK response to IBCF_A
96											200 OK	IBCF_A forwards 200 OK response to IMS_A
97				_							200 OK	IMS_A forwards 200 OK response to AS/IM_A
98												Users perform messaging in the 1- to-many Chat (see clause 5.3.2.1
												Chat 1 to many via MSRP - Interworking)
99												Continue UC_RCS_6_I (80A-116B)

4.5.3.3.2 Switching to 1-to-many chat - roaming (optional)

		Interoperability Test Des	cription
Identifier:	TD IMS	CHAT_0008	•
Summary:	IMS netw	vork supports 1-to-many IM/Chat	service and messages exchange between ad one user roaming can be performed. User by inviting User C
Configuration:	CF ROA	M_AS (OPTIONAL)	
SUT		nd IMS_B	
References	Test Pur		Specification Reference
		_5052_01	TS 124 229 [1], clause 5.2.6.3-9 ¶1 (1st numbered list)
	TD_MSR	RP_CHAT_0002	RFC 4975 [8], clauses 5.4, 7.1 and 7.2
Use Case ref.:	UC RCS	S_7_R & UC_MSRP_02_R	,
Pre-test conditions:	 UE_netw UE_accc UE_ IMS_ IMS_ UE_ 	vorks as per TS 186 011-2 [7], cla A is registered in IMS_A optionall B and UE_C are registered in IMS ording to table 1 A, UE_B and UE_C shall support _A is configured to contact AS_A _B is configured to contact AS_B _A is within the trust domain of IM	ers established to their respective IMS use 4.2.1 y using userPRES according to table 1 B_B via IMS_A optionally using userPRES MSRP S_B performed capability discovery process
-	101		
Test Sequence:	1 2 3	message with MSRP indication User A is informed of incoming	
	5 6 7 8	User A reads the initial message Users perform 1-to-1 chatting (Notes and the user B initiates a 1-to-many Chambers B is informed that the 1-to-many Chambers B is informed the 1-to-many Chamb	at with User A and User C by sending initial
	4 5 6	User A reads the initial message Users perform 1-to-1 chatting (Note of the Initial Message) User B initiates a 1-to-many Chat message User B is informed that the 1-to-User A is informed of incoming Chat	e from user B and opens the 1-to-1 chat MSRP session) at with User A and User C by sending initial many Chat is established invitation from User B to join the 1-to-many and accepts the 1-to-many Chat invitation

		Interoperability Test Description
	11	User A is notified with list of 1-to-many Chat participants
	12	Users perform messaging in the 1-to-many Chat (MSRP session)
	13A	User A leaves the 1-to-many Chat
	13B	User B leaves the 1-to-many Chat
	14A	User A is informed that he has left the 1-to-many Chat
	14B	User B is informed that he has left the 1-to-many Chat
	15A	User B is notified that all other users have left the 1-to-many Chat
	15B	User A is notified that all other users have left the 1-to-many Chat
	16A	User B leaves the 1-to-many Chat
	16B	User A leaves the 1-to-many Chat
	17A	User B is informed that the 1-to-many Chat has ended
	17B	User A is informed that the 1-to-many Chat has ended
Conformance	Check	
Criteria:		
	1	TP_IMS_5052_01 in CFW step 58 (BYE):
1		ensure that {
		when { IMS_B receives a BYE from UE_A }
		when { IMS_B receives a BYE from UE_A } then { IMS_B sends the BYE to IMS_A
		when { IMS_B receives a BYE from UE_A } then { IMS_B sends the BYE to IMS_A not containing a Route_header
		when { IMS_B receives a BYE from UE_A } then { IMS_B sends the BYE to IMS_A not containing a Route_header indicating the P-CSCF_SIP_URI of IMS_A and
		when { IMS_B receives a BYE from UE_A } then { IMS_B sends the BYE to IMS_A not containing a Route_header indicating the P-CSCF_SIP_URI of IMS_A and containing the same Record-Route_header
		when { IMS_B receives a BYE from UE_A } then { IMS_B sends the BYE to IMS_A not containing a Route_header indicating the P-CSCF_SIP_URI of IMS_A and containing the same Record-Route_header as in the previous ACK and
		when { IMS_B receives a BYE from UE_A } then { IMS_B sends the BYE to IMS_A not containing a Route_header indicating the P-CSCF_SIP_URI of IMS_A and containing the same Record-Route_header as in the previous ACK and containing a P-Charging-Vector header
		when { IMS_B receives a BYE from UE_A } then { IMS_B sends the BYE to IMS_A not containing a Route_header indicating the P-CSCF_SIP_URI of IMS_A and containing the same Record-Route_header as in the previous ACK and
		when { IMS_B receives a BYE from UE_A } then { IMS_B sends the BYE to IMS_A not containing a Route_header indicating the P-CSCF_SIP_URI of IMS_A and containing the same Record-Route_header as in the previous ACK and containing a P-Charging-Vector header



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Step					Direc	tion					Message	Comment
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40									•		200 OK	UE_A responds INVITE with 200
												OK response with SDP to indicate
				\rightarrow								that the session has been accepted
												and inform AS/IM_A with specific data for MSRP connection set up
41											200 OK	IMS_A forwards 200 OK response
												to AS/IM_A
42											200 OK	AS/IM_A returns, possibly
				\rightarrow								modified, 200 OK response to IMS_A
43											200 OK	IMS_A forwards 200 OK response
10					\rightarrow						200 010	to IBCF_A
44											200 OK	IBCF_A forwards 200 OK response
4.5						1					202 014	to IBCF_B
45							\rightarrow				200 OK	IBCF_B forwards 200 OK response to IMS_B
46											200 OK	IMS_B forwards 200 OK response
								\rightarrow				to AS/IM_B
47											ACK	AS/IM_B acknowledges the receipt
40							(1014	of 200 OK for INVITE
48					,						ACK ACK	IMS_B forwards ACK to IBCF_B
49 50				,							ACK	IBCF_B forwards ACK to IBCF_A IBCF_A forwards ACK to IMS_A
51											ACK	IMS_A forwards ACK to AS/IM_A
52											ACK	AS/IM_A returns, possibly
02				\rightarrow							, tort	modified, ACK to IMS_A
53		\leftarrow		_							ACK	IMS_A forwards ACK to UE_A
54				\rightarrow							BYE	UE_A releases the 1-to-1 IM
55			,								BYE	session with BYE IMS_A forwards BYE to AS/IM_A
56											BYE	AS/IM_A returns, possibly
30				\rightarrow							DIE.	modified, BYE to IMS_A
57					\rightarrow						BYE	IMS_A forwards BYE to IBCF_A
58						\rightarrow					BYE	IBCF_A forwards BYE to IBCF_B
59							\rightarrow				BYE	IBCF_B forwards BYE to IMS_B
60								\rightarrow			BYE	IMS_B forwards BYE to AS/IM_B
61							←				BYE	AS/IM_B returns, possibly
62											BYE	modified, BYE to IMS_B IMS_B forwards BYE to IBCF_B
63					<u> </u>						BYE	IBCF_B forwards BYE to IBCF_A
64				—							BYE	IBCF_A forwards BYE to IMS_A
65				,					\longrightarrow		BYE	IMS_A forwards BYE to UE_B
66				←							200 OK	UE_B sends 200 OK for BYE
67					_						200 OK	IMS_A forwards 200 OK response
					1						222 014	to IBCF_A
68					-	\rightarrow					200 OK	IBCF_A forwards 200 OK response to IBCF_B
69											200 OK	IBCF_B forwards 200 OK response
							\rightarrow					to IMS_B
70								\rightarrow			200 OK	IMS_B forwards 200 OK response
71											200 OK	to AS/IM_B AS/IM_B returns, possibly
'							_				200 OK	modified, 200 OK response to
							ľ					IMS_B
72						<u> </u>	_				200 OK	IMS_B forwards 200 OK response
70											200 014	to IBCF_B
73					\leftarrow	\dashv					200 OK	IBCF_B forwards 200 OK response to IBCF_A
	1	I	1	I	Ţ	I	I	1	1	I		IU IDCF_A

Step					Directi	on					Message	Comment
-	U	Ū	A	I	I	I	I	Α	Ū	U		
	s e	E A	S/	M S	B C	B C	M S	S/ I	E B	s e		
	r		М	A	F	F	В	M		r		
74	A		A 	<u> </u>	A 	В		В		В	200 OK	IBCF_A forwards 200 OK response
75			.								200 OK	to IMS_A IMS_A forwards 200 OK response
76				→							200 OK	to AS/IM_A AS/IM_A returns, possibly modified, 200 OK response to
77											200 OK	IMS_A IMS_A forwards 200 OK response to UE_A
78											SUBSCRIBE	UE_B subscribes to the conference event package
79					>						SUBSCRIBE	IMS_A forwards SUBSCRIBE to IBCF_A
80						>					SUBSCRIBE	IBCF_A forwards SUBSCRIBE to IBCF_B
81							>				SUBSCRIBE	IBCF_B forwards SUBSCRIBE to IMS_B
82)			SUBSCRIBE	IMS_B forwards SUBSCRIBE to AS/IM_B
83							\leftarrow				200 OK	AS/IM_B sends 200 OK for SUBSCRIBE
84						←	-				200 OK	IMS_B forwards 200 OK response to IBCF_B
85											200 OK	IBCF_B forwards 200 OK response to IBCF_A
86											200 OK	IBCF_A forwards 200 OK response to IMS_A
87									\rightarrow		200 OK	IMS_A forwards 200 OK response to UE_B
88											NOTIFY	AS/IM_B sends NOTIFY to UE_B with list of 1-to-many Chat participants
89											NOTIFY	IMS_B forwards NOTIFY to IBCF_B
90											NOTIFY	IBCF_B forwards NOTIFY to IBCF_A
91											NOTIFY	IBCF_A forwards NOTIFY to IMS_A
92									\rightarrow		NOTIFY	IMS_A forwards NOTIFY to UE_B
93										\rightarrow	222 014	User B is notified with list of 1-to- many Chat participants
94											200 OK	UE_B responds with 200 OK to IMS_A
95				-	*						200 OK	IMS_A forwards 200 OK response to IBCF_A
96						>					200 OK	IBCF_A forwards 200 OK response to IBCF_B
97							>				200 OK	IBCF_B forwards 200 OK response to IMS_B
98)			200 OK	IMS_B forwards 200 OK response to AS/IM_B
99				>							SUBSCRIBE	UE_A subscribes to the conference event package
100				-							SUBSCRIBE	IMS_A forwards SUBSCRIBE to AS/IM_A
101)							SUBSCRIBE	AS/IM_A returns, possibly modified, SUBSCRIBE to IMS_A
102					*						SUBSCRIBE	IMS_A forwards SUBSCRIBE to IBCF_A
103)					SUBSCRIBE	IBCF_A forwards SUBSCRIBE to IBCF_B

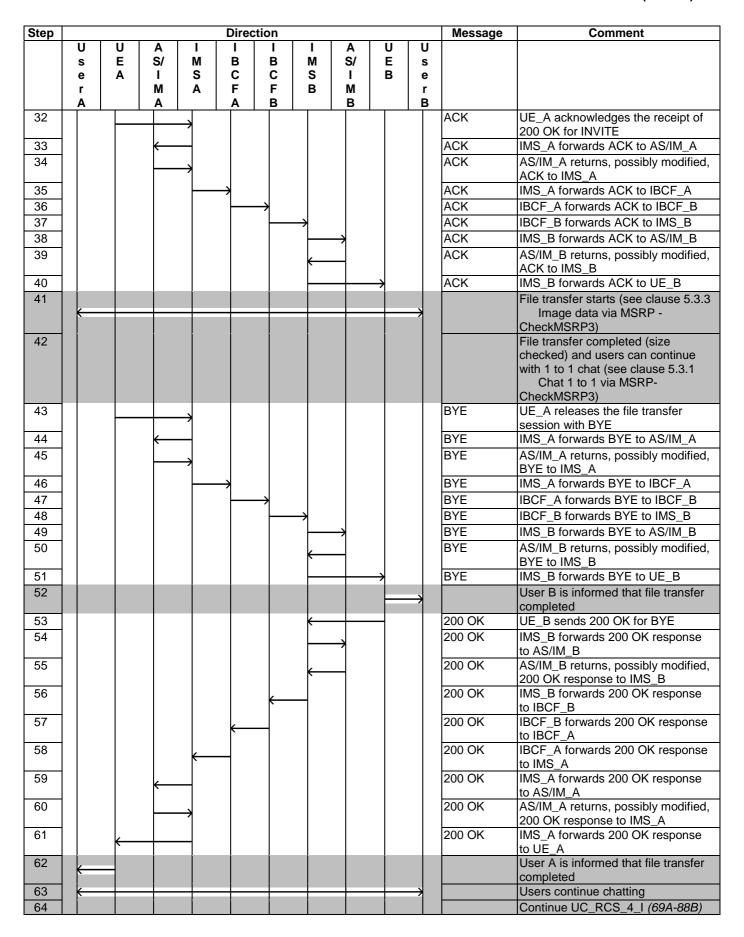
U U A I I I A U U S E S/ M B B M S/ E S E S C C S I B E T M A F F B M T	
e A I S C C S I B e r	
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1	
A A B B B 104 SUBSCRIBE I	IBCF_B forwards SUBSCRIBE to
	IMS_B
	IMS_B forwards SUBSCRIBE to
	AS/IM_B
106 200 OK	AS/IM_B sends 200 OK for
	SUBSCRIBE
	IMS_B forwards 200 OK response
	to IBCF_B
	BCF_B forwards 200 OK response
109 200 OK I	to IBCF_A IBCF_A forwards 200 OK response
	to IMS_A
110 200 OK	MS_A forwards 200 OK response
	to AS/IM_A
111 200 OK //	AS/IM_A returns, possibly
	modified, 200 OK response to
	MS_A
	MS_A forwards 200 OK response
113 NOTIFY /	to UE_A AS/IM_B sends NOTIFY to UE_A
	with list of 1-to-many Chat
	participants
114 NOTIFY	IMS_B forwards BYE to IBCF_B
	BCF_B forwards BYE to IBCF_A
	BCF_A forwards BYE to IMS_A
	IMS_A forwards BYE to AS/IM_A
	AS/IM_A returns, possibly
	modified, BYE to IMS_A
	IMS_A forwards BYE to UE_A
120	User A is notified with list of 1-to-
	many Chat participants
	UE_A sends 200 OK for NOTIFY
122 200 OK I	MS_A forwards 200 OK response
	to AS/IM_A
	AS/IM_A returns, possibly
	modified, 200 OK response to IMS_A
	MS_A forwards 200 OK response
	to IBCF_A
	IBCF_A forwards 200 OK response
t	to IBCF_B
	BCF_B forwards 200 OK response
	to IMS_B
	IMS_B forwards 200 OK response
	to AS/IM_B Users perform messaging in the 1-
	to-many Chat (see clause 5.3.2.2
 	Chat 1 to many via MSRP -
	Roaming)
	Continue UC_RCS_6_R (104A-
	146B)

4.5.3.4 File transfer within 1-to-1 chat

4.5.3.4.1 File transfer within 1-to-1 chat - interworking

	I	Interoperability Test D	escription
Identifier:		CHAT_0009	
Summary:			rvice and messages exchange between two
	users in th	neir home network can be per	ormed. User A starts file transfer with User B
Configuration:	CF_INT_A		
SUT	IMS_A an		
References	Test Purp		Specification Reference
	TP_IMS_5	5107_01	TS 124 229 [1], clause 5.4.3.2 ¶119
			(item 1 in 6 th numbered list)
	TD_MSRF	P_FILE_0001	RFC 4975 [8],
			clauses 5.4, 7.1 and 7.2
		5 1 0 110 MODE 04	RFC 5547 [11]
Use Case ref.:	JUC_RCS_	_5_I & UC_MSRP_04	
D		(1) (2) (1) (2) (2)	
Pre-test conditions:		of IMS_A and of IMS B is con	
conditions:			stablished to their respective IMS networks as
		S 186 011-2 [7], clause 4.2.1	" : BBEO " :
			ally using userPRES according to table 1
			ally using userPRES according to table 1
		A, UE_B and UE_C shall supp	
		A is configured to contact AS_	
		B is configured to contact AS_	
	_	A is within the trust domain of	
			ormed capability discovery process
	• IMS_	A not configured for topology	niding
Toot Coguenes	Cton		
Test Sequence:	Step 1	Lisor A solocts Lisor R in the	phone address book and sends him an initial
	'	message with MSRP indicati	
	2	User B is informed of incomi	
	3		message was delivered to user B
	4		age from user A and opens the 1-to-1 chat
	5	Users perform chatting	age nom user mana spons the mis man
	6	User A initiates a file transfer	to user B
	7		ng file and accepts the transfer
	8		ansfer has been accepted by user B
	9	File transfer starts (MSRP se	
	10	File transfer completed (size	
	11	User B is informed that file tr	
	12	User A is informed that file tr	
	13	Users continue chatting (MS	RP session)
	14A	User A closes the 1-to-1 cha	
	14B	User B closes the 1-to-1 cha	
	15A	User A is informed that 1-to-	1 chat with user B is closed
	15B	User B is informed that 1-to-	1 chat with user A is closed
	11		
Conformance	Check		
Criteria:			
	1	TP_IMS_5107_01 in CFW st	ep 47 (BYE):
		ensure that {	45.00
		when { UE_A sends BYE to	
		then { IMS_B receives the I	
		not containing Rou	
			SCF_SIP_URI of IMS_A
		\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	
	1	I /	

U	Step					Direct	ion					Message	Comment
Part					I	_ <u>_</u>	J –	l			_		
r A M A F F F B B M F F F B B M F F F F B B M F F F F				_					_		_		
Follow U.C. RCS. 4. Inf-89) User A initiates a file transfer to user B MSRP session) INVITE B MSRP session) INVITE U.E. A sends INVITE to IMS_A to establish a new session with the SDP offer indicating all specific data for a new MSRP connection set up 100 Trying IMS_A responds with a 100 Trying provisional response INVITE to IMS_A for a floor trying provisional response INVITE to IMS_A forwards INVITE to AS/IMA A floor Trying provisional response INVITE to IMS_A floor Trying provisional response INVITE INS_A floor Area for a floor Trying IMS_A responds with a 100 Trying provisional response INVITE INS_A floor and INVITE to IMS_A floor and Invite Ims_A floor Invite IMS_A floor and Invite Ims_A floor Invi			, ,	-			F		-		r		
User A initiates a file transfer to user B MMSPR session) INVITE UE: A sends INVITE to IMS: A to stabilish a new session with the SDP offer indicating all specific data for a new MSPR connection set up. 100 Trying ims. A responds with a 100 Trying provisional response. INVITE IMS: A forwards INVITE to ASIM: A floor Trying provisional response. INVITE IMS: A forwards INVITE to IMS: A floor Trying provisional response. INVITE: MS: A forwards INVITE to IMS: A floor Trying provisional response. INVITE: MS: A forwards INVITE to IMS: A floor Trying provisional response. INVITE: MS: A forwards INVITE to IMS: A floor Trying provisional response. INVITE: MS: A floor A floor Trying provisional response. INVITE: MS: B responds with a 100 Trying provisional response. INVITE: MS: B floorwards INVITE to IMS: B floor Trying provisional response. INVITE: MS: B floorwards INVITE to IMS: B floor Trying provisional response. INVITE: MS: B floorwards INVITE to IMS: B floor Trying provisional response. INVITE: MS: B floorwards INVITE to IMS: B floor Trying provisional response. INVITE: MS: B floorwards INVITE to IMS: B floor Trying provisional response. INVITE: MS: B floorwards INVITE to IMS: B floor Trying provisional response. INVITE: MS: B floorwards INVITE to IMS: B floor Trying provisional response. INVITE: MS: B floorwards INVITE to IMS: B floor Trying provisional response. INVITE: MS: B floorwards INVITE to IMS: B floor Trying provisional response. INVITE: MS: B floorwards INVITE to IMS: B floor Trying provisional response. INVITE: MS: B floorwards INVITE to IMS: B floor Trying provisional response. INVITE: MS: B floorwards INVITE to IMS: B floorwar		Α .		Α		Α	В		В		В		5 II 110 D00 4 1 (4 00)
B MSRP session) INVITE UE A sends INVITE to IMS A to establish a new session with the SDP offer indicating all specific data for a new MSRP connection set up 100 Trying IMS A responds with a 100 Trying provisional response INVITE to IMS A floor Trying provisional response INVITE to MS/IM. A floor Trying provisional response INVITE to MS/IM. A floor Trying provisional response INVITE to IMS A floor Trying provisional response INVITE to IMS A floor Trying provisional response INVITE INVITE INS A floor Area floor Trying provisional response INVITE INS A floor Area floor Trying IMS A floor Area floor Trying INVITE INS B floor Area floor Invited							ŀ						
INVITE UE.A sends INVITE to IMS. A to establish a new session with the SDP offer indicating all specific data for a new MSRP connection set up 100 Trying IMS. A responds with a 100 Trying IMS. B respond			→										
SDP offer indicating all specific data for a new MSRP connection set up 100 Trying IMS. A responds with a 100 Trying provisional response INVITE IMS_A forwards INVITE to ASIM_A 100 Trying provisional response INVITE IMS_A forwards INVITE to ASIM_A 100 Trying provisional response INVITE IMS_A forwards INVITE to IMS_A forwards INVITE to IMS_A 100 Trying IMS_A responds with a 100 Trying provisional response INVITE IMS_A forwards INVITE to IMS_A 100 Trying IMS_A responds with a 100 Trying INVITE IMS_A forwards INVITE to IMS_B 100 Trying IMS_A forwards INVITE to IMS_B 100 Trying IMS_B forwards INVITE to IMS_B 100 Trying IMS_B forwards INVITE to IMS_B 100 Trying INVITE IMS_B forwards INVITE to IMS_B 100 Trying INVITE IMS_B forwards INVITE to ASIM_B 100 Trying INVITE IMS_B forwards INVITE to ASIM_B 100 Trying INVITE IMS_B forwards INVITE to IMS_B 100 Trying IMS_B responds with a 100 Trying INVITE IMS_B forwards INVITE to IMS_B 100 Trying IMS_B responds with a 100 Trying INVITE IMS_B forwards INVITE to IMS_B 100 Trying IMS_B responds with a 100 Trying INVITE IMS_B 100 Trying IMS_B responds with a 100 Trying INVITE IMS_B 100 Trying IMS_B responds with a 100 Trying INVITE IMS_B 100 Trying IMS_B 100 Trying INVITE IMS_B 100 Trying IMS_B 100 Tr	3											INVITE	UE_A sends INVITE to IMS_A to
for a new MSRP connection set up 100 Trying INS. A responds at 100 Trying provisional response INVITE INIS. A forwards INVITE to ASIM. A 100 Trying Provisional response INVITE INIS. A forwards INVITE to ASIM. A 100 Trying provisional response INVITE INIS. A forwards INVITE to ASIM. A 100 Trying provisional response INVITE INIS. A forwards INVITE to IBSC F. A 100 Trying provisional response INVITE INIS. A forwards INVITE to IBSC F. A 100 Trying provisional response INVITE INIS. A forwards INVITE to IBSC F. A 100 Trying provisional response INVITE INIS. A forwards INVITE to IBSC F. A 100 Trying provisional response INVITE INIS. A forwards INVITE to IBSC F. A 100 Trying provisional response INVITE INIS. B F. A 100 Trying provisional response INVITE INIS. B F. B forwards INVITE to IBSC F. B 100 Trying provisional response INVITE INIS. B I					\rightarrow								
100 Trying													
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8 9 10 Trying IMS. A responds with a 100 Trying provisional response INVITE IMS. A forwards INVITE to IBCF_A 100 Trying in IMS_B responds with a 100 Trying provisional response INVITE IMS_B responds with a 100 Trying provisional response IMS_B IMS_B responds with a 100 Trying provisional response IMS_B IMS_B responds with a 100 Trying provisional response IMS_B IMS_B responds with a 100 Trying provisional response IMS_B IMS_B responds with a 100 Trying provisional response IMS_B IMS_B responds with a 100 Trying provisional response IMS_B IMS_B responds with a 100 Trying provisional response IMS_B IMS_B responds with a 100 Trying provisional response IMS_B IMS_B responds with a 100 Trying provisional response IMS_B IMS_B responds with a 100 Trying provisional response IMS_B IMS_B responds with a 100 Trying provisional response IMS_B IMS_B responds with a 100 Trying provisional response IMS_B IMS_B responds with a 100 Trying provisional response IMS_B IMS_B responds with a 100 Trying provisional response IMS_B IMS_B responds with a 100 Trying provisional response IMS_B IMS_B responds with a 100 Trying provisional response IMS_B IMS_B responds with a 100 Trying provisional response IMS_B IMS_B responds with a 100 Trying provisional response IMS_B IMS_B IMS_B response IMS_B	7				\rightarrow							INVITE	AS/IM_A returns, possibly modified,
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INVITE IMS_B forwards INVITE to AS/IM_B	14						-					100 Trying	
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25 26 27 27 28 29 20 OK IMS_B forwards 200 OK response to IBCF_B 200 OK IBCF_B forwards 200 OK response to IBCF_A 200 OK IBCF_A forwards 200 OK response to IMS_A 200 OK IMS_A forwards 200 OK response to AS/IM_A 200 OK AS/IM_A returns, possibly modified, 200 OK response to IMS_A 200 OK IMS_A forwards 200 OK response to UE_A USER A is informed that file transfer	24											200 OK	AS/IM_B returns, possibly modified,
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	31	K											

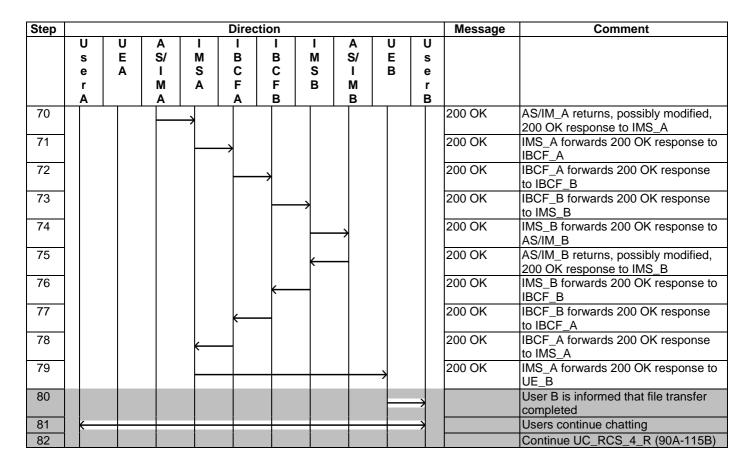


4.5.3.4.2 File transfer within 1-to-1 chat - roaming (optional)

Interoperability Test Description Identifier: TD_IMS_CHAT_0010 Summary: IMS network supports 1-to-1 IM/Chat service and messages exchange between two users, one user in its home network and one user roaming can be performed. Use starts file transfer with User A Configuration: CF_ROAM_AS (OPTIONAL) SUT IMS_A and IMS_B References Test Purpose Specification Reference TP_IMS_5052_01 TS 124 229 [1], clause 5.2.6.3-9 ¶1 (1st numbered list) TD_MSRP_FILE_0001 RFC 4975 [8], clauses 5.4, 7.1 & 7.2 RFC 5547 [11] Use Case ref.: UC_RCS_5_R & UC_MSRP_04 Pre-test • HSS of IMS_A and of IMS B is configured according to table 1	
users, one user in its home network and one user roaming can be performed. Use starts file transfer with User A Configuration: CF_ROAM_AS (OPTIONAL) SUT IMS_A and IMS_B References Test Purpose Specification Reference TP_IMS_5052_01 TS 124 229 [1], clause 5.2.6.3-9 ¶1 (1st numbered list) TD_MSRP_FILE_0001 RFC 4975 [8], clauses 5.4, 7.1 & 7.2 RFC 5547 [11] Use Case ref.: UC_RCS_5_R & UC_MSRP_04	
Starts file transfer with User A	r B
Configuration: CF_ROAM_AS (OPTIONAL) SUT IMS_A and IMS_B References Test Purpose Specification Reference TP_IMS_5052_01 TS 124 229 [1], clause 5.2.6.3-9 ¶1 (1st numbered list) TD_MSRP_FILE_0001 RFC 4975 [8], clauses 5.4, 7.1 & 7.2 RFC 5547 [11] Use Case ref.: UC_RCS_5_R & UC_MSRP_04	
SUT IMS_A and IMS_B References Test Purpose Specification Reference TP_IMS_5052_01 TS 124 229 [1], clause 5.2.6.3-9 ¶1 (1st numbered list) TD_MSRP_FILE_0001 RFC 4975 [8], clauses 5.4, 7.1 & 7.2 RFC 5547 [11] Use Case ref.: UC_RCS_5_R & UC_MSRP_04	
SUT IMS_A and IMS_B References Test Purpose Specification Reference TP_IMS_5052_01 TS 124 229 [1], clause 5.2.6.3-9 ¶1 (1st numbered list) TD_MSRP_FILE_0001 RFC 4975 [8], clauses 5.4, 7.1 & 7.2 RFC 5547 [11] Use Case ref.: UC_RCS_5_R & UC_MSRP_04	
Test Purpose	
TP_IMS_5052_01 TS 124 229 [1], clause 5.2.6.3-9 ¶1 (1st numbered list) RFC 4975 [8], clauses 5.4, 7.1 & 7.2 RFC 5547 [11] Use Case ref.: UC_RCS_5_R & UC_MSRP_04	
(1 st numbered list) TD_MSRP_FILE_0001 RFC 4975 [8], clauses 5.4, 7.1 & 7.2 RFC 5547 [11] Use Case ref.: UC_RCS_5_R & UC_MSRP_04	
clauses 5.4, 7.1 & 7.2 RFC 5547 [11] Use Case ref.: UC_RCS_5_R & UC_MSRP_04	
Use Case ref.: UC_RCS_5_R & UC_MSRP_04	
Use Case ref.: UC_RCS_5_R & UC_MSRP_04	
Pre-test - HSS of IMS A and of IMS B is configured according to table 1	
conditions: • UE_A and UE_B have IP bearers established to their respective IMS networks	c 2c
per TS 186 011-2 [7], clause 4.2.1	<i>3</i>
 UE_A is registered in IMS_A optionally using userPRES according to table 1 	
UE_B is registered in IMS_B via IMS_A optionally using userPRES according	to
table 1	
UE_A, UE_B and UE_C shall support MSRP	
IMS_A is configured to contact AS_A	
IMS_B is configured to contact AS_B	
IMS_A is within the trust domain of IMS_B	
UE_A and UE_B have already performed capability discovery process	
IMS_A not configured for topology hiding	
Test Sequence: Step	
1 User B selects User A in the phone address book and sends him an init	
message	
User A is informed of incoming message	
User B is informed that initial message was delivered to user A	
4 User A reads the initial message from user B and opens the 1-to-1 chat	į
5 Users perform chatting	
6 User B initiates a file transfer to user A	
7 User A is informed of incoming file and accepts the transfer 8 User B is informed that file transfer has been accepted by user B	
9 File transfer starts	
9 File transfer starts 10 File transfer completed (size checked)	
9 File transfer starts 10 File transfer completed (size checked) 11 User A is informed that file transfer completed	
9 File transfer starts 10 File transfer completed (size checked)	
9 File transfer starts 10 File transfer completed (size checked) 11 User A is informed that file transfer completed 12 User B is informed that file transfer completed 13 Users continue chatting 14A User B closes the 1-to-1 chat	
9 File transfer starts 10 File transfer completed (size checked) 11 User A is informed that file transfer completed 12 User B is informed that file transfer completed 13 Users continue chatting 14A User B closes the 1-to-1 chat 14B User A closes the 1-to-1 chat	
9 File transfer starts 10 File transfer completed (size checked) 11 User A is informed that file transfer completed 12 User B is informed that file transfer completed 13 Users continue chatting 14A User B closes the 1-to-1 chat 14B User A closes the 1-to-1 chat 15A User B is informed that that 1-to-1 chat with user A is closed	
9 File transfer starts 10 File transfer completed (size checked) 11 User A is informed that file transfer completed 12 User B is informed that file transfer completed 13 Users continue chatting 14A User B closes the 1-to-1 chat 14B User A closes the 1-to-1 chat	
9 File transfer starts 10 File transfer completed (size checked) 11 User A is informed that file transfer completed 12 User B is informed that file transfer completed 13 Users continue chatting 14A User B closes the 1-to-1 chat 14B User A closes the 1-to-1 chat 15A User B is informed that that 1-to-1 chat with user A is closed 15B User A is informed that that 1-to-1 chat with user B is closed	
9 File transfer starts 10 File transfer completed (size checked) 11 User A is informed that file transfer completed 12 User B is informed that file transfer completed 13 Users continue chatting 14A User B closes the 1-to-1 chat 14B User A closes the 1-to-1 chat 15A User B is informed that that 1-to-1 chat with user A is closed 15B User A is informed that that 1-to-1 chat with user B is closed	
9 File transfer starts 10 File transfer completed (size checked) 11 User A is informed that file transfer completed 12 User B is informed that file transfer completed 13 Users continue chatting 14A User B closes the 1-to-1 chat 14B User A closes the 1-to-1 chat 15A User B is informed that that 1-to-1 chat with user A is closed 15B User A is informed that that 1-to-1 chat with user B is closed Conformance Criteria: Check	
9 File transfer starts 10 File transfer completed (size checked) 11 User A is informed that file transfer completed 12 User B is informed that file transfer completed 13 Users continue chatting 14A User B closes the 1-to-1 chat 14B User A closes the 1-to-1 chat 15A User B is informed that that 1-to-1 chat with user A is closed 15B User A is informed that that 1-to-1 chat with user B is closed Conformance Criteria: Check	
9 File transfer starts 10 File transfer completed (size checked) 11 User A is informed that file transfer completed 12 User B is informed that file transfer completed 13 Users continue chatting 14A User B closes the 1-to-1 chat 14B User A closes the 1-to-1 chat 15A User B is informed that that 1-to-1 chat with user A is closed 15B User A is informed that that 1-to-1 chat with user B is closed Conformance Criteria: Check Criteria: TP_IMS_5052_01 in CFW step 57 (BYE): ensure that { when { IMS_A receives a BYE from UE_B }	
9 File transfer starts 10 File transfer completed (size checked) 11 User A is informed that file transfer completed 12 User B is informed that file transfer completed 13 Users continue chatting 14A User B closes the 1-to-1 chat 14B User A closes the 1-to-1 chat 15A User B is informed that that 1-to-1 chat with user A is closed 15B User A is informed that that 1-to-1 chat with user B is closed Conformance Criteria: Check Criteria: TP_IMS_5052_01 in CFW step 57 (BYE): ensure that { when { IMS_A receives a BYE from UE_B } then { IMS_A sends the BYE to IMS_B	
9 File transfer starts 10 File transfer completed (size checked) 11 User A is informed that file transfer completed 12 User B is informed that file transfer completed 13 Users continue chatting 14A User B closes the 1-to-1 chat 14B User A closes the 1-to-1 chat 15A User B is informed that that 1-to-1 chat with user A is closed 15B User A is informed that that 1-to-1 chat with user B is closed Conformance Criteria: Check Criteria: TP_IMS_5052_01 in CFW step 57 (BYE): ensure that { when { IMS_A receives a BYE from UE_B } then { IMS_A sends the BYE to IMS_B not containing a Route_header}	
9 File transfer starts 10 File transfer completed (size checked) 11 User A is informed that file transfer completed 12 User B is informed that file transfer completed 13 Users continue chatting 14A User B closes the 1-to-1 chat 14B User A closes the 1-to-1 chat 15A User B is informed that that 1-to-1 chat with user A is closed 15B User A is informed that that 1-to-1 chat with user B is closed Conformance Criteria: Check TP_IMS_5052_01 in CFW step 57 (BYE): ensure that { when { IMS_A receives a BYE from UE_B } then { IMS_A sends the BYE to IMS_B not containing a Route_header indicating the P-CSCF_SIP_URI of IMS_A and	
9 File transfer starts 10 File transfer completed (size checked) 11 User A is informed that file transfer completed 12 User B is informed that file transfer completed 13 Users continue chatting 14A User B closes the 1-to-1 chat 14B User A closes the 1-to-1 chat 15A User B is informed that that 1-to-1 chat with user A is closed 15B User A is informed that that 1-to-1 chat with user B is closed Conformance Criteria: Check TP_IMS_5052_01 in CFW step 57 (BYE): ensure that { when { IMS_A receives a BYE from UE_B } then { IMS_A sends the BYE to IMS_B not containing a Route_header indicating the P-CSCF_SIP_URI of IMS_A and containing the same Record-Route_header	
9 File transfer starts 10 File transfer completed (size checked) 11 User A is informed that file transfer completed 12 User B is informed that file transfer completed 13 Users continue chatting 14A User B closes the 1-to-1 chat 14B User A closes the 1-to-1 chat 15A User B is informed that that 1-to-1 chat with user A is closed 15B User A is informed that that 1-to-1 chat with user B is closed Conformance Criteria: Check TP_IMS_5052_01 in CFW step 57 (BYE): ensure that { when { IMS_A receives a BYE from UE_B } then { IMS_A sends the BYE to IMS_B not containing a Route_header indicating the P-CSCF_SIP_URI of IMS_A and containing the same Record-Route_header as in the previous ACK and	
9 File transfer starts 10 File transfer completed (size checked) 11 User A is informed that file transfer completed 12 User B is informed that file transfer completed 13 Users continue chatting 14A User B closes the 1-to-1 chat 14B User A closes the 1-to-1 chat 15A User B is informed that that 1-to-1 chat with user A is closed 15B User A is informed that that 1-to-1 chat with user B is closed Conformance Criteria: 1 TP_IMS_5052_01 in CFW step 57 (BYE): ensure that { when { IMS_A receives a BYE from UE_B } then { IMS_A sends the BYE to IMS_B not containing a Route_header indicating the P-CSCF_SIP_URI of IMS_A and containing the same Record-Route_header as in the previous ACK and containing a P-Charging-Vector header	
9 File transfer starts 10 File transfer completed (size checked) 11 User A is informed that file transfer completed 12 User B is informed that file transfer completed 13 Users continue chatting 14A User B closes the 1-to-1 chat 14B User A closes the 1-to-1 chat 15A User B is informed that that 1-to-1 chat with user A is closed 15B User A is informed that that 1-to-1 chat with user B is closed Conformance Criteria: Check TP_IMS_5052_01 in CFW step 57 (BYE): ensure that { when { IMS_A receives a BYE from UE_B } then { IMS_A sends the BYE to IMS_B not containing a Route_header indicating the P-CSCF_SIP_URI of IMS_A and containing the same Record-Route_header as in the previous ACK and	

Step					Direct	ion					Message	Comment
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	s e	E A	S/	M S	B C	B C	M S	S/	E B	s e		
	r	^	M	Ā	F	F	В	M		r		
	Α		Α		Α	В		В		В		
1												Follow UC_RCS_4_R (1-89)
2									←			User B initiates a file transfer to user A (MSRP session)
3											INVITE	UE_B sends INVITE to IMS_A to
				←								establish a new session with the
												SDP offer indicating all specific data for a new MSRP connection set up
4											100 Trying	IMS_A responds with a 100 Trying
												provisional response
5)						INVITE	IMS_A forwards INVITE to IBCF_A
6				←	-						100 Trying	IBCF_A responds with a 100 Trying provisional response
7						→					INVITE	IBCF_A forwards INVITE to IBCF_B
8											100 Trying	IBCF_B responds with a 100 Trying
											IN 11 / ITE	provisional response
9							\rightarrow				INVITE 100 Trying	IBCF_B forwards INVITE to IMS_B IMS_B responds with a 100 Trying
10						\leftarrow					100 Trying	provisional response
11								\rightarrow			INVITE	IMS_B forwards INVITE to AS/IM_B
12							<u></u>				100 Trying	AS/IM_B responds with a 100 Trying
13							Ì				INVITE	provisional response AS/IM_B returns, possibly modified,
13							\leftarrow				IIIVIIE	INVITE to IMS_B
14											100 Trying	IMS_B responds with a 100 Trying
45								1			IND ATE	provisional response
15 16											INVITE 100 Trying	IMS_B forwards INVITE to IBCF_B IBCF_B responds with a 100 Trying
10							\rightarrow				100 Trying	provisional response
17					—						INVITE	IBCF_B forwards INVITE to IBCF_A
18						→					100 Trying	IBCF_A responds with a 100 Trying
19											INVITE	provisional response IBCF_A forwards INVITE to IMS_A
20											100 Trying	IMS_A responds with a 100 Trying
)							provisional response
21			\leftarrow								INVITE	IMS_A forwards INVITE to AS/IM_A
22				\rightarrow							100 Trying	AS/IM_A responds with a 100 Trying
23											INVITE	provisional response AS/IM_A returns, possibly modified,
				7								INVITE to IMS_A
24			\leftarrow								100 Trying	IMS_A responds with a 100 Trying
25											INVITE	provisional response IMS_A forwards INVITE to UE_A
26											100 Trying	UE_A optionally responds with a 100
				7							,	Trying provisional response
27	—											User A is informed of incoming file
28											200 OK	and accepts the transfer UE_A responds INVITE with 200 OK
_												response with SDP to indicate that
				\rightarrow								the session has been accepted and
												inform B-side with specific data for a new MSRP connection set up
29			_								200 OK	IMS_A forwards 200 OK response to
												AS/IM_A
30				\rightarrow							200 OK	AS/IM_A returns, possibly modified,
31											200 OK	200 OK response to IMS_A IMS_A forwards 200 OK response to
					7							IBCF_A
32						\rightarrow					200 OK	IBCF_A forwards 200 OK response
				l				1	I			to IBCF_B

Step					Direc	tion					Message	Comment
	U	ı C	A	ı	_ [Ī	1	A	Ū	U		
	s e	E A	S/ I	M S	B C	B C	M	S/	E B	s e		
	r	^	M	A	F	F	В	M	"	r		
	Α		Α		Α	В	<u> </u>	В		В		
33							\rightarrow				200 OK	IBCF_B forwards 200 OK response to IMS_B
34								\rightarrow			200 OK	IMS_B forwards 200 OK response to AS/IM_B
35							←				200 OK	AS/IM_B returns, possibly modified, 200 OK response to IMS_B
36						←					200 OK	IMS_B forwards 200 OK response to IBCF_B
37					—	4					200 OK	IBCF_B forwards 200 OK response to IBCF_A
38											200 OK	IBCF_A forwards 200 OK response to IMS_A
39									\rightarrow		200 OK	IMS_A forwards 200 OK response to
40										\rightarrow		UE_B User B is informed that file transfer
41											ACK	has been accepted by user B UE_B acknowledges the receipt of
41				\leftarrow							ACK	200 OK for INVITE
42					\rightarrow						ACK	IMS_A forwards ACK to IBCF_A
43						\rightarrow					ACK	IBCF_A forwards ACK to IBCF_B
44							\rightarrow				ACK	IBCF_B forwards ACK to IMS_B
45								\rightarrow			ACK	IMS_B forwards ACK to AS/IM_B
46							-				ACK	AS/IM_B returns, possibly modified, ACK to IMS_B
47						\leftarrow					ACK	IMS_B forwards ACK to IBCF_B
48					←—						ACK	IBCF_B forwards ACK to IBCF_A
49				←	_						ACK	IBCF_A forwards ACK to IMS_A
50			←								ACK	IMS_A forwards ACK to AS/IM_A
51				\rightarrow							ACK	AS/IM_A returns, possibly modified, ACK to IMS_A
52		\leftarrow									ACK	IMS_A forwards ACK to UE_A
53	€									\rightarrow		File transfer starts (see clause 5.3.3 Image data via MSRP)
54												File transfer completed (size
												checked) and users can continue with 1 to 1 chat (see clause 5.3.1
55				—							BYE	Chat 1 to 1 via MSRP) UE_B releases the file transfer
56											BYE	session with BYE IMS_A forwards BYE to IBCF_A
57											BYE	IBCF_A forwards BYE to IBCF_B
58											BYE	IBCF_B forwards BYE to IMS_B
59											BYE	IMS B forwards BYE to AS/IM B
60											BYE	AS/IM_B returns, possibly modified,
61						_					BYE	BYE to IMS_B IMS_B forwards BYE to IBCF_B
62											BYE	IBCF_B forwards BYE to IBCF_A
63				(`						BYE	IBCF_A forwards BYE to IMS_A
64				`							BYE	IMS_A forwards BYE to AS/IM_A
65			<u> </u>	\rightarrow							BYE	AS/IM_A returns, possibly modified,
66											BYE	BYE to IMS_A IMS_A forwards BYE to UE_A
67											DIE	User A is informed that file transfer
60											200 OK	completed UE_A sends 200 OK for BYE
68				7								
69			←	\dashv							200 OK	IMS_A forwards 200 OK response to AS/IM_A

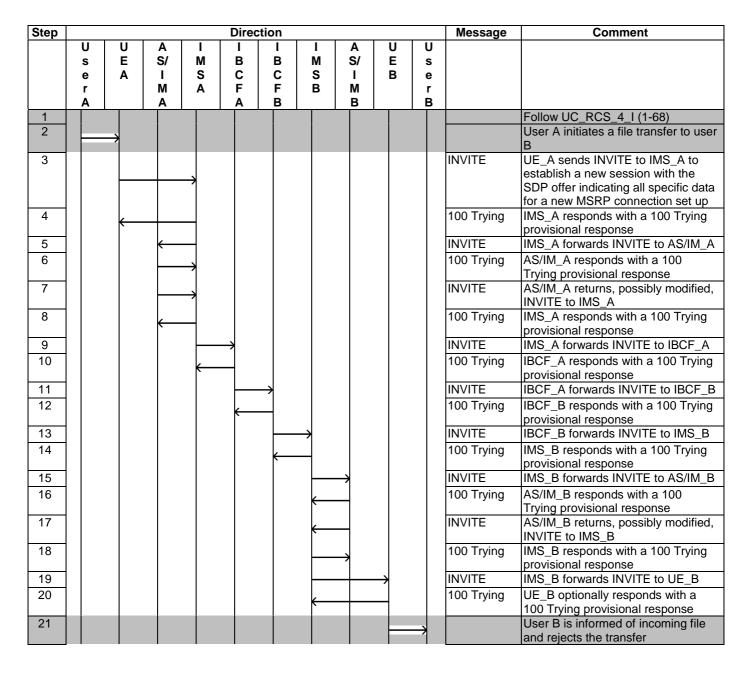


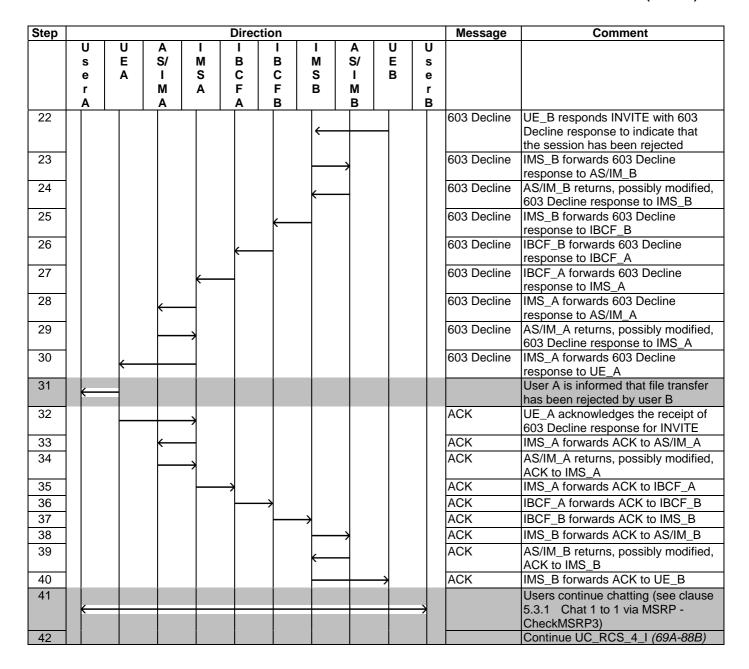
4.5.3.5 File transfer rejection within 1-to-1 chat

4.5.3.5.1 File transfer rejection within 1-to-1 chat - interworking

	Interoperabi	lity Test Description										
ldentifier:	TD_IMS_CHAT_0011											
Summary:	IMS network supports 1-to-1 IM/Chat service and messages exchange between two users in their home network can be performed. User A starts file transfer with User B, but User B rejects invitation											
Configuration:	CF_INT_AS											
SUT	IMS_A and IMS_B											
References												
	TP_IMS_5313_01 TS 124 229 [1], clause 5.4.6.1.3 ¶2											
Use Case ref.:	UC_RCS_5_I	1 2										
Pre-test	 HSS of IMS_A and of IM 	IS B is configured according to table 1										
conditions:	per TS 186 011-2 [7], cla UE_A is registered in IM UE_B is registered in IM IMS_A is configured to classes. IMS_B is configured to classes.	IS_A optionally using userPRES according to table 1 IS_B optionally using userPRES according to table 1 IS_B optionally using userPRES according to table 1 IS_B optionally using userPRES according to table 1 Is optionally userPRES according										
T	01											
Test Sequence:												
	User A selects User B in the phone address book and sends him an initial message											
	Ŭ											
		d that initial message was delivered to user B										
	4 User B reads the	initial message from user A and opens the 1-to-1 chat										

		Interoperability Test Description							
	5	Users perform chatting							
	6	User A initiates a file transfer to user B							
	7	User B is informed of incoming file and rejects the transfer							
	8	User A is informed that file transfer has been rejected by user B							
	9	Users continue chatting							
	10A	User A closes the 1-to-1 chat							
	10B	User B closes the 1-to-1 chat							
	11A	User A is informed that 1-to-1 chat with user B is closed							
	11B	User B is informed that 1-to-1 chat with user A is closed							
Conformance Criteria:	Check								
	1	TP_IMS_5313_01 in CFW step 28 (603 Decline): ensure that { when { UE_B sends 603 Decline to UE_A } then { AS_A receives the 603 Decline from IMS_A							

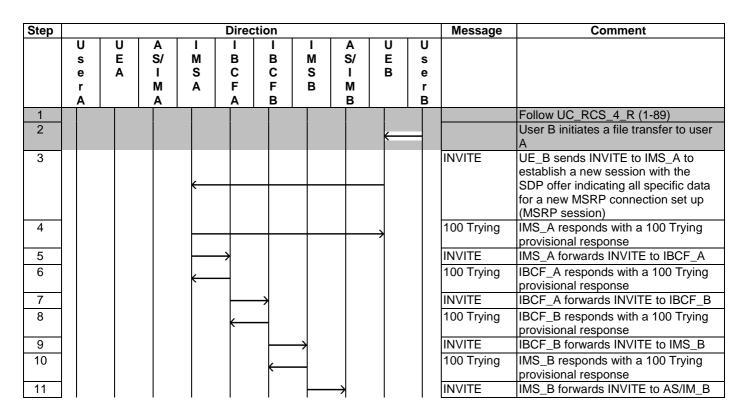




4.5.3.5.2 File transfer rejection within 1-to-1 chat - roaming (optional)

	Interoperability Test Descr	ription								
Identifier:	TD_IMS_CHAT_0012									
Summary:	IMS network supports 1-to-1 IM/Chat service and messages exchange between two users, one user in its home network and one user roaming can be performed. User B starts file transfer with User A, but User A rejects invitation									
Configuration:	CF_ROAM_AS (OPTIONAL)									
SUT	IMS_A and IMS_B									
References	Test Purpose	Specification Reference								
	TP_IMS_5313_01	TS 124 229 [1], clause 5.4.6.1.3 ¶2								
	TD_MSRP_FILE_0001	RFC 4975 [8], clauses 5.4, 7.1 and 7.2 RFC 5547 [11]								
Use Case ref.:	UC_RCS_5_R & UC_MSRP_02									
Pre-test conditions:	 HSS of IMS_A and of IMS B is configure UE_A and UE_B have IP bearers estable per TS 186 011-2 [7], clause 4.2.1 	ed according to table 1 blished to their respective IMS networks as								

		Interoperability Test Description										
	• UE_A	is registered in IMS_A optionally using userPRES according to table 1										
	 UE_B 	B is registered in IMS_B via IMS_A optionally using userPRES according to										
	table	A, UE_B and UE_C shall support MSRP A is configured to contact AS_A										
	UE_A											
	 IMS 											
	 IMS_I 	B is configured to contact AS_B A is within the trust domain of IMS_B										
	 IMS 											
	UE_A	and UE_B have already performed capability discovery process										
	 IMS_ 	A not configured for topology hiding										
Test Sequence:	Step											
	1	User B selects User A in the phone address book and sends him an initial message with MSRP indication										
	2	User A is informed of incoming message										
	3	User B is informed that initial message was delivered to user A										
	4	User A reads the initial message from user B and opens the 1-to-1 chat										
	5	Users perform chatting (MSRP session)										
	6	User B initiates a file transfer to user A										
	7	User A is informed of incoming file and rejects the transfer										
	8	User B is informed that file transfer has been rejected by user B										
	9	Users continue chatting (MSRP session)										
	10A	User B closes the 1-to-1 chat										
	10B	User A closes the 1-to-1 chat										
	11A	User B is informed that that 1-to-1 chat with user A is closed										
	11B	User A is informed that that 1-to-1 chat with user B is closed										
Conformance Criteria:	Check											
	1	TP_IMS_5313_01 in CFW step 34 (603 Decline):										
		ensure that {										
		when { UE_A sends 603 Decline to UE_B }										
		then { AS_B receives the 603 Decline from IMS_B										
		containing P-Charging-Vector_header_header										
		indicating an access-network-charging-info_parameter										
		} }										



Step					Direction	on					Message	Comment
•	U	U	Α	I	I	I	I	Α	U	U		
	S	E	S/	M	В	В	M	S/	E	s		
	e r	Α	I M	S A	C F	C F	S B	I M	В	e r		
	Ä		Ä		A	В	١ ١	В		В		
12							<u> </u>				100 Trying	AS/IM_B responds with a 100 Trying provisional response
13											INVITE	AS/IM_B returns, possibly modified, INVITE to IMS_B
14								•			100 Trying	IMS_B responds with a 100 Trying provisional response
15						\longleftarrow	-				INVITE	IMS_B forwards INVITE to IBCF_B
16							>				100 Trying	IBCF_B responds with a 100 Trying provisional response
17					\leftarrow						INVITE	IBCF_B forwards INVITE to IBCF_A
18					>						100 Trying	IBCF_A responds with a 100 Trying provisional response
19				←							INVITE	IBCF_A forwards INVITE to IMS_A
20											100 Trying	IMS_A responds with a 100 Trying provisional response
21			←—	_							INVITE	IMS_A forwards INVITE to AS/IM_A
22				>							100 Trying	AS/IM_A responds with a 100 Trying provisional response
23				>							INVITE	AS/IM_A returns, possibly modified, INVITE to IMS_A
24											100 Trying	IMS_A responds with a 100 Trying provisional response
25				_							INVITE	IMS_A forwards INVITE to UE_A
26				•							100 Trying	UE_A optionally responds with a 100
27												Trying provisional response User A is informed of incoming file
20											CO2 Dealine	and rejects the transfer
28				>							603 Decline	UE_A responds INVITE with 603 Decline response to indicate that the session has been rejected
29											603 Decline	IMS_A forwards 603 Decline
30)							603 Decline	response to AS/IM_A AS/IM_A returns, possibly modified,
31											603 Decline	603 Decline response to IMS_A IMS_A forwards 603 Decline
32											603 Decline	response to IBCF_A IBCF_A forwards 603 Decline
												response to IBCF_B
33							>				603 Decline	IBCF_B forwards 603 Decline response to IMS_B
34							-				603 Decline	IMS_B forwards 603 Decline response to AS/IM_B
35								-			603 Decline	AS/IM_B returns, possibly modified, 603 Decline response to IMS_B
36							-				603 Decline	IMS_B forwards 603 Decline response to IBCF_B
37											603 Decline	IBCF_B forwards 603 Decline response to IBCF_A
38					-						603 Decline	IBCF_A forwards 603 Decline response to IMS_A
39									\rightarrow		603 Decline	IMS_A forwards 603 Decline response to UE_B
40										\rightarrow		User B is informed that file transfer
41				(ACK	has been rejected by user B UE_B acknowledges the receipt of
42											ACK	603 Decline response for INVITE IMS_A forwards ACK to IBCF_A
43					<u> </u>						ACK	IBCF_A forwards ACK to IBCF_B
44						<u> </u>	•				ACK	IBCF_B forwards ACK to IMS_B
45								•			ACK	IMS_B forwards ACK to AS/IM_B

Step					Direc	tion					Message	Comment
	U	U	Α	ı	I	I	ı	Α	U	U		
	S	E	S/	M	В	В	M	S/	E	S		
	е	Α	<u> </u>	S	C	C	S	1	В	е		
	r		M	Α	F	F	В	M		r		
40	Α		Α	1	Α	В		В		В	1.014	10/04 5
46							\leftarrow				ACK	AS/IM_B returns, possibly modified, ACK to IMS_B
47						\longleftarrow	_				ACK	IMS_B forwards ACK to IBCF_B
48					←						ACK	IBCF_B forwards ACK to IBCF_A
49				←							ACK	IBCF_A forwards ACK to IMS_A
50			←								ACK	IMS_A forwards ACK to AS/IM_A
51				\rightarrow							ACK	AS/IM_A returns, possibly modified, ACK to IMS_A
52		←		_							ACK	IMS_A forwards ACK to UE_A
53												Users continue chatting (see clause
										\rightarrow		5.3.1 Chat 1 to 1 via MSRP - CheckMSRP3)
54												Continue UC_RCS_4_R (90A-115B)

4.5.3.6 1-to-many chat

4.5.3.6.1 1-to-many chat - interworking

		Interoperability To	est Description									
Identifier:	TD_IMS_	CHAT_0013	•									
Summary:		s in their home network ca	M/Chat service and messages exchange between an be performed. User A starts 1-to-many chat with									
Configuration:	CF_INT_	CF_INT_AS										
SUT	IMS_A ar	_A and IMS_B										
References	Test Pur	pose	Specification Reference									
	TP_IMS_	5107_01	TS 124 229 [1], clause 5.4.3.2 ¶119 (item 1 in 6 th numbered list)									
	TD_MSR	P_FILE_0001 RFC 4975 [8], clauses 5.4, 7.1 and 7.2 RFC 5547 [11]										
Use Case ref.:	UC_RCS	_6_I & UC_MSRP_02										
conditions:	 UE_/ netw UE_/ table UE_/ ins_ IMS_ IMS_ UE_/ ins_ 	A, UE_C and UE_B have orks as per TS 186 011-2 A is registered in IMS_A of and UE_C are registered and UE_C shall with a configured to contact is configured to contact is within the trust domain.	optionally using userPRES according to table 1 and in IMS_B optionally using userPRES according to support MSRP t AS_A t AS_B ain of IMS_B already performed capability discovery process									
Test Sequence:	Stop											
rest sequence.	1 User A initiates a 1-to-many Chat with User B and User C by sending initial message											
	2		the 1-to-many Chat is established									
	3	Chat	coming invitation from User A to join the 1-to-many									
	4		message and accepts the 1-to-many Chat invitation									
	5		st of 1-to-many Chat participants									
	6		st of 1-to-many Chat participants									
	7	Users perform messaging	ng in the 1-to-many Chat									

		Interoperability Test Description							
	8A	User B leaves the 1-to-many Chat							
	8B	User A leaves the 1-to-many Chat							
	9A	User B is informed that he has left the 1-to-many Chat							
	9B	User A is informed that he has left the 1-to-many Chat							
	10A	User A is notified that all other users have left the 1-to-many Chat							
	10B	User B is notified that all other users have left the 1-to-many Chat							
	11A	User A leaves the 1-to-many Chat							
	11B	User B leaves the 1-to-many Chat							
	12A	User A is informed that the 1-to-many Chat has ended							
	12B	User B is informed that the 1-to-many Chat has ended							
Conformance	Check								
Criteria:	_								
	1	TP_IMS_5107_01 in CFW step 85A and 196B (BYE):							
		ensure that {							
		when { UE_A sends BYE to UE_B }							
		then { IMS_B receives the BYE							
		not containing Route_header							
		indicating the S-CSCF_SIP_URI of IMS_A							
		, }							
)							

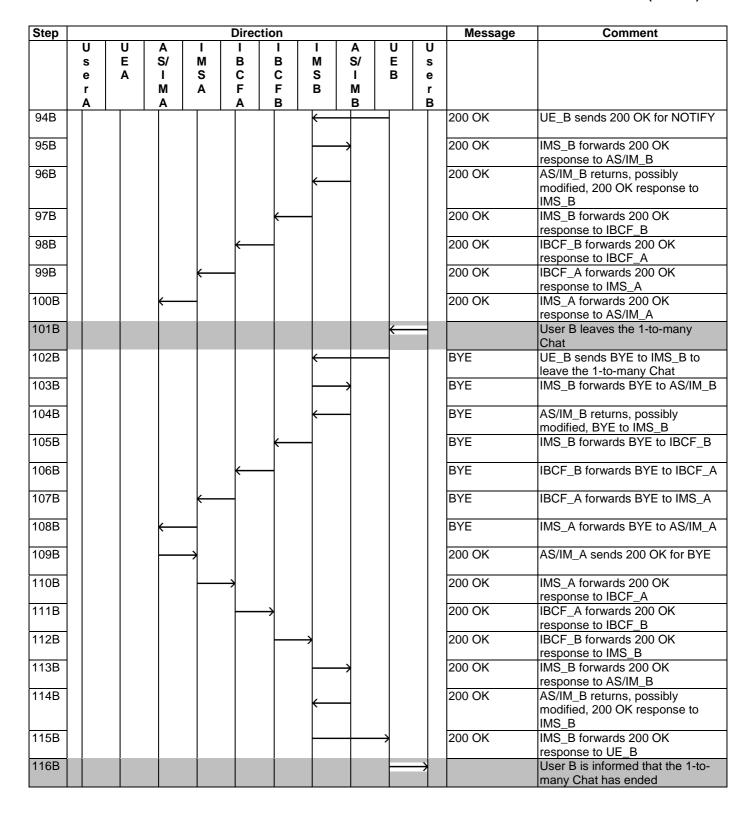
Step					Direc	tion					Message	Comment
	U s	U E A	A S/ I	I M S	I B C	I B C	I M S	A S/ I	U E B	U s		
	e r	A	M	A	F	F	о В	М	В	e r		
	A		A	^	A	В.		В		B		
1		→										User A initiates a 1-to-many Chat with User B and User C by sending initial message
2				→							INVITE	UE_A sends INVITE to IMS_A with Request-URI set to IM CONF-FCTY-URI (conference factory uri), MIME resource-list body including invited IM Users and the first SDP offer indicating all specific data for MSRP connection set up (CheckMSRP1)
3											100 Trying	IMS_A responds with a 100 Trying provisional response
4											INVITE	IMS_A forwards INVITE to AS/IM_A
5				\rightarrow							100 Trying	AS/IM_A responds with a 100 Trying provisional response
6											200 OK	AS/IM_A responds INVITE with 200 OK response with IM session Identity allocated for the current 1-to-many Chat to indicate that the session has been accepted and SDP to inform A-side with specific data for MSRP connection set up
7		←									200 OK	IMS_A forwards 200 OK response to AS/IM_A
8	\leftarrow											User A is informed that the 1-to- many Chat is established
9				\rightarrow							ACK	UE_A acknowledges the receipt of 200 OK for INVITE

Step					Direc	tion					Message	Comment
	U	ר ר	A S/	I	_ n	- n	I	A S/	Jω	U		
	s e	E A	3/ 	M S	B C	B C	M S	3/ 	В	s e		
	r		M	Α	F	F	В	M		r		
10	Α		A		Α	В		В		В	ACK	IMS_A forwards ACK to AS/IM_A
11											INVITE	AS/IM_A sends INVITE to UE_B
												with IM session identity (allocated
				7								for the current 1-to-many Chat)
												and IM address of the Inviting IM UE (UE_A)
12			—								100 Trying	IMS_A responds with a 100
											, 0	Trying provisional response
13)						INVITE	IMS_A forwards INVITE to IBCF_A
14				\leftarrow							100 Trying	IBCF_A responds with a 100
												Trying provisional response
15						\rightarrow					INVITE	IBCF_A forwards INVITE to IBCF_B
16					\leftarrow						100 Trying	IBCF_B responds with a 100
												Trying provisional response
17							\rightarrow				INVITE	IBCF_B forwards INVITE to IMS_B
18						(_				100 Trying	IMS_B responds with a 100
											IN DUTE	Trying provisional response
19								7			INVITE	IMS_B forwards INVITE to AS/IM_B
20							←				100 Trying	AS/IM_B responds with a 100
21											INVITE	Trying provisional response AS/IM_B returns, possibly
							ľ					modified, INVITE to IMS_B
22								\rightarrow			100 Trying	IMS_B responds with a 100
23									\rightarrow		INVITE	Trying provisional response IMS_B forwards INVITE to UE_B
0.4											100 T :	UE 5
24							\leftarrow				100 Trying	UE_B optionally responds with a 100 Trying provisional response
25										_		User B is informed of incoming
												invitation from User A to join the 1-to-many Chat
26												User B reads the initial message
												and accepts the 1-to-many Chat
27											200 OK	invitation UE B responds INVITE with 200
21											200 010	OK response with SDP to
							\leftarrow					indicate that the session has
												been accepted and inform AS/IM_A with specific data for
												MSRP connection set up
28								\rightarrow			200 OK	IMS_B forwards 200 OK
29											200 OK	response to AS/IM_B AS/IM_B returns, possibly
20							\leftarrow				200 011	modified, 200 OK response to
						,					200 014	IMS_B
30											200 OK	IMS_B forwards 200 OK response to IBCF_B
31											200 OK	IBCF_B forwards 200 OK
32											200 OK	response to IBCF_A IBCF_A forwards 200 OK
												response to IMS_A
33			\leftarrow	\dashv							200 OK	IMS_A forwards 200 OK
34				\rightarrow							ACK	response to AS/IM_A AS/IM_A acknowledges the
												receipt of 200 OK for INVITE
35					\rightarrow						ACK	IMS_A forwards ACK to IBCF_A
		I	1	I	I	ı	I	I	1	-		

Step					Direc	tion						Message	Comment
	U	Ū	A	I	1	_ [I	A		J	U		
	s e	E A	S/	M S	B C	B C	M S	S/		E B	s e		
	r		М	Α	F	F	В	M			r		
36	A	<u> </u> 	A		A	<u>B</u>		B			В	ACK	IBCF_A forwards ACK to IBCF_B
37							\rightarrow					ACK	IBCF_B forwards ACK to IMS_B
38								\rightarrow				ACK	IMS_B forwards ACK to AS/IM_B
39							←					ACK	AS/IM_B returns, possibly modified, ACK to IMS_B
40									\longrightarrow			ACK	IMS_B forwards ACK to UE_B
41				\rightarrow								SUBSCRIBE	UE_A subscribes to the conference event package
42			\leftarrow									SUBSCRIBE	IMS_A forwards SUBCRIBE to AS/IM_A
43				\rightarrow								200 OK	AS/IM_A sends 200 OK for SUBSCRIBE
44		-										200 OK	IMS_A forwards 200 OK response to UE_A
45				-								NOTIFY	AS/IM_A sends NOTIFY to UE_A with list of 1-to-many Chat participants
46												NOTIFY	IMS_A forwards the NOTIFY to UE_A
47	—												User A is notified with list of 1-to- many Chat participants
48				\rightarrow								200 OK	UE_A responds with 200 OK to IMS_A
49			—									200 OK	IMS_A forwards the 200 OK response to AS/IM_A
50							←					SUBSCRIBE	UE_B subscribes to the conference event package
51								\rightarrow				SUBSCRIBE	IMS_B forwards SUBSCRIBE to AS/IM_B
52												SUBSCRIBE	AS/IM_B returns, possibly modified, SUBSCRIBE to IMS_B
53						\leftarrow						SUBSCRIBE	IMS_B forwards SUBSCRIBE to IBCF_B
54					\leftarrow							SUBSCRIBE	IBCF_B forwards SUBSCRIBE to IBCF_A
55				\leftarrow								SUBSCRIBE	IBCF_A forwards SUBSCRIBE to IMS_A
56												SUBSCRIBE	IMS_A forwards SUBSCRIBE to AS/IM_A
57				\rightarrow								200 OK	AS/IM_A sends 200 OK for SUBSCRIBE
58					\rightarrow							200 OK	IMS_A forwards 200 OK response to IBCF_A
59						\rightarrow						200 OK	IBCF_A forwards 200 OK response to IBCF_B
60							\rightarrow					200 OK	IBCF_B forwards 200 OK response to IMS_B
61								\rightarrow				200 OK	IMS_B forwards 200 OK response to AS/IM_B
62							←	=				200 OK	AS/IM_B returns, possibly modified, 200 OK response to IMS_B
63								+	\longrightarrow			200 OK	IMS_B forwards 200 OK response to UE_B
64				\rightarrow								NOTIFY	AS/IM_A sends NOTIFY to UE_B with list of 1-to-many Chat participants

Step					Directi	on					Message	Comment
	U	Ū	A	I	I		I	Α	Ū	U		
	s e	E A	S/	M S	B C	B C	M S	S/	E B	s e		
	r		M	A	F	F	В	M		r		
65	Α		Α		A	В		В	1	В	NOTIFY	IMS_A forwards BYE to IBCF_A
03					1							
66						>					NOTIFY	IBCF_A forwards BYE to IBCF_B
67							-				NOTIFY	IBCF_B forwards BYE to IMS_B
68)			NOTIFY	IMS_B forwards BYE to AS/IM_B
69							←	1			NOTIFY	AS/IM_B returns, possibly modified, BYE to IMS_B
70									>		NOTIFY	IMS_B forwards BYE to UE_B
71)		User B is notified with list of 1-to- many Chat participants
72											200 OK	UE_B sends 200 OK for NOTIFY
73								+			200 OK	IMS_B forwards 200 OK response to AS/IM_B
74							.				200 OK	AS/IM_B returns, possibly
												modified, 200 OK response to IMS_B
75						-					200 OK	IMS_B forwards 200 OK response to IBCF_B
76					\leftarrow						200 OK	IBCF_B forwards 200 OK response to IBCF_A
77				←	1						200 OK	IBCF_A forwards 200 OK response to IMS_A
78			←	\dashv							200 OK	IMS_A forwards 200 OK response to AS/IM_A
79												Users perform messaging in the
			*							7		1-to-many Chat (see clause 5.3.2.1 Chat 1 to many via MSRP
80A												- Interworking) User B leaves the 1-to-many
81A							—				BYE	Chat UE_B sends BYE to IMS_B to
												leave the 1-to-many Chat
82A								7			BYE	IMS_B forwards BYE to AS/IM_B
83A								1			BYE	AS/IM_B returns, possibly modified, BYE to IMS_B
84A						\leftarrow					BYE	IMS_B forwards BYE to IBCF_B
85A						-					BYE	IBCF_B forwards BYE to IBCF_A
86A											BYE	IBCF_A forwards BYE to IMS_A
87A				\dashv							BYE	IMS_A forwards BYE to AS/IM_A
88A				\rightarrow							200 OK	AS/IM_A sends 200 OK for BYE
89A					*						200 OK	IMS_A forwards 200 OK
90A						>					200 OK	response to IBCF_A IBCF_A forwards 200 OK
91A							\rightarrow				200 OK	response to IBCF_B IBCF_B forwards 200 OK
92A								→			200 OK	response to IMS_B IMS_B forwards 200 OK
02/(1				response to AS/IM_B

Step					I	Direction	on					Message	Comment
	U s	U	A S/		I M	I B	I B	M	A S/	U E	U		
	е	Ā	ı		S	С	С	S	ı	В	е		
	r A		M		A	F A	F B	В	M B		r B		
93A				1	•		,	-				200 OK	AS/IM_B returns, possibly modified, 200 OK response to IMS_B
94A										\rightarrow		200 OK	IMS_B forwards 200 OK response to UE_B
95A											\rightarrow		User B is informed that he has left the 1-to-many Chat
96A				→								NOTIFY	AS/IM_A sends NOTIFY to IMS _A to inform UE_A that User B has left the 1-to-many Chat
97A		←										NOTIFY	IMS_A forwards the NOTIFY to UE_A
98A	$\mid \longleftarrow$												User A is notified that all other users have left the 1-to-many Chat
99A				\longrightarrow								200 OK	UE_A responds with 200 OK to IMS_A
100A			€									200 OK	IMS_A forwards the 200 OK response to AS/IM_A
101A		\Rightarrow											User A leaves the 1-to-many Chat
102A				\longrightarrow								BYE	UE_A sends BYE to IMS_A to leave the 1-to-many Chat
103A			(BYE	IMS_A forwards BYE to AS/IM_A
104A				\longrightarrow								200 OK	AS/IM_A sends 200 OK for BYE
105A		←										200 OK	IMS_A forwards 200 OK response to UE_A
106A	\vdash												User A is informed that the 1-to- many Chat has ended
80B		\rightarrow											User A leaves the 1-to-many Chat
81B				\longrightarrow								BYE	UE_A sends BYE to IMS_A to leave the 1-to-many Chat
82B			€									BYE	IMS_A forwards BYE to AS/IM_A
83B				\longrightarrow								200 OK	AS/IM_A sends 200 OK for BYE
84B		←										200 OK	IMS_A forwards 200 OK response to UE_A
85B		=											User A is informed that he has left the 1-to-many Chat
86B				\longrightarrow								NOTIFY	AS/IM_A sends NOTIFY to IMS_A to inform UE_B that User A has left the 1-to-many Chat
87B												NOTIFY	IMS_A forwards BYE to IBCF_A
88B												NOTIFY	IBCF_A forwards BYE to IBCF_B
89B								>				NOTIFY	IBCF_B forwards BYE to IMS_B
90B									*			NOTIFY	IMS_B forwards BYE to AS/IM_B
91B								\leftarrow				NOTIFY	AS/IM_B returns, possibly modified, BYE to IMS_B
92B										\rightarrow		NOTIFY	IMS_B forwards BYE to UE_B
93B											\rightarrow		User B is notified that all other users have left the 1-to-many Chat



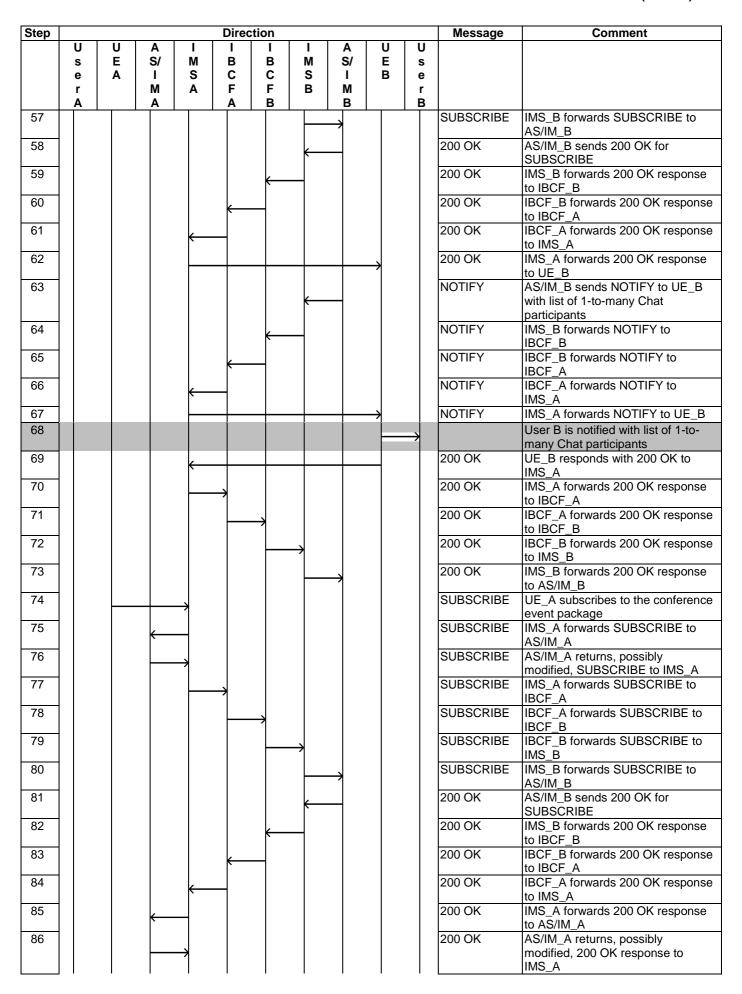
4.5.3.6.2 1-to-many chat - roaming (optional)

	Interoperability Test Description
Identifier:	TD_IMS_CHAT_0014
	IMS network supports 1-to-many IM/Chat service and messages exchange between two users, one user in its home network and one user roaming can be performed. User B starts 1-to-many chat with user A and C
Configuration:	CF_ROAM_AS (OPTIONAL)
SUT	IMS_A and IMS_B

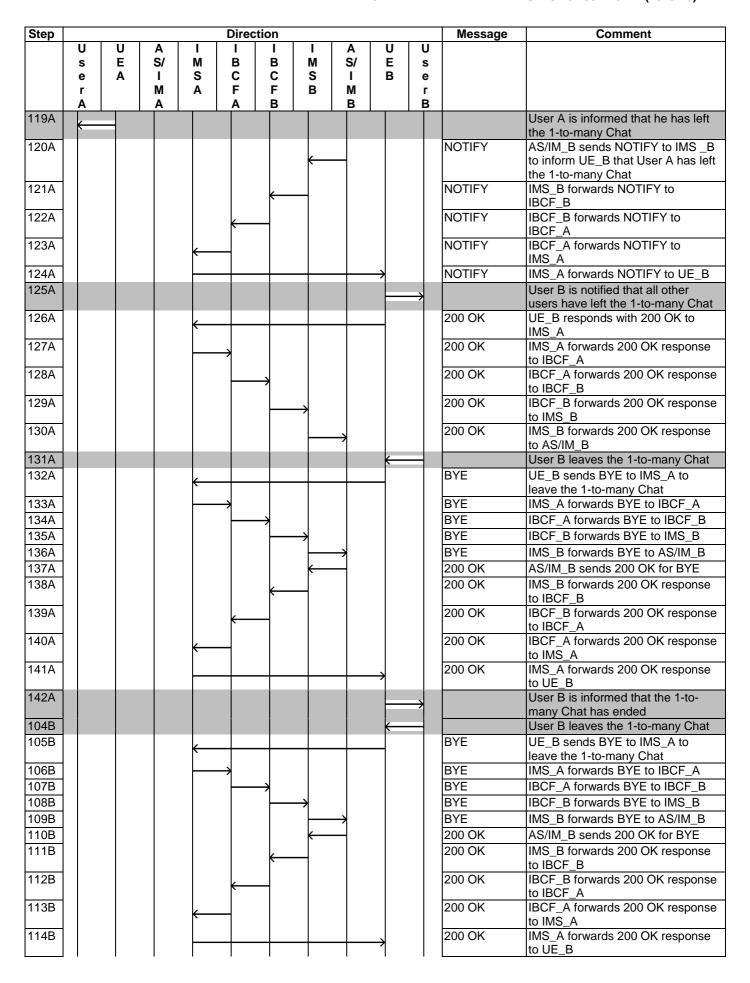
		Interoperability Test Descr									
References	Test Purp	oose	Specification Reference								
	TP_IMS_	5052_01	TS 124 229 [1], clause 5.2.6.3-9 ¶1 (1 st numbered list)								
Use Case ref.:	UC_RCS	_6_R	/								
Pre-test conditions:	 HSS of IMS_A and of IMS B is configured according to table 1 UE_A, UE_C and UE_B have IP bearers established to their respective IMS networks as per TS 186 011-2 [7], clause 4.2.1 UE_A is registered in IMS_A optionally using userPRES according to table 1 UE_B and UE_C are registered in IMS_B via IMS_A optionally using userPRES according to table 1 IMS_A is configured to contact AS_A IMS_B is configured to contact AS_B IMS_A is within the trust domain of IMS_B UE_A, UE_C and UE_B have already performed capability discovery process IMS_A not configured for topology hiding 										
Toot Commons	Cton										
Test Sequence:	2 3 4 5 6 7 8A 8B 9A 9B 10A 10B 11A 11B	message User B is informed that the 1-to-n User A is informed of incoming in Chat	and accepts the 1-to-many Chat invitation many Chat participants many Chat participants 1-to-many Chat at the 1-to-many Chat ft the 1-to-many Chat lers have left the 1-to-many Chat lers have left the 1-to-many Chat at the 1-to-many Chat lers have left the 1-to-many Chat lers have left the 1-to-many Chat let the 1-to-many Chat lers have left the 1-to-many Chat let the 1-to-many Chat								
	12B	User A is informed that the 1-to-n									
	IZD	Oser A is informed that the 1-to-h	many Onat has ended								
Conformance Criteria:	Check										
	1	TP_IMS_5052_01 in CFW step 1 ensure that { when { IMS_A receives a BYE f then { IMS_A sends the BYE to not containing a Route_h indicating the P-CSCF_ containing the same Rec as in the previous ACK containing a P-Charging-\ containing an icid-value } }	rom UE_B } IMS_B leader _SIP_URI of IMS_A and ord-Route_header and Vector header								

Step					Direct	tion					Message	Comment
	U	U	Α	I	I	Ī	I	Α	U	U		
	s e	E A	S/ I	M S	B C	B C	M S	S/	E B	s e		
	r	^	M	A	F	F	В	M		r		
	Α		Α		Α	В		В		В		
1												User B initiates a 1-to-many Chat
												with User A and User C by sending initial message
2											INVITE	UE_B sends INVITE to IMS_A with
												Request-URI set to IM CONF-
												FCTY-URI (conference factory uri),
												MIME resource-list body including invited IM Users and the first SDP
												offer indicating all specific data for
												MSRP connection set up
3									\rightarrow		100 Trying	IMS_A responds with a 100 Trying
4					_						INVITE	provisional response IMS_A forwards INVITE to IBCF_A
5					1						100 Trying	IBCF_A responds with a 100 Trying
				\leftarrow							100 Hying	provisional response
6						\rightarrow					INVITE	IBCF_A forwards INVITE to
_											100 Tradica	IBCF_B
7					\leftarrow	_					100 Trying	IBCF_B responds with a 100 Trying provisional response
8							\rightarrow				INVITE	IBCF_B forwards INVITE to IMS_B
9						_					100 Trying	IMS_B responds with a 100 Trying
												provisional response
10								\rightarrow			INVITE	IMS_B forwards INVITE to AS/IM_B
11											100 Trying	AS/IM_B responds with a 100
												Trying provisional response
12											200 OK	AS/IM_B responds INVITE with
												200 OK response with IM session Identity allocated for the current 1-
							←					to-many Chat to indicate that the
												session has been accepted and
												SDP to inform A-side with specific
13											200 OK	data for MSRP connection set up IMS_B forwards 200 OK response
						\leftarrow						to IBCF_B
14					\leftarrow	_					200 OK	IBCF_B forwards 200 OK response
15											200 OK	to IBCF_A IBCF_A forwards 200 OK response
13				←							200 OK	to IMS_A
16									\rightarrow		200 OK	IMS_A forwards 200 OK response
47												to UE_B User B is informed that the 1-to-
17										\rightarrow		many Chat is established
18											ACK	UE_B acknowledges the receipt of
												200 OK for INVITE
19					\rightarrow						ACK	IMS_A forwards ACK to IBCF_A
20						\rightarrow					ACK	IBCF_A forwards ACK to IBCF_B
21							\rightarrow				ACK	IBCF_B forwards ACK to IMS_B
22								7			ACK INVITE	IMS_B forwards ACK to AS/IM_B AS/IM_B sends INVITE to UE_A
23											IIIVII E	with IM session identity (allocated
							\leftarrow					for the current 1-to-many Chat) and
												IM address of the Inviting IM UE
24											100 Truin ~	(UE_B) IMS_B responds with a 100 Trying
24								\rightarrow			100 Trying	provisional response
25						\leftarrow	_				INVITE	IMS_B forwards INVITE to IBCF_B
26							\rightarrow				100 Trying	IBCF_B responds with a 100 Trying
		l										provisional response

Step					Direc	tion					Message	Comment
	U	Ū	A	ı) —		1	A	Ū	U		
	s e	E A	S/	M S	B C	B C	M S	S/	E B	s e		
	r	^	M	Ā	F	F	В	M		r		
	Α		Α		Α	В		В	<u> </u>	В	<u> </u>	
27					←						INVITE	IBCF_B forwards INVITE to IBCF_A
28						\rightarrow					100 Trying	IBCF_A responds with a 100 Trying provisional response
29											INVITE	IBCF_A forwards INVITE to IMS_A
30					-						100 Trying	IMS_A responds with a 100 Trying provisional response
31			\leftarrow								INVITE	IMS_A forwards INVITE to AS/IM_A
32				->							100 Trying	AS/IM_A responds with a 100 Trying provisional response
33)							INVITE	AS/IM_A returns, possibly modified, INVITE to IMS_A
34											100 Trying	IMS_A responds with a 100 Trying provisional response
35		\longleftarrow		_							INVITE	IMS_A forwards INVITE to UE_A
36				-							100 Trying	UE_A optionally responds with a 100 Trying provisional response
37	K											User A is informed of incoming invitation from User B to join the 1-
38												to-many Chat User A reads the initial message
												and accepts the 1-to-many Chat invitation
39											200 OK	UE_A responds INVITE with 200
				\rightarrow								OK response with SDP to indicate that the session has been accepted
												and inform AS/IM_A with specific
40											200 OK	data for MSRP connection set up IMS_A forwards 200 OK response
												to AS/IM_A
41)							200 OK	AS/IM_A returns, possibly modified, 200 OK response to IMS_A
42					→						200 OK	IMS_A forwards 200 OK response
43						\rightarrow					200 OK	to IBCF_A IBCF_A forwards 200 OK response
44											200 OK	to IBCF_B IBCF_B forwards 200 OK response
							\rightarrow					to IMS_B
45								\rightarrow			200 OK	IMS_B forwards 200 OK response to AS/IM_B
46							←				ACK	AS/IM_B acknowledges the receipt of 200 OK for INVITE
47						K —	\dashv				ACK	IMS_B forwards ACK to IBCF_B
48					\leftarrow						ACK	IBCF_B forwards ACK to IBCF_A
49				\leftarrow	\dashv						ACK	IBCF_A forwards ACK to IMS_A
50											ACK	IMS_A forwards ACK to AS/IM_A
51)							ACK	AS/IM_A returns, possibly modified, ACK to IMS_A
52		\leftarrow		_							ACK	IMS_A forwards ACK to UE_A
53					+				\dashv		SUBSCRIBE	UE_B subscribes to the conference event package
54					\rightarrow						SUBSCRIBE	IMS_A forwards SUBSCRIBE to IBCF_A
55						\rightarrow					SUBSCRIBE	IBCF_A forwards SUBSCRIBE to IBCF_B
56											SUBSCRIBE	IBCF_B forwards SUBSCRIBE to
							\rightarrow					IMS_B



Step					Direct	ion					Message	Comment
·	U	U	Α	I	ı	I	I	Α	U	U		
	S	E A	S/	M S	B C	B C	M S	S/ I	E B	s e		
	e r	A	м	A	F	F	В	M	В	r		
	Α		Α		Α	В		В		В		
87		\leftarrow		_							200 OK	IMS_A forwards 200 OK response to UE_A
88											NOTIFY	AS/IM_B sends NOTIFY to UE_A
							\leftarrow					with list of 1-to-many Chat participants
89											NOTIFY	IMS_B forwards NOTIFY to IBCF_B
90											NOTIFY	IBCF_B forwards NOTIFY to IBCF_A
91											NOTIFY	IBCF_A forwards NOTIFY to IMS_A
92			←								NOTIFY	IMS_A forwards NOTIFY to AS/IM_A
93				-							NOTIFY	AS/IM_A returns, possibly modified, NOTIFY to IMS_A
94											NOTIFY	IMS_A forwards NOTIFY to UE_A
95												User A is notified with list of 1-to-
												many Chat participants
96				\rightarrow							200 OK	UE_A sends 200 OK for NOTIFY
97			←								200 OK	IMS_A forwards 200 OK response to AS/IM_A
98											200 OK	AS/IM_A returns, possibly
				7								modified, 200 OK response to IMS_A
99)						200 OK	IMS_A forwards 200 OK response to IBCF_A
100)					200 OK	IBCF_A forwards 200 OK response to IBCF_B
101							>				200 OK	IBCF_B forwards 200 OK response to IMS_B
102								\rightarrow			200 OK	IMS_B forwards 200 OK response to AS/IM_B
103												Users perform messaging in the 1-
	—							-		\rightarrow		to-many Chat (see clause 5.3.2.2
												Chat 1 to many via MSRP - Roaming)
104A		*										User A leaves the 1-to-many Chat
105A				_							BYE	UE_A sends BYE to IMS_A to
				1							5)/5	leave the 1-to-many Chat
106A			—								BYE	IMS_A forwards BYE to AS/IM_A
107A				\rightarrow							BYE	AS/IM_A returns, possibly modified, BYE to IMS_A
108A					→						BYE	IMS_A forwards BYE to IBCF_A
109A					·	\rightarrow					BYE	IBCF_A forwards BYE to IBCF_B
110A						<u></u>	•				BYE	IBCF_B forwards BYE to IMS_B
111A						·	<u> </u>	_			BYE	IMS_B forwards BYE to AS/IM_B
112A											200 OK	AS/IM B sends 200 OK for BYE
113A											200 OK	IMS_B forwards 200 OK response
							1					to IBCF_B
114A											200 OK	IBCF_B forwards 200 OK response to IBCF_A
115A					4						200 OK	IBCF_A forwards 200 OK response to IMS_A
116A											200 OK	IMS_A forwards 200 OK response to AS/IM_A
117A											200 OK	AS/IM_A returns, possibly
)								modified, 200 OK response to
118A		\leftarrow									200 OK	IMS_A forwards 200 OK response
		I	ı	I			l	1	1	ļ		to UE_A



Step					Directi	on					Message	Comment
	U	U	A	I	Ī	I	I	A	U	U	_	
	s e	E A	S/	M S	B C	B C	M S	S/ I	E B	s e		
	r	^	M	Ă	F	F	В	M		r		
	Α		Α		Α	В		В		В		
115B										\rightarrow		User B is informed that he has left the 1-to-many Chat
116B											NOTIFY	AS/IM_B sends NOTIFY to IMS_B
							\leftarrow					to inform UE_A that User B has left
117B											NOTIFY	the 1-to-many Chat IMS_B forwards NOTIFY to
							1					IBCF_B
118B											NOTIFY	IBCF_B forwards NOTIFY to IBCF_A
119B											NOTIFY	IBCF_A forwards NOTIFY to
120B				(NOTIFY	IMS_A IMS_A forwards NOTIFY to
			\leftarrow									AS/IM_A
121B				\rightarrow							NOTIFY	AS/IM_A returns, possibly modified, NOTIFY to IMS_A
122B											BYE	IMS_A forwards NOTIFY to UE_A
123B	—											User A is informed that User B has left the 1-to-many Chat
124B				\rightarrow							200 OK	UE_A sends 200 OK for NOTIFY
125B											200 OK	IMS_A forwards 200 OK response
126B											200 OK	to AS/IM_A AS/IM_A returns, possibly
1200				\rightarrow							200 OK	modified, 200 OK response to
												IMS_A
127B)						200 OK	IMS_A forwards 200 OK response to IBCF_A
128B						>					200 OK	IBCF_A forwards 200 OK response to IBCF_B
129B							>				200 OK	IBCF_B forwards 200 OK response
130B											200 OK	to IMS_B IMS_B forwards 200 OK response
								7				to AS/IM_B
131B)									D)/E	User A leaves the 1-to-many Chat
132B				\rightarrow							BYE	UE_A sends BYE to IMS_A to leave the 1-to-many Chat
133B			\leftarrow								BYE	IMS_A forwards BYE to AS/IM_A
134B				\rightarrow							BYE	AS/IM_A returns, possibly modified, BYE to IMS_A
135B					→						BYE	IMS_A forwards BYE to IBCF_A
136B						>					BYE	IBCF_A forwards BYE to IBCF_B
137B)				BYE	IBCF_B forwards BYE to IMS_B
138B								\rightarrow			BYE	IMS_B forwards BYE to AS/IM_B
139B							\leftarrow				200 OK	AS/IM_B sends 200 OK for BYE
140B							-				200 OK	IMS_B forwards 200 OK response to IBCF_B
141B											200 OK	IBCF_B forwards 200 OK response
142B											200 OK	to IBCF_A IBCF_A forwards 200 OK response
143B											200 OK	to IMS_A IMS_A forwards 200 OK response
			K									to AS/IM_A
144B											200 OK	AS/IM_A returns, possibly modified, 200 OK response to
				1								IMS_A
145B		←		\dashv							200 OK	IMS_A forwards 200 OK response to UE_A
146B	—											User A is informed that the 1-to-
												many Chat has ended

4.5.3.7 Adding participants to an already established 1-to-many chat session

4.5.3.7.1 Adding participants to an already established 1-to-many chat session - interworking

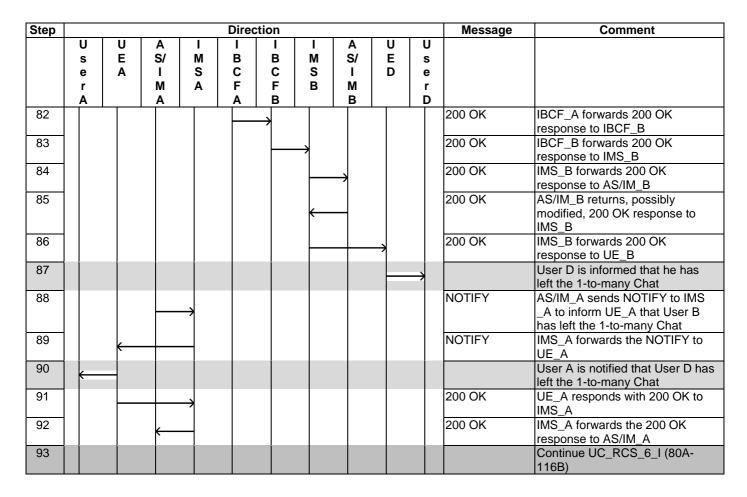
Interoperability To	est Descri	otion	
Identifier:		_CHAT_0015	
Summary:			ervice and messages exchange between
Cummury.			d. User A invites User D to an already
		ned 1-to-many Chat	2. Cool / Cilivitos Cool D to all allocacy
	COLUBIIO	ied i to many enat	
Configuration:	CF_INT_	AS	
SUT		nd IMS_B	
References	Test Pui		Specification Reference
References		5107 01	TS 124 229 [1], clause 5.4.3.2 ¶119
	TT _IIVIO_	_5107_01	(item 1 in 6 th numbered list)
	TD MCE	RP_CHAT_0002	RFC 4975 [8],
	I D_IVISP	RP_CHA1_0002	clauses 5.4, 7.1 and 7.2
			RFC 5547 [11]
Use Case ref.:	LIC BCS	S_6_I & UC_MSRP_02	[KFC 5547 [11]
OSE Case lei	JUC_RCS	5_0_I & UC_MSRF_02	
Pre-test	- UCC	of IMC A and of IMC D is configure	ad according to table 1
conditions:		of IMS_A and of IMS B is configure	
conditions.	• UE_/		bearers established to their respective IMS
		networks as per TS 186 011-2 [7],	
			using userPRES according to table 1
	• UE_I		in IMS_B optionally using userPRES
		according to table 1	
		A, UE_B and UE_C shall support M	ISRP
		_A is configured to contact AS_A	
		_B is configured to contact AS_B	
	IMS_	_A is within the trust domain of IMS	_B
	• UE_/	A, UE_C, UE_D and UE_B have al	ready performed capability discovery
	proce	ess	
	IMS_	_A not configured for topology hidin	g
	- 1-		
Test Sequence:	Step		
Test Sequence:	Step 1		t with User B and User C by sending initial
Test Sequence:		message	
Test Sequence:	1	message User A is informed that the 1-to-r	many Chat is established
Test Sequence:		message User A is informed that the 1-to-r User B is informed of incoming ir	
Test Sequence:	1	message User A is informed that the 1-to-r User B is informed of incoming ir Chat	many Chat is established invitation from User A to join the 1-to-many
Test Sequence:	1 2 3	message User A is informed that the 1-to-r User B is informed of incoming in Chat User B reads the initial message	many Chat is established nvitation from User A to join the 1-to-many and accepts the 1-to-many Chat invitation
Test Sequence:	2 3	message User A is informed that the 1-to-r User B is informed of incoming ir Chat User B reads the initial message User A is notified with list of 1-to-	many Chat is established nvitation from User A to join the 1-to-many and accepts the 1-to-many Chat invitation many Chat participants
Test Sequence:	1 2 3 4 5 6	message User A is informed that the 1-to-r User B is informed of incoming in Chat User B reads the initial message User A is notified with list of 1-to- User B is notified with list of 1-to-	many Chat is established nvitation from User A to join the 1-to-many and accepts the 1-to-many Chat invitation many Chat participants many Chat participants
Test Sequence:	1 2 3 4 5	message User A is informed that the 1-to-r User B is informed of incoming in Chat User B reads the initial message User A is notified with list of 1-to- User B is notified with list of 1-to- Users perform messaging in the	many Chat is established nvitation from User A to join the 1-to-many and accepts the 1-to-many Chat invitation many Chat participants many Chat participants 1-to-many Chat
Test Sequence:	1 2 3 4 5 6	message User A is informed that the 1-to-r User B is informed of incoming in Chat User B reads the initial message User A is notified with list of 1-to- User B is notified with list of 1-to- Users perform messaging in the User A invites User D to join 1-to-	many Chat is established nvitation from User A to join the 1-to-many and accepts the 1-to-many Chat invitation many Chat participants many Chat participants 1-to-many Chat many Chat many Chat
Test Sequence:	1 2 3 4 5 6 7	message User A is informed that the 1-to-r User B is informed of incoming in Chat User B reads the initial message User A is notified with list of 1-to- User B is notified with list of 1-to- Users perform messaging in the User A invites User D to join 1-to-	many Chat is established nvitation from User A to join the 1-to-many and accepts the 1-to-many Chat invitation many Chat participants many Chat participants 1-to-many Chat
Test Sequence:	1 2 3 4 5 6 7 8	message User A is informed that the 1-to-r User B is informed of incoming in Chat User B reads the initial message User A is notified with list of 1-to- User B is notified with list of 1-to- Users perform messaging in the User A invites User D to join 1-to-	many Chat is established nvitation from User A to join the 1-to-many and accepts the 1-to-many Chat invitation many Chat participants many Chat participants 1-to-many Chat many Chat many Chat
Test Sequence:	1 2 3 4 5 6 7 8	message User A is informed that the 1-to-r User B is informed of incoming ir Chat User B reads the initial message User A is notified with list of 1-to- User B is notified with list of 1-to- Users perform messaging in the User A invites User D to join 1-to- User D is informed of incoming ir	many Chat is established nvitation from User A to join the 1-to-many and accepts the 1-to-many Chat invitation many Chat participants many Chat participants 1-to-many Chat many Chat many Chat nvitation from User A to join the 1-to-many
Test Sequence:	1 2 3 4 5 6 7 8 9	message User A is informed that the 1-to-r User B is informed of incoming ir Chat User B reads the initial message User A is notified with list of 1-to- User B is notified with list of 1-to- Users perform messaging in the User A invites User D to join 1-to- User D is informed of incoming ir Chat	many Chat is established nvitation from User A to join the 1-to-many and accepts the 1-to-many Chat invitation many Chat participants many Chat participants 1-to-many Chat many Chat movitation from User A to join the 1-to-many that invitation
Test Sequence:	1 2 3 4 5 6 7 8 9	message User A is informed that the 1-to-r User B is informed of incoming in Chat User B reads the initial message User A is notified with list of 1-to- User B is notified with list of 1-to- Users perform messaging in the User A invites User D to join 1-to- User D is informed of incoming in Chat User D accepts the 1-to-many Cluser A is notified with list of 1-to-	many Chat is established nvitation from User A to join the 1-to-many and accepts the 1-to-many Chat invitation many Chat participants many Chat participants 1-to-many Chat many Chat mutation from User A to join the 1-to-many mat invitation many Chat participants
Test Sequence:	1 2 3 4 5 6 7 8 9	message User A is informed that the 1-to-r User B is informed of incoming in Chat User B reads the initial message User A is notified with list of 1-to- User B is notified with list of 1-to- Users perform messaging in the User A invites User D to join 1-to- User D is informed of incoming in Chat User D accepts the 1-to-many Ci User A is notified with list of 1-to- User D is notified with list of 1-to-	many Chat is established nvitation from User A to join the 1-to-many and accepts the 1-to-many Chat invitation many Chat participants many Chat participants 1-to-many Chat many Chat multiparts nvitation from User A to join the 1-to-many mat invitation many Chat participants many Chat participants many Chat participants
Test Sequence:	1 2 3 4 5 6 7 8 9 10 11 12 13	message User A is informed that the 1-to-r User B is informed of incoming in Chat User B reads the initial message User A is notified with list of 1-to- User B is notified with list of 1-to- Users perform messaging in the User A invites User D to join 1-to- User D is informed of incoming in Chat User D accepts the 1-to-many Cl User A is notified with list of 1-to- User D is notified with list of 1-to- User D is notified with list of 1-to- Users perform messaging in the	many Chat is established nvitation from User A to join the 1-to-many and accepts the 1-to-many Chat invitation many Chat participants many Chat participants 1-to-many Chat many Chat nvitation from User A to join the 1-to-many mat invitation many Chat participants many Chat participants many Chat participants many Chat participants 1-to-many Chat
Test Sequence:	1 2 3 4 5 6 7 8 9 10 11 12 13 14	message User A is informed that the 1-to-r User B is informed of incoming in Chat User B reads the initial message User A is notified with list of 1-to- User B is notified with list of 1-to- Users perform messaging in the User A invites User D to join 1-to- User D is informed of incoming in Chat User D accepts the 1-to-many Cl User A is notified with list of 1-to- User D is notified with list of 1-to- Users perform messaging in the User D leaves the 1-to-many Ch	many Chat is established nvitation from User A to join the 1-to-many and accepts the 1-to-many Chat invitation many Chat participants many Chat participants 1-to-many Chat many Chat multipants nvitation from User A to join the 1-to-many mat invitation many Chat participants many Chat participants many Chat participants many Chat participants 1-to-many Chat at
Test Sequence:	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	message User A is informed that the 1-to-r User B is informed of incoming in Chat User B reads the initial message User A is notified with list of 1-to- User B is notified with list of 1-to- Users perform messaging in the User A invites User D to join 1-to- User D is informed of incoming in Chat User D accepts the 1-to-many Cl User A is notified with list of 1-to- User D is notified with list of 1-to- Users perform messaging in the User D leaves the 1-to-many Ch User D leaves the 1-to-many Ch User D is informed that he has le	many Chat is established nvitation from User A to join the 1-to-many and accepts the 1-to-many Chat invitation many Chat participants many Chat participants 1-to-many Chat many Chat mitation from User A to join the 1-to-many mat invitation many Chat participants many Chat participants many Chat participants 1-to-many Chat at fit the 1-to-many Chat
Test Sequence:	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	message User A is informed that the 1-to-r User B is informed of incoming in Chat User B reads the initial message User A is notified with list of 1-to- User B is notified with list of 1-to- Users perform messaging in the User A invites User D to join 1-to- User D is informed of incoming in Chat User D accepts the 1-to-many Cl User A is notified with list of 1-to- User D is notified with list of 1-to- Users perform messaging in the User D leaves the 1-to-many Chat User D is informed that he has lead to the company Chat User D is informed that he has lead to the company Chat User D is informed that User D has	many Chat is established nvitation from User A to join the 1-to-many and accepts the 1-to-many Chat invitation many Chat participants many Chat participants 1-to-many Chat many Chat movitation from User A to join the 1-to-many mat invitation many Chat participants many Chat participants many Chat participants many Chat participants 1-to-many Chat at left the 1-to-many Chat s left the 1-to-many Chat
Test Sequence:	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17A	message User A is informed that the 1-to-r User B is informed of incoming in Chat User B reads the initial message User A is notified with list of 1-to- User B is notified with list of 1-to- Users perform messaging in the User A invites User D to join 1-to- User D is informed of incoming in Chat User D accepts the 1-to-many Cl User A is notified with list of 1-to- User D is notified with list of 1-to- Users perform messaging in the User D leaves the 1-to-many Cha User D is informed that he has le User A is notified that User D has User B leaves the 1-to-many Cha	many Chat is established nvitation from User A to join the 1-to-many and accepts the 1-to-many Chat invitation many Chat participants many Chat participants 1-to-many Chat multiple of the 1-to-many mat invitation many Chat participants 1-to-many Chat multiple of the 1-to-many Chat multip
Test Sequence:	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17A 17B	message User A is informed that the 1-to-r User B is informed of incoming in Chat User B reads the initial message User A is notified with list of 1-to- User B is notified with list of 1-to- Users perform messaging in the User A invites User D to join 1-to- User D is informed of incoming in Chat User D accepts the 1-to-many Cl User A is notified with list of 1-to- User D is notified with list of 1-to- Users perform messaging in the User D leaves the 1-to-many Ch User D is informed that he has le User A is notified that User D has User B leaves the 1-to-many Ch User B leaves the 1-to-many Ch User A leaves the 1-to-many Ch	many Chat is established evitation from User A to join the 1-to-many and accepts the 1-to-many Chat invitation emany Chat participants emany Chat participants 1-to-many Chat emany Chat evitation from User A to join the 1-to-many emat invitation emany Chat participants emany Chat participants emany Chat participants emany Chat participants 1-to-many Chat eat eff the 1-to-many Chat est left the 1-to-many Chat eat eat
Test Sequence:	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17A 17B 18A	message User A is informed that the 1-to-r User B is informed of incoming in Chat User B reads the initial message User A is notified with list of 1-to- User B is notified with list of 1-to- Users perform messaging in the User A invites User D to join 1-to- User D is informed of incoming in Chat User D accepts the 1-to-many Cl User A is notified with list of 1-to- User D is notified with list of 1-to- Users perform messaging in the User D leaves the 1-to-many Ch User D is informed that he has le User A is notified that User D had User B leaves the 1-to-many Ch User B is informed that he has le	many Chat is established evitation from User A to join the 1-to-many and accepts the 1-to-many Chat invitation emany Chat participants emany Chat participants 1-to-many Chat evitation from User A to join the 1-to-many emany Chat participants 1-to-many Chat est eff the 1-to-many Chat est est est est est est est est est es
Test Sequence:	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17A 17B 18A 18B	message User A is informed that the 1-to-r User B is informed of incoming in Chat User B reads the initial message User A is notified with list of 1-to- User B is notified with list of 1-to- Users perform messaging in the User A invites User D to join 1-to- User D is informed of incoming in Chat User D accepts the 1-to-many Clauser D is notified with list of 1-to- User D is notified with list of 1-to- User D is notified with list of 1-to- Users perform messaging in the User D leaves the 1-to-many Chauser D is informed that he has leaves the 1-to-many Chauser B leaves the 1-to-many Chauser B leaves the 1-to-many Chauser B is informed that he has leaves B informed that he has leaves B is informed B is informed that he has leaves B is informed that he	many Chat is established evitation from User A to join the 1-to-many and accepts the 1-to-many Chat invitation emany Chat participants emany Chat participants 1-to-many Chat evitation from User A to join the 1-to-many emat invitation emany Chat participants emany Chat participants emany Chat participants emany Chat participants 1-to-many Chat est est the 1-to-many Chat est left the 1-to-many Chat est est the 1-to-many Chat
Test Sequence:	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17A 17B 18A 18B 19A	message User A is informed that the 1-to-r User B is informed of incoming in Chat User B reads the initial message User A is notified with list of 1-to- User B is notified with list of 1-to- Users perform messaging in the User A invites User D to join 1-to- User D is informed of incoming in Chat User D accepts the 1-to-many Cl User A is notified with list of 1-to- User D is notified with list of 1-to- User D is notified with list of 1-to- Users perform messaging in the User D leaves the 1-to-many Cha User D is informed that User D had User A is notified that User D had User A leaves the 1-to-many Cha User B leaves the 1-to-many Cha User B is informed that he has led User A is notified that I other use	many Chat is established evitation from User A to join the 1-to-many and accepts the 1-to-many Chat invitation emany Chat participants emany Chat participants 1-to-many Chat emany Chat evitation from User A to join the 1-to-many emat invitation emany Chat participants emany Chat participants emany Chat participants 1-to-many Chat est the 1-to-many Chat
Test Sequence:	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17A 17B 18A 18B 19A 19B	message User A is informed that the 1-to-r User B is informed of incoming in Chat User B reads the initial message User A is notified with list of 1-to- User B is notified with list of 1-to- Users perform messaging in the User A invites User D to join 1-to- User D is informed of incoming in Chat User D accepts the 1-to-many Cl User A is notified with list of 1-to- User D is notified with list of 1-to- User D is notified with list of 1-to- Users perform messaging in the User D leaves the 1-to-many Cha User D is informed that User D has User A is notified that User D has User A leaves the 1-to-many Cha User B is informed that he has le User A is notified that all other us User B is notified that all other us User B is notified that all other us	many Chat is established evitation from User A to join the 1-to-many and accepts the 1-to-many Chat invitation emany Chat participants emany Chat participants 1-to-many Chat emany Chat emany Chat emany Chat emany Chat emany Chat participants emany Chat participants emany Chat participants emany Chat participants 1-to-many Chat est the 1-to-many Chat est have left the 1-to-many Chat esters have left the 1-to-many Chat
Test Sequence:	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17A 17B 18A 18B 19A 19B 20A	message User A is informed that the 1-to-r User B is informed of incoming in Chat User B reads the initial message User A is notified with list of 1-to- User B is notified with list of 1-to- Users perform messaging in the User A invites User D to join 1-to- User D is informed of incoming in Chat User D accepts the 1-to-many Cl User A is notified with list of 1-to- User D is notified with list of 1-to- Users perform messaging in the User D leaves the 1-to-many Cha User D is informed that he has le User A is notified that User D had User B leaves the 1-to-many Cha User B is informed that he has le User A is notified that all other us User B is notified that all other us User B is notified that all other us User B is notified that all other us User A leaves the 1-to-many Cha	many Chat is established evitation from User A to join the 1-to-many and accepts the 1-to-many Chat invitation emany Chat participants -many Chat participants 1-to-many Chat evitation from User A to join the 1-to-many emat invitation emany Chat participants -many Chat participants -many Chat participants -many Chat participants 1-to-many Chat est the 1-to-many Chat est shave left the 1-to-many Chat
Test Sequence:	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17A 17B 18A 18B 19A 19B	message User A is informed that the 1-to-r User B is informed of incoming in Chat User B reads the initial message User A is notified with list of 1-to- User B is notified with list of 1-to- Users perform messaging in the User A invites User D to join 1-to- User D is informed of incoming in Chat User D accepts the 1-to-many Cl User A is notified with list of 1-to- User D is notified with list of 1-to- User D is notified with list of 1-to- Users perform messaging in the User D leaves the 1-to-many Cha User D is informed that User D has User A is notified that User D has User A leaves the 1-to-many Cha User B is informed that he has le User A is notified that all other us User B is notified that all other us User B is notified that all other us	many Chat is established evitation from User A to join the 1-to-many and accepts the 1-to-many Chat invitation emany Chat participants

Interoperability T	est Descrip	otion
	20B	User B is informed that the 1-to-many Chat has ended
Conformance	Check	
Criteria:	1	TP_IMS_5107_01 in CFW step 77 (BYE): ensure that { when { UE_B sends BYE to AS_A } then { IMS_A receives the BYE not containing Route_header indicating the S-CSCF_SIP_URI of IMS_A } }

Step					Direc	tion					Message	Comment
	U	U	Α	I	I		I	Α	U	U	_	
	S	Ε	S/	M	В	В	M	S/	E	s		
	е	Α	ı	S	С	С	S	ı	D	е		
	r		M	Α	F	F	В	M		r		
1	A		A		Α	В		В		D		Follow UC_RCS_6_I (1-79)
2												User A invites User D to join 1-to-
_)										many Chat
3				→							REFER	UE_A sends REFER message to IMS_A, with IM session identity (allocated for the current 1-to-many chat), Refer-To header value equals to UE_D URI and Refer-Sub header value set to "false"
4			\leftarrow								REFER	IMS_A forwards REFER to AS/IM_A
5				\rightarrow							200 OK	AS/IM_A responds with 200 OK to IMS_A
6				_							200 OK	IMS_A forwards the 200 OK response to UE_A
7				\rightarrow							INVITE	AS/IM_A sends INVITE to UE_D with IM session identity (allocated for the current 1-to-many Chat) and IM address of the Inviting IM UE (UE_A)
8			\leftarrow	_							100 Trying	IMS_A responds with a 100 Trying provisional response
9					\rightarrow						INVITE	IMS_A forwards INVITE to
10				←							100 Trying	IBCF_A responds with a 100 Trying provisional response
11						\rightarrow					INVITE	IBCF_A forwards INVITE to IBCF_B
12											100 Trying	IBCF_B responds with a 100 Trying provisional response
13							\rightarrow				INVITE	IBCF_B forwards INVITE to IMS_B
14						—					100 Trying	IMS_B responds with a 100 Trying provisional response
15								\rightarrow			INVITE	IMS_B forwards INVITE to AS/IM_B
16							←	_			100 Trying	AS/IM_B responds with a 100 Trying provisional response
17											INVITE	AS/IM_B returns, possibly modified, INVITE to IMS_B
18								\rightarrow			100 Trying	IMS_B responds with a 100 Trying provisional response
19									_		INVITE	IMS_B forwards INVITE to UE_D
20							←	-	-		100 Trying	UE_D optionally responds with a 100 Trying provisional response

Step					Direct	ion					Message	Comment
	U	٦ ٦	Α	I .	7 –	, –		Α (1 C	U		
	s e	E A	S/	M S	B C	B C	M S	S/ I	E D	s e		
	r		M	A	F	F	В	M		r		
0.4	_ A _		Α		Α	В		В		D		H
21												User D is informed of incoming invitation from User A to join the
										1		1-to-many Chat
22												User D accepts the 1-to-many
												Chat invitation
23											200 OK	UE_D responds INVITE with 200 OK response with SDP to
												indicate that the session has
												been accepted and inform
												AS/IM_A with specific data for
24											200 OK	MSRP connection set up IMS_B forwards 200 OK
24								\rightarrow			200 OK	response to AS/IM_B
25											200 OK	AS/IM_B returns, possibly
							←					modified, 200 OK response to
26											200 OK	IMS_B IMS_B forwards 200 OK
20						\leftarrow					200 OK	response to IBCF_B
27											200 OK	IBCF_B forwards 200 OK
												response to IBCF_A
28				←—	_						200 OK	IBCF_A forwards 200 OK response to IMS_A
29											200 OK	IMS_A forwards 200 OK
												response to AS/IM_A
30				\rightarrow							ACK	AS/IM_A acknowledges the
31											ACK	receipt of 200 OK for INVITE IMS_A forwards ACK to IBCF_A
32					1	_					ACK	IBCF_A forwards ACK to IBCF_B
33						1	\rightarrow				ACK	IBCF_B forwards ACK to IMS_B
34							1	\rightarrow			ACK	IMS_B forwards ACK to AS/IM_B
35											ACK	AS/IM_B returns, possibly
0.0											101/	modified, ACK to IMS_B
36									\rightarrow		ACK	IMS_B forwards ACK to UE_D
37				\rightarrow							NOTIFY	AS/IM_A sends NOTIFY to UE_A with list of 1-to-many Chat
												participants
38											NOTIFY	IMS_A forwards the NOTIFY to
39		•										UE_A User A is notified with list of 1-to-
39	—	-										many Chat participants
40				_							200 OK	UE_A responds with 200 OK to
				1							200 617	IMS_A
41			\leftarrow	\dashv							200 OK	IMS_A forwards the 200 OK response to AS/IM_A
42											SUBSCRIBE	UE_D subscribes to the
												conference event package
43								\rightarrow			SUBSCRIBE	IMS_B forwards SUBSCRIBE to
44											SUBSCRIBE	AS/IM_B AS/IM_B returns, possibly
							\leftarrow					modified, SUBSCRIBE to IMS_B
45						<u></u>	_				SUBSCRIBE	IMS_B forwards SUBSCRIBE to
40											SUBSCRIBE	IBCF_B IBCF_B forwards SUBSCRIBE to
46											SUDSUKIBE	IBCF_B forwards SUBSCRIBE to
47					_						SUBSCRIBE	IBCF_A forwards SUBSCRIBE to
												IMS_A
48			\leftarrow								SUBSCRIBE	IMS_A forwards SUBSCRIBE to AS/IM_A
49				\rightarrow							200 OK	AS/IM_A sends 200 OK for
				l	I		1					SUBSCRIBE

Step					Direc	tion					Message	Comment
	U	U	Α	I	ı	ı	ı	Α	U	U		
	S	E	S/	M	В	В	M	S/	E	S		
	e r	Α	M	S	C F	C F	S	M	D	e r		
	A		A	^	A	В	_	В		Ď		
50											200 OK	IMS_A forwards 200 OK
					1							response to IBCF_A
51						\rightarrow					200 OK	IBCF_A forwards 200 OK
52											200 OK	response to IBCF_B IBCF_B forwards 200 OK
32							\rightarrow				200 010	response to IMS_B
53											200 OK	IMS_B forwards 200 OK
								1				response to AS/IM_B
54											200 OK	AS/IM_B returns, possibly
												modified, 200 OK response to IMS_B
55											200 OK	IMS_B forwards 200 OK
									\rightarrow			response to UE_D
56											NOTIFY	AS/IM_A sends NOTIFY to UE_D
				\rightarrow								with list of 1-to-many Chat
57											NOTIFY	participants IMS_A forwards BYE to IBCF_A
58											NOTIFY	IBCF_A forwards BYE to IBCF_B
59											NOTIFY	IBCF_B forwards BYE to IMS_B
60							1	_			NOTIFY	IMS_B forwards BYE to AS/IM_B
61								1			NOTIFY	AS/IM_B returns, possibly
0.							\leftarrow				1101111	modified, BYE to IMS_B
62									\rightarrow		NOTIFY	IMS_B forwards BYE to UE_D
63										\rightarrow		User D is notified with list of 1-to-
64							_				200 OK	many Chat participants UE_D sends 200 OK for NOTIFY
65											200 OK	IMS_B forwards 200 OK
00								\rightarrow			200 010	response to AS/IM_B
66											200 OK	AS/IM_B returns, possibly
							\leftarrow					modified, 200 OK response to
67											200 OK	IMS_B IMS_B forwards 200 OK
67						\leftarrow					200 OK	response to IBCF_B
68											200 OK	IBCF_B forwards 200 OK
												response to IBCF_A
69				←	_						200 OK	IBCF_A forwards 200 OK
70											200 OK	response to IMS_A IMS_A forwards 200 OK
'			\leftarrow								200 010	response to AS/IM_A
71												Users perform messaging in the
												1-to-many Chat (see clause
			*							\rightarrow		5.3.2.3Chat 1 to many via MSRP
												to additional user - Interworking - CheckMSRP3)
72												User D leaves the 1-to-many
												Chat
73							—				BYE	UE_D sends BYE to IMS_B to
74											BYE	leave the 1-to-many Chat IMS_B forwards BYE to AS/IM_B
75											BYE	AS/IM_B returns, possibly
'3							\leftarrow	\dashv			512	modified, BYE to IMS_B
76						\leftarrow					BYE	IMS_B forwards BYE to IBCF_B
77					\leftarrow						BYE	IBCF_B forwards BYE to IBCF_A
78				←—	-						BYE	IBCF_A forwards BYE to IMS_A
79			\leftarrow								BYE	IMS_A forwards BYE to AS/IM_A
80			-	\rightarrow							200 OK	AS/IM_A sends 200 OK for BYE
81					\rightarrow						200 OK	IMS_A forwards 200 OK
					1							response to IBCF_A



4.5.3.7.2 Adding participants to an already established 1-to-many chat session - roaming (optional)

	Interoperability Test	Description								
Identifier:	TD_IMS_CHAT_0016									
Summary:		Chat service and messages exchange between ork and one user roaming can be performed. User shed 1-to-many Chat								
	OF DOAM AS (OPTIONAL)									
Configuration:	CF_ROAM_AS (OPTIONAL)									
SUT	IMS_A and IMS_B									
References	Test Purpose	Specification Reference								
	TP_IMS_5107_04	TS 124 229 [1], clause 5.4.3.2 ¶119 (item 1 in 8 th numbered list)								
	TP_IMS_5107_03	TS 124 229 [1], clause 5.4.3.2 ¶119 (item 1 in 6 th numbered list)								
Use Case ref.:	UC_RCS_6_R & UC_MSRP_04	1(11)								
	<u> </u>									
Pre-test conditions:	 IMS networks as per TS 186 011 UE_A and UE_D are registered in table 1 UE_A, UE_B and UE_C shall sure. UE_B and UE_C are registered in according to table 1 IMS_A is configured to contact A IMS_B is configured to contact A IMS_A is within the trust domain 	nave IP bearers established to their respective -2 [7], clause 4.2.1 In IMS_A optionally using userPRES according to poort MSRP IN IMS_B via IMS_A optionally using userPRES S_A S_B of IMS_B nave already performed capability discovery								

		Interoperability Test Description
Test Sequence:	Ston	
rest sequence.	Step 1	User B initiates a 1-to-many Chat with User A and User C by sending initial
		message
	2	User B is informed that the 1-to-many Chat is established
	3	User A is informed of incoming invitation from User B to join the 1-to-many Chat
	4	User A reads the initial message and accepts the 1-to-many Chat invitation
	5	User B is notified with list of 1-to-many Chat participants
	6	User A is notified with list of 1-to-many Chat participants
	7	Users perform messaging in the 1-to-many Chat
	8	User B invites User D to join 1-to-many Chat
	9	User D is informed of incoming invitation from User B to join the 1-to-many Chat
	10	User D reads the initial message and accepts the 1-to-many Chat invitation
	11	User B is notified with list of 1-to-many Chat participants
	12	User D is notified with list of 1-to-many Chat participants
	13	Users perform messaging in the 1-to-many Chat
	14	User D leaves the 1-to-many Chat
	15	User D is informed that he has left the 1-to-many Chat
	16	User B is notified that user D has left the 1-to-many Chat
	17A	User A leaves the 1-to-many Chat
	17B	User B leaves the 1-to-many Chat
	18A	User A is informed that he has left the 1-to-many Chat
	18B	User B is informed that he has left the 1-to-many Chat
	19A	User B is notified that all other users have left the 1-to-many Chat
	19B	User A is notified that all other users have left the 1-to-many Chat
	20A	User B leaves the 1-to-many Chat
	20B	User A leaves the 1-to-many Chat
	21A	User B is informed that the 1-to-many Chat has ended
	21B	User A is informed that the 1-to-many Chat has ended
	212	Cost / No informed that the Title many charmae chaca
Conformance	Check	
Criteria:	1	TP_IMS_5107_04 in CFW step 5 (REFER):
		ensure that {
		when { UE_B sends REFER to AS_B }
		then { IMS_B receives the REFER
		not containing Route_header
		indicating the S-CSCF_SIP_URI of IMS_A
		}
		 }
	2	TP_IMS_5107_03 in CFW step 89 (BYE): ensure that {
		when { UE_D sends BYE to AS_B } then { IMS_B receives the BYE
		not containing Route_header indicating the S-CSCF_SIP_URI of IMS_A
		Indicating the 3-030F_SIF_UNI of fivio_A
		\(\)
		I/

Step					Direc	tion					Message	Comment
	U s e r D	U E D	A S/ I M A	I M S A	I B C F A	I B C F	I M S B	A S/ I M B	U E B	U s e r B		
1										·		Follow UC_RCS_6_R (1-103)
2									—			User B invites User D to join 1-to- many Chat
3											REFER	UE_B sends REFER message to IMS_A, with IM session identity
												(allocated for the current 1-to-many chat), Refer-To header value equals to UE_D URI and Refer-Sub header value set to "false"

Step					Direct	ion					Message	Comment
	U	Ū	A	I	1		I	A	U E	U		
	s e	E D	S/ I	M S	B C	B C	M S	S/ I	В	s e		
	r		M	Α	F	F	В	М		r		
4	D		A		A 	B		В		<u>B</u>	REFER	IMS_A forwards REFER to IBCF_A
5						\rightarrow					REFER	IBCF_A forwards REFER to IBCF_B
6							\rightarrow				REFER	IBCF_B forwards REFER to IMS_B
7								\rightarrow			REFER	IMS_B forwards REFER to AS/IM_B
8							←				200 OK	AS/IM_B responds with 200 OK to IMS_B
9											200 OK	IMS_B forwards 200 OK response to IBCF_B
10					\leftarrow						200 OK	IBCF_B forwards 200 OK response to IBCF_A
11											200 OK	IBCF_A forwards 200 OK response to IMS_A
12									\rightarrow		200 OK	IMS_A forwards 200 OK response to UE_B
13							(INVITE	AS/IM_B sends INVITE to UE_D with IM session identity (allocated for the current 1-to-many Chat) and IM address of the Inviting IM UE (UE_D)
14								\rightarrow			100 Trying	IMS_B responds with a 100 Trying provisional response
15											INVITE	IMS_B forwards INVITE to IBCF_B
16)				100 Trying	IBCF_B responds with a 100 Trying provisional response
17					\leftarrow						INVITE	IBCF_B forwards INVITE to IBCF_A
18						\rightarrow					100 Trying	IBCF_A responds with a 100 Trying provisional response
19											INVITE	IBCF_A forwards INVITE to IMS_A
20)						100 Trying	IMS_A responds with a 100 Trying provisional response
21											INVITE	IMS_A forwards INVITE to AS/IM_A
22				\rightarrow							100 Trying	AS/IM_A responds with a 100 Trying provisional response
23				\rightarrow							INVITE	AS/IM_A returns, possibly modified, INVITE to IMS_A
24			\leftarrow	\dashv							100 Trying	IMS_A responds with a 100 Trying provisional response
25		-		\dashv							INVITE	IMS_A forwards INVITE to UE_D
26				\rightarrow							100 Trying	UE_D optionally responds with a 100 Trying provisional response
27	(User D is informed of incoming invitation from User B to join the 1-to-many Chat
28		>										User D reads the initial message and accepts the 1-to-many Chat invitation

Step					Dire	ction					Message	Comment
	U s	E	A S/	M	ΙВ	I B	Z –	A S/	UE	Us		
	e	D	I	S	С	C	S	I	В	e		
	r D		M A	Α	F A	F B	В	M B		r B		
29			A	→	A			<u> </u>		В	200 OK	UE_D responds INVITE with 200 OK response with SDP to indicate that the session has been accepted
												and inform AS/IM_A with specific data for MSRP connection set up
30			\leftarrow								200 OK	IMS_A forwards 200 OK response to AS/IM_A
31				\rightarrow							200 OK	AS/IM_A returns, possibly modified, 200 OK response to IMS_A
32					\rightarrow						200 OK	IMS_A forwards 200 OK response to IBCF_A
33						\rightarrow					200 OK	IBCF_A forwards 200 OK response to IBCF_B
34							\rightarrow				200 OK	IBCF_B forwards 200 OK response to IMS_B
35								\rightarrow			200 OK	IMS_B forwards 200 OK response to AS/IM_B
36							\leftarrow				ACK	AS/IM_B acknowledges the receipt of 200 OK for INVITE
37						←					ACK	IMS_B forwards ACK to IBCF_B
38					\leftarrow						ACK	IBCF_B forwards ACK to IBCF_A
39				\leftarrow	\dashv						ACK	IBCF_A forwards ACK to IMS_A
40			\leftarrow								ACK	IMS_A forwards ACK to AS/IM_A
41				\rightarrow							ACK	AS/IM_A returns, possibly modified, ACK to IMS_A
42											ACK	IMS_A forwards ACK to UE_D
43							-				NOTIFY	AS/IM_B sends NOTIFY to UE_B with list of 1-to-many Chat participants
44						←					NOTIFY	IMS_B forwards NOTIFY to IBCF_B
45					\leftarrow						NOTIFY	IBCF_B forwards NOTIFY to IBCF_A
46				←							NOTIFY	IBCF_A forwards NOTIFY to IMS_A
47									\longrightarrow		NOTIFY	IMS_A forwards NOTIFY to UE_B
48										\rightarrow		User B is notified with list of 1-to- many Chat participants
49				-							200 OK	UE_B responds with 200 OK to IMS_A
50					\rightarrow						200 OK	IMS_A forwards 200 OK response to IBCF_A
51						\rightarrow					200 OK	IBCF_A forwards 200 OK response to IBCF_B
52							\rightarrow				200 OK	IBCF_B forwards 200 OK response to IMS_B
53								\rightarrow			200 OK	IMS_B forwards 200 OK response to AS/IM_B
54				\rightarrow							SUBSCRIBE	UE_D subscribes to the conference event package

Step					Direct	ion					Message	Comment
	U	Ŋ	Α	I	1	- L	I	Α	U	U		
	s e	E D	S/ I	M S	B C	B C	M S	S/ I	E B	s e		
	r		M	Ā	F	F	В	M	_	r		
55	D		A ←		A	В		В		В	SUBSCRIBE	IMS_A forwards SUBSCRIBE to
												AS/IM_A
56				→							SUBSCRIBE	AS/IM_A returns, possibly modified, SUBSCRIBE to IMS_A
57)						SUBSCRIBE	IMS_A forwards SUBSCRIBE to IBCF_A
58)					SUBSCRIBE	IBCF_A forwards SUBSCRIBE to IBCF_B
59							\rightarrow				SUBSCRIBE	IBCF_B forwards SUBSCRIBE to IMS_B
60								\rightarrow			SUBSCRIBE	IMS_B forwards SUBSCRIBE to AS/IM_B
61							←				200 OK	AS/IM_B sends 200 OK for SUBSCRIBE
62						\leftarrow					200 OK	IMS_B forwards 200 OK response to IBCF_B
63											200 OK	IBCF_B forwards 200 OK response to IBCF_A
64					-						200 OK	IBCF_A forwards 200 OK response to IMS_A
65											200 OK	IMS_A forwards 200 OK response to AS/IM_A
66				\rightarrow							200 OK	AS/IM_A returns, possibly modified, 200 OK response to
67		,									200 OK	IMS_A IMS_A forwards 200 OK response
												to UE_D
68							←				NOTIFY	AS/IM_B sends NOTIFY to UE_D with list of 1-to-many Chat participants
69											NOTIFY	IMS_B forwards BYE to IBCF_B
70											NOTIFY	IBCF_B forwards BYE to IBCF_A
71											NOTIFY	IBCF_A forwards BYE to IMS_A
72			\leftarrow								NOTIFY	IMS_A forwards BYE to AS/IM_A
73				\rightarrow							NOTIFY	AS/IM_A returns, possibly modified, BYE to IMS_A
74		\leftarrow									NOTIFY	IMS_A forwards BYE to UE_D
75												User D is notified with list of 1-to- many Chat participants
76				\rightarrow							200 OK	UE_D sends 200 OK for NOTIFY
77			\leftarrow								200 OK	IMS_A forwards 200 OK response to AS/IM_A
78				\rightarrow							200 OK	AS/IM_A returns, possibly modified, 200 OK response to IMS_A
79					>						200 OK	IMS_A forwards 200 OK response to IBCF_A
80)					200 OK	IBCF_A forwards 200 OK response to IBCF_B
81							\rightarrow				200 OK	IBCF_B forwards 200 OK response to IMS_B

S	Step					Direction	on					Message	Comment
B		U s			I M	I B	I B	I M		U E	U s		
D		е		1	S	С	С	S	1		е		
10 AS/IM_B					A	-	- 1	В					
10-many Chat (see clause 5.3.2.4 Chat 1 to many MSRP to additional user - Roaming)	82											200 OK	
BYE								,	×		→		to-many Chat (see clause 5.3.2.4 Chat 1 to many via MSRP to additional user - Roaming)
leave the 1-to-many Chat	04												Oser Dieaves the 1-to-many Char
BYE	85				\rightarrow								leave the 1-to-many Chat
Modified, BYE to MIS, A	86			\leftarrow								BYE	IMS_A forwards BYE to AS/IM_A
BYE	87				\rightarrow							BYE	
BYE	88											BYE	
STEEL STEE	89						•					BYE	IBCF_A forwards BYE to IBCF_B
92 200 OK	90							\				BYE	IBCF_B forwards BYE to IMS_B
93 94 95 96 97 98 99 99 99 99 99 99	91											BYE	IMS_B forwards BYE to AS/IM_B
10 10 10 10 10 10 10 10	92											200 OK	AS/IM_B sends 200 OK for BYE
94 95 96 96 97 97 97 97 97 97	93						\leftarrow					200 OK	
95 96 96 96 96 97 97 97 97	94											200 OK	IBCF_B forwards 200 OK response
96 97 98 98 99 User D is informed that he has left the 1-to-many Chat 100 101 102 103 104 105 106 107 108 108 108 109 108 109 109 109 109 109 109 109 100 100 100	95											200 OK	
modified, 200 OK response to IMS_A 200 OK IMS_A forwards 200 OK response to UE_D 99 User D is informed that he has left the 1-to-many Chat NOTIFY AS/IM_B sends NOTIFY to IMS_B to inform UE_B that User D has left the 1-to-many Chat NOTIFY IMS_B forwards NOTIFY to IBCF_B NOTIFY IBCF_A forwards NOTIFY to IBCF_A forwards NOTIFY to IMS_A NOTIFY IMS_A forwards NOTIFY to UE_B 103 104 105 User B is notified that user D has left the 1-to-many Chat 200 OK UE_B responds with 200 OK to IMS_A 200 OK IMS_A forwards 200 OK response to IBCF_A 200 OK IBCF_A forwards 200 OK response	96			-	_							200 OK	IMS_A forwards 200 OK response
98 99 100 OK IMS_A forwards 200 OK response to UE_D 101 User D is informed that he has left the 1-to-many Chat 102 NOTIFY AS/IM_B sends NOTIFY to IMS_B to inform UE_B that User D has left the 1-to-many Chat 103 NOTIFY IMS_B forwards NOTIFY to IBCF_B 104 NOTIFY IBCF_B forwards NOTIFY to IBCF_A 105 User B is notified that user D has left the 1-to-many Chat 106 User B is notified that user D has left the 1-to-many Chat 107 USER B responds with 200 OK to IMS_A 200 OK UE_B responds with 200 OK response to IBCF_A 200 OK IBCF_A forwards 200 OK response	97				\rightarrow							200 OK	modified, 200 OK response to
User D is informed that he has left the 1-to-many Chat NOTIFY AS/IM_B sends NOTIFY to IMS_B to inform UE_B that User D has left the 1-to-many Chat NOTIFY IMS_B forwards NOTIFY to IBCF_B NOTIFY IBCF_B forwards NOTIFY to IBCF_A NOTIFY IBCF_A forwards NOTIFY to IBCF_A NOTIFY IMS_A forwards NOTIFY to IMS_A NOTIFY IMS_A forwards NOTIFY to UE_B User B is notified that user D has left the 1-to-many Chat 200 OK UE_B responds with 200 OK to IMS_A 106 107 108 109 109 109 109 109 109 100	98				\dashv							200 OK	IMS_A forwards 200 OK response
100 101 102 102 103 104 105 106 107 108 108 109 109 100 100 100 100 100 100 100 100	99	(
101 102 103 104 105 106 107 108 NOTIFY IMS_B forwards NOTIFY to IBCF_B NOTIFY to IBCF_A forwards NOTIFY to IMS_A NOTIFY to IMS_A NOTIFY IMS_A forwards NOTIFY to UE_B 200 OK UE_B responds with 200 OK to IMS_A 200 OK IMS_A forwards 200 OK response to IBCF_A 200 OK IBCF_A forwards 200 OK response	100											NOTIFY	to inform UE_B that User D has left
NOTIFY IBCF_B forwards NOTIFY to IBCF_A NOTIFY IBCF_A forwards NOTIFY to IMS_A NOTIFY IMS_A forwards NOTIFY to UE_B User B is notified that user D has left the 1-to-many Chat 200 OK UE_B responds with 200 OK to IMS_A 200 OK IMS_A forwards 200 OK response to IBCF_A 200 OK IBCF_A forwards 200 OK response	101											NOTIFY	IMS_B forwards NOTIFY to
NOTIFY IBCF_A forwards NOTIFY to IMS_A NOTIFY IMS_A forwards NOTIFY to UE_B User B is notified that user D has left the 1-to-many Chat 200 OK UE_B responds with 200 OK to IMS_A 200 OK IMS_A forwards 200 OK response to IBCF_A 200 OK IBCF_A forwards 200 OK response	102						-					NOTIFY	IBCF_B forwards NOTIFY to
NOTIFY IMS_A forwards NOTIFY to UE_B User B is notified that user D has left the 1-to-many Chat 200 OK UE_B responds with 200 OK to IMS_A 200 OK IMS_A forwards 200 OK response to IBCF_A 200 OK IBCF_A forwards 200 OK response	103					_						NOTIFY	IBCF_A forwards NOTIFY to
106 107 108 1eft the 1-to-many Chat 200 OK UE_B responds with 200 OK to IMS_A 200 OK IMS_A forwards 200 OK response to IBCF_A 200 OK IBCF_A forwards 200 OK response	104									\rightarrow		NOTIFY	
106 107 108 200 OK UE_B responds with 200 OK to IMS_A 200 OK IMS_A forwards 200 OK response to IBCF_A 200 OK IBCF_A forwards 200 OK response	105										\rightarrow		
107 108 200 OK IMS_A forwards 200 OK response to IBCF_A 200 OK IBCF_A forwards 200 OK response	106				-							200 OK	UE_B responds with 200 OK to
108 200 OK IBCF_A forwards 200 OK response	107											200 OK	IMS_A forwards 200 OK response
	108											200 OK	IBCF_A forwards 200 OK response

Step						Direction	on					Message	Comment
	Į	J	U	Α	ı	_	_	I	Α	C	U		
	•	s	E	S/	M	В	В	М	S/	Ε	S		
	•	Э	D	ı	S	С	С	S	ı	В	е		
	1	r		M	Α	F	F	В	М		r		
	[)		Α		Α	В		В		В		
109								*					IBCF_B forwards 200 OK response
													to IMS_B
110								-	>			200 OK	IMS_B forwards 200 OK response
													to AS/IM_B
111													Continue UC_RCS_6_R (104A-
													146B)

4.5.4 RCS services during a call

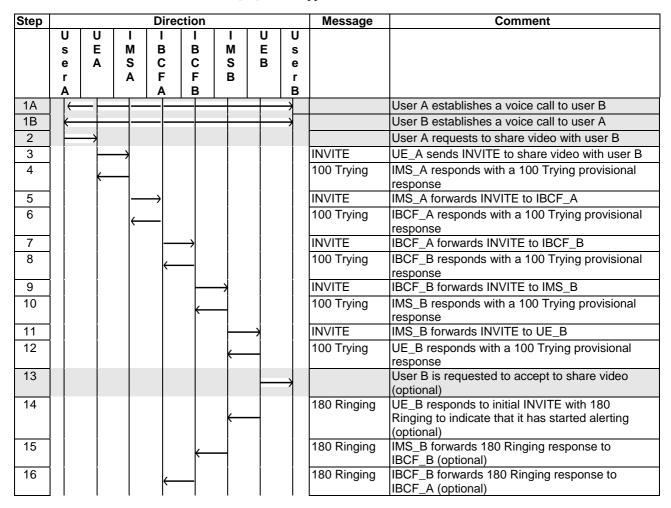
4.5.4.1 Video sharing

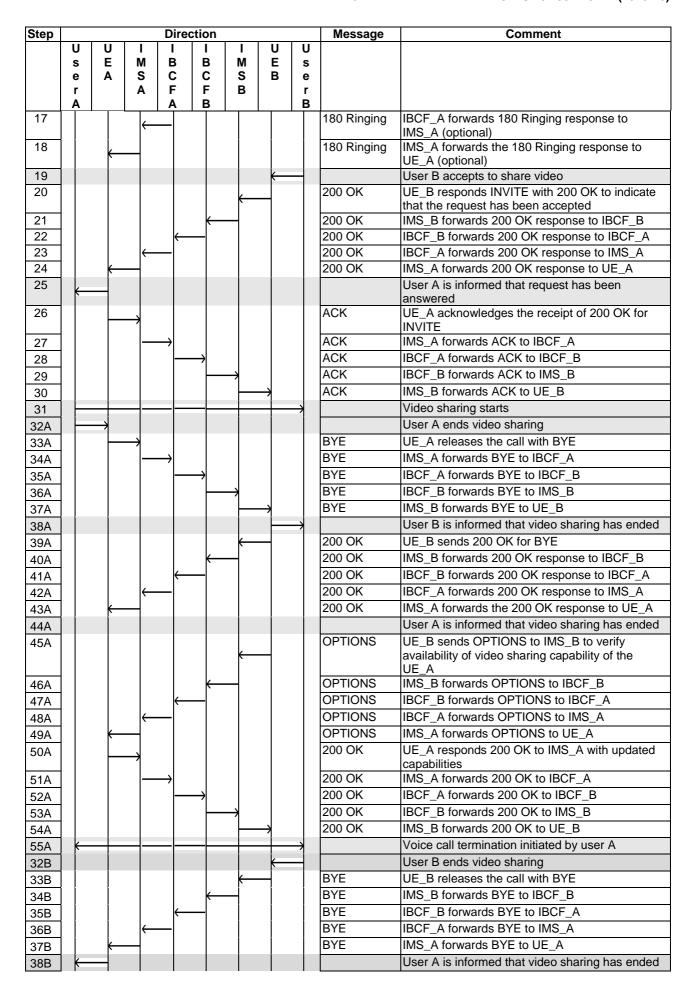
4.5.4.1.1 Video sharing- interworking

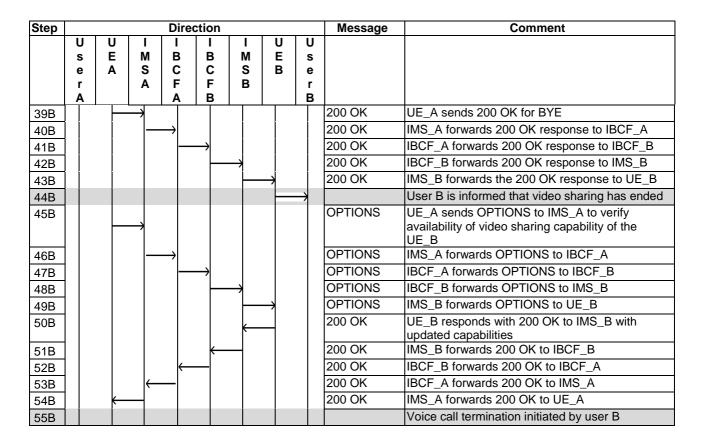
		Interoperability Test Desc	ription
Identifier:		SHARE_0001	
Summary:		heir networks can be performed. l	e and messages exchange between two Jser A starts video sharing with User B
	Ta==		
Configuration:	CF_INT_		
SUT		nd IMS_B	
References	Test Pur		Specification Reference
	TP_IMS_	_	TS 124 229 [1], clause 5.4.3.2 ¶11 (1 st numbered list)
	TP_IMS_	5115_08	TS 124 229 [1], clause 5.4.3.3 ¶89 (3 rd numbered list)
Use Case ref.:	UC_RCS	8	The manual many
Pre-test conditions:	 UE_/ per T UE_/ IMS_ IMS_ UE_/ 	S 186 011-2 [7], clause 4.2.1 A is registered in IMS_A optionally	blished to their respective IMS networks as vusing userPRES according to table 1 vusing userPRES according to table 1
Test Sequence:	\$tep 1A 1B 2 3 4 5 6 7A 8A 9A 10A 7B 8B	User A establishes voice call wit User B establishes voice call wit User A requests to share video v User B is requested to accept to User B accepts to share video w User A is informed that request I Video sharing starts User A ends video sharing User B is informed that video sh User A is informed that video sh User A initiates voice call termin User B ends video sharing User A is informed that video sh	h user A with user B share video with user A has been answered aring has terminated aring has terminated ation aring has terminated
	9B 10B	User B is informed that video sh User B initiates voice call termin	

		Interoperability Test Description									
Conformance Criteria:	Check										
	1	TP_IMS_5097_01 in CFW step 7 (INVITE): ensure that { when { UE_A sends an initial INVITE to UE_B } then { IMS_B receives the initial INVITE not containing a Route_header indicating the S-CSCF_SIP_URI of IMS_A containing a P-Charging-Vector_header (containing an icid-value_parameter and containing a orig-ioi_parameter indicating IMS_A and not containing an access-network-charging-info_parameter and not containing a term-ioi_parameter) and containing a Record-Route_header indicating the originating S-CSCF_SIP_URI } }									
	2	TP_IMS_5115_08 in CFW step 22 (200 OK) ensure that { when { IMS_B receives 200_response from UE_B addressed_to UE_A } then { IMS_B sends the 200_response to IMS_A containing a P-Charging-Vector_header including a orig-ioi_parameter indicating operator_identifier of IMS_A and including a term-ioi_parameter indicating operator_identifier of IMS_BIUT_ } }									

NOTE: After step 31 in the below message sequence chart the quality assessment test description as described in clause 4.2.1 of TS 103 189 [19] can be applied.







4.5.4.1.2 Video sharing- roaming (optional)

		Interoperability Test De	scription					
Identifier:	TD IMS SHARE 0002							
Summary:	IMS netwo	IMS network supports Video sharing service and messages exchange between two users, one user in its home network and one user roaming can be performed. User A starts video sharing with User B during a voice call						
Configuration:	CF_ROAI	CF_ROAM_AS (OPTIONAL)						
SUT		and IMS_B						
References	TP_IMS_	Test Purpose Specification Reference FP_IMS_5046_01 TS 124 229 [1], clause 5.2.6.3.3 ¶1 (1st numbered list) FP_IMS_5067_01 TS 124 229 [1], clause 5.2.7.2 ¶5						
Use Case ref.:	UC_RCS_8_R							
		= - =						
Pre-test conditions:	 HSS of IMS_A and of IMS B is configured according to table 1 UE_A and UE_B have IP bearers established to their respective IMS networks as per TS 186 011-2 [7], clause 4.2.1 UE_A is registered in IMS_A optionally using userPRES according to table 1 UE_B is registered in IMS_B via IMS_A optionally using userPRES according to table 1 IMS_A is configured to contact AS_A IMS_B is configured to contact AS_B IMS_A is within the trust domain of IMS_B UE_A and UE_B have already performed capability discovery process IMS_A not configured for topology hiding 							
Test Sequence:	Step							
	1A User A establishes voice call with user B							
	1B	1B User B establishes voice call with user A						
	2	User A requests to share video with user B						
	3	User B is requested to accept to share video						
	4	User B accepts to share video with user A						
	5 User A is informed that request has been answered							

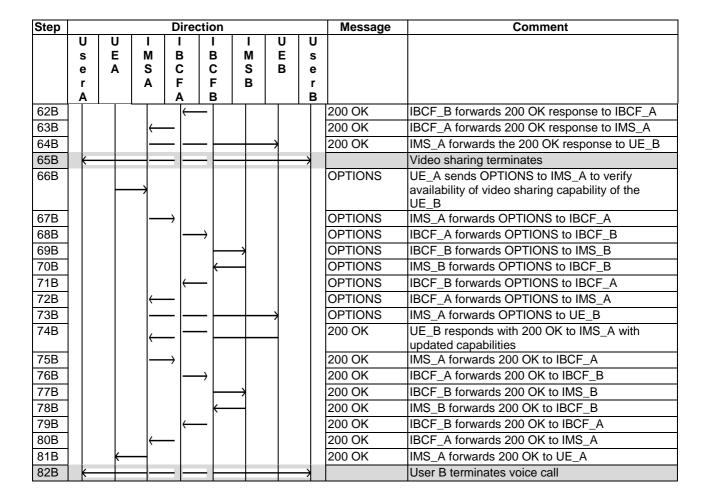
		Interoperability Test Description					
	6	Video sharing starts					
	7A	User A ends video sharing					
	8A	User B is informed that video sharing has terminated					
	9A	User A is informed that video sharing has terminated					
	10A	User A initiates voice call termination					
	7B	User B ends video sharing					
	8B	User A is informed that video sharing has terminated					
	9B	User B is informed that video sharing has terminated					
	10B	User B initiates voice call termination					
	100	Josef B initiates voice can termination					
Conformance Criteria:	Check						
	1	TP_IMS_5046_01 in CFW step 7 (INVITE)					
		ensure that {					
		when { IMS_A receives an initial INVITE from UE_B }					
		then { IMS_A sends the INVITE to IMS_B					
		containing a Route_header					
		not indicating the P-CSCF_SIP_URI of IMS_A and					
		containing a Route_header					
		indicating the "list of Service Route header URIs					
		from the registration" and					
		containing an additional Via_header					
		containing (the P-CSCF_via_port_number and					
		(the P-CSCF-FQDN_address or					
		the P-CSCF-IP_address)) of IMS_A and					
		containing an additional topmost Record-Route_header					
		indicating (the P-CSCF_port_number					
		'where it awaits subsequent requests' from UE_A and					
		(the P-CSCF-FQDN_address or					
		the P-CSCF-IP_address)) of IMS_A and					
		not containing P-Preferred-Identity_header and					
		containing a P-Asserted-Identity_header					
		containing an address of UE_B and					
		containing a P-Charging-Vector_header					
		containing an icid-value_parameter }					
	2						
	2	TP_IMS_5067_01 in CFW step 7 (INVITE)					
		ensure that {					
		when { IMS_A receives an initial INVITE from UE_B }					
		then { IMS_A sends the INVITE to IMS_B					
		containing a P-Charging-Vector_header					
		}					
		}					

NOTE: After step 46 in the below message sequence chart the quality assessment test description as described in clause 4.2.2 of TS 103 189 [19] can be applied.

Step	Direction								Message	Comment
	U	U	ı	I	I	I	U	U		
	s	Ε	M	В	В	M	Ε	s		
	е	Α	S	С	С	S	В	е		
	r		Α	F	F	В		r		
	Α			Α	В			В		
1A	\downarrow			_ _	_			\rightarrow		User A sets up a voice call to user B
1B	\uparrow	_						\rightarrow		User B sets up a voice call to user A
2	\vdash	\rightarrow								User A requests to share video with user B
3		_	\rightarrow						INVITE	UE_A sends INVITE to share video with user B
4		_							100 Trying	IMS_A responds with a 100 Trying provisional
										response
5				\rightarrow					INVITE	IMS_A forwards INVITE to IBCF_A
6			,					ĺ	100 Trying	IBCF_A responds with a 100 Trying provisional
										response
7					\rightarrow				INVITE	IBCF_A forwards INVITE to IBCF_B

Step				irecti	on				Message	Comment
	U	U	ı	ı	I	I	U	U		
	s e	E A			B C	M S	E B	s e		
	r				F	В		r		
	A			4	В			В		
8				\leftarrow					100 Trying	IBCF_B responds with a 100 Trying provisional response
9						\rightarrow			INVITE	IBCF_B forwards INVITE to IMS_B
10					_				100 Trying	IMS_B responds with a 100 Trying provisional
44									IND CITE	response
11					\leftarrow				INVITE 100 Trying	IMS_B forwards INVITE to IBCF_B IBCF_B responds with a 100 Trying provisional
12						\rightarrow			100 Trying	response
13									INVITE	IBCF_B forwards INVITE to IBCF_A
14				\longrightarrow					100 Trying	IBCF_A responds with a 100 Trying provisional
15									INVITE	response IBCF_A forwards INVITE to IMS_A
16									100 Trying	IMS_A responds with a 100 Trying provisional
										response
17							\rightarrow		INVITE	IMS_A forwards INVITE to UE_B
18			\longleftarrow		<u> </u>				100 Trying	UE_B responds with a 100 Trying provisional
19										response User B is requested to accept to share video
								\rightarrow		(optional)
20			,						180 Ringing	UE_B responds to initial INVITE with 180
										Ringing to indicate that it has started alerting (optional)
21									180 Ringing	IMS_A forwards 180 Ringing response to
									100 B: :	IBCF_A (optional)
22									180 Ringing	IBCF_A forwards 180 Ringing response to IBCF_B (optional)
23									180 Ringing	IBCF_B forwards 180 Ringing response to
										IMS_B (optional)
24					\leftarrow				180 Ringing	IMS_B forwards the 180 Ringing response to IBCF_B (optional)
25				,					180 Ringing	IBCF_B forwards 180 Ringing response to
										IBCF_A (optional)
26			←—						180 Ringing	IBCF_A forwards 180 Ringing response to IMS_A (optional)
27									180 Ringing	IMS_A (optional) IMS_A forwards 180 Ringing response to UE_A
									· · · · · · · · · · · · · · · · · · ·	(optional)
28							\leftarrow	=		User B accepts to share video
29			\longleftarrow		_		\dashv		200 OK	UE_B responds INVITE with 200 OK to indicate that the request has been accepted
30			\longrightarrow						200 OK	IMS_A forwards 200 OK response to IBCF_A
31				\longrightarrow					200 OK	IBCF_A forwards 200 OK response to IBCF_B
32						\rightarrow			200 OK	IBCF_B forwards 200 OK response to IMS_B
33					\leftarrow				200 OK	IMS_B forwards 200 OK response to IBCF_B
34				\vdash					200 OK	IBCF_B forwards 200 OK response to IBCF_A
35			\leftarrow						200 OK	IBCF_A forwards 200 OK response to IMS_A
36										IMS_A forwards 200 OK response to UE_A User A is informed that request has been
37	\leftarrow									answered
38			\rightarrow						ACK	UE_A acknowledges the receipt of 200 OK for
									ACK	INVITE IMS_A forwards ACK to IBCF_A
39 40		}							ACK	IBCF_A forwards ACK to IBCF_B
41		ŀ				\rightarrow			ACK	IBCF_B forwards ACK to IMS_B
42		ľ			\leftarrow	_			ACK	IMS_B forwards ACK to IBCF_B
43									ACK	IBCF_B forwards ACK to IBCF_A
44			\leftarrow						ACK	IBCF_A forwards ACK to IMS_A
45							\rightarrow		ACK	IMS_A forwards ACK to UE_B
46								\rightarrow		Video sharing starts

Step				ח	irect	ion				Message	Comment
Ciop	U	U	1	П	I	I	ı	U	U	occage	
	s	E			В	В	M	Е	s		
	е	Α			C	C	S	В	е		
	r A		'	- -	F A	F B	В		r B		
47A	Ê			<u></u>					<u> </u>		User A ends video sharing
48A			\longrightarrow							BYE	UE_A releases the call with BYE
49A			Í	\longrightarrow						BYE	IMS_A forwards BYE to IBCF_A
50A				ĺ	\longrightarrow					BYE	IBCF_A forwards BYE to IBCF_B
51A							\rightarrow			BYE	IBCF_B forwards BYE to IMS_B
52A						\leftarrow	_			BYE	IMS_B forwards BYE to IBCF_B
53A					\leftarrow	.				BYE	IBCF_B forwards BYE to IBCF_A
54A				←						BYE	IBCF_A forwards BYE to IMS_A
55A						.		\rightarrow		BYE	IMS_A forwards BYE to UE_B
56A									\rightarrow		User B is informed that video sharing has ended
57A				\leftarrow		_				200 OK	UE_B sends 200 OK for BYE
58A				\longrightarrow						200 OK	IMS_A forwards 200 OK response to IBCF_A
59A					$ \longrightarrow$	-				200 OK	IBCF_A forwards 200 OK response to IBCF_B
60A						<u> </u>	\rightarrow			200 OK	IBCF_B forwards 200 OK response to IMS_B
61A						\leftarrow	\dashv			200 OK	IMS_B forwards the 200 OK response to IBCF_B
62A					\leftarrow					200 OK	IBCF_B forwards 200 OK response to IBCF_A
63A				\leftarrow						200 OK	IBCF_A forwards 200 OK response to IMS_A
64A		k	(200 OK	IMS_A forwards the 200 OK response to UE_A
65A											Video sharing terminates
66A										OPTIONS	UE_B sends OPTIONS to IMS_A to verify
				\leftarrow							availability of video sharing capability of the
67A										OPTIONS	UE_A IMS_A forwards OPTIONS to IBCF_A
68A				$\overline{}$	L ,	.				OPTIONS	IBCF_A forwards OPTIONS to IBCF_B
69A						·				OPTIONS	IBCF_B forwards OPTIONS to IMS_B
70A										OPTIONS	IMS_B forwards OPTIONS to IBCF_B
71A										OPTIONS	IBCF_B forwards OPTIONS to IBCF_A
72A										OPTIONS	IBCF_A forwards OPTIONS to IMS_A
73A			,	`						OPTIONS	IMS_A forwards OPTIONS to UE_A
74A										200 OK	UE_A responds 200 OK to IMS_A with updated
		-	\longrightarrow								capabilities
75A				\longrightarrow						200 OK	IMS_A forwards 200 OK to IBCF_A
76A					\longrightarrow					200 OK	IBCF_A forwards 200 OK to IBCF_B
77A							\rightarrow			200 OK	IBCF_B forwards 200 OK to IMS_B
78A						\leftarrow	\dashv			200 OK	IMS_B forwards 200 OK to IBCF_B
79A					\leftarrow	.				200 OK	IBCF_B forwards 200 OK to IBCF_A
80A				\leftarrow						200 OK	IBCF_A forwards 200 OK to IMS_A
81A						-		\rightarrow		200 OK	IMS_A forwards 200 OK to UE_B
82A											User A terminates voice call
47B										D)/E	User B ends video sharing
48B				\leftarrow						BYE	UE_B releases the call with BYE
49B										BYE	IMS_A forwards BYE to IBCF_A
50B						'				BYE	IBCF_A forwards BYE to IBCF_B
51B							\rightarrow			BYE	IBCF_B forwards BYE to IMS_B
52B						\vdash	\neg			BYE	IMS_B forwards BYE to IBCF_B
53B				,	—	· [BYE	IBCF_B forwards BYE to IBCF_A
54B			,	\leftarrow						BYE	IBCF_A forwards BYE to IMS_A
55B										BYE	IMS_A forwards BYE to UE_A
56B										200 014	User A is informed that video sharing has ended
57B		ļ	\longrightarrow							200 OK	UE_A sends 200 OK for BYE
58B										200 OK	IMS_A forwards 200 OK response to IBCF_A
59B						'	J			200 OK	IBCF_A forwards 200 OK response to IBCF_B
60B							7			200 OK	IBCF_B forwards 200 OK response to IMS_B
61B	,	J			1		_1			200 OK	IMS_B forwards 200 OK response to IBCF_B

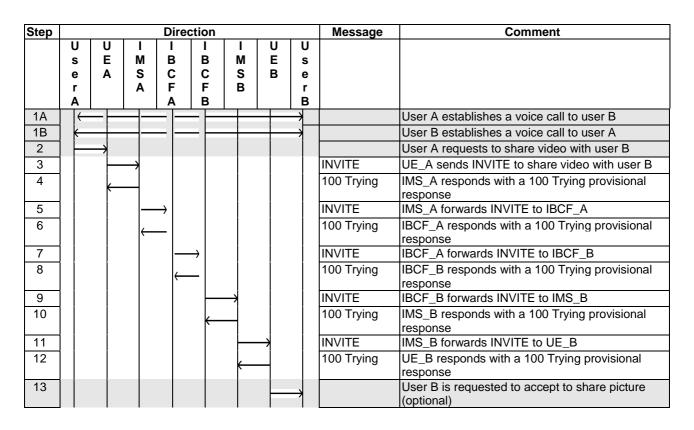


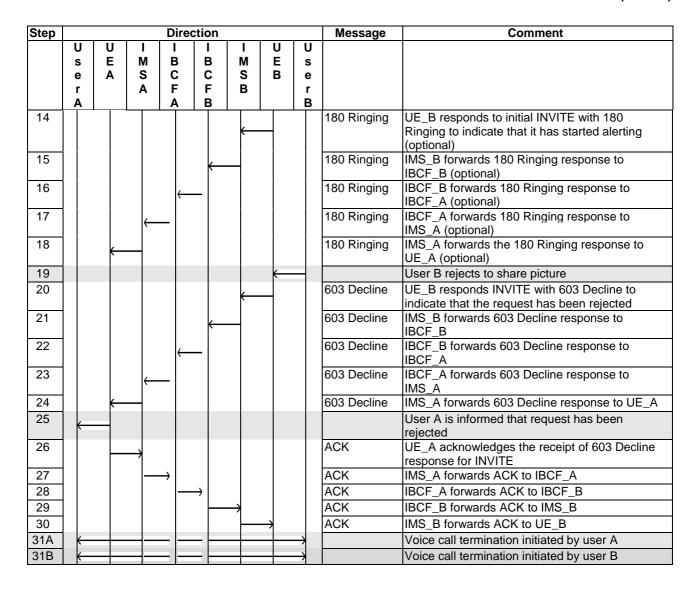
4.5.4.2 Video sharing rejection

4.5.4.2.1 Video sharing rejection - interworking

	Interoperability Test Desc	ription						
Identifier:	TD_IMS_SHARE_0003							
Summary:	IMS network supports Video sharing service and messages exchange between two users in their networks can be performed. User A starts video sharing with User B during a voice call, but user B rejects the invitation							
Configuration:	CF_INT_AS							
SUT	IMS_A and IMS_B							
References	Test Purpose	Specification Reference						
	TP_IMS_5097_01	TS 124 229 [1], clause 5.4.3.2 ¶11 (1st numbered list)						
Use Case ref.:	UC_RCS_8_I							
Pre-test conditions:	 HSS of IMS_A and of IMS B is configurent UE_A and UE_B have IP bearers estable per TS 186 011-2 [7], clause 4.2.1 UE_A is registered in IMS_A optionally UE_B is registered in IMS_B optionally IMS_A is configured to contact AS_A IMS_B is configured to contact AS_B IMS_A is within the trust domain of IMS_B is configured to contact AS_B IMS_A is within the trust domain of IMS_A and UE_B have already perform IMS_A not configured for topology hidin 	using userPRES according to table 1 using userPRES according to table 1 S_B ed capability discovery process						

Step	
Olop	
1	User A invites user B to 1-to-1 chat session
2	User B automatically accepts 1-to-1 chat invitation
3	Verify that Users perform chatting
4	User A initiates an Ad-hoc IM conference with user B
	Verify that User A is informed that the Ad Hoc IM Conference is established
6	Verify that User B is informed of incoming invitation from User A to join the Ad-hoc IM Conference
7	User B joins the Ad-hoc IM Conference (automatically)
8	Verify that User A is notified that User B has joined the Ad-hoc IM Conference
9	Verify that User A informed that 1-to-1 chat session with user B has ended
10	Verify that User B informed that 1-to-1 chat session with user A has ended
11	Verify that Users perform IM/chat service in the Ad-hoc IM Conference
12	User B leaves the Ad-hoc IM Conference
13	Verify that User B is informed that the Ad-hoc IM Conference has ended
14	Verify that User A is notified that user B has left the Ad-hoc IM Conference
15	User A leaves the Ad-hoc IM Conference
16	Verify that User A is informed that the Ad-hoc IM Conference has ended
Check	
1	TP_IMS_5097_01 in CFW step 7 (INVITE):
	ensure that {
	when { UE_A sends an initial INVITE to UE_B }
	then { IMS_B receives the initial INVITE
	not containing a Route_header
	indicating the S-CSCF_SIP_URI of IMS_A
	containing a P-Charging-Vector_header
	(containing an icid-value_parameter and
	containing a orig-ioi_parameter indicating IMS_A and
	not containing an access-network-charging-info_parameter and not containing a term-ioi_parameter) and
	containing a term-ioi_parameter) and containing a Record-Route_header
	indicating the originating S-CSCF_SIP_URI }
	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

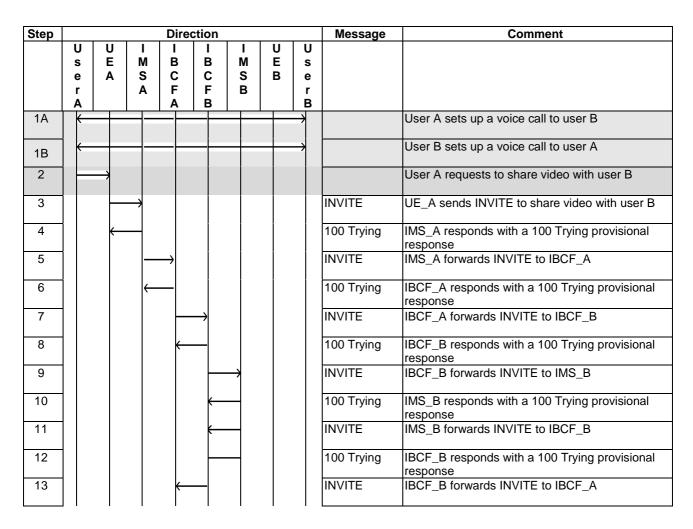




4.5.4.2.2 Video sharing rejection - roaming (optional)

	Interoperability Test Desc	ription					
Identifier:	TD_IMS_SHARE_0004						
Summary:	IMS network supports Video sharing service and messages exchange between two users, one user in its home network and one user roaming can be performed. User A starts video sharing with User B during a voice call, but user B rejects the invitation						
Configuration:	CF ROAM AS (OPTIONAL)						
SUT	IMS A and IMS B						
References	Test Purpose	Specification Reference					
	TP_IMS_5070_01	TS 124 229 [1], clause 5.2.7.3 ¶3					
Use Case ref.:	UC_RCS_8_R						
Pre-test conditions:	per TS 186 011-2 [7], clause 4.2.1 • UE_A is registered in IMS_A optionally	olished to their respective IMS networks as using userPRES according to table 1 a optionally using userPRES according to 5_B ed capability discovery process					

		Interoperability Test Description
Test Sequence:	Step	
	1	User B invites user A to 1-to-1 chat session
	2	User A automatically accepts 1-to-1 chat invitation
	3	Verify that Users perform chatting
	4	User B initiates an Ad-hoc IM conference with user A
	5	Verify that User B is informed that the Ad Hoc IM Conference is established
	6	Verify that User A is informed of incoming invitation from User B to join the Ad-hoc IM Conference
	7	User A joins the Ad-hoc IM Conference (automatically)
	8	Verify that User B is notified that User A has joined the Ad-hoc IM Conference
	9	Verify that User B informed that 1-to-1 chat session with user A has ended
	10	Verify that User A informed that 1-to-1 chat session with user B has ended
	11	Verify that Users perform IM/chat service in the Ad-hoc IM Conference
	12	User A leaves the Ad-hoc IM Conference
	13	Verify that User A is informed that the Ad-hoc IM Conference has ended
	14	Verify that User B is notified that user A has left the Ad-hoc IM Conference
	15	User B leaves the Ad-hoc IM Conference
	16	Verify that User B is informed that the Ad-hoc IM Conference has ended
Conformance Criteria:	Check	
	1	TP_IMS_5070_01 in CFW step 8 (100 Trying)
		ensure that {
		when { IMS_A receives an initial INVITE from IMS_B }
		then { IMS_A sends a 100_response to IMS_B }
		<u>V</u>



S S M B B B M E S S C C S B E S S C C C S B C C C C C C C C C	Step			D	irectio	n			Message	Comment
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A B B B INVITE INVITE LIBER. A lowards INVITE to IMS. A lowards INVITE lower invite lo								_		
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38 39 40 41 rejected	36								603 Decline	
response for INVITE ACK IMS_A forwards ACK to IBCF_A	37									rejected
39 40 ACK IMS_A forwards ACK to IBCF_A ACK IBCF_A forwards ACK to IBCF_B ACK IBCF_B forwards ACK to IMS_B	38			*					ACK	UE_A acknowledges the receipt of 603 Decline
41 ACK IBCF_B forwards ACK to IMS_B	39			$ \longrightarrow$					ACK	
	40				\longrightarrow				ACK	IBCF_A forwards ACK to IBCF_B
42 ACK IMS_B forwards ACK to IBCF_B	41								ACK	IBCF_B forwards ACK to IMS_B
	42								ACK	IMS_B forwards ACK to IBCF_B

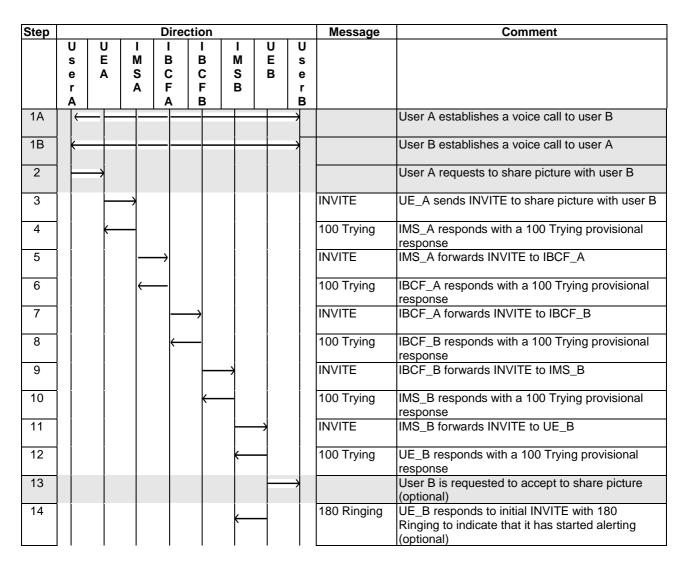
Step				Dire	ction				Message	Comment
	C	U	ı	ı	ı	ı	U	U		
	S	Ε	M	В	В	M	E	S		
	е	Α	S	С	С	S	В	е		
	r		Α	F	F	В		r		
	Α			A	В		<u> </u>	В		
43				\leftarrow					ACK	IBCF_B forwards ACK to IBCF_A
44			\leftarrow	_					ACK	IBCF_A forwards ACK to IMS_A
]									
45					_		\rightarrow		ACK	IMS_A forwards ACK to UE_B
46A	←							\rightarrow		User A terminates voice call
46B	\vdash				_	_		\rightarrow		User B terminates voice call

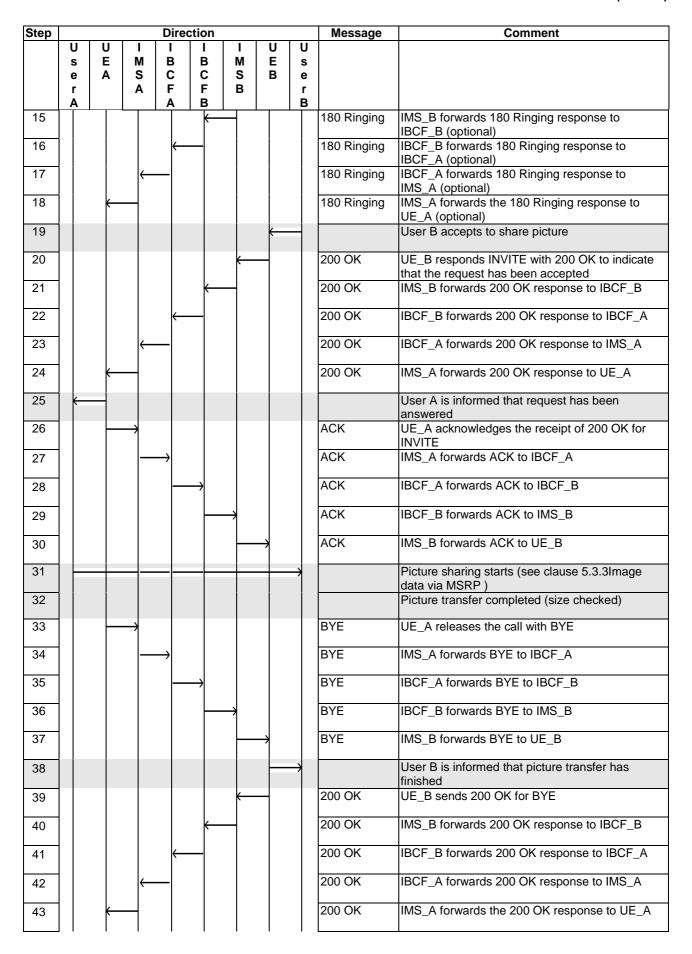
4.5.4.3 Pictures sharing

4.5.4.3.1 Pictures sharing- interworking

		Interoperability Test Des	scription
Identifier:	TD_IMS_	SHARE_0005	
Summary:		heir networks can be performed.	vice and messages exchange between two User A starts video sharing with User B
Configuration:	CF_INT_		
SUT		nd IMS_B	
References	Test Pur		Specification Reference
	TP_IMS_	_	TS 124 229 [1], clause 5.4.3.2 ¶11 (1st numbered list)
	TP_IMS_	5115_02	TS 124 229 [1], clause 5.4.3.3 ¶91 (item 2 in 3 rd numbered list)
Use Case ref.:	UC_RCS	_8_I	,
Pre-test conditions:	 UE per 1 UE_ IMS_ IMS_ IMS_ UE 	FS 186 011-2 [7], clause 4.2.1 A is registered in IMS_A optional B is registered in IMS_B optional A is configured to contact AS_A B is configured to contact AS_B A is within the trust domain of IN	ablished to their respective IMS networks as ly using userPRES according to table 1 ly using userPRES according to table 1 MS_B med capability discovery process
Test Sequence:	Step 1A 1B 2 3 4 5 6 7 8 9 10A 10B	User A establishes a voice call User B establishes a voice call User A requests to share pictur User B is requested to accept to User B accepts to share picture User A is informed that reques Picture sharing starts Picture transfer completed (siz User B is informed that picture User A is informed that picture Voice call termination initiated Voice call termination initiated	to user A re with user B o share picture et has been answered et checked) transfer has finished transfer has finished by user A

		Interoperability Test Description
Conformance Criteria:	Check	
	2	TP_IMS_5097_01 in CFW step 7 (INVITE): ensure that { when { UE_A sends an initial INVITE to UE_B } then { IMS_B receives the initial INVITE not containing a Route_header indicating the S-CSCF_SIP_URI of IMS_A containing a P-Charging-Vector_header (containing an icid-value_parameter and containing a orig-ioi_parameter indicating IMS_A and not containing an access-network-charging-info_parameter and not containing a term-ioi_parameter) and containing a Record-Route_header indicating the originating S-CSCF_SIP_URI } } TP_IMS_5115_02 in CFW step 22 (2xx): ensure that { when { UE_B sends a 2xx_response to UE_A } then { IMS_B receives the 2xx_response from IMS_B containing a P-Charging-Vector_header containing an orig-ioi_parameter indicating operator_identifier of IMS_B }



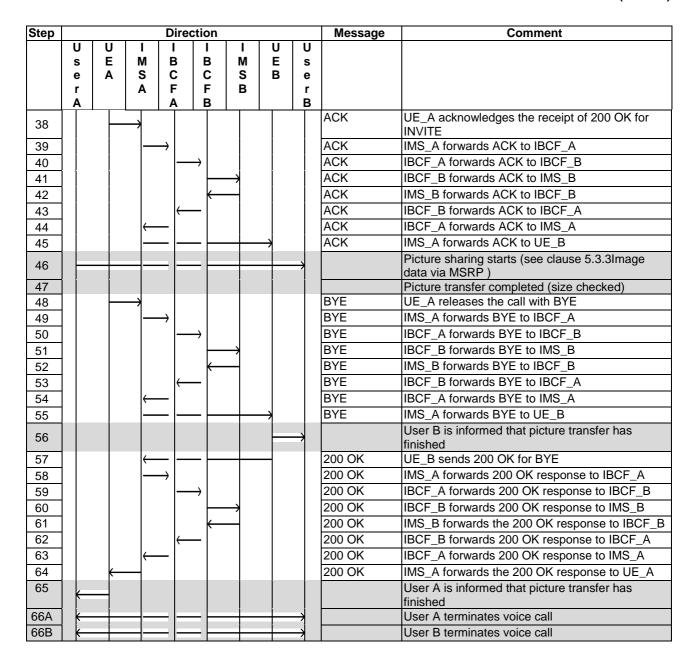


Step				Dire	ction				Message	Comment
	U s e r A	U E A	I M S A	I B C F A	I B C F B	I M S B	U E B	U s e r B		
44										User A is informed that picture transfer has finished
45A	+							\Rightarrow		Voice call termination initiated by user A
45B	+							\rightarrow		Voice call termination initiated by user B

4.5.4.3.2 Pictures sharing- roaming (optional)

		Interoperability Test Description
Identifier:	TD_IMS_SH	
Summary:		supports Picture sharing service and messages exchange between two
		ser in its home network and one user roaming can be performed. User A
	starts video	sharing with User B during a voice call
Configuration:	CE ROAM	AS (OPTIONAL)
SUT	IMS_A and I	
References	Test Purpos	
	TP_IMS_506	
Use Case ref.:	UC_RCS_8	
Pre-test	 HSS of 	IMS_A and of IMS B is configured according to table 1
conditions:		nd UE_B have IP bearers established to their respective IMS networks as
		186 011-2 [7], clause 4.2.1
		registered in IMS_A optionally using userPRES according to table 1
		registered in IMS_B via IMS_A optionally using userPRES according to
	table 1	f 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
		s configured to contact AS_A
		s configured to contact AS_B
		s within the trust domain of IMS_B
		nd UE_B have already performed capability discovery process
	• IIVIS_A	not configured for topology hiding
Test Sequence:	Step	
		ser A sets up a voice call to user B
		ser B sets up a voice call to user A
	2 U	ser A requests to share picture with user B
	2 U 3 U	ser B is requested to accept to share picture
	2 U 3 U 4 U	ser B is requested to accept to share picture ser B accepts to share picture
	2 U 3 U 4 U 5 U	ser B is requested to accept to share picture ser B accepts to share picture ser A is informed that request has been answered
	2 U 3 U 4 U 5 U 6 P	ser B is requested to accept to share picture ser B accepts to share picture ser A is informed that request has been answered icture sharing starts
	2 U 3 U 4 U 5 U 6 P 7 P	ser B is requested to accept to share picture ser B accepts to share picture ser A is informed that request has been answered icture sharing starts icture transfer completed (size checked)
	2 U 3 U 4 U 5 U 6 P 7 P 8 U	ser B is requested to accept to share picture ser B accepts to share picture ser A is informed that request has been answered icture sharing starts icture transfer completed (size checked) ser B is informed that picture transfer has finished
	2 U 3 U 4 U 5 U 6 P 7 P 8 U 9 U	ser B is requested to accept to share picture ser B accepts to share picture ser A is informed that request has been answered icture sharing starts icture transfer completed (size checked) ser B is informed that picture transfer has finished ser A is informed that picture transfer has finished
	2 U 3 U 4 U 5 U 6 P 7 P 8 U 9 U	ser B is requested to accept to share picture ser B accepts to share picture ser A is informed that request has been answered icture sharing starts icture transfer completed (size checked) ser B is informed that picture transfer has finished ser A is informed that picture transfer has finished ser A terminates voice call
	2 U 3 U 4 U 5 U 6 P 7 P 8 U 9 U	ser B is requested to accept to share picture ser B accepts to share picture ser A is informed that request has been answered icture sharing starts icture transfer completed (size checked) ser B is informed that picture transfer has finished ser A is informed that picture transfer has finished
Conformance	2 U 3 U 4 U 5 U 6 P 7 P 8 U 9 U 10A U 10B U	ser B is requested to accept to share picture ser B accepts to share picture ser A is informed that request has been answered icture sharing starts icture transfer completed (size checked) ser B is informed that picture transfer has finished ser A is informed that picture transfer has finished ser A terminates voice call
Conformance Criteria:	2 U 3 U 4 U 5 U 6 P 7 P 8 U 9 U	ser B is requested to accept to share picture ser B accepts to share picture ser A is informed that request has been answered icture sharing starts icture transfer completed (size checked) ser B is informed that picture transfer has finished ser A is informed that picture transfer has finished ser A terminates voice call
	2 U 3 U 4 U 5 U 6 P 7 P 8 U 9 U 10A U 10B U	ser B is requested to accept to share picture ser B accepts to share picture ser A is informed that request has been answered icture sharing starts icture transfer completed (size checked) ser B is informed that picture transfer has finished ser A is informed that picture transfer has finished ser A terminates voice call ser B terminates voice call
	2 U 3 U 4 U 5 U 6 P 7 P 8 U 9 U 10A U 10B U Check 1 T	ser B is requested to accept to share picture ser B accepts to share picture ser A is informed that request has been answered icture sharing starts icture transfer completed (size checked) ser B is informed that picture transfer has finished ser A is informed that picture transfer has finished ser A terminates voice call
	2 U 3 U 4 U 5 U 6 P 7 P 8 U 9 U 10A U 10B U Check 1 T	ser B is requested to accept to share picture ser B accepts to share picture ser A is informed that request has been answered icture sharing starts icture transfer completed (size checked) ser B is informed that picture transfer has finished ser A is informed that picture transfer has finished ser A terminates voice call ser B terminates voice call P_IMS_5067_01 in CFW step 7 (INVITE) insure that { when { IMS_A receives an initial INVITE from UE_B }
	2 U 3 U 4 U 5 U 6 P 7 P 8 U 9 U 10A U 10B U Check 1 T	ser B is requested to accept to share picture ser B accepts to share picture ser A is informed that request has been answered icture sharing starts icture transfer completed (size checked) ser B is informed that picture transfer has finished ser A is informed that picture transfer has finished ser A terminates voice call ser B terminates voice call P_IMS_5067_01 in CFW step 7 (INVITE) nsure that { when { IMS_A receives an initial INVITE from UE_B } then { IMS_A sends the INVITE to IMS_B
	2 U 3 U 4 U 5 U 6 P 7 P 8 U 9 U 10A U 10B U Check 1 T	ser B is requested to accept to share picture ser B accepts to share picture ser A is informed that request has been answered icture sharing starts icture transfer completed (size checked) ser B is informed that picture transfer has finished ser A is informed that picture transfer has finished ser A terminates voice call ser B terminates voice call P_IMS_5067_01 in CFW step 7 (INVITE) nsure that { when { IMS_A receives an initial INVITE from UE_B } then { IMS_A sends the INVITE to IMS_B containing a P-Charging-Vector_header
	2 U 3 U 4 U 5 U 6 P 7 P 8 U 9 U 10A U 10B U Check 1 T	ser B is requested to accept to share picture ser B accepts to share picture ser A is informed that request has been answered icture sharing starts icture transfer completed (size checked) ser B is informed that picture transfer has finished ser A is informed that picture transfer has finished ser A terminates voice call ser B terminates voice call P_IMS_5067_01 in CFW step 7 (INVITE) nsure that { when { IMS_A receives an initial INVITE from UE_B } then { IMS_A sends the INVITE to IMS_B

Step			D	irectio	on				Message	Comment
СПР	UU	J			I	I	U	U		
	s E				_	M	Ε	s		
	e A	- -	F			S B	В	e		
	r A	A			r B	В		r B		
1A	<u> </u>			È				<u> </u>		User A sets up a voice call to user B
1B	-		_					\rightarrow		User B sets up a voice call to user A
2	\longmapsto									User A requests to share picture with user B
3		\longrightarrow							INVITE	UE_A sends INVITE to share picture with user B
4									100 Trying	IMS_A responds with a 100 Trying provisional
5	ŀ		,					ļ	INVITE	response IMS_A forwards INVITE to IBCF_A
6			$\overline{}$				ŀ	ŀ	100 Trying	IBCF_A responds with a 100 Trying provisional
		(Too Trying	response
7				\longrightarrow					INVITE	IBCF_A forwards INVITE to IBCF_B
8				←					100 Trying	IBCF_B responds with a 100 Trying provisional
9					ļ ,				INVITE	response IBCF_B forwards INVITE to IMS_B
10						1			100 Trying	IMS_B responds with a 100 Trying provisional
'					\leftarrow	1			1.00 Hymig	response
11					\longleftarrow				INVITE	IMS_B forwards INVITE to IBCF_B
12					<u></u>				100 Trying	IBCF_B responds with a 100 Trying provisional
13									INVITE	response IBCF_B forwards INVITE to IBCF_A
14									100 Trying	IBCF_A responds with a 100 Trying provisional
'-									100 Hying	response
15		+							INVITE	IBCF_A forwards INVITE to IMS_A
16		_	\longrightarrow						100 Trying	IMS_A responds with a 100 Trying provisional
17									INVITE	response IMS_A forwards INVITE to UE_B
18							1		100 Trying	UE_B responds with a 100 Trying provisional
		· ·					7		i co i i yii ig	response
19								\rightarrow		User B is requested to accept to share picture
20									180 Ringing	(optional) UE_B responds to initial INVITE with 180
20		+					_		100 Kinging	Ringing to indicate that it has started alerting
										(optional)
21		_	\longrightarrow						180 Ringing	IMS_A forwards 180 Ringing response to
22									180 Ringing	IBCF_A (optional) IBCF_A forwards 180 Ringing response to
									Too ranging	IBCF_B (optional)
23					<u></u>	*			180 Ringing	IBCF_B forwards 180 Ringing response to
24									180 Ringing	IMS_B (optional) IMS_B forwards the 180 Ringing response to
24					\longleftarrow	1			100 Kinging	IBCF_B (optional)
25									180 Ringing	IBCF_B forwards 180 Ringing response to
00				` _					400 Dia : '	IBCF_A (optional)
26		←							180 Ringing	IBCF_A forwards 180 Ringing response to IMS_A (optional)
27									180 Ringing	IMS_A (optional) IMS_A forwards 180 Ringing response to UE_A
									39	(optional)
28							(User B accepts to share picture
29		←					4		200 OK	UE_B responds INVITE with 200 OK to indicate that the request has been accepted
30		_							200 OK	IMS_A forwards 200 OK response to IBCF_A
31				\longrightarrow					200 OK	IBCF_A forwards 200 OK response to IBCF_B
32					<u> </u>	,			200 OK	IBCF_B forwards 200 OK response to IMS_B
33					\leftarrow	-			200 OK	IMS_B forwards 200 OK response to IBCF_B
34									200 OK	IBCF_B forwards 200 OK response to IBCF_A
35		←							200 OK	IBCF_A forwards 200 OK response to IMS_A
36										IMS_A forwards 200 OK response to UE_A
37	K									User A is informed that request has been answered
										answered

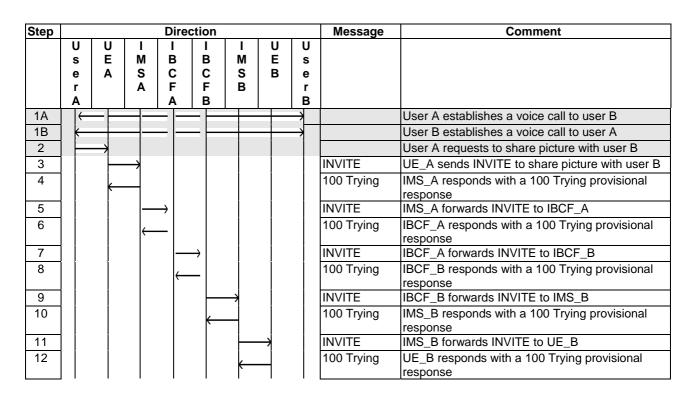


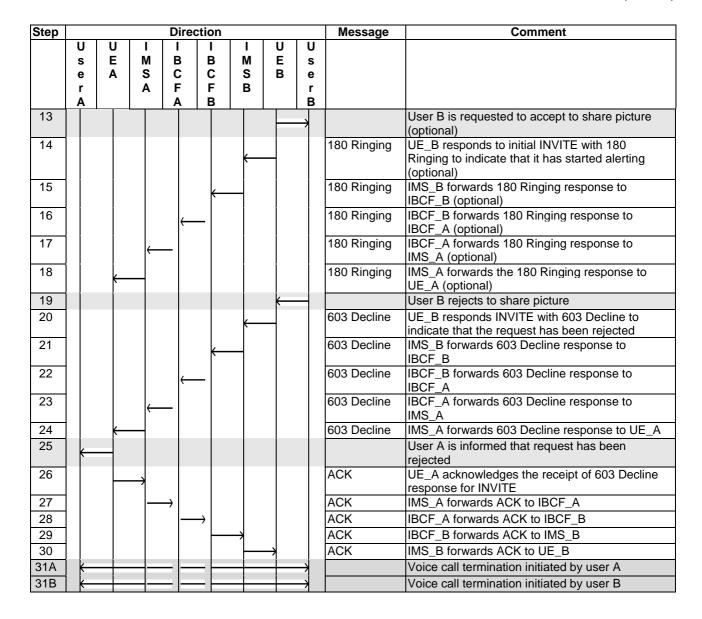
4.5.4.4 Pictures sharing rejection

4.5.4.4.1 Pictures sharing rejection - interworking

	Interoperabili	ty Test Description
Identifier:	TD_IMS_SHARE_0007	
Summary:		sharing service and messages exchange between two performed. User A starts video sharing with User B rejects the invitation
Configuration:	CF_INT_AS	
SUT	IMS_A and IMS_B	
References	Test Purpose	Specification Reference
	TP_IMS_5097_01	TS 124 229 [1], clause 5.4.3.2 ¶11 (1st numbered list)
Use Case ref.:	UC_RCS_8_I	

		Interoperability Test Description
Pre-test conditions:	 UE_A per TS UE_A UE_B IMS_A IMS_A UE_A 	of IMS_A and of IMS B is configured according to table 1 and UE_B have IP bearers established to their respective IMS networks as 3 186 011-2 [7], clause 4.2.1 is registered in IMS_A optionally using userPRES according to table 1 is registered in IMS_B optionally using userPRES according to table 1 is configured to contact AS_A B is configured to contact AS_B is within the trust domain of IMS_B and UE_B have already performed capability discovery process not configured for topology hiding
Test Sequence: Conformance Criteria:	1B 2 3 4 5 6A	User A establishes a voice call to user B User B establishes a voice call to user A User A requests to share picture with user B User B is requested to accept to share picture User B rejects to share picture User A is informed that request has been rejected Voice call termination initiated by user A Voice call termination initiated by user B
		TP_IMS_5097_01 in CFW step 7 (INVITE): ensure that { when { UE_A sends an initial INVITE to UE_B } then { IMS_B receives the initial INVITE not containing a Route_header indicating the S-CSCF_SIP_URI of IMS_A containing a P-Charging-Vector_header (containing an icid-value_parameter and containing a orig-ioi_parameter indicating IMS_A and not containing an access-network-charging-info_parameter and not containing a term-ioi_parameter) and containing a Record-Route_header indicating the originating S-CSCF_SIP_URI } }

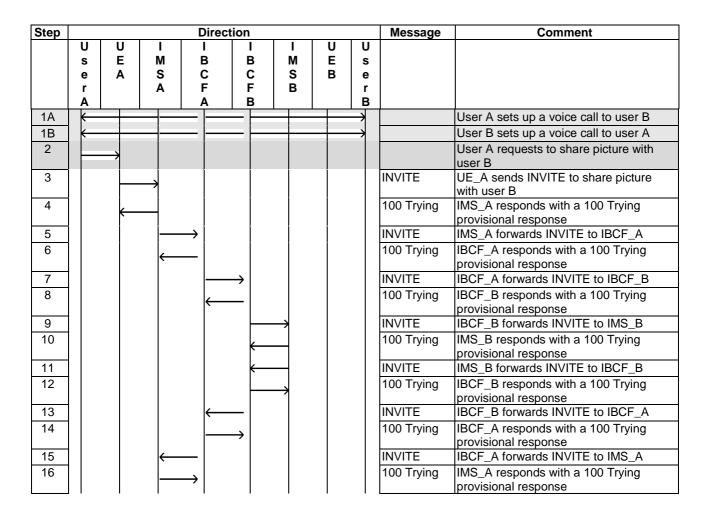


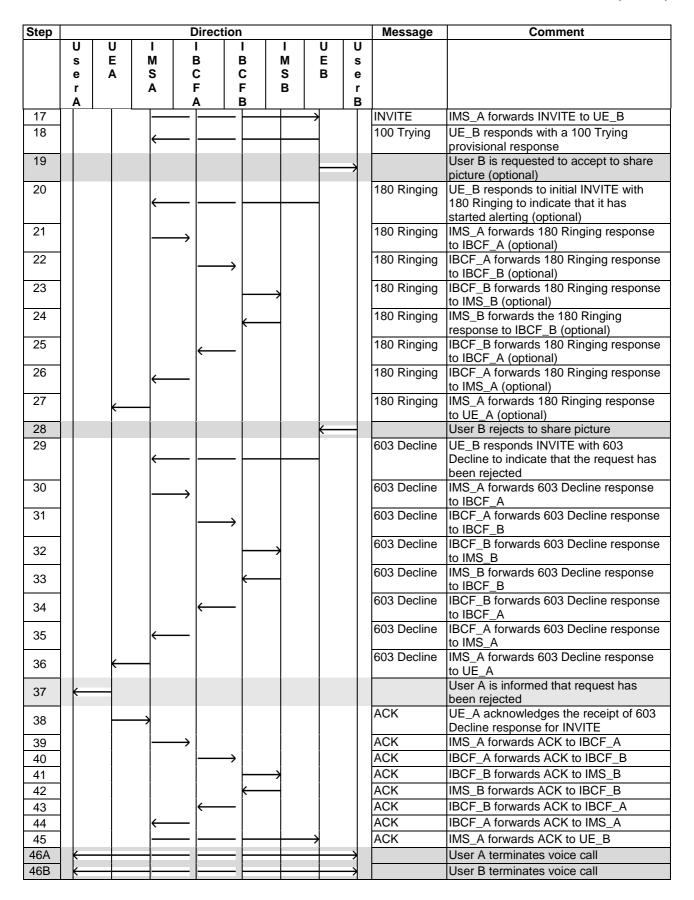


4.5.4.4.2 Pictures sharing rejection- roaming (optional)

Interoperability To	est Description
TD_IMS_SHARE_0008	
users, one user in its home netwo	ring service and messages exchange between two rk and one user roaming can be performed. User A uring a voice call, but User B rejects the invitation
CF_ROAM_AS (OPTIONAL)	
IMS_A and IMS_B	
Test Purpose	Specification Reference
TP_IMS_5070_01	TS 124 229 [1], clause 5.2.7.3 ¶3
UC_RCS_8_R	• •
	TD_IMS_SHARE_0008 IMS network supports Picture sha users, one user in its home netwo starts video sharing with User B d CF_ROAM_AS (OPTIONAL) IMS_A and IMS_B Test Purpose TP_IMS_5070_01

		Interoperability Test Description
Pre-test	 HSS of I 	MS_A and of IMS B is configured according to table 1
conditions:	 UE_A ar 	nd UE_B have IP bearers established to their respective IMS networks as 86 011-2 [7], clause 4.2.1
		registered in IMS_A optionally using userPRES according to table 1
		registered in IMS_B via IMS_A optionally using userPRES according to
	IMS A is	s configured to contact AS_A
		s configured to contact AS_B
		s within the trust domain of IMS_B
		nd UE_B have already performed capability discovery process
		ot configured for topology hiding
		<u> </u>
Test Sequence:	Step	
	1A	User A sets up a voice call to user B
	1B	User B sets up a voice call to user A
	2	User A requests to share picture with user B
	3	User B is requested to accept to share picture
	4	User B rejects to share picture
	5	User A is informed that request has been rejected
	6A	User A terminates voice call
	6B	User B terminates voice call
Conformance Criteria:	Check	
	1	TP_IMS_5070_01 in CFW step 8 (100 Trying) ensure that { when { IMS_A receives an initial INVITE from IMS_B } then { IMS_A sends a 100_response to IMS_B } }

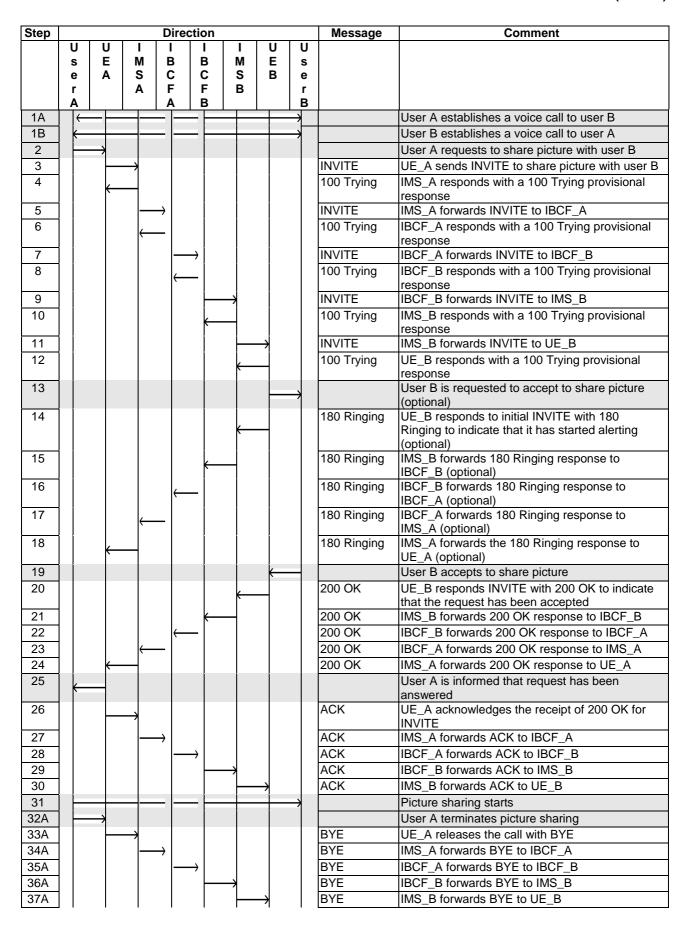


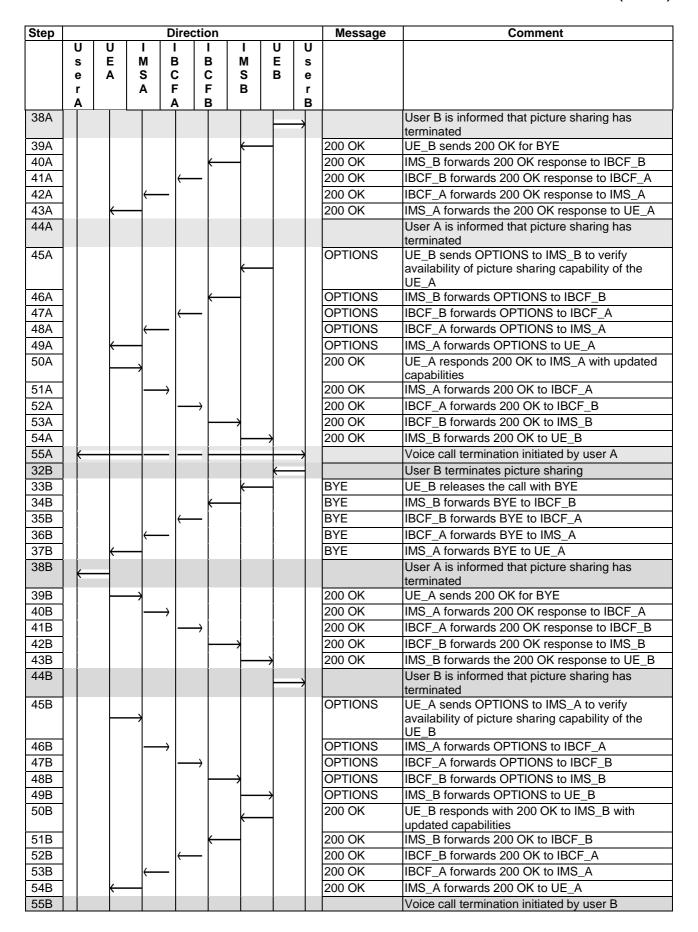


4.5.4.5 Stop sharing pictures

4.5.4.5.1 Stop sharing pictures - interworking

		Interoperability Test Desc	ription
Identifier:		SHARE_0009	
Summary:			ce and messages exchange between two
			Jser A starts video sharing with User B
	during a v	oice call, but users decided to sto	p sharing picture
	OF INT	10	
Configuration:	CF_INT_A		
SUT	IMS_A an		lo estre de Diference
References	Test Purp		Specification Reference
	TP_IMS_5	5107_01	TS 124 229 [1], clause 5.4.3.2 ¶119 (item 1 in 6 th numbered list)
Use Case ref.:	UC_RCS_	0 1	(item i in 6 humbered list)
Ose Case lel	UC_RCS_	_6_1	
Pre-test	• HSS	of IMS_A and of IMS B is configu	red according to table 1
conditions:			blished to their respective IMS networks as
Contamionor		S 186 011-2 [7], clause 4.2.1	bilished to their respective livio hetworks as
			using userPRES according to table 1
			using userPRES according to table 1
		A is configured to contact AS_A	doing doon rive doording to table r
		B is configured to contact AS_B	
		A is within the trust domain of IMS	S B
		A and UE_B have already perform	
		A not configured for topology hidir	
		3, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1,	
Test Sequence:	Step		
	1A	User A establishes a voice call to	user B
	1B	User B establishes a voice call to	
	2	User A requests to share picture	
	3	User B is requested to accept to	share picture
	4	User B accepts to share picture	
	5	User A is informed that request h	nas been answered
	6	Picture sharing starts	
	7A	User A terminates picture sharin	
	8A	User B is informed that picture s	
	9A	User A is informed that picture s	
	10A	Voice call termination initiated by	
	7B	User B terminates picture sharin	
	8B	User A is informed that picture si	
	9B 10B	User B is informed that picture solution Voice call termination initiated by	
	100	TVOICE can termination initiated by	, user D
Conformance	Check		
Criteria:	SHECK		
3.110.101	1	TP_IMS_5107_01 in CFW step 3	85A (BYF):
	-	ensure that {	(3.2).
		when { UE_A sends BYE to UE	EB}
		then { IMS_B receives the BYE	
		not containing Route_he	
		indicating the S-CSCF	
		}	- ,





4.5.4.5.2 Stop sharing pictures - roaming (optional)

	Interoperability T	est Description
Identifier:	TD_IMS_SHARE_0010	
Summary:	users, one user in its home netwo	ring service and messages exchange between two rk and one user roaming can be performed. User A uring a voice call, but users decided to stop sharing
Configuration:	CF_ROAM_AS (OPTIONAL)	
SUT	IMS_A and IMS_B	
References	Test Purpose	Specification Reference
References	TP_IMS_5301_01	TS 124 229 [1], clause 5.4.3.3 ¶126 (8 th numbered list)
Use Case ref.:	UC_RCS_8_R	
_		
Pre-test conditions:	 UE_A and UE_B have IP bea per TS 186 011-2 [7], clause 4 UE_A is registered in IMS_A UE_B is registered in IMS_B table 1 IMS_A is configured to contact IMS_B is configured to contact IMS_A is within the trust dome 	optionally using userPRES according to table 1 via IMS_A optionally using userPRES according to ct AS_A ct AS_B ain of IMS_B y performed capability discovery process
	inio_, thet comigated for topo	nogy manig
Test Sequence:	6 Picture sharing starts 7A User A terminates pictu 8A User B is informed that 9A User A is informed that 10A User A terminates voice 7B User B terminates pictu 8B User A is informed that	call to user A re picture with user B accept to share picture e picture request has been answered ure sharing picture sharing has terminated picture sharing has terminated e call ure sharing picture sharing has terminated
Conformance Criteria:	containing a to	BYE from UE_A BYE to IMS_B

Step	D	irection		Message	Comment
	U U I s E M E	I I I 3 B M	U U E s		
	S		E s B e		
	' ' '	F	r B		
1A					User A sets up a voice call to user B
1B					User B sets up a voice call to user A
2					User A requests to share picture with user B
3				INVITE	UE_A sends INVITE to share picture with user B
4	 			100 Trying	IMS_A responds with a 100 Trying provisional response
5				INVITE	IMS_A forwards INVITE to IBCF_A
6				100 Trying	IBCF_A responds with a 100 Trying provisional response
7		\longrightarrow		INVITE	IBCF_A forwards INVITE to IBCF_B
8		├		100 Trying	IBCF_B responds with a 100 Trying provisional response
9				INVITE	IBCF_B forwards INVITE to IMS_B
10		 		100 Trying	IMS_B responds with a 100 Trying provisional response
11				INVITE	IMS_B forwards INVITE to IBCF_B
12				100 Trying	IBCF_B responds with a 100 Trying provisional response
13		├		INVITE	IBCF_B forwards INVITE to IBCF_A
14		\longrightarrow		100 Trying	IBCF_A responds with a 100 Trying provisional response
15				INVITE	IBCF_A forwards INVITE to IMS_A
16				100 Trying	IMS_A responds with a 100 Trying provisional response
17			\rightarrow	INVITE	IMS_A forwards INVITE to UE_B
18			_	100 Trying	UE_B responds with a 100 Trying provisional response
19					User B is requested to accept to share picture (optional)
20	│			180 Ringing	UE_B responds to initial INVITE with 180 Ringing to indicate that it has started alerting
21	$ \cdot $			180 Ringing	(optional) IMS_A forwards 180 Ringing response to IBCF_A (optional)
22		\longrightarrow		180 Ringing	IBCF_A (optional) IBCF_A forwards 180 Ringing response to IBCF_B (optional)
23				180 Ringing	IBCF_B (optional) IBCF_B forwards 180 Ringing response to IMS_B (optional)
24				180 Ringing	IMS_B forwards the 180 Ringing response to
25		 		180 Ringing	IBCF_B (optional) IBCF_B forwards 180 Ringing response to
26				180 Ringing	IBCF_A (optional) IBCF_A forwards 180 Ringing response to
27				180 Ringing	IMS_A (optional) IMS_A forwards 180 Ringing response to UE_A
28					(optional) User B accepts to share picture
29	(—			200 OK	UE_B responds INVITE with 200 OK to indicate
30				200 OK	that the request has been accepted IMS_A forwards 200 OK response to IBCF_A
		i I I	1 I		

Step				D	irecti	on				Message	Comment
	U s		J	I I	1	I B	M	UE	U		
	е		A :	s (С	S	В	е		
	r A			A F		F B	В		r B		
31					\longrightarrow					200 OK	IBCF_A forwards 200 OK response to IBCF_B
32							\rightarrow			200 OK	IBCF_B forwards 200 OK response to IMS_B
33						\leftarrow	_			200 OK	IMS_B forwards 200 OK response to IBCF_B
34					\longleftarrow					200 OK	IBCF_B forwards 200 OK response to IBCF_A
35										200 OK	IBCF_A forwards 200 OK response to IMS_A
36											IMS_A forwards 200 OK response to UE_A
37	•	.									User A is informed that request has been answered
38			\longrightarrow							ACK	UE_A acknowledges the receipt of 200 OK for INVITE
39				\longrightarrow						ACK	IMS_A forwards ACK to IBCF_A
40					\longrightarrow					ACK	IBCF_A forwards ACK to IBCF_B
41							\rightarrow			ACK	IBCF_B forwards ACK to IMS_B
42						\leftarrow				ACK	IMS_B forwards ACK to IBCF_B
43										ACK	IBCF_B forwards ACK to IBCF_A
44				←						ACK	IBCF_A forwards ACK to IMS_A
45								\rightarrow		ACK	IMS_A forwards ACK to UE_B
46	ŀ								\rightarrow		Picture sharing starts
47A	(_					\rightarrow		User A terminates picture sharing
48A			\longrightarrow							BYE	UE_A releases the call with BYE
49A				\longrightarrow						BYE	IMS_A forwards BYE to IBCF_A
50A					\longrightarrow					BYE	IBCF_A forwards BYE to IBCF_B
51A							\rightarrow			BYE	IBCF_B forwards BYE to IMS_B
52A						←				BYE	IMS_B forwards BYE to IBCF_B
53A										BYE	IBCF_B forwards BYE to IBCF_A
54A										BYE	IBCF_A forwards BYE to IMS_A
55A								\rightarrow		BYE	IMS_A forwards BYE to UE_B
56A									\rightarrow		User B is informed that picture sharing has terminated
57A				<u></u>						200 OK	UE_B sends 200 OK for BYE
58A				\longrightarrow						200 OK	IMS_A forwards 200 OK response to IBCF_A
59A					\longrightarrow					200 OK	IBCF_A forwards 200 OK response to IBCF_B
60A							\rightarrow			200 OK	IBCF_B forwards 200 OK response to IMS_B
61A						←				200 OK	IMS_B forwards the 200 OK response to IBCF_B
62A					└					200 OK	IBCF_B forwards 200 OK response to IBCF_A
			1	I	l						

S	Step				Dire	ction				Message	Comment
e		_		I M	I B	l B	I		_		
A B B B B B B B B B		е		S	С	С	S		е		
64A 65A 66A 66A 66A 66A 66A 66A 67A 66A 67A 68A 69A 69A 70A 70A 70A 70A 70A 70A 70A 70A 70A 70				A	_		B	<u> </u>			
User A is informed that picture sharing has terminated terminated	63A			\leftarrow	-					200 OK	IBCF_A forwards 200 OK response to IMS_A
terminated OPTIONS UE_B sends OPTIONS to IMS_A to verify availability of picture sharing capability of the UE_A OPTIONS IMS_A forwards OPTIONS to IBCF_A OPTIONS IBCF_A forwards OPTIONS to IBCF_B OPTIONS IBCF_B forwards OPTIONS to IBCF_A OPTIONS IBCF_B forwards OPTIONS to IBCF_B OPTIONS IBCF_B forwards OPTIONS to IBCF	64A		\leftarrow							200 OK	IMS_A forwards the 200 OK response to UE_A
availability of picture sharing capability of the UE A OPTIONS IMS_A forwards OPTIONS to IBCF_A OPTIONS IBCF_A forwards OPTIONS to IBCF_B OPTIONS IBCF_B forwards OPTIONS to IBCF_A OPTIONS IBCF_B forwards OPTIONS to IBCF_A OPTIONS IBCF_A forwards 200 OK to IBCF_A 200 0K IBCF_A forwards 200 OK to IBCF_B 200 0K IBCF_B forwards 200 OK to IBCF_B 200 0K IBCF_B forwards 200 OK to IBCF_B 200 0K IBCF_B forwards 200 OK to IBCF_B 200 0K IBCF_A forwards 200 OK to IBCF_B 200 0K IBCF_A forwards 200 OK to IBCF_B 200 0K IBCF_A forwards 200 OK to IBCF_B 200 0K IBCF_B forwards BYE forwards BYE forwards BYE forwards B	65A										
OPTIONS IMS_A forwards OPTIONS to IBCF_A	66A			←	_	_				OPTIONS	UE_B sends OPTIONS to IMS_A to verify availability of picture sharing capability of the
OPTIONS IBCF_B forwards OPTIONS to IMS_B OPTIONS IMS_B forwards OPTIONS to IBCF_B OPTIONS IMS_B forwards OPTIONS to IBCF_A OPTIONS IBCF_B forwards OPTIONS to IBCF_A OPTIONS IBCF_A forwards OPTIONS to IBCF_A OPTIONS IMS_A forwards OPTIONS to IMS_A OPTIONS IMS_A forwards 200 OK to IMS_A OPTIONS IMS_A forwards OPTIONS to IMS_A OPTIONS IMS_A forwards OPTIONS to IMS_A OPTIONS IMS_A forwards DYE to IMS_A OPTIONS IMS_A forwards BYE to IMS_A OPTIONS IMS_A forwards BYE to IMS_B OPTIONS IMS_A forwards BYE to IMS_B OPTIONS IMS_A forwards BYE to IMS_B OPTIONS IMS_A forwards BYE to IMS_A OPTIONS IMS_A forwards BYE to IMS_B OPTIONS IMS_A forwards BYE to IMS_A OPTIONS IMS_A forwards BYE to IMS_B OPTIONS IMS_A forwards BYE to IMS_B	67A				\rightarrow					OPTIONS	
70A OPTIONS IMS_B forwards OPTIONS to IBCF_B 71A OPTIONS IBCF_B forwards OPTIONS to IBCF_A 73A OPTIONS IBCF_A forwards OPTIONS to IMS_A 75A OPTIONS IMS_A forwards OPTIONS to IMS_A with updated capabilities 75A 200 OK IMS_A forwards 200 OK to IBCF_A 77A 200 OK IBCF_B forwards 200 OK to IBCF_B 200 OK IBCF_B forwards BYE to IBCF_B 30B IBCF_B forwards BYE to IBCF_B 30B	68A				_	\rightarrow				OPTIONS	IBCF_A forwards OPTIONS to IBCF_B
71A OPTIONS IBCF_B forwards OPTIONS to IBCF_A 73A OPTIONS IBCF_A forwards OPTIONS to IMS_A 74A OPTIONS IMS_A forwards OPTIONS to UE_A 200 OK UE_A responds 200 OK to IMS_A with updated capabilities 200 OK IMS_A forwards 200 OK to IBCF_A 76A 200 OK IBCF_A forwards 200 OK to IBCF_B 200 OK IBCF_B forwards 200 OK to IBCF	69A						\rightarrow			OPTIONS	IBCF_B forwards OPTIONS to IMS_B
72A ← OPTIONS IBCF_A forwards OPTIONS to IMS_A 73A OPTIONS IMS_A forwards OPTIONS to UE_A 200 OK UE_A responds 200 OK to IMS_A with updated capabilities 75A 200 OK IMS_A forwards 200 OK to IBCF_A 77A 200 OK IBCF_B forwards 200 OK to IBCF_B 200 OK IBCF_B forwards 200 OK to IBCF_B 200 OK IBCF_B forwards 200 OK to IBCF_A 200 OK IBCF_B forwards 200 OK to IBCF_A 200 OK IBCF_B forwards 200 OK to IBCF_A 200 OK IBCF_A forwards BYE to IBCF_A 300 B IBCF_A forwards BYE to IBCF_A 300 B IBCF_A forwards BYE to IBCF_A 300 B IBCF_A forwards BYE to IB	70A					←				OPTIONS	IMS_B forwards OPTIONS to IBCF_B
OPTIONS IMS_A forwards OPTIONS to UE_A	71A				←	-				OPTIONS	IBCF_B forwards OPTIONS to IBCF_A
74A 75A 76A 76A 77A 78A 78A 78A 78A 78A 78B 79A 80A 81A 82A 82A 82B 82B 82B 82B 82B 84B 85B 85B 85B 85B	72A			\leftarrow	-					OPTIONS	IBCF_A forwards OPTIONS to IMS_A
75A 75A 76A 200 OK IMS_A forwards 200 OK to IBCF_A 200 OK IBCF_A forwards 200 OK to IBCF_B 200 OK IBCF_B forwards 200 OK to IMS_B 200 OK IBCF_B forwards 200 OK to IBCF_B 200 OK IBCF_B forwards 200 OK to IBCF_A 80A 200 OK IBCF_A forwards 200 OK to IMS_A 81A 200 OK IMS_A forwards 200 OK to UE_B 82A User A terminates voice call 48B User B terminates picture sharing 48B BYE IMS_A forwards BYE to IBCF_A 50B BYE IBCF_B forwards BYE to IBCF_B 51B BYE IBCF_B forwards BYE to IBCF_B 51B BYE IBCF_B forwards BYE to IBCF_B 52B BYE IBCF_B forwards BYE to IBCF_A 54B BYE IBCF_B forwards BYE to IBCF_A 65B BYE IBCF_A forwards BYE to UE_A	73A		\leftarrow							OPTIONS	IMS_A forwards OPTIONS to UE_A
200 OK	74A			\rightarrow						200 OK	
77A 200 OK IBCF_B forwards 200 OK to IMS_B 200 OK IMS_B forwards 200 OK to IBCF_B 200 OK IBCF_B forwards 200 OK to IBCF_A 200 OK IBCF_B forwards 200 OK to IMS_A 200 OK IBCF_A forwards 200 OK to UE_B 82A User A terminates voice call 47B User B terminates picture sharing 48B BYE IMS_A forwards BYE to IBCF_A BYE IBCF_A forwards BYE to IBCF_B BYE IBCF_B forwards BYE to IBCF_A BYE IBCF_B forwards BYE to IBCF_A BYE IBCF_A forwards BYE to IBCF_B BYE IBCF_A forwards BYE to IBCF_B BYE IBCF_A forwards BYE to IBCF_B	75A			-	\rightarrow					200 OK	
78A 200 OK IMS_B forwards 200 OK to IBCF_B 200 OK IBCF_B forwards 200 OK to IBCF_A 200 OK IBCF_B forwards 200 OK to IMS_A 200 OK IMS_A forwards 200 OK to UE_B 47B User A terminates voice call 48B User B releases the call with BYE 49B BYE IMS_A forwards BYE to IBCF_A 50B BYE IBCF_A forwards BYE to IBCF_B 51B BYE IBCF_B forwards BYE to IBCF_B BYE IBCF_B forwards BYE to IBCF_B BYE IBCF_B forwards BYE to IBCF_A BYE IBCF_B forwards BYE to IBCF_A BYE IBCF_B forwards BYE to IBCF_A BYE IBCF_B forwards BYE to IBCF_B	76A				-	\rightarrow				200 OK	IBCF_A forwards 200 OK to IBCF_B
79A 80A 81A 81A 82A 47B 48B 49B 50B 51B 52B 53B 54B 55B	77A						\rightarrow			200 OK	IBCF_B forwards 200 OK to IMS_B
BOA 81A 81A 82A 47B 48B 49B 50B 51B 52B 53B 54B 55B	78A					\leftarrow				200 OK	IMS_B forwards 200 OK to IBCF_B
81A 82A 47B 48B 49B 50B 51B 52B 53B 54B 56B 65B	79A				←	-				200 OK	IBCF_B forwards 200 OK to IBCF_A
User A terminates voice call	80A			\leftarrow	-					200 OK	IBCF_A forwards 200 OK to IMS_A
47B 48B 49B 50B 51B 52B 53B 54B 55B 66B 66B 600 600 600 600 60	81A				_ -	_ -		\rightarrow		200 OK	IMS_A forwards 200 OK to UE_B
BYE UE_B releases the call with BYE BYE IMS_A forwards BYE to IBCF_A BYE IBCF_A forwards BYE to IBCF_B BYE IBCF_B forwards BYE to IMS_B BYE IBCF_B forwards BYE to IBCF_B BYE IBCF_B forwards BYE to IBCF_B BYE IBCF_B forwards BYE to IBCF_A BYE IBCF_A forwards BYE to IBCF_A BYE IBCF_A forwards BYE to IBCF_A BYE IBCF_A forwards BYE to IMS_A BYE IMS_A forwards BYE to UE_A User A is informed that picture sharing has terminated	82A										User A terminates voice call
49B 50B 51B 52B 53B 54B 55B 56B 56B 50B 50B 50B 50B 50B 50B 50B 50B 50B 50	47B										User B terminates picture sharing
50B 51B 52B 53B 54B 55B 56B 50B 50B 50B 50B 50B 50B 50B 50B 50B 50	48B			\leftarrow	- -			-		BYE	UE_B releases the call with BYE
51B 52B 53B 53B 54B 55B 56B 50B 50B 50B 50B 50B 50B 50B 50B 50B 50	49B				\rightarrow					BYE	IMS_A forwards BYE to IBCF_A
BYE IMS_B forwards BYE to IBCF_B BYE IBCF_B forwards BYE to IBCF_A BYE IBCF_A forwards BYE to IMS_A BYE IMS_A forwards BYE to UE_A User A is informed that picture sharing has terminated	50B				-	\rightarrow				BYE	IBCF_A forwards BYE to IBCF_B
53B 54B 54B 55B White interpretation is a second of the s	51B					_	\rightarrow			BYE	IBCF_B forwards BYE to IMS_B
BYE IBCF_A forwards BYE to IMS_A BYE IMS_A forwards BYE to UE_A User A is informed that picture sharing has terminated	52B					\leftarrow	\dashv			BYE	IMS_B forwards BYE to IBCF_B
BYE IMS_A forwards BYE to UE_A User A is informed that picture sharing has terminated	53B				\leftarrow	-				BYE	IBCF_B forwards BYE to IBCF_A
User A is informed that picture sharing has terminated	54B			\leftarrow	_					BYE	IBCF_A forwards BYE to IMS_A
terminated 200 OK for BVF	55B		—	\dashv						BYE	IMS_A forwards BYE to UE_A
200 OK LIE A condo 200 OK for DVE	56B	←									
	57B			\rightarrow						200 OK	

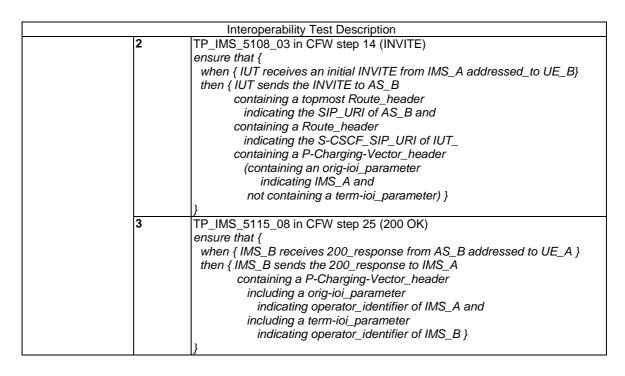
Step				Dire	ction				Message	Comment
	U	U	i Na	ı	ı	l P4	U E	U		
	s e	E A	M S	B	B	M S	В	s e		
	r A		Α	F	F B	В		r B		
58B				\rightarrow				Ť	200 OK	IMS_A forwards 200 OK response to IBCF_A
59B				_	\rightarrow				200 OK	IBCF_A forwards 200 OK response to IBCF_B
60B						\rightarrow			200 OK	IBCF_B forwards 200 OK response to IMS_B
61B					←	_			200 OK	IMS_B forwards 200 OK response to IBCF_B
62B				\leftarrow					200 OK	IBCF_B forwards 200 OK response to IBCF_A
63B			\leftarrow	_					200 OK	IBCF_A forwards 200 OK response to IMS_A
64B			-	- -	_	\perp	\rightarrow		200 OK	IMS_A forwards the 200 OK response to UE_B
65B										User B is informed that picture sharing has terminated
66B			\rightarrow						OPTIONS	UE_A sends OPTIONS to IMS_A to verify availability of picture sharing capability of the UE_B
67B				\rightarrow					OPTIONS	IMS_A forwards OPTIONS to IBCF_A
68B				-	\rightarrow				OPTIONS	IBCF_A forwards OPTIONS to IBCF_B
69B						\rightarrow			OPTIONS	IBCF_B forwards OPTIONS to IMS_B
70B					\leftarrow	_			OPTIONS	IMS_B forwards OPTIONS to IBCF_B
71B				\leftarrow	_				OPTIONS	IBCF_B forwards OPTIONS to IBCF_A
72B			\leftarrow	_					OPTIONS	IBCF_A forwards OPTIONS to IMS_A
73B				_	_	_	\rightarrow		OPTIONS	IMS_A forwards OPTIONS to UE_B
74B			\leftarrow	_ -	_	+	4		200 OK	UE_B responds with 200 OK to IMS_A with updated capabilities
75B				\rightarrow					200 OK	IMS_A forwards 200 OK to IBCF_A
76B					\rightarrow				200 OK	IBCF_A forwards 200 OK to IBCF_B
77B						\rightarrow			200 OK	IBCF_B forwards 200 OK to IMS_B
78B					-	_			200 OK	IMS_B forwards 200 OK to IBCF_B
79B				\leftarrow	_				200 OK	IBCF_B forwards 200 OK to IBCF_A
80B			\leftarrow	-					200 OK	IBCF_A forwards 200 OK to IMS_A
81B		\leftarrow	_						200 OK	IMS_A forwards 200 OK to UE_A
82B	←			-				\rightarrow		User B terminates voice call

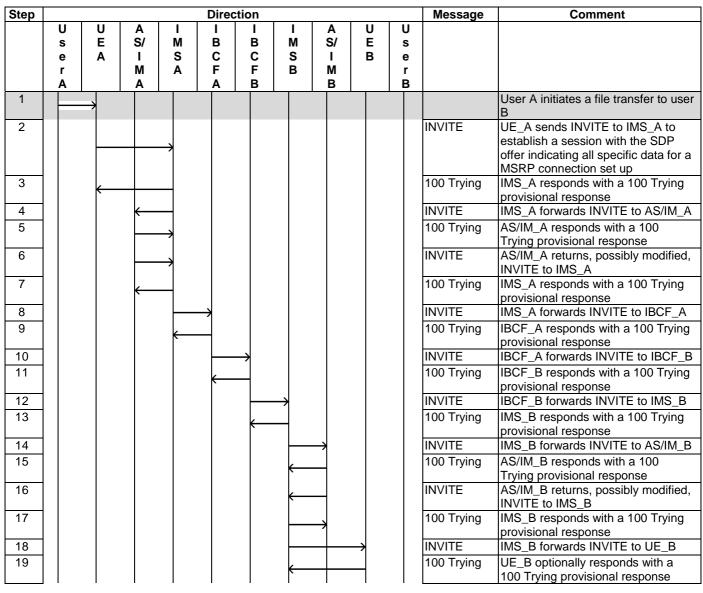
4.5.5 File transfer service

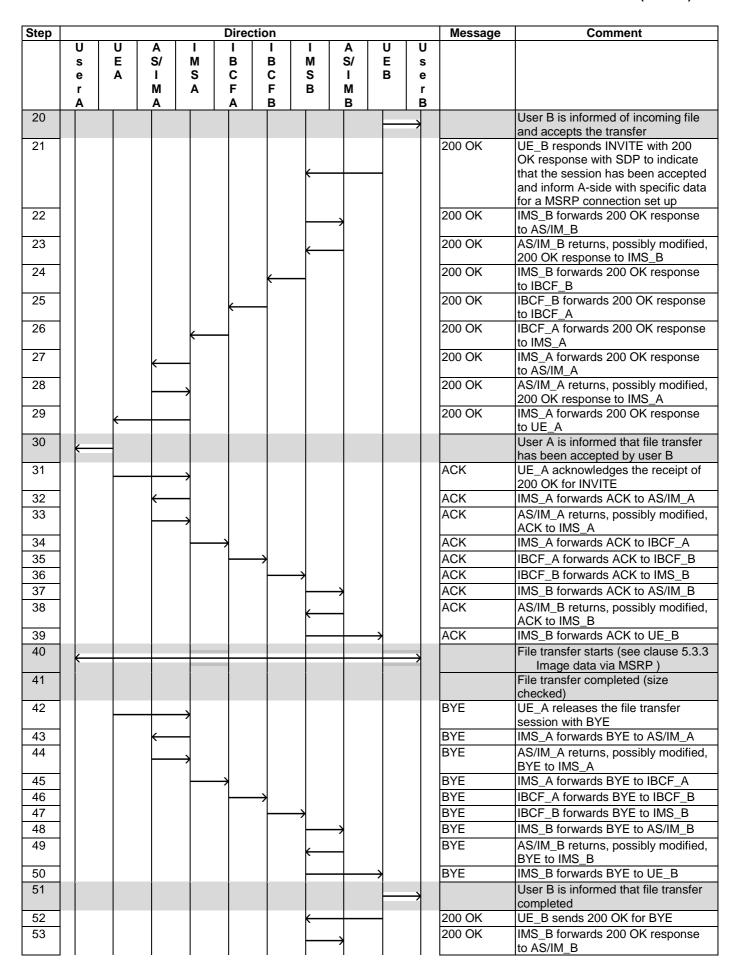
4.5.5.1 Instant file transfer

4.5.5.1.1 Instant file transfer - interworking

		Interoperability Test De	escription
Identifier:	TD_IMS_I	FILE_0001	
Summary:	IMS netwo	ork supports instant File transf	er service and messages exchange between
, and the second	two users	in their home network can be	performed. User A starts file transfer
Configuration:	CF_INT_A		
SUT	IMS_A an		
References	Test Purp		Specification Reference
	TP_IMS_	5097_01	TS 124 229 [1], clause 5.4.3.2 ¶11
			(1 st numbered list)
	TP_IMS_	5108_03	TS 124 229 [1], clause 5.4.3.3 ¶5
			(item 4 in 1 st numbered list)
	TP_IMS_	5115_08	TS 124 229 [1], clause 5.4.3.3 ¶89
			(3 rd numbered list)
Use Case ref.:	UC_RCS_	_9_I	
Pre-test		of IMS_A and of IMS B is conf	
conditions:	• UE_A	and UE_B have IP bearers e	stablished to their respective IMS networks as
		S 186 011-2 [7], clause 4.2.1	
			ally using userPRES according to table 1
			ally using userPRES according to table 1
		A is configured to contact AS_	
		B is configured to contact AS_	
		A is within the trust domain of	
	• UE_A	and UE_B have already perfo	ormed capability discovery process
	IMS_	A not configured for topology h	
O			
Test Sequence:	Step	A not configured for topology h	niding
Test Sequence:	Step 1	A not configured for topology h	to user B
Test Sequence:	Step 1 2	A not configured for topology has been a line transfer User A initiates a file transfer User B is informed of incoming the second secon	to user B ng file and accepts the transfer
Test Sequence:	Step 1 2 3	A not configured for topology has been a superior of the configured for topology has been a superior of the configured for topology has been a configured for the configured for th	to user B
Test Sequence:	Step 1 2 3 4	A not configured for topology has been a similar transfer User B is informed of incominuser A is informed that file transfer starts	to user B ng file and accepts the transfer ansfer has been accepted by user B
Test Sequence:	Step 1 2 3 4 5	User A initiates a file transfer User B is informed of incomir User A is informed that file tra File transfer starts File transfer completed (size	to user B ng file and accepts the transfer ansfer has been accepted by user B checked)
Test Sequence:	Step 1 2 3 4 5	User A initiates a file transfer User B is informed of incomir User A is informed that file tra File transfer starts File transfer completed (size User B is informed that file tra	to user B ng file and accepts the transfer ansfer has been accepted by user B checked) ansfer completed
Test Sequence:	Step 1 2 3 4 5	User A initiates a file transfer User B is informed of incomir User A is informed that file tra File transfer starts File transfer completed (size	to user B ng file and accepts the transfer ansfer has been accepted by user B checked) ansfer completed
·	Step 1 2 3 4 5 6 7	User A initiates a file transfer User B is informed of incomir User A is informed that file tra File transfer starts File transfer completed (size User B is informed that file tra	to user B ng file and accepts the transfer ansfer has been accepted by user B checked) ansfer completed
Conformance	Step 1 2 3 4 5	User A initiates a file transfer User B is informed of incomir User A is informed that file tra File transfer starts File transfer completed (size User B is informed that file tra	to user B ng file and accepts the transfer ansfer has been accepted by user B checked) ansfer completed
·	Step 1 2 3 4 5 6 7	User A initiates a file transfer User B is informed of incomir User A is informed that file tra File transfer starts File transfer completed (size User B is informed that file tra User A is informed that file tra	to user B ag file and accepts the transfer ansfer has been accepted by user B checked) ansfer completed ansfer completed
Conformance	Step 1 2 3 4 5 6 7	User A initiates a file transfer User B is informed of incomir User A is informed that file tra File transfer starts File transfer completed (size User B is informed that file tra User A is informed that file tra User A is informed that file tra	to user B ag file and accepts the transfer ansfer has been accepted by user B checked) ansfer completed ansfer completed
Conformance	Step 1 2 3 4 5 6 7	User A initiates a file transfer User B is informed of incomir User A is informed that file tra File transfer starts File transfer completed (size User B is informed that file tra User A is informed that file tra User A is informed that file tra TP_IMS_5097_01 in CFW starsure that {	to user B ag file and accepts the transfer ansfer has been accepted by user B checked) ansfer completed ansfer completed
Conformance	Step 1 2 3 4 5 6 7	User A initiates a file transfer User B is informed of incomin User A is informed that file tra File transfer starts File transfer completed (size User B is informed that file tra User A is informed that file tra User A is informed that file tra TP_IMS_5097_01 in CFW steensure that { when { UE_A sends an initial}	to user B and gfile and accepts the transfer ansfer has been accepted by user B ansfer completed ansfer completed ansfer completed ansfer to UE_B }
Conformance	Step 1 2 3 4 5 6 7	User A initiates a file transfer User B is informed of incomir User A is informed that file tra File transfer starts File transfer completed (size User B is informed that file tra User A is informed that file tra User B is informed that file tra	to user B ag file and accepts the transfer ansfer has been accepted by user B checked) ansfer completed ansfer completed ansfer to UE_B } antial INVITE to UE_B }
Conformance	Step 1 2 3 4 5 6 7	User A initiates a file transfer User B is informed of incomin User A is informed that file tra File transfer starts File transfer completed (size User B is informed that file tra User A is informed that file tra User B is informed that file tra	to user B ag file and accepts the transfer ansfer has been accepted by user B checked) ansfer completed ansfer completed ansfer to UE_B } antial INVITE to UE_B }
Conformance	Step 1 2 3 4 5 6 7	User A initiates a file transfer User B is informed of incomin User A is informed that file tra File transfer starts File transfer completed (size User B is informed that file tra User A is informed that file tra User B is informed that file tra	to user B ag file and accepts the transfer ansfer has been accepted by user B checked) ansfer completed ansfer completed ansfer to UE_B } antial INVITE to UE_B } active to UE_B Active to IMS_A
Conformance	Step 1 2 3 4 5 6 7	User A initiates a file transfer User B is informed of incomir User A is informed that file tra File transfer starts File transfer completed (size User B is informed that file tra User A is informed that file tra User B is informed	to user B and gfile and accepts the transfer ansfer has been accepted by user B checked) ansfer completed ansfer completed ansfer to UE_B } antial INVITE to UE_B } antial INVITE e_header CF_SIP_URI of IMS_A ing-Vector_header alue_parameter and
Conformance	Step 1 2 3 4 5 6 7	User A initiates a file transfer User B is informed of incomin User A is informed that file tra File transfer starts File transfer completed (size User B is informed that file tra User A is informed that file tra User B is informed	to user B ang file and accepts the transfer ansfer has been accepted by user B checked) ansfer completed ansfer completed ansfer liNVITE to UE_B } antial INVITE e_header CF_SIP_URI of IMS_A ing-Vector_header alue_parameter and i_parameter indicating IMS_A and
Conformance	Step 1 2 3 4 5 6 7	User A initiates a file transfer User B is informed of incomir User A is informed that file tra File transfer starts File transfer completed (size User B is informed that file tra User A is informed that file tra User B is informed	to user B ag file and accepts the transfer ansfer has been accepted by user B checked) ansfer completed ansfer completed ansfer completed EP 10 (INVITE): INVITE to UE_B } aitial INVITE e_header CF_SIP_URI of IMS_A ing-Vector_header alue_parameter and ceess-network-charging-info_parameter and
Conformance	Step 1 2 3 4 5 6 7	User A initiates a file transfer User B is informed of incomin User A is informed that file tra File transfer starts File transfer completed (size User B is informed that file tra User A is informed that file tra User B is informed	to user B ang file and accepts the transfer ansfer has been accepted by user B checked) ansfer completed ansfer completed ansfer completed ansfer completed checked) ansfer completed ansfer completed checked) ansfer completed ansfer completed ansfer completed checked ansfer completed
Conformance	Step 1 2 3 4 5 6 7	User A initiates a file transfer User B is informed of incomin User A is informed that file tra File transfer starts File transfer completed (size User B is informed that file tra User A is informed that file tra User B is informed	to user B ag file and accepts the transfer ansfer has been accepted by user B checked) ansfer completed ansfer completed ansfer completed ansfer completed checked) ansfer completed ansfer
Conformance	Step 1 2 3 4 5 6 7	User A initiates a file transfer User B is informed of incomin User A is informed that file tra File transfer starts File transfer completed (size User B is informed that file tra User A is informed that file tra User B is informed	to user B ang file and accepts the transfer ansfer has been accepted by user B checked) ansfer completed ansfer completed ansfer completed ansfer completed checked) ansfer completed ansfer completed checked) ansfer completed ansfer completed ansfer completed checked ansfer completed





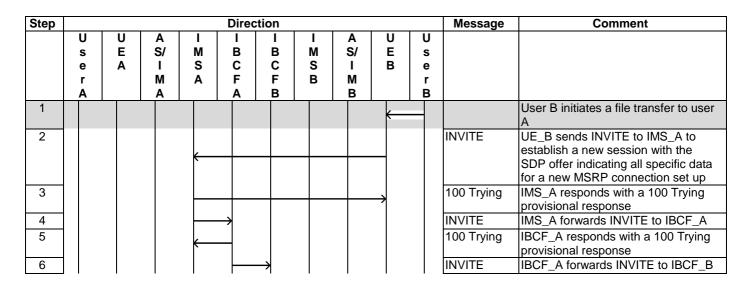


Step					Direc	tion					Message	Comment
	U s e r A	U E A	A S/ I M A	I M S A	I B C F A	I B C F B	M S B	A S/ I M B	U E B	U s e r B		
54	,						—				200 OK	AS/IM_B returns, possibly modified, 200 OK response to IMS_B
55						\leftarrow					200 OK	IMS_B forwards 200 OK response to IBCF_B
56											200 OK	IBCF_B forwards 200 OK response to IBCF_A
57				←							200 OK	IBCF_A forwards 200 OK response to IMS_A
58			\leftarrow								200 OK	IMS_A forwards 200 OK response to AS/IM_A
59				\rightarrow							200 OK	AS/IM_A returns, possibly modified, 200 OK response to IMS_A
60		\leftarrow									200 OK	IMS_A forwards 200 OK response to UE_A
61												User A is informed that file transfer completed

4.5.5.1.2 Instant file transfer - roaming (optional)

1		Test Description									
Identifier:	TD_IMS_FILE_0002										
Summary:		e transfer service and messages exchange between network and one user roaming can be performed. User									
Configuration:	CF_ROAM_AS (OPTIONAL)										
SUT	IMS_A and IMS_B										
References	Test Purpose	Specification Reference									
	TP_IMS_5046_01	TS 124 229 [1], clause 5.2.6.3.3 ¶1									
		(1 st numbered list)									
	TP_IMS_5067_01	TS 124 229 [1], clause 5.2.7.2 ¶5									
	TP_IMS_5097_09	TS 124 229 [1], clause 5.4.3.2 ¶11									
		(items 5 and 8 in 1st numbered list)									
Use Case ref.:	UC_RCS_9_R										
Pre-test conditions:	 HSS of IMS_A and of IMS B is configured according to table 1 UE_A and UE_B have IP bearers established to their respective IMS networks as per TS 186 011-2 [7], clause 4.2.1 UE_A is registered in IMS_A optionally using userPRES according to table 1 UE_B is registered in IMS_B via IMS_A optionally using userPRES according to table 1 IMS_A is configured to contact AS_A IMS_B is configured to contact AS_B IMS_A is within the trust domain of IMS_B UE_A and UE_B have already performed capability discovery process IMS_A not configured for topology hiding 										
	 IMS_A is configured to cont IMS_B is configured to cont IMS_A is within the trust do UE_A and UE_B have alrea 	act AS_B main of IMS_B ady performed capability discovery process									
Test Sequence:	 IMS_A is configured to cont IMS_B is configured to cont IMS_A is within the trust do UE_A and UE_B have alrea 	act AS_B main of IMS_B ady performed capability discovery process									
Test Sequence:	 IMS_A is configured to cont IMS_B is configured to cont IMS_A is within the trust do UE_A and UE_B have alrea IMS_A not configured for to 	act AS_B main of IMS_B ady performed capability discovery process pology hiding									
Test Sequence:	 IMS_A is configured to cont IMS_B is configured to cont IMS_A is within the trust do UE_A and UE_B have alrea IMS_A not configured for to Step User B initiates a file 	act AS_B main of IMS_B ady performed capability discovery process pology hiding									
Test Sequence:	IMS_A is configured to cont IMS_B is configured to cont IMS_A is within the trust do UE_A and UE_B have alrea IMS_A not configured for to Step User B initiates a file User A is informed of	act AS_B main of IMS_B ady performed capability discovery process pology hiding transfer to user A									
Test Sequence:	IMS_A is configured to cont IMS_B is configured to cont IMS_A is within the trust do UE_A and UE_B have alrea IMS_A not configured for to Step User B initiates a file User A is informed of	act AS_B main of IMS_B ady performed capability discovery process pology hiding transfer to user A incoming file and accepts the transfer									
Test Sequence:	IMS_A is configured to cont IMS_B is configured to cont IMS_A is within the trust do UE_A and UE_B have alrea IMS_A not configured for to Step User B initiates a file User B is informed of User B is informed that	act AS_B main of IMS_B ady performed capability discovery process pology hiding transfer to user A incoming file and accepts the transfer at file transfer has been accepted by user A									
Test Sequence:	IMS_A is configured to cont IMS_B is configured to cont IMS_B is configured to cont IMS_A is within the trust do UE_A and UE_B have alrea IMS_A not configured for to Step 1 User B initiates a file 1 2 User A is informed of 3 User B is informed that 4 File transfer starts 5 File transfer complete	act AS_B main of IMS_B ady performed capability discovery process pology hiding transfer to user A incoming file and accepts the transfer at file transfer has been accepted by user A									

		Interoperability Test Description
Conformance Criteria:	Check	
	1	TP_IMS_5046_01 in CFW step 6 (INVITE) ensure that { when { IMS_A receives an initial INVITE from UE_B } then { IMS_A sends the INVITE to IMS_B
	2	TP_IMS_5067_01 in CFW step 6 (INVITE) ensure that { when { IMS_A receives an initial INVITE from UE_B } then { IMS_A sends the INVITE to IMS_B containing a P-Charging-Vector_header } }
	3	TP_IMS_5097_09 in CFW step 10 (INVITE) ensure that { when { IUT receives an initial INVITE from IMS_A addressed_to UE_A } then { IUT sends the initial INVITE to AS_B containing a Route_header indicating the SIP_URI of AS_B and containing a P-Charging-Function-Addresses_header and containing a P-Charging-Vector_header (containing an orig-ioi_parameter indicating IMS_A and not containing a term-ioi_parameter and containing an access-network-charging-info_parameter) } }



Step					Direc	tion					Message	Comment
	U	U	Α	I	I	I	I	Α	U	U		
	s e	E A	S/ I	M S	B C	B C	M S	S/	E B	s e		
	r	^	M	Ā	F	F	В	M		r		
	Α		Α		Α	В		В		В		
7					\leftarrow	_					100 Trying	IBCF_B responds with a 100 Trying provisional response
8							\rightarrow				INVITE	IBCF_B forwards INVITE to IMS_B
9											100 Trying	IMS_B responds with a 100 Trying
10											IN 11 / ITE	provisional response
10								\rightarrow			INVITE 100 Trying	IMS_B forwards INVITE to AS/IM_B AS/IM_B responds with a 100 Trying
11							←				100 Trying	provisional response
12							<u> </u>				INVITE	AS/IM_B returns, possibly modified,
13							ľ				100 Trying	INVITE to IMS_B IMS_B responds with a 100 Trying
13								\rightarrow			100 Trying	provisional response
14						\leftarrow					INVITE	IMS_B forwards INVITE to IBCF_B
15							\rightarrow				100 Trying	IBCF_B responds with a 100 Trying
16											INVITE	provisional response IBCF_B forwards INVITE to IBCF_A
17											100 Trying	IBCF_A responds with a 100 Trying
						7					, ,	provisional response
18				\leftarrow							INVITE	IBCF_A forwards INVITE to IMS_A
19					\rightarrow						100 Trying	IMS_A responds with a 100 Trying provisional response
20											INVITE	IMS_A forwards INVITE to AS/IM_A
21				\rightarrow							100 Trying	AS/IM_A responds with a 100 Trying
22											INVITE	provisional response AS/IM_A returns, possibly modified,
				→								INVITE to IMS_A
23			\leftarrow	_							100 Trying	IMS_A responds with a 100 Trying provisional response
24											INVITE	IMS_A forwards INVITE to UE_A
25				\rightarrow							100 Trying	UE_A optionally responds with a 100
26												Trying provisional response User A is informed of incoming file
												and accepts the transfer
27											200 OK	UE_A responds INVITE with 200 OK response with SDP to indicate that
				\rightarrow								the session has been accepted and
												inform B-side with specific data for a
28											200 OK	new MSRP connection set up IMS_A forwards 200 OK response to
20			\leftarrow								200 OK	AS/IM_A
29				\rightarrow							200 OK	AS/IM_A returns, possibly modified,
30											200 OK	200 OK response to IMS_A IMS_A forwards 200 OK response to
					\rightarrow							IBCF_A
31						\rightarrow					200 OK	IBCF_A forwards 200 OK response to IBCF_B
32											200 OK	IBCF_B forwards 200 OK response
											200 014	to IMS_B
33								\rightarrow			200 OK	IMS_B forwards 200 OK response to AS/IM_B
34							←				200 OK	AS/IM_B returns, possibly modified,
35											200 OK	200 OK response to IMS_B IMS_B forwards 200 OK response to
												IBCF_B
36					\leftarrow	\dashv					200 OK	IBCF_B forwards 200 OK response to IBCF_A
37				-							200 OK	IBCF_A forwards 200 OK response
38											200 OK	to IMS_A IMS_A forwards 200 OK response to
									\rightarrow			UE_B

Step					Direc	tion					Message	Comment
_	U	U	A	I	Ī	Ī	I	A	U	U		
	S	E A	S/	M S	B C	B C	M	S/	E B	s e		
	e r	^	М	A	F	F	В	M		r		
	À		Α	^	Α	В		В		В		
39										\rightarrow		User B is informed that file transfer has been accepted by user B
40				—							ACK	UE_B acknowledges the receipt of 200 OK for INVITE
41					\rightarrow						ACK	IMS_A forwards ACK to IBCF_A
42						\rightarrow					ACK	IBCF_A forwards ACK to IBCF_B
43							\rightarrow				ACK	IBCF_B forwards ACK to IMS_B
44								\rightarrow			ACK	IMS_B forwards ACK to AS/IM_B
45							\leftarrow				ACK	AS/IM_B returns, possibly modified, ACK to IMS_B
46											ACK	IMS_B forwards ACK to IBCF_B
47											ACK	IBCF_B forwards ACK to IBCF_A
48				←	_						ACK	IBCF_A forwards ACK to IMS_A
49			\leftarrow								ACK	IMS_A forwards ACK to AS/IM_A
50				\rightarrow							ACK	AS/IM_A returns, possibly modified, ACK to IMS_A
51		\leftarrow									ACK	IMS_A forwards ACK to UE_A
52	—									\rightarrow		File transfer starts (see clause 5.3.3 Image data via MSRP)
53			·									File transfer completed (size checked)
54				—		-	_				BYE	UE_B releases the file transfer session with BYE
55					\rightarrow						BYE	IMS_A forwards BYE to IBCF_A
56					´	\rightarrow					BYE	IBCF_A forwards BYE to IBCF_B
57							\rightarrow				BYE	IBCF_B forwards BYE to IMS_B
58								\rightarrow			BYE	IMS B forwards BYE to AS/IM B
59							—				BYE	AS/IM_B returns, possibly modified, BYE to IMS_B
60						—					BYE	IMS_B forwards BYE to IBCF_B
61					—	_					BYE	IBCF_B forwards BYE to IBCF_A
62				←	_						BYE	IBCF_A forwards BYE to IMS_A
63			←								BYE	IMS_A forwards BYE to AS/IM_A
64				\rightarrow							BYE	AS/IM_A returns, possibly modified, BYE to IMS_A
65		\leftarrow									BYE	IMS_A forwards BYE to UE_A
66												User A is informed that file transfer completed
67				\rightarrow							200 OK	UE_A sends 200 OK for BYE
68			←	_							200 OK	IMS_A forwards 200 OK response to AS/IM_A
69				\rightarrow							200 OK	AS/IM_A returns, possibly modified, 200 OK response to IMS_A
70					\rightarrow						200 OK	IMS_A forwards 200 OK response to IBCF_A
71						\rightarrow					200 OK	IBCF_A forwards 200 OK response
72							\rightarrow				200 OK	to IBCF_B IBCF_B forwards 200 OK response
73								\rightarrow			200 OK	to IMS_B IMS_B forwards 200 OK response to
74							←				200 OK	AS/IM_B AS/IM_B returns, possibly modified,
75						←					200 OK	200 OK response to IMS_B IMS_B forwards 200 OK response to
76											200 014	IBCF_B
76					\leftarrow	\dashv					200 OK	IBCF_B forwards 200 OK response to IBCF_A

Step		Direction											Comment
	U		U	Α	ı	ı	_	ı	Α	U	U		
	s		E	S/	M	В	В	M	S/	E	S		
	е		Α	ı	S	С	С	S	I	В	е		
	r			M	Α	F	F	В	М		r		
	Α			Α		Α	В		В		В		
77					/							200 OK	IBCF_A forwards 200 OK response
													to IMS_A
78												200 OK	IMS_A forwards 200 OK response to
										1			UE_B
79													User B is informed that file transfer
											1		completed

4.5.5.2 Instant file transfer rejection

4.5.5.2.1 Instant file transfer rejection - interworking

	Interoperabilit	y Test Description									
Identifier:	TD_IMS_FILE_0003	-									
Summary:	IMS network supports instant F	ile transfer service and messages exchange between ks can be performed. User A starts file transfer, but									
Configuration:	CF_INT_AS										
SUT	IMS_A and IMS_B										
References	Test Purpose Specification Reference										
	TP_IMS_5313_01 TS 124 229 [1], clause 5.4.6.1.3 ¶2										
Use Case ref.:	UC_RCS_9_I										
Pre-test conditions: Test Sequence:	UE_A and UE_B have IP to per TS 186 011-2 [7], clause UE_A is registered in IMS_ UE_B is registered in IMS_ IMS_A is configured to core IMS_B is configured to core IMS_A is within the trust does UE_A and UE_B have alree IMS_A not configured for the state of the st	A optionally using userPRES according to table 1 B optionally using userPRES according to table 1 Intact AS_A Intact AS_B Inta									
Conformance Criteria:	ensure that { when { UE_B send then { AS_A receiv containing	n CFW step 25 (603 Decline): s 603 Decline to UE_A } es the 603 Decline from IMS_A P-Charging-Vector_header_header an access-network-charging-info_parameter									

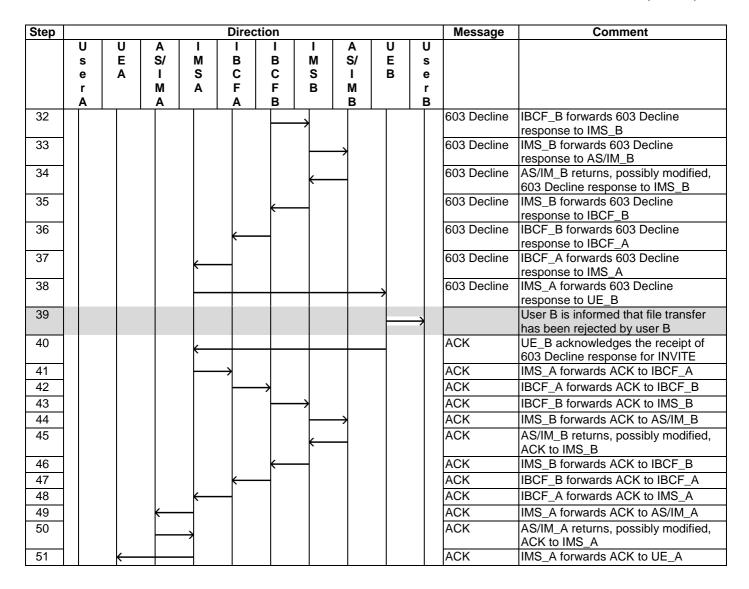
Step					Direc	tion					Message	Comment
	U	U	Α	I	I	I	I	Α	U	U	_	
	S	E	S/	M	В	В	M	S/	E	S		
	e r	Α	M	SA	C F	C F	S B	I M	В	e r		
	Ä		A	^	A	В		В		В		
1)										User A initiates a file transfer to user B
2											INVITE	UE_A sends INVITE to IMS_A to
				_								establish a session with the SDP
												offer indicating all specific data for a
3											100 Trying	MSRP connection set up IMS_A responds with a 100 Trying
		\leftarrow									l too rrying	provisional response
4			\leftarrow								INVITE	IMS_A forwards INVITE to AS/IM_A
5				_							100 Trying	AS/IM_A responds with a 100
				1								Trying provisional response
6				\rightarrow							INVITE	AS/IM_A returns, possibly modified,
7											100 Trying	INVITE to IMS_A IMS_A responds with a 100 Trying
'			\leftarrow								l too rrying	provisional response
8					\rightarrow						INVITE	IMS_A forwards INVITE to IBCF_A
9											100 Trying	IBCF_A responds with a 100 Trying
10				ì							IN 11 TE	provisional response
10						\rightarrow					INVITE	IBCF_A forwards INVITE to IBCF_B
11					\leftarrow	-					100 Trying	IBCF_B responds with a 100 Trying provisional response
12							\rightarrow				INVITE	IBCF_B forwards INVITE to IMS_B
13						,					100 Trying	IMS_B responds with a 100 Trying
											, ,	provisional response
14								\rightarrow			INVITE	IMS_B forwards INVITE to AS/IM_B
15							—	_			100 Trying	AS/IM_B responds with a 100 Trying provisional response
16											INVITE	AS/IM_B returns, possibly modified,
												INVITE to IMS_B
17								\rightarrow			100 Trying	IMS_B responds with a 100 Trying provisional response
18									\rightarrow		INVITE	IMS_B forwards INVITE to UE_B
19											100 Trying	UE_B optionally responds with a
											, ,	100 Trying provisional response
20										\rightarrow		User B is informed of incoming file
21											603 Decline	and rejects the transfer UE_B responds INVITE with 603
- '							—				JOG DECINE	Decline to indicate that the session
												has been rejected
22								\rightarrow			603 Decline	IMS_B forwards 603 Decline
23											603 Decline	response to AS/IM_B AS/IM_B returns, possibly modified,
23											Decilie	603 Decline response to IMS_B
24						-	_				603 Decline	IMS_B forwards 603 Decline
25											603 Decline	response to IBCF_B IBCF_B forwards 603 Decline
					\leftarrow							response to IBCF_A
26				<u></u>							603 Decline	IBCF_A forwards 603 Decline
27											602 Daeline	response to IMS_A
27			\leftarrow	\dashv							603 Decline	IMS_A forwards 603 Decline response to AS/IM_A
28				\rightarrow							603 Decline	AS/IM_A returns, possibly modified,
											000 D !'	603 Decline response to IMS_A
29		\leftarrow		\dashv							603 Decline	IMS_A forwards 603 Decline response to UE_A
	I	ı	I	I	I	I	1	I	l	I		lieshouse in ne"v

Step					Direc	tion		Message	Comment			
	U s e r A	U E A	A S/ I M A	I M S A	I B C F A	I B C F B	I M S B	A S/ I M B	U E B	U s e r B		
30	(User A is informed that file transfer has been rejected by user B
31				\rightarrow							ACK	UE_A acknowledges the receipt of 603 Decline response for INVITE
32			\leftarrow	_							ACK	IMS_A forwards ACK to AS/IM_A
33				\rightarrow							ACK	AS/IM_A returns, possibly modified, ACK to IMS_A
34				-	\rightarrow						ACK	IMS_A forwards ACK to IBCF_A
35						\rightarrow					ACK	IBCF_A forwards ACK to IBCF_B
36							\rightarrow				ACK	IBCF_B forwards ACK to IMS_B
37								\rightarrow			ACK	IMS_B forwards ACK to AS/IM_B
38							\leftarrow				ACK	AS/IM_B returns, possibly modified, ACK to IMS_B
39									\rightarrow		ACK	IMS_B forwards ACK to UE_B

4.5.5.2.2 Instant file transfer rejection - roaming (optional)

	Interoperability T	est Description								
Identifier:	TD_IMS_FILE_0004									
Summary:	IMS network supports instant File	transfer service and messages exchange between stwork and one user roaming can be performed. User jects the invitation								
Configuration:	CF_ROAM_AS (OPTIONAL)									
SUT	IMS_A and IMS_B									
References	Test Purpose Specification Reference									
	TP_IMS_5313_01 TS 124 229 [1], clause 5.4.6.1.3 ¶2									
Use Case ref.:	UC_RCS_9_R									
Pre-test conditions:	 HSS of IMS_A and of IMS B is configured according to table 1 UE_A and UE_B have IP bearers established to their respective IMS networks as per TS 186 011-2 [7], clause 4.2.1 UE_A is registered in IMS_A optionally using userPRES according to table 1 UE_B is registered in IMS_B via IMS_A optionally using userPRES according to table 1 IMS_A is configured to contact AS_A IMS_B is configured to contact AS_B IMS_A is within the trust domain of IMS_B UE_A and UE_B have already performed capability discovery process IMS_A not configured for topology hiding 									
Test Sequence: Conformance		ansfer to user A acoming file and rejects the transfer file transfer has been rejected by user B								
Criteria:	ensure that { when { UE_B sends 6 then { AS_A receives containing P-	FW step 31 (603 Decline): 03 Decline to UE_A } the 603 Decline from IMS_A Charging-Vector_header_header access-network-charging-info_parameter								

Step					Directi	on					Message	Comment
	U	U	A S/	I	I B	I D	M	A S/	υE	U		
	s e	E A	I I	M S	C	B C	S	5/ 	B	s e		
	r		М	Α	F	F	В	M		r		
1	A		_ A _		Α	В		В		В		User B initiates a file transfer to user
•									├			A
2											INVITE	UE_B sends INVITE to IMS_A to
								_				establish a new session with the SDP offer indicating all specific data
												for a new MSRP connection set up
3											100 Trying	IMS_A responds with a 100 Trying
4				l ,							INVITE	provisional response IMS_A forwards INVITE to IBCF_A
5				,	1						100 Trying	IBCF_A responds with a 100 Trying
0				\leftarrow	1						100 Trying	provisional response
6)					INVITE	IBCF_A forwards INVITE to IBCF_B
7											100 Trying	IBCF_B responds with a 100 Trying provisional response
8							\rightarrow				INVITE	IBCF_B forwards INVITE to IMS_B
9											100 Trying	IMS_B responds with a 100 Trying
40											IND OTE	provisional response
10								\rightarrow			INVITE 100 Trying	IMS_B forwards INVITE to AS/IM_B AS/IM_B responds with a 100 Trying
11							\leftarrow				100 Hying	provisional response
12							<u> </u>				INVITE	AS/IM_B returns, possibly modified,
13											100 Trying	INVITE to IMS_B IMS_B responds with a 100 Trying
13								\rightarrow			100 Trying	provisional response
14						\leftarrow					INVITE	IMS_B forwards INVITE to IBCF_B
15							\rightarrow				100 Trying	IBCF_B responds with a 100 Trying provisional response
16											INVITE	IBCF_B forwards INVITE to IBCF_A
17						_					100 Trying	IBCF_A responds with a 100 Trying
40						1					INVITE	provisional response IBCF_A forwards INVITE to IMS_A
18 19											100 Trying	IMS_A responds with a 100 Trying
15				 							100 Trying	provisional response
20				_							INVITE	IMS_A forwards INVITE to AS/IM_A
21)							100 Trying	AS/IM_A responds with a 100 Trying
22											INVITE	provisional response AS/IM_A returns, possibly modified,
				7								INVITE to IMS_A
23			←	4							100 Trying	IMS_A responds with a 100 Trying provisional response
24		\leftarrow									INVITE	IMS_A forwards INVITE to UE_A
25				_							100 Trying	UE_A optionally responds with a 100
0.0				1								Trying provisional response
26	←											User A is informed of incoming file and rejects the transfer
27											603 Decline	UE_A responds INVITE with 603
				7								Decline to indicate that the session
28			_								603 Decline	has been rejected IMS_A forwards 603 Decline
			\leftarrow	1								response to AS/IM_A
29)							603 Decline	AS/IM_A returns, possibly modified,
30											603 Decline	603 Decline response to IMS_A IMS_A forwards 603 Decline
				—	1							response to IBCF_A
31						>					603 Decline	IBCF_A forwards 603 Decline
	1		I	1	1		l	ı	l			response to IBCF_B

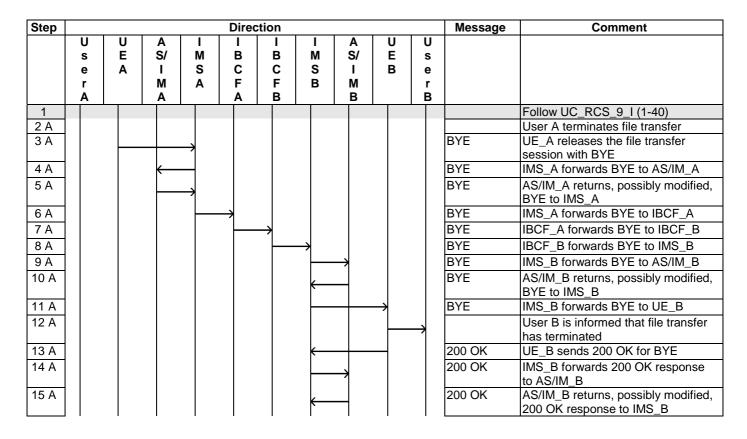


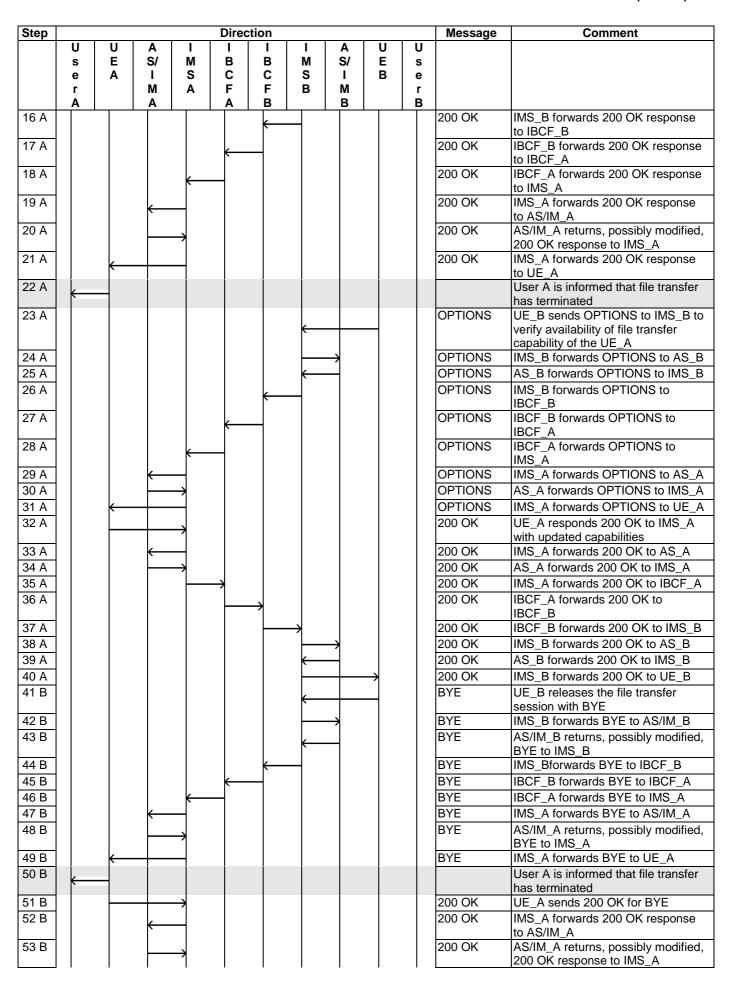
4.5.5.3 Stop file transfer

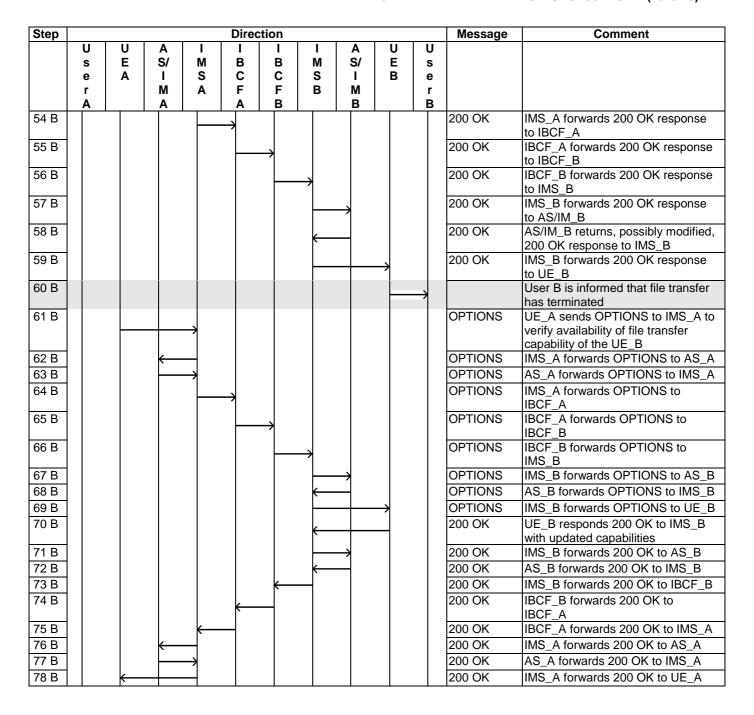
4.5.5.3.1 Stop file transfer - interworking

	Interoperabilit	y Test Description								
Identifier:	TD_IMS_FILE_0005									
Summary:	IMS network supports instant File transfer service and messages exchange between two users in their home networks can be performed. User A starts file transfer, but User B terminates it in the middle of the process									
Configuration:	CF_INT_AS									
SUT	IMS_A and IMS_B									
References	Test Purpose	Specification Reference								
	TP_IMS_5107_01 TS 124 229 [1], clause 5.4.3.2 ¶119 (item 1 in 6 th numbered list)									
Use Case ref.:	UC_RCS_9_I									

		Interoperability Test Description								
Pre-test conditions:	The of the bit of the bit comigated according to table t									
Test Sequence:	Step									
	1 2 3 4 5 6A 7A 8A 6B 7B 8B	User A requests a file transfer with user B User B is requested to accept a file transfer User B accepts a file transfer User A is informed that request has been answered File transfer starts User A terminates file transfer User B is informed that file transfer has terminated User A is informed that file transfer has terminated User B terminates file transfer User B is informed that file transfer has terminated User B is informed that file transfer has terminated User B is informed that file transfer has terminated								
Conformance Criteria:	Check 1	TP_IMS_5107_01 in CFW step 7A or 45B (BYE): ensure that { when { UE_B sends BYE to UE_A } then { IMS_A receives the BYE not containing Route_header indicating the S-CSCF_SIP_URI of IMS_A } }								







4.5.5.3.2 Stop file transfer - roaming (optional)

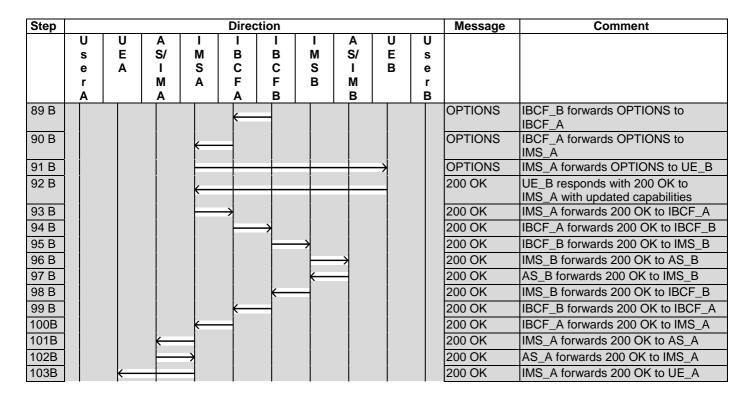
	Interoperability Test Description										
Identifier:	TD_IMS_FILE_0006	TD_IMS_FILE_0006									
Summary:	IMS network supports instant File transfer service and messages exchange between two users, one user in its home network and one user roaming can be performed. User A starts file transfer, but User B terminates it in the middle of the process										
Configuration:	CF_ROAM_AS (OPTIONAL)										
SUT	IMS_A and IMS_B										
References	Test Purpose	Specification Reference									
	TP_IMS_5052_01										
Use Case ref.:	UC_RCS_9_R										

		Interoperability Test Description											
Pre-test	• HSS	of IMS_A and of IMS B is configured according to table 1											
conditions:		and UE_B have IP bearers established to their respective IMS networks as											
		r TS 186 011-2 [7], clause 4.2.1											
		is registered in IMS_A optionally using userPRES according to table 1											
		B is registered in IMS_B via IMS_A optionally using userPRES according to											
	table												
	• IMS	A is configured to contact AS_A											
		B is configured to contact AS_B											
		A is within the trust domain of IMS_B											
		and UE_B have already performed capability discovery process											
		A not configured for topology hiding											
		3											
Test Sequence:	Step												
	1	User A requests a file transfer with user B											
	2	User B is requested to accept file transfer											
	3	User B accepts file transfer											
	4	User A is informed that request has been answered											
	5	le transfer starts											
	6A	Jser A terminates file transfer											
	7A	Jser B is informed that file transfer has terminated											
	8A	User A is informed that file transfer has terminated											
	6B	User B terminates file transfer											
	7B	User A is informed that file transfer has terminated											
	8B	User B is informed that file transfer has terminated											
Conformance Criteria:	Check												
	1	TP_IMS_5052_01 in CFW step 7A or 56B (BYE):											
		ensure that {											
		when { IMS_A receives a BYE from UE_B }											
		then { IMS_A sends the BYE to IMS_B											
		not containing a Route_header											
		indicating the P-CSCF_SIP_URI of IMS_A and											
		containing the same Record-Route_header											
		as in the previous ACK and											
		containing a P-Charging-Vector header											
		containing an icid-value_parameter }											
	1	IJ											

Step					Direc	tion					Message	Comment
	U	U	Α	ı	ı	ı	I	Α	U	U		
	S	E	S/	M	В	В	M	S/	E	S		
	е	Α	I	S	C	C	S	I	В	е		
	r		M	Α	F	F	В	M		r		
1 A	A		A		Α	В		В		В		Follow UC_RCS_10_R (1-52)
2 A		\rightarrow										User A terminates file transfer
3 A				\rightarrow							BYE	UE_A releases the call with BYE
4 A											BYE	IMS_A forwards BYE to AS_A
5 A			<u> </u>	\rightarrow							BYE	AS_A forwards BYE to IMS_A
6 A					\rightarrow						BYE	IMS_A forwards BYE to IBCF_A
7 A						\rightarrow					BYE	IBCF_A forwards BYE to IBCF_B
8 A							\rightarrow				BYE	IBCF_B forwards BYE to IMS_B
9 A								\rightarrow			BYE	IMS_B forwards BYE to AS_B
10 A							←				BYE	AS_B forwards BYE to IMS_B
11 A						←					BYE	IMS_B forwards BYE to IBCF_B
12 A					\leftarrow	_					BYE	IBCF_B forwards BYE to IBCF_A
13 A				k							BYE	IBCF_A forwards BYE to IMS_A
14 A									\rightarrow		BYE	IMS_A forwards BYE to UE_B
15 A										\rightarrow		User B is informed that file transfer has terminated

Step					Dire	ction					Message	Comment
	U	U	A	I	ı	I	I	A	U	U		
	S	E	S/	M	В	В	M	S/	E B	S		
	e r	Α	I M	S A	C F	C F	S B	I M	В	e r		
	À		A	^	Α	В		В		В		
16 A				\leftarrow							200 OK	UE_B sends 200 OK for BYE
17 A					\rightarrow						200 OK	IMS_A forwards 200 OK response to IBCF_A
18 A						\rightarrow					200 OK	IBCF_A forwards 200 OK response to IBCF_B
19 A							\rightarrow				200 OK	IBCF_B forwards 200 OK response to IMS_B
20 A								\rightarrow			200 OK	IMS_B forwards the 200 OK response to AS_B
21 A											200 OK	AS_B forwards the 200 OK response to IMS_B
22 A											200 OK	IMS_B forwards the 200 OK response to IBCF_B
23 A					←						200 OK	IBCF_B forwards 200 OK response to IBCF_A
24 A											200 OK	IBCF_A forwards 200 OK response to IMS_A
25 A				4							200 OK	IMS_A forwards the 200 OK response to AS_A
26 A				>							200 OK	AS_A forwards the 200 OK response to IMS_A
27 A		←		-							200 OK	IMS_A forwards the 200 OK response to UE_A
28 A	←											User A is informed that file transfer has terminated
29 A											OPTIONS	UE_B sends OPTIONS to IMS_A to verify availability of file transfer
												capability of the UE_A
30 A					\rightarrow						OPTIONS	IMS_A forwards OPTIONS to IBCF_A
31 A						\rightarrow					OPTIONS	IBCF_A forwards OPTIONS to IBCF_B
32 A							\rightarrow				OPTIONS	IBCF_B forwards OPTIONS to IMS_B
33 A								\rightarrow			OPTIONS	IMS_B forwards OPTIONS to AS_B
34 A							\leftarrow				OPTIONS	AS_B forwards OPTIONS to IMS_B
35 A						←					OPTIONS	IMS_B forwards OPTIONS to
36 A					←						OPTIONS	IBCF_B IBCF_B forwards OPTIONS to IBCF_A
37 A				—	_						OPTIONS	IBCF_A IBCF_A forwards OPTIONS to IMS_A
38 A			<u> </u>								OPTIONS	IMS_A forwards OPTIONS to AS_A
39 A			•	>							OPTIONS	AS_A forwards OPTIONS to IMS_A
40 A		(_							OPTIONS	IMS_A forwards OPTIONS to UE_A
41 A				>							200 OK	UE_A responds 200 OK to IMS_A with updated capabilities
42 A			\leftarrow	_							200 OK	IMS_A forwards 200 OK to AS_A
43 A)							200 OK	AS_A forwards 200 OK to IMS_A
44 A					\rightarrow						200 OK	IMS_A forwards 200 OK to IBCF_A
45 A						\rightarrow					200 OK	IBCF_A forwards 200 OK to IBCF_B
46 A							\rightarrow				200 OK	IBCF_B forwards 200 OK to IMS_B
47 A							\vdash	\rightarrow			200 OK	IMS_B forwards 200 OK to AS_B
48 A							\leftarrow	-			200 OK	AS_B forwards 200 OK to IMS_B
49 A						←	\dashv				200 OK	IMS_B forwards 200 OK to IBCF_B
50 A					\leftarrow						200 OK	IBCF_B forwards 200 OK to IBCF_A
51 A				\leftarrow							200 OK	IBCF_A forwards 200 OK to IMS_A
52 A									\rightarrow		200 OK	IMS_A forwards 200 OK to UE_B

Step					Direc	tion					Message	Comment
	U	Ū	A	ı.	Ī	Ī	I	A	U	U		
	s e	E A	S/ I	M S	B C	B C	M	S/	E B	s e		
	r	^	M	A	F	F	В	M	"	r		
	Α		Α		Α	В		В		В		
53 B									(User B terminates file transfer
54 B				←				_			BYE	UE_B releases the file transfer session with BYE
55 B					\rightarrow						BYE	IMS_A forwards BYE to IBCF_A
56 B					`—	\rightarrow					BYE	IBCF_A forwards BYE to IBCF_B
57 B							\rightarrow				BYE	IBCF_B forwards BYE to IMS_B
58 B								\rightarrow			BYE	IMS_B forwards BYE to AS/IM_B
59 B							\leftarrow				BYE	AS/IM_B returns, possibly modified, BYE to IMS_B
60 B						\leftarrow					BYE	IMS_B forwards BYE to IBCF_B
61 B					\leftarrow						BYE	IBCF_B forwards BYE to IBCF_A
62 B				←							BYE	IBCF_A forwards BYE to IMS_A
63 B			\leftarrow								BYE	IMS_A forwards BYE to AS/IM_A
64 B				\rightarrow							BYE	AS/IM_A returns, possibly modified, BYE to IMS_A
65 B		\leftarrow									BYE	IMS_A forwards BYE to UE_A
66 B	←											User A is informed that file transfer completed
67 B				\rightarrow							200 OK	UE_A sends 200 OK for BYE
68 B			←								200 OK	IMS_A forwards 200 OK response to AS/IM_A
69 B				\rightarrow							200 OK	AS/IM_A returns, possibly modified, 200 OK response to IMS_A
70 B					\rightarrow						200 OK	IMS_A forwards 200 OK response to IBCF_A
71 B						\rightarrow					200 OK	IBCF_A forwards 200 OK response to IBCF_B
72 B							\rightarrow				200 OK	IBCF_B forwards 200 OK response to IMS_B
73 B								\rightarrow			200 OK	IMS_B forwards 200 OK response to AS/IM_B
74 B							←				200 OK	AS/IM_B returns, possibly modified, 200 OK response to IMS_B
75 B						\leftarrow					200 OK	IMS_B forwards 200 OK response to IBCF_B
76 B											200 OK	IBCF_B forwards 200 OK response to IBCF_A
77 B				\leftarrow							200 OK	IBCF_A forwards 200 OK response to IMS_A
78 B									\rightarrow		200 OK	IMS_A forwards 200 OK response to UE_B
79 B										\rightarrow		User B is informed that file transfer has terminated
80 B				\rightarrow							OPTIONS	UE_A sends OPTIONS to IMS_A to verify availability of file transfer
81 B			_								OPTIONS	capability of the UE_B IMS_A forwards OPTIONS to AS_A
82 B											OPTIONS	AS_A forwards OPTIONS to AS_A
83 B					\rightarrow						OPTIONS	IMS_A forwards OPTIONS to
84 B						\rightarrow					OPTIONS	IBCF_A forwards OPTIONS to
85 B							\rightarrow				OPTIONS	IBCF_B IBCF_B forwards OPTIONS to IMS_B
86 B								\rightarrow			OPTIONS	IMS_B forwards OPTIONS to AS_B
87 B							(OPTIONS	AS_B forwards OPTIONS to IMS_B
88 B						(OPTIONS	IMS_B forwards OPTIONS to IBCF_B
												, _5



4.5.6 Geo-Location Services

4.5.6.1 Geo-Location Push

4.5.6.1.1 Geo-Location Push - interworking

	Interoperability Te	est Description									
Identifier:	TD_IMS_GEOLOC_0001										
Summary:	IMS network supports instant File transfer service and Geo-Location services and geo- location information exchange between two users in their home network can be performed. User A initiates geo-location push.										
Configuration:	CF_INT_AS										
SUT	IMS_A and IMS_B										
References	Test Purpose	Specification Reference									
	TP_IMS_5097_01	TS 124 229 [1], clause 5.4.3.2 ¶11 (1st numbered list)									
	TP_IMS_5108_03 TS 124 229 [1], clause 5.4.3.3 ¶5 (item 4 in 1 st numbered list)										
	TP_IMS_5115_08 TS 124 229 [1], clause 5.4.3.3 ¶89 (3 rd numbered list)										
Use Case ref.:	UC_RCS_10_I										
Pre-test conditions:	HSS of IMS_A and of IMS B is configured according to table 1 UE_A and UE_B have IP bearers established to their respective IMS networks as per TS 186 011-2 [7], clause 4.2.1 UE_A is registered in IMS_A optionally using userPRES according to table 1 UE_B is registered in IMS_B optionally using userPRES according to table 1 IMS_A is configured to contact AS_A IMS_B is configured to contact AS_B IMS_A is within the trust domain of IMS_B UE_A and UE_B have already performed capability discovery process IMS_A not configured for topology hiding										

		Interoperability Test Description									
Test Sequence:	Step										
	1	User A initiates a geo-location push to user B									
	2	User B is informed of incoming request and accepts the transfer									
	3	User A is informed that the geo-location push requests has been accepted									
		by user B									
	4	File transfer starts (geo-location info).									
	5	File transfer completed (size checked)									
	6	User B is informed that file transfer completed									
	7	User A is informed that file transfer completed									
		Juser A is informed that file transfer completed									
Conformance Criteria:	Check										
Jilloila.	1	TP_IMS_5097_01 in CFW step 10 (INVITE):									
	1	ensure that {									
		when { UE_A sends an initial INVITE to UE_B }									
		then { IMS_B receives the initial INVITE									
		not containing a Route_header									
		indicating the S-CSCF_SIP_URI of IMS_A									
		containing a P-Charging-Vector_header									
		(containing an icid-value_parameter and									
		containing a orig-ioi_parameter indicating IMS_A and									
		not containing an access-network-charging-info_parameter and									
		not containing a term-ioi_parameter) and									
		containing a Record-Route_header									
		indicating the originating S-CSCF_SIP_URI }									
	2	TP_IMS_5108_03 in CFW step 14 (INVITE)									
	-	ensure that {									
		when { IUT receives an initial INVITE from IMS_A addressed_to UE_B}									
		then { IUT sends the INVITE to AS_B									
		containing a topmost Route_header									
		indicating the SIP_URI of AS_B and									
		containing a Route_header									
		indicating the S-CSCF_SIP_URI of IUT_									
		containing a P-Charging-Vector_header									
		(containing an orig-ioi_parameter									
		indicating IMS_A and									
		not containing a term-ioi_parameter) }									
		}									
	3	TP_IMS_5115_08 in CFW step 25 (200 OK)									
		ensure that {									
		when { IMS_B receives 200_response from AS_B addressed to UE_A }									
		then { IMS_B sends the 200_response to IMS_A									
		containing a P-Charging-Vector_header									
		including a orig-ioi_parameter									
		indicating operator_identifier of IMS_A and									
		including a term-ioi_parameter									
		indicating operator_identifier of IMS_B }									
]									

Step	Direction											Comment
	U s e r A	U E A	A S/ I M A	I M S A	I B C F A	I B C F B	M S B	A S/ I M B	U E B	U s e r B		
1		\rightarrow										User A initiates a geo-location push to user B
2				\rightarrow							INVITE	UE_A sends INVITE to IMS_A to establish a session with the SDP offer indicating all specific data for a MSRP connection set up
3		\leftarrow									100 Trying	IMS_A responds with a 100 Trying provisional response
4			\leftarrow								INVITE	IMS_A forwards INVITE to AS/IM_A

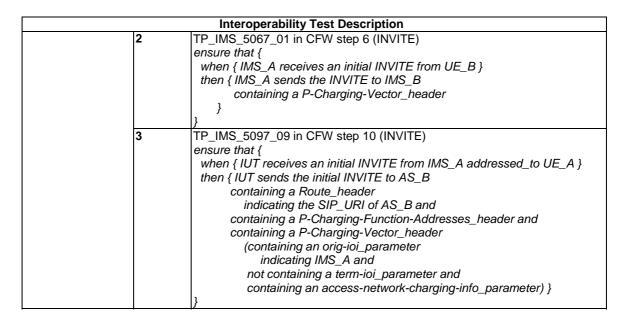
Step					Direct	ion					Message	Comment
	U	U	Α	I	I	I	I	Α	U	U		
	S	E A	S/	M S	B C	B C	M S	S/	E B	s e		
	e r	^	M	A	F	F	В	M	ь	r		
	Α		Α		Α	В		В		В		
5				\rightarrow							100 Trying	AS/IM_A responds with a 100 Trying provisional response
6				\rightarrow							INVITE	AS/IM_A returns, possibly modified, INVITE to IMS_A
7											100 Trying	IMS_A responds with a 100 Trying provisional response
8					\rightarrow						INVITE	IMS_A forwards INVITE to IBCF_A
9				-							100 Trying	IBCF_A responds with a 100 Trying provisional response
10						\rightarrow					INVITE	IBCF_A forwards INVITE to IBCF_B
11					←	_					100 Trying	IBCF_B responds with a 100 Trying provisional response
12							\rightarrow				INVITE	IBCF_B forwards INVITE to IMS_B
13							_				100 Trying	IMS_B responds with a 100 Trying provisional response
14								\rightarrow			INVITE	IMS_B forwards INVITE to AS/IM_B
15											100 Trying	AS/IM_B responds with a 100 Trying provisional response
16							-				INVITE	AS/IM_B returns, possibly modified, INVITE to IMS_B
17								\rightarrow			100 Trying	IMS_B responds with a 100 Trying
18									\rightarrow		INVITE	provisional response IMS_B forwards INVITE to UE_B
19											100 Trying	UE_B optionally responds with a
												100 Trying provisional response
20										\rightarrow		User B is informed of incoming geolocation push request and accepts
21											200 OK	the transfer UE_B responds INVITE with 200
21											200 OK	OK response with SDP to indicate
							\leftarrow					that the session has been accepted
												and inform A-side with specific data for a MSRP connection set up
22								\rightarrow			200 OK	IMS_B forwards 200 OK response to AS/IM_B
23							<u> </u>				200 OK	AS/IM_B returns, possibly modified,
24											200 OK	200 OK response to IMS_B IMS_B forwards 200 OK response
25											200 OK	to IBCF_B IBCF_B forwards 200 OK response
					←							to IBCF_A
26				←							200 OK	IBCF_A forwards 200 OK response to IMS_A
27			\leftarrow	\dashv							200 OK	IMS_A forwards 200 OK response to AS/IM_A
28				\rightarrow							200 OK	AS/IM_A returns, possibly modified, 200 OK response to IMS_A
29		\leftarrow		4							200 OK	IMS_A forwards 200 OK response to UE_A
30												User A is informed that the geo-
	—											location push has been accepted by user B
31				\rightarrow							ACK	UE_A acknowledges the receipt of 200 OK for INVITE
32			←								ACK	IMS_A forwards ACK to AS/IM_A
33				\rightarrow							ACK	AS/IM_A returns, possibly modified, ACK to IMS_A
34					\rightarrow						ACK	IMS_A forwards ACK to IBCF_A
35						\rightarrow					ACK	IBCF_A forwards ACK to IBCF_B
36						<u> </u>	\rightarrow				ACK	IBCF_B forwards ACK to IMS_B

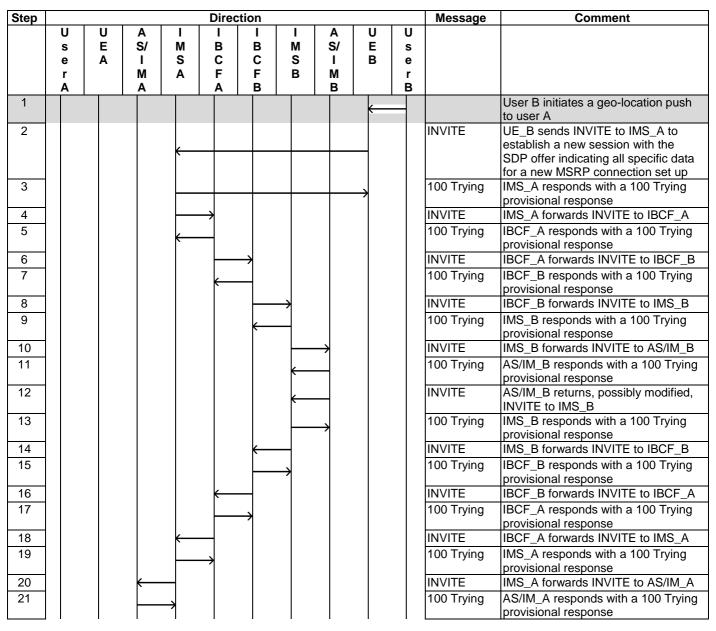
Step					Direct	ion					Message	Comment
	U	U	Α	I	ı	ı	I	Α	U	U		
	S	E	S/	M	В	В	M	S/	E	S		
	е	Α		S	C	C	S	l 	В	е		
	r A		M A	Α	F A	F B	В	M B		r B		
37								ⅎ		Ť	ACK	IMS_B forwards ACK to AS/IM_B
38											ACK	AS/IM_B returns, possibly modified,
												ACK to IMS_B
39								-	\rightarrow		ACK	IMS_B forwards ACK to UE_B
40												File transfer of geo-location info
	\leftarrow									\rightarrow		starts (see clause 5.3.3 Image data
												via MSRP)
41												File transfer completed (size
42											BYE	checked) UE_A releases the file transfer
42				\rightarrow							DIE	session with BYE
43											BYE	IMS_A forwards BYE to AS/IM_A
44			(BYE	AS/IM_A returns, possibly modified,
'				\rightarrow							D12	BYE to IMS_A
45					\rightarrow						BYE	IMS_A forwards BYE to IBCF_A
46						\rightarrow					BYE	IBCF_A forwards BYE to IBCF_B
47							\rightarrow				BYE	IBCF_B forwards BYE to IMS_B
48								\rightarrow			BYE	IMS_B forwards BYE to AS/IM_B
49							,				BYE	AS/IM_B returns, possibly modified,
												BYE to IMS_B
50									\rightarrow		BYE	IMS_B forwards BYE to UE_B
51										_		User B is informed that file transfer
										1		of geo-location info completed
52							←				200 OK	UE_B sends 200 OK for BYE
53								\rightarrow			200 OK	IMS_B forwards 200 OK response
											202 014	to AS/IM_B
54							←	-			200 OK	AS/IM_B returns, possibly modified, 200 OK response to IMS_B
55											200 OK	IMS_B forwards 200 OK response
33						\leftarrow					200 OK	to IBCF_B
56											200 OK	IBCF_B forwards 200 OK response
												to IBCF_A
57											200 OK	IBCF_A forwards 200 OK response
				(to IMS_A
58			←	_							200 OK	IMS_A forwards 200 OK response
59											200 OK	to AS/IM_A AS/IM_A returns, possibly modified,
39				\rightarrow							200 OK	200 OK response to IMS_A
60											200 OK	IMS_A forwards 200 OK response
		\leftarrow										to UE_A
61												User A is informed that file transfer
												of geo-location info is completed

4.5.6.1.2 Geo-Location Push - roaming (optional)

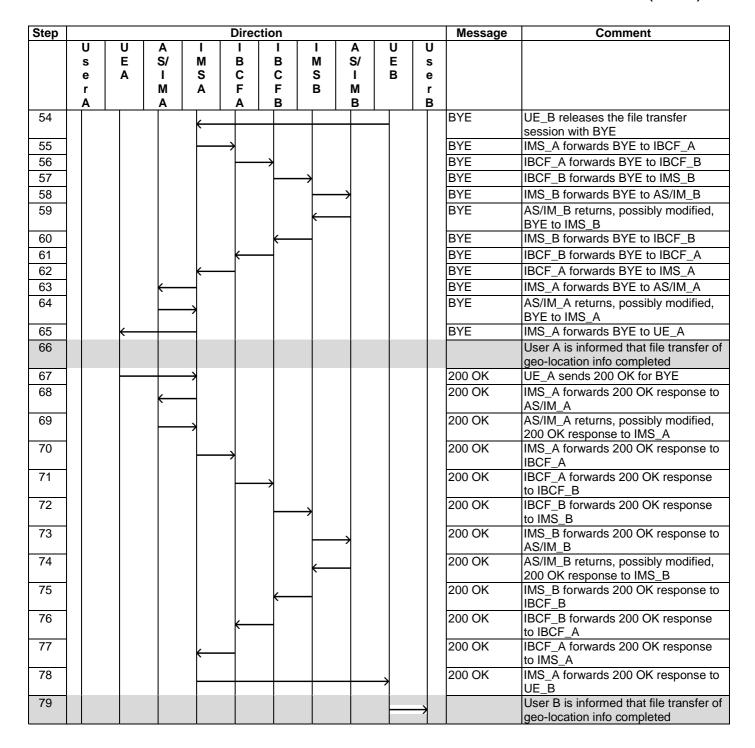
	Interoperabilit	y Test Description							
Identifier:	TD_IMS_GEOLOC_0002								
Summary:	IMS network supports instant File transfer service and Geo-location service and geo-location info exchange between two users, one user in its home network and one user roaming can be performed. User B initiates geo-location push.								
Configuration:	CF_ROAM_AS (OPTIONAL)								
SUT	IMS_A and IMS_B								
References	Test Purpose	Specification Reference							
	TP_IMS_5046_01	TS 124 229 [1], clause 5.2.6.3.3 ¶1							
		(1 st numbered list)							
	TP_IMS_5067_01	TS 124 229 [1], clause 5.2.7.2 ¶5							
	TP_IMS_5097_09	TS 124 229 [1], clause 5.4.3.2 ¶11							

		Interoperability Test Description
		(items 5 and 8 in 1st numbered list)
Use Case ref.:	UC_RCS_	
Pre-test conditions:	 UE_A per T: UE_B table IMS_A IMS_A UE_A 	of IMS_A and of IMS B is configured according to table 1 and UE_B have IP bearers established to their respective IMS networks as S 186 011-2 [7], clause 4.2.1 be is registered in IMS_A optionally using userPRES according to table 1 be is registered in IMS_B via IMS_A optionally using userPRES according to 1 calculate the image of the image
7 10		
Test Sequence:	Step	II. D. S. A
	2	User B initiates a geo-location push to user A User A is informed of incoming geo-location push request and accepts the transfer
	3	User B is informed that geo-location push has been accepted by user A
	4	File transfer of geo-location info starts
	5	File transfer completed (size checked)
	<u>6</u> 7	User A is informed that file transfer completed User B is informed that file transfer completed
	/	Oser B is informed that the transfer completed
Conformance Criteria:	Check	
	1	TP_IMS_5046_01 in CFW step 6 (INVITE) ensure that { when { IMS_A receives an initial INVITE from UE_B } then { IMS_A sends the INVITE to IMS_B





Step					Direc	tion					Message	Comment
	U	Ū	Α	I		I	I	A	Ū	U		
	s e	E A	S/ I	M S	B C	B C	M S	S/ I	E B	s e		
	r		M	A	F	F	В	M		r		
	Α		Α		Α	В		В	<u> </u>	В		
22				\rightarrow							INVITE	AS/IM_A returns, possibly modified, INVITE to IMS_A
23			←								100 Trying	IMS_A responds with a 100 Trying provisional response
24		\leftarrow		_							INVITE	IMS_A forwards INVITE to UE_A
25				\rightarrow							100 Trying	UE_A optionally responds with a 100 Trying provisional response
26	—											User A is informed of incoming geo- location push and accepts the transfer
27				\rightarrow							200 OK	UE_A responds INVITE with 200 OK response with SDP to indicate that the session has been accepted and inform B-side with specific data for a new MSRP connection set up
28			\leftarrow								200 OK	IMS_A forwards 200 OK response to AS/IM_A
29				\rightarrow							200 OK	AS/IM_A returns, possibly modified, 200 OK response to IMS_A
30					\rightarrow						200 OK	IMS_A forwards 200 OK response to IBCF_A
31						\rightarrow					200 OK	IBCF_A forwards 200 OK response to IBCF_B
32							\rightarrow				200 OK	IBCF_B forwards 200 OK response to IMS_B
33								\rightarrow			200 OK	IMS_B forwards 200 OK response to AS/IM_B
34							←				200 OK	AS/IM_B returns, possibly modified, 200 OK response to IMS_B
35						—					200 OK	IMS_B forwards 200 OK response to IBCF B
36											200 OK	IBCF_B forwards 200 OK response to IBCF_A
37				←							200 OK	IBCF_A forwards 200 OK response to IMS_A
38									\rightarrow		200 OK	IMS_A forwards 200 OK response to UE_B
39										\rightarrow		User B is informed that geo-location push has been accepted by user A
40				—							ACK	UE_B acknowledges the receipt of 200 OK for INVITE
41					\rightarrow						ACK	IMS_A forwards ACK to IBCF_A
42					<u> </u>	\rightarrow					ACK	IBCF_A forwards ACK to IBCF_B
43						<u> </u>	\rightarrow				ACK	IBCF_B forwards ACK to IMS_B
44								\rightarrow			ACK	IMS_B forwards ACK to AS/IM_B
45							←	_			ACK	AS/IM_B returns, possibly modified, ACK to IMS_B
46						\leftarrow					ACK	IMS_B forwards ACK to IBCF_B
47					\longleftarrow	\dashv					ACK	IBCF_B forwards ACK to IBCF_A
48				\leftarrow							ACK	IBCF_A forwards ACK to IMS_A
49			\leftarrow	_							ACK	IMS_A forwards ACK to AS/IM_A
50				\rightarrow							ACK	AS/IM_A returns, possibly modified, ACK to IMS_A
51											ACK	IMS_A forwards ACK to UE_A
52	(\rightarrow		File transfer of geo-location info starts (see clause 5.3.3 Image data via MSRP)
53												File transfer of geo-location info completed (size checked)
												completed (Size Glecked)

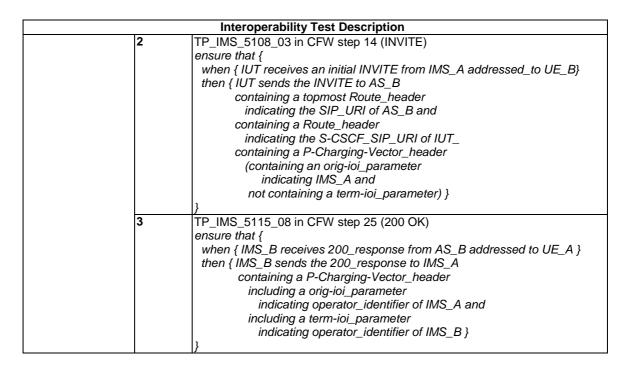


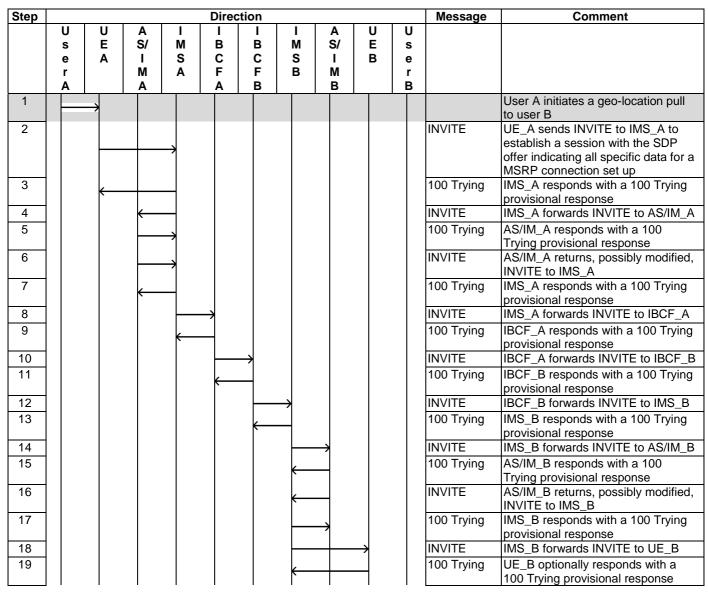
4.5.6.2 Geo-Location Pull

4.5.6.2.1 Geo-Location Pull - interworking

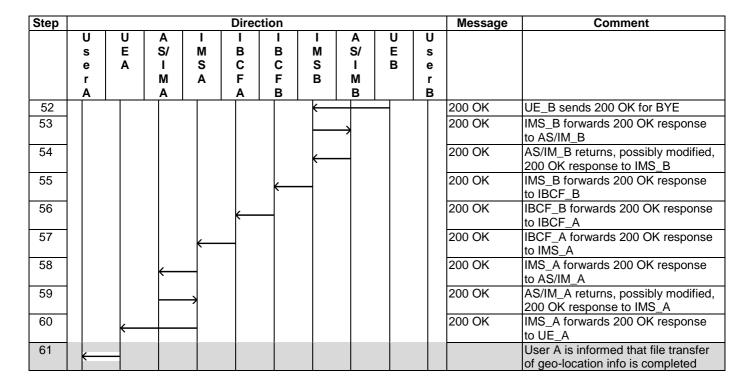
	Interoperability Test Description							
Identifier:	TD_IMS_GEOLOC_0003							
Summary:	IMS network supports instant File transfer service and Geo-Location services and geo- location information exchange between two users in their home network can be performed. User A initiates geo-location pull.							
Configuration:	CF_INT_AS							
SUT	IMS_A and IMS_B							

		Interoperability Test									
References	Test Pur		Specification Reference								
	TP_IMS_	5097_01	TS 124 229 [1], clause 5.4.3.2 ¶11								
			(1st numbered list)								
	TP_IMS_	5108_03	TS 124 229 [1], clause 5.4.3.3 ¶5								
		_	(item 4 in 1 st numbered list)								
	TP_IMS_	5115 08	TS 124 229 [1], clause 5.4.3.3 ¶89								
	- -	0110_00	(3 rd numbered list)								
Use Case ref.:	UC_RCS	10.1	(3 Harribered list)								
OSE Case rei	JUC_RCS	_10_1									
Due toet	1100	(1)40 A (1)40 B :									
Pre-test		of IMS_A and of IMS B is co									
conditions:			established to their respective IMS networks as								
	per TS 186 011-2 [7], clause 4.2.1										
			onally using userPRES according to table 1								
	UE_B is registered in IMS_B optionally using userPRES according to table 1										
	IMS_	IMS_A is configured to contact AS_A									
	IMS	1140 D									
		IMS_A is within the trust domain of IMS_B									
		 UE_A and UE_B have already performed capability discovery process IMS_A not configured for topology hiding 									
	- W O_		Thung								
Test Sequence:	Step										
rest ocquerice.	User A initiates a geo-location pull to user B										
	2	User B is informed of incoming request and accepts the request and initia									
		• • • • • • • • • • • • • • • • • • • •									
		geo-location; push to User A.									
	3	User A is informed that the geo-location pull request has been accepted									
		user B									
	4	File transfer starts (geo-location info).									
	5	File transfer completed (size checked)									
		User B is informed that file transfer completed									
	6										
	6 7	User B is informed that file to User A is informed that file									
Conformance Criteria:											
	7		transfer completed								
	7 Check	User A is informed that file	transfer completed								
	7 Check	User A is informed that file to the second of the second o	step 10 (INVITE):								
	7 Check	TP_IMS_5097_01 in CFW sensure that { when { UE_A sends an initial sensors and the content of the	step 10 (INVITE):								
	7 Check	TP_IMS_5097_01 in CFW sensure that { when { UE_A sends an inition then { IMS_B receives the sends an inition the sends and sends and sends and sends and sends an inition the sends and sends an inition the sends and sends and sends an inition the sends and s	step 10 (INVITE): al INVITE to UE_B } initial INVITE								
	7 Check	TP_IMS_5097_01 in CFW sensure that { when { UE_A sends an inition then { IMS_B receives the not containing a Roll.}	step 10 (INVITE): al INVITE to UE_B } initial INVITE ute_header								
	7 Check	TP_IMS_5097_01 in CFW sensure that { when { UE_A sends an inition then { IMS_B receives the not containing a Roindicating the S-C	transfer completed step 10 (INVITE): fal INVITE to UE_B } initial INVITE ute_header SCF_SIP_URI of IMS_A								
	7 Check	TP_IMS_5097_01 in CFW sensure that { when { UE_A sends an inition then { IMS_B receives the not containing a Rocindicating the S-C containing a P-Chair	transfer completed step 10 (INVITE): fal INVITE to UE_B } initial INVITE ute_header SCF_SIP_URI of IMS_A rging-Vector_header								
Conformance Criteria:	7 Check	TP_IMS_5097_01 in CFW sensure that { when { UE_A sends an inition then { IMS_B receives the not containing a Rocionation to the sense of the containing a P-Characteristic then { Indicating the S-C containing an icide.	transfer completed step 10 (INVITE): fal INVITE to UE_B } initial INVITE ute_header SCF_SIP_URI of IMS_A rging-Vector_header -value_parameter and								
	7 Check	TP_IMS_5097_01 in CFW sensure that { when { UE_A sends an inition then { IMS_B receives the not containing a Rouse indicating the S-C containing an icide containing a orig-i	transfer completed step 10 (INVITE): fal INVITE to UE_B } initial INVITE ute_header SCF_SIP_URI of IMS_A rging-Vector_header -value_parameter and ioi_parameter indicating IMS_A and								
	7 Check	TP_IMS_5097_01 in CFW sensure that { when { UE_A sends an inition then { IMS_B receives the not containing a Roundicating the S-C containing a P-Character (containing an icide containing a not containing an icide containing an	transfer completed step 10 (INVITE): fal INVITE to UE_B } initial INVITE ute_header SCF_SIP_URI of IMS_A rging-Vector_header -value_parameter and ioi_parameter indicating IMS_A and access-network-charging-info_parameter and								
	7 Check	TP_IMS_5097_01 in CFW sensure that { when { UE_A sends an inition then { IMS_B receives the not containing a Round indicating the S-C containing a P-Character (containing an icident containing and icident containing	step 10 (INVITE): al INVITE to UE_B } initial INVITE ute_header SCF_SIP_URI of IMS_A rging-Vector_header -value_parameter and ioi_parameter indicating IMS_A and access-network-charging-info_parameter and erm-ioi_parameter) and								
	7 Check	TP_IMS_5097_01 in CFW sensure that { when { UE_A sends an inition then { IMS_B receives the not containing a Roundicating the S-C containing a P-Charal (containing an icide containing and icide containing a Record	step 10 (INVITE): al INVITE to UE_B } initial INVITE ute_header SCF_SIP_URI of IMS_A rging-Vector_header -value_parameter and ioi_parameter indicating IMS_A and access-network-charging-info_parameter and erm-ioi_parameter) and								





Step					Direc	tion					Message	Comment
	U	U	A	I	I	I	I	Α	U	U	J	
	s e	E A	S/	M S	B C	B C	M S	S/	E B	s e		
	r	^	M	A	F	F	В	М	ь	r		
	Α		Α		Α	В		В		В		
20												User B is informed of incoming geo-
										\rightarrow		location pull request and accepts the request to send geo-location
												info to User A.
21											200 OK	UE_B responds INVITE with 200
												OK response with SDP to indicate
												that the session has been accepted and inform A-side with specific data
												for a MSRP connection set up
22								\rightarrow			200 OK	IMS_B forwards 200 OK response
23											200 OK	to AS/IM_B AS/IM_B returns, possibly modified,
23							←				200 OK	200 OK response to IMS_B
24						,					200 OK	IMS_B forwards 200 OK response
												to IBCF_B
25					←—	_					200 OK	IBCF_B forwards 200 OK response to IBCF_A
26											200 OK	IBCF_A forwards 200 OK response
				\leftarrow							200 0.1	to IMS_A
27			\leftarrow								200 OK	IMS_A forwards 200 OK response
28											200 OK	to AS/IM_A AS/IM_A returns, possibly modified,
20				\rightarrow							200 OK	200 OK response to IMS_A
29											200 OK	IMS_A forwards 200 OK response
0.0												to UE_A
30	<u> </u>											User A is informed that the geolocation pull request has been
												accepted by user B
31				\rightarrow							ACK	UE_A acknowledges the receipt of 200 OK for INVITE
32			\leftarrow								ACK	IMS_A forwards ACK to AS/IM_A
33				\rightarrow							ACK	AS/IM_A returns, possibly modified, ACK to IMS_A
34					\rightarrow						ACK	IMS_A forwards ACK to IBCF_A
35					·	\rightarrow					ACK	IBCF_A forwards ACK to IBCF_B
36							\rightarrow				ACK	IBCF_B forwards ACK to IMS_B
37								\rightarrow			ACK	IMS_B forwards ACK to AS/IM_B
38							<u></u>				ACK	AS/IM_B returns, possibly modified,
39											ACK	ACK to IMS_B IMS_B forwards ACK to UE_B
40									7		AON	File transfer of geo-location info
13	—									\rightarrow		starts (see clause 5.3.3 Image data
												via MSRP)
41												File transfer completed (size checked)
42											BYE	UE_A releases the file transfer
40				1							D)/E	session with BYE
43			\leftarrow								BYE BYE	IMS_A forwards BYE to AS/IM_A
44				\rightarrow							DIE	AS/IM_A returns, possibly modified, BYE to IMS_A
45					\rightarrow						BYE	IMS_A forwards BYE to IBCF_A
46						\rightarrow					BYE	IBCF_A forwards BYE to IBCF_B
47							\rightarrow				BYE	IBCF_B forwards BYE to IMS_B
48								\rightarrow			BYE	IMS_B forwards BYE to AS/IM_B
49								\dashv			BYE	AS/IM_B returns, possibly modified, BYE to IMS_B
50									\rightarrow		BYE	IMS_B forwards BYE to UE_B
51										\rightarrow		User B is informed that file transfer
												of geo-location info completed



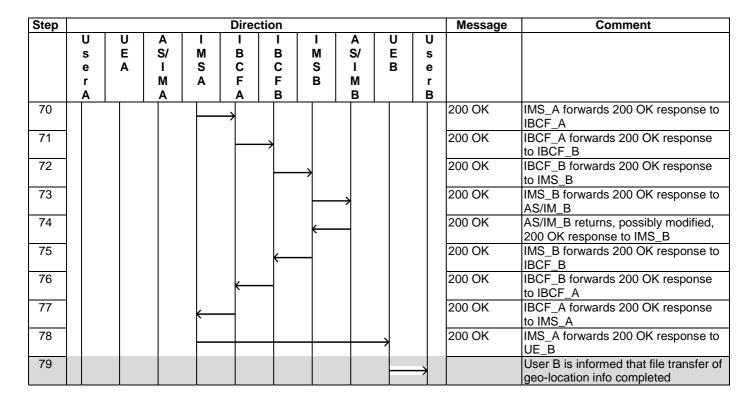
4.5.6.2.2 Geo-Location Pull - roaming (optional)

	Interoperability Te	est Description						
Identifier:	TD_IMS_GEOLOC_0004							
Summary:	IMS network supports instant File transfer service and Geo-location service and geo- location info exchange between two users, one user in its home network and one user roaming can be performed. User B initiates geo-location pull.							
Ozofianostiano	OF DOAM AC (ORTIONAL)							
Configuration:	CF_ROAM_AS (OPTIONAL)							
SUT References	IMS_A and IMS_B	Consideration Defended						
References	Test Purpose TP_IMS_5046_01	Specification Reference TS 124 229 [1], clause 5.2.6.3.3 ¶1 (1st numbered list)						
	TP_IMS_5067_01	TS 124 229 [1], clause 5.2.7.2 ¶5						
	TP_IMS_5097_09	TS 124 229 [1], clause 5.4.3.2 ¶11 (items 5 and 8 in 1 st numbered list)						
Use Case ref.:	UC_RCS_10_R	,						
Pre-test conditions:	 UE_A and UE_B have IP beamper TS 186 011-2 [7], clause 4 UE_A is registered in IMS_A o UE_B is registered in IMS_B v table 1 IMS_A is configured to contact IMS_B is configured to contact IMS_A is within the trust doma 	ptionally using userPRES according to table 1 ia IMS_A optionally using userPRES according to : AS_A : AS_B in of IMS_B performed capability discovery process						

		Interoperability Test Description
Test Sequence:	Step	
	1	User B initiates a geo-location pull to user A
	2	User A is informed of incoming geo-location pull request and accepts the
		request to send geo-location info to User B.
	3	User B is informed that geo-location pull has been accepted by user A
	4	File transfer of geo-location info starts
	5	File transfer completed (size checked)
	6	User A is informed that file transfer completed
	7	User B is informed that file transfer completed
	Ta	
Conformance	Check	
Criteria:		
	1	TP_IMS_5046_01 in CFW step 6 (INVITE)
		ensure that {
		when { IMS_A receives an initial INVITE from UE_B }
		then { IMS_A sends the INVITE to IMS_B
		containing a Route_header
		not indicating the P-CSCF_SIP_URI of IMS_A and
		containing a Route_header indicating the "list of Service Route header URIs
		from the registration" and
		containing an additional Via_header
		containing (the P-CSCF_via_port_number and
		(the P-CSCF-FQDN_address or
		the P-CSCF-IP_address)) of IMS_A and
		containing an additional topmost Record-Route_header
		indicating (the P-CSCF_port_number
		'where it awaits subsequent requests' from UE_A and
		(the P-CSCF-FQDN_address or
		the P-CSCF-IP_address)) of IMS_A and
		not containing P-Preferred-Identity_header and
		containing a P-Asserted-Identity_header
		containing an address of UE_B and
		containing a P-Charging-Vector_header
		containing an icid-value_parameter }
]
	2	TP_IMS_5067_01 in CFW step 6 (INVITE)
		ensure that {
		when { IMS_A receives an initial INVITE from UE_B }
		then { IMS_A sends the INVITE to IMS_B
		containing a P-Charging-Vector_header
		}
		}
	3	TP_IMS_5097_09 in CFW step 10 (INVITE)
		ensure that {
		when { IUT receives an initial INVITE from IMS_A addressed_to UE_A }
		then { IUT sends the initial INVITE to AS_B
		containing a Route_header
		indicating the SIP_URI of AS_B and
		containing a P-Charging-Function-Addresses_header and
		containing a P-Charging-Vector_header
		(containing an orig-ioi_parameter
		indicating IMS_A and
		not containing a term-ioi_parameter and
		containing an access-network-charging-info_parameter) }
		\ <i>\</i>

Step					Direc	tion					Message	Comment
	U	Ū	A	l l	Ī	I	I	A	U	U		
	s e	E A	S/	M S	B C	B C	M S	S/	E B	s e		
	r	^	M	Ā	F	F	В	M		r		
	Α		Α		Α	В		В		В		II Divisi
1									\leftarrow			User B initiates a geo-location pull to user A
2											INVITE	UE_B sends INVITE to IMS_A to
				←—								establish a new session with the
												SDP offer indicating all specific data for a new MSRP connection set up
3											100 Trying	IMS_A responds with a 100 Trying
												provisional response
4					\rightarrow						INVITE	IMS_A forwards INVITE to IBCF_A
5				\leftarrow							100 Trying	IBCF_A responds with a 100 Trying provisional response
6						\rightarrow					INVITE	IBCF_A forwards INVITE to IBCF_B
7											100 Trying	IBCF_B responds with a 100 Trying
0											INVITE	provisional response IBCF_B forwards INVITE to IMS_B
8											100 Trying	IMS_B responds with a 100 Trying
						\leftarrow						provisional response
10								\rightarrow			INVITE	IMS_B forwards INVITE to AS/IM_B
11							\leftarrow				100 Trying	AS/IM_B responds with a 100 Trying provisional response
12											INVITE	AS/IM_B returns, possibly modified,
												INVITE to IMS_B
13								\rightarrow			100 Trying	IMS_B responds with a 100 Trying provisional response
14						←					INVITE	IMS_B forwards INVITE to IBCF_B
15							_				100 Trying	IBCF_B responds with a 100 Trying
16							1				INVITE	provisional response
17											100 Trying	IBCF_B forwards INVITE to IBCF_A IBCF_A responds with a 100 Trying
''						\rightarrow					100 Trying	provisional response
18				←							INVITE	IBCF_A forwards INVITE to IMS_A
19					\rightarrow						100 Trying	IMS_A responds with a 100 Trying provisional response
20			—								INVITE	IMS_A forwards INVITE to AS/IM_A
21				_							100 Trying	AS/IM_A responds with a 100 Trying
				1							IND /ITE	provisional response
22				\rightarrow							INVITE	AS/IM_A returns, possibly modified, INVITE to IMS_A
23			,								100 Trying	IMS_A responds with a 100 Trying
											IND /ITE	provisional response
24 25											INVITE 100 Trying	IMS_A forwards INVITE to UE_A UE_A optionally responds with a 100
20				\rightarrow							100 Hyllig	Trying provisional response
26	,											User A is informed of incoming geo-
												location pull and accepts the request to send geo-location info.
27											200 OK	UE_A responds INVITE with 200 OK
												response with SDP to indicate that
				7								the session has been accepted and inform B-side with specific data for a
												new MSRP connection set up
28			—								200 OK	IMS_A forwards 200 OK response to
29			ſ								200 OK	AS/IM_A AS/IM_A returns, possibly modified,
23				\rightarrow							200 OK	200 OK response to IMS_A
30					\rightarrow						200 OK	IMS_A forwards 200 OK response to
31					-						200 OK	IBCF_A IBCF_A forwards 200 OK response
31						\rightarrow					200 OK	to IBCF_B
	•	1			į		1	1				

Step					Direct	tion					Message	Comment
	U	U	Α	I	I	ı	I	Α	U	U		
	S	E	S/	M	В	В	M	S/	E	S		
	e r	Α	I M	SA	C F	C F	S B	M	В	e r		
	Ä		A	^	A	В		В		В		
32							\rightarrow				200 OK	IBCF_B forwards 200 OK response to IMS_B
33								\rightarrow			200 OK	IMS_B forwards 200 OK response to AS/IM_B
34							-				200 OK	AS/IM_B returns, possibly modified, 200 OK response to IMS_B
35						(200 OK	IMS_B forwards 200 OK response to IBCF_B
36											200 OK	IBCF_B forwards 200 OK response to IBCF_A
37											200 OK	IBCF_A forwards 200 OK response to IMS_A
38									\rightarrow		200 OK	IMS_A forwards 200 OK response to UE_B
39										\rightarrow		User B is informed that geo-location pull has been accepted by user A
40				←	-						ACK	UE_B acknowledges the receipt of 200 OK for INVITE
41					\rightarrow						ACK	IMS_A forwards ACK to IBCF_A
42						\rightarrow					ACK	IBCF_A forwards ACK to IBCF_B
43						-	\rightarrow				ACK	IBCF_B forwards ACK to IMS_B
44								\rightarrow			ACK	IMS_B forwards ACK to AS/IM_B
45							←				ACK	AS/IM_B returns, possibly modified, ACK to IMS_B
46						\leftarrow					ACK	IMS_B forwards ACK to IBCF_B
47					←	_					ACK	IBCF_B forwards ACK to IBCF_A
48				←	_						ACK	IBCF_A forwards ACK to IMS_A
49			\leftarrow								ACK	IMS_A forwards ACK to AS/IM_A
50				\rightarrow							ACK	AS/IM_A returns, possibly modified, ACK to IMS_A
51		\leftarrow									ACK	IMS_A forwards ACK to UE_A
52	(\rightarrow		File transfer of geo-location info starts (see clause 5.3.3 Image data via MSRP)
53												File transfer of geo-location info completed (size checked)
54											BYE	UE_B releases the file transfer session with BYE
55					\rightarrow						BYE	IMS_A forwards BYE to IBCF_A
56						\rightarrow					BYE	IBCF_A forwards BYE to IBCF_B
57							\rightarrow				BYE	IBCF_B forwards BYE to IMS_B
58								\rightarrow			BYE	IMS_B forwards BYE to AS/IM_B
59							\leftarrow				BYE	AS/IM_B returns, possibly modified, BYE to IMS_B
60						\leftarrow					BYE	IMS_B forwards BYE to IBCF_B
61					←	\dashv					BYE	IBCF_B forwards BYE to IBCF_A
62				←							BYE	IBCF_A forwards BYE to IMS_A
63			←	\longrightarrow							BYE	IMS_A forwards BYE to AS/IM_A
64				\rightarrow							BYE	AS/IM_A returns, possibly modified, BYE to IMS_A
65		\leftarrow		\longrightarrow							BYE	IMS_A forwards BYE to UE_A
66												User A is informed that file transfer of geo-location info completed
67				\rightarrow							200 OK	UE_A sends 200 OK for BYE
68				1							200 OK	IMS_A forwards 200 OK response to AS/IM_A
69				\rightarrow							200 OK	AS/IM_A returns, possibly modified, 200 OK response to IMS_A
	•	•	•	•			•		•	,	-	·



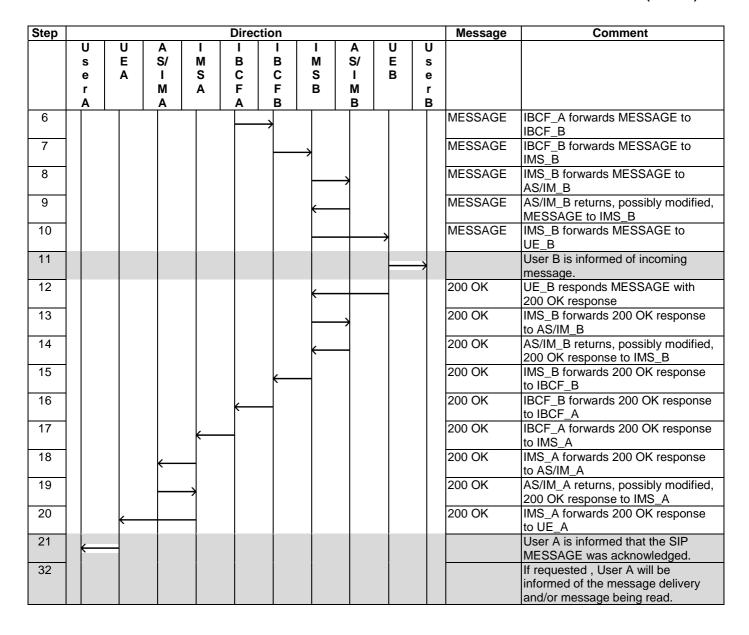
4.5.7 Standalone Messaging

4.5.7.1 Standalone Messaging - Interworking

	Interoperability Te	est Description							
Identifier:	TD_IMS_STANDALONEMESS_00	TD_IMS_STANDALONEMESS_0001							
Summary:	IMS network supports standalone messaging and such a message exchange between two users in their home network can be performed. User A initiates standalone messaging toward User B.								
Configuration:	CF_INT_AS								
SUT	IMS_A and IMS_B								
References	Test Purpose	Specification Reference							
	TP_IMS_5097_05	TS 124 229 [1] (V8.10.0), clause 5.4.3.2							
	TP_IMS_5097_06	TS 124 229 [1] (V8.10.0), clause 5.4.3.2							
		¶11 (item 9 in 1 st numbered list)							
	TP_IMS_5108_04	TS 124 229 [1] (V8.10.0), clause 5.4.3.3							
		¶5 (item 4 in1st numbered list)							
Use Case ref.:	UC_RCS_11_I	, , ,							
Pre-test conditions:	 UE_A and UE_B have IP bear per TS 186 011-2 [7], clause 4 UE_A is registered in IMS_A o UE_B is registered in IMS_B o IMS_A is configured to contact IMS_B is configured to contact IMS_A is within the trust doma 	ptionally using userPRES according to table 1 ptionally using userPRES according to table 1 t AS_A t AS_B							
	IMS_A not configured for topol								

		Interoperability Test Description							
Test Sequence:	Step								
•	1	User A initiates a standalone message to user B							
	2	User B is informed of incoming message.							
	3	User A is informed that the SIP MESSAGE has been acknowledged by user							
		B							
	4	Optionally User A may be also informed that the message has been							
	4	delivered and/or read (if requested by User A).							
		delivered and/or read (ii requested by Oser A).							
2	Obsasla								
Conformance	Check								
Criteria:									
	1	TP_IMS_5097_05 in CFW step 7 (INVITE):							
		ensure that {							
		when { UE_A sends an initial MESSAGE to UE_B }							
		then { IMS_B receives the initial INVITE							
		not containing a Route_header							
		indicating the S-CSCF_SIP_URI of IMS_A							
		containing a P-Charging-Vector_header							
		(containing an icid-value_parameter and							
		containing a orig-ioi_parameter indicating IMS_A and							
		not containing an access-network-charging-info_parameter and							
		not containing a term-ioi_parameter) and							
		containing a Record-Route_header							
		indicating the originating S-CSCF_SIP_URI }							
		indicating the originating 3-030F_SIF_OKLY							
	2	TD IMC 5007 00 in CDM stop 0 (INIV/ITE)							
	2	TP_IMS_5097_06 in CFW step 8 (INVITE)							
		ensure that {							
		when { IUT receives an initial MESSAGE from IMS_A addressed_to UE_B							
		then { IUT sends the INVITE to AS_B							
		containing a topmost Route_header							
		indicating the SIP_URI of AS_B and							
		containing a Route_header							
		indicating the S-CSCF_SIP_URI of IUT_							
		containing a P-Charging-Vector_header							
		(containing an orig-ioi_parameter							
		indicating IMS_A and							
		not containing a term-ioi_parameter) }							
		}							
	3	TP_IMS_5108_04 in CFW step 15 (200 OK)							
		ensure that {							
		when { IMS_B receives 200_response from AS_B addressed to UE_A }							
		then { IMS_B sends the 200_response to IMS_A							
		containing a P-Charging-Vector_header							
		including a orig-ioi_parameter							
		indicating operator_identifier of IMS_A and							
		including a term-ioi_parameter							
		indicating operator_identifier of IMS_B }							
	1	<i>}</i>							

Step					Direc	tion					Message	Comment
•	U s e r A	U E A	A S/ I M A	I M S A	I B C F A	I B C F B	I M S B	A S/ I M B	U E B	U s e r B		
1		\rightarrow										User A initiates a standalone message to user B
2				\rightarrow							MESSAGE	UE_A sends MESSAGE to IMS_A containing a message body with the standalone message contents.
3			\leftarrow	_							MESSAGE	IMS_A forwards MESSAGE to AS/IM_A
4				\rightarrow							MESSAGE	AS/IM_A returns, possibly modified, MESSAGE to IMS_A
5					\rightarrow						MESSAGE	IMS_A forwards MESSAGE to IBCF_A



4.5.7.2 Standalone Messaging - Roaming

	Interoperability	Test Description							
Identifier:	TD_IMS_STANDALONEMESS	TD_IMS_STANDALONEMESS_0002							
Summary:	IMS network supports standalone messaging and such message exchange between two users, one user in its home network and one user roaming can be performed. User B initiates standalone messaging to User A.								
Configuration:	CF_ROAM_AS (OPTIONAL)								
SUT	IMS_A and IMS_B								
References	Test Purpose	Specification Reference							
	TP_IMS_505001	TS 124 229 [1] (V8.10.0), clause 5.2.6.3.3 ¶(1st numbered list)							
	TP_IMS_5097_02	TS 124 229 [1] (V8.10.0), clause 5.4.3.2 ¶11 (item 9 1 st numbered list)							
	TP_IMS_5108_02 TS 124 229 [1] (V8.10.0), clause 5.4.3.3 ¶5 (1 st numbered list)								
Use Case ref.:	UC_RCS_11_R								

		Interoperability Test Description
Pre-test	• HSS	Interoperability Test Description of IMS_A and of IMS B is configured according to table 1
conditions:		A and UE_B have IP bearers established to their respective IMS networks as
conditions.		TS 186 011-2 [7], clause 4.2.1
		A is registered in IMS_A optionally using userPRES according to table 1
		. , ,
		B is registered in IMS_B via IMS_A optionally using userPRES according to
	table	
		_A is configured to contact AS_A
	_	B is configured to contact AS_B
		_A is within the trust domain of IMS_B
		A and UE_B have already performed capability discovery process
	• IMS	_A not configured for topology hiding
Test Sequence:	Ston	
rest Sequence.	Step 1	User B initiates a standalone message to user A
	2	User A is informed of incoming standalone message.
	3	User B is informed the SIP message is acknowledged.
	4	Optionally User B may be also informed that the message has been
		delivered and/or read (if requested by User B).
Conformance	Check	
Criteria:		
	1	TP_IMS_5050_01 in CFW step 3 (MESSAGE)
		ensure that {
		when { IMS_A receives a MESSAGE from UE_B }
		then { IMS_A sends the MESSAGE to IMS_B
		containing a Route_header
		not indicating the P-CSCF_SIP_URI of IMS_A and
		containing a Route_header
		indicating the "list of Service Route header URIs
		from the registration" and
		containing an additional Via_header
		containing (the P-CSCF_via_port_number and
		(the P-CSCF-FQDN_address or
		the P-CSCF-IP_address)) of IMS_A and
		containing an additional topmost Record-Route_header
		indicating (the P-CSCF_port_number
		'where it awaits subsequent requests' from UE_A and
		(the P-CSCF-FQDN_address or
		the P-CSCF-IP_address)) of IMS_A and
		not containing P-Preferred-Identity_header and
		containing a P-Asserted-Identity_header
		containing an address of UE_B and
		containing a P-Charging-Vector_header
		containing an icid-value_parameter }
]}
	2	TP_IMS_5097_02 in CFW step 3 (MESSAGE)
		ensure that {
		when { IMS_A receives a MESSAGE from UE_B }
		then { IMS_A sends the MESSAGE to IMS_B
		containing a P-Charging-Vector_header
		}
		}
	3	TP_IMS_5108_02 in CFW step 6 (MESSAGE)
	1	ensure that {
	1	when { IUT receives a MESSAGE from IMS_A addressed_to UE_A }
	1	then { IUT sends the MESSAGE to AS_B
		containing a Route_header
	1	indicating the SIP_URI of AS_B and
	1	containing a P-Charging-Function-Addresses_header and
	1	containing a P-Charging-Vector_header
	1	(containing an orig-ioi_parameter
	1	indicating IMS_A and
	1	not containing a term-ioi_parameter and
		containing an access-network-charging-info_parameter) }
]}
		I/

Step				Direction					Message	Comment
		U A E S/	I M	I I	I	A S/	U E	U		
	s e	A I	S	B B C C	M S	J	В	s e		
	r A	M	Α	F F B	В	M B		r B		
1	A			A B		<u>B </u>				User B initiates a standalone
									14500105	message to user A
2									MESSAGE	UE_B sends MESSAGE to IMS_A with the standalone message in the message body.
3									MESSAGE	IMS_A forwards MESSAGE to IBCF_A
4									MESSAGE	IBCF_A forwards MESSAGE to IBCF_B
5					\longrightarrow				MESSAGE	IBCF_B forwards MESSAGE to IMS_B
6						\rightarrow			MESSAGE	IMS_B forwards MESSAGE to AS/IM_B
7					←				MESSAGE	AS/IM_B returns, possibly modified, MESSAGE to IMS_B
8				├					MESSAGE	IMS_B forwards MESSAGE to IBCF_B
9				\leftarrow					MESSAGE	IBCF_B forwards MESSAGE to IBCF_A
10				1					MESSAGE	IBCF_A forwards MESSAGE to IMS_A
11		←							MESSAGE	IMS_A forwards MESSAGE to AS/IM_A
12		<u> </u>	\longrightarrow						MESSAGE	AS/IM_A returns, possibly modified, MESSAGE to IMS_A
13		 							MESSAGE	IMS_A forwards MESSAGE to UE_A
14										User A is informed of incoming standalone message.
15									200 OK	UE_A responds MESSAGE with 200
16		_							200 OK	OK response IMS_A forwards 200 OK response to
17		Ì							200 OK	AS/IM_A AS/IM_A returns, possibly modified,
18									200 OK	200 OK response to IMS_A IMS_A forwards 200 OK response to
19			,						200 OK	IBCF_A IBCF_A forwards 200 OK response
20									200 OK	to IBCF_B IBCF_B forwards 200 OK response
21						\rightarrow			200 OK	to IMS_B IMS_B forwards 200 OK response to
22					—				200 OK	AS/IM_B AS/IM_B returns, possibly modified,
23									200 OK	200 OK response to IMS_B IMS_B forwards 200 OK response to
24									200 OK	IBCF_B IBCF_B forwards 200 OK response
25				<u> </u>					200 OK	to IBCF_A IBCF_A forwards 200 OK response
26							_		200 OK	to IMS_A IMS_A forwards 200 OK response to
27										UE_B User B is informed that the SIP
								\rightarrow		MESSAGE is acknowledged.
28										If requested, ser B will be informed that the message has been delivered
										and/or that the message has been read.

4.5.8 Multi-Tasking

The Test Descriptions for multi-tasking may be derived for with reference to clauses 4.5.1 through 4.5.7 in conjunction with the test Descriptions documented in TS 186 011-2 [7] and RFC 4976 [9].

5 MSRP Test Specification

5.1 Introduction

MSRP is a text based, connection-oriented protocol specified in RFC 4975 [8], RFC 4976 [9] and RFC 6135 [10]. It is not designed for use as a standalone protocol and therefore it can be part of the SIP protocol. The MSRP URIs are exchanged using SDP in an offer/answer exchange via SIP.

NOTE: The following test descriptions are referenced within the IMS-NNI Interoperability test descriptions.

5.2 Test Prerequisites

5.2.1 Authorization over MSRP

Client that wants to use the services of IM AS they need to authenticate with authorization procedure. Expected authorization procedure is detailed described in RFC 4976 [9] and its MSRP sequence diagram is:

Step	Direction	Mossago	Comment					
Step	UE AS IM	Message	Comment					
1	\rightarrow	AUTH	The UE sends AUTH					
2	+	401 Unauthorized	The AS IM responds with a valid HTTP Digest					
			authentication challenge					
3	\rightarrow	AUTH	The UE sends another AUTH with authentication					
4	+	200 OK	The AS IM responds with 200 OK.					

5.3 Use Cases

The test descriptions with call flow diagrams in clauses 4.5.3 to 4.5.5 contain basic MSRP transactions which are only marked symbolically, e.g. "Users perform chatting". Detailed MSRP call flows are described in the present clause. This split of MSRP and SIP signalling has been chosen to keep the test description more readable.

5.3.1 Chat 1 to 1 via MSRP

Use case index UC_MSRP_01 is used.

NOTE: Call flows show only the first chat transmission from one user to another and back. Other transmissions follow depending on who sends the next text message to the other user; this message is transferred with SEND request to the other user.

Step				Dire	ction				Message	Comment
	C	C					U	U		
	S	Ε					E	s		
	е	Α					В	е		
	r							r		
	Α				L ,	<u> </u>		В		
1		\rightarrow								User A write a chat message
2			_				\rightarrow		SEND	UE A sends SEND MSRP with content to UE B
3		←	_				_		200 OK	UE B responds with 200 OK to UE A
4								\rightarrow		User B read a chat message
5							 	_		User B write a chat message
6		←	_				_		SEND	UE B sends SEND MSRP with content to UE A
7				_	$- \vdash$	_	\rightarrow		200 OK	UE A responds with 200 OK to UE B
8	\leftarrow									User A read a chat message

5.3.2 Chat 1 to many via MSRP

NOTE: Call flows show only the first chat transmission from one user to all other users. Other transmissions follow depending on who sends the next text message to the other user; this message is transferred with SEND request to the other parties.

5.3.2.1 Chat 1 to many via MSRP - Interworking

Use case index UC_MSRP_02_I is used.

Step				Direc	tion				Message	Comment
	U s e r A	U E A	A S/ I M A		U E B	U s e r B	U E C	U s e r C		
1		\rightarrow								User A write a chat message
2		H	\rightarrow						SEND	UE A sends SEND MSRP with content to IM SERVER
3		←							200 OK	IM SERVER responds with 200 OK to UE A
4				- -	\rightarrow				SEND	IM SERVER sends SEND MSRP with content to UE B
5			\leftarrow	_	_				200 OK	UE responds with 200 OK to IM SERVER
6					-	\rightarrow				User B read a chat message
7				_	_		\rightarrow		SEND	IM SERVER sends SEND MSRP with content to UE C
8			\leftarrow	_	-	-	_		200 OK	UE C responds with 200 OK to IM SERVER
9								\rightarrow		User C read a chat message

5.3.2.2 Chat 1 to many via MSRP - Roaming

Use case index UC_MSRP_02_R is used.

Step			Dire	ection				Message	Comment
	U s e r A	U E A	A S/ I M B	U E B	U s e r B	ОШС	U s e r C		
1			<u> </u>					SEND	UE A sends SEND MSRP with content to IM SERVER
2			_	\rightarrow				200 OK	IM SERVER responds with 200 OK to UE A
3				\vdash					User B write a chat message
4		←	+					SEND	IM SERVER sends SEND MSRP with content to UE B
5			\longrightarrow					200 OK	UE responds with 200 OK to IM SERVER
6	\leftarrow								User A read a chat message
7				_		\rightarrow		SEND	IM SERVER sends SEND MSRP with content to UE C
8				-		-		200 OK	UE C responds with 200 OK to IM SERVER
9							\rightarrow		User C read a chat message

5.3.2.3 Chat 1 to many via MSRP to additional user - Interworking

Use case index UC_MSRP_03_I is used.

Step				Dire	ction			Message	Comment
	U s e r A	U E A	A S/ I M A			U E D	U s e r D		
1									Follow UC_MSRP_02_I
2				_ -	- -	\rightarrow		SEND	IM SERVER sends SEND MSRP with content to UE D
3			\leftarrow			_		200 OK	UE D responds with 200 OK to IM SERVER
4							\rightarrow		User D read a chat message

5.3.2.4 Chat 1 to many via MSRP to additional user - Roaming

Use case index UC_MSRP_03_R is used.

Step			Di	rec	tion					Message	Comment
	U	U	Α		C	U	Į	J	U		
	S	E	S	/	Е	s	E	E	S		
	е	Α	1		В	е		D	е		
	r		M	- 1		r			r		
	Α		В	,		В			D		
1											Follow UC_MSRP_02_R
2										SEND	IM SERVER sends SEND MSRP with content to
							1				UE D
3			(\leftarrow	-					200 OK	UE D responds with 200 OK to IM SERVER
4						Ì	-		>		User D read a chat message

5.3.3 Image data via MSRP

Use case index UC_MSRP_04 is used.

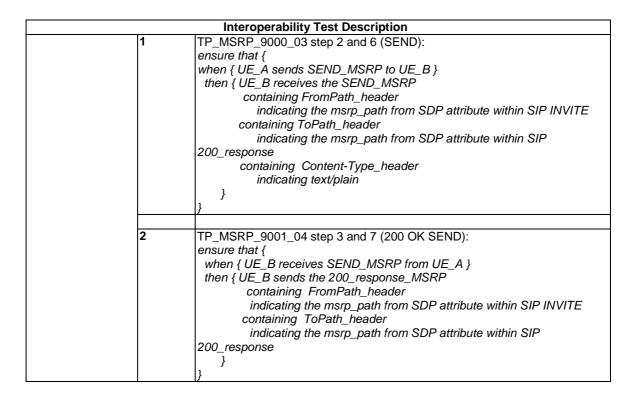
NOTE: Call flows show only the first picture transmission from one user to another and back. Other chunk transmissions in case of bigger files follow with SEND requests.

Step			Direc	ction				Message	Comment
	C	U				C	U		
	S	Ε				E	s		
	е	Α				В	е		
	r						r		
	Α						В		
1		\rightarrow							User A select a picture
2								SEND	UE A sends SEND MSRP with content to UE B
						7		(image)	
3		←	 -	-	_			200 OK	UE B responds with 200 OK to UE A
4							\rightarrow		User B look a picture

5.4 Test Descriptions

5.4.1 Chat 1 to 1 procedure via MSRP

		Interoperability Test Descr	ription
Identifier:		P_CHAT_0001	
Summary:	User A tra	insfers a message with SEND requ	uest to User B via MSRP and if endpoint
	receives a	request it shall immediately gene	rate a response and send it back.
Configuration:	CF_INT_A	AS	
SUT	UE_A and	IUE_B	
References	Test Purp	oose	Specification Reference
	TP_MSRF	P_9000_01	RFC 4975 [8], clauses 5.4 and 7.1
	TP_MSRF	P_9000_02	RFC 4975 [8], clause 7.2
Use Case ref.:	UC_MSRI		
Pre-test	• UE	_A has_initiated_a_dialog_with UI	E_B
conditions:			
Test Sequence:	Step		
	1	User A writes a chat message	
	2	User B reads a chat message	
Conformance	Check		
Criteria:			
	1	TP_MSRP_9000_01	
		ensure that {	
		when { User A initiates the call to	
		then { UE_A sends the initial IN	
		containing an offered ses	
		indicating a session of	MSRP
		}	
	2	TP MSRP 9000 02	
	2	ensure that {	
		when { UE_A sends SEND_MSR	P to IIF R
		then { UE_A receives the INVITI	
		containing an offered ses	
		indicating a session of	
		_	-
		}	I I
		}	



Step				Direc	ction				Message	Comment
	U	U					U	U		
	S	Ε					Е	S		
	е	Α					В	е		
	r							r		
	Α							В		
1		\rightarrow								User A writes a chat message
2		-	_	-	-		\rightarrow		SEND	UE A sends SEND MSRP with content to UE B
3		←		-	-	-	_		200 OK	UE B responds with 200 OK to UE A
4								\rightarrow		User B reads a chat message
5							\leftarrow	_		User B writes a chat message
6		\leftarrow		-	-				SEND	UE B sends SEND MSRP with content to UE A
7				_ _	_		\rightarrow		200 OK	UE A responds with 200 OK to UE B
8	\vdash									User A reads a chat message

5.4.2 Chat 1 to many procedure via MSRP

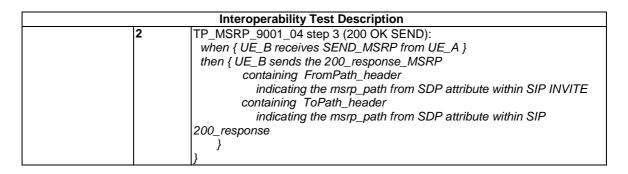
	Interoperability Test Desc	ription						
Identifier:	TD_MSRP_CHAT_0002							
Summary:	User A transfers message with SEND request to AS IM via MSRP. AS IM transfers message to User B and User C like it is predefined in previous SIP dialog. If end users receive a request they shall immediately generate a response and send it back to AS IM which sends the response back to User A.							
Configuration:								
SUT	UE_A, UE_B, UE_C and AS IM							
References	Test Purpose	Specification Reference						
	TP_MSRP_9000_01	RFC 4975 [8], clause 5.4 and 7.1						
	TP_MSRP_9000_02	RFC 4975 [8], clause 7.2						
Use Case ref.:	UC_MSRP_02_I							
Pre-test conditions:	UE_A has_initiated_a_dialog_with UE_B and UE_C							

		Interoperability Test Description
Tost Coguence:	Ston	
Test Sequence:	Step	Haar A writer a shet massage
	1	User A writes a chat message
	2	User B reads a chat message
	3	User C reads a chat message
Conformance Criteria:	Check	
	2	TP_MSRP_9000_01 ensure that { when { User A initiates the call to User B } then { UE_A sends the initial INVITE
		when { UE_A sends SEND_MSRP to UE_B } then { UE_A receives the INVITE200 OK response containing an offered session-description indicating a session of MSRP } }
	3	TP_MSRP_9000_03 step 2,5 and 7 (SEND): ensure that { when { UE_A sends SEND_MSRP to UE_B } then { UE_B receives the SEND_MSRP
	4	TP_MSRP_9001_04 step 3,6 and 8 (200 OK SEND): ensure that { when { UE_B receives SEND_MSRP from UE_A } then { UE_B sends the 200_response_MSRP

Step				Direc	tion				Message	Comment
	U s e r A	U E A	A S/ I M A		U E B	U s e r B	UEC	U s e r C		
1		\rightarrow								User A writes a chat message
2		H	\rightarrow						SEND	UE A sends SEND MSRP with content to IM SERVER
3		←							200 OK	IM SERVER responds with 200 OK to UE A
4				- -	→				SEND	IM SERVER sends SEND MSRP with content to UE B
5			\leftarrow	-	_				200 OK	UE responds with 200 OK to IM SERVER
6						\rightarrow	Ĭ			User B reads a chat message
7				-	-		\rightarrow		SEND	IM SERVER sends SEND MSRP with content to UE C
8			\leftarrow	-	-		\dashv		200 OK	UE C responds with 200 OK to IM SERVER
9								\rightarrow		User C reads a chat message

5.4.3 Image transfer procedure via MSRP

		Interoperability Test Descr	ription					
Identifier:	TD_MSRF	P FILE 0001						
Summary:	User A tra	A transfers a file with SEND request to User B via MSRP and if endpoint receives						
-	a request	it shall immediately generate a res	sponse and send it back.					
Configuration:								
SUT	UE_A and							
References	Test Purp		Specification Reference					
	TP_MSRF	P_9000_03	RFC 4975 [8], clauses 5.4 and 7.1 and RFC 5547 [11]					
		P_9001_01	RFC 4975 [8], clause 7.2					
Use Case ref.:	UC_MSRI	P_04						
Pre-test conditions:	• UE	_A has_initiated_a_dialog_with U	E_B					
Test Sequence:	Step							
	1	User A selects a file for sending						
	2	User B opens received file						
Conformance Criteria:	Check							
	1	TP_MSRP_9000_03 step 2 (SEN	ID):					
		ensure that {						
		when { UE_A sends SEND_MS						
		then { UE_B receives the SEND						
		containing FromPath_h						
			path from SDP attribute within SIP INVITE					
		containing ToPath_hea						
			eath from SDP attribute within SIP					
		200_response containing Content-Typ	no hooder					
		indicating image/jpg	ic_ricauci					
		}						
)} ´						



Step				Direc	tion			Message	Comment
	C	U				U	U		
	S	E				E	S		
	е	Α				В	е		
	r						r		
	A						В		
1	_	\rightarrow							User A selects a picture
2								SEND	UE A sends SEND MSRP with content to UE B
						1		(image)	
3		\leftarrow	_	-	-	-		200 OK	UE B responds with 200 OK to UE A
4)		User B views a picture

Annex A (normative): Zip file with TPLan code

The test purposes used in the present document have been originally generated in the TPLan text files in the archive file $ts_102901V050101p0.zip$ which accompanies the present document.

Annex B (informative): Bibliography

ETSI TS 124 141 (V10.0.0): "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); LTE; Presence service using the IP Multimedia (IM) Core Network (CN) subsystem; Stage 3 (3GPP TS 24.141 Release 10)".

History

Document history							
V1.1.1	June 2011	Publication					
V2.1.1	November 2011	Publication					
V4.1.1	May 2012	Publication					
V5.1.1	October 2013	Publication					