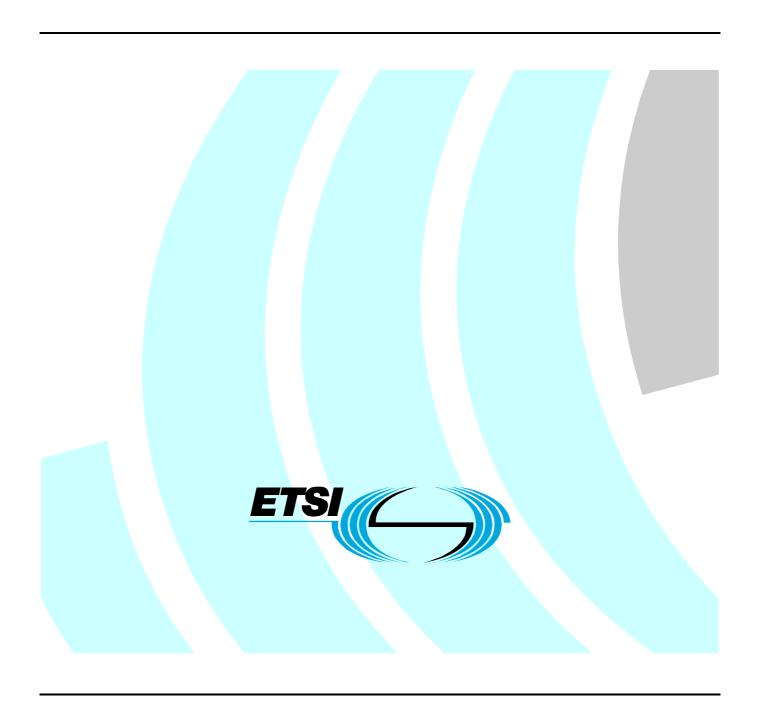
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IMS Network Testing (INT); IMS NNI Interoperability Test Specifications; IMS NNI interoperability test descriptions for RCS



Reference

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Content

Intelle	ectual Property Rights	6
Forew	ord	<i>6</i>
1	Scope	7
2	References	7
2.1	Normative references	
2.2	Informative references.	
	Abbreviations	
	IMS NNI Interoperability Test Specification	
4.1	Introduction	
4.2	Test Prerequisites	
4.3	Test Infrastructure	
4.3.1	Core IMS Nodes	
4.3.2	External IMS core Nodes	
4.3.2.1 4.3.2.2		
4.3.2.2 4.3.2.2	1 11	
4.3.2.2 4.3.2.2		
4.3.2.2		
4.3.2.2 4.3.3	Test Configurations	
4.4	Use Cases	
4.4.1	Ad-hoc Conferencing service	
4.4.1.1		
4.4.1.2	•	
4.4.2	Presence service	
4.4.2.1		
4.4.2.1	• •	
4.4.2.1	•	
4.4.2.1		1.
T.T.2.1	CF_INT_AS	16
4.4.2.2	Watcher subscription to resource list	17
4.4.2.2		
4.4.2.2		
	CF_ROAM_AS	
4.4.2.2		
4.4.3	Enhanced Messaging	22
4.4.3.1		
4.4.3.2		22
4.4.3.2		
	CF_INT_AS	22
4.4.3.2	.2 UC_RCS_4_R: SIP message flow for Enhanced Messaging - immediate handling with CF_ROAM_AS	25
4.4.3.3		
4.4.3.3		ر ــــــــــــــــــــــــــــــــــــ
7.7.5.5	CF_INT_AS	20
4.4.3.3		2
	CF_ROAM_AS	33
4.4.3.4		
4.4.3.4		37
4.4.3.4		
	CF_ROAM_AS	
4.4.3.5		
4.4.3.5	.1 UC_RCS_7_I: SIP message flow for Enhanced Messaging - no response with CF_INT_AS	42

4.4.3.5.2	UC_RCS_7_R: SIP message flow for Enhanced Messaging - no response with	
	CF_ROAM_AS	45
4.4.3.6	Enhanced Messaging - Ad-hoc IM Conference	48
4.4.3.6.1	UC_RCS_8_I: SIP message flow for Enhanced Messaging - Ad-hoc IM Conference with	40
11262	CF_INT_AS UC_RCS_8_R: SIP message flow for Enhanced Messaging - Ad-hoc IM Conference with	48
4.4.3.6.2	CF_ROAM_AS	52
4.4.3.7	Enhanced Messaging - Extending 1-to-1 IM session to an Ad-hoc IM conference	
4.4.3.7.1	UC_RCS_9_I: SIP message flow for Enhanced Messaging - Extending 1-to-1 IM session to	50
	an Ad-hoc IM conference with CF_INT_AS	56
4.4.3.7.2	UC_RCS_9_R: SIP message flow for Enhanced Messaging - Extending 1-to-1 IM session to	
	an Ad-hoc IM conference with CF_ROAM_AS	59
4.4.3.8	Enhanced Messaging - Adding users to an Ad-hoc IM	
4.4.3.8.1	UC_RCS_10_I: SIP message flow for Enhanced Messaging - Adding users to an Ad-hoc IM	
	Conference with CF_INT_AS	63
4.4.3.8.2	UC_RCS_10_R: SIP message flow for Enhanced Messaging - Adding users to an Ad-hoc IM	
	Conference with CF_ROAM_AS	
4.4.4	Content Sharing	
4.4.4.1	UC_RCS_11_I: SIP message flow for Content Sharing with CF_INT_CALL	
4.4.4.2	UC_RCS_11_R: SIP message flow for Content Sharing with CF_ROAMT_CALL	
4.5 4.5.1	Test Descriptions	
4.5.1 4.5.1.1	Social Presence	
4.5.1.1	Watcher subscription to presence event notification in home network	
4.5.1.3	Unsuccessful watcher subscription to presence event notification in home network	
4.5.1.4	Watcher subscription to resource list in visited network	
4.5.1.5	Watcher subscription to resource list in home network	
4.5.2	Chat (1-to-1)	
4.5.2.1	Instant messaging with explicit user acceptance	
4.5.2.1.1	Instant messaging with explicit user acceptance - interworking	
4.5.2.1.2	Instant messaging with explicit user acceptance - roaming	91
4.5.2.2	Instant Messaging with immediate acceptance	
4.5.2.2.1	Instant Messaging with immediate acceptance - interworking	
4.5.2.2.2	Instant Messaging with immediate acceptance - roaming	
4.5.2.3	Instant Messaging rejection	
4.5.2.3.1	Instant Messaging rejection - interworking	
4.5.2.3.2	Instant Messaging rejection - roaming	
4.5.2.4 4.5.2.4.1	Instant Messaging no response - interworking	
4.5.2.4.1	Instant Messaging no response - merworking	100
4.5.3	Group chat (1 to many)	
4.5.3.1	Ad-hoc IM Conference	
4.5.3.1.1	Ad-hoc IM Conference - interworking	
4.5.3.1.2	Ad-hoc IM Conference - roaming	
4.5.3.2	Extending 1-to-1 IM session to an Ad-hoc IM conference	
4.5.3.2.1	Extending 1-to-1 IM session to an Ad-hoc IM conference - interworking	124
4.5.3.2.2	Extending 1-to-1 IM session to an Ad-hoc IM conference - roaming	128
4.5.3.3	Adding users to an Ad-hoc IM Conference	
4.5.3.3.1	Adding users to an Ad-hoc IM Conference - interworking	
4.5.3.3.2	Adding users to an Ad-hoc IM Conference - roaming	
4.5.3.4	Rejoining an Ad-hoc IM Conference until its timeout	
4.5.3.4.1	Rejoining an Ad-hoc IM Conference until its timeout - interworking	
4.5.3.4.2	Rejoining an Ad-hoc IM Conference until its timeout - roaming	
4.5.4 4.5.4.1	File transfer	
4.5.4.1 4.5.4.1.1	File transfer with explicit user acceptance - interworking	
4.5.4.1.2	File transfer with explicit user acceptance - mer working	
4.5.4.2	File transfer with immediate acceptance	
4.5.4.2.1	File transfer with immediate acceptance - interworking	
4.5.4.2.2	File transfer with immediate acceptance - roaming	
4.5.4.3	Cancel file transfer - initiator	
4.5.4.3.1	Cancel file transfer - initiator - interworking	161

4.5.4.3.2	Cancel file transfer - initiator - roaming	164
4.5.4.4	Cancel file transfer - destination	167
4.5.4.4.1	Cancel file transfer - destination - interworking	167
4.5.4.4.2	Cancel file transfer - destination - roaming	
4.5.5	Content Sharing	174
4.5.5.1	Content Sharing from calling to called user	
4.5.5.1.1	Content Sharing from calling to called user - interworking	174
4.5.5.1.2	Content Sharing from calling to called user - roaming	176
4.5.5.2	Termination of Voice Call	180
4.5.5.2.1	Termination of Voice Call - interworking	180
4.5.5.2.2	Termination of Voice Call - roaming	182
4.5.5.3	Content Sharing from called to calling user	186
4.5.5.3.1	Content Sharing from called to calling user - interworking	186
4.5.5.3.2	Content Sharing from called to calling user - roaming	187
4.5.5.4	User without content sharing capability	190
4.5.5.4.1	User without content sharing capability - interworking	190
4.5.5.4.2	User without content sharing capability - roaming	191
4.5.5.5	Content sharing rejection	193
4.5.5.5.1	Content sharing rejection - interworking	193
4.5.5.5.2	Content sharing rejection - roaming	195
Annex A (informative): Bibliography	198
History		199

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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 Release 2 of the RCS Functional Description [8], the RCS Service Definition [9] and the Technical Realization [10] documents. 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 [7] 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. The latter requirements have been dealt with from a UE and conformance perspective in TS 134 229 [6].

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 (V8.10.0): "Digital cellular telecommunications system (Phase 2+); Universal
	Mobile Telecommunications System (UMTS); LTE; Internet Protocol (IP) multimedia call control
	protocol based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP);
	Stage 3 (3GPP TS 24.229 version 8.10.0 Release 8)".

- [2] ETSI TS 186 011-1 (V3.1.1): "IMS Network Testing (INT); IMS NNI InteroperabilityTest Specifications; 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 134 229: "Universal Mobile Telecommunications System (UMTS); LTE; Internet Protocol (IP) multimedia call control protocol based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP); Part 1: Protocol conformance specification (3GPP TS 34.229-1 Release 8)".

[7]	ETSI TS 129 165: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); LTE; Inter-IMS Network to Network Interface (NNI) (3GPP TS 29.165 version 8.4.0 Release 8)".
[8]	Rich Communication Suite Release 2: "Functional Description 1.1".
[9]	Rich Communication Suite Release 2: "Service Definition 1.1".
[10]	Rich Communication Suite Release 2: "Technical Realization 1.1".
[11]	ETSI TS 186 011-2 (V3.1.1): "IMS Network Testing (INT); IMS NNI Interoperability Test Specifications; Part 2: Test Description for IMS NNI Interoperability".
[12]	IETF RFC 5547: "A Session Description Protocol (SDP) Offer/Answer Mechanism to Enable File Transfer".

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 3rd Generation Partnership Project
AS (IMS) Application Server
CF (Test) ConFiguration

CFW Call FloW CN Core Network

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

MRFC Multimedia Resource Function Controller MRFP Multimedia Resource Function Processor

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 Notati

TPLan Test Purpose Notation
TSS Test Suite Structure

UC Use Case

UE User Equipment

URI Uniform Record Identifier

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 (instant messaging, content sharing and presence) as defined in RCS release 2 [8], [9] and [10].

4.2 Test Prerequisites

The test prerequisites as described in TS 186 011-2 [11], clause 4.2 apply.

4.3 Test Infrastructure

The test infrastructure as described in TS 186 011-2 [11], 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 [11], 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 Release 2

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 AS that acts as an intermediate for the user to provide Presence information to other users and other users to subscribe or get 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 and the delivery of history information.

4.3.2.2.3 Node Configuration

The AS should be configured to support the pre-requisites outlined in TS 186 011-2 [11] clause 4.2. The test descriptions in the present document assume that an AS supports the use of the services Enhanced Address Book, Presence, Instant Messaging Content Sharing or Conference (see Rich Communication Suite Release 2 descriptions in [8], [9] and [10]). 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 [11] clause 4.3.4 apply.

4.4 Use Cases

In addition to the Use Cases in the present clause the Use Cases as described in TS 186 011-2 [11] clause 4.4 apply.

4.4.1 Ad-hoc Conferencing service

4.4.1.1 Description

UE A registered on IMS network A initiates an ad-hoc conf call via CONF AS, connected over ISC interface to IMS core A, and subsequently invites UE B (registered in IMS B) to join the conf. This Use Case requires support for MRFC and MRFP functionalities on IMS A.

The test sequence when user A initiates an ad-hoc conference call and invites user B to join it, in an interworking scenario is:

Step	Action	CF_INT_CONF CALL
1	User A initiates an ad-hoc conference call	Step 1
2	User A is informed the Ad Hoc Conference Call is being set up	Step 4
3	User A is informed the Ad Hoc Conference Call is established	Step 9
4	User A invites user B to join the ad-hoc conference call	Step 12
5	User B is informed of incoming invitation from User A to join the Conference Call	Step 27
6	User A is notified that user B is being invited to join the call	Step 33
7	User B joins the conference	Step 41
8	User A is notified that user B has joined the conference	Step 45
9	User B leaves the conference	Step 48
10	User B is informed that the conference has ended	Step 55
11	User A is notified that user B has left the conference	Step 58

NOTE 1: The proposed test configuration shown in CF_INT_CONF_CALL indicates CONF AS A (AS+MRFC+MRFP) resources in IMS A, hence the UC refers to UE_A as conference initiator in IMS A and UE_B, although the same UC applies alternatively for UE_B as conference initiator in IMS B and UE_A as participant in IMS A, which involves a CONF AS B connected to IMS B, not shown in the test configuration for simplicity purposes.

NOTE 2: For the purpose of IMS NNI conformance testing, the proposed test configuration refers to the ISC interface as an optional Point of Observation (PO), where the SIP signalling passing through it might be observed but not considered part of the conformance testing.

This proposal is consistent with the most common interoperability scenario where one vendor provides the complete solution for the conference service, integrated into a 3rd party IMS core via ISC interface.

4.4.1.2 UC_RCS_1: SIP Call Flow "Ad-hoc Conference call"

U S E S E M S A S B 1 2 INVITE UE_A sends INVITE information for all corpresence elements 100 Trying IMS_A responds with provisional response User A initiates an accall 100 Trying IMS_A responds with provisional response User A is informed th Conference Call is be	to IMS_A with mmonly supported
e r A e r B S A S B User A initiates an accall 1 User A initiates an accall INVITE UE_A sends INVITE information for all corpresence elements 1 00 Trying IMS_A responds with provisional response User A is informed th	to IMS_A with mmonly supported
T R B B B User A initiates an accall User A initiates an accall INVITE UE_A sends INVITE information for all corpresence elements 1 00 Trying IMS_A responds with provisional response User A is informed th	to IMS_A with mmonly supported
1 User A initiates an accall INVITE UE_A sends INVITE information for all corpresence elements 1 100 Trying IMS_A responds with provisional response User A initiates an accall INVITE information for all corpresence elements 1 100 Trying IMS_A responds with provisional response	to IMS_A with mmonly supported
call INVITE UE_A sends INVITE information for all corpresence elements 100 Trying IMS_A responds with provisional response User A is informed th	to IMS_A with mmonly supported
INVITE UE_A sends INVITE information for all corpresence elements 100 Trying IMS_A responds with provisional response User A is informed th	mmonly supported
information for all corpresence elements 100 Trying IMS_A responds with provisional response User A is informed th	mmonly supported
3 presence elements 100 Trying IMS_A responds with provisional response User A is informed th	n a 100 Trying
provisional response User A is informed th	
4 User A is informed th	
	a Ad Hoc
Conference Call is be	
5 INVITE IMS_A forwards INVI	
6 100 Trying IMS_A AS responds	
7 provisional response 200 OK IMS A AS responds	
7 200 OK IMS_A AS responds IMS_A, with isfocus p	
8 200 OK IMS_A forwards the 2	
	·
9 User A is informed th	
10 Conference Call is es ACK UE_A acknowledges	
OK for INVITE	1110 10001pt 01 200
11 ACK IMS_A forwards the A	ACK to IMS_A AS
12 User A invites user B	to join the ad-hoc
	managa ta IMC A
with Refer-To : <ue_< td=""><td></td></ue_<>	
;method=INVITE>	
14 REFER IMS_A forwards the F	REFER to IMS_A
AS	with a 202 Accepted
Accepted Accepted	with a 202 Accepted
16 202 IMS_A forwards the 2	202 Accepted
Accepted response to UE_A	
17 NOTIFY IMS_A AS sends a N inform the conference	-
REFER message is b	
18 NOTIFY IMS_A forwards the N	NOTIFY to UE_A
19 200 OK UE_A responds with	200 OK to IMS_A
20 OK IMS_A forwards the 2	200 OK response to
21 IMS_A AS INVITE IMS_A AS sends INV	/ITE to LIE D with
conference-factory U	
REFER message from	m ÚE A)
22 100 Trying IMS_A responds with	
23 provisional response INVITE IMS_A forwards the I	
24 INVITE INVS_A Tot Wards the F	
provisional response	
25 INVITE IMS_B forwards the I	
26 Trying UE_B responds with	
provisional response User B is informed of	
from User A to join th	
28 180 Ringing UE_B sends a 180 rin	
29 180 Ringing IMS_B forwards the 1	

Step				Direct	ion				Message	Comment
	U	Ū		Ū	1	Α	1	A		
	s e	E A		E B	M S	S	M S	S B		
	r	^	r	_	Ā	_ ^	В	"		
	A		В							
30						\rightarrow			180 Ringing	IMS_A forwards the 180 ringing to IMS_A AS
31					←				NOTIFY	Upon reception of 180 Ringing from UE_B, IMS_A AS sends NOTIFY with sipfrag: 180 Ringing to inform conference initiator that UE_B is being invited to join
32									NOTIFY	the conference IMS_A forwards the NOTIFY to UE_A
33									NOTIFT	User A is notified that user B is being
33	├									invited to join the call
34					→				200 OK	UE_A responds with 200 OK to IMS_A for NOTIFY
35						\longrightarrow			200 OK	IMS_A forwards the 200 OK response to IMS_A AS
36							\rightarrow		200 OK	UE_B responds with 200 OK to IMS_B for INVITE
37					\leftarrow				200 OK	IMS B forwards the 200 OK response to IMS A
38						\rightarrow			200 OK	IMS A forwards the 200 OK response to IMS_A AS
39				→						User B joins the conference
40					_		\rightarrow		ACK	UE_B acknowledges the 200 OK for INVITE
41					\leftarrow				ACK	IMS B forwards the ACK to IMS A
42						\longrightarrow			ACK	IMS A forwards the ACK to IMS_A AS
43					←				NOTIFY	AS_A sends NOTIFY to UE_A to inform it
44									NOTIFY	has successfully joined the conference IMS_A forwards NOTIFY to UE_A
45									NOTH	User A is alerted that user B has joined
										the conference
46					→				200 OK	UE_A sends 200 OK response for NOTIFY
47						\rightarrow			200 OK	IMS_A forwards the 200 OK response to IMS_A AS
48				→						User B leaves the conference
49					_		\rightarrow		BYE	UE_B sends BYE to IMS_B to leave the conference
50					←				BYE	IMS_B forwards the BYE to IMS_A
51					-	\longrightarrow			BYE	IMS_A forwards the BYE to IMS_A AS
52					←				200 OK	IMS_A AS releases resources for this conference caller and sends a 200 OK response for BYE
53							\rightarrow		200 OK	IMS_A forwards the 200 OK response to IMS_B
54									200 OK	IMS_B forwards the 200 OK response to UE_B
55			(_						User B is informed that the conference has ended
56					\leftarrow				NOTIFY	AS_A sends NOTIFY to IMS _A to inform UE_A that UE_B has left the conference
57		\leftarrow		-	_				NOTIFY	IMS_A forwards NOTIFY to UE_A
58	<u> </u>									User A is notified that user B has left the conference
59					\rightarrow				200 OK	UE_A sends a 200 OK response for NOTIFY
60						\rightarrow			200 OK	IMS_A forwards the 200 OK response to IMS_A AS

4.4.2 Presence service

4.4.2.1 Watcher subscription to presence event notification

4.4.2.1.1 Description

UE_B is configured to receive notifications with watcher information. UE_B publishes its presence 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
1	User B publishes presence information	Step 1	Step 1
2	User B is informed of its presence status update	Step 6	Step 12
3	User A subscribes to presence information from User B	Step 7	Step 13
4	User B receives an authorization request from User A to be informed of its own presence information	Step 31	Step 43
5	User B authorizes user A to be informed of its own presence information	Step 32	Step 44
6	User A is informed of user B presence information	Step 41	Step 53

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

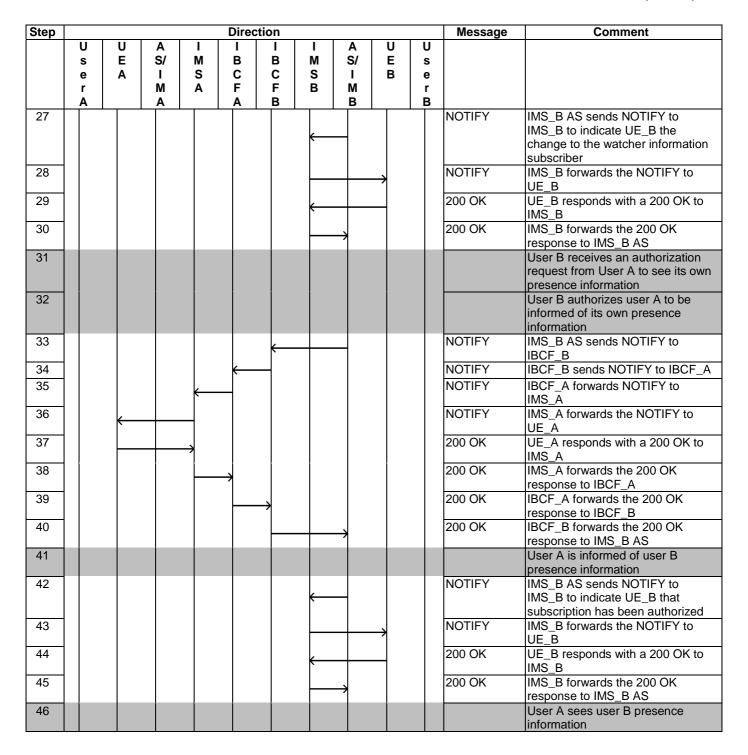
Step	Direction										Message	Comment
	U s e r A	UEA	A S/ I M A	I M S A	I B C F A	I B C F B	M S B	A S/ I M B	Эшв	U s e r B		
1												User B publishes presence information
2				—							PUBLISH	UE_B sends PUBLISH with information for all commonly supported presence elements
3					\rightarrow						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					(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 A subscribes to presence information from User B

Step					Direct	ion						Message	Comment
	U	Ū) Y	I	J –	_ L	- M	A S/	UE	U			
	s e	E A	S/ I	M S	B C	B C	M S	3/ 	B	s e			
	r		M	Ā	F	F	В	M		r			
14	Α	1	Α		Α	В		В		В	·	SUBSCRIBE	UE_A sends SUBSCRIBE for
14				\rightarrow								SUBSCRIBE	"presence" event to IMS_A
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
18								\rightarrow				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				←	4							200 OK	IBCF_A forwards the 200 OK response to IMS_A
23												200 OK	IMS_A forwards the 200 OK response to UE_A
24						—						NOTIFY	IMS_B AS sends NOTIFY to IBCF_B
25					-							NOTIFY	IBCF_B forwards NOTIFY to IBCF_A
26				←								NOTIFY	IBCF_A forwards NOTIFY to
27												NOTIFY	IMS_A forwards the NOTIFY to UE_A
28				\rightarrow								200 OK	UE_A responds with a 200 OK to IMS_A
29					\rightarrow							200 OK	IMS_A forwords the 200 OK to
30						\rightarrow						200 OK	IBCF_A forwords the 200 OK to IBCF_B
31								\rightarrow				200 OK	IBCF_B forwards the 200 OK response to IMS_B AS
32													SUBSCRIPTION triggers the AS to send a NOTIFY to UE_B indicating the change to the watcher information subscriber
33						Γ	—	Ŧ				NOTIFY	IMS_B AS sends NOTIFY to IMS_B to indicate UE_B the change to the watcher information subscriber
34						←						NOTIFY	IMS_B forwards the NOTIFY to IBCF_B
35												NOTIFY	IBCF_B forwards the NOTIFY to IBCF_A
36				—								NOTIFY	IBCF_A IBCF_A forwards the NOTIFY to IMS_A
37								\perp	\longrightarrow			NOTIFY	IMS_A forwards the NOTIFY to UE B
38				←								200 OK	UE_B responds with a 200 OK to IMS_A
39			!		\rightarrow							200 OK	IMS_A forwards the 200 OK response to IBCF_A
40	ŀ		ļ.	!		\rightarrow						200 OK	IBCF_A forwards the 200 OK response to IBCF_B
41							\rightarrow						IBCF_B forwards the 200 OK response to IMS_B

Step					Direct	ion					Message	Comment
	U	U	Α	I	I	I	-	Α	U	U		
	s	E	S/	M	В	В	M	S/	E	S		
	e	Α	l M	S	Ç	C F	S	l Na	В	е		
	r A		M	Α	F A	В	В	M B		r B		
42		1				<u> </u>			1	-	200 OK	IMS B forwards the 200 OK
72								\rightarrow			200 010	response to IMS_B AS
43												User B receives an authorization
												request from User A to see its own
												presence information
44												User B authorizes user A to be
												informed of its own presence
												information
45											NOTIFY	IMS_B AS sends NOTIFY to
												IBCF_B
46					\leftarrow						NOTIFY	IBCF_B sends NOTIFY to IBCF_A
47				\leftarrow							NOTIFY	IBCF_A forwards NOTIFY to
40											NOTIEN	IMS_A
48		←									NOTIFY	IMS_A forwards the NOTIFY to
49											200 OK	UE_A UE_A responds with a 200 OK to
49				\rightarrow							200 OK	IMS_A
50			l.	ŀ	ŀ				ŀ		200 OK	IMS_A forwards the 200 OK
00					\rightarrow						200 010	response to IBCF_A
51											200 OK	IBCF_A forwards the 200 OK
						7						response to IBCF_B
52											200 OK	IBCF_B forwards the 200 OK
								1				response to IMS_B AS
53												User A is informed of user B
												presence information
54							,				NOTIFY	IMS_B AS sends NOTIFY to
												IMS_B to indicate UE_B that
55											NOTIFY	subscription has been authorized IMS_B forwards the NOTIFY to
33						\leftarrow						IBCF_B
56											NOTIFY	IBCF_B forwards the NOTIFY to
					\leftarrow						1101111	IBCF_A
57											NOTIFY	IBCF_A forwards the NOTIFY to
												IMS_A
58											NOTIFY	IMS_A forwards the NOTIFY to
									1			UE_B
59				←							200 OK	UE_B responds with a 200 OK to
									ŀ		200 014	IMS_A
60					\rightarrow						200 OK	IMS_A forwards the 200 OK
61	ļ		ļ		ł				ŀ		200 OK	response to IBCF_A IBCF_A forwards the 200 OK
"						\rightarrow					200 01	response to IBCF_B
62											200 OK	IBCF_B forwards the 200 OK
)					response to IMS_B
63											200 OK	IMS_B forwards the 200 OK
												response to IMS_B AS
64												User A sees user B presence
												information

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

Step					Direction	n					Message	Comment
	U	U E	A S/	I M	I B	I B	I M	A S/	U E	U s		
	s e	A	I	S		C	S	J I	В	e		
	r		M	Α	F	F	В	M		r		
4	Α		Α	\rightarrow	A	В		В		В		Hara David Fahara aranga
1												User B publishes presence information
2											PUBLISH	UE_B sends PUBLISH with
							\leftarrow					information for all commonly
											DUDUIOLI	supported presence elements
3)			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
6												response to IBCF_B User B is informed of its presence
												status update
7												User A subscribes to presence
8											SUBSCRIBE	information from User B UE A sends SUBSCRIBE for
				\rightarrow								"presence" event to IMS_A
9					>						SUBSCRIBE	IMS_A forwards the SUBSCRIBE to IBCF_A
10					\longrightarrow						SUBSCRIBE	IBCF_A forwards the SUBSCRIBE
11						,	_				SUBSCRIBE	to IBCF_B IBCF_B forwards the SUBSCRIBE
12						•					SUBSCRIBE	to IMS_B IMS_B forwards the SUBSCRIBE
)				to IMS_B AS (PS)
13											200 OK	IMS_B AS responds with a 200 OK to IMS_B
14											200 OK	IMS_B forwards the 200 OK response to IBCF_B
15											200 OK	IBCF_B forwards the 200 OK
16					<u> </u>						200 OK	response to IBCF_A IBCF_A forwards the 200 OK
16				\leftarrow	-						200 OK	response to IMS_A
17											200 OK	IMS_A forwards the 200 OK
4.0											NOTIEN	response to UE_A
18						\longleftarrow					NOTIFY	IMS_B AS sends NOTIFY to IBCF_B
19											NOTIFY	IBCF_B forwards NOTIFY to IBCF_A
20				<u></u>	_						NOTIFY	IBCF_A forwards NOTIFY to
21											NOTIFY	IMS_A forwards the NOTIFY to
											200 OK	UE_A UE_A responds with a 200 OK to
22				\rightarrow								IMS_A
23					>						200 OK	IMS_A forwords the 200 OK to IBCF_A
24											200 OK	IBCF_A forwords the 200 OK to
25											200 OK	IBCF_B IBCF_B forwards the 200 OK
								7				response to IMS_B AS
26												SUBSCRIPTION triggers the AS to send a NOTIFY to UE_B indicating
												the change to the watcher
												information subscriber



4.4.2.2 Watcher subscription to resource list

4.4.2.2.1 Description

UE_B is configured to receive notifications with watcher information. UE_B publishes its presence information. User B has authorized User A to see its presence information. User A is authorized to use resource lists. 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 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
1	User B publishes presence 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 containing User B SIP URI	Step 7	Step 13
4	User A is informed of user B presence information	Step 42	Step 48

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

Step					Direc	tion					Message	Comment
	C	U	Α	ı	ı	ı	I	Α	U	U		
	s	E	S/	M	В	В	M	S/	E	S		
	е	Α	I	S	С	С	S	I	В	е		
	r		M	Α	F	F	В	M		r		
1	A		A		A	В		В		В		User B publishes presence
•												information
2											PUBLISH	UE_B sends PUBLISH with
				\leftarrow								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				\leftarrow							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 A subscribes to resource list
14											SUBSCRIBE	UE_A sends SUBSCRIBE for "presence" event to IMS_A
												indicating support to "eventlist" to a resource list SIP URI
15			\leftarrow								SUBSCRIBE	IMS_A forwards the SUBSCRIBE to IMS_A AS (RLS)
16												RLS performs authorization checks
												to ensure that User A is authorized to use resource lists
17				\rightarrow							200 OK	IMS_A AS responds with a 200 OK to IMS_A
18				_							200 OK	IMS_A forwards the 200 OK response to UE_A
19				\rightarrow							NOTIFY	IMS_A AS sends NOTIFY to
20	ļ	_				ļ	ļ		ļ		NOTIFY	IMS_A IMS_A forwards the NOTIFY to
												UE_A
21				\rightarrow							200 OK	UE_A responds with a 200 OK to IMS_A
	ı	I	ı	1	ı	I	ı	I	I	ı		····

Step					Direc	tion					Message	Comment
	U	Ū	A	I		I	I	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	Ā	F	F	В	M		r		
	Α		Α	-	Α	В		В		В		
22			\leftarrow								200 OK	IMS_A forwards the 200 OK response to IMS_A AS
23												RLS resolves watcher resource's
												address and subscribes for
												presence event notification for all
												the presentities represented by the resource list SIP URI
24											SUBSCRIBE	IMS_A AS (RLS) sends
				\rightarrow								SUBSCRIBE for "presence" event
25											SUBSCRIBE	to IMS_A IMS_A forwards the SUBSCRIBE
25					\rightarrow						SUBSCRIBE	to IBCF_A
26						_					SUBSCRIBE	IBCF_A forwards the SUBSCRIBE
07						1					OLIDOODIDE	to IBCF_B
27							\rightarrow				SUBSCRIBE	IBCF_B forwards the SUBSCRIBE to IMS_B
28											SUBSCRIBE	IMS_B forwards the SUBSCRIBE
								7				to IMS_B AS (PS)
29												PS performs authorization checks on the originator to ensure it is
												allowed to watch the presentity
30											200 OK	IMS_B AS (PS) responds with a
0.4											222 014	200 OK to IMS_B
31						\leftarrow	_				200 OK	IMS_B forwards the 200 OK response to IBCF_B
32											200 OK	IBCF_B forwards the 200 OK
												response to IBCF_A
33				←							200 OK	IBCF_A forwards the 200 OK response to IMS_A
34											200 OK	IMS_A forwards the 200 OK
												response to IMS_A AS (RLS)
35											NOTIFY	IMS_B AS sends a NOTIFY to
												IBCF_B with the presence information of UE_B
36											NOTIFY	IBCF_B forwards the NOTIFY to
07												IBCF_A
37				\leftarrow								IBCF_A forwards the NOTIFY to IMS_A
38											NOTIFY	IMS_A forwards the NOTIFY to
												IMS_A AS (RLS)
39				\rightarrow							200 OK	IMS_A AS responds with a 200 OK to IMS_A
40											200 OK	IMS_A forwards the 200 OK
					7							response to IBCF_A
41						\rightarrow					200 OK	IBCF_A forwards the 200 OK
42											200 OK	response to IBCF_B IBCF_B forwards the 200 OK
									\rightarrow			response to IMS_B AS
43												RLS notifies with presence
												information for all the presentities represented by the resource list
												SIP URI
44				\rightarrow							NOTIFY	IMS_A AS sends NOTIFY to
45											NOTIFY	IMS_A forwards the NOTIFY to
40		\leftarrow		_							INCTIFT	UE_A
46				_							200 OK	UE_A responds with a 200 OK to
		l		1								IMS_A

Step					Direc	tion					Message	Comment
	U	U	Α	ı	ı	ı	ı	Α	U	U		
	s	E	S/	M	В	В	M	S/	Е	s		
	е	Α	ı	S	С	С	S	ı	В	е		
	r		M	Α	F	F	В	M		r		
	Α		Α		Α	В		В		В		
47			/								200 OK	IMS_A forwards the 200 OK
												response to IMS_A AS
48												User A sees user B presence
												information

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

Step					Direc	tion					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 l	В	е		
	r A		M	Α	F A	F B	В	M B		r B		
1						_						User B publishes presence
												information
2											PUBLISH	UE_B sends PUBLISH with
							\leftarrow					information for all commonly
-											DUDUIOU	supported presence 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
-							\leftarrow				200 OK	to IMS_B
5											200 OK	IMS_B forwards the 200 OK
									→			response to UE_B
6												User B is informed of its presence
												status update
7												User A subscribes to resource list
8											SUBSCRIBE	UE_A sends SUBSCRIBE for
				\rightarrow								"presence" event to IMS_A
												indicating support to "eventlist" to a resource list SIP URI
9											SUBSCRIBE	IMS_A forwards the SUBSCRIBE
			\leftarrow								0020011122	to IMS_A AS (RLS)
10												RLS performs authorization checks
												to ensure that User A is authorized
												to use resource lists
11				\rightarrow							200 OK	IMS_A AS responds with a 200 OK
40											200 01/	to IMS_A IMS_A forwards the 200 OK
12		←									200 OK	response to UE_A
13											NOTIFY	IMS_A AS sends NOTIFY to
10				\rightarrow							1101111	IMS_A
14				İ	İ		Ì		İ		NOTIFY	IMS_A forwards the NOTIFY to
												UE_A
15				_							200 OK	UE_A responds with a 200 OK to
				1								IMS_A
16			←								200 OK	IMS_A forwards the 200 OK
17												response to IMS_A AS
17												RLS resolves watcher resource's address and subscribes for
												presence event notification for all
												the presentities represented by the
												resource list SIP URI
18											SUBSCRIBE	IMS_A AS (RLS) sends
				\rightarrow								SUBSCRIBE for "presence" event
					l			1				to IMS_A

Step					Direct	ion					Message	Comment
	U	U	A	I	I	I	I	A	U	U		
	s e	E A	S/ I	M S	B C	B C	M S	S/	E B	s e		
	r	A	M	A	F	F	В	М		r		
	Α		Α		Α	В		В		В		
19					\rightarrow						SUBSCRIBE	IMS_A forwards the SUBSCRIBE
20											SUBSCRIBE	to IBCF_A IBCF_A forwards the SUBSCRIBE
20						\rightarrow					SUBSCRIBE	to IBCF_B
21							\rightarrow				SUBSCRIBE	IBCF_B forwards the SUBSCRIBE to IMS_B
22								\rightarrow			SUBSCRIBE	IMS_B forwards the SUBSCRIBE to IMS_B AS (PS)
23												PS performs authorization checks on the originator to ensure it is allowed to watch the presentity
24							←				200 OK	IMS_B AS (PS) responds with a 200 OK to IMS_B
25						\leftarrow	_				200 OK	IMS_B forwards the 200 OK response to IBCF_B
26											200 OK	IBCF_B forwards the 200 OK response to IBCF_A
27				\leftarrow							200 OK	IBCF_A forwards the 200 OK response to IMS_A
28			←	_							200 OK	IMS_A forwards the 200 OK response to IMS_A AS (RLS)
29						-					NOTIFY	IMS_B AS sends a NOTIFY to IBCF_B with the presence information of UE_B
30					←	_					NOTIFY	IBCF_B forwards the NOTIFY to
31				\leftarrow								IBCF_A forwards the NOTIFY to IMS_A
32			\leftarrow								NOTIFY	IMS_A forwards the NOTIFY to IMS_A AS (RLS)
33				\rightarrow							200 OK	IMS_A AS responds with a 200 OK to IMS_A
34					\rightarrow						200 OK	IMS_A forwards the 200 OK response to IBCF_A
35						\rightarrow					200 OK	IBCF_A forwards the 200 OK response to IBCF_B
36								\rightarrow			200 OK	IBCF_B forwards the 200 OK response to IMS_B AS
37												RLS notifies with presence information for all the presentities represented by the resource list SIP URI
38				\rightarrow							NOTIFY	IMS_A AS sends NOTIFY to IMS_A
39		←									NOTIFY	IMS_A forwards the NOTIFY to UE_A
40				\rightarrow							200 OK	UE_A responds with a 200 OK to IMS_A
41											200 OK	IMS_A forwards the 200 OK response to IMS_A AS
42												User A sees user B presence information

4.4.3 Enhanced Messaging

4.4.3.1 Description

Enhanced messaging session assumes the possibility for users to receive the following types of services:

- Chat 1-to-1 (including peer-to-peer chat).
- Chat 1-to-many (Ad-hoc only).
- File transfer (only one-to-one and one file per file transfer session).

4.4.3.2 Enhanced Messaging - immediate handling

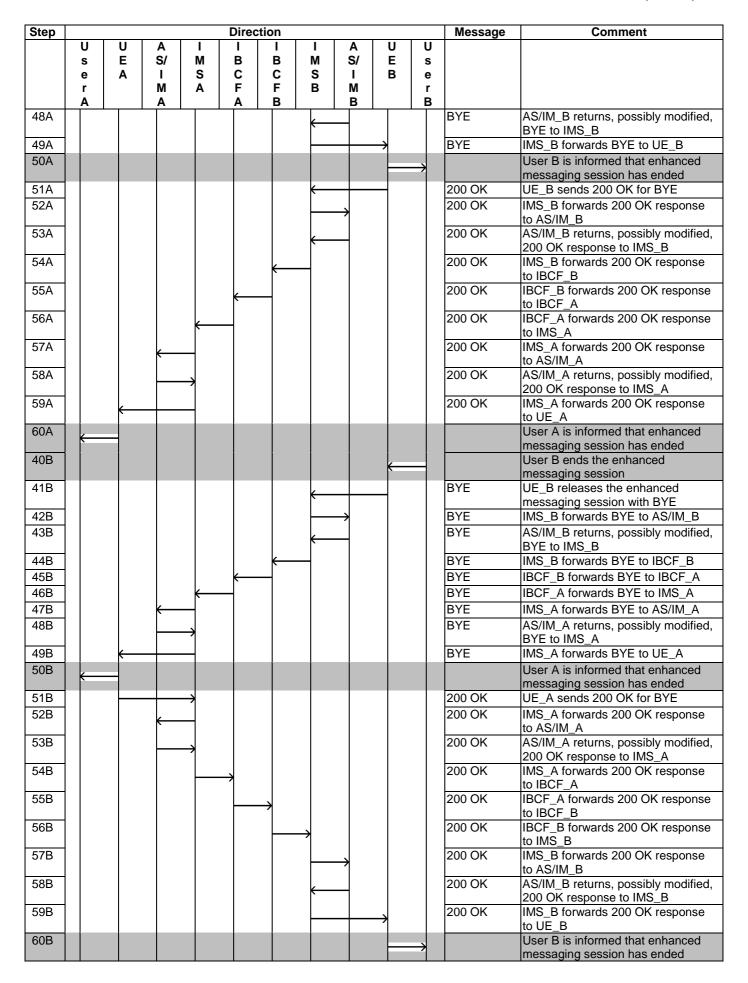
Following there are the expected common call flow sequences for enhanced messaging when the incoming one-to-one IM session requests are handled immediately by the RCS client without asking the user's acceptance.

4.4.3.2.1 UC_RCS_4_I: SIP message flow for Enhanced Messaging - immediate handling with CF_INT_AS

Step	Action	CF_INT_AS
1	User A invites user B to enhanced messaging session	Step 1
2	User B is informed of incoming enhanced messaging session	Step 20
3	Users perform enhanced messaging	Step 39
4A	User A ends the enhanced messaging session	Step 40A
4B	User B ends the enhanced messaging session	Step 40B
5A	User B is informed that enhanced messaging session has ended	Step 50A
5B	User A is informed that enhanced messaging session has ended	Step 50B
6A	User A is informed that enhanced messaging session has ended	Step 60A
6B	User B is informed that enhanced messaging session has ended	Step 60B

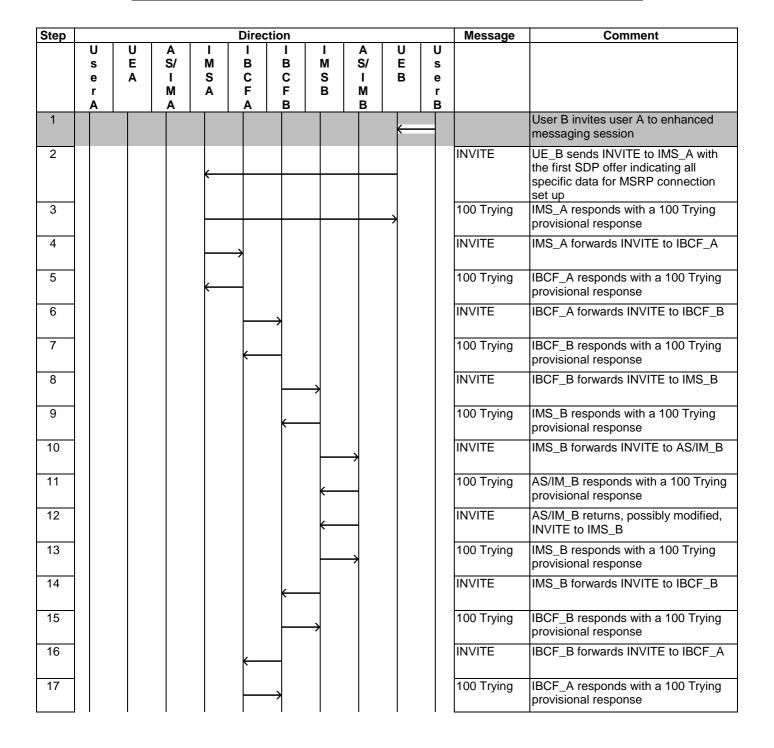
Step					Direc	tion					Message	Comment
	A a s C	U E A	A S/ I M A	M S A	I B C F A	ннов-	I M S B	A S/ I M B	DEB	U s e r B		
1		\rightarrow										User A invites user B to enhanced messaging session
2				\rightarrow							INVITE	UE_A sends INVITE with the first SDP offer indicating all specific data for MSRP connection set up
3		(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			←								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					\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

Step					Direct	ion					Message	Comment
-	U	U	Α	I	I	ı	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		
14								\rightarrow			INVITE	IMS_B forwards INVITE to AS/IM_B
15							\leftarrow				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									_		INVITE	provisional response IMS_B forwards INVITE to UE_B
19									1		100 Trying	UE_B optionally responds with a
											, ,	100 Trying provisional response
20										\rightarrow		User B is informed of incoming
21											200 OK	enhanced messaging session UE_B responds INVITE with 200
											200 010	OK response with SDP to indicate
							\leftarrow					that the session has been accepted
												and informs A-side with specific data for MSRP connection set up
22											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											200 OK	IMS_B forwards 200 OK response
												to IBCF_B
25						_					200 OK	IBCF_B forwards 200 OK response
26											200 OK	to IBCF_A IBCF_A forwards 200 OK response
												to IMS_A
27			-								200 OK	IMS_A forwards 200 OK response
28											200 OK	to AS/IM_A AS/IM_A returns, possibly modified,
				\rightarrow							200 011	200 OK response to IMS_A
29		-									200 OK	IMS_A forwards 200 OK response
30											ACK	to UE_A UE_A acknowledges the receipt of
				\rightarrow							/ CIT	200 OK for INVITE
31			←								ACK	IMS_A forwards ACK to AS/IM_A
32				\rightarrow							ACK	AS/IM_A returns, possibly modified,
33					>						ACK	ACK to IMS_A IMS_A forwards ACK to IBCF_A
34)					ACK	IBCF_A forwards ACK to IBCF_B
35							\rightarrow				ACK	IBCF_B forwards ACK to IMS_B
36								\rightarrow			ACK	IMS_B forwards ACK to AS/IM_B
37							—				ACK	AS/IM_B returns, possibly modified,
38									\rightarrow		ACK	ACK to IMS_B IMS_B forwards ACK to UE_B
39											, 1011	Users perform enhanced
												messaging
40A)										User A ends the enhanced
41A											BYE	messaging session UE_A releases the enhanced
				\rightarrow								messaging session with BYE
42A			←	_							BYE	IMS_A forwards BYE to AS/IM_A
43A				\rightarrow							BYE	AS/IM_A returns, possibly modified,
44A					,						BYE	BYE to IMS_A IMS_A forwards BYE to IBCF_A
45A					<u> </u>	→					BYE	IBCF_A forwards BYE to IBCF_B
46A							\rightarrow				BYE	IBCF_B forwards BYE to IMS_B
47A								\rightarrow			BYE	IMS_B forwards BYE to AS/IM_B
	•	•	•	•	-	•	•	•	•	•		



4.4.3.2.2 UC_RCS_4_R: SIP message flow for Enhanced Messaging - immediate handling with CF_ROAM_AS

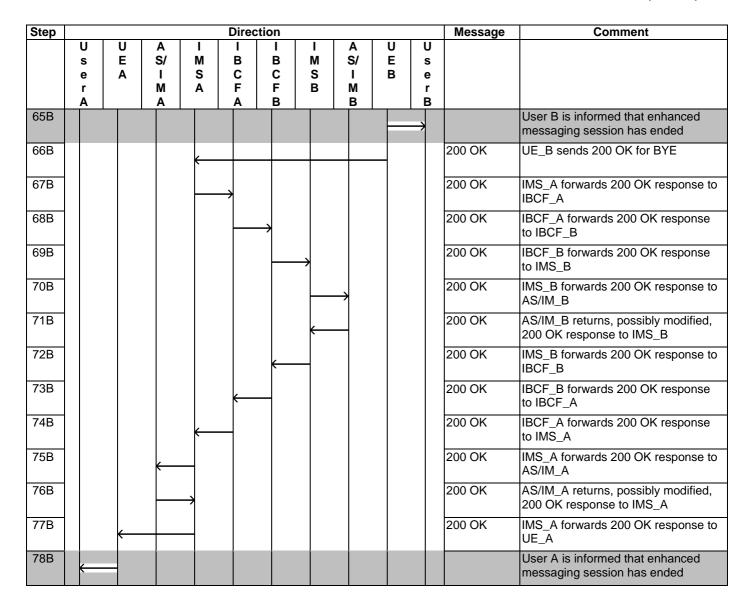
Step	Action	CF_ROAM_AS
1	User B invites user A to session	Step 1
2	User A is informed of incoming enhanced messaging session	Step 26
3	Users perform enhanced messaging	Step 51
4A	User B ends the enhanced messaging session	Step 52A
4B	User A ends the enhanced messaging session	Step 52B
5A	User A is informed that enhanced messaging session has ended	Step 65A
5B	User B is informed that enhanced messaging session has ended	Step 65B
6A	User B is informed that enhanced messaging session has ended	Step 78A
6B	User A is informed that enhanced messaging session has ended	Step 78B



Step					Direc	tion					Message	Comment
	U s	Π	A S/	I M	В	I B	I M	A S/	U E	Us		
	е	Ā	ı	S	С	С	S	I	В	е		
	r A		M A	Α	F A	F B	В	M B		r B		
18				<u> </u>							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 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 provisional response
24				_							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 enhanced messaging session
27				-							200 OK	UE_A 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
28			-								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							-				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						\perp					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											ACK	UE_B acknowledges the receipt of 200 OK for INVITE
40					\rightarrow						ACK	IMS_A forwards ACK to IBCF_A
41						\rightarrow					ACK	IBCF_A forwards ACK to IBCF_B

Step					Direct	ion					Message	Comment
	U s	U E	A S/	I M	I B	I B	I M	A S/	U	U s		
	е	Ā	ı	S	С	С	S	ı	В	e		
	r A		M A	Α	F A	F B	В	M B		r B		
42							\rightarrow				ACK	IBCF_B forwards ACK to IMS_B
43								\rightarrow			ACK	IMS_B forwards ACK to AS/IM_B
44											ACK	AS/IM_B returns, possibly modified, ACK to IMS_B
45						—					ACK	IMS_B forwards ACK to IBCF_B
46											ACK	IBCF_B forwards ACK to IBCF_A
47				—							ACK	IBCF_A forwards ACK to IMS_A
48											ACK	IMS_A forwards ACK to AS/IM_A
49				\rightarrow							ACK	AS/IM_A returns, possibly modified, ACK to IMS_A
50		←									ACK	IMS_A forwards ACK to UE_A
51	K									\rightarrow		Users perform enhanced messaging
52A									←			User B ends the enhanced messaging session
53A				←	+	-		+	-		BYE	UE_B releases the enhanced messaging session with BYE
54A					\rightarrow						BYE	IMS_A forwards BYE to IBCF_A
55A)					BYE	IBCF_A forwards BYE to IBCF_B
56A							\rightarrow				BYE	IBCF_B forwards BYE to IMS_B
57A								\rightarrow			BYE	IMS_B forwards BYE to AS/IM_B
58A											BYE	AS/IM_B returns, possibly modified, BYE to IMS_B
59A						-					BYE	IMS_B forwards BYE to IBCF_B
60A											BYE	IBCF_B forwards BYE to IBCF_A
61A					4						BYE	IBCF_A forwards BYE to IMS_A
62A			—	\dashv							BYE	IMS_A forwards BYE to AS/IM_A
63A				\rightarrow							BYE	AS/IM_A returns, possibly modified, BYE to IMS_A
64A											BYE	IMS_A forwards BYE to UE_A
65A	(User A is informed that enhanced messaging session has ended
66A				→							200 OK	UE_A sends 200 OK for BYE

Step					Directi	on					Message	Comment
		U E	A S/	I M	I B	I B	I M	A S/	U	U s		
	е	Α	1	S	С	C F	S B	I	В	e		
	r A		M A	Α	F A	r B	В	M B		r B		
67A											200 OK	IMS_A forwards 200 OK response to AS/IM_A
68A)							200 OK	AS/IM_A returns, possibly modified, 200 OK response to IMS_A
69A)						200 OK	IMS_A forwards 200 OK response to IBCF_A
70A						>					200 OK	IBCF_A forwards 200 OK response to IBCF_B
71A							\rightarrow				200 OK	IBCF_B forwards 200 OK response to IMS_B
72A								\rightarrow			200 OK	IMS_B forwards 200 OK response to AS/IM_B
73A							-				200 OK	AS/IM_B returns, possibly modified, 200 OK response to IMS_B
74A						\leftarrow	4				200 OK	IMS_B forwards 200 OK response to IBCF_B
75A					←						200 OK	IBCF_B forwards 200 OK response to IBCF_A
76A				←							200 OK	IBCF_A forwards 200 OK response to IMS_A
77A									\rightarrow		200 OK	IMS_A forwards 200 OK response to UE_B
78A										\rightarrow		User B is informed that enhanced messaging session has ended
52B A												User A ends the enhanced messaging session
53B				>							BYE	UE_A releases the enhanced messaging session with BYE
54B			←								BYE	IMS_A forwards BYE to AS/IM_A
55B				>							BYE	AS/IM_A returns, possibly modified, BYE to IMS_A
56B					>						BYE	IMS_A forwards BYE to IBCF_A
57B)					BYE	IBCF_A forwards BYE to IBCF_B
58B							\rightarrow				BYE	IBCF_B forwards BYE to IMS_B
59B								\rightarrow			BYE	IMS_B forwards BYE to AS/IM_B
60B							←	\dashv			BYE	AS/IM_B returns, possibly modified, BYE to IMS_B
61B							_				BYE	IMS_B forwards BYE to IBCF_B
62B											BYE	IBCF_B forwards BYE to IBCF_A
63B											BYE	IBCF_A forwards BYE to IMS_A
64B									\rightarrow		BYE	IMS_A forwards BYE to UE_B



4.4.3.3 Enhanced Messaging - user acceptance

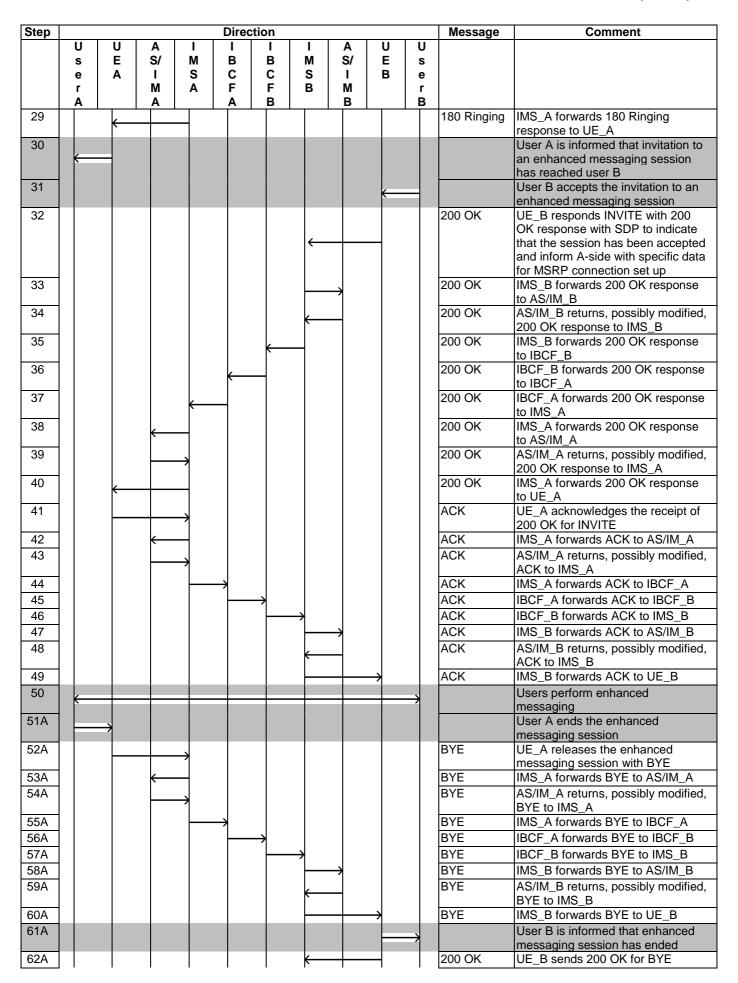
Following there are the expected common call flow sequences for enhanced messaging when the incoming one-to-one IM session requests are not handled immediately by the RCS client. The user has to explicitly accept the incoming request.

4.4.3.3.1 UC_RCS_5_I: SIP message flow for Enhanced Messaging - user acceptance with CF_INT_AS

Step	Action	CF_INT_AS
1	User A invites user B to enhanced messaging session	Step 1
2	User B is informed of incoming enhanced messaging session	Step 20
3	User A is informed that invitation to an enhanced messaging	Step 30
	session has reached user B	
4	User B accepts the invitation to an enhanced messaging session	Step 31
5	Users perform enhanced messaging	Step 50
6A	User A ends the enhanced messaging session	Step 51A
6B	User B ends the enhanced messaging session	Step 51B
7A	User B is informed that enhanced messaging session has ended	Step 61A
7B	User A is informed that enhanced messaging session has ended	Step 61B

Step	Action	CF_INT_AS
8A	User A is informed that enhanced messaging session has ended	Step 71A
8B	User B is informed that enhanced messaging session has ended	Step 71B

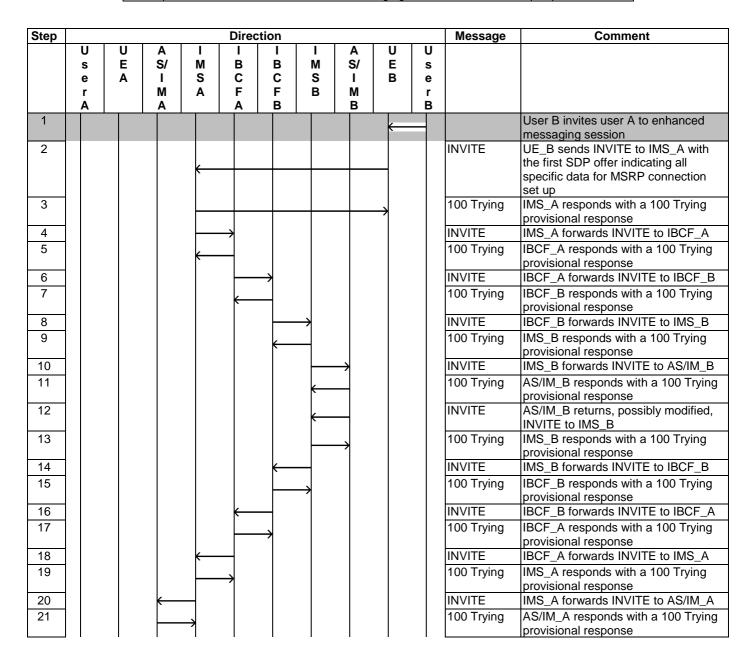
Step					Direct	ion					Message	Comment
	U	C	Α	_	I	_	I	Α	U	U		
	S	E A	S/ I	M S	B C	B C	M S	S/ I	E B	S		
	e r	A	М	A	F	F	В	M	В	e r		
	A		A	^	A	В		В		В		
1		_										User A invites user B to enhanced
		1										messaging session
2											INVITE	UE_A sends INVITE with the first
				7								SDP offer indicating all specific data for MSRP connection set up
3											100 Trying	IMS_A responds with a 100 Trying
												provisional response
4			\leftarrow								INVITE	IMS_A forwards INVITE to AS/IM_A
5				_							100 Trying	AS/IM_A responds with a 100
				1							IN 11 TE	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
			—								1.00 11,111.9	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						7					INVITE	IBCF_A forwards INVITE to IBCF_B
11											100 Trying	IBCF_B responds with a 100 Trying provisional response
12							_				INVITE	IBCF_B forwards INVITE to IMS_B
13							1				100 Trying	IMS_B responds with a 100 Trying
'						\leftarrow					l too rrying	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							\leftarrow				INVITE	AS/IM_B returns, possibly modified, INVITE to IMS_B
17								\rightarrow			100 Trying	IMS_B responds with a 100 Trying
40											INVITE	provisional response
18 19									\rightarrow			IMS_B forwards INVITE to UE_B UE_B optionally responds with a
19							←				100 Trying	100 Trying provisional response
20												User B is informed of incoming
										7		enhanced messaging session
21											180 Ringing	UE_B responds to initial INVITE
							,					with 180 Ringing to indicate that invitation to an enhanced
												messaging session has reached the
												invited user
22								_			180 Ringing	IMS_B forwards 180 Ringing
								1				response to AS/IM_B
23							←				180 Ringing	AS/IM_B returns, possibly modified,
24											180 Ringing	180 Ringing response to IMS_B IMS_B forwards 180 Ringing
Z4						\leftarrow					100 Kinging	response to IBCF_B
25											180 Ringing	IBCF_B forwards 180 Ringing
00											400 D: :	response to IBCF_A
26				\longleftarrow							180 Ringing	IBCF_A forwards 180 Ringing response to IMS_A
27											180 Ringing	IMS_A forwards 180 Ringing
- 00												response to AS/IM_A
28			-	\rightarrow							180 Ringing	AS/IM_A returns, possibly modified, 180 Ringing response to IMS_A
	I	I	I	ı	1	I	I	I	ı	ı		100 thinging reopense to livio_/t



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	M	S A	C F	C F	S B	M	В	e r		
	Ä		A	^	Ä	В	٦	В		В		
63A								*		Ī	200 OK	IMS_B forwards 200 OK response to AS/IM_B
64A											200 OK	AS/IM_B returns, possibly modified,
												200 OK response to IMS_B
65A							4				200 OK	IMS_B forwards 200 OK response to IBCF_B
66A						-					200 OK	IBCF_B forwards 200 OK response to IBCF_A
67A											200 OK	IBCF_A forwards 200 OK response
												to IMS_A
68A				-							200 OK	IMS_A forwards 200 OK response to AS/IM_A
69A				\rightarrow							200 OK	AS/IM_A returns, possibly modified, 200 OK response to IMS_A
70A		\leftarrow									200 OK	IMS_A forwards 200 OK response to UE_A
71A												User A is informed that enhanced
51B												messaging session has ended User B ends the enhanced
SIB									\leftarrow			messaging session
52B											BYE	UE_B releases the enhanced
53B											BYE	messaging session with BYE IMS_B forwards BYE to AS/IM_B
54B								7			BYE	AS/IM_B returns, possibly modified,
0.15							\leftarrow				512	BYE to IMS_B
55B						←					BYE	IMS_B forwards BYE to IBCF_B
56B					\leftarrow						BYE	IBCF_B forwards BYE to IBCF_A
57B				←	-						BYE	IBCF_A forwards BYE to IMS_A
58B			←								BYE	IMS_A forwards BYE to AS/IM_A
59B				\rightarrow							BYE	AS/IM_A returns, possibly modified, BYE to IMS_A
60B		\leftarrow									BYE	IMS_A forwards BYE to UE_A
61B	├											User A is informed that enhanced
62B											200 OK	messaging session has ended UE A sends 200 OK for BYE
63B				7							200 OK 200 OK	IMS_A forwards 200 OK response
036			\leftarrow								200 OK	to AS/IM_A
64B				\rightarrow							200 OK	AS/IM_A returns, possibly modified, 200 OK response to IMS_A
65B)						200 OK	IMS_A forwards 200 OK response
66B											200 OK	to IBCF_A IBCF_A forwards 200 OK response
67B											200 OK	to IBCF_B IBCF_B forwards 200 OK response
							7					to IMS_B
68B								*			200 OK	IMS_B forwards 200 OK response to AS/IM_B
69B								-			200 OK	AS/IM_B returns, possibly modified, 200 OK response to IMS_B
70B								 	•		200 OK	IMS_B forwards 200 OK response
71B												to UE_B User B is informed that enhanced
												messaging session has ended

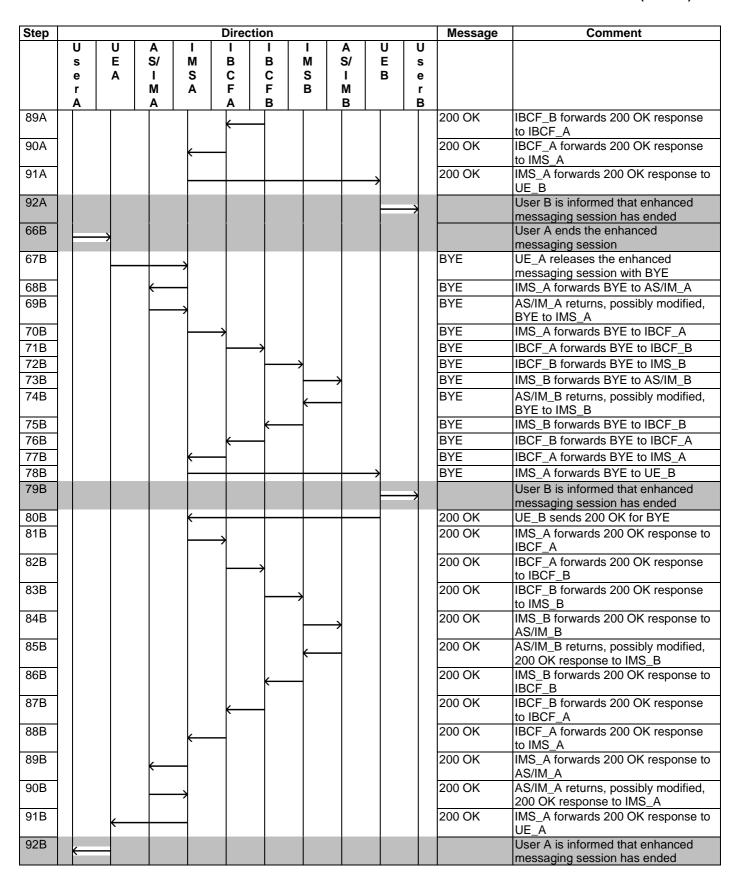
4.4.3.3.2 UC_RCS_5_R: SIP message flow for Enhanced Messaging - user acceptance with CF_ROAM_AS

Step	Action	CF_ROAM_AS
1	User B invites user A to enhanced messaging session	Step 1
2	User A is informed of incoming enhanced messaging session	Step 26
3	User B is informed that invitation to an enhanced messaging session has reached user A	Step 39
4	User A accepts the invitation to an enhanced messaging session	Step 40
5	Users perform enhanced messaging	Step 65
6A	User A ends the enhanced messaging session	Step 66A
6B	User B ends the enhanced messaging session	Step 66B
7A	User B is informed that enhanced messaging session has ended	Step 79A
7B	User A is informed that enhanced messaging session has ended	Step 79B
8A	User A is informed that enhanced messaging session has ended	Step 92A
8B	User B is informed that enhanced messaging session has ended	Step 92B



Step					Direct	ion					Message	Comment
	U	Ū	Α	I	1	- (I	Α	U	U		
	s e	E A	S/ I	M S	B C	B C	M S	S/ I	E B	s e		
	r		M	Ă	F	F	В	M		r		
22	A	1	Α		A	В		В		В	INVITE	AS/IM_A returns, possibly modified,
				\rightarrow								INVITE to IMS_A IMS_A responds with a 100 Trying
23			\leftarrow								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 enhanced messaging session
27											180 Ringing	UE_A responds to initial INVITE with
				\rightarrow								180 Ringing to indicate that invitation to an enhanced messaging session has reached the invited user
28			<u></u>								180 Ringing	IMS_A forwards 180 Ringing
29											180 Ringing	response to AS/IM_A AS/IM_A returns, possibly modified,
												180 Ringing response to IMS_A
30					\rightarrow						180 Ringing	IMS_A forwards 180 Ringing response to IBCF_A
31)					180 Ringing	IBCF_A forwards 180 Ringing response to IBCF_B
32							\rightarrow				180 Ringing	IBCF_B forwards 180 Ringing response to IMS_B
33								→			180 Ringing	IMS_B forwards 180 Ringing
34											180 Ringing	response to AS/IM_B AS/IM_B returns, possibly modified,
35											180 Ringing	180 Ringing response to IMS_B IMS_B forwards 180 Ringing
36											180 Ringing	response to IBCF_B IBCF_B forwards 180 Ringing
												response to IBCF_A
37				\leftarrow							180 Ringing	IBCF_A forwards 180 Ringing response to IMS_A
38								+	\rightarrow		180 Ringing	IMS_A forwards 180 Ringing response to UE_B
39												User B is informed that invitation to
										7		an enhanced messaging session has reached user A
40		*										User A accepts the invitation to an enhanced messaging session
41											200 OK	UE_A responds INVITE with 200 OK
												response with SDP to indicate that
												the session has been accepted and inform A-side with specific data for
42											200 OK	MSRP connection set up IMS_A forwards 200 OK response to
43											200 OK	AS/IM_A AS/IM_A returns, possibly modified,
				\rightarrow								200 OK response to IMS_A
44					\rightarrow						200 OK	IMS_A forwards 200 OK response to IBCF_A
45)					200 OK	IBCF_A forwards 200 OK response to IBCF_B
46							→				200 OK	IBCF_B forwards 200 OK response to IMS_B
47								→			200 OK	IMS_B forwards 200 OK response to
48											200 OK	AS/IM_B AS/IM_B returns, possibly modified,
49											200 OK	200 OK response to IMS_B IMS_B forwards 200 OK response to
+3						K	\dashv				200 OK	IBCF_B

Step					Direc	tion					Message	Comment
-	U	U	Α	I	ı	ı	I	Α	U	U		
	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		
	Å		A	^	A	В		B		В		
50										Ī	200 OK	IBCF_B forwards 200 OK response to IBCF_A
51											200 OK	IBCF_A forwards 200 OK response
52											200 OK	to IMS_A IMS_A forwards 200 OK response to
53									1		ACK	UE_B UE_B acknowledges the receipt of
				\leftarrow								200 OK for INVITE
54)						ACK	IMS_A forwards ACK to IBCF_A
55						\rightarrow					ACK	IBCF_A forwards ACK to IBCF_B
56							\rightarrow				ACK	IBCF_B forwards ACK to IMS_B
57								\rightarrow			ACK	IMS_B forwards ACK to AS/IM_B
58							\leftarrow				ACK	AS/IM_B returns, possibly modified, ACK to IMS_B
59						←					ACK	IMS_B forwards ACK to IBCF_B
60					\leftarrow						ACK	IBCF_B forwards ACK to IBCF_A
61				\leftarrow							ACK	IBCF_A forwards ACK to IMS_A
62			\leftarrow	_							ACK	IMS_A forwards ACK to AS/IM_A
63				\rightarrow							ACK	AS/IM_A returns, possibly modified, ACK to IMS_A
64		\leftarrow		_							ACK	IMS_A forwards ACK to UE_A
65	K									\rightarrow		Users perform enhanced messaging
66A									—			User B ends the enhanced messaging session
67A											BYE	UE_B releases the enhanced
0771				\leftarrow								messaging session with BYE
68A					\rightarrow						BYE	IMS_A forwards BYE to IBCF_A
69A						\rightarrow					BYE	IBCF_A forwards BYE to IBCF_B
70A							\rightarrow				BYE	IBCF_B forwards BYE to IMS_B
71A								\rightarrow			BYE	IMS_B forwards BYE to AS/IM_B
72A							←				BYE	AS/IM_B returns, possibly modified, BYE to IMS_B
73A											BYE	IMS B forwards BYE to IBCF B
74A					_	`					BYE	IBCF_B forwards BYE to IBCF_A
75A					`						BYE	IBCF_A forwards BYE to IMS_A
76A			,	`							BYE	IMS_A forwards BYE to AS/IM_A
77A											BYE	AS/IM_A returns, possibly modified,
//A				\rightarrow							DIE	BYE to IMS_A
78A		\leftarrow									BYE	IMS_A forwards BYE to UE_A
79A												User A is informed that enhanced
												messaging session has ended
80A				\rightarrow							200 OK	UE_A sends 200 OK for BYE
81A			←	_							200 OK	IMS_A forwards 200 OK response to AS/IM_A
82A				\rightarrow							200 OK	AS/IM_A returns, possibly modified,
83A											200 OK	200 OK response to IMS_A IMS_A forwards 200 OK response to
84A											200 OK	IBCF_A IBCF_A forwards 200 OK response
						\rightarrow						to IBCF_B
85A							\rightarrow				200 OK	IBCF_B forwards 200 OK response to IMS_B
86A								\rightarrow			200 OK	IMS_B forwards 200 OK response to AS/IM_B
87A							<u></u>				200 OK	AS/IM_B returns, possibly modified,
88A											200 OK	200 OK response to IMS_B IMS_B forwards 200 OK response to
00/1						←	\dashv					IBCF_B



4.4.3.4 Enhanced Messaging - user rejection

Following there are the expected common call flow sequences for enhanced messaging when an incoming one-to-one IM session request is rejected by the RCS client.

4.4.3.4.1 UC_RCS_6_I: SIP message flow for Enhanced Messaging - user rejection with CF_INT_AS

Step	Action	CF_INT_AS
1	User A invites user B to enhanced messaging session	Step 1
2	User B is informed of incoming enhanced messaging session	Step 20
3	User A is informed that invitation to an enhanced messaging session has reached user B	Step 30
4	User B rejects the invitation to an enhanced messaging session	Step 31
5	User A is informed that enhanced messaging session was rejected by user B	Step 41
6	User B is informed that enhanced messaging session is terminated	Step 51

Step					Direct	ion					Message	Comment
	U		A	I	_	Ī	-	A	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	B	M		r		
	A		Α	^	A	В		В		В		
1		,										User A invites user B to enhanced
		1										messaging session
2				\rightarrow							INVITE	UE_A sends INVITE with the first SDP offer indicating all specific data for MSRP connection set up
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				\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							<u> </u>				100 Trying	AS/IM_B responds with a 100
40											IND /ITE	Trying provisional response
16							\leftarrow				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							—		\dashv		100 Trying	UE_B optionally responds with a 100 Trying provisional response
20												User B is informed of incoming
										7		enhanced messaging session

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 C F B M A F F B M F	
e A I S C C S I B e	
	sponds to initial INVITE
	Ringing to indicate that
	n to an enhanced
	ng session has reached the
	orwards 180 Ringing
response	e to AS/IM_B
	B returns, possibly modified,
	ging response to IMS_B
	orwards 180 Ringing e to IBCF_B
	forwards 180 Ringing
	e to IBCF_A
	forwards 180 Ringing
response	e to IMS_A
	orwards 180 Ringing e to AS/IM_A
	A returns, possibly modified,
	ging response to IMS_A
	orwards 180 Ringing
	e to UE_A
	s informed that invitation to nced messaging session
	ched user B
	ejects the invitation to an
	ed messaging session
	sponds to the INVITE with
Temporarily 480 Tem Unavailable	nporarily Unavailable
	orwards 480 Temporarily
	able response to AS/IM_B
Unavailable Unavailable	·
	3 returns, possibly modified,
	nporarily Unavailable e to IMS_B
	orwards 480 Temporarily
	able response to IBCF_B
Unavailable Unavailable	
	forwards 480 Temporarily able response to IBCF_A
Temporarily Unavaila	inie iesholise in IDCL_A
37	forwards 480 Temporarily
	able response to IMS_A
Unavailable Unavailable	
	orwards 480 Temporarily able response to AS/IM_A
Unavailable	ADIO TOOPOTIOE TO AO/IIVI_A
39 480 AS/IM_A	A returns, possibly modified,
	nporarily Unavailable
	e to IMS_A
	orwards 480 Temporarily able response to UE_A
Unavailable	100po1.00 to 02_/1
41 User A is	s informed that enhanced
	ng session was rejected by
user B	eknowledges the reseint of
	cknowledges the receipt of porarily Unavailable
	e for INVITE
	orwards ACK to AS/IM_A

Step					Direc	tion					Message	Comment
	U	U	Α	ı	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	M		r		
	<u> </u>		Α		Α	В		В		В		
44				_							ACK	AS/IM_A returns, possibly modified,
				1								ACK to IMS_A
45					\rightarrow						ACK	IMS_A forwards ACK to IBCF_A
46						\rightarrow					ACK	IBCF_A forwards ACK to IBCF_B
47							\rightarrow				ACK	IBCF_B forwards ACK to IMS_B
48								\rightarrow			ACK	IMS_B forwards ACK to AS/IM_B
49							,				ACK	AS/IM_B returns, possibly modified,
												ACK to IMS_B
50								-	\rightarrow		ACK	IMS_B forwards ACK to UE_B
51										_		User B is informed that enhanced
										1		messaging session is terminated

4.4.3.4.2 UC_RCS_6_R: SIP message flow for Enhanced Messaging - user rejection with CF_ROAM_AS

Step	Action	CF_ROAM_AS
1	User B invites user A to enhanced messaging session	Step 1
2	User A is informed of incoming enhanced messaging session	Step 26
3	User B is informed that invitation to an enhanced messaging	Step 39
	session has reached user A	
4	User A rejects the invitation to an enhanced messaging session	Step 40
5	User B is informed that enhanced messaging session was rejected	Step 53
	by user A	-
6	User A is informed that enhanced messaging session is terminated	Step 66

Step					Direc	tion					Message	Comment
	C	Ū	A	. –	- () —		A	U	U		
	S	E	S/	M	В	В	M	S/	E B	S		
	e	Α	M	S A	C F	C F	S B	M	В	e		
	A		A	A	Ā	В	Ь	B		В		
1												User B invites user A to enhanced
												messaging session
2											INVITE	UE_B sends INVITE to IMS_A with
												the first SDP offer indicating all
				ľ								specific data for MSRP connection
												set up
3									\rightarrow		100 Trying	IMS_A responds with a 100 Trying
									1			provisional response
4					\rightarrow						INVITE	IMS_A forwards INVITE to IBCF_A
5											100 Trying	IBCF_A responds with a 100 Trying
				l l								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											100 Trying	AS/IM_B responds with a 100 Trying
											, ,	provisional response
12											INVITE	AS/IM_B returns, possibly modified,
												INVITE to IMS_B

Step			•		Directio	on					Message	Comment
	U s	U E	A S/	I M	I B	I B	I M	A S/	U	U		
	e	Ā	I	S	C	C	S	J,	В	e		
	r		M	Α	F	F	В	M		r		
13	A		A		A	В		<u>B</u> →		В	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
							7					provisional response
16					\leftarrow	1					INVITE	IBCF_B forwards INVITE to IBCF_A
17											100 Trying	IBCF_A responds with a 100 Trying provisional response
18				\leftarrow							INVITE	IBCF_A forwards INVITE to IMS_A
19											100 Trying	IMS_A responds with a 100 Trying provisional response
20			\leftarrow	-							INVITE	IMS_A forwards INVITE to AS/IM_A
21				•							100 Trying	AS/IM_A responds with a 100 Trying provisional response
22				>							INVITE	AS/IM_A returns, possibly modified, INVITE to IMS_A
23				1							100 Trying	IMS_A responds with a 100 Trying provisional response
24		\longleftarrow	+	-							INVITE	IMS_A forwards INVITE to UE_A
25				•							100 Trying	UE_A optionally responds with a 100 Trying provisional response
26	—											User A is informed of incoming enhanced messaging session
27											180 Ringing	UE_A responds to initial INVITE with
				•								180 Ringing to indicate that invitation
												to an enhanced messaging session has reached the invited user
28			—								180 Ringing	IMS_A forwards 180 Ringing
29											180 Ringing	response to AS/IM_A AS/IM_A returns, possibly modified,
30											180 Ringing	180 Ringing response to IMS_A IMS_A forwards 180 Ringing
												response to IBCF_A
31											180 Ringing	IBCF_A forwards 180 Ringing response to IBCF_B
32							>				180 Ringing	IBCF_B forwards 180 Ringing response to IMS_B
33								\rightarrow			180 Ringing	IMS_B forwards 180 Ringing response to AS/IM_B
34							<u></u>				180 Ringing	AS/IM_B returns, possibly modified,
35											180 Ringing	180 Ringing response to IMS_B IMS_B forwards 180 Ringing
36											180 Ringing	response to IBCF_B IBCF_B forwards 180 Ringing
					-							response to IBCF_A
37				(180 Ringing	IBCF_A forwards 180 Ringing response to IMS_A
38									\rightarrow		180 Ringing	IMS_A forwards 180 Ringing response to UE_B
39												User B is informed that invitation to an enhanced messaging session has
												reached user A
40	\longmapsto											User A rejects the invitation to an enhanced messaging session
41											480	UE_A responds to the INVITE with
				*							Temporarily Unavailable	480 Temporarily Unavailable
42											480	IMS_A forwards 480 Temporarily
				1							Temporarily Unavailable	Unavailable 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		
	e	Α	l M	S	C F	C F	S B	I M	В	e		
	r A		M A	A	Ā	В	В	B		r B		
43	- ^ - 										480	AS/IM_A returns, possibly modified,
10				\rightarrow							Temporarily	480 Temporarily Unavailable
											Unavailable	response to IMS_A
44											480	IMS_A forwards 480 Temporarily
					\rightarrow						Temporarily	Unavailable response to IBCF_A
4.5											Unavailable	IDOE A (L 100 T II
45											480 Temporarily	IBCF_A forwards 480 Temporarily Unavailable response to IBCF_B
											Unavailable	Unavailable response to IBCF_B
46											480	IBCF_B forwards 480 Temporarily
10							\rightarrow				Temporarily	Unavailable response to IMS_B
											Unavailable	_
47											480	IMS_B forwards 480 Temporarily
								\rightarrow			Temporarily	Unavailable response to AS/IM_B
40											Unavailable	AC/IM D returns a seed 197
48											480 Temporarily	AS/IM_B returns, possibly modified, 480 Temporarily Unavailable
											Unavailable	response to IMS_B
49											480	IMS_B forwards 480 Temporarily
						\leftarrow	_				Temporarily	Unavailable response to IBCF_B
											Unavailable	·
50											480	IBCF_B forwards 480 Temporarily
					\leftarrow						Temporarily	Unavailable response to IBCF_A
											Unavailable	IDOE A familiarda 400 Tamanavarilis
51											480 Temporarily	IBCF_A forwards 480 Temporarily Unavailable response to IMS_A
				ì							Unavailable	Onavailable response to livio_A
52											480	IMS_A forwards 480 Temporarily
				-			_		\longrightarrow		Temporarily	Unavailable response to UE_B
											Unavailable	
53												User B is informed that enhanced
												messaging session was rejected by
54											ACK	user A UE_B acknowledges the receipt of
54				<u></u>							ACK	480 Temporarily Unavailable
				<u> </u>								response for INVITE
55				-	\rightarrow						ACK	IMS_A forwards ACK to IBCF_A
56						\rightarrow					ACK	IBCF_A forwards ACK to IBCF_B
57							\rightarrow				ACK	IBCF_B forwards ACK to IMS_B
58								\rightarrow			ACK	IMS_B forwards ACK to AS/IM_B
59											ACK	AS/IM_B returns, possibly modified,
												ACK to IMS_B
60						\leftarrow					ACK	IMS_B forwards ACK to IBCF_B
61					←	\dashv					ACK	IBCF_B forwards ACK to IBCF_A
62				←	_						ACK	IBCF_A forwards ACK to IMS_A
63			\leftarrow	\dashv							ACK	IMS_A forwards ACK to AS/IM_A
64											ACK	AS/IM_A returns, possibly modified,
				7								ACK to IMS_A
65		\leftarrow									ACK	IMS_A forwards ACK to UE_A
66	k											User A is informed that enhanced
												messaging session is terminated

4.4.3.5 Enhanced Messaging - no response

Following there are the expected common call flow sequences for enhanced messaging when the incoming one-to-one IM session requests is not answered by the RCS client.

4.4.3.5.1 UC_RCS_7_I: SIP message flow for Enhanced Messaging - no response with CF_INT_AS

Step	Action	CF_INT_AS
1	User A invites user B to enhanced messaging session	Step 1
2	User B is informed of incoming enhanced messaging session	Step 20
3	User A is informed that invitation to an enhanced messaging	Step 30
	session has reached user B	
4	There is no answer from user B for a certain period of time	Step 31
5	User A is informed that there is no answer from user B	Step 32
6	User B is informed that enhanced messaging session has been	Step 51
	cancelled	
7	User A is informed that enhanced messaging session is terminated	Step 70

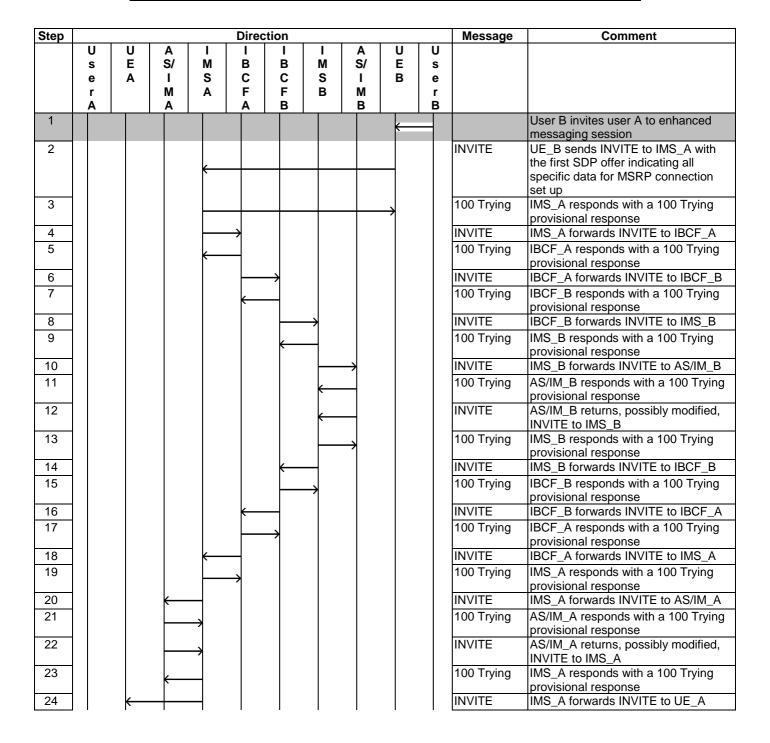
Step					Directi	on					Message	Comment
•	U	U	Α	I	I	I	ı	Α	U	U		
	S	E	S/	M	B C	В	M	S/	E B	S		
	e r	Α	I M	S A	F	C F	S B	I M	В	e r		
	Ä		A	^	Ä	В	٦	В		В		
1												User A invites user B to enhanced
		7										messaging session
2											INVITE	UE_A sends INVITE with the first
				\rightarrow								SDP offer indicating all specific data
											100 7	for MSRP connection set up
3		\leftarrow									100 Trying	IMS_A responds with a 100 Trying
4											INVITE	provisional response IMS_A forwards INVITE to AS/IM_A
5											100 Trying	AS/IM_A responds with a 100
5				\rightarrow							100 Trying	Trying provisional response
6											INVITE	AS/IM_A returns, possibly modified,
				\rightarrow								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
				ì								provisional response
10						>					INVITE	IBCF_A forwards INVITE to IBCF_B
11											100 Trying	IBCF_B responds with a 100 Trying
4.0					•						15 D (177	provisional response
12							-				INVITE	IBCF_B forwards INVITE to IMS_B
13						\leftarrow					100 Trying	IMS_B responds with a 100 Trying
14											INVITE	provisional response IMS_B forwards INVITE to AS/IM_B
15								7				
15							\leftarrow				100 Trying	AS/IM_B responds with a 100 Trying provisional response
16											INVITE	AS/IM_B returns, possibly modified,
10							←				III VIII L	INVITE to IMS_B
17											100 Trying	IMS B responds with a 100 Trying
								7				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
												enhanced messaging session

Step					Directi	on					Message	Comment
	U	U	A	I	ı	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		
21	A		Α		Α _	В		В		В	180 Ringing	UE_B responds to initial INVITE
21											100 Kinging	with 180 Ringing to indicate that
							←		-			invitation to an enhanced
												messaging session has reached the invited user
22											180 Ringing	IMS_B forwards 180 Ringing response to AS/IM_B
23							←				180 Ringing	AS/IM_B returns, possibly modified, 180 Ringing response to IMS_B
24						-					180 Ringing	IMS_B forwards 180 Ringing response to IBCF_B
25					←—						180 Ringing	IBCF_B forwards 180 Ringing response to IBCF_A
26					_						180 Ringing	IBCF_A forwards 180 Ringing response to IMS_A
27											180 Ringing	IMS_A forwards 180 Ringing response to AS/IM_A
28)							180 Ringing	AS/IM_A returns, possibly modified, 180 Ringing response to IMS_A
29											180 Ringing	IMS_A forwards 180 Ringing response to UE_A
30												User A is informed that invitation to
	—											an enhanced messaging session has reached user B
31												There is no answer from user B for a certain period of time
32	—											User A is informed that there is no answer from user B
33				\rightarrow							CANCEL	UE_A sends CANCEL to IMS_A
34											200 OK	IMS_A responds with a 200 OK to UE_A
35											CANCEL	IMS_A forwards the CANCEL to AS/IM_A
36				-							200 OK	AS/IM_A responds with a 200 OK to IMS_A
37				-							CANCEL	AS/IM_A returns, possibly modified, CANCEL to IMS_A
38											200 OK	IMS_A responds with a 200 OK to AS/IM_A
39					\rightarrow						CANCEL	IMS_A forwards CANCEL to IBCF_A
40											200 OK	IBCF_A responds with a 200 OK to IMS_A
41						>					CANCEL	IBCF_A forwards CANCEL to IBCF_B
42						-					200 OK	IBCF_B responds with a 200 OK to IBCF_A
43							\rightarrow				CANCEL	IBCF_B forwards CANCEL to IMS_B
44											200 OK	IMS_B responds with a 200 OK to IBCF_B
45								*			CANCEL	IMS_B forwards CANCEL to AS/IM_B
46											200 OK	AS/IM_B responds with a 200 OK to IMS_B
47											CANCEL	AS/IM_B returns, possibly modified, CANCEL to IMS_B
48							- :	*			200 OK	IMS_B responds with a 200 OK to AS/IM_B
49								- :	*		CANCEL	IMS_B forwards CANCE to UE_B

S	Step				I	Directio	n					Message	Comment
So			_		I		J —	I		-	_		
So									_				
50 51 51 52 52 53 54 55 56 56 56 57 58 60 60 60 60 60 60 60 60 60 60 60 60 60			·	-		F	F		-				
IMS_B User B is informed that enhanced messaging session has been cancelled UE_B responds to the INVITE with 487 Request Terminated ACK IMS_B responds with ACK to UE_B 487 IMS_B forwards 487 Request Terminated response to AS/IM_B Terminated response to AS/IM_B ACK IMS_B responds with ACK to AS/IM_B AS/IM_B responds with ACK to AS/IM_B AS/IM_B responds with ACK to IMS_B AS/IM_B responds with ACK to IMS_B ACK		Α	1	Α		Α	В		В		В		
S2 We will be considered to the considered t	50									+		200 OK	IMS_B
Cancelled Canc	51												
487 Request Terminated ACK IMS_B responds with ACK to UE_B 487 ASIM_B responds with ACK to UE_B 487 IMS_B responds with ACK to ASIM_B Terminated ACK IMS_B responds with ACK to ASIM_B reminated response to IMS_B 487 ASIM_B resurest Terminated response to IMS_B ACK ASIM_B responds with ACK to IMS_B ACK ASIM_B responds with ACK to IMS_B ACK IMS_B responds with ACK to IMS_A ACK IMS_B responds with ACK to IMS_A ACK IMS_B responds with ACK to IMS_A ACK IMS_B responds with ACK to IMS_A ACK IMS_B responds with ACK to IMS_A ACK IMS_B responds with ACK to IMS_A ACK IMS_B responds with ACK to IMS_A ACK IMS_B responds with ACK to IMS_A ACK IMS_A forwards 487 Request ACK IMS_A forwards 487 Request											7		
Terminated ACK IMS_B responds with ACK to UE_B	52											487	
S3 54 S4 S4 S4 S4 S4 S4 S4								\leftarrow					
S4 S487 IMS_B forwards 487 Request Terminated response to AS/IM_B Terminated ACK IMS_B responds with ACK to AS/IM_B 487 AS/IM_B Request Terminated response ACK AS/IM_B ACK AS/IM_B ACK AS/IM_B ACK AS/IM_B Request Terminated response Terminated ACK AS/IM_B Responds with ACK to IMS_B ACK IMS_B Terminated ACK IMS_B Responds with ACK to IBCF_B ACK IBCF_B ACK IBCF_A ACK A													IMO D seemed with ACK to UE D
Request Terminated response to AS/IM_B Terminated ACK IMS_B responds with ACK to AS/IM_B 487 AS/IM_B returns, possibly modified, 487 Request Terminated response to IMS_B ACK AS/IM_B responds with ACK to IMS_B ACK AS/IM_B responds with ACK to IMS_B ACK AS/IM_B responds with ACK to IMS_B ACK IMS_B forwards 487 Request Terminated response to IBCF_B Terminated ACK IMS_B responds with ACK to IBCF_B BECF_B forwards 487 Request Terminated response to IBCF_A Terminated ACK IBCF_B responds with ACK to IBCF_A Terminated response to IMS_A BECF_A forwards 487 Request Terminated ACK IBCF_A forwards 487 Request Terminated ACK IBCF_A forwards 487 Request Terminated response to IMS_A BECF_A forwards 487 Request Terminated responds with ACK to IBCF_A forwards 487 Request Terminated Request Te										7			
Terminated ACK IMS_B responds with ACK to AS/IM_B 487 AS/IM_B returns, possibly modified, 487 Request Terminated response Terminated to IMS_B ACK AS/IM_B responds with ACK to IMS_B ACK AS/IM_B responds with ACK to IMS_B ACK IMS_B responds with ACK to IMS_B Terminated response to IBCF_B Terminated ACK IMS_B responds with ACK to IBCF_B Terminated ACK IMS_B responds with ACK to IBCF_B Terminated ACK IMS_B responds with ACK to IBCF_B Terminated response to IBCF_A Terminated response to IBCF_A Terminated response to IMS_A Terminated ACK IBCF_A forwards 487 Request Terminated ACK IBCF_A forwards 487 Request Terminated ACK IBCF_A forwards 487 Request Terminated ACK IBCF_A forwards 487 Request Terminated ACK IBCF_A forwards 487 Request Terminated ACK IBCF_A forwards 487 Request Terminated ACK IBCF_A forwards 487 Request Terminated response to IMS_A Terminated ACK IBCF_A forwards 487 Request	54								•				
AS/IM_B 487													Terminated response to 7.6/11/1_B
S6	55											ACK	
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70 User A is informed that enhanced messaging session is terminated	70	-											

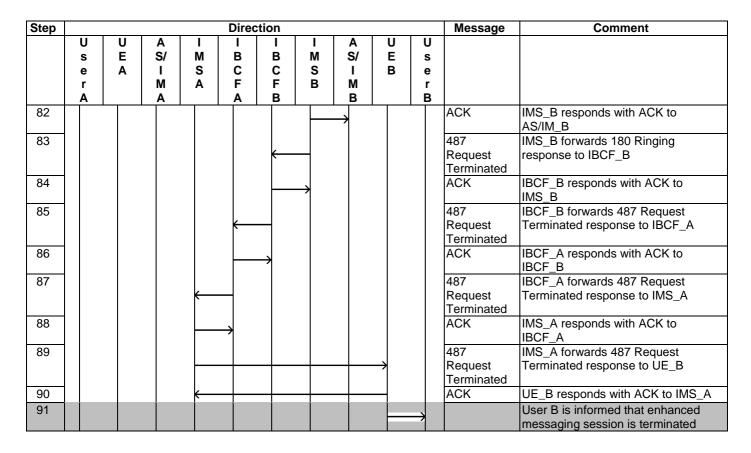
4.4.3.5.2 UC_RCS_7_R: SIP message flow for Enhanced Messaging - no response with CF_ROAM_AS

Step	Action	CF_ROAM_AS
1	User B invites user A to enhanced messaging session	Step 1
2	User A is informed of incoming enhanced messaging session	Step 26
3	User B is informed that invitation to an enhanced messaging session has reached user A	Step 39
4	There is no answer from user A for a certain period of time	Step 40
5	User B is informed that there is no answer from user A	Step 41
6	User A is informed that enhanced messaging session has been cancelled	Step 66
7	User B is informed that enhanced messaging session is terminated	Step 91



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200 OK BCF_B responds with a 200 OK to BCF_A CANCEL BCF_B forwards CANCEL to IMS_B 200 OK IMS_B responds with a 200 OK to BCF_B CANCEL IMS_B forwards CANCEL to AS/IM_B CANCEL IMS_B forwards CANCEL to MS_B CANCEL IMS_B responds with a 200 OK to IMS_B CANCEL AS/IM_B returns, possibly modified, CANCEL to IMS_B CANCEL to IMS_B 200 OK IMS_B responds with a 200 OK to AS/IM_B	46						\rightarrow					CANCEL	
BBCF_A CANCEL BCF_B forwards CANCEL to IMS_B 200 OK IMS_B responds with a 200 OK to BCF_B CANCEL IMS_B forwards CANCEL to AS/IM_B 200 OK AS/IM_B 200 OK AS/IM_B responds with a 200 OK to IMS_B CANCEL to IMS_B CANCEL to IMS_B 200 OK IMS_B responds with a 200 OK to AS/IM_B responds with a 200 OK to AS/IM_B 200 OK IMS_B responds with a 200 OK to AS/IM_B 200 OK IMS_B responds with a 200 OK to AS/IM_B 200 OK to	47											000 014	
CANCEL IBCF_B forwards CANCEL to IMS_B 200 OK IMS_B responds with a 200 OK to IBCF_B CANCEL IMS_B forwards CANCEL to AS/IM_B CANCEL IMS_B forwards CANCEL to IMS_B CANCEL IMS_B responds with a 200 OK to IMS_B CANCEL AS/IM_B responds with a 200 OK to AS/IM_B responds with a 200 OK to AS/IM_B	47					←	_					200 OK	
200 OK IMS_B responds with a 200 OK to IBCF_B CANCEL IMS_B forwards CANCEL to AS/IM_B 200 OK AS/IM_B responds with a 200 OK to IMS_B CANCEL AS/IM_B returns, possibly modified, CANCEL to IMS_B 200 OK IMS_B responds with a 200 OK to AS/IM_B	48							\rightarrow				CANCEL	
50 51 52 53 50 CANCEL IMS_B forwards CANCEL to AS/IM_B 200 OK AS/IM_B responds with a 200 OK to IMS_B CANCEL AS/IM_B returns, possibly modified, CANCEL to IMS_B 200 OK IMS_B responds with a 200 OK to AS/IM_B								1					
50 51 51 52 53 CANCEL IMS_B forwards CANCEL to AS/IM_B 200 OK AS/IM_B responds with a 200 OK to IMS_B CANCEL AS/IM_B returns, possibly modified, CANCEL to IMS_B 200 OK IMS_B responds with a 200 OK to AS/IM_B							\leftarrow	\dashv					
51 52 53 50 OK AS/IM_B responds with a 200 OK to IMS_B CANCEL AS/IM_B returns, possibly modified, CANCEL to IMS_B 200 OK IMS_B responds with a 200 OK to AS/IM_B	50								_			CANCEL	IMS_B forwards CANCEL to
52 53 IMS_B CANCEL AS/IM_B returns, possibly modified, CANCEL to IMS_B 200 OK IMS_B responds with a 200 OK to AS/IM_B									1				
52 CANCEL AS/IM_B returns, possibly modified, CANCEL to IMS_B 200 OK IMS_B responds with a 200 OK to AS/IM_B	51							—	\dashv			200 OK	
53 CANCEL to IMS_B 200 OK IMS_B responds with a 200 OK to AS/IM_B	52											CANCEL	
53 200 OK IMS_B responds with a 200 OK to AS/IM_B	52							\leftarrow	\dashv			CANCEL	
	53											200 OK	IMS B responds with a 200 OK to
									\rightarrow				
34	54						\leftarrow	\dashv				CANCEL	IMS_B forwards CANCEL to IBCF_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/ I	E B	s e		
	r	^	M	Ā	F	F	В	M	-	r		
	Α	1	Α		Α	В		В	<u> </u>	В	000 014	IDOE Dansarda with a 000 OK to
55							\rightarrow				200 OK	IBCF_B responds with a 200 OK to IMS_B
56					—						CANCEL	IBCF_B forwards CANCEL to IBCF_A
57						\rightarrow					200 OK	IBCF_A responds with a 200 OK to
58											CANCEL	IBCF_B IBCF_A forwards CANCEL to IMS_A
59					\rightarrow						200 OK	IMS_A responds with a 200 OK to
60			←								CANCEL	IMS_A forwards CANCEL to AS/IM_A
61				\rightarrow							200 OK	AS/IM_A responds with a 200 OK to
62				\rightarrow							CANCEL	IMS_A AS/IM_A returns, possibly modified,
63			\leftarrow								200 OK	CANCEL to IMS_A IMS_A responds with a 200 OK to
64											CANCEL	AS/IM_A IMS_A forwards CANCEL to UE_A
65											200 OK	UE_A responds with a 200 OK to
				7								IMS_A
66												User A is informed that enhanced messaging session has been cancelled
67											487	UE_A responds to the INVITE with
				\rightarrow							Request Terminated	487 Request Terminated
68		←		_							ACK	IMS_A responds with ACK to UE_A
69			—								487 Request	IMS_A forwards 487 Request Terminated response to AS/IM_A
70				\rightarrow							Terminated ACK	AS/IM_A responds with ACK to IMS_A
71											487	AS/IM_A returns, possibly modified,
				\rightarrow							Request Terminated	487 Request Terminated response to IMS_A
72			\leftarrow								ACK	IMS_A responds with ACK to AS/IM_A
73											487	IMS_A forwards 487 Request
					\rightarrow						Request Terminated	Terminated response to IBCF_A
74											ACK	IBCF_A responds with ACK to IMS_A
75						\rightarrow					487 Request	IBCF_A forwards 487 Request Terminated response to IBCF_B
76											Terminated	IDCE D roopends with ACK to
76					\leftarrow	\dashv					ACK	IBCF_B responds with ACK to IBCF_A
77											487	IBCF_B forwards 487 Request
							\rightarrow				Request Terminated	Terminated response to IMS_B
78						←					ACK	IMS_B responds with ACK to IBCF_B
79											487	IMS_B forwards 487 Request
								\rightarrow			Request Terminated	Terminated response to AS/IM_B
80											ACK	AS/IM_B responds with ACK to IMS_B
81											487	AS/IM_B returns, possibly modified,
							K				Request Terminated	487 Request Terminated response to IMS_B
	1	I	I		I	1	1	ı		I	reminated	ם_טוווו



4.4.3.6 Enhanced Messaging - Ad-hoc IM Conference

4.4.3.6.1 UC_RCS_8_I: SIP message flow for Enhanced Messaging - Ad-hoc IM Conference with CF_INT_AS

NOTE: In this use case AS/IM_A server assumes to be a Controlling IM server for Ad-hoc IM Conference sessions.

Step	Action	CF_INT_AS
1	User A initiates an Ad-hoc IM conference with user B	Step 1
2	User A is informed that the Ad Hoc IM Conference is established	Step 8
3	User B is informed of incoming invitation from User A to join the Ad-hoc IM Conference	Step 25
4	User B joins the Ad-hoc IM Conference (automatically)	Step 26
5	User A is notified that User B has joined the Ad-hoc IM Conference	Step 43
6	Users perform enhanced messaging in the Ad-hoc IM Conference	Step 46
7A	User B leaves the Ad-hoc IM Conference	Step 47A
7B	User A leaves the Ad-hoc IM Conference	Step 47B
8A	User B is informed that the Ad-hoc IM Conference has ended	Step 62A
8B	User A is informed that the Ad-hoc IM Conference has ended	Step 52B
9A	User A is notified that user B has left the Ad-hoc IM Conference	Step 65A
10A	User A leaves the Ad-hoc IM Conference	Step 68A
11A	User A is informed that the Ad-hoc IM Conference has ended	Step 73A
11B	User B is informed that the Ad-hoc IM Conference has ended	Step 60B

Step					Directi	on					Message	Comment
	U	Ū	A		1	Ī	I	A	U	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		В		
1		\rightarrow										User A initiates an Ad-hoc IM conference with user B
2											INVITE	UE_A sends INVITE to IMS_A with
												a MIME resource-list body including
				7								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 Trying provisional response
4			\leftarrow								INVITE	IMS_A forwards INVITE to AS/IM_A
5				_							100 Trying	AS/IM_A responds with a 100
-											200 014	Trying provisional response
6											200 OK	AS/IM_A responds INVITE with 200 OK response with IM session
												Identity allocated for the current Ad-
				\rightarrow								hoc IM Conference 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	\vdash											User A is informed that the Ad Hoc IM Conference is established
9				\rightarrow							ACK	UE_A acknowledges the receipt of 200 OK for INVITE
10			\leftarrow								ACK	IMS_A forwards ACK to AS/IM_A
11											INVITE	AS/IM_A sends INVITE to UE_B
				_								with IM session identity (allocated for the current AD-hoc IM
												Conference) and IM address of the
												Inviting IM UE (UE_A)
12			\leftarrow								100 Trying	IMS_A responds with a 100 Trying provisional response
13					\rightarrow						INVITE	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 IBCF_B
16					←	\dashv					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 Trying
40											INI\ // * =	provisional response
19 20								7			INVITE 100 Trying	IMS_B forwards INVITE to AS/IM_B AS/IM_B responds with a 100
20							\leftarrow				100 Hyllig	Trying provisional response
21								4			INVITE	AS/IM_B returns, possibly modified, INVITE to IMS_B
22								\rightarrow			100 Trying	IMS_B responds with a 100 Trying
23									_		INVITE	provisional response IMS_B forwards INVITE to UE_B
24											100 Trying	UE_B optionally responds with a
											,	100 Trying provisional response
25												User B is informed of incoming
										7		invitation from User A to join the Ad-hoc IM Conference
26												User B joins the Ad-hoc IM
												Conference (automatically)

Step					Direct	ion					Message	Comment
	U	U	Α	ı	ı	ı	ı	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		
	À		A	^	A	в		В		В		
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											200 OK	IMS_B forwards 200 OK response
								7				to AS/IM_B
29							←				200 OK	AS/IM_B returns, possibly modified, 200 OK response to IMS_B
30											200 OK	IMS_B forwards 200 OK response
0.4											222 014	to IBCF_B
31					\leftarrow						200 OK	IBCF_B forwards 200 OK response to IBCF_A
32											200 OK	IBCF_A forwards 200 OK response
												to IMS_A
33			\leftarrow								200 OK	IMS_A forwards 200 OK response
34											ACK	to AS/IM_A AS/IM_A acknowledges the receipt
34				\rightarrow							ACK	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							←				ACK	AS/IM_B returns, possibly modified,
40											ACK	ACK to IMS_B IMS_B forwards ACK to UE_B
41									7		NOTIFY	AS/IM A sends NOTIFY to UE A to
41											INOTHE	inform it that User B has
				7								successfully joined the Ad-hoc IM
												Conference
42		\leftarrow		\dashv							NOTIFY	IMS_A forwards the NOTIFY to UE_A
43	←											User A is notified that User B has
44											200 OK	joined the Ad-hoc IM Conference UE_A responds with 200 OK to
				\rightarrow								IMS_A
45			←								200 OK	IMS_A forwards the 200 OK response to AS/IM_A
46												Users perform enhanced
										\rightarrow		messaging in the Ad-hoc IM Conference
47A									<u> </u>			User B leaves the Ad-hoc IM
40.4											DVE	Conference
48A							\leftarrow				BYE	UE_B sends BYE to IMS_B to leave the Ad-hoc IM Conference
49A								\rightarrow			BYE	IMS_B forwards BYE to AS/IM_B
50A											BYE	AS/IM_B returns, possibly modified,
F.4.*											DVE	BYE to IMS_B
51A						—					BYE	IMS_B forwards BYE to IBCF_B
52A					—						BYE	IBCF_B forwards BYE to IBCF_A
53A 54A											BYE BYE	IBCF_A forwards BYE to IMS_A IMS_A forwards BYE to AS/IM_A
54A 55A				_							200 OK	AS/IM_A sends 200 OK for BYE
56A											200 OK 200 OK	IMS_A forwards 200 OK response
50/1					\rightarrow						200 010	to IBCF_A
57A						\rightarrow					200 OK	IBCF_A forwards 200 OK response to IBCF_B
58A											200 OK	IBCF_B forwards 200 OK response
							\rightarrow					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		
	e	Α	I M	S	C F	C F	S B	M	В	e		
	r A		A	A	Ā	В	P	B		r B		
59A											200 OK	IMS_B forwards 200 OK response to AS/IM_B
60A											200 OK	AS/IM_B returns, possibly modified, 200 OK response to IMS_B
61A									\rightarrow		200 OK	IMS_B forwards 200 OK response to UE_B
62A										\rightarrow		User B is informed that the Ad-hoc
63A											NOTIFY	IM Conference has ended AS/IM_A sends NOTIFY to IMS_A
00/				\rightarrow							NOTH 1	to inform UE_A that User B has left the Ad-hoc IM Conference
64A		\leftarrow									NOTIFY	IMS_A forwards the NOTIFY to UE_A
65A	K											User A is notified that user B has left the Ad-hoc IM Conference
66A		\vdash		\rightarrow							200 OK	UE_A responds with 200 OK to IMS_A
67A			\leftarrow								200 OK	IMS_A forwards the 200 OK response to AS/IM_A
68A)										User A leaves the Ad-hoc IM Conference
69A		\vdash	-	\rightarrow							BYE	UE_A sends BYE to IMS_A to leave the Ad-hoc IM Conference
70A			←								BYE	IMS_A forwards BYE to AS/IM_A
71A				\rightarrow							200 OK	AS/IM_A sends 200 OK for BYE
72A		\leftarrow									200 OK	IMS_A forwards 200 OK response to UE_A
73A	(User A is informed that the Ad-hoc IM Conference has ended
47B		\rightarrow										User A leaves the Ad-hoc IM Conference
48B		\vdash	-	\rightarrow							BYE	UE_A sends BYE to IMS_A to leave the Ad-hoc IM Conference
49B											BYE	IMS_A forwards BYE to AS/IM_A
50B				\rightarrow							200 OK	AS/IM_A sends 200 OK for BYE
51B		\leftarrow									200 OK	IMS_A forwards 200 OK response to UE_A
52B	€											User A is informed that the Ad-hoc IM Conference has ended
53B				\rightarrow							BYE	AS/IM_A releases the Ad-hoc IM Conference
54B					\rightarrow						BYE	IMS_A forwards BYE to IBCF_A
55B)					BYE	IBCF_A forwards BYE to IBCF_B
56B							\rightarrow				BYE	IBCF_B forwards BYE to IMS_B
57B								→			BYE	IMS_B forwards BYE to AS/IM_B
58B											BYE	AS/IM_B returns, possibly modified, BYE to IMS_B
59B									\rightarrow		BYE	IMS_B forwards BYE to UE_B
60B										\rightarrow		User B is informed that the Ad-hoc IM Conference has ended
61B							k				200 OK	UE_B sends 200 OK for BYE
62B								>			200 OK	IMS_B forwards 200 OK response to AS/IM_B
63B											200 OK	AS/IM_B returns, possibly modified, 200 OK response to IMS_B
64B											200 OK	IMS_B forwards 200 OK response to IBCF_B
65B					—						200 OK	IBCF_B forwards 200 OK response
		l		1	1	I	1	1				to IBCF_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	I M S B	A S/ I M B	U E B	U s e r B		
66B				←							200 OK	IBCF_A forwards 200 OK response to IMS_A
67B			←								200 OK	IMS_A forwards 200 OK response to AS/IM_A

4.4.3.6.2 UC_RCS_8_R: SIP message flow for Enhanced Messaging - Ad-hoc IM Conference with CF_ROAM_AS

NOTE: In this use case AS/IM_B server assumes to be a Controlling IM server for Ad-hoc IM Conference sessions.

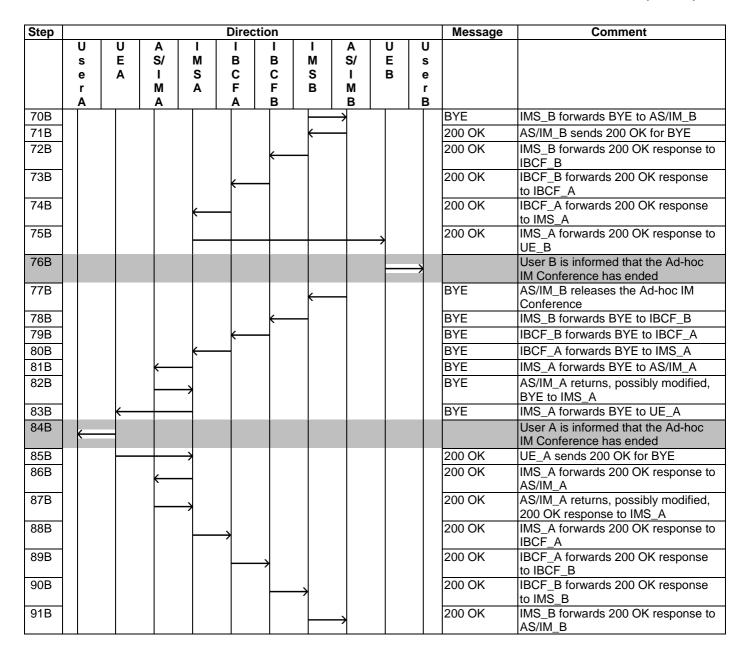
Step	Action	CF_ROAM_AS
1	User B initiates an Ad-hoc IM conference with user A	Step 1
2	User B is informed that the Ad Hoc IM Conference is established	Step 17
3	User A is informed of incoming invitation from User B to join the Ad-hoc IM Conference	Step 37
4	User A joins the Ad-hoc IM Conference (automatically)	Step 38
5	User B is notified that User A has joined the Ad-hoc IM Conference	Step 58
6	Users perform enhanced messaging in the Ad-hoc IM Conference	Step 64
7A	User A leaves the Ad-hoc IM Conference	Step 65A
7B	User B leaves the Ad-hoc IM Conference	Step 65B
8A	User A is informed that the Ad-hoc IM Conference has ended	Step 80A
8B	User B is informed that the Ad-hoc IM Conference has ended	Step 76B
9A	User B is notified that user A has left the Ad-hoc IM Conference	Step 86A
10A	User B leaves the Ad-hoc IM Conference	Step 92A
11A	User B is informed that the Ad-hoc IM Conference has ended	Step 103A
11B	User A is informed that the Ad-hoc IM Conference has ended	Step 84B

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	_	
1									(User B initiates an Ad-hoc IM conference with user A
2				—							INVITE	UE_B sends INVITE to IMS_A with a 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					\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					\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

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 r	Α	M	S A	C F	C F	S B	I M	В	e r		
	Ä		Ä	^	Ä	В		В		В		
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 Ad-hoc IM
							←					Conference 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
'						\leftarrow					200 011	IBCF_B
14											200 OK	IBCF_B forwards 200 OK response
1.5											222 014	to IBCF_A
15				←							200 OK	IBCF_A forwards 200 OK response to IMS_A
16									\rightarrow		200 OK	IMS_A forwards 200 OK response to
17												UE_B User B is informed that the Ad Hoc
17										\rightarrow		IM Conference is established
18				-							ACK	UE_B acknowledges the receipt of 200 OK for INVITE
19					→						ACK	IMS_A forwards ACK to IBCF_A
20					1	\rightarrow					ACK	IBCF_A forwards ACK to IBCF_B
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 AD-hoc IM Conference) and IM address of the Inviting IM UE
												(UE_B)
24								\rightarrow			100 Trying	IMS_B responds with a 100 Trying
0.5								1			IND/ITE	provisional response
25 26											INVITE	IMS_B forwards INVITE to IBCF_B IBCF_B responds with a 100 Trying
20							\rightarrow				100 Trying	provisional response
27											INVITE	IBCF_B forwards INVITE to IBCF_A
28					<u> </u>	\rightarrow					100 Trying	IBCF_A responds with a 100 Trying
29											INVITE	provisional response IBCF_A forwards INVITE to IMS_A
30											100 Trying	IMS_A responds with a 100 Trying
					\rightarrow							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,
34											100 Trying	INVITE to IMS_A IMS_A responds with a 100 Trying
25											INVITE	provisional response IMS_A forwards INVITE to UE_A
35 36											100 Trying	UE_A optionally responds with a 100
30				\rightarrow							100 Hyllig	Trying provisional response
37												User A is informed of incoming
	K											invitation from User B to join the
20												Ad-hoc IM Conference
38		7										User A joins the Ad-hoc IM Conference (automatically)
												· · · · · · · · · · · · · · · · · · ·

Step					Direction	on					Message	Comment
	U	U	Α	ı	I	I	I	Α	U	U		
	s	E	S/	M	В	В	M	S/	E	S		
	e r	Α	M	S A	C F	C F	S B	I M	В	e r		
	Ä		Ä	^	A	В	5	В		В		
39											200 OK	UE_A responds INVITE with 200 OK
												response with SDP to indicate that
				7								the session has been accepted and
												inform AS/IM_A with specific data for MSRP connection set up
40											200 OK	IMS_A forwards 200 OK response to
												AS/IM_A
41				*							200 OK	AS/IM_A returns, possibly modified,
42											200 OK	200 OK response to IMS_A IMS_A forwards 200 OK response to
42				├	∤						200 OK	IBCF_A
43											200 OK	IBCF_A forwards 200 OK response
						1						to IBCF_B
44							→				200 OK	IBCF_B forwards 200 OK response
45											200 OK	to IMS_B IMS_B forwards 200 OK response to
45								\rightarrow			200 OK	AS/IM_B
46											ACK	AS/IM_B acknowledges the receipt
												of 200 OK for INVITE
47						\leftarrow	_				ACK	IMS_B forwards ACK to IBCF_B
48											ACK	IBCF_B forwards ACK to IBCF_A
49				K	1						ACK	IBCF_A forwards ACK to IMS_A
50			\leftarrow	1							ACK	IMS_A forwards ACK to AS/IM_A
51)							ACK	AS/IM_A returns, possibly modified, ACK to IMS_A
52											ACK	IMS_A forwards ACK to UE_A
53											NOTIFY	AS/IM_B sends NOTIFY to UE_B to
							\leftarrow					inform it that User A has successfully
												joined the Ad-hoc IM Conference
54						\leftarrow	_				NOTIFY	IMS_B forwards NOTIFY to IBCF_B
55					-	-					NOTIFY	IBCF_B forwards NOTIFY to IBCF_A
56											NOTIFY	IBCF_A forwards NOTIFY to IMS_A
57									\rightarrow		NOTIFY	IMS_A forwards NOTIFY to UE_B
58										\rightarrow		User B is notified that User A has joined the Ad-hoc IM Conference
59											200 OK	UE_B responds with 200 OK to
												IMS_A
60				\longmapsto							200 OK	IMS_A forwards 200 OK response to
61											200 OK	IBCF_A IBCF_A forwards 200 OK response
01											200 OK	to IBCF_B
62											200 OK	IBCF_B forwards 200 OK response
							7					to IMS_B
63								\rightarrow			200 OK	IMS_B forwards 200 OK response to
64												AS/IM_B Users perform enhanced messaging
04	\leftarrow									\rightarrow		in the Ad-hoc IM Conference
65A												User A leaves the Ad-hoc IM
		7										Conference
66A				•							BYE	UE_A sends BYE to IMS_A to leave
674											BYE	the Ad-hoc IM Conference
67A 68A											BYE	IMS_A forwards BYE to AS/IM_A AS/IM_A returns, possibly modified,
OOA)							BIE	BYE to IMS_A
69A											BYE	IMS_A forwards BYE to IBCF_A
70A											BYE	IBCF_A forwards BYE to IBCF_B
71A)				BYE	IBCF_B forwards BYE to IMS_B
72A								\rightarrow			BYE	IMS_B forwards BYE to AS/IM_B
73A							\leftarrow	\dashv			200 OK	AS/IM_B sends 200 OK for BYE

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 r	Α	I M	S A	C F	C F	S	I M	В	e r		
	Å		A	^	A	В		В		В		
74A						<u> </u>					200 OK	IMS_B forwards 200 OK response to IBCF_B
75A											200 OK	IBCF_B forwards 200 OK response to IBCF_A
76A				—							200 OK	IBCF_A forwards 200 OK response
77A			—								200 OK	to IMS_A IMS_A forwards 200 OK response to
78A				\rightarrow							200 OK	AS/IM_A AS/IM_A returns, possibly modified,
79A											200 OK	200 OK response to IMS_A IMS_A forwards 200 OK response to
80A												UE_A User A is informed that the Ad-hoc
	(IM Conference has ended
81A											NOTIFY	AS/IM_B sends NOTIFY to IMS _B to inform UE_B that User A has left the Ad-hoc IM Conference
82A						<u></u>					NOTIFY	IMS_B forwards NOTIFY to IBCF_B
83A					—						NOTIFY	IBCF_B forwards NOTIFY to IBCF_A
84A					_ `						NOTIFY	IBCF_A forwards NOTIFY to IMS_A
85A									\longrightarrow		NOTIFY	IMS_A forwards NOTIFY to UE_B
86A												User B is notified that user A has left
										7		the Ad-hoc IM Conference
87A				.							200 OK	UE_B responds with 200 OK to IMS_A
88A					>						200 OK	IMS_A forwards 200 OK response to IBCF_A
89A						→					200 OK	IBCF_A forwards 200 OK response to IBCF_B
90A							\rightarrow				200 OK	IBCF_B forwards 200 OK response to IMS_B
91A								\rightarrow			200 OK	IMS_B forwards 200 OK response to AS/IM_B
92A									←			User B leaves the Ad-hoc IM Conference
93A				—		-	_				BYE	UE_B sends BYE to IMS_A to leave the Ad-hoc IM Conference
94A					>						BYE	IMS_A forwards BYE to IBCF_A
95A					1	→					BYE	IBCF_A forwards BYE to IBCF_B
96A							\rightarrow				BYE	IBCF_B forwards BYE to IMS_B
97A							1	\rightarrow			BYE	IMS_B forwards BYE to AS/IM_B
98A								1			200 OK	AS/IM_B sends 200 OK for BYE
99A						←					200 OK	IMS_B forwards 200 OK response to
100A					—						200 OK	IBCF_B forwards 200 OK response
101A				.							200 OK	to IBCF_A IBCF_A forwards 200 OK response
102A									\longrightarrow		200 OK	to IMS_A IMS_A forwards 200 OK response to
103A												UE_B User B is informed that the Ad-hoc
65B												IM Conference has ended User B leaves the Ad-hoc IM
												Conference
66B				←							BYE	UE_B sends BYE to IMS_A to leave the Ad-hoc IM Conference
67B)						BYE	IMS_A forwards BYE to IBCF_A
68B						\rightarrow					BYE	IBCF_A forwards BYE to IBCF_B
69B						-	\rightarrow				BYE	IBCF_B forwards BYE to IMS_B



- 4.4.3.7 Enhanced Messaging Extending 1-to-1 IM session to an Ad-hoc IM conference
- 4.4.3.7.1 UC_RCS_9_I: SIP message flow for Enhanced Messaging Extending 1-to-1 IM session to an Ad-hoc IM conference with CF_INT_AS

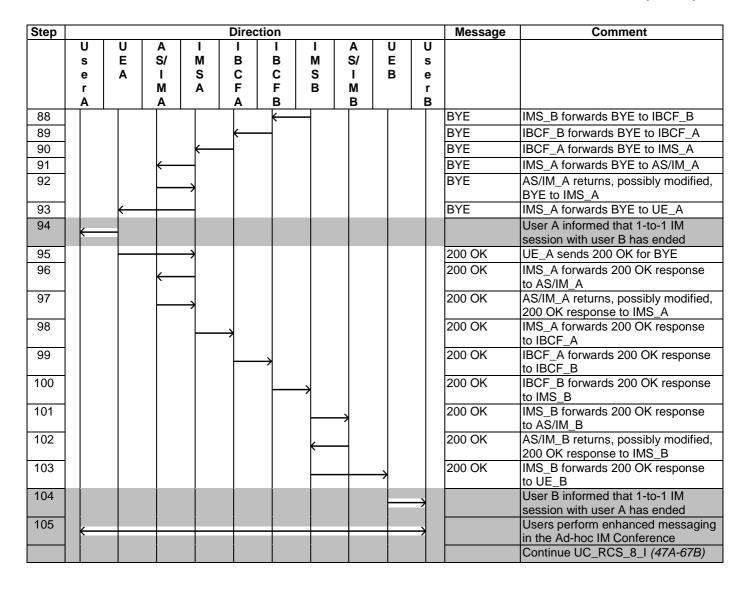
NOTE: In this use case AS/IM_A server assumes to be a Controlling IM server for Ad-hoc IM Conference sessions.

Step	Action	CF_INT_AS
1	User A invites user B to enhanced messaging session	UC_RCS_4_I Step 1
2	User B is informed of incoming enhanced messaging session	UC_RCS_4_I Step 20
3	Users perform enhanced messaging	UC_RCS_4_I Step 39
4	User A initiates an Ad-hoc IM conference with user B	Step 40
5	User A is informed that the Ad Hoc IM Conference is established	Step 47
6	User B is informed of incoming invitation from User A to join the	Step 64
	Ad-hoc IM Conference	

Step	Action	CF_INT_AS
7	User B joins the Ad-hoc IM Conference (automatically)	Step 65
8	User A is notified that User B has joined the Ad-hoc IM Conference	Step 82
9	User A informed that 1-to-1 IM session with user B has ended	Step 94
10	User B informed that 1-to-1 IM session with user A has ended	Step 104
11	Users perform enhanced messaging in the Ad-hoc IM Conference	Step 105
12A	User B leaves the Ad-hoc IM Conference	UC_RCS_8_I Step 47A
12B	User A leaves the Ad-hoc IM Conference	UC_RCS_8_I Step 47B
13A	User B is informed that the Ad-hoc IM Conference has ended	UC_RCS_8_I Step 62A
13B	User A is informed that the Ad-hoc IM Conference has ended	UC_RCS_8_I Step 52B
14A	User A is notified that user B has left the Ad-hoc IM Conference	UC_RCS_8_I Step 65A
15A	User A leaves the Ad-hoc IM Conference	UC_RCS_8_I Step 68A
16A	User A is informed that the Ad-hoc IM Conference has ended	UC_RCS_8_I Step 73A
16B	User B is informed that the Ad-hoc IM Conference has ended	UC_RCS_8_I Step 60B

Step					Direct	ion					Message	Comment
	U	U	A	I	1	1	I I	A	U	U		
	S	E	S/	M	В	В	M	S/	E	S		
	e r	Α	M	S	C F	C F	S B	I M	В	e r		
	Ä		A	_ ^	Ä	В		В		В		
												Follow UC_RCS_4_I (1-39)
40												User A initiates an Ad-hoc IM
		7										conference with user B
41											INVITE	UE_A sends INVITE to IMS_A with
												a MIME resource-list body including
				\rightarrow								invited IM Users and the first SDP
												offer indicating all specific data for MSRP connection set up
42											100 Trying	IMS_A responds with a 100 Trying
72		\leftarrow	+								100 Trying	provisional response
43			←								INVITE	IMS_A forwards INVITE to AS/IM_A
44											100 Trying	AS/IM_A responds with a 100
				→							, ,	Trying provisional response
45											200 OK	AS/IM_A responds INVITE with 200
												OK response with IM session
												Identity allocated for the current Ad-
				\rightarrow								hoc IM Conference to indicate that the session has been accepted and
												SDP to inform A-side with specific
												data for MSRP connection set up
46		,									200 OK	IMS_A forwards 200 OK response
												to AS/IM_A
47												User A is informed that the Ad Hoc
												IM Conference is established
48			_	\rightarrow							ACK	UE_A acknowledges the receipt of
49											ACK	200 OK for INVITE IMS_A forwards ACK to AS/IM_A
50											INVITE	AS/IM_A sends INVITE to UE_B
30											IIIVIIE	with IM session identity (allocated
												for the current AD-hoc IM
				\rightarrow								Conference), IM address of the
												Inviting IM UE (UE_A) and
												Replaces header with the original
												1-to-1 session identity
51			\leftarrow	_							100 Trying	IMS_A responds with a 100 Trying
F2											INVITE	provisional response
52					7							IMS_A forwards INVITE to IBCF_A
53				←	_						100 Trying	IBCF_A responds with a 100 Trying provisional response
54						_					INVITE	IBCF_A forwards INVITE to IBCF_B
55						1					100 Trying	IBCF_B responds with a 100 Trying
					K							provisional response
56							\rightarrow				INVITE	IBCF_B forwards INVITE to IMS_B
	ı	ı	ı	ļ	1	ı	1	1	1	1		_ = " "==

Step					Direct	ion					Message	Comment
	U	Ū	Α	ı		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	^	M	Ā	F	F	В	M		r		
	Α		Α		Α	В		В		В		
57						\leftarrow					100 Trying	IMS_B responds with a 100 Trying provisional response
58								\rightarrow			INVITE	IMS_B forwards INVITE to AS/IM_B
59							,				100 Trying	AS/IM_B responds with a 100
											N 11 / 17 / 17 / 17 / 17 / 17 / 17 / 17	Trying provisional response
60											INVITE	AS/IM_B returns, possibly modified, INVITE to IMS_B
61								\rightarrow			100 Trying	IMS_B responds with a 100 Trying provisional response
62									\rightarrow		INVITE	IMS_B forwards INVITE to UE_B
63							←				100 Trying	UE_B optionally responds with a 100 Trying provisional response
64												User B is informed of incoming
										\rightarrow		invitation from User A to join the Adhoc IM Conference
65									←			User B joins the Ad-hoc IM Conference (automatically)
66											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
67								\rightarrow			200 OK	IMS_B forwards 200 OK response to AS/IM_B
68											200 OK	AS/IM_B returns, possibly modified,
69											200 OK	200 OK response to IMS_B IMS_B forwards 200 OK response
												to IBCF_B
70					\leftarrow						200 OK	IBCF_B forwards 200 OK response to IBCF_A
71				←	_						200 OK	IBCF_A forwards 200 OK response to IMS_A
72											200 OK	IMS_A forwards 200 OK response
73				\rightarrow							ACK	to AS/IM_A AS/IM_A acknowledges the receipt
74				-							ACK	of 200 OK for INVITE IMS_A forwards ACK to IBCF_A
75					1	→					ACK	IBCF_A forwards ACK to IBCF_B
76						\perp	\rightarrow				ACK	IBCF_B forwards ACK to IMS_B
77								\rightarrow			ACK	IMS_B forwards ACK to AS/IM_B
78							←				ACK	AS/IM_B returns, possibly modified, ACK to IMS_B
79									\rightarrow		ACK	IMS_B forwards ACK to UE_B
80											NOTIFY	AS/IM_A sends NOTIFY to UE_A to
				\rightarrow								inform it that User B has successfully joined the Ad-hoc IM
												Conference
81		\leftarrow		_							NOTIFY	IMS_A forwards the NOTIFY to UE_A
82	—											User A is notified that User B has
83											200 OK	joined the Ad-hoc IM Conference UE_A responds with 200 OK to
84											200 OK	IMS_A IMS_A forwards the 200 OK
			←	\dashv								response to AS/IM_A
85									\dashv		BYE	UE_B releases the 1-to-1 IM session with BYE
86							-	\rightarrow			BYE	IMS_B forwards BYE to AS/IM_B
87							—	_			BYE	AS/IM_B returns, possibly modified,
				I	I		1	l	1			BYE to IMS_B



4.4.3.7.2 UC_RCS_9_R: SIP message flow for Enhanced Messaging - Extending 1-to-1 IM session to an Ad-hoc IM conference with CF_ROAM_AS

NOTE: In this use case AS/IM_B server assumes to be a Controlling IM server for Ad-hoc IM Conference sessions.

Step	Action	CF_ROAM_AS
1	User B invites user A to enhanced messaging session	UC_RCS_4_R Step 1
2	User A is informed of incoming enhanced messaging session	UC_RCS_4_R Step 26
3	Users perform enhanced messaging	UC_RCS_4_R Step 51
4	User B initiates an Ad-hoc IM conference with user A	Step 52
5	User B is informed that the Ad Hoc IM Conference is established	Step 68
6	User A is informed of incoming invitation from user B to join the Ad-	Step 88
	hoc IM Conference	
7	User A joins the Ad-hoc IM Conference (automatically)	Step 89
8	User B is notified that User A has joined the Ad-hoc IM Conference	Step 109
9	User B informed that 1-to-1 IM session with user A has ended	Step 127
10	User A informed that 1-to-1 IM session with user B has ended	Step 140
11	Users perform enhanced messaging in the Ad-hoc IM Conference	Step 141
12A	User A leaves the Ad-hoc IM Conference	UC_RCS_8_R Step 65A
12B	User B leaves the Ad-hoc IM Conference	UC_RCS_8_R Step 65B
13A	User A is informed that the Ad-hoc IM Conference has ended	UC_RCS_8_R Step 80A
13B	User B is informed that the Ad-hoc IM Conference has ended	UC_RCS_8_R Step 76B

Step	Action	CF_ROAM_AS
14A	User B is notified that user A has left the Ad-hoc IM Conference	UC_RCS_8_R Step 86A
15A	User B leaves the Ad-hoc IM Conference	UC_RCS_8_R Step 92A
16A	User B is informed that the Ad-hoc IM Conference has ended	UC_RCS_8_R Step 103A
16B	User A is informed that the Ad-hoc IM Conference has ended	UC RCS 8 R Step 84B

Step					Direct	ion					Message	Comment
	U	U	Α	1	1	1	1	Α	U	U		
	S	E A	S/	M S	B C	B C	M S	S/	E B	S		
	e r	А	I M	A	F	F	о В	I M	В	e r		
	À		A	^	À	В		В		В		
												Follow UC_RCS_4_R (1-51)
52												User B initiates an Ad-hoc IM
												conference with user A
53											INVITE	UE_B sends INVITE to IMS_A with a
				,								MIME resource-list body including invited IM Users and the first SDP
												offer indicating all specific data for
												MSRP connection set up
54											100 Trying	IMS_A responds with a 100 Trying
									1			provisional response
55					\rightarrow						INVITE	IMS_A forwards INVITE to IBCF_A
56											100 Trying	IBCF_A responds with a 100 Trying
57											INVITE	provisional response IBCF_A forwards INVITE to IBCF_B
58						7					100 Trying	IBCF_B responds with a 100 Trying
36					←						100 Hyllig	provisional response
59							\rightarrow				INVITE	IBCF_B forwards INVITE to IMS_B
60											100 Trying	IMS_B responds with a 100 Trying
												provisional response
61								\rightarrow			INVITE	IMS_B forwards INVITE to AS/IM_B
62							<u></u>				100 Trying	AS/IM_B responds with a 100 Trying
- 00							`				000 014	provisional response
63											200 OK	AS/IM_B responds INVITE with 200 OK response with IM session Identity
												allocated for the current Ad-hoc IM
							←					Conference to indicate that the
												session has been accepted and SDP
												to inform A-side with specific data for
64											200 OK	MSRP connection set up IMS_B forwards 200 OK response to
04						\leftarrow					200 OK	IBCF_B
65											200 OK	IBCF_B forwards 200 OK response
												to IBCF_A
66											200 OK	IBCF_A forwards 200 OK response
07				,							000 014	to IMS_A
67					+		+		\rightarrow		200 OK	IMS_A forwards 200 OK response to UE_B
68												User B is informed that the Ad Hoc
										\rightarrow		IM Conference is established
69											ACK	UE_B acknowledges the receipt of
												200 OK for INVITE
70					\rightarrow						ACK	IMS_A forwards ACK to IBCF_A
71						\rightarrow					ACK	IBCF_A forwards ACK to IBCF_B
72							\rightarrow				ACK	IBCF_B forwards ACK to IMS_B
73								\rightarrow			ACK	IMS_B forwards ACK to AS/IM_B
74											INVITE	AS/IM_B sends INVITE to UE_A with IM session identity (allocated for the
												current AD-hoc IM Conference), IM
							\leftarrow					address of the Inviting IM UE (UE_B)
												and Replaces header with the
												original 1-to-1 session identity
75							-	\rightarrow			100 Trying	IMS_B responds with a 100 Trying
		1	I	- 1		ı	I	1	I			provisional response

Step					Direct	ion					Message	Comment
	U	U	A	I	Ī	Ī	I	A	U	U		
	S	E A	S/	M S	B C	В	M S	S/	E B	S		
	e r	A	M	A	F	C F	э В	I M	-	e r		
	A		Α	, ,	A	В		В		В		
76						\leftarrow					INVITE	IMS_B forwards INVITE to IBCF_B
77							\rightarrow				100 Trying	IBCF_B responds with a 100 Trying
							1				IN 11 / ITE	provisional response
78											INVITE	IBCF_B forwards INVITE to IBCF_A
79)					100 Trying	IBCF_A responds with a 100 Trying provisional response
80				←—							INVITE	IBCF_A forwards INVITE to IMS_A
81											100 Trying	IMS_A responds with a 100 Trying
					1							provisional response
82			\leftarrow								INVITE	IMS_A forwards INVITE to AS/IM_A
83				\rightarrow							100 Trying	AS/IM_A responds with a 100 Trying provisional response
84											INVITE	AS/IM_A returns, possibly modified,
				\rightarrow								INVITE to IMS_A
85			<u></u>								100 Trying	IMS_A responds with a 100 Trying
			ľ								INVITE	provisional response
86 87											100 Trying	IMS_A forwards INVITE to UE_A UE_A optionally responds with a 100
07				\rightarrow							100 Trying	Trying provisional response
88												User A is informed of incoming
												invitation from user B to join the Ad-
90												hoc IM Conference User A joins the Ad-hoc IM
89		→										Conference (automatically)
90											200 OK	UE_A responds INVITE with 200 OK
												response with SDP to indicate that
				\rightarrow								the session has been accepted and
												inform AS/IM_A with specific data for MSRP connection set up
91											200 OK	IMS_A forwards 200 OK response to
												AS/IM_A
92				\rightarrow							200 OK	AS/IM_A returns, possibly modified,
93											200 OK	200 OK response to IMS_A IMS_A forwards 200 OK response to
93)						200 OK	IBCF_A
94											200 OK	IBCF_A forwards 200 OK response
						7						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
30								\rightarrow			200 010	AS/IM_B
97											ACK	AS/IM_B acknowledges the receipt
											1014	of 200 OK for INVITE
98											ACK	IMS_B forwards ACK to IBCF_B
99				_							ACK ACK	IBCF_B forwards ACK to IBCF_A IBCF_A forwards ACK to IMS_A
100											ACK	IMS_A forwards ACK to AS/IM_A
101											ACK	AS/IM_A returns, possibly modified,
102				\rightarrow								ACK to IMS_A
103		\leftarrow		_							ACK	IMS_A forwards ACK to UE_A
104											NOTIFY	AS/IM_B sends NOTIFY to UE_B to
							\leftarrow					inform it that User A has successfully
105											NOTIFY	joined the Ad-hoc IM Conference IMS_B forwards NOTIFY to IBCF_B
106						_`					NOTIFY	IBCF_B forwards NOTIFY to IBCF_A
107											NOTIFY	IBCF_A forwards NOTIFY to IMS_A
108									\rightarrow		NOTIFY	IMS_A forwards NOTIFY to UE_B
109												User B is notified that User A has
										1		joined the Ad-hoc IM Conference

Step				I	Direction	on						Message	Comment
	U	U	Α	ı	I	I	I	Α	U	U			
	s	E	S/		В	В	M	S/	E	S			
	e	Α	M	S	C	C F	S B	I M	В	е			
	r A		M A	A	F A	В	D	M B		r B			
110				<u> </u>								:00 OK	UE_B responds with 200 OK to
111											2	:00 OK	IMS_A IMS_A forwards 200 OK response to
112											2	100 OK	IBCF_A IBCF_A forwards 200 OK response
113						1					2	:00 OK	to IBCF_B IBCF_B forwards 200 OK response
114												200 OK	to IMS_B IMS_B forwards 200 OK response to
								>					AS/IM_B
115			 								В	BYE	UE_A releases the 1-to-1 IM session with BYE
116			\leftarrow	_							В	BYE	IMS_A forwards BYE to AS/IM_A
117				•							В	BYE	AS/IM_A returns, possibly modified, BYE to IMS_A
118				\longrightarrow	ļ						В	BYE	IMS_A forwards BYE to IBCF_A
119				_	 						В	BYE	IBCF_A forwards BYE to IBCF_B
120							•					BYE	IBCF_B forwards BYE to IMS_B
121								>				BYE	IMS_B forwards BYE to AS/IM_B
122												BYE	AS/IM_B returns, possibly modified, BYE to IMS_B
123											P	BYE	IMS_B forwards BYE to IBCF_B
124						ſ						BYE	IBCF_B forwards BYE to IBCF_A
125					[BYE	IBCF_A forwards BYE to IMS_A
126				`					_			BYE	IMS_A forwards BYE to UE_B
127										\rightarrow) L	User B informed that 1-to-1 IM
100												100.014	session with user A has ended
128												00 OK	UE_B sends 200 OK for BYE
129												00 OK	IMS_A forwards 200 OK response to IBCF_A
130											2	:00 OK	IBCF_A forwards 200 OK response to IBCF_B
131							>				2	00 OK	IBCF_B forwards 200 OK response to IMS_B
132								>			2	00 OK	IMS_B forwards 200 OK response to AS/IM_B
133								4			2	:00 OK	AS/IM_B returns, possibly modified, 200 OK response to IMS_B
134						<u> </u>	-				2	00 OK	IMS_B forwards 200 OK response to IBCF_B
135					.	_					2	:00 OK	IBCF_B forwards 200 OK response
136											2	:00 OK	to IBCF_A IBCF_A forwards 200 OK response
137											2	:00 OK	to IMS_A IMS_A forwards 200 OK response to
138				1								00 OK	AS/IM_A AS/IM_A returns, possibly modified,
			\	1									200 OK response to IMS_A
139											2	200 OK	IMS_A forwards 200 OK response to UE_A
140	<												User A informed that 1-to-1 IM session with user B has ended
141										\rightarrow			Users perform enhanced messaging in the Ad-hoc IM Conference
													Continue UC_RCS_4_R (65A-91B)

4.4.3.8 Enhanced Messaging - Adding users to an Ad-hoc IM

4.4.3.8.1 UC_RCS_10_I: SIP message flow for Enhanced Messaging - Adding users to an Ad-hoc IM Conference with CF_INT_AS

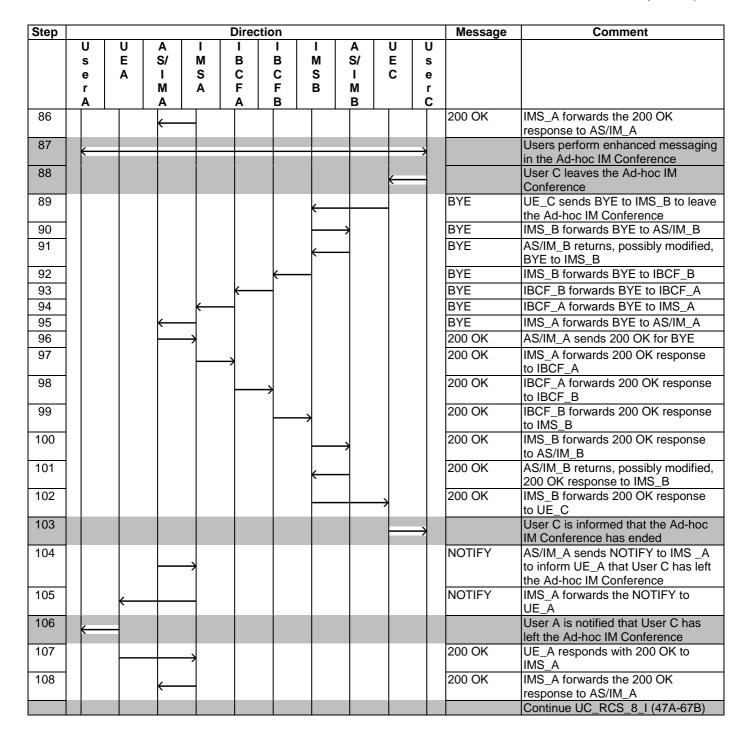
NOTE: In this use case AS/IM_A server assumes to be a Controlling IM server for Ad-hoc IM Conference sessions.

In the following use case, User C is connected to the IMS_B network via its UE_C:

Step	Action	CF_INT_AS
1	User A initiates an Ad-hoc IM conference with user B	UC_RCS_8_I Step 1
2	User A is informed that the Ad Hoc IM Conference is established	UC_RCS_8_I Step 8
3	User B is informed of incoming invitation from User A to join the	UC_RCS_8_I Step 25
	Ad-hoc IM Conference	
4	User B joins the Ad-hoc IM Conference (automatically)	UC_RCS_8_I Step 26
5	User A is notified that User B has joined the Ad-hoc IM Conference	UC_RCS_8_I Step 43
6	Users perform enhanced messaging in the Ad-hoc IM Conference	UC_RCS_8_I Step 46
7	User A invites User C to join the Ad-hoc IM Conference	Step 47
8	User C is informed of incoming invitation from User A to join the	Step 66
	Ad-hoc IM Conference	
9	User C joins the Ad-hoc IM Conference (automatically)	Step 67
10	User A is notified that User C has joined the Ad-hoc IM Conference	Step 84
11	Users perform enhanced messaging in the Ad-hoc IM Conference	Step 87
12	User C leaves the Ad-hoc IM Conference	Step 88
13	User C is informed that the Ad-hoc IM Conference has ended	Step 103
14	User A is notified that User C has left the Ad-hoc IM Conference	Step 106
15A	User B leaves the Ad-hoc IM Conference	UC_RCS_8_I Step 47A
15B	User A leaves the Ad-hoc IM Conference	UC_RCS_8_I Step 47B
16A	User B is informed that the Ad-hoc IM Conference has ended	UC_RCS_8_I Step 62A
16B	User A is informed that the Ad-hoc IM Conference has ended	UC_RCS_8_I Step 52B
17A	User A is notified that user B has left the Ad-hoc IM Conference	UC_RCS_8_I Step 65A
18A	User A leaves the Ad-hoc IM Conference	UC_RCS_8_I Step 68A
19A	User A is informed that the Ad-hoc IM Conference has ended	UC_RCS_8_I Step 73A
19B	User B is informed that the Ad-hoc IM Conference has ended	UC_RCS_8_I Step 60B

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	UEC	U s e r C		
47		\rightarrow										Follow UC_RCS_8_I (1-46) User A invites User C to join the Adhoc IM Conference
48				\rightarrow							REFER	UE_A sends REFER message to IMS_A, with IM session identity (allocated for the current Ad-hoc IM Conference), Refer-To header value equals to UE_C URI and Refer-Sub header value set to "false"
49			\leftarrow								REFER	IMS_A forwards REFER to AS/IM_A
50				\rightarrow							200 OK	AS/IM_A responds with 200 OK to IMS_A
51		(200 OK	IMS_A forwards the 200 OK response to UE_A
52				\rightarrow							INVITE	AS/IM_A sends INVITE to UE_C with IM session identity (allocated for the current AD-hoc IM Conference) and IM address of the Inviting IM UE (UE_A)
53			←								100 Trying	IMS_A responds with a 100 Trying provisional response
54					\rightarrow						INVITE	IMS_A forwards INVITE to IBCF_A

Step					Direc	tion					Message	Comment
	U	Ū	Α	l M	I	I	I	A S/	Ū	U		
	s e	E A	S/ I	M S	B C	B C	M S	5/ 	E C	s e		
	r	,,	M	Ā	F	F	В	M		r		
	Α		Α		Α	В		В		С		
55				←							100 Trying	IBCF_A responds with a 100 Trying provisional response
56						\rightarrow					INVITE	IBCF_A forwards INVITE to IBCF_B
57											100 Trying	IBCF_B responds with a 100 Trying
												provisional response
58							\rightarrow				INVITE	IBCF_B forwards INVITE to IMS_B
59						\leftarrow					100 Trying	IMS_B responds with a 100 Trying provisional response
60)			INVITE	IMS_B forwards INVITE to AS/IM_B
61							,				100 Trying	AS/IM_B responds with a 100
												Trying provisional response
62											INVITE	AS/IM_B returns, possibly modified, INVITE to IMS_B
63)			100 Trying	IMS_B responds with a 100 Trying provisional response
64									\rightarrow		INVITE	IMS_B forwards INVITE to UE_C
65											100 Trying	UE_C optionally responds with a
												100 Trying provisional response
66												User C is informed of incoming invitation from User A to join the Ad-
										1		hoc IM Conference
67												User C joins the Ad-hoc IM
00											222.014	Conference (automatically)
68											200 OK	UE_C responds INVITE with 200 OK response with SDP to indicate
							\leftarrow		_			that the session has been accepted
												and inform AS/IM_A with specific
69											200 OK	data for MSRP connection set up IMS_B forwards 200 OK response
09)			200 OK	to AS/IM_B
70							<u></u>				200 OK	AS/IM_B returns, possibly modified,
71											200 OK	200 OK response to IMS_B IMS_B forwards 200 OK response
/ 1						\leftarrow					200 OK	to IBCF_B
72					\leftarrow						200 OK	IBCF_B forwards 200 OK response
73											200 OK	to IBCF_A IBCF_A forwards 200 OK response
												to IMS_A
74			←								200 OK	IMS_A forwards 200 OK response to AS/IM_A
75				\rightarrow							ACK	AS/IM_A acknowledges the receipt
76					\rightarrow						ACK	of 200 OK for INVITE IMS_A forwards ACK to IBCF_A
77					<u> </u>	\rightarrow					ACK	IBCF_A forwards ACK to IBCF_B
78							\rightarrow				ACK	IBCF_B forwards ACK to IMS_B
79)			ACK	IMS_B forwards ACK to AS/IM_B
80								_			ACK	AS/IM_B returns, possibly modified,
81									\rightarrow		ACK	ACK to IMS_B IMS_B forwards ACK to UE_C
82									1		NOTIFY	AS/IM_A sends NOTIFY to UE_A to
				_								inform it that User C has
				1								successfully joined the Ad-hoc IM
83											NOTIFY	Conference IMS_A forwards the NOTIFY to
		-									1401111	UE_A
84	K											User A is notified that User C has joined the Ad-hoc IM Conference
85											200 OK	UE_A responds with 200 OK to
					1							IMS_A



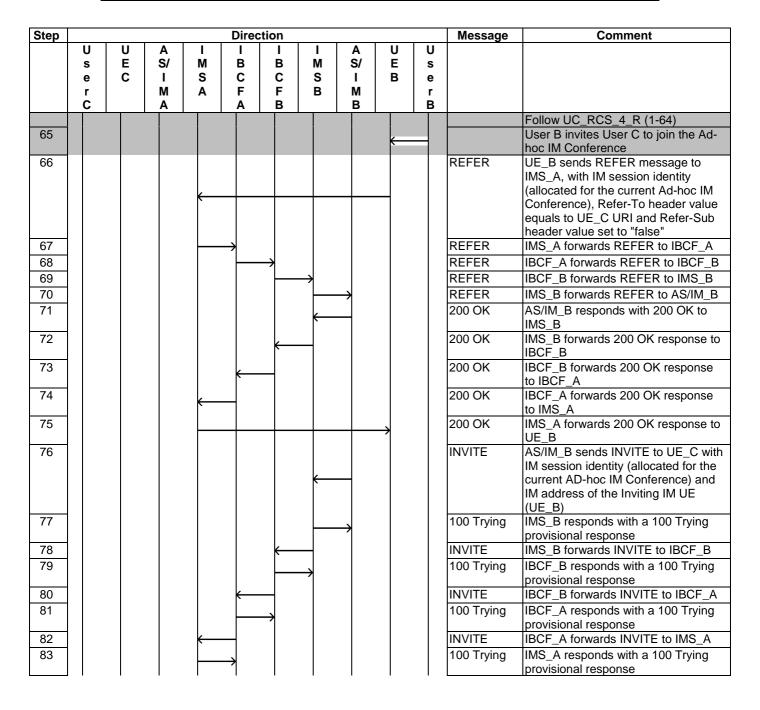
4.4.3.8.2 UC_RCS_10_R: SIP message flow for Enhanced Messaging - Adding users to an Ad-hoc IM Conference with CF_ROAM_AS

NOTE: In this use case AS/IM_B server assumes to be a Controlling IM server for Ad-hoc IM Conference sessions.

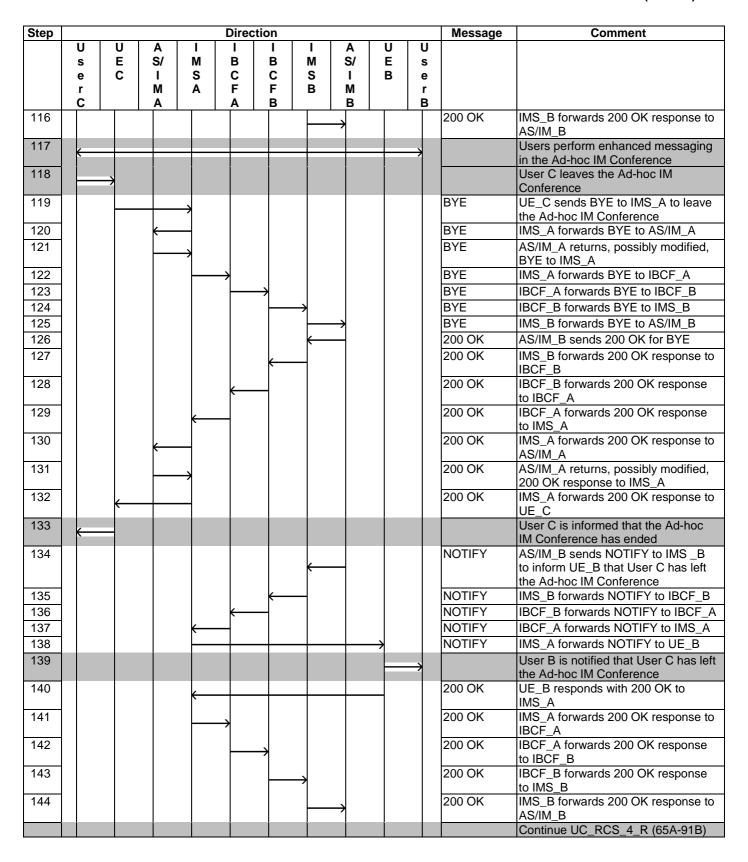
In the following use case, User C is connected to the IMS_A network via its UE_C:

Step	Action	CF_ROAM_AS
1	User B initiates an Ad-hoc IM conference with user A	UC_RCS_8_R Step 1
2	User B is informed that the Ad Hoc IM Conference is established	UC_RCS_8_R Step 17
3	User A is informed of incoming invitation from User B to join the Ad-hoc IM Conference	UC_RCS_8_R Step 37
4	User A joins the Ad-hoc IM Conference (automatically)	UC_RCS_8_R Step 38
5	User B is notified that User A has joined the Ad-hoc IM Conference	UC_RCS_8_R Step 58

Step	Action	CF_ROAM_AS
6	Users perform enhanced messaging in the Ad-hoc IM Conference	UC_RCS_8_R Step 64
7	User B invites User C to join the Ad-hoc IM Conference	Step 65
8	User C is informed of incoming invitation from User B to join the	Step 90
	Ad-hoc IM Conference	
9	User C joins the Ad-hoc IM Conference (automatically)	Step 91
10	User B is notified that User C has joined the Ad-hoc IM Conference	Step 111
11	Users perform enhanced messaging in the Ad-hoc IM Conference	Step 117
12	User C leaves the Ad-hoc IM Conference	Step 118
13	User C is informed that the Ad-hoc IM Conference has ended	Step 133
14	User B is notified that User C has left the Ad-hoc IM Conference	Step 139
15A	User A leaves the Ad-hoc IM Conference	UC_RCS_8_R Step 65A
15B	User B leaves the Ad-hoc IM Conference	UC_RCS_8_R Step 65B
16A	User A is informed that the Ad-hoc IM Conference has ended	UC_RCS_8_R Step 80A
16B	User B is informed that the Ad-hoc IM Conference has ended	UC_RCS_8_R Step 76B
17A	User B is notified that user A has left the Ad-hoc IM Conference	UC_RCS_8_R Step 86A
18A	User B leaves the Ad-hoc IM Conference	UC_RCS_8_R Step 92A
19A	User B is informed that the Ad-hoc IM Conference has ended	UC_RCS_8_R Step 103A
19B	User A is informed that the Ad-hoc IM Conference has ended	UC_RCS_8_R Step 84B



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	С	I M	S A	C F	C F	S B	I M	В	e r		
	Ċ		Ä	^	À	В		В		В		
84			K	_		Ī					INVITE	IMS_A forwards INVITE to AS/IM_A
85				_							100 Trying	AS/IM_A responds with a 100 Trying
				1								provisional response
86				\rightarrow							INVITE	AS/IM_A returns, possibly modified,
87											100 Trying	INVITE to IMS_A IMS_A responds with a 100 Trying
0,			\leftarrow								100 Trying	provisional response
88		\leftarrow		_							INVITE	IMS_A forwards INVITE to UE_C
89				→							100 Trying	UE_C optionally responds with a 100
00												Trying provisional response
90												User C is informed of incoming invitation from User B to join the Ad-
												hoc IM Conference
91		_										User C joins the Ad-hoc IM
		1										Conference (automatically)
92											200 OK	UE_C responds INVITE with 200 OK
				\rightarrow								response with SDP to indicate that the session has been accepted and
				1								inform AS/IM_A with specific data for
												MSRP connection set up
93			←								200 OK	IMS_A forwards 200 OK response to
94											200 OK	AS/IM_A AS/IM_A returns, possibly modified,
94				\rightarrow							200 OK	200 OK response to IMS_A
95											200 OK	IMS_A forwards 200 OK response to
					1							IBCF_A
96						\rightarrow					200 OK	IBCF_A forwards 200 OK response to IBCF_B
97											200 OK	IBCF_B forwards 200 OK response
0,							\rightarrow				200 010	to IMS_B
98								_			200 OK	IMS_B forwards 200 OK response to
								1			1011	AS/IM_B
99							\leftarrow	_			ACK	AS/IM_B acknowledges the receipt of 200 OK for INVITE
100											ACK	IMS_B forwards ACK to IBCF_B
101					<u> </u>	`					ACK	IBCF_B forwards ACK to IBCF_A
102					_ `						ACK	IBCF_A forwards ACK to IMS_A
103				_							ACK	IMS_A forwards ACK to AS/IM_A
104				_							ACK	AS/IM_A returns, possibly modified,
				1								ACK to IMS_A
105		\leftarrow									ACK	IMS_A forwards ACK to UE_C
106											NOTIFY	AS/IM_B sends NOTIFY to UE_B to inform it that User C has successfully
												joined the Ad-hoc IM Conference
107						←—					NOTIFY	IMS_B forwards NOTIFY to IBCF_B
108					\leftarrow						NOTIFY	IBCF_B forwards NOTIFY to IBCF_A
109				←	\dashv						NOTIFY	IBCF_A forwards NOTIFY to IMS_A
110									\rightarrow		NOTIFY	IMS_A forwards NOTIFY to UE_B
111										\rightarrow		User B is notified that User C has
110											200 014	joined the Ad-hoc IM Conference
112								-	_		200 OK	UE_B responds with 200 OK to IMS_A
113											200 OK	IMS_A forwards 200 OK response to
					7							IBCF_A
114						\rightarrow					200 OK	IBCF_A forwards 200 OK response
115											200 OK	to IBCF_B IBCF_B forwards 200 OK response
115							\rightarrow				200 OK	to IMS_B
	l	I	1	I	I	ļ	J	I	J	ı		1.0viO_D



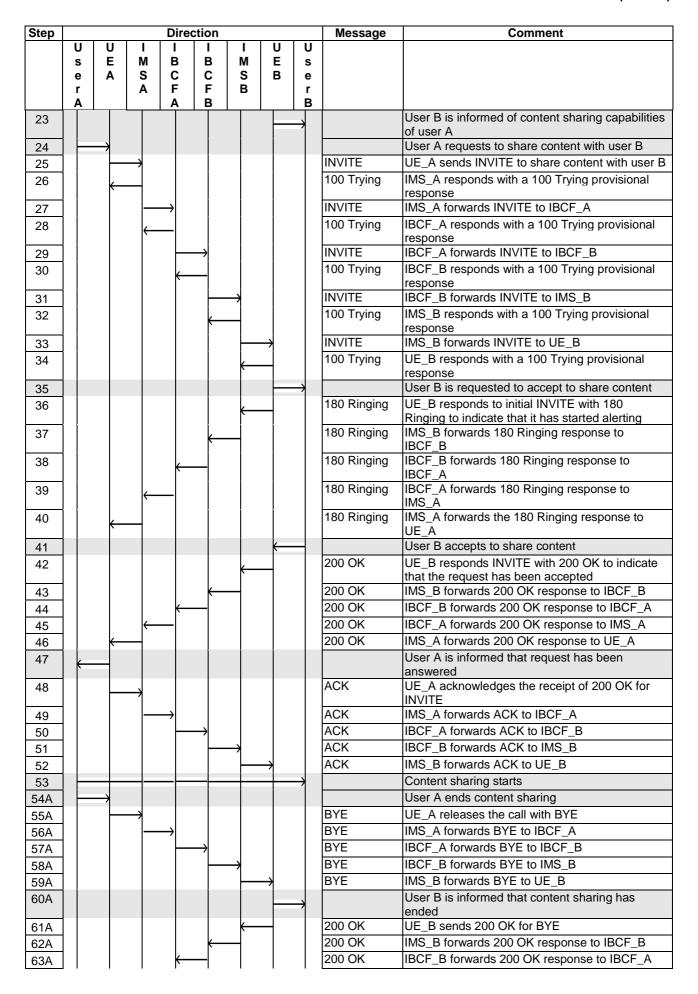
4.4.4 Content Sharing

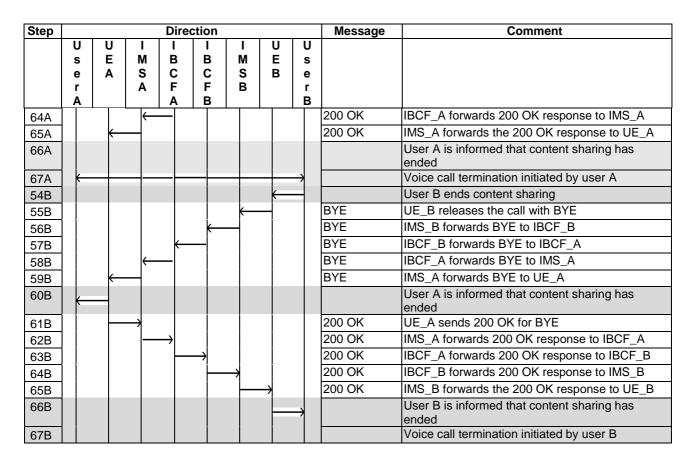
Following there are the expected common call flow sequences for content sharing.

4.4.4.1 UC_RCS_11_I: SIP message flow for Content Sharing with CF_INT_CALL

Step	Action	CFW							
1A	User A establishes voice call with user B	Step 1A							
1B	User A establishes voice call with user B Step 1B								
2	User B is informed of content sharing capabilities of user A Step 12								
3	User A is informed on content sharing capabilities of user B	Step 23							
4	User A requests to share content with user B	Step 24							
5	User B is requested to accept to share content	Step 35							
6	User B accepts to share content with user A	Step 41							
7	User A is informed that request has been answered	Step 47							
8	Content sharing starts	Step 53							
9A	User A ends content sharing	Step 54A							
10A	User B is informed that content sharing has terminated	Step 60A							
11A	User A is informed that content sharing has terminated	Step 66A							
12A	User A initiates voice call termination	Step 67A							
9B	User A ends content sharing	Step 54B							
10B	User B is informed that content sharing has terminated	Step 60B							
11B	User A is informed that content sharing has terminated	Step 66B							
12B	User A initiates voice call termination	Step 67B							
NOTE:	NOTE: The content sharing information can be exchanged in any order (first user A then user B or vice versa) or can take place in parallel at the same time.								

Step				Dire	ction				Message	Comment
	U	Ū	I	I	I	ı	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		
1A						-		\rightarrow		User A establishes a voice call to user B
1B	├─		_		_			\rightarrow		User B establishes a voice call to user A
2			\rightarrow						OPTIONS	UE_A sends OPTIONS to IMS_A
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						_	\longrightarrow		OPTIONS	IMS_B forwards OPTIONS to UE_B
7						\leftarrow			200 OK	UE_B responds with 200 OK to IMS_B
8					\leftarrow	_			200 OK	IMS_B forwards 200 OK to IBCF_B
9				\leftarrow	_				200 OK	IBCF_B forwards 200 OK to IBCF_A
10			\leftarrow						200 OK	IBCF_A forwards 200 OK to IMS_A
11		\leftarrow							200 OK	IMS_A forwards 200 OK to UE_A
12	├									User A is informed on content sharing capabilities of user B
13						\leftarrow			OPTIONS	UE_B sends OPTIONS to IMS_B
14					\leftarrow	_			OPTIONS	IMS_B forwards OPTIONS to IBCF_B
15				\leftarrow					OPTIONS	IBCF_B forwards OPTIONS to IBCF_A
16			\leftarrow	_					OPTIONS	IBCF_A forwards OPTIONS to IMS_A
17		\leftarrow	_						OPTIONS	IMS_A forwards OPTIONS to UE_A
18		_	\rightarrow						200 OK	UE_A responds 200 OK to IMS_A
19				\rightarrow					200 OK	IMS_A forwards 200 OK to IBCF_A
20					\rightarrow				200 OK	IBCF_A forwards 200 OK to IBCF_B
21						\rightarrow			200 OK	IBCF_B forwards 200 OK to IMS_B
22						\vdash	\longrightarrow		200 OK	IMS_B forwards 200 OK to UE_B

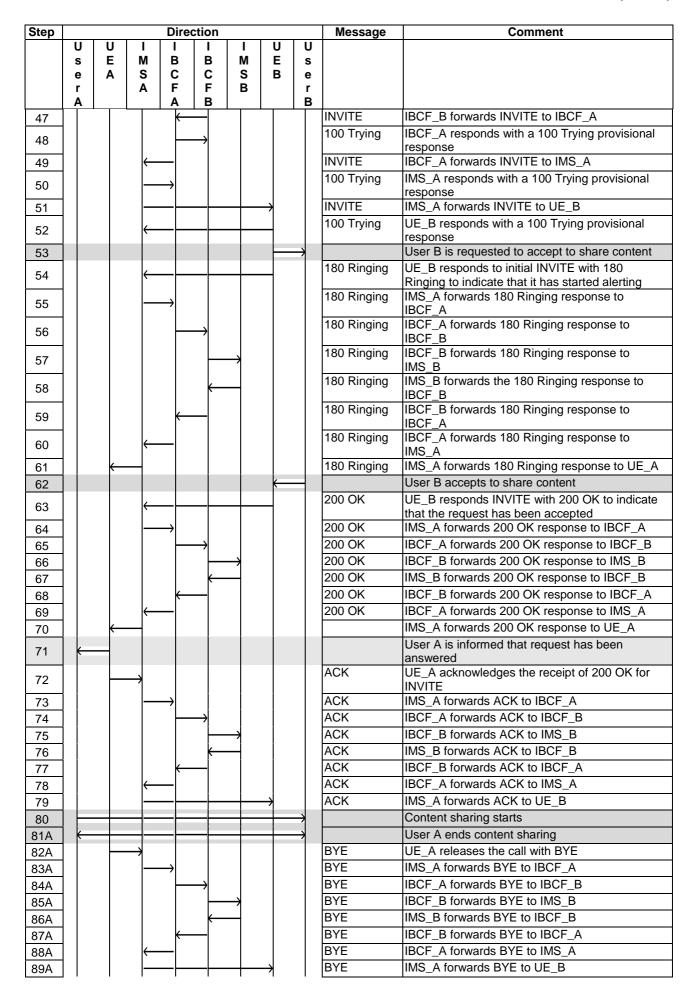


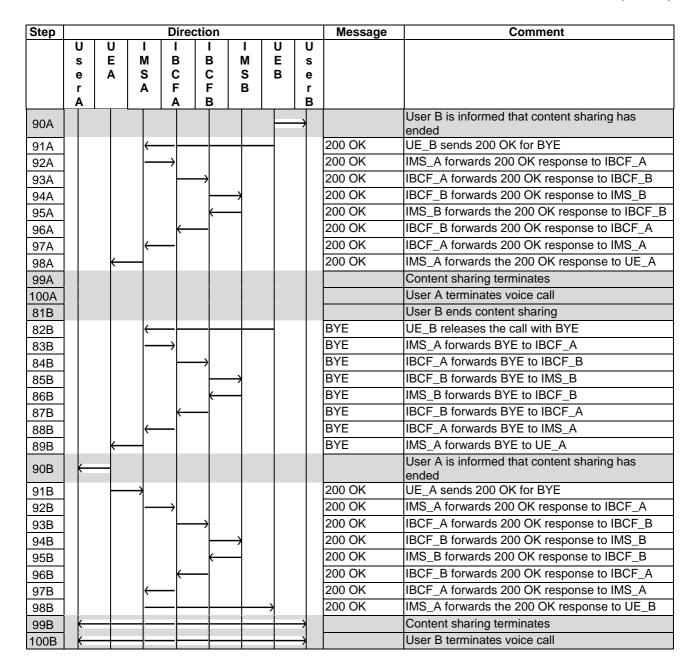


4.4.4.2 UC_RCS_11_R: SIP message flow for Content Sharing with CF_ROAMT_CALL

Step	Action CFW								
1A	User A establishes voice call with user B	Step 1A							
1B	User A establishes voice call with user B	Step 1B							
2	User B is informed of content sharing capabilities of user A	Step 12							
3	User A is informed on content sharing capabilities of user B	Step 23							
4	User A requests to share content with user B	Step 24							
5	User B is requested to accept to share content	Step 35							
6	User B accepts to share content with user A	Step 41							
7	User A is informed that request has been answered	Step 47							
8	Content sharing starts	Step 53							
9A	User A ends content sharing	Step 54A							
10A	User B is informed that content sharing has terminated	Step 60A							
11A	User A is informed that content sharing has terminated	Step 66A							
12A	User A initiates voice call termination	Step 67A							
9B	User A ends content sharing	Step 54B							
10B	User B is informed that content sharing has terminated	Step 60B							
11B	User A is informed that content sharing has terminated	Step 66B							
12B	User A initiates voice call termination	Step 67B							

Step			Dir	ectio	n			Message	Comment
		U I	I	I	I	U	U		
	_	E M	В	В		E	s		
	e /	A S	C	C	S	В	e r		
	À	^	Ä	В	"		В		
1A	-					+	\rightarrow		User A sets up a voice call to user B
1B	—		-			_	\rightarrow		User B sets up a voice call to user A
2		\longmapsto						OPTIONS	UE_A sends OPTIONS to IMS_A
3			\longrightarrow					OPTIONS	IMS_A forwards OPTIONS to IBCF_A
4			-	\longrightarrow				OPTIONS	IBCF_A forwards OPTIONS to IBCF_B
5				-	\longrightarrow			OPTIONS	IBCF_B forwards OPTIONS to IMS_B
6				*				OPTIONS	IMS_B forwards OPTIONS to IBCF_B
7			+					OPTIONS	IBCF_B forwards OPTIONS to IBCF_A
8								OPTIONS OPTIONS	IBCF_A forwards OPTIONS to IMS_A
9						\rightarrow		200 OK	IMS_A forwards OPTIONS to UE_B UE_B responds with 200 OK to IMS_A
10			$\overline{}$					200 OK 200 OK	IMS_A forwards 200 OK to IBCF_A
11 12			7					200 OK 200 OK	IBCF_A forwards 200 OK to IBCF_B
13				1				200 OK	IBCF_B forwards 200 OK to IMS_B
14				4				200 OK	IMS_B forwards 200 OK to IBCF_B
15			(200 OK	IBCF_B forwards 200 OK to IBCF_A
16								200 OK	IBCF_A forwards 200 OK to IMS_A
17		\leftarrow						200 OK	IMS_A forwards 200 OK to UE_A
18									User A is informed on content sharing
								ODTIONO	capabilities of user B
19								OPTIONS	UE_B sends OPTIONS to IMS_A
20			\rightarrow					OPTIONS OPTIONS	IMS_A forwards OPTIONS to IBCF_A IBCF_A forwards OPTIONS to IBCF_B
21								OPTIONS	IBCF_B forwards OPTIONS to IMS_B
23				_				OPTIONS	IMS_B forwards OPTIONS to IBCF_B
24			4	`				OPTIONS	IBCF_B forwards OPTIONS to IBCF_A
25			[`					OPTIONS	IBCF_A forwards OPTIONS to IMS_A
26		<u> </u>			ŀ			OPTIONS	IMS_A forwards OPTIONS to UE_A
27		\longrightarrow				Ì		200 OK	UE_A responds 200 OK to IMS_A
28			\rightarrow		Ì			200 OK	IMS_A forwards 200 OK to IBCF_A
29			-	\longrightarrow	İ	j		200 OK	IBCF_A forwards 200 OK to IBCF_B
30				-	\longrightarrow			200 OK	IBCF_B forwards 200 OK to IMS_B
31				ŧ				200 OK	IMS_B forwards 200 OK to IBCF_B
32			(200 OK	IBCF_B forwards 200 OK to IBCF_A
33								200 OK	IBCF_A forwards 200 OK to IMS_A
34		_				\rightarrow		200 OK	IMS_A forwards 200 OK to UE_B
35							\rightarrow		User B is informed of content sharing capabilities of user A
36									User A requests to share content with user B
37		—						INVITE	UE_A sends INVITE to share content with user B
								100 Trying	IMS_A responds with a 100 Trying provisional
38								, ,	response
39		-	\rightarrow					INVITE	IMS_A forwards INVITE to IBCF_A
40			_					100 Trying	IBCF_A responds with a 100 Trying provisional response
41								INVITE	IBCF_A forwards INVITE to IBCF_B
				1				100 Trying	IBCF_B responds with a 100 Trying provisional
42			K					, ,	response
43				-	\longrightarrow			INVITE	IBCF_B forwards INVITE to IMS_B
44				+				100 Trying	IMS_B responds with a 100 Trying provisional
								INVITE	response IMS_B forwards INVITE to IBCF_B
45								100 Trying	IBCF_B responds with a 100 Trying provisional
46									response





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 [11] 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 associated with are shown in bold.

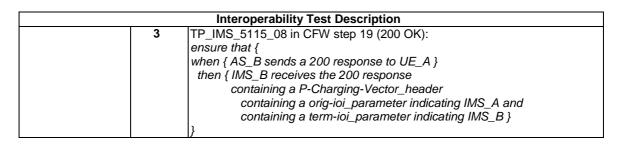
Note that the expected test sequence may only show the Call Flow that affects the test.

In the tabulations which follow, all references are to TS 124 229 [1].

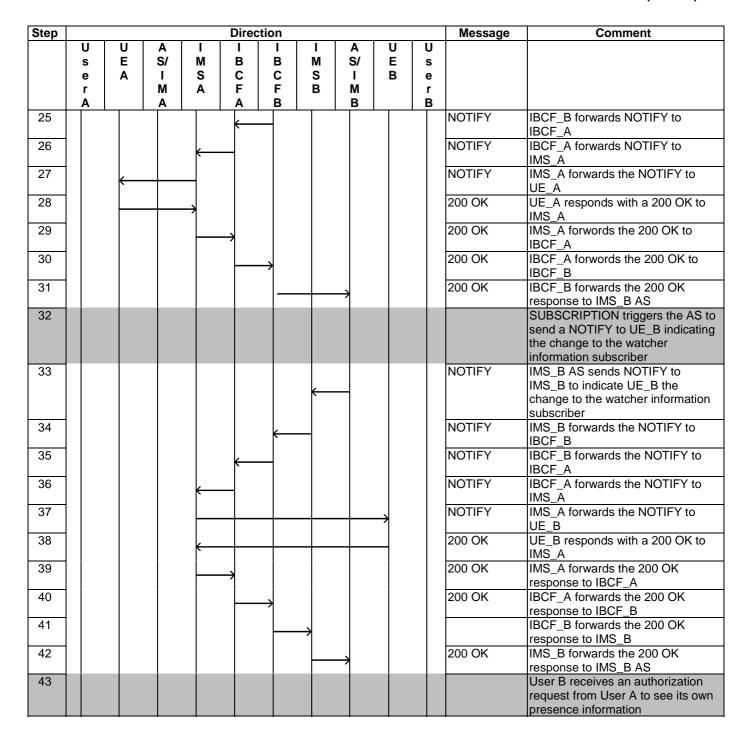
4.5.1 Social Presence

4.5.1.1 Watcher subscription for presence event notification in visited network

Identifier:	TD IME	Interoperability Test Description	n										
Summary:		PRES_0001 ork supports properly presence service vices.	when a watcher subscribes to										
Sullillary.		information for a presentity that it's loca											
Configuration:	CF_ROAM		ted in a different fletwork.										
SUT	IMS_B	II_A3											
References	Test Purp	ose Sne	cification Reference										
iverererices	TP_IMS_5		24 229 [1], clause 5.4.3.2 ¶1										
	TP_IMS_5		24 229 [1], clause 5.4.3.2 1										
	TP_IMS_5		24 229 [1], clause 5.4.3.3 ¶65										
Use Case ref.:			24 229 [1], clause 5.4.3.3 1105										
USE Case lel	UC_RCS_	_Z_R											
Pre-test	conding to table 1												
 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 													
oonaniono.		S 186 011-2 [11], clause 4.2.1	to their respective livio hetworks as										
		is registered in IMS_A using userPRE	S according to table 1										
		is registered in IMS_A using userFRE is registered in IMS_B via IMS A using											
		is configured to receive notifications w											
			un watcher imormation										
		A is configured to contact AS_A											
		B is configured to contact AS_B											
	AS_Bis configured for reactive autorization												
	IMS_A is within the trust domain of IMS_B IMS_A not confirmed that an along hidings												
	IMS_A not configured for topology hiding												
T	01												
Test Sequence:	Step												
	1	User B publishes presence information											
	2	Verify that user B is informed of its pre											
	3	User A subscribes to presence informa											
	4	Verify that user B receives an authorize	ation request from user A to see its										
		own presence information											
	5	User B authorizes user A to be informed											
	6	Verify that user A is informed of user A	presence information										
0 (
Conformance	OI: I:												
Cuitania.	Check	TD IMO 5007 40 : OFW 4 - 0 (DUI	2) (2) ()										
Criteria:	Check 1	TP_IMS_5097_13 in CFW step 6 (PUB	BLISH):										
Criteria:		ensure that {	,										
Criteria:		ensure that { when {IMS_B receives a PUBLISH from the content of t	om IMS_A }										
Criteria:		ensure that { when {IMS_B receives a PUBLISH from then {IMS_B sends the PUBLISH to	om IMS_A }										
Criteria:		ensure that { when {IMS_B receives a PUBLISH from then {IMS_B sends the PUBLISH to containing a Route_header	om IMS_A } AS_B										
Criteria:		ensure that { when {IMS_B receives a PUBLISH from then {IMS_B sends the PUBLISH to containing a Route_header indicating the SIP_URI of AS	om IMS_A } AS_B S_B and										
Criteria:		ensure that { when {IMS_B receives a PUBLISH fr then { IMS_B sends the PUBLISH to containing a Route_header indicating the SIP_URI of AS containing a P-Charging-Funct	om IMS_A } AS_B S_B and ion-Addresses_header and										
Criteria:		ensure that { when {IMS_B receives a PUBLISH from then {IMS_B sends the PUBLISH to containing a Route_header indicating the SIP_URI of AS containing a P-Charging-Vecto	om IMS_A } AS_B S_B and ion-Addresses_header and r_header										
Criteria:		ensure that { when {IMS_B receives a PUBLISH for then { IMS_B sends the PUBLISH to containing a Route_header indicating the SIP_URI of AS containing a P-Charging-Funct containing a P-Charging-Vecto containing an orig-ioi parame	om IMS_A } AS_B S_B and ion-Addresses_header and r_header eter indicating IMS_A and										
Criteria:		ensure that { when {IMS_B receives a PUBLISH for then { IMS_B sends the PUBLISH to containing a Route_header indicating the SIP_URI of AS containing a P-Charging-Funct containing a P-Charging-Vecto containing an orig-ioi parament containing a term-ioi parament.	om IMS_A } AS_B S_B and ion-Addresses_header and r_header eter indicating IMS_A and neter and										
Criteria:		ensure that { when {IMS_B receives a PUBLISH for then { IMS_B sends the PUBLISH to containing a Route_header indicating the SIP_URI of AS containing a P-Charging-Funct containing a P-Charging-Vecto containing an orig-ioi parame	om IMS_A } AS_B S_B and ion-Addresses_header and r_header eter indicating IMS_A and neter and										
Criteria:	1	ensure that { when {IMS_B receives a PUBLISH from then { IMS_B sends the PUBLISH to containing a Route_header indicating the SIP_URI of AS containing a P-Charging-Funct containing a P-Charging-Vector containing an orig-ioi parame not containing a term-ioi parame containing access-network-containing ac	om IMS_A } AS_B S_B and ion-Addresses_header and r_header eter indicating IMS_A and neter and harging-info }										
Criteria:		ensure that { when {IMS_B receives a PUBLISH for then { IMS_B sends the PUBLISH to containing a Route_header indicating the SIP_URI of AS containing a P-Charging-Funct containing a P-Charging-Vector containing an orig-ioi parameter of containing a term-ioi parameter containing access-network-containing om IMS_A } AS_B S_B and ion-Addresses_header and r_header eter indicating IMS_A and neter and harging-info }											
Criteria:	1	ensure that { when {IMS_B receives a PUBLISH for then { IMS_B sends the PUBLISH to containing a Route_header indicating the SIP_URI of AS containing a P-Charging-Funct containing a P-Charging-Vecto containing an orig-ioi parame not containing a term-ioi parame containing access-network-c} TP_IMS_5108_07 in CFW step 18 (SU ensure that {	om IMS_A } AS_B S_B and ion-Addresses_header and r_header eter indicating IMS_A and neter and harging-info }										
Criteria:	1	ensure that { when {IMS_B receives a PUBLISH from then { IMS_B sends the PUBLISH to containing a Route_header indicating the SIP_URI of ASS containing a P-Charging-Funct containing a P-Charging-Vector containing an originior parameter and containing a terminior parameter containing accessine twork-containing accessine two receives that { when { IMS_A receives a SUBSCRIBE in the public sensitive sens	om IMS_A } AS_B S_B and ion-Addresses_header and r_header eter indicating IMS_A and neter and harging-info } IBSCRIBE): E addressed to UE_B }										
Criteria:	1	ensure that { when {IMS_B receives a PUBLISH for then { IMS_B sends the PUBLISH to containing a Route_header indicating the SIP_URI of AS containing a P-Charging-Funct containing a P-Charging-Vecto containing an orig-ioi parame not containing a term-ioi parame containing access-network-c } TP_IMS_5108_07 in CFW step 18 (SU ensure that { when { IMS_A receives a SUBSCRIBE then { IMS_B sends the SUBSCRIBE	om IMS_A } AS_B S_B and ion-Addresses_header and r_header eter indicating IMS_A and neter and harging-info } IBSCRIBE): E addressed to UE_B } i to AS_B										
Criteria:	1	ensure that { when {IMS_B receives a PUBLISH for then { IMS_B sends the PUBLISH to containing a Route_header indicating the SIP_URI of AS containing a P-Charging-Funct containing a P-Charging-Vecto containing an orig-ioi parame not containing a term-ioi parame containing access-network-col } TP_IMS_5108_07 in CFW step 18 (SU ensure that { when { IMS_A receives a SUBSCRIBE then { IMS_B sends the SUBSCRIBE containing a topmost Route he	om IMS_A } AS_B AS_B and ion-Addresses_header and r_header eter indicating IMS_A and neter and harging-info } IBSCRIBE): E addressed to UE_B } it o AS_B adder										
Criteria:	1	ensure that { when {IMS_B receives a PUBLISH for then { IMS_B sends the PUBLISH to containing a Route_header indicating the SIP_URI of AS containing a P-Charging-Funct containing a P-Charging-Vecto containing an orig-ioi parame not containing a term-ioi parame containing access-network-col } TP_IMS_5108_07 in CFW step 18 (SU ensure that { when { IMS_A receives a SUBSCRIBE then { IMS_B sends the SUBSCRIBE containing a topmost Route he indicating the SIP URI of AS_	om IMS_A } AS_B AS_B and ion-Addresses_header and r_header eter indicating IMS_A and neter and harging-info } IBSCRIBE): E addressed to UE_B } it o AS_B adder										
Criteria:	1	ensure that { when {IMS_B receives a PUBLISH for then { IMS_B sends the PUBLISH to containing a Route_header indicating the SIP_URI of AS containing a P-Charging-Funct containing a P-Charging-Vecto containing an orig-ioi parame not containing a term-ioi parame containing access-network-c} TP_IMS_5108_07 in CFW step 18 (SUensure that { when { IMS_A receives a SUBSCRIBE then { IMS_B sends the SUBSCRIBE containing a topmost Route he indicating the SIP URI of AS_containing a Route header	om IMS_A } AS_B S_B and ion-Addresses_header and r_header eter indicating IMS_A and hearging-info } IBSCRIBE): E addressed to UE_B } it o AS_B eder BB										
Criteria:	1	ensure that { when {IMS_B receives a PUBLISH for then { IMS_B sends the PUBLISH to containing a Route_header indicating the SIP_URI of AS containing a P-Charging-Funct containing a P-Charging-Vecto containing an orig-ioi parame not containing a term-ioi parame containing access-network-col } TP_IMS_5108_07 in CFW step 18 (SU ensure that { when { IMS_A receives a SUBSCRIBE then { IMS_B sends the SUBSCRIBE	om IMS_A } AS_B AS_B and ion-Addresses_header and r_header eter indicating IMS_A and hearging-info } IBSCRIBE): E addressed to UE_B } it o AS_B eder B IRI of IMS_B										
Criteria:	1	ensure that { when {IMS_B receives a PUBLISH for then { IMS_B sends the PUBLISH to containing a Route_header indicating the SIP_URI of AS containing a P-Charging-Funct containing a P-Charging-Vecto containing an orig-ioi parame not containing a term-ioi parame not containing access-network-or } TP_IMS_5108_07 in CFW step 18 (SU ensure that { when { IMS_A receives a SUBSCRIBE then { IMS_B sends the SUBSCRIBE	om IMS_A } AS_B AS_B and ion-Addresses_header and r_header eter indicating IMS_A and neter and harging-info } IBSCRIBE): E addressed to UE_B } it to AS_B adder B IRI of IMS_B r_header										
Criteria:	1	ensure that { when {IMS_B receives a PUBLISH for then { IMS_B sends the PUBLISH to containing a Route_header indicating the SIP_URI of AS containing a P-Charging-Funct containing an orig-ioi parame not containing at term-ioi parame not containing access-network-or } TP_IMS_5108_07 in CFW step 18 (SU ensure that { when { IMS_A receives a SUBSCRIBE then { IMS_B sends the SUBSCRIBE containing a topmost Route he indicating the SIP URI of AS_ containing a Route header indicating the S-CSCF_SIP U containing a P-Charging-Vector containing an orig-ioi parame	om IMS_A } AS_B AS_B AS_B AS_B AS_B AS_B AS_B AS_B										
Criteria:	1	ensure that { when {IMS_B receives a PUBLISH for then { IMS_B sends the PUBLISH to containing a Route_header indicating the SIP_URI of AS containing a P-Charging-Funct containing a P-Charging-Vecto containing an orig-ioi parame not containing a term-ioi parame containing access-network-c } TP_IMS_5108_07 in CFW step 18 (SU ensure that { when { IMS_A receives a SUBSCRIBE} containing a topmost Route he indicating the SIP URI of AS_ containing a Route header indicating the S-CSCF_SIP U containing a P-Charging-Vecto containing an orig-ioi parame not containing a term-ioi parame not containing a term-ioi parame	om IMS_A } AS_B AS_B AS_B AS_B AS_B AS_B AS_B AS_B										
Criteria:	1	ensure that { when {IMS_B receives a PUBLISH for then { IMS_B sends the PUBLISH to containing a Route_header indicating the SIP_URI of AS containing a P-Charging-Funct containing an orig-ioi parame not containing at term-ioi parame not containing access-network-or } TP_IMS_5108_07 in CFW step 18 (SU ensure that { when { IMS_A receives a SUBSCRIBE then { IMS_B sends the SUBSCRIBE containing a topmost Route he indicating the SIP URI of AS_ containing a Route header indicating the S-CSCF_SIP U containing a P-Charging-Vector containing an orig-ioi parame	om IMS_A } AS_B AS_B AS_B AS_B AS_B AS_B AS_B AS_B										



Step					Direc	tion					Message	Comment
	U	Ū	A S/	I	I	I	I Na	A S/	U E	U		
	s e	E A	5/ 	M S	B C	B C	M S	5/ 	B	s e		
	r	,,	M	Ā	F	F	В	M		r		
	Α		Α		Α	В		В		В		
1												User B publishes presence
2											PUBLISH	information UE_B sends PUBLISH with
_				←							l oblion	information for all commonly
												supported presence elements
3					\rightarrow						PUBLISH	IMS_A forwards the PUBLISH to
4											PUBLISH	IBCF_A IBCF_A forwards the PUBLISH to
_						\rightarrow					OBLIGHT	IBCF_B
5											PUBLISH	IBCF_B forwards the PUBLISH to
							\rightarrow					IMS_B
6								\rightarrow			PUBLISH	IMS_B forwards the PUBLISH to
7											200 OK	IMS_B AS (PS)
′							←				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					—						200 OK	IBCF_B forwards the 200 OK
10											200 OK	response to IBCF_A IBCF_A forwards the 200 OK
10				\leftarrow							200 010	response to IMS_A
11									_		200 OK	IMS_A forwards the 200 OK
									1			response to UE_B
12												User B is informed of its presence status update
13	·				·							User A subscribes to presence
												information from User B
14				\rightarrow							SUBSCRIBE	UE_A sends SUBSCRIBE for
15											SUBSCRIBE	"presence" event to IMS_A IMS_A forwards the SUBSCRIBE
13					\rightarrow						SUBSCRIBE	to IBCF_A
16											SUBSCRIBE	IBCF_A forwards the SUBSCRIBE
												to IBCF_B
17							\rightarrow				SUBSCRIBE	IBCF_B forwards the SUBSCRIBE to IMS_B
18											SUBSCRIBE	IMS B forwards the SUBSCRIBE
								\rightarrow			0000011102	to IMS_B AS (PS)
19							\leftarrow				200 OK	IMS_B AS responds with a 200 OK
20							Ī				300 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
												response to IBCF_A
22				\leftarrow	_						200 OK	IBCF_A forwards the 200 OK
23											200 OK	response to IMS_A IMS_A forwards the 200 OK
23		\leftarrow									200 010	response to UE_A
24											NOTIFY	IMS_B AS sends NOTIFY to
				1)	I					IBCF_B



4.5.1.2 Watcher subscription to presence event notification in home network

Interoperability Test Description									
Identifier:	TD_IMS_PRES_0002								
Summary:	IMS network supports properly	y presence service when a watcher subscribes to							
	presence information for a pre	esentity that it's located in a different network.							
Configuration:	CF_INT_AS								
SUT	IMS_A								
References	Test Purpose	Specification Reference							
	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_I								

		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								
		S 186 011-2 [11], clause 4.2.1								
		is registered in IMS_A using userPRES according to table 1								
	• UE_B	is registered in IMS_B using userPRES according to table 1								
		is configured to receive notifications with watcher information								
	AS_B	is configured for reactive authorization								
	IMS_/	A is configured to contact AS_A (PS)								
	IMS_/	is within the trust domain of IMS_B								
	IMS_/	A not configured for topology hiding								
		ž i ž								
Test Sequence:	Step									
	1	User B publishes presence information								
	2	Verify that user B is informed of its presence status update								
	3	User A subscribes to presence information from User B								
	4	Verify that user B receives an authorization request from User A to see its								
		own presence information								
	5	User B authorizes user A to be informed of its own presence information								
	6	Verify that user A is informed of user B presence information								
0 (
Conformance	Check	TD IMO 5400 07: OFW + 40 (OUROODIRE)								
Criteria:	1	TP_IMS_5108_07 in CFW step 12 (SUBSCRIBE):								
		ensure that {								
		whon (IMS A receives a SURSCRIPE addressed to LIE R)								
		when { IMS_A receives a SUBSCRIBE addressed to UE_B }								
		then { IMS_B sends the SUBSCRIBE to AS_B								
		then { IMS_B sends the SUBSCRIBE to AS_B containing a topmost Route header								
		then { IMS_B sends the SUBSCRIBE to AS_B containing a topmost Route header indicating the SIP URI of AS_B								
		then { IMS_B sends the SUBSCRIBE to AS_B containing a topmost Route header indicating the SIP URI of AS_B containing a Route header								
		then { IMS_B sends the SUBSCRIBE to AS_B containing a topmost Route header indicating the SIP URI of AS_B								
		then { IMS_B sends the SUBSCRIBE to AS_B containing a topmost Route header indicating the SIP URI of AS_B containing a Route header indicating the S-CSCF_SIP URI of IMS_B								
		then { IMS_B sends the SUBSCRIBE to AS_B containing a topmost Route header indicating the SIP URI of AS_B containing a Route header indicating the S-CSCF_SIP URI of IMS_B containing a P-Charging-Vector_header								
		then { IMS_B sends the SUBSCRIBE to AS_B containing a topmost Route header indicating the SIP URI of AS_B containing a Route header indicating the S-CSCF_SIP URI of IMS_B containing a P-Charging-Vector_header containing an orig-ioi parameter indicating IMS_A and								
		then { IMS_B sends the SUBSCRIBE to AS_B containing a topmost Route header indicating the SIP URI of AS_B containing a Route header indicating the S-CSCF_SIP URI of IMS_B containing a P-Charging-Vector_header containing an orig-ioi parameter indicating IMS_A and not containing a term-ioi parameter} }								
	2	then { IMS_B sends the SUBSCRIBE to AS_B								
	2	then { IMS_B sends the SUBSCRIBE to AS_B								
	2	then { IMS_B sends the SUBSCRIBE to AS_B								
	2	then { IMS_B sends the SUBSCRIBE to AS_B								
	2	then { IMS_B sends the SUBSCRIBE to AS_B								
	2	then { IMS_B sends the SUBSCRIBE to AS_B								
	2	then { IMS_B sends the SUBSCRIBE to AS_B								

Step					Direc	tion	Message	Comment				
	U s e r A	UEA	A S/ I M A	I M S A	I B C F A	- B C F B	I M S B	A S/ I M B	U E B	U s e r B		
1												User B publishes presence information
2							\leftarrow				PUBLISH	UE_B sends PUBLISH with information for all commonly supported presence 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 IBCF_B
6												User B is informed of its presence status update
7												User A subscribes to presence information from User B

Step					Direct	ion					Message	Comment
	U	Ū	A	l 1	Ī	Ī	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	A	F	F	В	M		r		
	Α		Α		Α	В		В		В		
8			_	\rightarrow							SUBSCRIBE	UE_A sends SUBSCRIBE for
9											SUBSCRIBE	"presence" event to IMS_A IMS_A forwards the SUBSCRIBE
9					\rightarrow						SUBSCRIBE	to IBCF_A
10)					SUBSCRIBE	IBCF_A forwards the SUBSCRIBE to IBCF_B
11)				SUBSCRIBE	IBCF_B forwards the SUBSCRIBE to IMS_B
12								\rightarrow			SUBSCRIBE	IMS_B forwards the SUBSCRIBE to IMS_B AS (PS)
13							\leftarrow	_			200 OK	IMS_B AS responds with a 200 OK to IMS_B
14						—					200 OK	IMS_B forwards the 200 OK response to IBCF_B
15						-					200 OK	IBCF_B forwards the 200 OK response to IBCF_A
16				\leftarrow							200 OK	IBCF_A forwards the 200 OK response to IMS_A
17		←									200 OK	IMS_A forwards the 200 OK response to UE_A
18						-					NOTIFY	IMS_B AS sends NOTIFY to IBCF_B
19											NOTIFY	IBCF_B forwards NOTIFY to IBCF_A
20				\leftarrow							NOTIFY	IBCF_A forwards NOTIFY to IMS_A
21		\leftarrow		\dashv							NOTIFY	IMS_A forwards the NOTIFY to UE_A
22				\rightarrow							200 OK	UE_A responds with a 200 OK to IMS_A
23					\rightarrow						200 OK	IMS_A forwords the 200 OK to IBCF_A
24)					200 OK	IBCF_A forwords the 200 OK to IBCF_B
25								→			200 OK	IBCF_B forwards the 200 OK response to IMS_B AS
26												SUBSCRIPTION triggers the AS to send a NOTIFY to UE_B indicating the change to the watcher information subscriber
27							—				NOTIFY	IMS_B AS sends NOTIFY to IMS_B to indicate UE_B the change to the watcher information subscriber
28									\rightarrow		NOTIFY	IMS_B forwards the NOTIFY to UE_B
29											200 OK	UE_B responds with a 200 OK to IMS_B
30								→			200 OK	IMS_B forwards the 200 OK response to IMS_B AS
31												User B receives an authorization request from User A to see its own presence information

4.5.1.3 Unsuccessful watcher subscription to presence event notification in home network

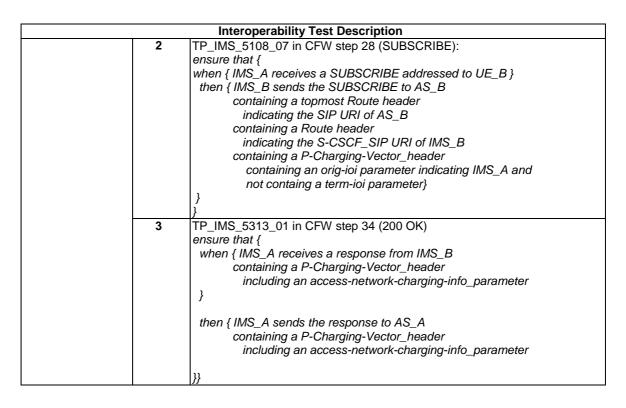
		Interoperability Test Description									
Identifier:	TD_IMS_F	PRES_0003									
Summary:	presence i	IMS network supports properly presence service when a watcher subscribes to presence information for a presentity that it's located in a different network and does not authorize the watcher to be informed of his presence information.									
Configuration:	CF_INT_A	S									
SUT		IMS_B									
References	Test Purp TP_IMS_5										
Use Case ref.:	UC_RCS_	2_I									
Pre-test conditions:	UE_A per TSUE_AUE_BUE_AIMS_IIMS_I	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 [11], clause 4.2.1 is registered in IMS_A using userPRES according to table 1 is registered in IMS_B using userPRES according to table 1 is not authorized to see the presence of UE_B 3 is configured to contact AS_B (PS) A is within the trust domain of IMS_B A not configured for topology hiding									
Test Sequence:	Step										
	1	User A subscribes to presence information from User B									
	2	Verify that user A is not informed of user B presence information									
0 (Ohaali										
Conformance Criteria:	Check 1	TP_IMS_5108_07 in CFW step 6 (SUBSCRIBE): ensure that { when { IMS_A receives a SUBSCRIBE addressed to UE_B } then { IMS_B sends the SUBSCRIBE to AS_B containing a topmost Route header indicating the SIP URI of AS_B containing a Route header indicating the S-CSCF_SIP URI of IMS_B containing a P-Charging-Vector_header containing an orig-ioi parameter indicating IMS_A and not containing a term-ioi parameter} }									

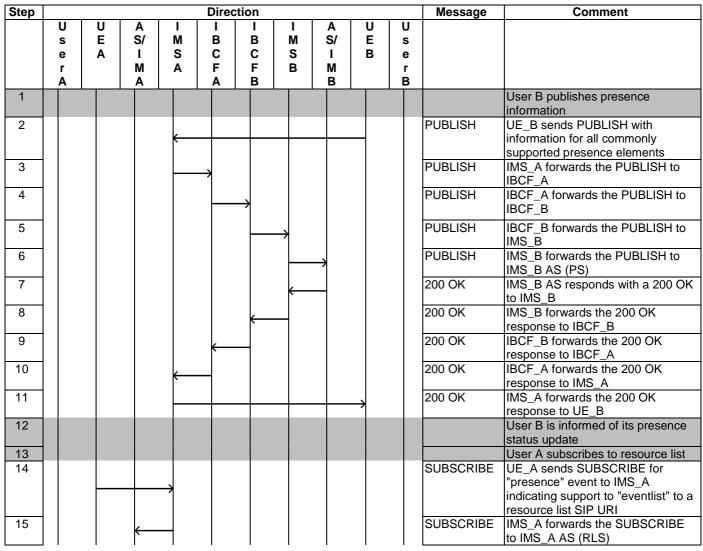
Step					Direc	tion					Message	Comment
	U s e r A	U E A	A S/ I M A	I M S A	I B C F A	I B C F B	M S B	A S/ I M B	U E B	U s e r B		
1												User A subscribes to presence information from User B
2				\rightarrow							SUBSCRIBE	UE_A sends SUBSCRIBE for "presence" event to IMS_A
3					\rightarrow						SUBSCRIBE	IMS_A forwards the SUBSCRIBE to IBCF_A
4						\rightarrow					SUBSCRIBE	IBCF_A forwards the SUBSCRIBE to IBCF_B
5							\rightarrow				SUBSCRIBE	IBCF_B forwards the SUBSCRIBE to IMS_B
6								\rightarrow			SUBSCRIBE	IMS_B forwards the SUBSCRIBE to IMS_B AS (PS)
7							\leftarrow				2xx or 4xx response	IMS_B AS responds with a 2xx or 4xx to IMS_B
8						-					2xx or 4xx response	IMS_B forwards the 2xx or 4xx response to IBCF_B

Step					Direc	tion		Message	Comment			
	U	U	Α	-	ı	ı	ı	Α	C	U		
	S	E	S/	M	В	В	M	S/	Ε	S		
	е	Α	I	S	С	С	S	I	В	е		
	r		M	Α	F	F	В	M		r		
	Α		Α		Α	В		В		В		
9											2xx or 4xx	IBCF_B forwards the 2xx or 4xx
					l l						response	response to IBCF_A
10				,							2xx or 4xx	IBCF_A forwards the 2xx or 4xx
											response	response to IMS_A
11		/									2xx or 4xx	IMS_A forwards the 2xx or 4xx
											response	response to UE_A
12												User A is not informed of user B
												presence information

4.5.1.4 Watcher subscription to resource list in visited network

		Interoperability Test Description										
Identifier:	TD IMS I	PRES_0004										
Summary:		ork supports properly presence service who	en a watcher subscribes to a									
, , , , , , , , , , , , , , , , , , ,		ist containing one or more presentities loca										
Configuration:	CF_ROAN											
SUT	IMS B	·-·										
References	Test Purp	ose Specifi	ication Reference									
	TP_IMS_5		· 229 [1], clause 5.4.3.2 ¶1									
	TP_IMS_5		229 [1], clause 5.4.3.3 ¶1									
	TP_IMS_5		229 [1], clause 5.4.6.1.3 ¶2									
Use Case ref.:	UC_RCS		220 [1], oladee e. Herrie 2									
OSE												
Pre-test	• HSS	of IMS_A and of IMS B is configured accor	rding to table 1									
conditions:		and UE_B have IP bearers established to										
		S 186 011-2 [11], clause 4.2.1										
	UE_A is registered in IMS_A using userPRES according to table 1											
	UE_B is registered in IMS_B via IMS A using userPRES according to table 1											
	UE_A is authorized to see UE_B presence information											
		A is authorized to use the resource list userPRES_list:										
		IMS_A is within the trust domain of IMS_B IMS_B is configured to contact AS_B (PS)										
		S_B is configured to contact AS_B (PS) S_A, IMS_B not configured for topology hiding										
	IVIO_	rt, inio_b not coringated for topology main	9									
Test Sequence:	Step		_									
	1	User B publishes presence information										
	2	Verify that user B is informed of its preser	nce status undate									
	3	User A subscribes to resource list userPF										
	4	Verify that user A sees user B presence in										
	· ·	verify that deer it edge deer 2 processes in	THO THE COLUMN T									
Conformance	Check											
Criteria:	1	TP_IMS_5097_13 in CFW step 6 (PUBLI	SH):									
		ensure that {	,									
		when {IMS_B receives a PUBLISH fron	n IMS_A }									
		then { IMS_B sends the PUBLISH to AS										
		containing a Route_header										
		indicating the SIP_URI of AS_E	3 and									
		containing a P-Charging-Function										
		containing a P-Charging-Vector_r										
		containing an orig-ioi paramete										
		not containing a term-ioi param										
		containing [(a-z)] [(a-z)]ccess-n	etwork-charging-info}									





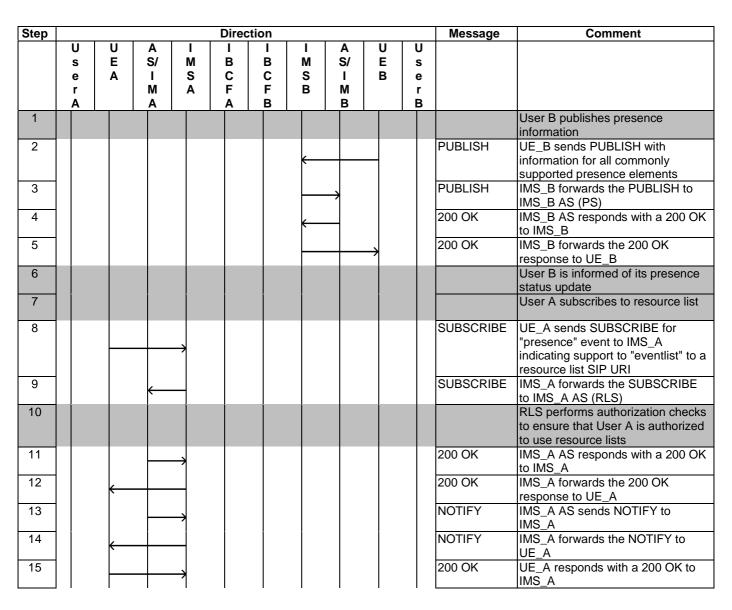
Step					Direct	ion					Message	Comment
	U	U	A S/	I M	I B	I B	I M	A S/	U E	U s		
	s e	A	اد ا	S	C	C	S	o/ I	В	e		
	r		M	Α	F	F	В	M		r		
16	A		<u> </u>		A	В		В		В		RLS performs authorization checks
												to ensure that User A is authorized to use resource lists
17				\rightarrow							200 OK	IMS_A AS responds with a 200 OK to IMS_A
18		\leftarrow									200 OK	IMS_A forwards the 200 OK response to UE_A
19				\rightarrow							NOTIFY	IMS_A AS sends NOTIFY to IMS_A
20		\leftarrow									NOTIFY	IMS_A forwards the NOTIFY to UE_A
21				\rightarrow							200 OK	UE_A responds with a 200 OK to IMS_A
22			\leftarrow	_							200 OK	IMS_A forwards the 200 OK response to IMS_A AS
23												RLS resolves watcher resource's
												address and subscribes for presence event notification for all the presentities represented by the resource list SIP URI
24				\rightarrow							SUBSCRIBE	IMS_A AS (RLS) sends SUBSCRIBE for "presence" event to IMS_A
25					\rightarrow						SUBSCRIBE	IMS_A forwards the SUBSCRIBE to IBCF_A
26)					SUBSCRIBE	IBCF_A forwards the SUBSCRIBE to IBCF_B
27							\rightarrow				SUBSCRIBE	IBCF_B forwards the SUBSCRIBE to IMS_B
28								>			SUBSCRIBE	IMS_B forwards the SUBSCRIBE to IMS_B AS (PS)
29												PS performs authorization checks on the originator to ensure it is
30							←				200 OK	allowed to watch the presentity IMS_B AS (PS) responds with a 200 OK to IMS_B
31											200 OK	IMS_B forwards the 200 OK response to IBCF_B
32					—						200 OK	IBCF_B forwards the 200 OK response to IBCF_A
33				←							200 OK	IBCF_A forwards the 200 OK response to IMS_A
34			←								200 OK	IMS_A forwards the 200 OK response to IMS_A AS (RLS)
35						.					NOTIFY	IMS_B AS sends a NOTIFY to IBCF_B with the presence
36											NOTIFY	information of UE_B IBCF_B forwards the NOTIFY to
37				—								IBCF_A IBCF_A forwards the NOTIFY to
38			<u></u>								NOTIFY	IMS_A IMS_A forwards the NOTIFY to
39				\rightarrow							200 OK	IMS_A AS (RLS) IMS_A AS responds with a 200 OK
40					→						200 OK	to IMS_A IMS_A forwards the 200 OK
41						→					200 OK	response to IBCF_A IBCF_A forwards the 200 OK
42											200 OK	response to IBCF_B IBCF_B forwards the 200 OK
44									\rightarrow		200 OK	response to IMS_B AS

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		
43												RLS notifies with presence information for all the presentities represented by the resource list SIP URI
44				\rightarrow							NOTIFY	IMS_A AS sends NOTIFY to IMS_A
45											NOTIFY	IMS_A forwards the NOTIFY to UE_A
46				\rightarrow							200 OK	UE_A responds with a 200 OK to IMS_A
47			←								200 OK	IMS_A forwards the 200 OK response to IMS_A AS
48												User A sees user B presence information

4.5.1.5 Watcher subscription to resource list in home network

		Interoperability Test Desc	ription									
Identifier:	TD_IMS_I	PRES_0005	•									
Summary:			ervice when a watcher subscribes to a									
	resource I	ist containing one or more presen	tities located in different networks.									
Configuration:	CF_INT_A	CF_INT_AS										
SUT	IMS_A											
References	Test Purp	oose	Specification Reference									
	TP_IMS_5	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_I											
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 [11], clause 4.2.1											
	UE_A	LIE A :										
	• UE_E	HE D. T. H. HAD D. T. DDEO. H. T. ALLI A										
	UE_A	is authorized to see UE_B prese	nce information									
	UE_A	is authorized to use the resource	e list userPRES_list:									
	IMS_	A is within the trust domain of IMS	S_B									
	IMS_	A is configured to contact AS_A (I	RLS)									
	IMS_	B is configured to contact AS_B (I	PS)									
	IMS_	A, IMS_B not configured for topol	ogy hiding									
	•											
Test Sequence:	Step											
	1	User B publishes presence inform	mation									
	2	Verify that user B is informed of	its presence status update									
	3	User A subscribes to resource lis	st containing User B SIP URI									
	4	Verify that user A sees user B pr										

		Interoperability Test Description
Conformance	Check	
Criteria:	1	TP_IMS_5108_07 in CFW step 22 (SUBSCRIBE): ensure that { when { IMS_A receives a SUBSCRIBE addressed to UE_B } then { IMS_B sends the SUBSCRIBE to AS_B containing a topmost Route header indicating the SIP URI of AS_B containing a Route header indicating the S-CSCF_SIP URI of IMS_B containing a P-Charging-Vector_header containing an orig-ioi parameter indicating IMS_A and not containg a term-ioi parameter} }
	2	TP_IMS_5313_01 in CFW step 28 (200 OK) ensure that { when { IMS_A receives a response from IMS_B



Step					Direct	tion					Message	Comment
	U	Ū	Α	I	1	1	I	A	Ū	U		
	s e	E A	S/ I	M S	B C	B C	M S	S/ I	E B	s e		
	ř	^	M	Ă	F	F	В	M	_	r		
4.0	Α		Α		Α	В		В	1	В	200 014	1110 11 11 11 11 11 11 11
16			\leftarrow								200 OK	IMS_A forwards the 200 OK response to IMS_A AS
17												RLS resolves watcher resource's
												address and subscribes for
												presence event notification for all the presentities represented by the
												resource list SIP URI
18											SUBSCRIBE	IMS_A AS (RLS) sends
				\rightarrow								SUBSCRIBE for "presence" event to IMS_A
19											SUBSCRIBE	IMS_A forwards the SUBSCRIBE
					7							to IBCF_A
20						\rightarrow					SUBSCRIBE	IBCF_A forwards the SUBSCRIBE
21											SUBSCRIBE	to IBCF_B IBCF_B forwards the SUBSCRIBE
							\rightarrow					to IMS_B
22								\rightarrow			SUBSCRIBE	IMS_B forwards the SUBSCRIBE
23								-				to IMS_B AS (PS) PS performs authorization checks
23												on the originator to ensure it is
												allowed to watch the presentity
24							\leftarrow				200 OK	IMS_B AS (PS) responds with a 200 OK to IMS_B
25											200 OK	IMS_B forwards the 200 OK
												response to IBCF_B
26					\leftarrow						200 OK	IBCF_B forwards the 200 OK response to IBCF_A
27											200 OK	IBCF_A forwards the 200 OK
												response to IMS_A
28			←								200 OK	IMS_A forwards the 200 OK
29											NOTIFY	response to IMS_A AS (RLS) IMS_B AS sends a NOTIFY to
						\leftarrow		_				IBCF_B with the presence
											NOTIEV	information of UE_B
30					\leftarrow						NOTIFY	IBCF_B forwards the NOTIFY to IBCF_A
31												IBCF_A forwards the NOTIFY to
												IMS_A
32			\leftarrow								NOTIFY	IMS_A forwards the NOTIFY to IMS_A AS (RLS)
33									ŀ		200 OK	IMS_A AS responds with a 200 OK
6.1				7							202 214	to IMS_A
34					\rightarrow						200 OK	IMS_A forwards the 200 OK response to IBCF_A
35											200 OK	IBCF_A forwards the 200 OK
											202 214	response to IBCF_B
36							+	\rightarrow			200 OK	IBCF_B forwards the 200 OK response to IMS_B AS
37												RLS notifies with presence
												information for all the presentities
												represented by the resource list SIP URI
38											NOTIFY	IMS_A AS sends NOTIFY to
				7								IMS_A
39		\leftarrow		\dashv							NOTIFY	IMS_A forwards the NOTIFY to UE_A
40				J							200 OK	UE_A responds with a 200 OK to
				7								IMS_A
41			\leftarrow	\dashv							200 OK	IMS_A forwards the 200 OK response to IMS_A AS
L		I	1	Ţ	1	I	I	I	I	I		เเองคุกเเจอ เก แกด"น นด

Step					Direc	ction	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		
42												User A sees user B presence information

4.5.2 Chat (1-to-1)

4.5.2.1 Instant messaging with explicit user acceptance

4.5.2.1.1 Instant messaging with explicit user acceptance - interworking

		Interoperability Tes	st Description								
ldentifier:		CHAT_0001									
Summary:			aging (IM) service and messages exchange								
			twork can be performed. User B must explicitly								
	accept th	e chat invitation.									
Configuration:	CF_INT_										
SUT	IMS_A ar		1								
References	Test Pur		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								
			(4 th numbered list)								
Use Case ref.:	UC_RCS	_5_I									
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	as per TS 186 011-2 [11], clause 4.2.1									
	• UE	E_A is registered in IMS_A	using userIM according to table 1								
	• IM	IS_A is configured to conta	ct AS/IM_A								
	• UE	E_B is registered in IMS_B	using userIM according to table 1								
	• IM	S_B is configured to conta	ct AS/IM_B								
	• Us	ser A and B are subscribed	to IM services								
		E_B supports interaction or									
		S_A within the trust domai									
		S_A not configured for top									
			ology manig								
Test Sequence:	Step										
	1	User A invites user B to 1	-to-1 chat session								
	2		med of incoming 1-to-1 chat invitation								
	3		med that invitation to 1-to-1 chat session has								
		reached User B	mod that invitation to 1 to 1 that 30351011 has								
	4	User B accepts the 1-to-1	chat invitation								
	5	Verify that Users perform									
	6	User A ends the 1-to-1 ch									
	7		med that 1-to-1 chat session has ended								
	8										
	0	Verify that User A is informed that 1-to-1 chat session is terminated									

		Interoperability Test Description
Conformance	Check	
Criteria:	1	TP_IMS_5097_01 in CFW step 10 (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_5108_03 in CFW step 14 (INVITE) ensure that { when {IMS_B receives an initial INVITE from IMS_A addressed_to UE_B} then {IMS_B 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 IMS_B and containing a P-Charging-Vector_header including a orig-ioi_parameter indicating operator_identifier of IMS_A and not including a term-ioi_parameter }
	3	TP_IMS_5115_08 in CFW step 35 (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

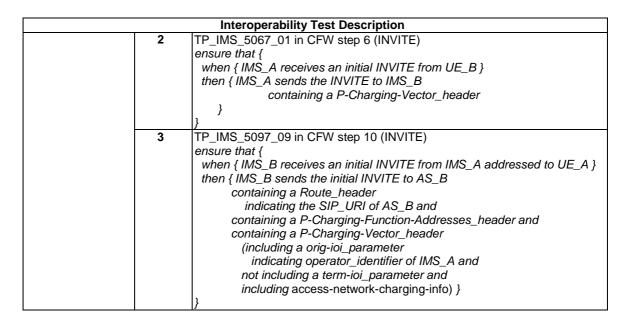
Step					Direc	tion					Message	Comment
	U s e r A	U E A	A S/ M A	M S A	I B C F A	I B C F B	M S B	A S/ I M B	U E B	U s e r B		
1		\rightarrow										User A invites user B to 1-to-1 chat session
2				\rightarrow							INVITE	UE_A sends INVITE with the first SDP offer indicating all specific data for MSRP connection set up
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				\rightarrow							INVITE	AS/IM_A returns, possibly modified, INVITE to IMS_A
7			\leftarrow	\dashv							100 Trying	IMS_A responds with a 100 Trying provisional response
8					\rightarrow						INVITE	IMS_A forwards INVITE to IBCF_A
9				\leftarrow							100 Trying	IBCF_A responds with a 100 Trying 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

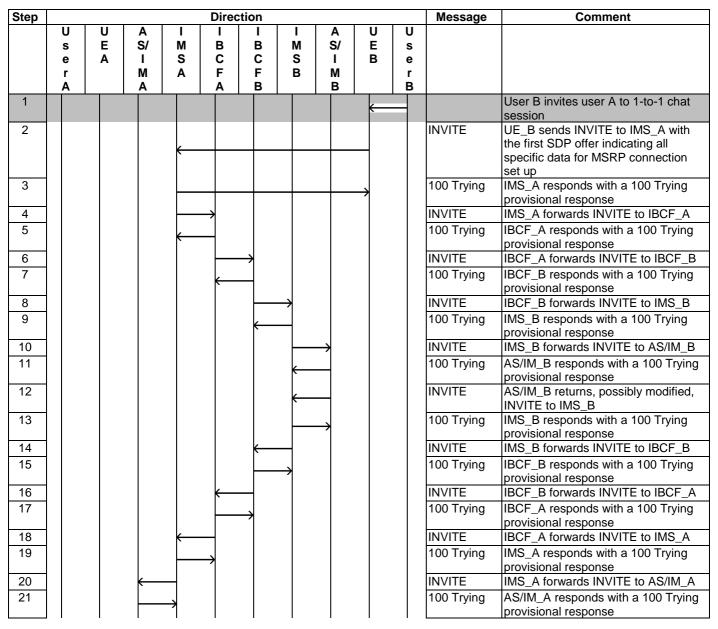
Step					Direct	ion					Message	Comment
	U	U E	A S/	I M	I B	I B	I M	A S/	U	U		
	s e	Ā	I	S	C	C	S	I	В	e		
	r		M	Α	F	F	В	M		r		
12	A		Α		Α	В		В		В	INVITE	IBCF_B forwards INVITE to IMS_B
13							1				100 Trying	IMS_B responds with a 100 Trying
												provisional response
14								\rightarrow			INVITE	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									\longrightarrow		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 1-to-1 chat session
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
												response to AS/IM_B
23							←				180 Ringing	AS/IM_B returns, possibly modified, 180 Ringing response to IMS_B
24											180 Ringing	IMS_B forwards 180 Ringing
												response to IBCF_B
25											180 Ringing	IBCF_B forwards 180 Ringing 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									180 Ringing	IMS_A forwards 180 Ringing
30												response to UE_A User A is informed that invitation to
												a 1-to-1 chat session has reached
24												user B
31									←			User B accepts the invitation to an 1-to-1 chat session
32											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
33								\rightarrow			200 OK	IMS_B forwards 200 OK response
34											200 OK	to AS/IM_B AS/IM_B returns, possibly modified,
												200 OK response to IMS_B
35						—					200 OK	IMS_B forwards 200 OK response
36											200 OK	to IBCF_B 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
			\leftarrow									to AS/IM_A
39				\rightarrow							200 OK	AS/IM_A returns, possibly modified,
40											200 OK	200 OK response to IMS_A IMS_A forwards 200 OK response
40		\leftarrow									200 OK	to UE_A
	•	•	•	•	•	•	•	•	•		-	

Step					Direct	ion					Message	Comment
	U	Ū	A	ı	_		_	A	U	U		
	S	E	S/	M S	B C	B C	M S	S/	E B	S		
	e r	Α	м	A	F	F	о В	I M	В	e r		
	À		A	^	Ā	В.		В		В		
41)							ACK	UE_A acknowledges the receipt of 200 OK for INVITE
42			\leftarrow	_							ACK	IMS_A forwards ACK to AS/IM_A
43				\rightarrow							ACK	AS/IM_A returns, possibly modified, ACK to IMS_A
44					\rightarrow						ACK	IMS_A forwards ACK to IBCF_A
45						\rightarrow					ACK	IBCF_A forwards ACK to IBCF_B
46							\rightarrow				ACK	IBCF_B forwards ACK to IMS_B
47								\rightarrow			ACK	IMS_B forwards ACK to AS/IM_B
48											ACK	AS/IM_B returns, possibly modified, ACK to IMS_B
49									\rightarrow		ACK	IMS_B forwards ACK to UE_B
50	K									\rightarrow		Users perform chatting
51A	├	*										User A ends the 1-to-1 chat session
52A)							BYE	UE_A releases the 1-to-1 chat session with BYE
53A			\leftarrow	_							BYE	IMS_A forwards BYE to AS/IM_A
54A)							BYE	AS/IM_A returns, possibly modified, BYE to IMS_A
55A					\rightarrow						BYE	IMS_A forwards BYE to IBCF_A
56A						\rightarrow					BYE	IBCF_A forwards BYE to IBCF_B
57A							\rightarrow				BYE	IBCF_B forwards BYE to IMS_B
58A								\rightarrow			BYE	IMS_B forwards BYE to AS/IM_B
59A											BYE	AS/IM_B returns, possibly modified, BYE to IMS_B
60A									\rightarrow		BYE	IMS_B forwards BYE to UE_B
61A										\rightarrow		User B is informed that 1-to-1 chat session has ended
62A							←		_		200 OK	UE_B sends 200 OK for BYE
63A								\rightarrow			200 OK	IMS_B forwards 200 OK response to AS/IM_B
64A											200 OK	AS/IM_B returns, possibly modified, 200 OK response to IMS_B
65A						\leftarrow					200 OK	IMS_B forwards 200 OK response to IBCF_B
66A					←	-					200 OK	IBCF_B forwards 200 OK response to IBCF_A
67A				-	_						200 OK	IBCF_A forwards 200 OK response to IMS_A
68A											200 OK	IMS_A forwards 200 OK response to AS/IM_A
69A)							200 OK	AS/IM_A returns, possibly modified, 200 OK response to IMS_A
70A											200 OK	IMS_A forwards 200 OK response to UE_A
71A	(User A is informed that 1-to-1 chat session has ended

4.5.2.1.2 Instant messaging with explicit user acceptance - roaming

		Interoperability Test Des	cription									
Identifier:		CHAT_0002	•									
Summary:	IMS netwo	ork supports instant messaging (M) service and messages exchange									
			etwork and one user roaming can be									
	pertormed	I. User B must explicitly accept the	ne cnat invitation.									
Configuration:	CF_ROAN	A AS										
SUT	IMS_A an											
References	Test Purp		Specification Reference									
	TP_IMS_5	5046_01	TS 124 229 [1], clause 5.2.6.3.3 ¶1									
		(1 st numbered list)										
		S_5067_01 TS 124 229 [1], clause 5.2.7.2 ¶5										
	TP_IMS_5	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_	5 R	(items 5 and 6 in 1 numbered list)									
OSC Gase Tel	00_1100_											
Pre-test	• HS	S of IMS_A and of IMS B is conf	igured according to table 1									
conditions:			stablished to their respective IMS networks									
		per TS 186 011-2 [11], clause 4.										
		_A is registered in IMS_A using										
		S_A is configured to contact AS/I										
			S_A using userIM according to table 1									
		S_B is configured to contact AS/I										
		er A and B are subscribed to IM										
		_A supports interaction on chat i										
	 IMS_A within the trust domain of IMS_B IMS_A not configured for topology hiding 											
	TIVIO	S_A not configured for topology i	liding									
Test Sequence:	Step											
	1	hat session										
	2	Verify that User A is informed of										
	3		at invitation to 1-to-1 chat session has									
		reached User A										
	<u>4</u> 5	User A accepts the 1-to-1 chat i Verify that Users perform chatting										
	6	User B ends the 1-to-1 chat ses										
	7		at 1-to-1 chat session has ended									
	8	· · ·	at 1-to-1 chat session is terminated									
	•											
Conformance	Check											
Criteria:	1	TP_IMS_5046_01 in CFW step	6 (INVITE)									
		ensure that {	al INIVITE from LIE D.)									
		when { IMS_A receives an inition then { IMS_A sends the INVIT.										
		containing a Route_hea										
			SCF_SIP_URI of IMS_A and									
		containing a Route_hea										
			Service Route header URIs									
			istration" and									
		containing an additiona	r via_neader CF_via_port_number and									
			FQDN_address or									
			P_address)) of IMS_A and									
		containing an additiona	I topmost Record-Route_header									
		indicating (the P-CSC										
	'where it awaits subsequent requests' from UE_A and (the P-CSCF-FQDN_address or											
			P_address)) of IMS_A and red-Identity_header and									
		containing a P-Asserted										
		containing an address										
		containing a P-Charging										
		containing an icid-valu										
		}										





Step					Direct	ion					Message	Comment
	U	U	Α	I	1	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	^	M	A	F	F	В	М	В	r		
	Α		Α		Α	В		В		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		←									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 1-to-1 chat session
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 response to AS/IM_A
29				\rightarrow							180 Ringing	AS/IM_A returns, possibly modified,
30					_						180 Ringing	180 Ringing response to IMS_A IMS_A forwards 180 Ringing
31					1						180 Ringing	response to IBCF_A IBCF_A forwards 180 Ringing
32						7					180 Ringing	response to IBCF_B IBCF_B forwards 180 Ringing
33							7				180 Ringing	response to IMS_B 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											180 Ringing	IMS_B forwards 180 Ringing response to IBCF_B
36					-						180 Ringing	IBCF_B forwards 180 Ringing response to IBCF_A
37											180 Ringing	IBCF_A forwards 180 Ringing
38											180 Ringing	response to IMS_A IMS_A forwards 180 Ringing
39												response to UE_B User B is informed that invitation to
55										\rightarrow		an 1-to-1 chat session has reached
40												User A accepts the invitation to an
44		1									000 014	1-to-1 chat session
41											200 OK	UE_A responds INVITE with 200 OK response with SDP to indicate that
				\rightarrow								the session has been accepted and
												inform A-side with specific data for
42											200 OK	MSRP connection set up IMS_A forwards 200 OK response to
43											200 OK	AS/IM_A AS/IM_A returns, possibly modified,
44											200 OK	200 OK response to IMS_A IMS_A forwards 200 OK response to
)							IBCF_A
45						\rightarrow					200 OK	IBCF_A forwards 200 OK response to IBCF_B
46							>				200 OK	IBCF_B forwards 200 OK response to IMS_B
47)			200 OK	IMS_B forwards 200 OK response to AS/IM_B
48								4			200 OK	AS/IM_B returns, possibly modified,
49											200 OK	200 OK response to IMS_B IMS_B forwards 200 OK response to
							7					IBCF_B

Step					Directi	ion					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/	E B	s e		
	r	^	М	A	F	F	В	М		r		
	Α		Α		Α	В		В		В		
50						-					200 OK	IBCF_B forwards 200 OK response to IBCF_A
51											200 OK	IBCF_A forwards 200 OK response to IMS_A
52									\rightarrow		200 OK	IMS_A forwards 200 OK response to
53											ACK	UE_B UE_B acknowledges the receipt of
				` .							A 014	200 OK for INVITE
54 55					•						ACK ACK	IMS_A forwards ACK to IBCF_A IBCF_A forwards ACK to IBCF_B
56						^					ACK	IBCF_B forwards ACK to IMS_B
57											ACK	IMS B forwards ACK to AS/IM B
58											ACK	AS/IM_B returns, possibly modified,
30							\leftarrow				AOR	ACK to IMS_B
59						\leftarrow					ACK	IMS_B forwards ACK to IBCF_B
60					\leftarrow	-					ACK	IBCF_B forwards ACK to IBCF_A
61				\leftarrow	1						ACK	IBCF_A forwards ACK to IMS_A
62			←	-							ACK	IMS_A forwards ACK to AS/IM_A
63)							ACK	AS/IM_A returns, possibly modified, ACK to IMS_A
64		\leftarrow		_							ACK	IMS_A forwards ACK to UE_A
65	-		-							\rightarrow		Users perform chatting
66A									⊬			User B ends the 1-to-1 chat session
67A											BYE	UE_B releases the 1-to-1 chat
CO A				Ι.							DVE	session with BYE
68A											BYE BYE	IMS_A forwards BYE to IBCF_A
69A 70A						7					BYE	IBCF_A forwards BYE to IBCF_B IBCF_B forwards BYE to IMS_B
70A 71A							7				BYE	IMS_B forwards BYE to AS/IM_B
71A 72A											BYE	AS/IM_B returns, possibly modified,
124							\leftarrow				BIE	BYE to IMS_B
73A						\leftarrow					BYE	IMS_B forwards BYE to IBCF_B
74A					\leftarrow						BYE	IBCF_B forwards BYE to IBCF_A
75A					-						BYE	IBCF_A forwards BYE to IMS_A
76A			←—	-							BYE	IMS_A forwards BYE to AS/IM_A
77A				→							BYE	AS/IM_A returns, possibly modified,
70.4		,									DVE	BYE to IMS_A
78A											BYE	IMS_A forwards BYE to UE_A User A is informed that 1-to-1 chat
79A	—											session has ended
80A				\rightarrow							200 OK	UE_A sends 200 OK for BYE
81A											200 OK	IMS_A forwards 200 OK response to AS/IM_A
82A				→							200 OK	AS/IM_A returns, possibly modified,
83A]						200 OK	200 OK response to IMS_A IMS_A forwards 200 OK response to
84A											200 OK	IBCF_A IBCF_A forwards 200 OK response
)						to IBCF_B
85A							\rightarrow				200 OK	IBCF_B forwards 200 OK response to IMS_B
86A								\rightarrow			200 OK	IMS_B forwards 200 OK response to AS/IM_B
87A							<u></u>				200 OK	AS/IM_B returns, possibly modified,
88A											200 OK	200 OK response to IMS_B IMS_B forwards 200 OK response to
007						\leftarrow					200 OK	IBCF_B

Step						Di	irectio	n					Message	Comment
	:	U s e r A	U E A	A S/ I M A	M S A	I C F		I B C F B	I M S B	A S/ I M B	U E B	U s e r B		
89A	ĺ					+		_					200 OK	IBCF_B forwards 200 OK response to IBCF_A
90A					←								200 OK	IBCF_A forwards 200 OK response to IMS_A
91A											\rightarrow		200 OK	IMS_A forwards 200 OK response to UE_B
92A											H	\rightarrow		User B is informed that 1-to-1 chat session has ended

4.5.2.2 Instant Messaging with immediate acceptance

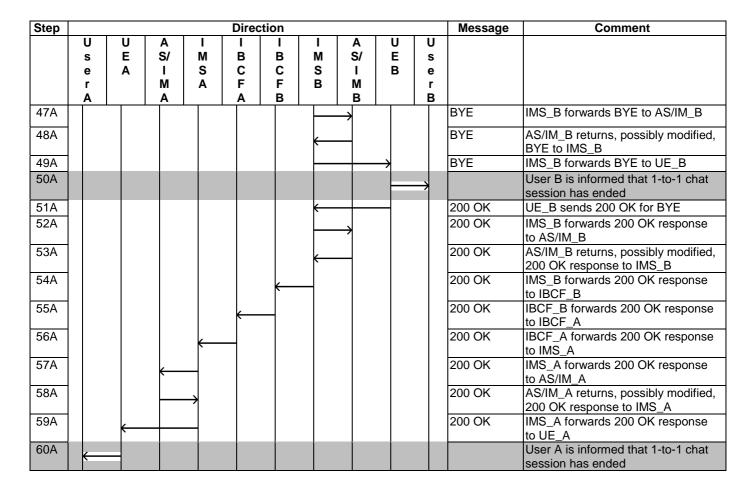
4.5.2.2.1 Instant Messaging with immediate acceptance - interworking

T										
	T	Interoperability Test Desc	ription							
Identifier:		CHAT_0003								
Summary:	IMS network supports instant messaging (IM) service and messages exchange between two users in their home network can be performed. Immediate response applies.									
Canfigurations	OF INT A	0								
Configuration:	CF_INT_A									
SUT	IMS_A and IMS_B									
References	Test Purp		Specification Reference TS 124 229 [1], clause 5.4.3.2 ¶11 (1 st numbered list)							
	TP_IMS_5	108_03	TS 124 229 [1], clause 5.4.3.3 ¶5 (item 4 in 1 st numbered list)							
	TP_IMS_5	_	TS 124 229 [1], clause 5.4.3.3 ¶89 (4 th numbered list)							
Use Case ref.:	UC_RCS_4_I									
Pre-test conditions:	 UE as UE IMS UE US UE IMS 	S of IMS_A and of IMS B is config _A and UE_B have IP bearers es per TS 186 011-2 [11], clause 4.2 _A is registered in IMS_A using u S_A is configured to contact AS/IN _B is registered in IMS_B using u S_B is configured to contact AS/IN er A and B are subscribed to IM so _B automatically answer on chat is S_A within the trust domain of IMS S_A not configured for topology his	tablished to their respective IMS networks .1 serIM according to table 1 //_A serIM according to table 1 //_B ervices invitation S_B							
-										
Test Sequence:	Step 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 ends the chat session								
	5									
	6	Verify that User A is informed that	t 1-to-1 chat session is terminated							

		Interoperability Test Description
Conformance	Check	
Criteria:	1	TP_IMS_5097_01 in CFW step 10 (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_5108_03 in CFW step 14 (INVITE) ensure that { when {IMS_B receives an initial INVITE from IMS_A addressed_to UE_B} then {IMS_B 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 IMS_B and containing a P-Charging-Vector_header including a orig-ioi_parameter indicating operator_identifier of IMS_A and not including a term-ioi_parameter }
	3	TP_IMS_5115_08 in CFW step 35 (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

Step					Direc	tion					Message	Comment
	U s e r A	U E A	A S/ 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 invites user B to 1-to-1 chat session
2				\rightarrow							INVITE	UE_A sends INVITE with 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			←								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											100 Trying	IMS_A responds with a 100 Trying provisional response
8					\rightarrow						INVITE	IMS_A forwards INVITE to IBCF_A
9				\leftarrow							100 Trying	IBCF_A responds with a 100 Trying provisional response
10						\rightarrow					INVITE	IBCF_A forwards INVITE to IBCF_B
11					\leftarrow	\dashv					100 Trying	IBCF_B responds with a 100 Trying provisional response

Step					Direc	tion					Message	Comment
	U	Ū	A	ı	- (-	I	A	U	U		
	s e	E A	S/	M S	B C	B C	M	S/	E B	s e		
	r	^	M	Ă	F	F	В	M		r		
	Α		Α		Α	В		В	<u> </u>	В		
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
4.0											IND ATE	Trying provisional response
16							\leftarrow				INVITE	AS/IM_B returns, possibly modified, INVITE to IMS_B
17											100 Trying	IMS_B responds with a 100 Trying
								7				provisional response
18									\rightarrow		INVITE	IMS_B forwards INVITE to UE_B
19							\leftarrow				100 Trying	UE_B optionally responds with a 100 Trying provisional response
20												User B is informed of incoming
										7		1-to-1 chat session
21											200 OK	UE_B responds INVITE with 200 OK response with SDP to indicate
							\leftarrow					that the session has been accepted
												and informs A-side with specific
											000 01/	data for 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						←					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 to IMS_A
27											200 OK	IMS_A forwards 200 OK response
											222 014	to AS/IM_A
28				\rightarrow							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											ACK	UE_A acknowledges the receipt of
				7								200 OK for INVITE
31			\leftarrow								ACK	IMS_A forwards ACK to AS/IM_A
32				\rightarrow							ACK	AS/IM_A returns, possibly modified, ACK to IMS_A
33					\rightarrow						ACK	IMS_A forwards ACK to IBCF_A
34						\rightarrow					ACK	IBCF_A forwards ACK to IBCF_B
35						\vdash	\rightarrow				ACK	IBCF_B forwards ACK to IMS_B
36								\rightarrow			ACK	IMS_B forwards ACK to AS/IM_B
37							\leftarrow	_			ACK	AS/IM_B returns, possibly modified, ACK to IMS_B
38									\rightarrow		ACK	IMS_B forwards ACK to UE_B
39	(+				\rightarrow		Users perform chatting
40A		\rightarrow										User A ends the 1-to-1 chat session
41A				\rightarrow							BYE	UE_A releases the enhanced
42A											BYE	messaging session with BYE IMS_A forwards BYE to AS/IM_A
42A 43A											BYE	AS/IM_A returns, possibly modified,
+U/\				\rightarrow								BYE to IMS_A
44A					\rightarrow						BYE	IMS_A forwards BYE to IBCF_A
45A						\rightarrow					BYE	IBCF_A forwards BYE to IBCF_B
46A						<u> </u>	\rightarrow				BYE	IBCF_B forwards BYE to IMS_B



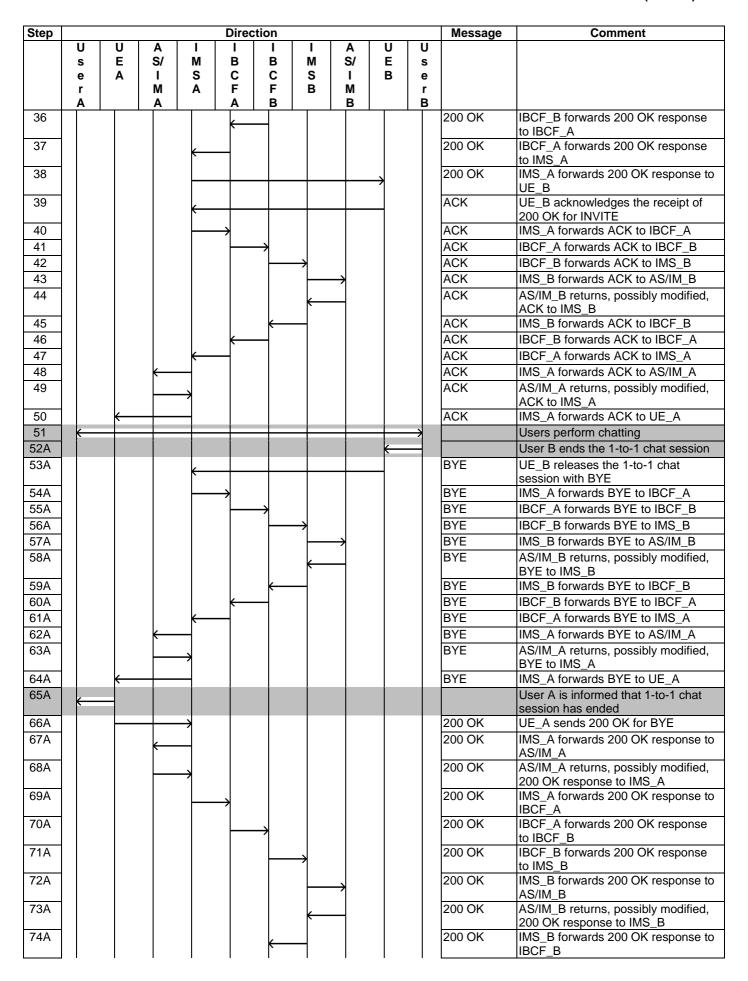
4.5.2.2.2 Instant Messaging with immediate acceptance - roaming

	Interoperability Test Des	cription								
Identifier:	TD_IMS_CHAT_0004									
Summary:	IMS network supports instant messaging (IM) service and messages exchange between two users, one user in its home network and one user roaming can be performed. Immediate response applies.									
Configuration:	CF_ROAM_AS									
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 1 st numbered list)								
Use Case ref.:	UC_RCS_4_R									
Pre-test conditions:	 as per TS 186 011-2 [11], clause 4 UE_A is registered in IMS_A using IMS_A is configured to contact AS/ 	established to their respective IMS networks .2.1 userIM according to table 1 'IM_A IS_A using userIM according to table 1 'IM_B services at invitation IS_B								

		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 ends the chat session
	5	Verify that User A is informed that 1-to-1 chat session has ended
	6	Verify that User B is informed that 1-to-1 chat session is terminated
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 { IMS_B receives an initial INVITE from IMS_A addressed to UE_A }
		then { IMS_B 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
		(including a orig-ioi_parameter
		indicating operator_identifier of IMS_A and
		not including a term-ioi_parameter and
		including access-network-charging-info) }
		in side and good to the treatment of largering in log y

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		
1									—			User B invites user A to 1-to-1 chat session
2				(INVITE	UE_B sends INVITE to IMS_A with the first SDP offer indicating all specific data for MSRP connection set up

Step					Direct	ion					Message	Comment
	U	U E	A S/	I M	I B	I B	I M	A S/	U	U		
	s e	Ā	I	S	C	C	S	I	В	s e		
	r		M	Α	F	F	В	M		r		
3	A		<u> </u>		A	В		B		В	100 Trying	IMS_A responds with a 100 Trying
									\rightarrow			provisional response
4)						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
8							\rightarrow				INVITE	provisional response IBCF_B forwards INVITE to IMS_B
9											100 Trying	IMS_B responds with a 100 Trying
40											D 0 07F	provisional response
10								\rightarrow			INVITE 100 Trying	IMS_B forwards INVITE to AS/IM_B AS/IM_B responds with a 100 Trying
'							\leftarrow				Too 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
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						\rightarrow					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
					7							provisional response
20											INVITE 100 Trying	IMS_A forwards INVITE to AS/IM_A AS/IM_A responds with a 100 Trying
21)							100 Trying	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 provisional response
24		\leftarrow		-							INVITE	IMS_A forwards INVITE to UE_A
25)							100 Trying	UE_A optionally responds with a 100 Trying provisional response
26												User A is informed of incoming 1-to-1
07											222 214	chat session
27											200 OK	UE_A 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
28											200 OK	IMS_A forwards 200 OK response to
200]							200 014	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
31					-						200 OK	IBCF_A IBCF_A forwards 200 OK response
						7					200 OK	to IBCF_B
32							\rightarrow					IBCF_B forwards 200 OK response to IMS_B
33								\rightarrow			200 OK	IMS_B forwards 200 OK response to AS/IM_B
34							\leftarrow				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



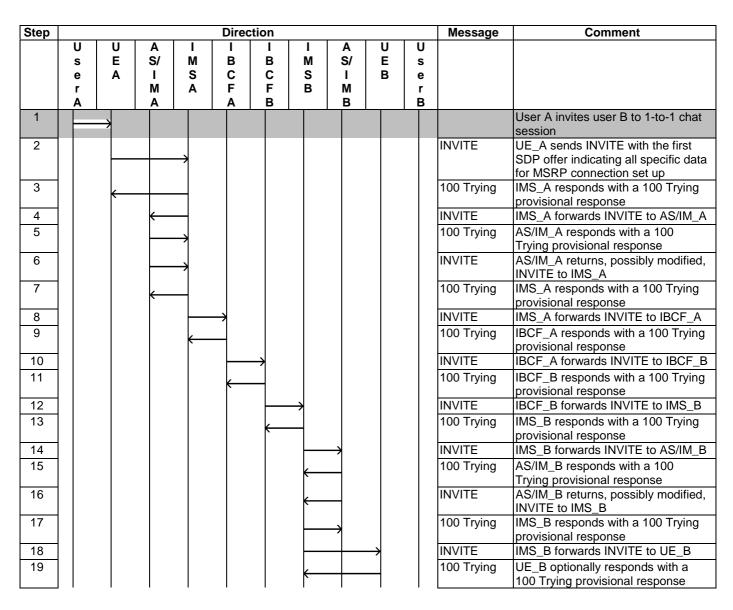
Step						Direc	tion					Message	Comment
		J s e r	U E A	A S/ I M A	M S A	I B C F A	I B C F B	I M S B	A S/ I M B	U E B	U s e r B		
75A	ĺ	•				<u> </u>						200 OK	IBCF_B forwards 200 OK response to IBCF_A
76A					\leftarrow							200 OK	IBCF_A forwards 200 OK response to IMS_A
77A										\rightarrow		200 OK	IMS_A forwards 200 OK response to UE_B
78A											\rightarrow		User B is informed that 1-to-1 chat session has ended

4.5.2.3 Instant Messaging rejection

4.5.2.3.1 Instant Messaging rejection - interworking

		Interoperability Test D	escription									
Identifier:	TD_IMS_CHAT_0005											
Summary:	IMS network supports instant messaging (IM) service and messages exchange between two users in their home network can be performed. User B rejects the chat invitation.											
Configuration:	uration: CF_INT_AS											
SUT	IMS_A and IMS_B											
References	Test Purp		Specification Reference									
	TP_IMS_	5108_03	TS 124 229 [1], clause 5.4.3.2 ¶5 (item 4 in 1 st numbered list)									
	TP_IMS_	F107 02	TS 124 229 [1], clause 5.4.3.2 ¶119									
	IF_IIVIS_	3107_02	(item 1 in 8 th numbered list)									
Use Case ref.:	UC_RCS	_6_I	(nom 1 m o mannos a mon)									
conditions:	as UE IM UE IM US IM US	per TS 186 011-2 [11], clause E_A is registered in IMS_A usi S_A is configured to contact A	ng userIM according to table 1 .S/IM_A ng userIM according to table 1 .S/IM_B M services at invitation IMS_B									
Test Sequence:	Step											
rost ocquerice.	1	User A invites user B to 1-to-	1 chat session									
	2		d of incoming 1-to-1 chat session									
	3 Verify that User A is informed that invitation to an 1-to-1 chat session reached user B											
	4	User B rejects the invitation t	o an 1-to-1 chat session									
	5		d that 1-to-1 chat session was rejected by									
	6 Verify that User B is informed that 1-to-1 chat session is terminated											

		Interoperability Test Description
Conformance	Check	
Criteria:	1	TP_IMS_5108_03 in CFW step 10 (INVITE) ensure that { when { IUT receives an initial INVITE from IMS_A} then { IUT sends the initial INVITE to AS_A containing a topmost Route_header indicating the SIP_URI of AS_A and containing a Route_header indicating the S-CSCF SIP_URI of IMS_A and containing a P-Charging-Vector_header including a orig-ioi_parameter indicating operator_identifier of IMS_A and not including a term-ioi_parameter } }
	2	TP_IMS_5107_02 in CFW step 46 (ACK) ensure that { when { UE_A sends ACK to addressed to UE_B} then { IMS_B receives the ACK not containing a Route_header indicating the S-CSCF_SIP_URI of IMS_A and not containing a P-Access-Network-Info_header } }



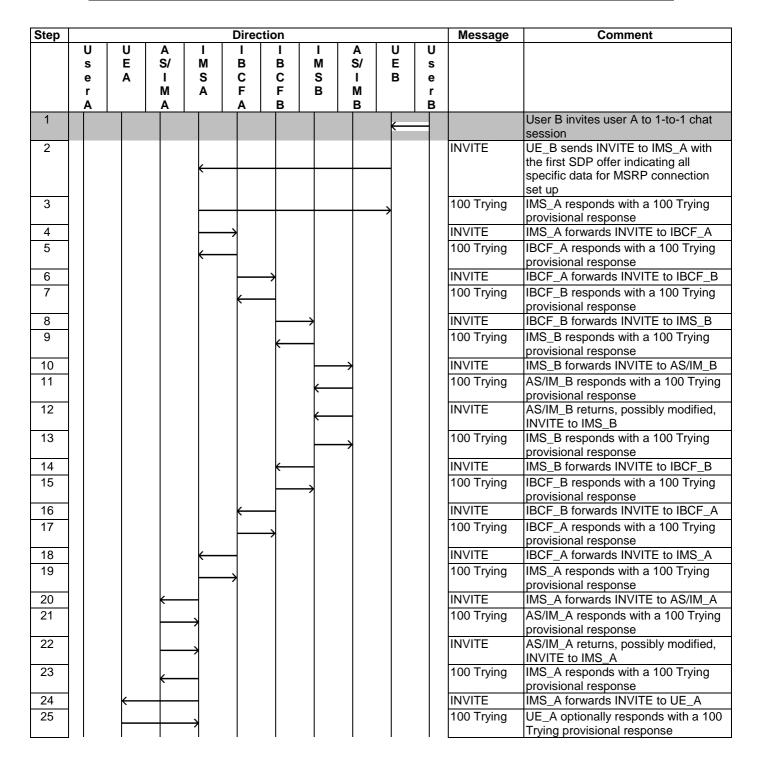
Step					Direct	ion					Message	Comment
	U	Ū	A	I		1	I	A C/	U L	U		
	s e	E A	S/	M S	B C	B C	M S	S/	E B	s e		
	r	,	M	Ä	F	F	В	M	_	r		
20	_A		Α		Α	В		В		В		Hear Die informed of incoming
20										\rightarrow		User B is informed of incoming 1-to-1 chat session
21											180 Ringing	UE_B responds to initial INVITE
												with 180 Ringing to indicate that
												invitation to an enhanced messaging session has reached the
												invited user
22								>			180 Ringing	IMS_B forwards 180 Ringing
23											180 Ringing	response to AS/IM_B AS/IM_B returns, possibly modified,
23							\leftarrow	1			100 Kinging	180 Ringing response to IMS_B
24											180 Ringing	IMS_B forwards 180 Ringing
25											400 Dinging	response to IBCF_B
25						\dashv					180 Ringing	IBCF_B forwards 180 Ringing response to IBCF_A
26											180 Ringing	IBCF_A forwards 180 Ringing
07											400 Dia	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,
				1							100 D: :	180 Ringing response to IMS_A
29		\leftarrow									180 Ringing	IMS_A forwards 180 Ringing response to UE_A
30												User A is informed that invitation to
	₩											an 1-to-1 chat session has reached
31												User B rejects the invitation to an
31												1-to-1 chat session
32											480	UE_B responds to the INVITE with
							←				Temporarily Unavailable	480 Temporarily Unavailable
33											480	IMS_B forwards 480 Temporarily
								>			Temporarily	Unavailable response to AS/IM_B
0.4											Unavailable	AC/IMA D actions a scilit in a children
34											480 Temporarily	AS/IM_B returns, possibly modified, 480 Temporarily Unavailable
							ľ				Unavailable	response to IMS_B
35											480	IMS_B forwards 480 Temporarily
											Temporarily Unavailable	Unavailable response to IBCF_B
36											480	IBCF_B forwards 480 Temporarily
						\dashv					Temporarily	Unavailable response to IBCF_A
37											Unavailable 480	IBCF_A forwards 480 Temporarily
31											Temporarily	Unavailable response to IMS_A
											Unavailable	·
38											480 Temporarily	IMS_A forwards 480 Temporarily Unavailable response to AS/IM_A
											Unavailable	Onavaliable response to AS/IIVI_A
39											480	AS/IM_A returns, possibly modified,
				\rightarrow							Temporarily	480 Temporarily Unavailable
40											Unavailable 480	response to IMS_A IMS_A forwards 480 Temporarily
"		\leftarrow		\dashv							Temporarily	Unavailable response to UE_A
4.4											Unavailable	Hann A in infan
41	-											User A is informed that 1-to-1 chat session was rejected by user B
42											ACK	UE_A acknowledges the receipt of
				\rightarrow								480 Temporarily Unavailable
43											ACK	response for INVITE IMS_A forwards ACK to AS/IM_A
43	I					İ	Ī		l	l	AUN	INIO_A IOI WAI US AON IO AS/IIVI_A

Step					Direc	tion	Message	Comment				
	U	U	Α	ı	I	ı	ı	Α	U	U		
	s	E	S/	M	В	В	M	S/	E	S		
	е	Α	I	S	С	С	S	I	В	е		
	r		M	Α	F	F	В	M		r		
	<u> </u>		A	1	<u>A</u>	В		В		В		
44				_							ACK	AS/IM_A returns, possibly modified,
				1								ACK to IMS_A
45					\rightarrow						ACK	IMS_A forwards ACK to IBCF_A
46						\rightarrow					ACK	IBCF_A forwards ACK to IBCF_B
47							\rightarrow				ACK	IBCF_B forwards ACK to IMS_B
48								\rightarrow			ACK	IMS_B forwards ACK to AS/IM_B
49							,				ACK	AS/IM_B returns, possibly modified,
												ACK to IMS_B
50								_	\rightarrow		ACK	IMS_B forwards ACK to UE_B
51												User B is informed that 1-to-1 chat
										1_		session is terminated

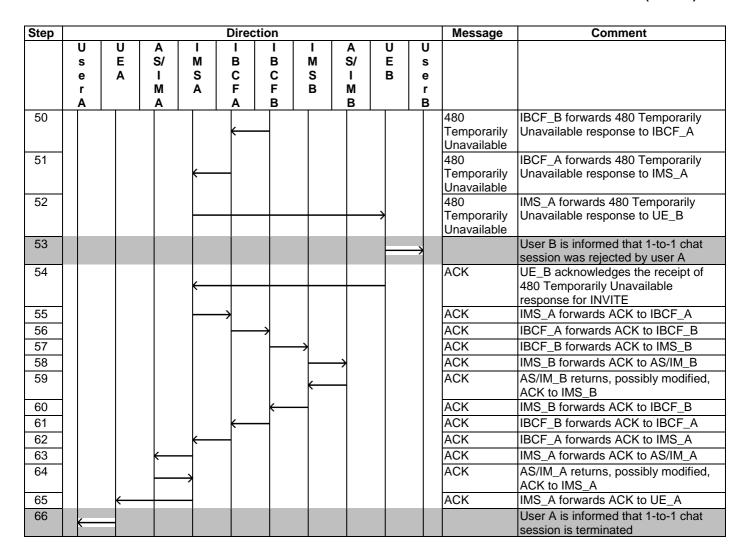
4.5.2.3.2 Instant Messaging rejection - roaming

		Interoperability Tes	it Description							
Identifier:	TD_IMS_CHAT_0006									
Summary:	IMS network supports instant messaging (IM) service and messages exchange									
	between	two users, one user in its ho	ome network and one user roaming can be							
	performe	ed. User B rejects the chat in	ıvitation.							
Configuration:	CF_ROAM_AS									
SUT	IMS_A ar	nd IMS_B								
References	Test Pur		Specification Reference							
	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	S_6_R								
conditions:	as	s per TS 186 011-2 [11], cla E_A is registered in IMS_A /IS_A is configured to contac	using userIM according to table 1 ct AS/IM_A via IMS_A using userIM according to table 1 ct AS/IM_B to IM services chat invitation n of IMS_B							
Test Sequence:	Step									
•	1	User B invites user A to 1	-to-1 chat session							
	2	Verify that User A is inforr	med of incoming 1-to-1 chat session							
	3	Verify that User B is informed that invitation to an 1-to-1 chat session has								
	I	reached user A								
		reactica aset 71								
	4		on to an 1-to-1 chat session							
	4 5	User A rejects the invitation	on to an 1-to-1 chat session med that 1-to-1 chat session was rejected by user							

		Interoperability Test Description
Conformance	Check	
Criteria:	1	TP_IMS_5097_09 in CFW step 10 (INVITE) ensure that { when { IMS_B receives an initial INVITE from IMS_A addressed to UE_A } then { IMS_B 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 (including a orig-ioi_parameter indicating operator_identifier of IMS_A and not including a term-ioi_parameter and including access-network-charging-info) } }



Step					Directi	on					Message	Comment
		U	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		
00	Α		Α		Α	В		В		В		
26												User A is informed of incoming 1-to-1 chat session
27											180 Ringing	UE_A responds to initial INVITE with
				-								180 Ringing to indicate that invitation to an enhanced messaging session
												has reached the invited user
28											180 Ringing	IMS_A forwards 180 Ringing
29											180 Ringing	response to AS/IM_A AS/IM_A returns, possibly modified,
29)							160 Kinging	180 Ringing response to IMS_A
30				,	•						180 Ringing	IMS_A forwards 180 Ringing
31											180 Ringing	response to IBCF_A IBCF_A forwards 180 Ringing
31						>					100 Kinging	response to IBCF_B
32							>				180 Ringing	IBCF_B forwards 180 Ringing
33											180 Ringing	response to IMS_B IMS_B forwards 180 Ringing
								>			Too Kinging	response to AS/IM_B
34								_			180 Ringing	AS/IM_B returns, possibly modified,
35											180 Ringing	180 Ringing response to IMS_B IMS_B forwards 180 Ringing
							1					response to IBCF_B
36						_					180 Ringing	IBCF_B forwards 180 Ringing
37											180 Ringing	response to IBCF_A IBCF_A forwards 180 Ringing
												response to IMS_A
38									\rightarrow		180 Ringing	IMS_A forwards 180 Ringing
39												response to UE_B User B is informed that invitation to
										\Rightarrow		an 1-to-1 chat session has reached
40												user A
40	\longrightarrow											User A rejects the invitation to an 1-to-1 chat session
41											480	UE_A responds to the INVITE with
)							Temporarily Unavailable	480 Temporarily Unavailable
42											480	IMS_A forwards 480 Temporarily
			\leftarrow	-							Temporarily	Unavailable response to AS/IM_A
42											Unavailable	AC/IM A voturno possibly modified
43)							480 Temporarily	AS/IM_A returns, possibly modified, 480 Temporarily Unavailable
											Unavailable	response to IMS_A
44				,							480 Temporarily	IMS_A forwards 480 Temporarily Unavailable response to IBCF_A
					1						Unavailable	Onavaliable response to IDCF_A
45											480	IBCF_A forwards 480 Temporarily
						7					Temporarily Unavailable	Unavailable response to IBCF_B
46											480	IBCF_B forwards 480 Temporarily
							>				Temporarily	Unavailable response to IMS_B
47											Unavailable 480	IMS_B forwards 480 Temporarily
-71								>			Temporarily	Unavailable response to AS/IM_B
											Unavailable	·
48											480 Temporarily	AS/IM_B returns, possibly modified, 480 Temporarily Unavailable
											Unavailable	response to IMS_B
49											480	IMS_B forwards 480 Temporarily
							1				Temporarily Unavailable	Unavailable response to IBCF_B
	I	ı	1	1	1	1	I	ı	1	I	J. Id Valiable	<u> </u>

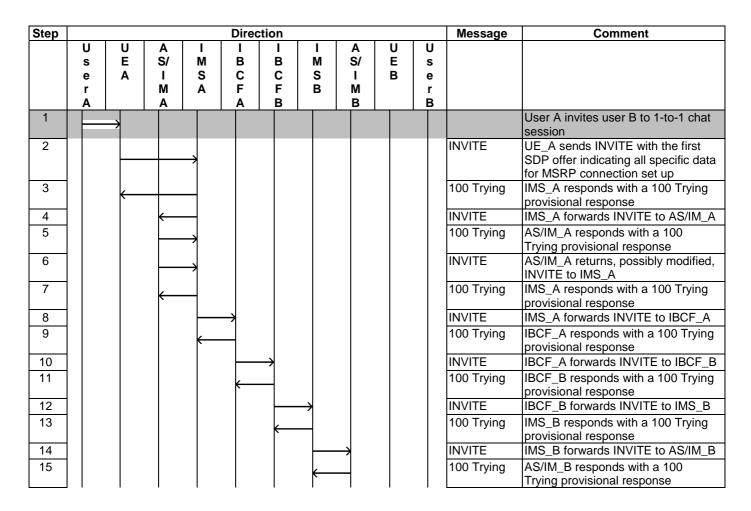


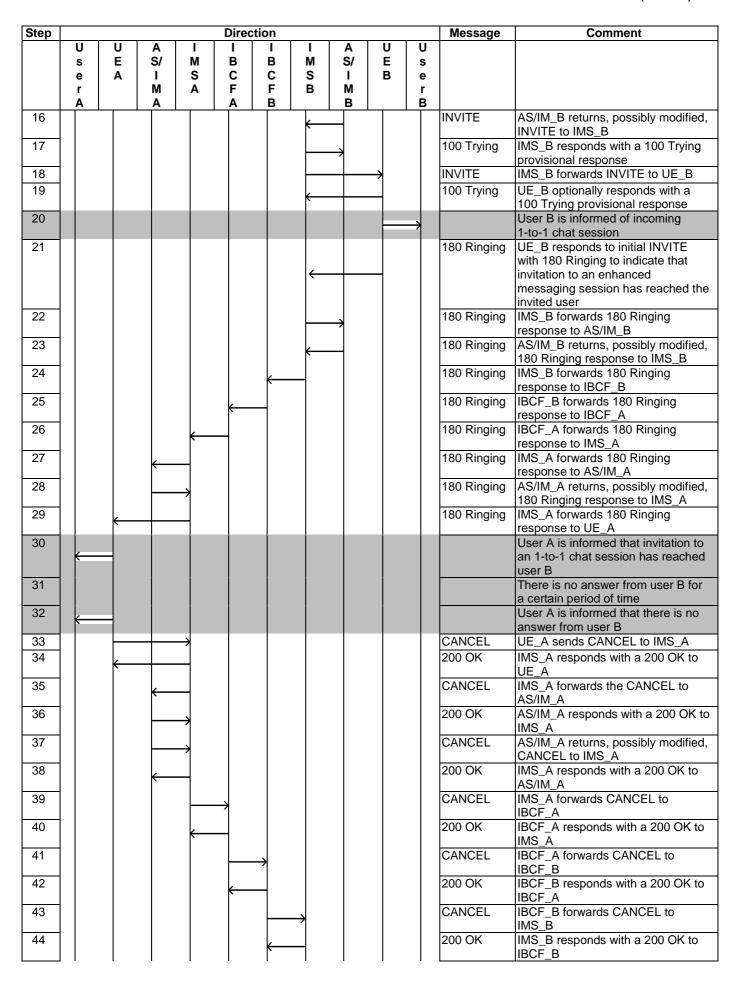
4.5.2.4 Instant Messaging no response

4.5.2.4.1 Instant Messaging no response - interworking

	Interoperability	/ Test Description						
Identifier:	TD_IMS_CHAT_0007							
Summary:		essaging (IM) service and messages exchange e network can be performed. User B does not respond						
Configuration:	CF_INT_AS							
SUT	IMS_A and IMS_B							
References	Test Purpose	Specification Reference						
	TP_IMS_5107_03	TS 124 229 [1], clause 5.4.3.2 ¶119 (item 1 in 8 th numbered list)						
Use Case ref.:	UC RCS 7 I	··						

		Interoperability Test Description
Pre-test conditions:	 UE UE IM: UE IM: US UE IM: 	S of IMS_A and of IMS B is configured according to table 1 _A and UE_B have IP bearers established to their respective IMS networks per TS 186 011-2 [11], clause 4.2.1 _A is registered in IMS_A using userIM according to table 1 S_A is configured to contact AS/IM_A _B is registered in IMS_B using userIM according to table 1 S_B is configured to contact AS/IM_B er A and B are subscribed to IM services _B supports interaction on chat invitation S_A within the trust domain of IMS_B S_A not configured for topology hiding
Test Sequence:	Step 1 2 3 4 5 6 7	User A invites user B to 1-to-1 chat session Verify that User B is informed of incoming 1-to-1 chat session Verify that User A is informed that invitation to an 1-to-1 chat session has reached user B There is no answer from User B for a certain period of time Verify that User A is informed that there is no answer from User B Verify that User B is informed that 1-to-1 chat session has been cancelled Verify that User A is informed that 1-to-1 chat session is terminated
Conformance Criteria:	Check 1	TP_IMS_5107_03 in CFW step 41 (CANCEL): ensure that { when { UE_A sends CANCEL to UE_B } then { IMS_B receives the CANCEL not containing Route_header indicating the S-CSCF_SIP_URI of IMS_A } }





Step					Direction	on					Message	Comment
	U	Ū	A	ı	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	^	М	Ā	F	F	В	M	ь	r		
	Α		Α		Α	В		В		В		
45								\rightarrow			CANCEL	IMS_B forwards CANCEL to AS/IM_B
46							-				200 OK	AS/IM_B responds with a 200 OK to IMS_B
47							←	_			CANCEL	AS/IM_B returns, possibly modified, CANCEL to IMS_B
48								\rightarrow			200 OK	IMS_B responds with a 200 OK to AS/IM_B
49									\rightarrow		CANCEL	IMS_B forwards CANCE to UE_B
50							-				200 OK	UE_B responds with a 200 OK to IMS_B
51										\rightarrow		User B is informed that 1-to-1 chat session has been cancelled
52							←		1		487 Request	UE_B responds to the INVITE with 487 Request Terminated
F2											Terminated	IMC D recognited with ACK to LIE D
53 54									7		ACK 487	IMS_B responds with ACK to UE_B IMS_B forwards 487 Request
54								\rightarrow			Request Terminated	Terminated response to AS/IM_B
55							←				ACK	IMS_B responds with ACK to AS/IM_B
56											487	AS/IM_B returns, possibly modified,
											Request Terminated	487 Request Terminated response to IMS_B
57								\rightarrow			ACK	AS/IM_B responds with ACK to IMS_B
58						<u> </u>					487 Request	IMS_B forwards 487 Request Terminated response to IBCF_B
											Terminated	•
59)				ACK	IMS_B responds with ACK to IBCF_B
60											487	IBCF_B forwards 487 Request
											Request Terminated	Terminated response to IBCF_A
61											ACK	IBCF_B responds with ACK to IBCF_A
62											487 Request Terminated	IBCF_A forwards 487 Request Terminated response to IMS_A
63					→						ACK	IBCF_A responds with ACK to
64			—								487 Request	IMS_A forwards 487 Request Terminated response to AS/IM_A
65											Terminated ACK	IMS_A responds with ACK to
				7								AS/IM_A
66				\rightarrow							487 Request	AS/IM_A returns, possibly modified, 487 Request Terminated response
67											Terminated ACK	to IMS_A AS/IM_A responds with ACK to
				7								IMS_A
68		←									487 Request	IMS_A forwards 487 Request Terminated response to UE_A
69				\rightarrow							Terminated ACK	IMS_A responds with ACK to UE_A
70	—											User A is informed that 1-to-1 chat
												session is terminated

4.5.2.4.2 Instant Messaging no response - roaming

		Interoperability Test	Description								
Identifier:	TD_IMS_0	CHAT_0008									
Summary:	between t		ng (IM) service and messages exchange ne network and one user roaming can be to the chat invitation.								
		•									
Configuration:	CF_ROAI	M AS									
SUT	IMS_A an	id IMS_B									
References	Test Purp		Specification Reference								
	TP_IMS_	5107_03	TS 124 229 [1], clause 5.4.3.2 ¶119 (item 1 in 8 th numbered list)								
Use Case ref.:	UC_RCS_	_7_R									
Pre-test	• HS	SS of IMS_A and of IMS B is	configured according to table 1								
conditions:	as	per TS 186 011-2 [11], claus									
	UE_A is registered in IMS_A using userIM according to table 1										
		S_A is configured to contact									
			a IMS_A using userIM according to table 1								
		S_B is configured to contact									
		er A and B are subscribed to									
		_A supports interaction on c									
		S_A within the trust domain									
	• IM	S_A not configured for topolo	ogy hiding								
Toot Comuonos	Cton										
Test Sequence:	Step	Hear Director was A to 4 t	4 shot socion								
	1	User B invites user A to 1-to									
	3		ed of incoming 1-to-1 chat session ed that invitation to an 1-to-1 chat session has								
	3	reached user A	ed that invitation to an 1-to-1 chat session has								
	4		er A for a certain period of time								
	5		ed that there is no answer from User B								
	6		ed that 1-to-1 chat session has been cancelled								
	7		ed that 1-to-1 chat session is terminated								
Conformance	Check										
Criteria:	1	TP_IMS_5107_03 in CFW	step 56 (CANCEL):								
		ensure that {									
		when { UE_A sends CAN									
		then { IMS_B receives the									
		not containing Ro									
		indicating the S-C	SCF_SIP_URI of IMS_A								
		<u>}</u>									
		13									

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	- B C F B	I M S B	A S/ I M B	U E B	U s e r B		
1									(User B invites user A to 1-to-1 chat session
2				-							INVITE	UE_B sends INVITE to IMS_A with 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

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		
	e r	Α	M	S A	C F	C F	S B	I M	В	e r		
	Å		A	A	A	В	ь	B		В		
7	T T		1					<u> </u>		Ī	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											INVITE	provisional response IMS_B forwards INVITE to AS/IM_B
10											100 Trying	AS/IM_B responds with a 100 Trying
' '							\leftarrow				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
14						<u> </u>					INVITE	IMS_B forwards INVITE to IBCF_B
15											100 Trying	IBCF_B responds with a 100 Trying
							7					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				\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											100 Trying	AS/IM_A responds with a 100 Trying
				1								provisional response
22				\rightarrow							INVITE	AS/IM_A returns, possibly modified, INVITE to IMS_A
23			\leftarrow								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 1-to-1
												chat session
27											180 Ringing	UE_A responds to initial INVITE with
				\rightarrow								180 Ringing to indicate that invitation
												to an enhanced messaging session has reached the invited user
28											180 Ringing	IMS_A forwards 180 Ringing
												response to AS/IM_A
29				\rightarrow							180 Ringing	AS/IM_A returns, possibly modified, 180 Ringing response to IMS_A
30					\rightarrow						180 Ringing	IMS_A forwards 180 Ringing response to IBCF_A
31						\rightarrow					180 Ringing	IBCF_A forwards 180 Ringing
32							\rightarrow				180 Ringing	response to IBCF_B IBCF_B forwards 180 Ringing
33											180 Ringing	response to IMS_B IMS_B forwards 180 Ringing
34											180 Ringing	response to AS/IM_B AS/IM_B returns, possibly modified,
							\leftarrow					180 Ringing response to IMS_B
35						K	\dashv				180 Ringing	IMS_B forwards 180 Ringing response to IBCF_B
36					\leftarrow	\dashv					180 Ringing	IBCF_B forwards 180 Ringing response to IBCF_A
37				\leftarrow	4						180 Ringing	IBCF_A forwards 180 Ringing response to IMS_A
38											180 Ringing	IMS_A forwards 180 Ringing
					İ				\rightarrow		gg	response to UE_B

1	Step					Direct	ion					Message	Comment
S					l M	— _В	I	I			_		
A				_							_		
User B is informed that invitation to an 11-to-1 chat session has reached user A There is no answer from user A for a certain period of time User B is informed that there is no answer from user A for a certain period of time User B is informed that there is no answer from user A CANCEL U.E.B sends CANCEL to IMS_A 200 OK					Α	-	-	В					
10	30	A		A		Α	В		В		В		User B is informed that invitation to
There is no answer from user A for a cortain period of time	33										\rightarrow		
Cancel User B is informed that there is no answer from user A													
SANCEL IDEC Search CANCEL to IMS_A													certain period of time
CANCEL UE B sends CANCEL to IMS A	41										\rightarrow		
Add	42				—							CANCEL	
A45	43									_		200 OK	
200 OK IBCF A responds with a 200 OK to IBCF B responds with a 200 OK IBCF B responds with a 200 OK IBCF B responds with a 200 OK IBCF B responds with a 200 OK IBCF B responds with a 200 OK IBCF B responds with a 200 OK IBCF B responds	4.4											CANCEL	
MIS_A CANCEL to BIGF_B Responds with a 200 OK to BIGF_B Responds with a 200 OK to BIGF_B Responds with a 200 OK to BIGF_B Responds with a 200 OK to BIGF_B Responds with a 200 OK to BIGF_B Responds with a 200 OK to BIGF_B Responds with a 200 OK to BIGF_B Responds with a 200 OK to BIGF_B Responds with a 200 OK to MIS_B Responds with a 200 OK to MIS_B Responds with a 200 OK to MIS_B Responds with a 200 OK to MIS_B Responds with a 200 OK to MIS_B Responds with a 200 OK to MIS_B Responds with a 200 OK to MIS_B Responds with a 200 OK to BIGF_B Responds BIGF_B Responds BIGF_B Responds BIGF_B Responds BIGF_B Responds BIGF_B Responds BIGF_B Responds BIGF_B Responds BIGF_B Responds BIGF_B Responds BIGF_B Responds BIGF_B Responds BIGF_B Responds BIGF_B Responds BIGF_B Responds BIGF_B Responds BIGF_B Responds BIGF_B Responds BIGF_B Responds BIGF_B Responds BIG						7							
BIGF B 200 OK BIGF B responds with a 200 OK to BIGF A CANCEL IBGF B responds with a 200 OK to BIGF B forwards CANCEL to IMS_B 200 OK IMS_B responds with a 200 OK to BIGF B forwards CANCEL to AS/IM_B B responds with a 200 OK to AS/IM_B B responds with a 200 OK to MS_B CANCEL to MS_B CANCEL to MS_B CANCEL to MS_B CANCEL to MS_B CANCEL to MS_B CANCEL to MS_B CANCEL to MS_B CANCEL to MS_B CANCEL IMS_B B (CANCEL IMS_B B (CANCEL to IMS_B B (CANCEL	10				—							200 010	IMS_A
48	46						\rightarrow					CANCEL	
A9	47					←	_					200 OK	IBCF_B responds with a 200 OK to
BBCF B CANCEL IMS B forwards CANCEL to AS/IM B B CANCEL AS/IM B CANCEL AS/IM B CANCEL CAN	48							\rightarrow				CANCEL	
CANCEL IMS, B forwards CANCEL to ASIM B 200 OK ASIM B responds with a 200 OK to IMS B CANCEL to IMS B CANCEL to IMS B CANCEL to IMS B CANCEL to IMS B CANCEL to IMS B CANCEL to IMS B CANCEL to IMS B CANCEL to IMS B CANCEL to IMS B CANCEL to IMS B CANCEL to IMS B CANCEL to IMS B CANCEL IMS B CANCEL to IMS B CANCEL IMS B CANCE	49							_				200 OK	
AS/IM B B AS/IM B Responds with a 200 OK to AS/IM B Responds with a 200 OK to AS/IM B Responds with a 200 OK to AS/IM B Responds with a 200 OK to AS/IM B CANCEL to IMS B 200 OK IMS B Responds with a 200 OK to AS/IM B CANCEL to IMS B CANCEL to IMS B CANCEL to IMS B CANCEL to IMS B CANCEL to IMS B CANCEL to IMS B CANCEL to IMS B CANCEL to IMS CANCEL to IMS CANCEL to IMS CANCEL to IMS CANCEL to IMS CANCEL to IMS CANCEL TO AS/IM A CANCEL TO IMS A CANCEL TO IT CAN	50											CANCEL	
IMS_B CANCEL AS/IM_B returns, possibly modified, CANCEL to IMS_B 200 OK IMS_B responds with a 200 OK to AS/IM_S Bresponds with a 200 OK to AS/IM_B CANCEL IMS_B forwards CANCEL to IBCF_B 200 OK IBCF_B responds with a 200 OK to IBCF_A responds with a 200 OK to IBCF_B responds with a 200 OK to IBCF_B forwards CANCEL to IBCF_B 200 OK IBCF_A responds with a 200 OK to IBCF_B CANCEL IBCF_A forwards CANCEL to IMS_A 200 OK IMS_A responds with a 200 OK to IBCF_A CANCEL IMS_A forwards CANCEL to IMS_A 200 OK AS/IM_A responds with a 200 OK to IBCF_A CANCEL AS/IM_A responds with a 200 OK to IBCF_A CANCEL IMS_A forwards CANCEL to IMS_A 200 OK AS/IM_A responds with a 200 OK to IBCF_A CANCEL IMS_A forwards CANCEL to IMS_A CANCEL IMS_A forwards CANCEL to IMS_A CANCEL IMS_A forwards CANCEL to IMS_A CANCEL IMS_A forwards CANCEL to IMS_A CANCEL IMS_A forwards CANCEL to IMS_A CANCEL IMS_A forwards CANCEL to IMS_A CANCEL IMS_A forwards CANCEL to IMS_A CANCEL IMS_A forwards CANCEL to IMS_A CANCEL IMS_A forwards CANCEL to IMS_A CANCEL IMS_A forwards CANCEL to IMS_A CANCEL IMS_A forwards CANCEL to IMS_A CANCEL IMS_A forwards CANCEL to IMS_A CANCEL IMS_A forwards CANCEL to IMS_A CANCEL IMS_A forwards CANCEL to IMS_A CANCEL IMS_A forwards CANCEL CANCEL IMS_A forwards CANCEL CANCEL IMS_A forwards CANCEL CANCEL IMS_A forwards CANCEL CANCEL CANCEL IMS_A forwards CANCEL CANCEL CANCEL IMS_A forwards CANCEL CANCEL	00								\rightarrow				AS/IM_B
CANCEL	51							\leftarrow				200 OK	
53	52							\leftarrow				CANCEL	AS/IM_B returns, possibly modified,
CANCEL IMS_B forwards CANCEL to IBCF_B CANCEL IBCF_B responds with a 200 OK to IBCF_B IBCF_B forwards CANCEL to IBCF_B CANCEL IBCF_A responds with a 200 OK to IBCF_B CANCEL IBCF_A responds with a 200 OK to IBCF_B CANCEL IBCF_A forwards CANCEL to IMS_A 200 OK IMS_A responds with a 200 OK to IBCF_A CANCEL IMS_A forwards CANCEL to AS/IM_A CANCEL IMS_A forwards CANCEL to AS/IM_A CANCEL IMS_A forwards CANCEL to AS/IM_A CANCEL IMS_A responds with a 200 OK to IMS_A CANCEL IMS_A responds with a 200 OK to IMS_A CANCEL IMS_A forwards CANCEL to UE_A 200 OK IMS_A responds with a 200 OK to AS/IM_A CANCEL IMS_A forwards CANCEL to UE_A 200 OK UE_A responds with a 200 OK to IMS_A CANCEL IMS_A forwards CANCEL to UE_A 200 OK UE_A responds with a 200 OK to IMS_A CANCEL IMS_A forwards CANCEL to UE_A 200 OK UE_A responds with a 200 OK to IMS_A IMS_A responds with a 200 OK to IMS_A IMS_A responds with a CK to UE_A 200 OK IMS_A responds with ACK to UE_A	53								\rightarrow			200 OK	IMS_B responds with a 200 OK to
IMS_B B CANCEL BCF_B forwards CANCEL to BCF_A	54						-					CANCEL	
CANCEL IBCF_B forwards CANCEL to IBCF_A 200 OK IBCF_A responds with a 200 OK to IBCF_B CANCEL IBCF_A forwards CANCEL to IMS_A 200 OK IMS_A responds with a 200 OK to IBCF_A CANCEL IMS_A forwards CANCEL to IMS_A CANCEL IMS_A forwards CANCEL to IMS_A CANCEL IMS_A forwards CANCEL to IMS_A CANCEL AS/IM_A returns, possibly modified, CANCEL to IMS_A CANCEL IMS_A forwards CANCEL to UE_A CANCEL IMS_A forwards CANCEL to UE_A 200 OK IMS_A responds with a 200 OK to AS/IM_A CANCEL IMS_A forwards CANCEL to UE_A 200 OK UE_A responds with a 200 OK to AS/IM_A CANCEL IMS_A forwards CANCEL to UE_A 200 OK UE_A responds with a 200 OK to IMS_A IMS_A CANCEL IMS_A forwards CANCEL to UE_A 200 OK UE_A responds with ACK to UE_A 100 OK UE_A responds with ACK to UE_A 100 OK UE_A responds with ACK to UE_A 100 OK UE_A responds with ACK to UE_A 100 OK UE_A responds with ACK to UE_A 100 OK UE_A responds with ACK to UE_A 100 OK UE_A responds with ACK to UE_A 100 OK UE_A responds with ACK to UE_A 100 OK UE_A responds with ACK to UE_A 100 OK UE_A responds with ACK to UE_A 100 OK UE_A responds with ACK to UE_A 100 OK UE_A responds with ACK to UE_A 100 OK UE_A responds with ACK to UE_A 100 OK UE_A responds with ACK to UE_A 100 OK UE_A responds with ACK to UE_A 100 OK UE_A responds with ACK to UE_A 100 OK UE_A responds with ACK to UE_A 100 OK UE_A responds with ACK to UE_A 100 OK UE_A Responds with ACK to UE_A 100 OK UE_A Responds with ACK to UE_A 100 OK UE_A Responds with ACK to UE_A 100 OK UE_A Responds with ACK to UE_A 100 OK UE_A Responds with ACK to UE_A 100 OK UE_A Responds with ACK to UE_A 100 OK UE_A Responds with ACK to UE_A 100 OK UE_A Responds with ACK to UE_A 100 OK UE_A Responds with ACK to UE_A 100 OK UE_A Responds with ACK to UE_A 100 OK UE_A Responds with ACK to UE_A 100 OK UE_A RESPONDS with ACK to UE_A 100 OK UE_A RESPONDS with ACK to UE_A 100 OK UE_A RESPONDS with ACK to UE_A 100 OK UE_A RESPONDS with ACK to UE_A 100 OK UE_A RESPONDS with ACK to UE_A 100 OK UE_A RESPONDS with ACK	55							\rightarrow				200 OK	IBCF_B responds with a 200 OK to
200 OK IBCF_A responds with a 200 OK to IBCF_B	56						4					CANCEL	IBCF_B forwards CANCEL to
CANCEL IBCF_A forwards CANCEL to IMS_A 200 OK IMS_A responds with a 200 OK to IBCF_A CANCEL IMS_A forwards CANCEL to AS/IM_A 200 OK AS/IM_A responds with a 200 OK to IMS_A 200 OK AS/IM_A responds with a 200 OK to IMS_A CANCEL to IMS_A 200 OK IMS_A responds with a 200 OK to AS/IM_A CANCEL IMS_A forwards CANCEL to UE_A 200 OK UE_A responds with a 200 OK to IMS_A CANCEL IMS_A forwards CANCEL to UE_A 200 OK UE_A responds with a 200 OK to IMS_A User A is informed that 1-to-1 chat session has been cancelled 487 UE_A responds to the INVITE with 487 Request Terminated ACK IMS_A responds with ACK to UE_A 487 IMS_A forwards 487 Request Terminated Terminated ACK AS/IM_A responds with ACK to	57						\rightarrow					200 OK	IBCF_A responds with a 200 OK to
200 OK IMS_A responds with a 200 OK to IBCF_A	58				—							CANCEL	
60 61 61 62 62 63 64 65 66 67 68 69 68 69 60 61 61 61 61 62 63 66 67 68 68 69 68 69 68 69 68 69 68 69 68 68 69 68 69 68 68 68 68 68 69 68 68 68 68 68 68 68 68 68 68 68 68 68	59					\rightarrow						200 OK	IMS_A responds with a 200 OK to
61 62 63 63 64 65 66 67 68 68 69 69 60 60 60 60 60 60 60 60 60 60 60 60 60	60											CANCEL	IMS_A forwards CANCEL to
CANCEL AS/IM_A returns, possibly modified, CANCEL to IMS_A 200 OK IMS_A responds with a 200 OK to AS/IM_A CANCEL IMS_A forwards CANCEL to UE_A 200 OK UE_A responds with a 200 OK to IMS_A User A is informed that 1-to-1 chat session has been cancelled 487 UE_A responds to the INVITE with 487 Request Terminated ACK IMS_A responds with ACK to UE_A 487 IMS_A forwards 487 Request Terminated Terminated ACK AS/IM_A responds with ACK to UE_A ACK AS/IM_A responds with ACK to	61				\rightarrow							200 OK	AS/IM_A responds with a 200 OK to
63 64 65 66 67 68 69 68 69 60 60 60 60 60 60 60 60 60 60 60 60 60	62				\rightarrow							CANCEL	AS/IM_A returns, possibly modified,
CANCEL IMS_A forwards CANCEL to UE_A 200 OK UE_A responds with a 200 OK to IMS_A User A is informed that 1-to-1 chat session has been cancelled 487 UE_A responds to the INVITE with 487 Request Terminated ACK IMS_A forwards 487 Request Terminated Terminated response to AS/IM_A 70 CANCEL IMS_A forwards CANCEL to UE_A UE_A responds with a 200 OK to IMS_A responds to the INVITE with 487 Request Terminated Terminated Terminated Request Terminated Terminated Request Terminated ACK AS/IM_A responds with ACK to	63											200 OK	IMS_A responds with a 200 OK to
65 66 67 68 68 69 69 60 Comparison of the invite with a session has been cancelled and the invite with a session has been cance	64		—									CANCEL	
66 67 68 69 69 60 60 60 60 60 60 60 60 60 60 60 60 60					\rightarrow								UE_A responds with a 200 OK to
session has been cancelled 487 UE_A responds to the INVITE with Request 487 Request Terminated Terminated ACK IMS_A responds with ACK to UE_A 487 IMS_A forwards 487 Request Request Terminated response to AS/IM_A Terminated ACK AS/IM_A responds with ACK to	66												
Request 487 Request Terminated Request 487 Request Terminated												107	
ACK IMS_A responds with ACK to UE_A 487 IMS_A forwards 487 Request Request Terminated response to AS/IM_A Terminated ACK AS/IM_A responds with ACK to	67				\rightarrow							Request	
69 Request Terminated response to AS/IM_A Terminated ACK AS/IM_A responds with ACK to	68												IMS A responds with ACK to LIE A
Request Terminated response to AS/IM_A Terminated ACK AS/IM_A responds with ACK to													
70 ACK AS/IM_A responds with ACK to												Request	
	70				\rightarrow								AS/IM_A responds with ACK to IMS_A

Step					Direc	tion					Message	Comment
	U	U	Α	I		ı	ı	Α	U	U		
	s	E	S/	M	В	В	М	S/	E	S		
	е	Α	I	S	C	C	S	l l	В	е		
	r		M	Α	F	F B	В	M B		r B		
71	Α		Α		Α	В		В		В	487	AS/IM_A returns, possibly modified,
'				_							Request	487 Request Terminated response to
				1							Terminated	IMS_A
72											ACK	IMS_A responds with ACK to
			\leftarrow									AS/IM_A
73											487	IMS_A forwards 487 Request
					\rightarrow						Request	Terminated response to IBCF_A
											Terminated	
74				←	_						ACK	IBCF_A responds with ACK to
75											487	IMS_A IBCF_A forwards 487 Request
75						_					Request	Terminated response to IBCF_B
						1					Terminated	Terminated response to iber_b
76											ACK	IBCF_B responds with ACK to
												IBCF_A
77											487	IBCF_B forwards 487 Request
							\rightarrow				Request	Terminated response to IMS_B
70											Terminated	IMO D assessed with AOK to
78						\leftarrow					ACK	IMS_B responds with ACK to IBCF_B
79											487	IMS_B forwards 487 Request
								\rightarrow			Request	Terminated response to AS/IM_B
											Terminated	
80							←				ACK	AS/IM_B responds with ACK to IMS_B
81											487	AS/IM_B returns, possibly modified,
							\leftarrow				Request	487 Request Terminated response to
											Terminated	IMS_B
82								\rightarrow			ACK	IMS_B responds with ACK to AS/IM_B
83											487	IMS_B forwards 180 Ringing
						←					Request	response to IBCF_B
											Terminated	_
84							\rightarrow				ACK	IBCF_B responds with ACK to IMS_B
85											487	IBCF_B forwards 487 Request
					\leftarrow						Request	Terminated response to IBCF_A
											Terminated	-
86						\rightarrow					ACK	IBCF_A responds with ACK to IBCF_B
87						1					487	IBCF_A forwards 487 Request
•				←							Request	Terminated response to IMS_A
						1					Terminated	·
88					\rightarrow						ACK	IMS_A responds with ACK to IBCF_A
89						1					487	IMS_A forwards 487 Request
							-		\longrightarrow		Request	Terminated response to UE_B
											Terminated	-
90				├ ─							ACK	UE_B responds with ACK to IMS_A
91										\rightarrow		User B is informed that 1-to-1 chat
												session is terminated

4.5.3 Group chat (1 to many)

4.5.3.1 Ad-hoc IM Conference

4.5.3.1.1 Ad-hoc IM Conference - interworking

Interoperability Test Description												
Identifier:		_CHAT_0009										
Summary:			VITEs and NOTIFYs correctly during									
	establish	ment of an Ad-hoc IM Confe	erences between users in their home networks									
Configuration:	CF_INT_											
SUT		nd IMS_B										
References	Test Pur	pose	Specification Reference									
	TP_IMS_	_509701	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									
			(4 th numbered list)									
Use Case ref.:	UC_RCS	5_8_I										
Pre-test			s configured according to table 1									
conditions:			rers established to their respective IMS networks									
		s per TS 186 011-2 [11], cla										
			using userIM according to table 1									
		IS_A is configured to contact										
		JE_B is registered in IMS_B using userIM according to table 1										
		IS_B is configured to contact										
		ser A and B are subscribed										
		E_B automatically answer o										
		IS_A within the trust domair										
			conference-factory URI in IMS A									
	• AS	S/IM_A server assumes to b	e a Controlling IM server for Ad-hoc IM									
	_	onference sessions										
	• IN	IS_A not configured for topo	ology hiding									
Test Sequence:	Step											
	1		: IM conference with user B									
	2		ned that the Ad Hoc IM Conference is established									
	3		ned of incoming invitation from User A to join the									
		Ad-hoc IM Conference										
	4		M Conference (automatically)									
	5	5 Verify that User A is notified that User B has joined the Ad-hoc IM										
		Conference										
	6		enhanced messaging in the Ad-hoc IM Conference									
	7	User B leaves the Ad-hoc										
	8		ned that the Ad-hoc IM Conference has ended									
	9		ed that user B has left the Ad-hoc IM Conference									
	10	User A leaves the Ad-hoc										
	11	Verify that User A is inforn	ned that the Ad-hoc IM Conference has ended									

		Interoperability Test Description
Conformance	Check	·
Criteria:	1	TP_IMS_5097_01 in CFW step 15 (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_5108_03 in CFW step 19 (INVITE) ensure that { when { IMS_B receives an initial INVITE from IMS_A addressed_to UE_B} then { IMS_B sends the initial 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 IMS_B and containing a P-Charging-Vector_header including a orig-ioi_parameter indicating operator_identifier of IMS_A and not including a term-ioi_parameter } }
	3	TP_IMS_5115_08 in CFW step 31 (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_BIUT_ } }

Step					Direc	ction	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		→										User A initiates an Ad-hoc IM conference with user B
2				\rightarrow							INVITE	UE_A sends INVITE to IMS_A with a MIME resource-list body including invited IM Users and the first SDP offer indicating all specific data for MSRP connection set up
3		←									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							200 OK	AS/IM_A responds INVITE with 200 OK response with IM session Identity allocated for the current Adhoc IM Conference to indicate that the session has been accepted and SDP to inform A-side with specific data for MSRP connection set up

Step					Direct	ion					Message	Comment
•	U	U	Α	I	I	I	ı	Α	U	U		
	S	E	S/	M	В	В	M	S/	E	S		
	e r	Α	M	S A	C F	C F	S B	M	В	e r		
	Å		A	^	Ä	В	٦	В		В		
7											200 OK	IMS_A forwards 200 OK response to AS/IM_A
8	—											User A is informed that the Ad Hoc IM Conference is established
9				\rightarrow							ACK	UE_A acknowledges the receipt of 200 OK for INVITE
10			\leftarrow								ACK	IMS_A forwards ACK to AS/IM_A
11				\rightarrow							INVITE	AS/IM_A sends INVITE to UE_B with IM session identity (allocated for the current AD-hoc IM Conference) and IM address of the Inviting IM UE (UE_A)
12											100 Trying	IMS_A responds with a 100 Trying provisional response
13)						INVITE	IMS_A forwards INVITE to IBCF_A
14											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
17							_				INVITE	provisional response IBCF_B forwards INVITE to IMS_B
18							1				100 Trying	IMS_B responds with a 100 Trying
10						\leftarrow					100 Trying	provisional response
19								\rightarrow			INVITE	IMS_B forwards INVITE to AS/IM_B
20											100 Trying	AS/IM_B responds with a 100
24											IND/ITE	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								+	\rightarrow		INVITE	IMS_B forwards INVITE to UE_B
24											100 Trying	UE_B optionally responds with a 100 Trying provisional response
25										\rightarrow		User B is informed of incoming invitation from User A to join the Adhoc IM Conference
26									—			User B joins the Ad-hoc IM Conference (automatically)
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								4			200 OK	AS/IM_B returns, possibly modified, 200 OK response to IMS_B
30						—					200 OK	IMS_B forwards 200 OK response to IBCF_B
31						_					200 OK	IBCF_B forwards 200 OK response to IBCF_A
32											200 OK	IBCF_A forwards 200 OK response to IMS_A
33			←								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					→						ACK	IMS_A forwards ACK to IBCF_A
36					1)					ACK	IBCF_A forwards ACK to IBCF_B
37						1	\rightarrow				ACK	IBCF_B forwards ACK to IMS_B
لــــــــا	ı	ı	1	ı	ı	ı	- 1	ı	1	ı		_ : :::::::::::::::::::::::::::::::::::

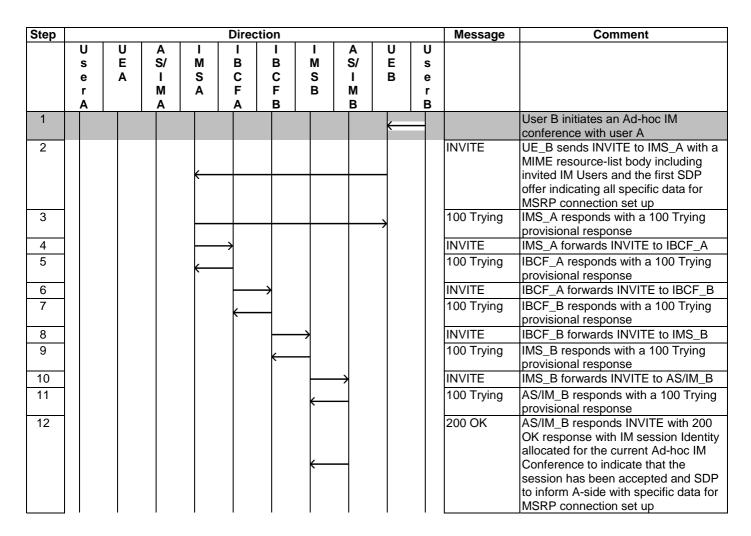
Step					Direc	tion					Message	Comment
	U	Ū	A	ı	I	Ī	ı	A	Ū	U		
	s e	E A	S/	M S	B C	B C	M S	S/ I	E B	s e		
	r	^	м	A	F	F	В	M		r		
	Α		Α		Α	В		В		В		
38								\rightarrow			ACK	IMS_B forwards ACK to AS/IM_B
39							←—	_			ACK	AS/IM_B returns, possibly modified,
40									_		ACK	ACK to IMS_B IMS_B forwards ACK to UE_B
41									1		NOTIFY	AS/IM A sends NOTIFY to UE A to
				_								inform it that User B has
				1								successfully joined the Ad-hoc IM
42											NOTIFY	Conference IMS_A forwards the NOTIFY to
72		\leftarrow										UE_A
43	—											User A is notified that User B has
44											200 OK	joined the Ad-hoc IM Conference
44				\rightarrow							200 OK	UE_A responds with 200 OK to IMS_A
45			,								200 OK	IMS_A forwards the 200 OK
												response to AS/IM_A
46												Users perform enhanced
										7		messaging in the Ad-hoc IM Conference
47A	ĺ											User B leaves the Ad-hoc IM
												Conference
48A							←				BYE	UE_B sends BYE to IMS_B to leave the Ad-hoc IM Conference
49A								\rightarrow			BYE	IMS_B forwards BYE to AS/IM_B
50A											BYE	AS/IM_B returns, possibly modified,
												BYE to IMS_B
51A						\leftarrow					BYE	IMS_B forwards BYE to IBCF_B
52A 53A				,							BYE BYE	IBCF_B forwards BYE to IBCF_A IBCF_A forwards BYE to IMS_A
54A			,								BYE	IMS_A forwards BYE to AS/IM_A
55A				\rightarrow							200 OK	AS/IM_A sends 200 OK for BYE
56A				1							200 OK	IMS_A forwards 200 OK response
					7							to IBCF_A
57A						\rightarrow					200 OK	IBCF_A forwards 200 OK response
58A											200 OK	to IBCF_B IBCF_B forwards 200 OK response
00/1							\rightarrow				200 010	to IMS_B
59A								\rightarrow			200 OK	IMS_B forwards 200 OK response
60A											200 OK	to AS/IM_B AS/IM_B returns, possibly modified,
OUA							\leftarrow				200 OK	200 OK response to IMS_B
61A									_		200 OK	IMS_B forwards 200 OK response
60.4												to UE_B User B is informed that the Ad-hoc
62A										\rightarrow		IM Conference has ended
63A											NOTIFY	AS/IM_A sends NOTIFY to IMS _A
				\rightarrow								to inform UE_A that User B has left
64A											NOTIFY	the Ad-hoc IM Conference IMS_A forwards the NOTIFY to
04/1		\leftarrow		\dashv							INOTIFI	UE_A
65A												User A is notified that user B has
004											200 014	left the Ad-hoc IM Conference
66A				\rightarrow							200 OK	UE_A responds with 200 OK to IMS_A
67A											200 OK	IMS_A forwards the 200 OK
												response to AS/IM_A
68A		>										User A leaves the Ad-hoc IM Conference
69A				\rightarrow							BYE	UE_A sends BYE to IMS_A to leave
		I	l	I	l	ı	I	1		l		the Ad-hoc IM Conference

Step					Direc	tion					Message	Comment
	U	C	Α	ı		ı	ı	Α	U	U		
	s	Ε	S/	M	В	В	M	S/	E	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		
70A			←	_							BYE	IMS_A forwards BYE to AS/IM_A
71A				\rightarrow							200 OK	AS/IM_A sends 200 OK for BYE
72A		_									200 OK	IMS_A forwards 200 OK response
		`										to UE_A
73A												User A is informed that the Ad-hoc
												IM Conference has ended

4.5.3.1.2 Ad-hoc IM Conference - roaming

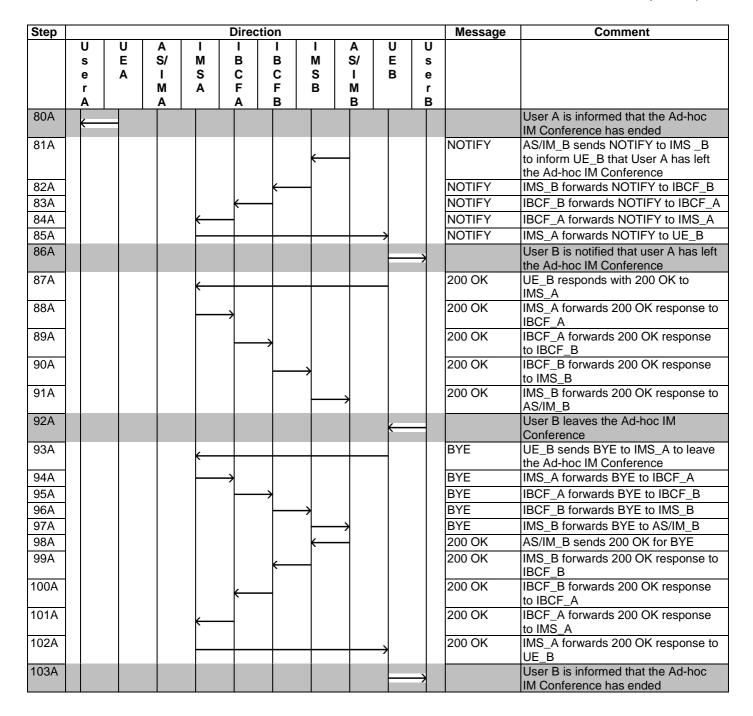
		Interoperability Test Desci	ription									
Identifier:	Interoperability Test Description TD_IMS_CHAT_0010											
Summary:	IMS netwo	network handles subsequent INVITEs and NOTIFYs correctly during blishment of an Ad-hoc IM Conferences between users, one user in its home ork and the other user roaming										
Configuration:	CF_ROAM											
SUT	IMS_A an		_									
References	Test Purp		Specification Reference									
	TP_IMS_		TS 124 229 [1], clause 5.2.6.3.3 ¶1 (1 st numbered list)									
	TP_IMS_	5110_01	TS 124 229 [1], clause 5.4.3.3 ¶79 (after 6 th dashed list)									
Use Case ref.:	UC_RCS_	_8_R										
Pre-test conditions:	 UE IM: UE IM: US UE IM: US Co 	per TS 186 011-2 [11], clause 4.2 E_A is registered in IMS_A using u S_A is configured to contact AS/IM	tablished to their respective IMS networks and serIM according to table 1 In In In In In In In In In In In In In									
Toot Commons	Cton											
Test Sequence:	Step 1	User B initiates an Ad-hoc IM cor	oference with user A									
	2		t the Ad Hoc IM Conference is established									
	3		ncoming invitation from User B to join the									
		Ad-hoc IM Conference										
	4	User A joins the Ad-hoc IM Confe	erence (automatically)									
	5	Verify that User B is notified that User A has joined the Ad-hoc IM										
		Conference										
	6		ed messaging in the Ad-hoc IM Conference									
	7	User A leaves the Ad-hoc IM Cor										
	8		t the Ad-hoc IM Conference has ended									
	9		user A has left the Ad-hoc IM Conference									
	10	User B leaves the Ad-hoc IM Cor										
	11	Verity that User B is informed tha	t the Ad-hoc IM Conference has ended									

		Interoperability Test Description
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
	2	TP_IMS_5110_01 in CFW step 43 (200 OK) ensure that { when { IMS_A receives a 200_response from AS_A addressed_to UE_B } then { IMS_A sends the 200_response to IMS_B } }



Step					Direct	ion					Message	Comment
	U	U	Α	ı	ı	I	I	Α	U	U		
	s	E	S/	M	В	В	M	S/	E	s		
	e r	A	M	S A	C F	C F	S B	I M	В	e r		
	Å		A		A	В		В		В		
13						.	_				200 OK	IMS_B forwards 200 OK response to IBCF_B
14											200 OK	IBCF_B forwards 200 OK response
15											200 OK	to IBCF_A IBCF_A forwards 200 OK response
16											200 OK	to IMS_A IMS_A forwards 200 OK response to
17									7			UE_B User B is informed that the Ad Hoc
										\rightarrow	ACK	IM Conference is established
18											ACK	UE_B acknowledges the receipt of 200 OK for INVITE
19					7						ACK	IMS_A forwards ACK to IBCF_A
20)					ACK	IBCF_A forwards ACK to IBCF_B
21)				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 AD-hoc IM Conference) 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							→				100 Trying	IBCF_B responds with a 100 Trying
27											INVITE	provisional response IBCF_B forwards INVITE to IBCF_A
28											100 Trying	IBCF_A responds with a 100 Trying
29						1					INVITE	provisional response IBCF_A forwards INVITE to IMS_A
30					>						100 Trying	IMS_A responds with a 100 Trying
31											INVITE	provisional response IMS_A forwards INVITE to AS/IM_A
32											100 Trying	AS/IM_A responds with a 100 Trying
33]							INVITE	provisional response AS/IM_A returns, possibly modified,
34				7							100 Trying	INVITE to IMS_A IMS_A responds with a 100 Trying
												provisional response
35 36		\leftarrow									INVITE 100 Trying	IMS_A forwards INVITE to UE_A UE_A optionally responds with a 100
				7						_	100 Trying	Trying provisional response
37	—											User A is informed of incoming invitation from User B to join the Ad-
38												hoc IM Conference User A joins the Ad-hoc IM
												Conference (automatically)
39)							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
40											200 OK	MSRP connection set up IMS_A forwards 200 OK response to
41											200 OK	AS/IM_A AS/IM_A returns, possibly modified,
				7								200 OK response to IMS_A
42					>						200 OK	IMS_A forwards 200 OK response to IBCF_A
43						>					200 OK	IBCF_A forwards 200 OK response to IBCF_B
	I	I	1	I	I	I	I	1	l	I		IO 1001 _D

Step					Direc	tion					Message	Comment
	U	ū	A	1	I	Ī	I	A	Ū	U		
	S	E A	S/ I	M S	B C	B C	M S	S/	E B	S		
	e r	A	M	A	F	F	B	M	B	e		
	À		A	^	Α	В		В		В		
44							\rightarrow				200 OK	IBCF_B forwards 200 OK response to IMS_B
45								\rightarrow			200 OK	IMS_B forwards 200 OK response to
46							-				ACK	AS/IM_B AS/IM_B acknowledges the receipt of 200 OK for INVITE
47						_					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			l`								ACK	AS/IM_A returns, possibly modified,
				\rightarrow								ACK to IMS_A
52		\leftarrow									ACK	IMS_A forwards ACK to UE_A
53							←				NOTIFY	AS/IM_B sends NOTIFY to UE_B to inform it that User A has successfully joined the Ad-hoc IM Conference
54						_					NOTIFY	IMS_B forwards NOTIFY to IBCF_B
55						`					NOTIFY	IBCF_B forwards NOTIFY to IBCF_A
56					_`						NOTIFY	IBCF_A forwards NOTIFY to IMS_A
57											NOTIFY	IMS_A forwards NOTIFY to UE_B
58											NOTH	User B is notified that User A has
30										\rightarrow		joined the Ad-hoc IM Conference
59				—		_		_	_		200 OK	UE_B responds with 200 OK to IMS_A
60					>						200 OK	IMS_A forwards 200 OK response to IBCF_A
61						\rightarrow					200 OK	IBCF_A forwards 200 OK response to IBCF_B
62							\rightarrow				200 OK	IBCF_B forwards 200 OK response to IMS_B
63								\rightarrow			200 OK	IMS_B forwards 200 OK response to AS/IM_B
64										\rightarrow		Users perform enhanced messaging in the Ad-hoc IM Conference
65A		>										User A leaves the Ad-hoc IM Conference
66A		\vdash		\rightarrow							BYE	UE_A sends BYE to IMS_A to leave the Ad-hoc IM Conference
67A			←								BYE	IMS_A forwards BYE to AS/IM_A
68A				\rightarrow							BYE	AS/IM_A returns, possibly modified, BYE to IMS_A
69A					\rightarrow						BYE	IMS_A forwards BYE to IBCF_A
70A					<u></u>	\rightarrow					BYE	IBCF_A forwards BYE to IBCF_B
71A						1	\rightarrow				BYE	IBCF_B forwards BYE to IMS_B
72A						1	1	\rightarrow			BYE	IMS_B forwards BYE to AS/IM_B
73A											200 OK	AS/IM_B sends 200 OK for BYE
74A											200 OK	IMS_B forwards 200 OK response to
75A											200 OK	IBCF_B IBCF_B forwards 200 OK response
76A											200 OK	to IBCF_A IBCF_A forwards 200 OK response
				—								to IMS_A
77A			\leftarrow								200 OK	IMS_A forwards 200 OK response to AS/IM_A
78A				\rightarrow							200 OK	AS/IM_A returns, possibly modified, 200 OK response to IMS_A
79A		—		_							200 OK	IMS_A forwards 200 OK response to UE_A
			1		1	1			•	1	1	-



4.5.3.2 Extending 1-to-1 IM session to an Ad-hoc IM conference

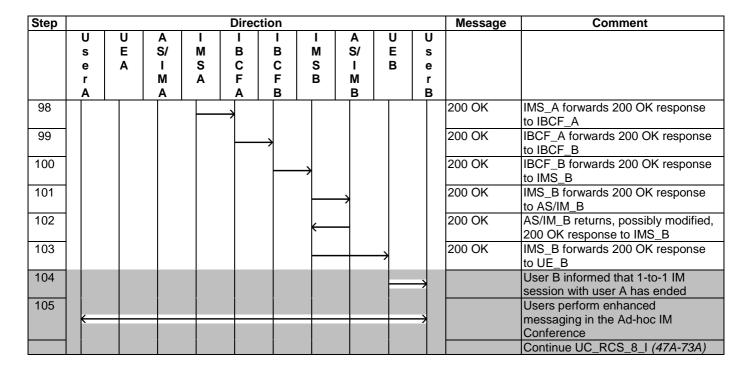
4.5.3.2.1 Extending 1-to-1 IM session to an Ad-hoc IM conference - interworking

	Interoperability	/ Test Description								
Identifier:	TD_IMS_CHAT_0011									
Summary:	IMS network handles subsequent INVITEs and NOTIFYs correctly during extension of 1-to-1 session to an Ad-hoc IM Conferences between users in their home network									
Configuration:	CF_INT_AS									
SUT	IMS_A and IMS_B									
References	Test Purpose	Specification Reference								
	TP_IMS_5108_03	TS 124 229 [1], clause 5.4.3.3 ¶5 (item 4 in 1 st numbered list)								
Use Case ref.:	UC_RCS_9_I									

		Interoperability Test Description								
Pre-test	• HS	SS 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 per TS 186 011-2 [11], clause 4.2.1								
		E_A is registered in IMS_A using userIM according to table 1								
		S_A is configured to contact AS/IM_A								
		E_B is registered in IMS_B using userIM according to table 1								
		S_B is configured to contact AS/IM_B								
		ser A and B are subscribed to IM services								
		E_B automatically answer on chat invitation								
		IS_A within the trust domain of IMS_B								
		ser A is pre-provisioned with conference-factory URI in IMS A								
		S/IM_A server assumes to be a Controlling IM server for Ad-hoc IM								
		onference sessions								
	• IIV	IS_A not configured for topology hiding								
Test Sequence:	Step									
root ooquonoo.	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								
	5	Verify that User A is informed that the Ad Hoc IM Conference is established								
	6	Verify that User B is informed that the Ad Floc livic Content to Sesabilished Verify that User B is informed of incoming invitation from User A to join the								
	0	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 enhanced messaging 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								
		, , , , , , , , , , , , , , , , , , ,								
Conformance	Check									
Criteria:	1	TP_IMS_5108_03 in CFW step 58 (INVITE)								
		ensure that {								
		when { IMS_B receives an initial INVITE from IMS_A addressed_to UE_B }								
		then { IMS_B sends the initial 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 IMS_B and									
		containing a P-Charging-Vector_header								
		including a orig-ioi_parameter								
		indicating operator_identifier of IMS_A and								
		not including a term-ioi_parameter }								
	İ	}								

Step					Direction	on					Message	Comment
-	U	U	A	I	I	I	I	A	U	U	J	
	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		
40												Follow UC_RCS_4_I (1-39) User A initiates an Ad-hoc IM
40)										conference with user B
41											INVITE	UE_A sends INVITE to IMS_A with
												a MIME resource-list body including invited IM Users and the first SDP
				1								offer indicating all specific data for
40											100 T :	MSRP connection set up
42		\leftarrow									100 Trying	IMS_A responds with a 100 Trying provisional response
43			←								INVITE	IMS_A forwards INVITE to AS/IM_A
44				_							100 Trying	AS/IM_A responds with a 100
45				1							200 OK	Trying provisional response AS/IM_A responds INVITE with 200
45											200 OK	OK response with IM session
												Identity allocated for the current Ad-
				\rightarrow								hoc IM Conference to indicate that the session has been accepted and
												SDP to inform A-side with specific
10											000 01/	data for MSRP connection set up
46		\leftarrow									200 OK	IMS_A forwards 200 OK response to AS/IM_A
47	—	_										User A is informed that the Ad Hoc IM Conference is established
48				→						Т	ACK	UE_A acknowledges the receipt of
49											ACK	200 OK for INVITE IMS_A forwards ACK to AS/IM_A
50											INVITE	AS/IM_A sends INVITE to UE_B
												with IM session identity (allocated
												for the current AD-hoc IM Conference), IM address of the
				1								Inviting IM UE (UE_A) and
												Replaces header with the original
51											100 Trying	1-to-1 session identity IMS_A responds with a 100 Trying
												provisional response
52)						INVITE	IMS_A forwards INVITE to IBCF_A
53				←	-						100 Trying	IBCF_A responds with a 100 Trying
54					<u> </u>						INVITE	provisional response IBCF_A forwards INVITE to IBCF_B
55											100 Trying	IBCF_B responds with a 100 Trying
F.C.											INVITE	provisional response
56 57							1				100 Trying	IBCF_B forwards INVITE to IMS_B IMS_B responds with a 100 Trying
57						K	1				, 0	provisional response
58								*			INVITE	IMS_B forwards INVITE to AS/IM_B
59								-			100 Trying	AS/IM_B responds with a 100 Trying provisional response
60							<u></u>				INVITE	AS/IM_B returns, possibly modified,
61								+			100 Trying	INVITE to IMS_B IMS_B responds with a 100 Trying
62											INVITE	provisional response IMS_B forwards INVITE to UE_B
62											100 Trying	UE_B optionally responds with a
												100 Trying provisional response
64												User B is informed of incoming
										7		invitation from User A to join the Ad-hoc IM Conference

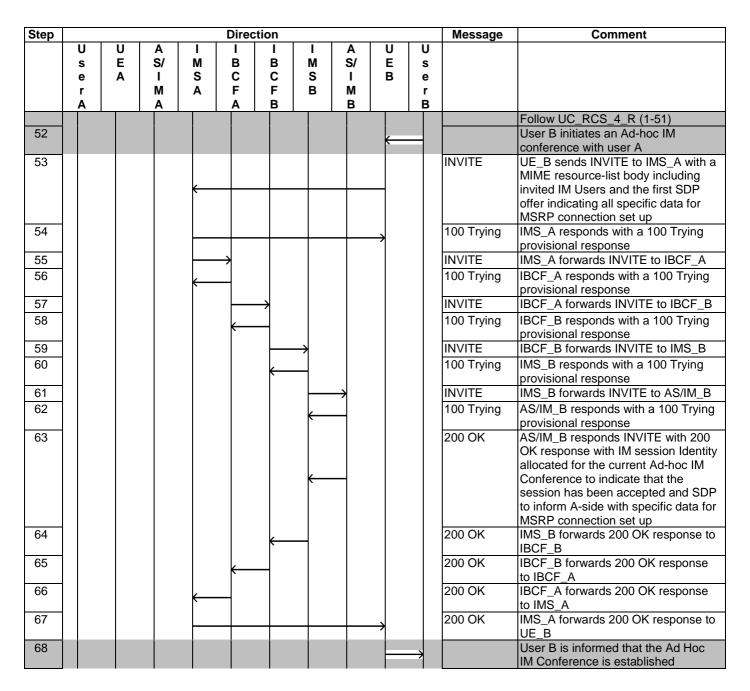
Step					Direct	ion					Message	Comment
	U	U	A		1		I	A	U	U		
	S	E A	S/ I	M S	B C	B C	M	S/	E B	s e		
	e r	A	M	A	F	F	В	M		r		
	A		Α		A	В		В		В		
65									←			User B joins the Ad-hoc IM Conference (automatically)
66											200 OK	UE_B responds INVITE with 200
												OK response with SDP to indicate
							\leftarrow					that the session has been accepted
												and inform AS/IM_A with specific data for MSRP connection set up
67											200 OK	IMS_B forwards 200 OK response
								\rightarrow				to AS/IM_B
68							\leftarrow				200 OK	AS/IM_B returns, possibly modified, 200 OK response to IMS_B
69						←	_				200 OK	IMS_B forwards 200 OK response to IBCF_B
70					←						200 OK	IBCF_B forwards 200 OK response to IBCF_A
71											200 OK	IBCF_A forwards 200 OK response
' '				\leftarrow								to IMS_A
72											200 OK	IMS_A forwards 200 OK response to AS/IM_A
73				\rightarrow							ACK	AS/IM_A acknowledges the receipt of 200 OK for INVITE
74					\rightarrow						ACK	IMS_A forwards ACK to IBCF_A
75)					ACK	IBCF_A forwards ACK to IBCF_B
76							\rightarrow				ACK	IBCF_B forwards ACK to IMS_B
77								\rightarrow			ACK	IMS_B forwards ACK to AS/IM_B
78											ACK	AS/IM_B returns, possibly modified, ACK to IMS_B
79									\longrightarrow		ACK	IMS_B forwards ACK to UE_B
80											NOTIFY	AS/IM_A sends NOTIFY to UE_A to inform it that User B has
				7								successfully joined the Ad-hoc IM
81											NOTIFY	Conference IMS_A forwards the NOTIFY to
01		\leftarrow									NOTIFT	UE_A
82												User A is notified that User B has
												joined the Ad-hoc IM Conference
83				\rightarrow							200 OK	UE_A responds with 200 OK to IMS_A
84			←								200 OK	IMS_A forwards the 200 OK response to AS/IM_A
85							←				BYE	UE_B releases the 1-to-1 IM session with BYE
86								\rightarrow			BYE	IMS_B forwards BYE to AS/IM_B
87							—	_			BYE	AS/IM_B returns, possibly modified, BYE to IMS_B
88						—					BYE	IMS_B forwards BYE to IBCF_B
89					\leftarrow	⊣ `					BYE	IBCF_B forwards BYE to IBCF_A
90											BYE	IBCF_A forwards BYE to IMS_A
91			\leftarrow								BYE	IMS_A forwards BYE to AS/IM_A
92				\rightarrow							BYE	AS/IM_A returns, possibly modified,
93		_									BYE	BYE to IMS_A IMS_A forwards BYE to UE_A
94											DIL	User A informed that 1-to-1 IM
O.F.											200 OK	session with user B has ended
95 96											200 OK 200 OK	UE_A sends 200 OK for BYE IMS_A forwards 200 OK response
												to AS/IM_A
97				\rightarrow							200 OK	AS/IM_A returns, possibly modified, 200 OK response to IMS_A



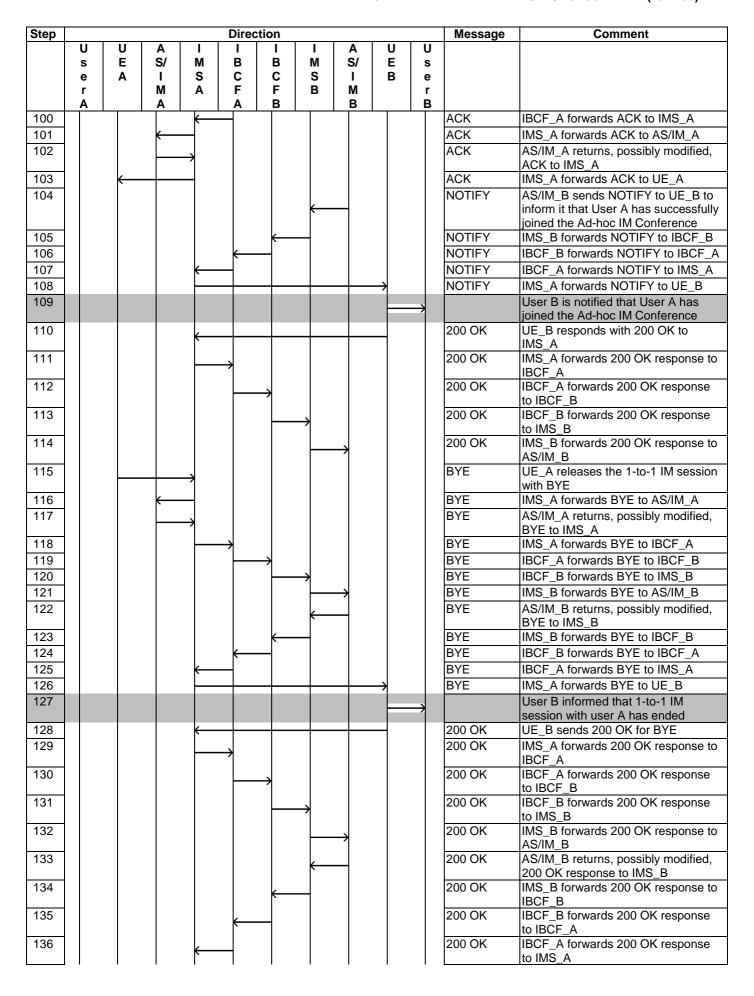
4.5.3.2.2 Extending 1-to-1 IM session to an Ad-hoc IM conference - roaming

		Interoperability Test Description										
ldentifier:		CHAT_0012										
Summary:	1-to-1 se	S network handles subsequent INVITEs and NOTIFYs correctly during extension of b-1 session to an Ad-hoc IM Conferences between users, one user in its home work and the other user roaming										
• 41 11												
Configuration:	CF_ROAM_AS											
SUT		IMS_A and IMS_B										
References	Test Pur											
	TP_IMS_		, clause 5.2.7.3 ¶3									
Use Case ref.:	UC_RCS	_9_R										
Pre-test conditions:	 UI as UII IIM US UII UII AS CG 	SS of IMS_A and of IMS B is configured according E_A and UE_B have IP bearers established to their per TS 186 011-2 [11], clause 4.2.1 E_A is registered in IMS_A using userIM according IS_A is configured to contact AS/IM_A E_B is registered in IMS_B using via IMS_A userIM IS_B is configured to contact AS/IM_B are A and B are subscribed to IM services E_A automatically answer on chat invitation IS_A within the trust domain of IMS_B are B is pre-provisioned with conference-factory UF IS/IM_B server assumes to be a Controlling IM serventerence sessions IS_A not configured for topology hiding	r respective IMS networks to table 1 1 according to table 1 RI in IMS B									
Test Sequence:	Step 1	User B invites user A to 1-to-1 chat session										
	2	User A automatically accepts 1-to-1 chat invitatio	n									
	3 Verify that Users perform chatting											
	4	User B initiates an Ad-hoc IM conference with us	er A									
	5	Verify that User B is informed that the Ad Hoc IM										
	6	Verify that User A is informed of incoming invitation Ad-hoc IM Conference										
	7	User A joins the Ad-hoc IM Conference (automat	ically)									
	Verify that User B is notified that User A has joine Conference											

		Interoperability Test Description					
	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 enhanced messaging in the Ad-hoc IM						
	40	Conference					
	12	User A leaves the Ad-hoc IM Conference					
	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	Check						
Criteria:	1	TP_IMS_5070_01 in CFW step 79 (100 Trying)					
		ensure that {					
		when { IMS A receives an initial INVITE from IMS B }					
then { IMS_A sends a 100_response to IMS_B							
}							
		}					



current A-hoc IM Conference), IM address of the Inviting IM UE (UE B and Replaces header with the original 1-to-1 session identity) 75 76 77 78 78 79 80 81 81 82 83 81 84 85 87 88 88 88 89 90 90 90 90 90 90	Step					Direct	ion					Message	Comment
e A I S C C C S I B M B B F F B M B B F F B M B B F F B M B B F F B M B B F F B M B B F F B M B B F F B M B B F F B M B B F F B M B B F F B M B B F F B M B B F F B M B M	_				I	I	1	I			_		
A													
ACK USE, B acknowledges the receipt of 200 K for INVITE 1 ACK IMS_A forwards ACK to IBCF_B ACK IMS_B ACK I		-	^	-	_			_	-	В			
ACK IMS_A forwards ACK to IBCF_A ACK IMS_B forwards ACK to IBCF_B ACK IBCF_A forwards ACK to IBCF_B ACK IBCF_B forwards ACK to IBCF_B ACK IBCF_B forwards ACK to IBCF_B ACK IMS_B forwards ACK to IMS_B ACK IMS_B forwards ACK to AS/IM_B INVITE IMS_B forwards ACK to AS/IM_B INVITE for IMS_B forwards ACK to AS/IM_B INVITE for IMS_B forwards IMS_B forward				Α		Α	В		В				
ACK IMS_A forwards ACK to IBCF_B ACK IBCF_B forwards ACK to IBCF_B ACK IBCF_B forwards ACK to IBCF_B ACK IBCF_B forwards ACK to IBCF_B ACK IBCF_B forwards ACK to IBCF_B ACK IBCF_B forwards ACK to IBCF_B ACK IBCF_B forwards ACK to IBCF_B ACK IMS_B forwards ACK to IBCF_B ACK IMS_B forwards ACK to IBCF_B INVITE AS/M B sends INVITE to UE_A with INVITE IMS_B forwards ACK to IBCF_B and Replaces header with It_B and Replaces header with It_B and Replaces header with IT_B and Replaces header hea	69									\dashv		ACK	
ACK	70)						ACK	
ACK IMS B florwards ACK to ASMM B INVITE to UE A with Ms session identity (allocated for the current AD-hoc IM Conference), IM address of the Inviting IM UE (UE B and Replaces header with the original 1-to-1 session identity) (allocated for the current AD-hoc IM Conference), IM address of the Inviting IM UE (UE B and Replaces header with the original 1-to-1 session identity) 100 Trying IMS B responds with a 100 Trying provisional response INVITE IMS B forwards INVITE to IBCF B 100 Trying provisional response INVITE IMS B forwards INVITE to IBCF A 100 Trying BICF A responds with a 100 Trying provisional response INVITE IMS B forwards INVITE to IMS A 100 Trying IMS A responds with a 100 Trying provisional response INVITE IMS A forwards INVITE to ASM A 100 Trying IMS A responds with a 100 Trying provisional response INVITE IMS A forwards INVITE to ASM A 100 Trying IMS A responds with a 100 Trying provisional response INVITE IMS A forwards INVITE to ASM A 100 Trying IMS A responds with a 100 Trying provisional response INVITE IMS A forwards INVITE to IMS A 100 Trying INS A responds with a 100 Trying provisional response INVITE IMS A forwards INVITE to UE A 100 Trying INS A responds with a 100 Trying INS A responds with a 100 Trying INS A response INVITE TO IMS A 100 Trying INS A response INVITE TO IMS A 100 Trying INS A response INVITE TO IMS A 100 Trying INS A response INVITE TO IMS A 100 Trying INS A response INVITE TO IMS A 100 Trying INS A response INVITE TO IMS A 100 Trying INS A response INVITE TO IMS A 100 Trying INVITE INVITE TO IMS A 100 Trying INVITE INVITE TO IMS A 100 Trying INVITE INVITE TO IMS A 100 Trying INVITE INVITE TO IMS A 100 Trying INVITE INVITE TO IMS A 100 Trying INVITE INVITE TO IMS A 100 Trying INVITE INVITE TO IMS A 100 Trying INVITE	71						\rightarrow						
INVITE ASIM B sends INVITE to UE A with Mession inclinal (closulate) for the current AD-hoc IM Conference), IM, address of the Inviting IM UE (UE B and Replaces header with UE B and Replaces header with UE B and Replaces header with UE (UE B and Replaces header) with UE (UE B and Replaces header) with UE (UE B and Replaces header) with UE (UE B and Replaces header) with UE (UE B and Replaces header) with UE (UE B and Replaces header) with UE (UE B and Replaces header) with 100 Trying IMS as responds with a 100 Trying provisional response INVITE IN INVITE IN INVITE IN INVITE IN INVITE IN INVITE IN INVITE IN INVITE INVITE IN INVITE IN INVITE								\rightarrow					
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To Trying IMS_B responds with a 100 Trying provisional response INVITE IMS_B forwards INVITE to IBCF_B To Trying IBCF_B responds with a 100 Trying provisional response INVITE IBCF_B forwards INVITE to IBCF_B To Trying IBCF_B responds with a 100 Trying provisional response INVITE IBCF_B forwards INVITE to IMS_A To Trying IMS_A responds with a 100 Trying provisional response INVITE IMS_B forwards INVITE to IMS_A To Trying provisional response INVITE IMS_A forwards INVITE to IMS_A To Trying provisional response INVITE IMS_A forwards INVITE to IMS_A To Trying provisional response INVITE IMS_A forwards INVITE to IMS_A To Trying provisional response INVITE IMS_A forwards INVITE to IMS_A To Trying provisional response INVITE IMS_A forwards INVITE to IMS_A To Trying IMS_A responds with a 100 Trying provisional response IMS_A forwards INVITE to IMS_A To Trying IMS_A forwards INVITE INVITE IMS_A forwards INVITE INVITE IMS_A forwards INVITE INVITE IMS_A forwards INVITE INVITE IMS_A forwards INVITE INVITE IMS_A forwards INVITE INVITE IMS_A forwards INVITE INVITE IMS_A forwards INVITE INVITE IMS_A forwards INVITE INVITE IMS_A forwards INVITE INVITE INVITE IMS_A INVITE INVITE IMS_A forwards INVITE INVITE INVITE INVITE IMS_A INVITE IN	74							-				INVITE	IM session identity (allocated for the current AD-hoc IM Conference), IM address of the Inviting IM UE (UE_B) and Replaces header with the
INVITE IMS_B forwards INVITE to IBCF_B 100 Trying 100 Trying 100 T	75								\rightarrow			100 Trying	IMS_B responds with a 100 Trying
To Trying IBCF B responds with a 100 Trying provisional response INVITE to IBCF A 100 Trying IBCF A responds with a 100 Trying provisional response INVITE to IBCF A 100 Trying IBCF A responds with a 100 Trying provisional response INVITE IBCF A forwards INVITE to IMS A 100 Trying IMS. A responds with a 100 Trying provisional response INVITE IMS A forwards INVITE to AS/IM A 100 Trying IMS A responds with a 100 Trying provisional response INVITE IMS A INVITE IMS A Invite IMS A Invite IMS A Invite IMS A Invite IMS A Invite IMS A Invite IMS A Invite IMS A Invite IMS A Invite IMS A Invite IMS A Invite IMS A Invite IMS A Invite IMS A Invite IMS A Invite IMS A Invite IMS A Invite IMS A Invite ImS A Invite ImS A Invite ImS A Invite ImS A Invite ImS A Invite Invite ImS A Invite ImS A Invite ImS A Invite ImS A Invite ImS A Invite ImS A Invite ImS A Invite Invite ImS A Invite Invite ImS A Invite Invite ImS A Invite Invite ImS A Invite Invite Invite ImS A Invite Invite Invite ImS A Invite	76											INVITE	IMS B forwards INVITE to IBCE B
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Top	78											INIVITE	
Provisional response													
81 82 83 84 84 85 86 87 88 88 89 89 90 90 90 90 90 90 90 90 90 90 90 90 90							\rightarrow						
82 83 84 84 85 86 87 88 88 88 88 88 88 89 90 90 90 90 90 90 90 90 90 90 90 90 90					\leftarrow								
B2 B3 B4 B5 B5 B5 B5 B5 B5 B5	81					>						100 Trying	
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84 85 86 87 88 88 88 88 88 89 89 90 90 90	83				-							100 Trying	AS/IM_A responds with a 100 Trying
85 86 87 88 88 88 89 90 90 90 90 90 90 90 90 90 90 90 90 90	84)							INVITE	AS/IM_A returns, possibly modified,
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90 90 90 90 90 90 90 90 90 90 90 90 90 9	88	—											User A is informed of incoming invitation from user B to join the Ad-
90 90 200 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 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 IBCF_A 200 OK IBCF_A forwards 200 OK response to IBCF_B 200 OK IBCF_B forwards 200 OK response to IBCF_B 200 OK IMS_B forwards 200 OK response to IMS_B ACK AS/IM_B acknowledges the receipt of 200 OK for INVITE ACK IMS_B forwards ACK to IBCF_B	89	\longrightarrow											User A joins the Ad-hoc IM
response with SDP to indicate that the session has been accepted and inform AS/IM_A with specific data form MSRP connection set up 200 OK IMS_A forwards 200 OK response to AS/IM_A 200 OK AS/IM_A returns, possibly modified, 200 OK response to IBCF_A 200 OK IBCF_A forwards 200 OK response to IBCF_B 200 OK IBCF_B forwards 200 OK response to IBCF_B 200 OK IBCF_B forwards 200 OK response to IBCF_B 200 OK IMS_B forwards 200 OK response to IMS_B 200 OK IMS_B forwards 200 OK response to IMS_B forwards 200 OK IMS_B forwards 200 OK response to IMS_B forwards 200 OK IMS_B forwards 20	90											200 OK	
91 92 93 94 95 96 97 98 98 200 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 IBCF_B 200 OK IBCF_B forwards 200 OK response to IBCF_B 200 OK IBCF_B forwards 200 OK response to IMS_B 200 OK IMS_B forwards 200 OK response to IMS_B ACK AS/IM_B acknowledges the receipt of 200 OK for INVITE ACK IMS_B forwards ACK to IBCF_B	90				>							200 OK	response with SDP to indicate that the session has been accepted and inform AS/IM_A with specific data for
92 93 94 95 96 97 98 98 99 99 90 90 90 90 90 90 90 90 90 90 90	91				$\frac{1}{2}$							200 OK	IMS_A forwards 200 OK response to
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95 96 97 98 200 OK IBCF_B forwards 200 OK response to IMS_B 200 OK IMS_B forwards 200 OK response to AS/IM_B ACK AS/IM_B acknowledges the receipt of 200 OK for INVITE ACK IMS_B forwards ACK to IBCF_B	94						\rightarrow					200 OK	IBCF_A forwards 200 OK response
96 97 98 200 OK IMS_B forwards 200 OK response to AS/IM_B ACK AS/IM_B acknowledges the receipt of 200 OK for INVITE ACK IMS_B forwards ACK to IBCF_B	95							\rightarrow				200 OK	IBCF_B forwards 200 OK response
97 98 ACK AS/IM_B acknowledges the receipt of 200 OK for INVITE ACK IMS_B forwards ACK to IBCF_B	96								\rightarrow			200 OK	IMS_B forwards 200 OK response to
98 ACK IMS_B forwards ACK to IBCF_B	97											ACK	AS/IM_B acknowledges the receipt
	98						\leftarrow					ACK	
99 ACK IBCF_B forwards ACK to IBCF_A	99						\dashv					ACK	



Step						Direc	tion					Message	Comment
	E 1 1	3	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		
137				—								200 OK	IMS_A forwards 200 OK response to AS/IM_A
138					\rightarrow							200 OK	AS/IM_A returns, possibly modified, 200 OK response to IMS_A
139			←—									200 OK	IMS_A forwards 200 OK response to UE_A
140	*												User A informed that 1-to-1 IM session with user B has ended
141	•										\rightarrow		Users perform enhanced messaging in the Ad-hoc IM Conference
													Continue UC_RCS_8_R (65A-103A)

4.5.3.3 Adding users to an Ad-hoc IM Conference

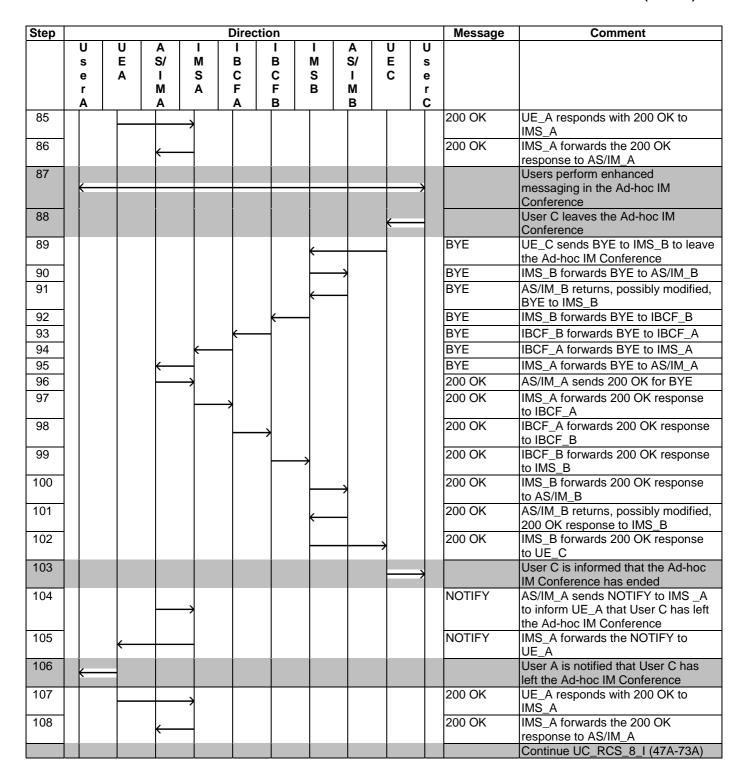
4.5.3.3.1 Adding users to an Ad-hoc IM Conference - interworking

		Interoperability Test Des	scription								
ldentifier:	TD_IMS_	CHAT_0013	•								
Summary:			s, REFERs and NOTIFYs correctly during								
•	addition of	of user C to an Ad-hoc IM Confe	rences between users in their home network								
Configuration:	CF_INT_AS										
SUT	IMS_A and IMS_B										
References	Test Pur		Specification Reference								
	TP_IMS_	5115_02	TS 124 229 [1], clause 5.4.3.3 ¶91 (item 2 in 4 ^{t [(a-z)]} (numbered list)								
	TP_IMS_	5115_04	TS 124 229 [1], clause 5.4.3.3 ¶92 (item 2 in 4 ^{t [(a-z)]} [(a-z)] numbered list)								
Use Case ref.:	UC_RCS	: 10 I	(ROTT 2 III 1 Harrisor od not)								
000 0000 10111		<u>,</u>									
conditions:	• UI • IM • UI • UI • UI • UI • UI • UI • UI • UI	earers established to their respective IMS , clause 4.2.1 userIM according to table 1 /IM_A userIM according to table 1 /IM_B userIM according to table 1 IM services swer on chat invitation MS_B ference-factory URI in IMS A Controlling IM server for Ad-hoc IM hiding									
Test Sequence:	Step 1	User A initiates an Ad-hoc IM o	conference with user R								
	2		hat the Ad Hoc IM Conference is established								
	3		of incoming invitation from User A to join the								
		Ad-hoc IM Conference	3								
	4	User B joins the Ad-hoc IM Co	Conference (automatically)								
	5		at User B has joined the Ad-hoc IM								
		Conference	erence								
	6	Verify that Users perform enhance	orm enhanced messaging in the Ad-hoc IM								
	7	User A invites User C to join th	e Ad-hoc IM Conference								

		Interoperability Test Description							
	8	Verify that User C is informed of incoming invitation from User A to join the							
		Ad-hoc IM Conference							
	9	User C joins the Ad-hoc IM Conference (automatically)							
	10	Verify that User A is notified that User C has joined the Ad-hoc IM							
		Conference							
	11	Verify that Users perform enhanced messaging in the Ad-hoc IM							
		Conference							
	12	User C leaves the Ad-hoc IM Conference							
	13	Verify that User C is informed that the Ad-hoc IM Conference has ended							
	14	Verify that User A is notified that User C 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							
	17	Verify that User A is notified that user B has left the Ad-hoc IM Conference							
	18	User A leaves the Ad-hoc IM Conference							
	19	Verify that User A is informed that the Ad-hoc IM Conference has ended							
Conformance	Check								
Criteria:	1	TP_IMS_5115_02 in CFW step 72 (2xx):							
		ensure that {							
		when { UE_B sends a 2xx_response to UE_A }							
		when { UE_B sends a 2xx_response to UE_A } then { IMS_A receives the 2xx_response from IMS_B							
		when { UE_B sends a 2xx_response to UE_A } then { IMS_A receives the 2xx_response from IMS_B containing a P-Charging-Vector_header							
		when { UE_B sends a 2xx_response to UE_A } then { IMS_A receives the 2xx_response from IMS_B containing a P-Charging-Vector_header containing an orig-ioi_parameter							
		when { UE_B sends a 2xx_response to UE_A } then { IMS_A receives the 2xx_response from IMS_B containing a P-Charging-Vector_header containing an orig-ioi_parameter indicating operator_identifier of IMS_A and							
		when { UE_B sends a 2xx_response to UE_A } then { IMS_A receives the 2xx_response from IMS_B containing a P-Charging-Vector_header containing an orig-ioi_parameter indicating operator_identifier of IMS_A and containing a term-ioi_parameter							
		when { UE_B sends a 2xx_response to UE_A } then { IMS_A receives the 2xx_response from IMS_B containing a P-Charging-Vector_header containing an orig-ioi_parameter indicating operator_identifier of IMS_A and							
		when { UE_B sends a 2xx_response to UE_A } then { IMS_A receives the 2xx_response from IMS_B							
	2	when { UE_B sends a 2xx_response to UE_A } then { IMS_A receives the 2xx_response from IMS_B							
	2	when { UE_B sends a 2xx_response to UE_A } then { IMS_A receives the 2xx_response from IMS_B							
	2	when { UE_B sends a 2xx_response to UE_A } then { IMS_A receives the 2xx_response from IMS_B							
	2	when { UE_B sends a 2xx_response to UE_A } then { IMS_A receives the 2xx_response from IMS_B							
	2	when { UE_B sends a 2xx_response to UE_A } then { IMS_A receives the 2xx_response from IMS_B							
	2	when { UE_B sends a 2xx_response to UE_A } then { IMS_A receives the 2xx_response from IMS_B							
	2	when { UE_B sends a 2xx_response to UE_A } then { IMS_A receives the 2xx_response from IMS_B							
	2	when { UE_B sends a 2xx_response to UE_A } then { IMS_A receives the 2xx_response from IMS_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 C	U s e r C	-	
47		\rightarrow										Follow UC_RCS_8_I (1-46) User A invites User C to join the Adhoc IM Conference
48				\rightarrow							REFER	UE_A sends REFER message to IMS_A, with IM session identity (allocated for the current Ad-hoc IM Conference), Refer-To header value equals to UE_C URI and Refer-Sub header value set to "false"
49			\leftarrow	\dashv							REFER	IMS_A forwards REFER to AS/IM_A
50				\rightarrow							200 OK	AS/IM_A responds with 200 OK to IMS_A
51		\leftarrow		_							200 OK	IMS_A forwards the 200 OK response to UE_A
52				\rightarrow							INVITE	AS/IM_A sends INVITE to UE_C with IM session identity (allocated for the current AD-hoc IM Conference) and IM address of the Inviting IM UE (UE_A)

Step					Direc	tion					Message	Comment
	U	U	Α	I	1	I	I	Α	U	U		
	S	E A	S/	M	B C	В	M	S/	E C	S		
	e r	A	М	S A	F	C F	S B	I M	C	e r		
	A		Α	, , l	A	В		В		Ċ		
53											100 Trying	IMS_A responds with a 100 Trying provisional response
54					\rightarrow						INVITE	IMS_A forwards INVITE to IBCF_A
55				←	_						100 Trying	IBCF_A responds with a 100 Trying provisional response
56						\rightarrow					INVITE	IBCF_A forwards INVITE to IBCF_B
57					—						100 Trying	IBCF_B responds with a 100 Trying provisional response
58							\rightarrow				INVITE	IBCF_B forwards INVITE to IMS_B
59											100 Trying	IMS_B responds with a 100 Trying
												provisional response
60								\rightarrow			INVITE	IMS_B forwards INVITE to AS/IM_B
61							-				100 Trying	AS/IM_B responds with a 100
62							<u></u>				INVITE	Trying provisional response AS/IM_B returns, possibly modified,
											400 To do o	INVITE to IMS_B
63								\rightarrow			100 Trying	IMS_B responds with a 100 Trying provisional response
64									\rightarrow		INVITE	IMS_B forwards INVITE to UE_C
65							\leftarrow				100 Trying	UE_C optionally responds with a 100 Trying provisional response
66												User C is informed of incoming
										7		invitation from User A to join the Adhoc IM Conference
67												User C joins the Ad-hoc IM
00											222 014	Conference (automatically)
68											200 OK	UE_C responds INVITE with 200 OK response with SDP to indicate
							\leftarrow					that the session has been accepted
												and inform AS/IM_A with specific
69											200 OK	data for MSRP connection set up IMS_B forwards 200 OK response
								\rightarrow				to AS/IM_B
70							\leftarrow				200 OK	AS/IM_B returns, possibly modified, 200 OK response to IMS_B
71						\leftarrow					200 OK	IMS_B forwards 200 OK response to IBCF_B
72											200 OK	IBCF_B forwards 200 OK response
												to IBCF_A
73				\leftarrow							200 OK	IBCF_A forwards 200 OK response to IMS_A
74											200 OK	IMS_A forwards 200 OK response to AS/IM_A
75				\rightarrow							ACK	AS/IM_A acknowledges the receipt of 200 OK for INVITE
76					\rightarrow						ACK	IMS_A forwards ACK to IBCF_A
77						\rightarrow					ACK	IBCF_A forwards ACK to IBCF_B
78							\rightarrow				ACK	IBCF_B forwards ACK to IMS_B
79							-	\rightarrow			ACK	IMS_B forwards ACK to AS/IM_B
80							←				ACK	AS/IM_B returns, possibly modified, ACK to IMS_B
81							<u> </u>		\rightarrow		ACK	IMS_B forwards ACK to UE_C
82											NOTIFY	AS/IM_A sends NOTIFY to UE_A to
				\rightarrow								inform it that User C has
												successfully joined the Ad-hoc IM
83		—									NOTIFY	Conference IMS_A forwards the NOTIFY to
84												UE_A User A is notified that User C has
04	(joined the Ad-hoc IM Conference

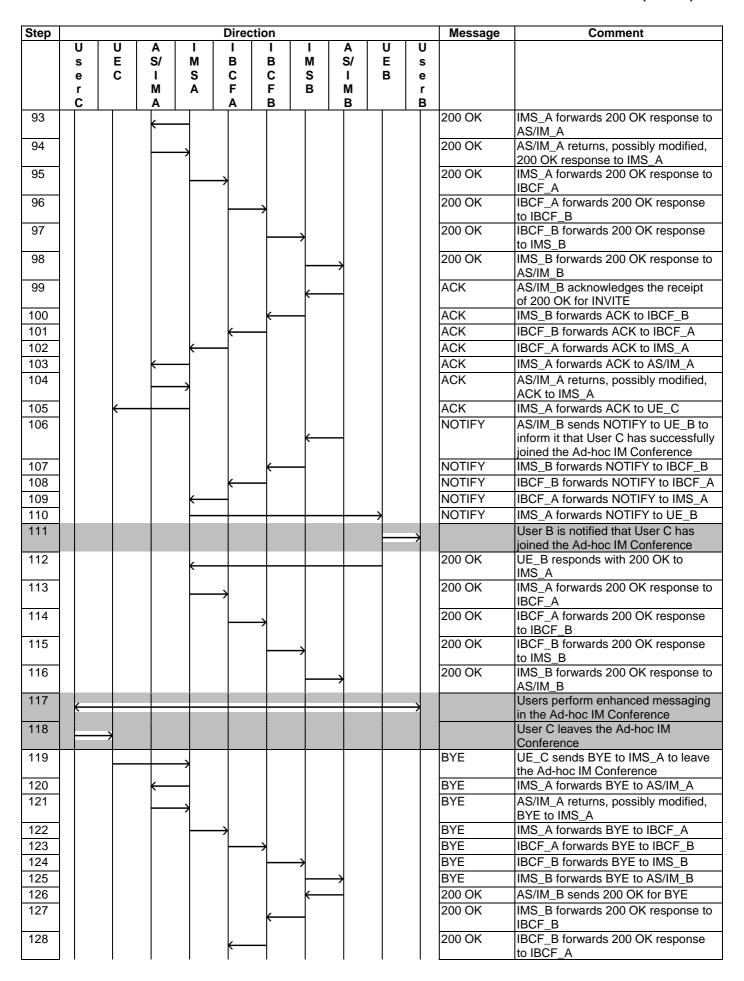


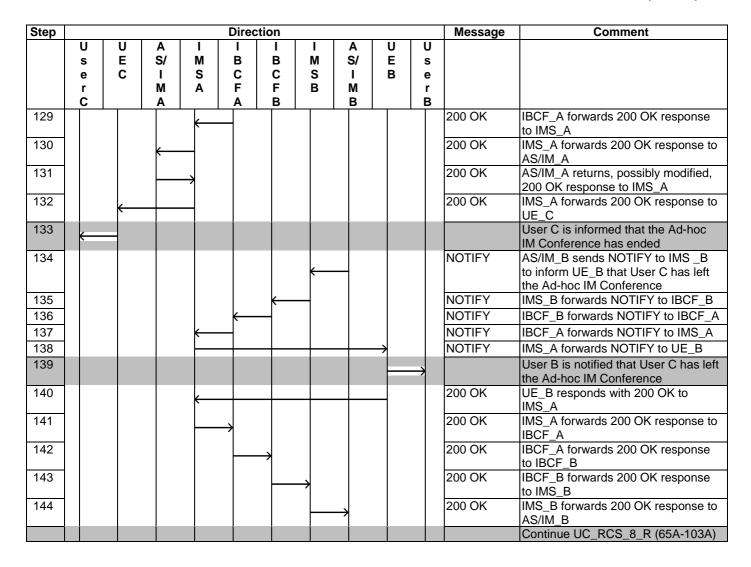
4.5.3.3.2 Adding users to an Ad-hoc IM Conference - roaming

	Interoperability Test Description									
Identifier:	TD_IMS_CHAT_0014	TD_IMS_CHAT_0014								
Summary:	addition of user C to an Ad-hoo	IMS network handles subsequent INVITEs, REFERs and NOTIFYs correctly during addition of user C to an Ad-hoc IM Conferences between users, one user in its home network and the other user roaming								
Configuration:	CF_ROAM_AS									
SUT	IMS_A and IMS_B	IMS_A and IMS_B								
References	Test Purpose	Test Purpose Specification Reference								
	TP_IMS_5107_04	TS 124 229 [1], clause 5.4.3.2 ¶119 (item								

		Interoperability Test Description								
		1 in 8 th numbered list)								
Use Case ref.:	UC_RCS	_10_R								
Pre-test		SS of IMS_A and of IMS B is configured according to table 1								
conditions:		E_A, UE_B and UE_C have IP bearers established to their respective IMS								
	ne	tworks as per TS 186 011-2 [11], clause 4.2.1								
		E_A is registered in IMS_A using userIM according to table 1								
		S_A is configured to contact AS/IM_A								
		E_B is registered in IMS_B via IMS_A using userIM according to table 1								
	 IMS_B is configured to contact AS/IM_B UE_C is registered in IMS_A using userIM according to table 1 User A, B and C are subscribed to IM services 									
		E_A and UE_C automatically answer on chat invitation								
		S_A within the trust domain of IMS_B								
		ser B is pre-provisioned with conference-factory URI in IMS B								
		S/IM_B server assumes to be a Controlling IM server for Ad-hoc IM								
		onference sessions								
	• IM	S_A not configured for topology hiding								
Test Sequence:	Step									
	1	User B initiates an Ad-hoc IM conference with user A								
	2	Verify that User B is informed that the Ad Hoc IM Conference is establish								
	3	Verify that User A is informed of incoming invitation from User B to join the								
		Ad-hoc IM Conference								
	4	User A joins the Ad-hoc IM Conference (automatically)								
	5	Verify that User B is notified that User A has joined the Ad-hoc IM								
		Conference								
	6	Verify that Users perform enhanced messaging in the Ad-hoc IM								
		Conference								
	7	User B invites User C to join the Ad-hoc IM Conference								
	8	Verify that User C is informed of incoming invitation from User B to join the								
		Ad-hoc IM Conference								
	10	User C joins the Ad-hoc IM Conference (automatically)								
	10	Verify that User B is notified that User C has joined the Ad-hoc IM Conference								
	11	Verify that Users perform enhanced messaging in the Ad-hoc IM								
	''	Conference								
	12	User C leaves the Ad-hoc IM Conference								
	13	Verify that User C is informed that the Ad-hoc IM Conference has ended								
	14	Verify that User B is notified that User C 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								
	17	Verify that User B is notified that user A has left the Ad-hoc IM Conference								
	18	User B leaves the Ad-hoc IM Conference								
	19	Verify that User B is informed that the Ad-hoc IM Conference has ended								
		The first section of the first section of the secti								
Conformance	Check									
Criteria:	1	TP_IMS_5107_04 in CFW in step 68 (REFER):								
		ensure that {								
		when { IUT receives a REFER from UE_B addressed_to UE_A }								
		then { IUT sends the REFER to IMS_A								
		not containing a Route_header								
		indicating the S-CSCF_SIP_URI of IMS_B }								
]								
	•									

Step					Direct	ion					Message	Comment
	U	U	Α	I	I	I	I	Α	U	U		
	S	E C	S/	M S	B C	В	M S	S/	E B	s		
	e r	١	M	A	F	C F	ъ В	M	Р	e r		
	С		Α		Α	В		В		В		
0.5												Follow UC_RCS_8_R (1-64)
65									←			User B invites user C to join the Adhoc IM Conference
66											REFER	UE_B sends REFER message to
												IMS_A, with IM session identity (allocated for the current Ad-hoc IM
				\leftarrow								Conference), Refer-To header value
												equals to UE_C URI and Refer-Sub
67					→						REFER	header value set to "false" IMS_A forwards REFER to IBCF_A
68					1	\rightarrow					REFER	IBCF_A forwards REFER to IBCF_B
69							\rightarrow				REFER	IBCF_B forwards REFER to IMS_B
70								\rightarrow			REFER	IMS_B forwards REFER to AS/IM_B
71							<u> </u>				200 OK	AS/IM_B responds with 200 OK to
72											200 OK	IMS_B IMS_B forwards 200 OK response to
'						\leftarrow					200 010	IBCF_B
73					<u> </u>						200 OK	IBCF_B forwards 200 OK response
74											200 OK	to IBCF_A IBCF_A forwards 200 OK response
'				(200 010	to IMS_A
75									\rightarrow		200 OK	IMS_A forwards 200 OK response to
76											INVITE	UE_B AS/IM_B sends INVITE to UE_C with
'											\text{\tin\text{\ti}\\\ \ti}\\\ \text{\text{\text{\text{\text{\text{\text{\text{\ti}\titt{\text{\text{\text{\text{\text{\text{\text{\text{\text{\ti}\titt{\text{\text{\text{\text{\text{\text{\text{\text{\text{\ti}\}\\ \tittt{\text{\text{\text{\text{\text{\text{\text{\text{\ti}\titt{\text{\text{\text{\text{\text{\text{\text{\text{\text{\ti}\titt{\text{\text{\text{\text{\text{\titt{\titt{\titt{\titil\titt{\text{\text{\text{\text{\titil\titt{\text{\tii}\tittt{\tii}\titt{\titil\titt{\titil\titt{\tititt{\titil\titt{\titil\ti	IM session identity (allocated for the
							\leftarrow					current AD-hoc IM Conference) and
												IM address of the Inviting IM UE (UE_B)
77											100 Trying	IMS_B responds with a 100 Trying
70								1			INIV/ITE	provisional response
78 79											INVITE 100 Trying	IMS_B forwards INVITE to IBCF_B IBCF_B responds with a 100 Trying
19							\rightarrow				Too Trying	provisional response
80					\leftarrow						INVITE	IBCF_B forwards INVITE to IBCF_A
81						\rightarrow					100 Trying	IBCF_A responds with a 100 Trying
82											INVITE	provisional response IBCF_A forwards INVITE to IMS_A
83											100 Trying	IMS_A responds with a 100 Trying
					7							provisional response
84			\leftarrow								INVITE	IMS_A forwards INVITE to AS/IM_A
85				\rightarrow							100 Trying	AS/IM_A responds with a 100 Trying provisional response
86				\rightarrow							INVITE	AS/IM_A returns, possibly modified,
87				1							100 Trying	INVITE to IMS_A IMS_A responds with a 100 Trying
"			\leftarrow								100 Hymig	provisional response
88		\leftarrow		-							INVITE	IMS_A forwards INVITE to UE_C
89				\rightarrow							100 Trying	UE_C optionally responds with a 100 Trying provisional response
90												User C is informed of incoming
	K											invitation from User B to join the Ad-
91												hoc IM Conference User C joins the Ad-hoc IM
		7									200 014	Conference (automatically)
92											200 OK	UE_C responds INVITE with 200 OK response with SDP to indicate that
				\rightarrow								the session has been accepted and
												inform AS/IM_A with specific data for
												MSRP connection set up



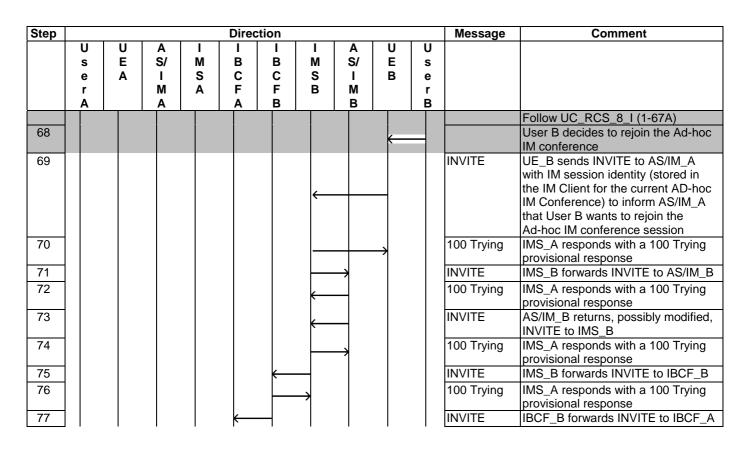


4.5.3.4 Rejoining an Ad-hoc IM Conference until its timeout

4.5.3.4.1 Rejoining an Ad-hoc IM Conference until its timeout - interworking

	Interoperability Test Des	cription									
Identifier:	TD_IMS_CHAT_0015										
Summary:	IMS network handles subsequent INVITEs and NOTIFYs correctly during rejoining of user B to existing Ad-hoc IM Conferences between users in their home network										
Configuration:	CF_INT_AS										
SUT	IMS_A and IMS_B										
References	Test Purpose	Specification Reference									
	TP_IMS_5110_01	TS 124 229 [1], clause 5.4.3.3 ¶79 (after 6 th dashed list)									
Use Case ref.:	UC_RCS_8_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 [11], clause 4.2.1 UE_A is registered in IMS_A using userIM according to table 1 IMS_A is configured to contact AS/IM_A UE_B is registered in IMS_B using userIM according to table 1 IMS_B is configured to contact AS/IM_B User A and B are subscribed to IM services UE_B automatically answer on chat invitation IMS_A within the trust domain of IMS_B 										

		Interoperability Test Description							
	• Us	er A is pre-provisioned with conference-factory URI in IMS A							
		B is able to store IM Session Identity after leaving the conference							
		/IM_A server assumes to be a Controlling IM server for Ad-hoc IM							
		nference sessions							
	• IM	S_A not configured for topology hiding							
Test Sequence:	Step								
	1	User A initiates an Ad-hoc IM conference with user B							
	2	Verify that User A is informed that the Ad Hoc IM Conference is established							
	3	Verify that User B is informed of incoming invitation from User A to join the							
		Ad-hoc IM Conference							
	4	User B joins the Ad-hoc IM Conference (automatically)							
	5	Verify that User A is notified that User B has joined the Ad-hoc IM							
		Conference							
	6	Verify that users perform enhanced messaging in the Ad-hoc IM Conference							
	7	User B leaves the Ad-hoc IM Conference							
	8	Verify that User B is informed that the Ad-hoc IM Conference has ended							
	9	Verify that User A is notified that user B has left the Ad-hoc IM Conference							
	10	User B decides to rejoin the Ad-hoc IM conference							
	11	Verify that User B is informed that it has successfully rejoined the Ad-hoc IM							
		conference							
	12	Verify that User A is notified that User B has rejoined the Ad-hoc IM Conference							
	13	Verify that Users perform enhanced messaging in the Ad-hoc IM							
		Conference							
	14	User A leaves the Ad-hoc IM Conference							
	15	Verify that User A is informed that the Ad-hoc IM Conference has ended							
	16	User B is informed that the Ad-hoc IM Conference has ended							
Conformance	Check								
Criteria:	1	TP_IMS_5110_01 in CFW step 85 (200 OK)							
		ensure that {							
		when { IMS_A receives a 200_response from AS_A addressed_to UE_B }							
		then { IMS_A sends the 200_response to IMS_B } }							

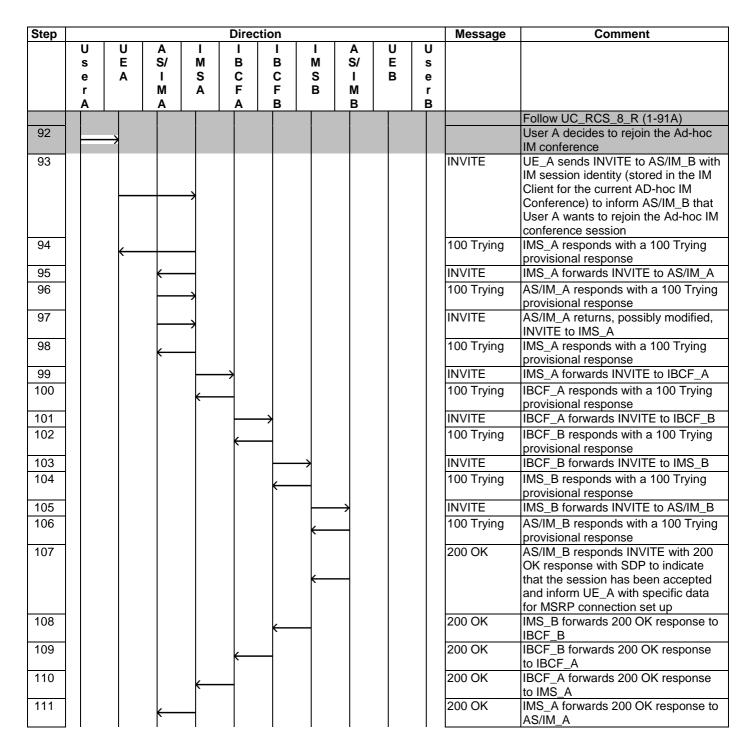


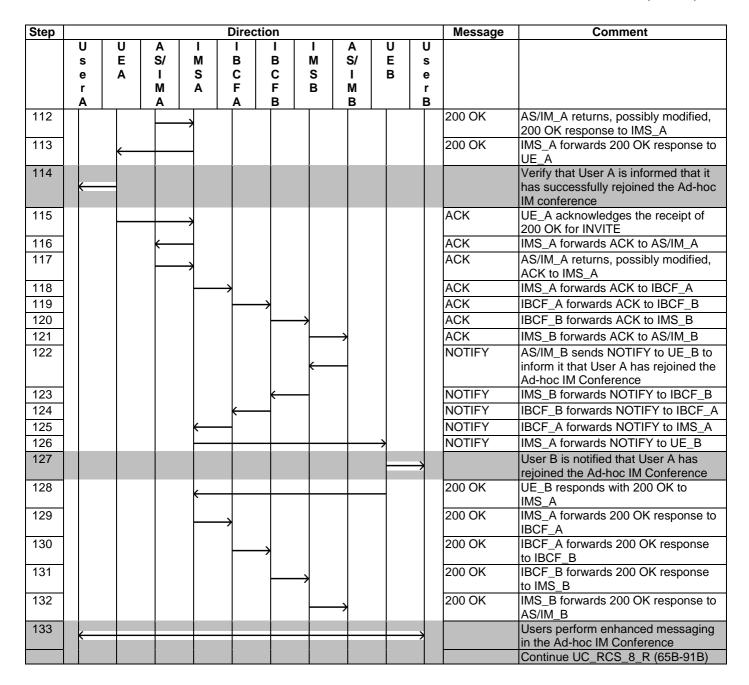
Step							Directi	on					Message	Comment
•	ı	U	U	Α	ı		I	I	I	Α		U	1	
	:	s	E	S/	M		В	В	M	S		s		
		е	Α	ı	S		С	С	S	I	_	е		
		r		M	Α		F	F	В	M		r		
78	- 1	Α		Α	-		Α	В		В	<u> </u>	В	100 Trying	IMC A responde with a 100 Trying
78								>					100 Trying	IMS_A responds with a 100 Trying provisional response
79					_								INVITE	IBCF_A forwards INVITE to IMS_A
80													100 Trying	IMS_A responds with a 100 Trying
80					_	\longrightarrow							100 Trying	provisional response
81													INVITE	IMS_A forwards INVITE to AS/IM_A
82													100 Trying	IMS_A responds with a 100 Trying
02					\rightarrow								100 Trying	provisional response
83													200 OK	AS/IM_A responds INVITE with 200
													200 011	OK response with SDP to indicate
					\rightarrow									that the session has been accepted
														and inform UE_B with specific data
														for MSRP connection set up
84						,							200 OK	IMS_A forwards 200 OK response
						,								to IBCF_A
85								•					200 OK	IBCF_A forwards 200 OK response
													222.017	to IBCF_B
86									\rightarrow				200 OK	IBCF_B forwards 200 OK response
0.7													000 014	to IMS_B
87									-	\rightarrow			200 OK	IMS_B forwards 200 OK response to AS/IM_B
88													200 OK	AS/IM_B returns, possibly modified,
00									\leftarrow				200 OK	200 OK response to IMS_B
89													200 OK	IMS_B forwards 200 OK response
											\rightarrow			to UE_B
90														Verify that User B is informed that it
												→		has successfully rejoined the Ad-
														hoc IM conference
91									\leftarrow				ACK	UE_B acknowledges the receipt of
									`				1011	200 OK for INVITE
92										\rightarrow			ACK	IMS_B forwards ACK to AS/IM_B
93									←				ACK	AS/IM_B returns, possibly modified,
0.4													A 01/	ACK to IMS_B
94													ACK	IMS_B forwards ACK to IBCF_B
95							\leftarrow	1					ACK	IBCF_B forwards ACK to IBCF_A
96					\leftarrow								ACK	IBCF_A forwards ACK to IMS_A
97				\leftarrow									ACK	IMS_A forwards ACK to AS/IM_A
98													NOTIFY	AS/IM_A sends NOTIFY to UE_A to
					\rightarrow									inform it that User B has rejoined
-00													NOTIEN	the Ad-hoc IM Conference
99			\leftarrow		_								NOTIFY	IMS_A forwards the NOTIFY to
100														UE_A User A is notified that User B has
100		\leftarrow												rejoined the Ad-hoc IM Conference
101													200 OK	UE_A responds with 200 OK to
' '					\rightarrow								200 010	IMS_A
102													200 OK	IMS_A forwards the 200 OK
				—										response to AS/IM_A
103														Users perform enhanced
		\leftarrow										>		messaging in the Ad-hoc IM
														Conference
														Continue UC_RCS_8_I (47B-67B)

4.5.3.4.2 Rejoining an Ad-hoc IM Conference until its timeout - roaming

Interoperability Test Description												
Identifier:		CHAT_0016										
Summary:	user B to	existing Ad-hoc IM Conferences be	and NOTIFYs correctly during rejoining of etween users, one user in its home network									
	and the o	ther user roaming										
Configuration:	CF_ROAI											
SUT		IMS_A and IMS_B										
References	Test Purp		Specification Reference									
	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	_8_R										
Pre-test conditions:	 UE UB UB UB UB UB UB UB UB UB UB CC 	per TS 186 011-2 [11], clause 4.2. E_A is registered in IMS_A using us S_A is configured to contact AS/IM	tablished to their respective IMS networks and serIM according to table 1 and 1. And 1									
- 10												
Test Sequence:	Step	Head Distinted an Address IM and	.f									
	1	User B initiates an Ad-hoc IM cor										
	2		ify that User B is informed that the Ad Hoc IM Conference is established									
	3	Verify that User A is informed of incoming invitation from User B to join the										
		Ad-hoc IM Conference										
	4	User A joins the Ad-hoc IM Conference (automatically)										
	5	Verify that User B is notified that Conference	•									
	6		ed messaging in the Ad-hoc IM Conference									
	7	User A leaves the Ad-hoc IM Cor										
	8	Verify that User A is informed that	t the Ad-hoc IM Conference has ended									
	9	Verify that User B is notified that	user A has left the Ad-hoc IM Conference									
	10	User A decides to rejoin the Ad-h	oc IM conference									
	11	Verify that User A is informed tha conference	t it has successfully rejoined the Ad-hoc IM									
	12	User A has rejoined the Ad-hoc IM										
	13	ed messaging in the Ad-hoc IM										
	14	Conference User B leaves the Ad-hoc IM Con	oference									
	15 Verify that User B is informed that the Ad-hoc IM Conference has											
	16											

Interoperability Test Description			
Conformance	Check		
Criteria:	1	TP_IMS_5097_09 in CFW step 105 (INVITE) ensure that { when { IUT receives an INVITE from IMS_A from UE_B } then { IUT sends the 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 including an orig-ioi_parameter indicating the operator_identifier of IMS_A and not including a term-ioi_parameter and including access-network-charging-info } }	





4.5.4 File transfer

4.5.4.1 File transfer with explicit user acceptance

4.5.4.1.1 File transfer with explicit user acceptance - interworking

Interoperability Test Description				
Identifier:	TD_IMS_FILE_0001			
Summary:	IMS network supports file transfer service and file between two users in their home network can be performed. User B must explicitly accept the file transfer.			
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)		

		Intereperability Test Descri	rintian									
	TP_IMS_5	Interoperability Test Desci	TS 124 229 [1], clause 5.4.3.3 ¶5									
	TF_IIVIO_C	3108_03	(item 4 in 1 st numbered list)									
	TP_IMS_5	5115_08	TS 124 229 [1], clause 5.4.3.3 ¶89									
			(4 th numbered list)									
Use Case ref.:	UC_RCS_	_5_I										
Pre-test	110	O at IMO A and at IMO Discourts	ward according to tall A									
conditions:		S of IMS_A and of IMS B is config	gured according to table 1 tablished to their respective IMS networks									
		per TS 186 011-2 [11], clause 4.2										
		_A is registered in IMS_A using u										
		S_A is configured to contact AS_A										
		_B is registered in IMS_B using u										
		S_B is configured to contact AS_B	•									
		User B supports interaction on file transfer invitation IMS_A within the trust domain of IMS_B										
		IMS_A within the trust domain of IMS_B IMS_A not configured for topology hiding										
	invi.	IIVIS_A not configured for topology hiding										
Test Sequence: Step												
	1	User A starts file transfer invitation										
	2	Verify that user B is informed of f										
	3	Verify that user A is informed that										
	5	User B accepts file transfer invita Verify that users can perform file										
	6	ion after file is transferred										
	7		t file transfer session has been released									
	8		t file transfer session has been released									
	1											
Conformance	Check	TD IMO 5007 04: OFFI	O (INI) (ITE)									
Criteria:	1	TP_IMS_5097_01 in CFW step 1	0 (INVITE):									
		ensure that { when { UE_A sends an initial INV	/ITF to UF_B }									
		then { IMS_B receives the initial										
		not containing a Route_h	eader									
		indicating the S-CSCF_										
		containing a P-Charging- (containing an icid-value										
			rameter indicating IMS_A and									
			ss-network-charging-info_parameter and									
		not containing a term-io	–									
		containing a Record-Rout										
		indicating the originating	g S-CSCF_SIP_URI }									
	2	TP_IMS_5108_03 in CFW step 1	4 (INVITE)									
	_	ensure that {	+ (IIVIII L)									
			INVITE from IMS_A addressed_to UE_B}									
		then {IMS_B sends the INVITE										
		containing a topmost Rou										
		indicating the SIP_URI containing a Route_head										
		indicating the S-CSCF_										
		containing a P-Charging-										
	ameter											
		indicating operator_id										
		not including a term-ioi_	_parameter }									
	3	TP_IMS_5115_08 in CFW step 3	5 (200 OK)									
		ensure that {										
			sponse from AS_B addressed to UE_A }									
		then { IMS_B sends the 200_res										
		containing a P-Charging- including a orig-ioi_par										
			dentifier of IMS_A and									
		including a term-ioi_pa										
		indicating operator_id										
		 }										

Step					Direct	ion					Message	Comment
	U	U	Α	I	Ī	I	I	A	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	M	В	e r		
	Ä		A	^	A	В		В		В		
1												User A invites user B to file transfer
		1										session
2											INVITE	UE_A sends INVITE with the first
				7								SDP offer indicating all specific data for MSRP connection set up
3											100 Trying	IMS_A responds with a 100 Trying
		\leftarrow										provisional response
4			\leftarrow	_							INVITE	IMS_A forwards INVITE to AS/IM_A
5				\rightarrow							100 Trying	AS/IM_A responds with a 100
				1							N 11 / 17 F	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)						INVITE	IMS_A forwards INVITE to IBCF_A
9					4						100 Trying	IBCF_A responds with a 100 Trying provisional response
10						→					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						\leftarrow					100 Trying	IMS_B responds with a 100 Trying
14											INVITE	provisional response IMS_B forwards INVITE to AS/IM_B
15								1			100 Trying	AS/IM_B responds with a 100
15							←	_			100 Trying	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									\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 transfer session
21											180 Ringing	UE_B responds to initial INVITE
							\leftarrow					with 180 Ringing to indicate that
							(invitation to a file transfer session
22											180 Ringing	has reached the invited user IMS_B forwards 180 Ringing
22)			160 Kinging	response to AS/IM_B
23							←				180 Ringing	AS/IM_B returns, possibly modified, 180 Ringing response to IMS_B
24						<u></u>					180 Ringing	IMS_B forwards 180 Ringing
25											180 Ringing	response to IBCF_B IBCF_B forwards 180 Ringing
						7						response to IBCF_A
26				←	-						180 Ringing	IBCF_A forwards 180 Ringing response to IMS_A
27				_							180 Ringing	IMS_A forwards 180 Ringing response to AS/IM_A
28											180 Ringing	AS/IM_A returns, possibly modified,
- 00											400 Diai	180 Ringing response to IMS_A
29				\dashv							180 Ringing	IMS_A forwards 180 Ringing response to UE_A
		1				1	•	1	1			

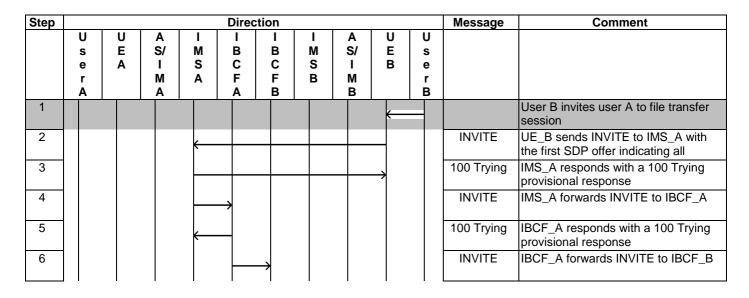
Step					Direct	ion					Message	Comment
	U	Ū	A	I	1	J –	I	A	Ū	U		
	s e	E A	S/	M S	B C	B C	M S	S/	E B	s e		
	r	^	M	A	F	F	В	M		r		
	Α		Α	<u> </u>	Α	В		В		В		
30												User A is informed that invitation to
												a file transfer session has reached user B
31												User B accepts the invitation to a
												file transfer session
32											200 OK	UE_B responds INVITE with 200
							\leftarrow					OK response with SDP to indicate that the session has been accepted
												and inform A-side with specific data
												for MSRP connection set up
33							-	\rightarrow			200 OK	IMS_B forwards 200 OK response to AS/IM_B
34											200 OK	AS/IM_B returns, possibly modified,
0.							\leftarrow					200 OK response to IMS_B
35						<u> </u>					200 OK	IMS_B forwards 200 OK response
36											200 OK	to IBCF_B IBCF_B forwards 200 OK response
36					\leftarrow						200 OK	to IBCF_A
37				,							200 OK	IBCF_A forwards 200 OK response
												to IMS_A
38			\leftarrow								200 OK	IMS_A forwards 200 OK response to AS/IM_A
39											200 OK	AS/IM_A returns, possibly modified,
00				\rightarrow								200 OK response to IMS_A
40		\leftarrow									200 OK	IMS_A forwards 200 OK response
41											ACK	to UE_A UE_A acknowledges the receipt of
41				\rightarrow							ACK	200 OK for INVITE
42			\leftarrow								ACK	IMS_A forwards ACK to AS/IM_A
43											ACK	AS/IM_A returns, possibly modified,
4.4											ACK	ACK to IMS_A
44 45					\neg						ACK ACK	IMS_A forwards ACK to IBCF_A IBCF_A forwards ACK to IBCF_B
46						1	_				ACK	IBCF_B forwards ACK to IMS_B
47							1	\rightarrow			ACK	IMS_B forwards ACK to AS/IM_B
48											ACK	AS/IM_B returns, possibly modified,
												ACK to IMS_B
49									\rightarrow		ACK	IMS_B forwards ACK to UE_B
50										\rightarrow		Users perform file transfer User A ends the file transfer session
51A 52A		\rightarrow									BYE	UE_A releases the file transfer
SZA				\rightarrow							DIE	session with BYE
53A			\leftarrow								BYE	IMS_A forwards BYE to AS/IM_A
54A				_							BYE	AS/IM_A returns, possibly modified,
EE ^											DVC	BYE to IMS_A
55A 56A											BYE BYE	IMS_A forwards BYE to IBCF_A IBCF_A forwards BYE to IBCF_B
57A						7	_				BYE	IBCF_B forwards BYE to IBCF_B
58A								\rightarrow			BYE	IMS_B forwards BYE to AS/IM_B
59A											BYE	AS/IM_B returns, possibly modified,
												BYE to IMS_B
60A									\rightarrow		BYE	IMS_B forwards BYE to UE_B
61A										\rightarrow		User B is informed that file transfer session has ended
62A							<u></u>				200 OK	UE_B sends 200 OK for BYE
63A											200 OK	IMS_B forwards 200 OK response
												to AS/IM_B
64A							\leftarrow	_			200 OK	AS/IM_B returns, possibly modified,
	I	I	1	1	1	- 1	I	ı		I		200 OK response to IMS_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	I M S B	A S/ I M B	U E B	U s e r B		
65A						<u> </u>					200 OK	IMS_B forwards 200 OK response to IBCF_B
66A					←						200 OK	IBCF_B forwards 200 OK response to IBCF_A
67A				←							200 OK	IBCF_A forwards 200 OK response to IMS_A
68A			←								200 OK	IMS_A forwards 200 OK response to AS/IM_A
69A				\rightarrow							200 OK	AS/IM_A returns, possibly modified, 200 OK response to IMS_A
70A		\leftarrow		_							200 OK	IMS_A forwards 200 OK response to UE_A
71A	-											User A is informed that file transfer session has ended

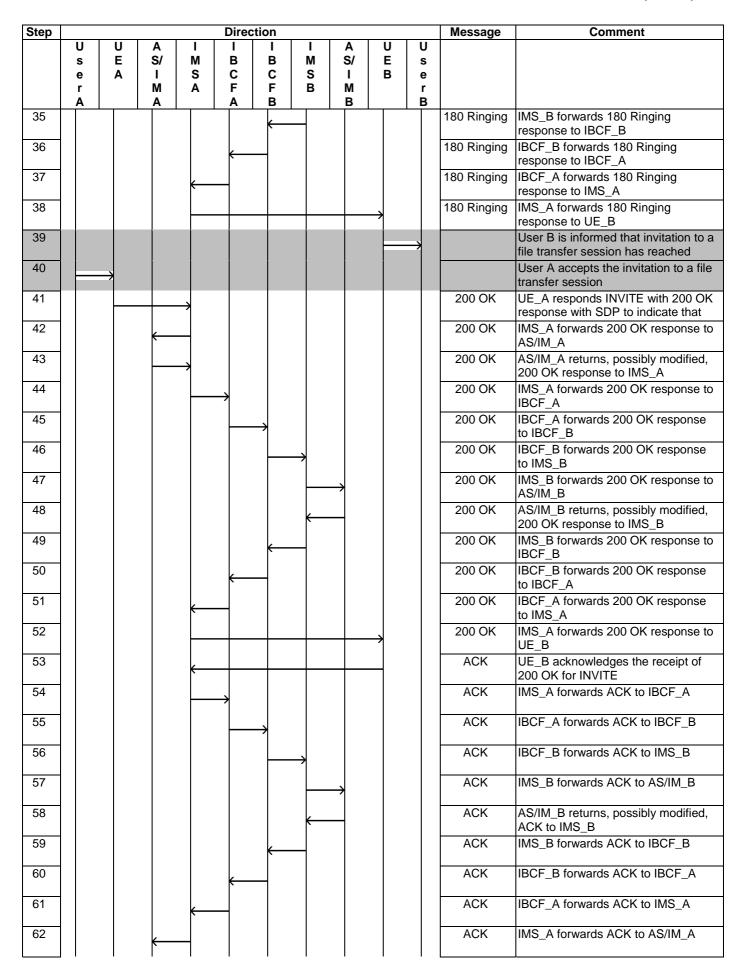
4.5.4.1.2 File transfer with explicit user acceptance - roaming

			_									
		Interoperability Test Descr	ription									
Identifier:	TD_IMS_FILE_0002											
Summary:	in its home	network supports file transfer service and file transfer between two users, one user home network and one user roaming can be performed. User B must explicitly pt the file transfer.										
Configuration:	CF_ROAN											
SUT		A and IMS_B										
References	Test Purpose Specification Reference											
		MS_5046_01 TS 124 229 [1], clause 5.2.6.3.3 ¶1 (1st numbered list)										
	TP_IMS_5											
	TP_IMS_5											
Use Case ref.:	UC RCS	C_RCS_5_R										
	, – –											
Pre-test conditions:	 UE as UE IMS UE US US IMS 	per TS 186 011-2 [11], clause 4.2 _A is registered in IMS_A using us S_A is configured to contact AS_A	tablished to their respective IMS networks 1.1 serFT according to table 1 (IM_A) _A using userFT according to table 1 (IM_B) ransfer service ansfer invitation 3_B									
Test Sequence:	Step											
	1	User B starts file transfer invitatio										
	2	Verify that user A is informed of fi										
	3	Verify that user B is informed that UE_A is ringing										
	4	User A accepts file transfer invita										
	5	Verify that users can perform file										
	6	User B releases file transfer sess										
	7	7	t file transfer session has been released									
	8	Verity that user B is informed that	t file transfer session has been released									

nd
UE_A }
_



Step					Direc	tion					Message	Comment
	U	Ū	A	l Na	_ L	1	I	A C/	Ū	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		
7	Α		Α		Α	В		В	<u> </u>	В	100 Truing	IDCC D recognide with a 100 Truing
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							\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
14							4				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				\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 provisional response
22				\rightarrow							INVITE	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 Trying provisional response
26	—											User A is informed of incoming file transfer session
27				\rightarrow							180 Ringing	UE_A responds to initial INVITE with 180 Ringing to indicate that invitation
28			—	\dashv							180 Ringing	IMS_A forwards 180 Ringing response to AS/IM_A
29				\rightarrow							180 Ringing	AS/IM_A returns, possibly modified, 180 Ringing response to IMS_A
30					\rightarrow						180 Ringing	IMS_A forwards 180 Ringing response to IBCF_A
31						\rightarrow					180 Ringing	IBCF_A forwards 180 Ringing response to IBCF_B
32							\rightarrow				180 Ringing	IBCF_B forwards 180 Ringing 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



S	Step		•			Direct	ion					Message	Comment
S		U s			I M	I B	I B	I M		_	U s		
A A B B B ACK AS/IM_A returns, possibly modified, ACK to IMS_A ACK IMS_A forwards ACK to UE_A		е		1	S	С	С	S	- 1		е		
ACK to IMS_A ACK IMS_A forwards ACK to UE_A ACK IMS_A forwards ACK to UE_A ACK IMS_A forwards ACK to UE_A Users perform file transfer session BYE UE_B releases the file transfer session with BYE BYE IMS_A forwards BYE to IBCF_A BYE IBCF_B forwards BYE to IBCF_B BYE IMS_B forwards BYE to IBCF_B BYE IMS_B forwards BYE to IBCF_B BYE IMS_B forwards BYE to IBCF_B BYE IMS_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_A BYE IBCF_A forwards BYE to IBCF_A BYE IMS_A forwards BYE to IBCF_B BYE IMS_A forwards BYE to IBCF_A BYE IMS_A forwards BYE to IBCF_B BYE IMS_A forwards BYE to IBCF_B BYE IMS_A forwards BYE to IBCF_B BYE IMS_A forwards BYE to IBCF_B BYE IMS_A forwards BYE to IBCF_B BYE IMS_A forwards BYE to IBCF_B BYE IMS_A forwards BYE to IBCF_B BYE IMS_A forwards BYE to IBCF_B BYE IMS_A forwards BYE TO IBCF_B BYE IMS_B forwards BYE TO IBCF_B BYE IMS_B forwards BYE TO IBCF_B BYE IMS_B forwards BYE TO IBCF_B BYE IMS_B forwards BYE TO IBCF_B BYE IMS_B forwards BYE TO IBCF_B BYE IMS_B forwards BYE TO IBCF_B BYE IMS_B forwards BYE TO IBCF_B BYE IMS_B forwards BYE TO IBCF_B BYE IMS_B forwards BYE TO IBCF_B BYE					A		-	В					
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BYE UE_B releases the file transfer session with BYE	64		←									ACK	IMS_A forwards ACK to UE_A
BYE	65	K									\rightarrow		Users perform file transfer
Session with BYE	66A									—			User B ends the file transfer session
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BYE IMS_A forwards BYE to UE_A User A is informed that file transfer session has ended 200 OK UE_A sends 200 OK for BYE 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 IBCF_A 200 OK IBCF_A forwards 200 OK response to IBCF_B 200 OK IBCF_B forwards 200 OK response to IMS_B forwards 200 OK response to IMS_B 200 OK IMS_B forwards 200 OK response to IMS_B 200 OK IMS_B forwards 200 OK response to IMS_B 200 OK IMS_B forwards 200 OK response to IMS_B 200 OK IMS_B forwards 200 OK response to IMS_B 200 OK IMS_B forwards 200 OK response to IMS_B 200 OK IMS_B forwards 200 OK response to IMS_B 200 OK IMS_B forwards 200 OK response to IMS_B 200 OK IMS_B forwards 200 OK response to IMS_B 200 OK IMS_B forwards 200 OK response to IMS_B 200 OK IMS_B forwards 200 OK response to IMS_B	77A				\rightarrow							BYE	AS/IM_A returns, possibly modified, BYE to IMS_A
80A 81A 81A 82A 83A 84A 85A 86A 86A 87A 80A 200 OK UE_A sends 200 OK for BYE 200 OK IMS_A forwards 200 OK response to AS/IM_A returns, possibly modified, 200 OK response to IMS_A 200 OK IMS_A forwards 200 OK response to IBCF_A 200 OK IBCF_A forwards 200 OK response to IBCF_B 200 OK IBCF_B forwards 200 OK response to IMS_B 200 OK IMS_B forwards 200 OK response to IMS_B 200 OK IMS_B forwards 200 OK response to IMS_B 200 OK IMS_B forwards 200 OK response to IMS_B 200 OK IMS_B forwards 200 OK response to IMS_B 200 OK IMS_B forwards 200 OK response to IMS_B 200 OK IMS_B forwards 200 OK response to IMS_B 200 OK IMS_B forwards 200 OK response to IMS_B 200 OK IMS_B forwards 200 OK response to IMS_B 200 OK IMS_B forwards 200 OK response to IMS_B 200 OK IMS_B forwards 200 OK response to IMS_B 200 OK IMS_B forwards 200 OK response to IMS_B 200 OK IMS_B forwards 200 OK response to IMS_B 200 OK IMS_B forwards 200 OK response to IMS_B 200 OK IMS_B forwards 200 OK response to IMS_B	78A		←									BYE	
80A 81A 82A 83A 84A 85A 86A 87A 200 OK UE_A sends 200 OK for BYE 200 OK IMS_A forwards 200 OK response to AS/IM_A returns, possibly modified, 200 OK response to IMS_A 200 OK IMS_A forwards 200 OK response to IBCF_A 200 OK IBCF_A forwards 200 OK response to IBCF_B 200 OK IBCF_B forwards 200 OK response to IMS_B 200 OK IMS_B forwards 200 OK response to IMS_B 200 OK IMS_B forwards 200 OK response to IMS_B 200 OK IMS_B forwards 200 OK response to IMS_B forwards 200 OK response to IMS_B 200 OK IMS_B forwards 200 OK response to IMS_B forwards 200 OK IMS_B	79A	—											
82A 83A 84A 85A 86A 87A 88A 88A 88A 88A 88A 88	80A				\rightarrow							200 OK	
82A 83A 84A 85A 86A 87A 200 OK	81A			←								200 OK	IMS_A forwards 200 OK response to
83A 84A 84A 85A 86A 87A 200 OK IMS_A forwards 200 OK response to IBCF_A forwards 200 OK response to IBCF_B forwards 200 OK response to IBCF_B forwards 200 OK response to IMS_B 200 OK IMS_B forwards 200 OK response to IMS_B forwards 200 OK IMS_B forwards 200 OK IMS_B forwards 200 OK IMS_B forwards 200 OK IMS_B forwards 200 OK IMS_B forwards 200 OK IMS_B forwards 200 OK IMS_B forwards 200 OK IMS_B forwards 200 OK IMS_B forwards 200 OK IMS_B forwards 200 OK IMS_B forwards 200 OK IMS_B forwards 200 OK IMS_B forwards 200 OK IMS_B forwards 200 OK IMS_B forwards 200 OK IMS_B fo	82A				\rightarrow							200 OK	AS/IM_A returns, possibly modified,
84A 85A 86A 87A 200 OK IBCF_A forwards 200 OK response to IBCF_B forwards 200 OK response to IMS_B 200 OK IMS_B forwards 200 OK response to AS/IM_B 200 OK AS/IM_B returns, possibly modified,	83A					\rightarrow						200 OK	IMS_A forwards 200 OK response to
85A 86A 87A 200 OK IBCF_B forwards 200 OK response to IMS_B 200 OK IMS_B forwards 200 OK response to AS/IM_B 200 OK AS/IM_B returns, possibly modified,	84A						-					200 OK	IBCF_A forwards 200 OK response
86A 87A 200 OK IMS_B forwards 200 OK response to AS/IM_B 200 OK AS/IM_B returns, possibly modified,	85A							\rightarrow				200 OK	IBCF_B forwards 200 OK response
87A 200 OK AS/IM_B returns, possibly modified,	86A								\rightarrow			200 OK	IMS_B forwards 200 OK response to
	87A											200 OK	AS/IM_B returns, possibly modified, 200 OK response to IMS_B
	88A											200 OK	IMS_B forwards 200 OK response to
	89A						_					200 OK	IBCF_B forwards 200 OK response
	90A					4						200 OK	IBCF_A forwards 200 OK response

Step						Direction	on		Message	Comment			
	l	,	U	Α	ı	ı	I	_	Α	U	U		
	S	;	E	S/	M	В	В	M	S/	Е	s		
	e)	Α	ı	S	С	С	S	ı	В	е		
	r			M	Α	F	F	В	M		r		
	Α	١		Α		Α	В		В		В		
91A												200 OK	IMS_A forwards 200 OK response to
													UE_B
92A										E	\Rightarrow		User B is informed that file transfer session has ended

4.5.4.2 File transfer with immediate acceptance

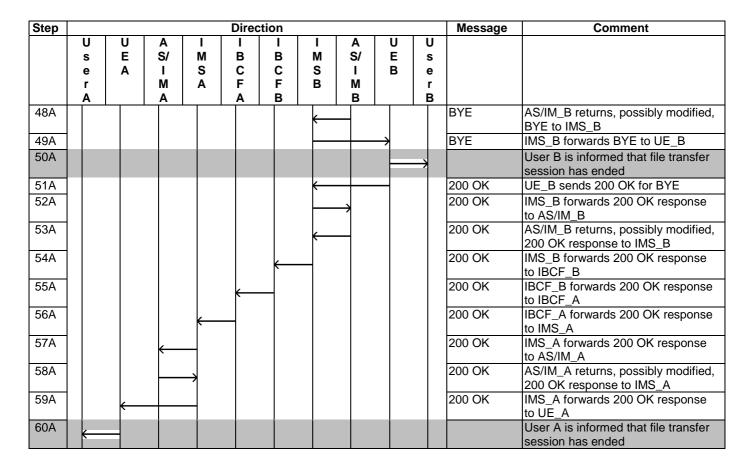
4.5.4.2.1 File transfer with immediate acceptance - interworking

		Test Description								
dentifier:	TD_IMS_FILE_0003									
Summary:		er service and file between two users in their home								
	network can be performed. Immediate response applies.									
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								
		(item 9 in 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								
		(4 th numbered list)								
Use Case ref.:	UC_RCS_4_I									
Pre-test	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 [11], clause 4.2.1 UE_A is registered in IMS_A using userFT according to table 1 IMS_A is configured to contact AS_A (IM_A) UE_B is registered in IMS_B using userFT according to table 1 IMS_B is configured to contact AS_B (IM_B) User A and B are subscribed to file transfer service UE_B automatically answer on file transfer invitation IMS_A within the trust domain of IMS_B IMS_A not configured for topology hiding 									
Toot Coguenes:										
Test Sequence:		for invitation to Llear D								
Test Sequence:	 User A starts file trans 	sfer invitation to User B								
Test Sequence:	 User A starts file trans User B automatically a 	accepts file transfer invitation								
Test Sequence:	1 User A starts file trans 2 User B automatically a 3 Verify that users can p	accepts file transfer invitation perform file transfer								
Test Sequence:	1 User A starts file trans 2 User B automatically a 3 Verify that users can p 4 User A releases file tra	accepts file transfer invitation perform file transfer ansfer session after file is transferred								
Test Sequence:	1 User A starts file trans 2 User B automatically a 3 Verify that users can p 4 User A releases file tra 5 Verify that user B is in	accepts file transfer invitation perform file transfer								

		Interoperability Test Description
Conformance	Check	
Criteria:	1	TP_IMS_5097_01 in CFW step 10 (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_5108_03 in CFW step 14 (INVITE) ensure that { when {IMS_B receives an initial INVITE from IMS_A addressed_to UE_B} then {IMS_B 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 IMS_B and containing a P-Charging-Vector_header including a orig-ioi_parameter indicating operator_identifier of IMS_A and not including 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

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 invites user B to file transfer session
2				\rightarrow							INVITE	UE_A sends INVITE with the first SDP offer indicating all specific data for MSRP connection set up
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				\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
9				\leftarrow							100 Trying	IBCF_A responds with a 100 Trying provisional response
10						\rightarrow					INVITE	IBCF_A forwards INVITE to IBCF_B
11					\leftarrow	\dashv					100 Trying	IBCF_B responds with a 100 Trying provisional response

Step					Direct	ion					Message	Comment
	U	Ū	Α		_ L		I	A	Ū	U		
	s e	E A	S/	M S	B C	B C	M S	S/	E B	s e		
	ř	^	M	Ă	F	F	В	M		r		
40	Α	_	Α		Α	В	<u> </u>	В	1	В	IN 11 // TE	IDOS D.(INN/ITS (IMO D
12							\rightarrow				INVITE 100 Trying	IBCF_B forwards INVITE to IMS_B IMS_B responds with a 100 Trying
13						\leftarrow					100 Hying	provisional response
14								\rightarrow			INVITE	IMS_B forwards INVITE to AS/IM_B
15							\leftarrow				100 Trying	AS/IM_B responds with a 100
16											INVITE	Trying provisional response AS/IM_B returns, possibly modified,
							\leftarrow				III VIII L	INVITE to IMS_B
17								\rightarrow			100 Trying	IMS_B responds with a 100 Trying
18											INVITE	provisional response IMS_B forwards INVITE to UE_B
19											100 Trying	UE_B optionally responds with a
.0							\leftarrow				roo rrying	100 Trying provisional response
20										\rightarrow		User B is informed of incoming file
21											200 OK	transfer session 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 MSRP connection set up
22											200 OK	IMS_B forwards 200 OK response
												to AS/IM_B
23							\leftarrow				200 OK	AS/IM_B returns, possibly modified, 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
26											200 OK	to IBCF_A IBCF_A forwards 200 OK response
												to IMS_A
27											200 OK	IMS_A forwards 200 OK response
28											200 OK	to AS/IM_A AS/IM_A returns, possibly modified,
				\rightarrow								200 OK response to IMS_A
29		\leftarrow									200 OK	IMS_A forwards 200 OK response
30											ACK	to UE_A UE_A acknowledges the receipt of
				\rightarrow							, tort	200 OK for INVITE
31			\leftarrow								ACK	IMS_A forwards ACK to AS/IM_A
32				\rightarrow							ACK	AS/IM_A returns, possibly modified,
33					\rightarrow						ACK	ACK to IMS_A IMS_A forwards ACK to IBCF_A
34					-	\rightarrow					ACK	IBCF_A forwards ACK to IBCF_B
35						-	\rightarrow				ACK	IBCF_B forwards ACK to IMS_B
36								\rightarrow			ACK	IMS_B forwards ACK to AS/IM_B
37							\leftarrow	_			ACK	AS/IM_B returns, possibly modified, ACK to IMS_B
38									\longrightarrow		ACK	IMS_B forwards ACK to UE_B
39										\rightarrow		Users perform file transfer
40A)										User A ends the file transfer session
41A				\rightarrow							BYE	UE_A releases the file transfer
42A											BYE	session with BYE IMS_A forwards BYE to AS/IM_A
43A											BYE	AS/IM_A returns, possibly modified,
				7								BYE to IMS_A
44A					\rightarrow						BYE	IMS_A forwards BYE to IBCF_A
45A						\rightarrow					BYE	IBCF_A forwards BYE to IBCF_B
46A 47A											BYE BYE	IBCF_B forwards BYE to IMS_B IMS_B forwards BYE to AS/IM_B
477	I	l	l	I	I	I		7			חור	IIVIO_D IOIWAIUS DTE IO AS/IIVI_D



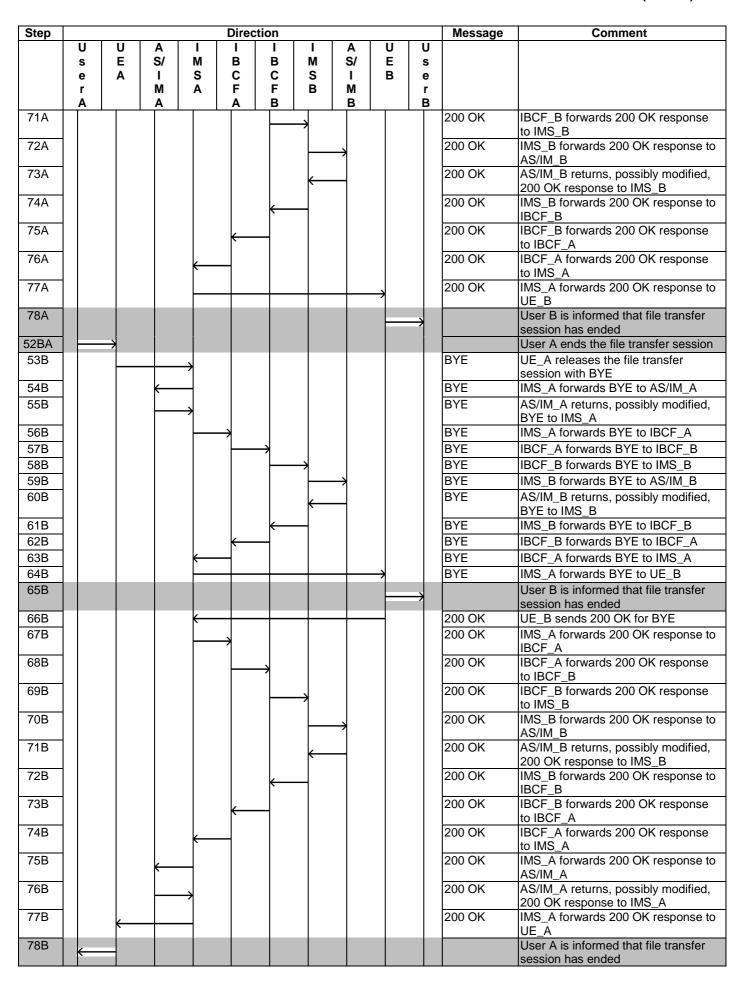
4.5.4.2.2 File transfer with immediate acceptance - roaming

	Interoperability Tes	st Description									
Identifier:	Interoperability Test Description TD_IMS_FILE_0004										
Summary:	IMS network supports file transfer service and file transfer between two users, one user in its home network and one user roaming can be performed. Immediate response applies.										
Configuration:	CF_ROAM_AS										
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 1 st numbered list)										
Use Case ref.:											
Pre-test conditions:	 UE_A and UE_B have IP bea as per TS 186 011-2 [11], cla UE_A is registered in IMS_A IMS_A is configured to conta 	using userFT according to table 1 ct AS_A (IM_A) via IMS_A using userFT according to table 1 ct AS_B (IM_B) to file transfer service on file transfer invitation n of IMS_B									

		Interoperability Test Description
Test Sequence:	Step	
	1	User B starts file transfer invitation to User A
	2	User A automatically accepts file transfer invitation
	3	Verify that users can perform file transfer
	4	User B releases file transfer session after file is transferred
	5	Verify with UE_A that file transfer session has been released
	6	Verify with UE_B that file transfer session has been released
-	1	
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 { IMS_B receives an initial INVITE from IMS_A addressed to UE_A }
		then { IMS_B 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
		(including a orig-ioi_parameter
		indicating operator_identifier of IMS_A and
		not including a term-ioi_parameter and
		including access-network-charging-info) }
		l)

Step					Direc	ction					Message	Comment
	U	Ū	A	I	Ī	Ī	ı.	A	Ū	U		
	s e	E A	S/	M S	B C	B	M S	S/	E B	s e		
	r	^	M	A	F	F	В	M		r		
	Α		Α		Α_	В		В		В		
1									\leftarrow	-		User B invites user A to file transfer session
2											INVITE	UE_B sends INVITE to IMS_A with
				\leftarrow								the first SDP offer indicating all
												specific data for MSRP connection set up
3									_		100 Trying	IMS_A responds with a 100 Trying
									1		IND //TE	provisional response
5					7						INVITE 100 Trying	IMS_A forwards INVITE to IBCF_A IBCF_A responds with a 100 Trying
3				\leftarrow							100 Trying	provisional response
6						\rightarrow					INVITE	IBCF_A forwards INVITE to IBCF_B
7					\leftarrow						100 Trying	IBCF_B responds with a 100 Trying
8							_				INVITE	provisional response 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											INVITE	AS/IM_B returns, possibly modified,
13											400 Tm da a	INVITE to IMS_B
13								\rightarrow			100 Trying	IMS_B responds with a 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,
22				\rightarrow							IIIVII L	INVITE to IMS_A
23			<u></u>								100 Trying	IMS_A responds with a 100 Trying
24		_	·								INVITE	provisional response IMS_A forwards INVITE to UE_A
25											100 Trying	UE_A optionally responds with a 100
				—								Trying provisional response
26												User A is informed of incoming file
27											200 OK	transfer session UE_A responds INVITE with 200 OK
												response with SDP to indicate that
				\rightarrow								the session has been accepted and inform A-side with specific data for
												MSRP connection set up
28			<u> </u>								200 OK	IMS_A forwards 200 OK response to
29			`								200 OK	AS/IM_A AS/IM_A returns, possibly modified,
29				\rightarrow							200 OK	200 OK response to IMS_A
30											200 OK	IMS_A forwards 200 OK response to
24					1						200 OK	IBCF_A forwards 200 OK response
31					-	\rightarrow					200 OK	IBCF_A forwards 200 OK response to IBCF_B
		1	l	I	l	I	1	I	I	I		[10 12 01 _B

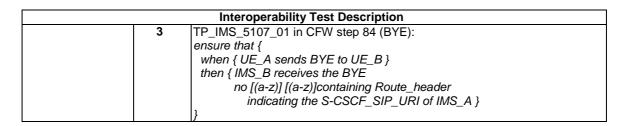
Step					Direc	tion					Message	Comment
_	U	U	Α	I	I	I	I	Α	U	U		
	S	E	S/	M	В	В	M	S/	E B	S		
	e r	Α	l M	S	C F	C F	S B	I M	В	e r		
	Ā		A		A	В		В		В		
32							\rightarrow				200 OK	IBCF_B forwards 200 OK response to IMS_B
33								\rightarrow			200 OK	IMS_B forwards 200 OK response to AS/IM_B
34							←				200 OK	AS/IM_B returns, possibly modified, 200 OK response to IMS_B
35						\leftarrow					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
38									\rightarrow		200 OK	to IMS_A IMS_A forwards 200 OK response to
39											ACK	UE_B UE_B acknowledges the receipt of
40											ACK	200 OK for INVITE IMS_A forwards ACK to IBCF_A
41					~						ACK	IBCF_A forwards ACK to IBCF_B
42											ACK	IBCF_B forwards ACK to IMS_B
43							7				ACK	IMS_B forwards ACK to AS/IM_B
43								7			ACK	
44							←				ACK	AS/IM_B returns, possibly modified, ACK to IMS_B
45						←					ACK	IMS_B forwards ACK to IBCF_B
46					←						ACK	IBCF_B forwards ACK to IBCF_A
47					_ `						ACK	IBCF_A forwards ACK to IMS_A
48			←								ACK	IMS_A forwards ACK to AS/IM_A
49				\rightarrow							ACK	AS/IM_A returns, possibly modified, ACK to IMS_A
50		←									ACK	IMS_A forwards ACK to UE_A
51	\leftarrow									\rightarrow		Users perform file transfer
52A		Ì							←			User B ends the file transfer session
53A				—		-		-			BYE	UE_B releases the file transfer session with BYE
54A					\rightarrow						BYE	IMS_A forwards BYE to IBCF_A
55A						\rightarrow					BYE	IBCF_A forwards BYE to IBCF_B
56A						·	→				BYE	IBCF B forwards BYE to IMS B
57A							·	→			BYE	IMS_B forwards BYE to AS/IM_B
58A							\leftarrow	_			BYE	AS/IM_B returns, possibly modified, BYE to IMS_B
59A						—					BYE	IMS_B forwards BYE to IBCF_B
60A					—						BYE	IBCF_B forwards BYE to IBCF_A
61A					_ `						BYE	IBCF_A forwards BYE to IMS_A
62A				┙`							BYE	IMS_A forwards BYE to AS/IM_A
63A				\rightarrow							BYE	AS/IM_A returns, possibly modified, BYE to IMS_A
64A		<u> </u>									BYE	IMS_A forwards BYE to UE_A
65A	←	È										User A is informed that file transfer session has ended
66A				\rightarrow							200 OK	UE_A sends 200 OK for BYE
67A			-								200 OK	IMS_A forwards 200 OK response to AS/IM_A
68A				\rightarrow							200 OK	AS/IM_A returns, possibly modified,
69A					\rightarrow						200 OK	200 OK response to IMS_A IMS_A forwards 200 OK response to
70A											200 OK	IBCF_A IBCF_A forwards 200 OK response
704						\rightarrow					200 OK	to IBCF_B

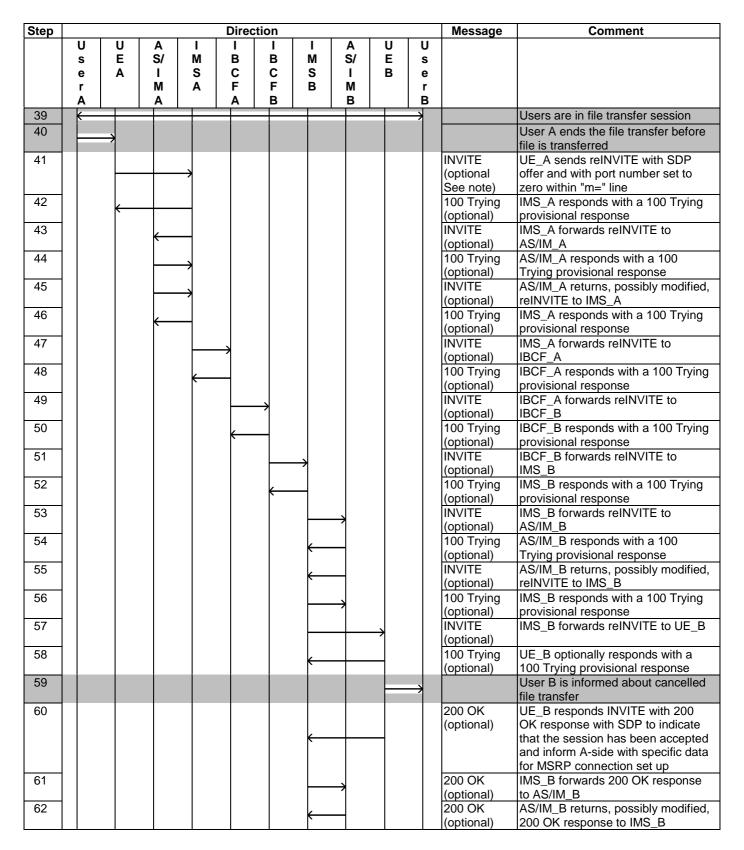


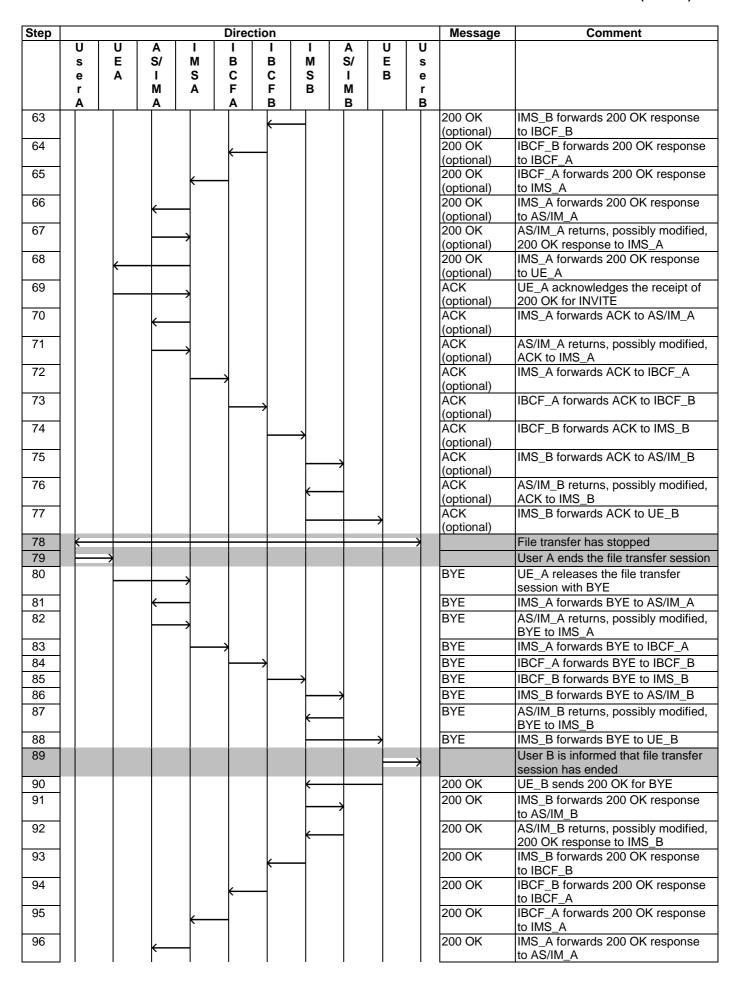
4.5.4.3 Cancel file transfer - initiator

4.5.4.3.1 Cancel file transfer - initiator - interworking

	lutan	novelility Toot Decembring
Identifier:	TD IMS FILE 0011	perability Test Description
Summary:		nsfer session is cancelled by the initiator of the session.
- January -	, an established me as	The second of th
Configuration:	CF_INT_AS	
SUT	IMS_A	
References	Test Purpose	Specification Reference
	TP_IMS_5106_01	TS 124 229 [1], clause 5.4.3.2 ¶108 (6 th numbered list)
	TP_IMS_5121_02 TP_IMS_5107_01	TS 124 229 [1], clause 5.4.3.3 ¶123 (9 th numbered list)
	TS 124 229 [1], clause 5.4.3.2 ¶119 (item 1 in 8 th numbered list)	
Use Case ref.:	UC_RCS_4_I	
Pre-test conditions:	 UE_A and UE as per TS 186 UE_A is regist IMS_A is confi UE_B is regist IMS_B is confi User A and B UE_B automa IMS_A within the 	and of IMS B is configured according to table 1 B have IP bearers established to their respective IMS networks 011-2 [11], clause 4.2.1 ered in IMS_A using userFT according to table 1 gured to contact AS_A (IM_A) ered in IMS_B using userFT according to table 1 gured to contact AS_B (IM_B) are subscribed to file transfer service ically answer on file transfer invitation the trust domain of IMS_B figured for topology hiding
Test Sequence:	2 User B aut 3 Verify that 4 User A rele 5 Verify that 6 Verify that 7 User A end 8 Verify that	ts file transfer invitation to User B comatically accepts file transfer invitation users can perform file transfer users file transfer session before the file is transferred user B is informed about cancelled file transfer session file transfer has stopped user B is informed that file transfer session has been released
	9 Verify that	user A is informed that file transfer session has been released
Conformance Criteria:	ensure tha when { U then { IM:	E_A sends a subsequent INVITE to UE_B } B_B receives the subsequent INVITE containing a Record-Route_header indicating the S-CSCF_SIP_URI of IMS_A and containing a Route_header not indicating the S-CSCF_SIP_URI of IMS_A and containing a P-Charging-Vector_header not containing an access-network-charging-info_parameter }
	ensure tha when { U then { IM co	121_02 (IMS_B) in CFW step 64 (200 OK): t { E_B sends a 2xx_response to UE_A } E_A receives the 2xx_response intaining a P-Charging-Vector_header into containing a access-network-charging-info_parameter }



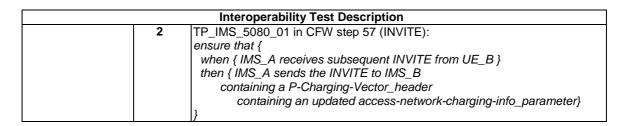


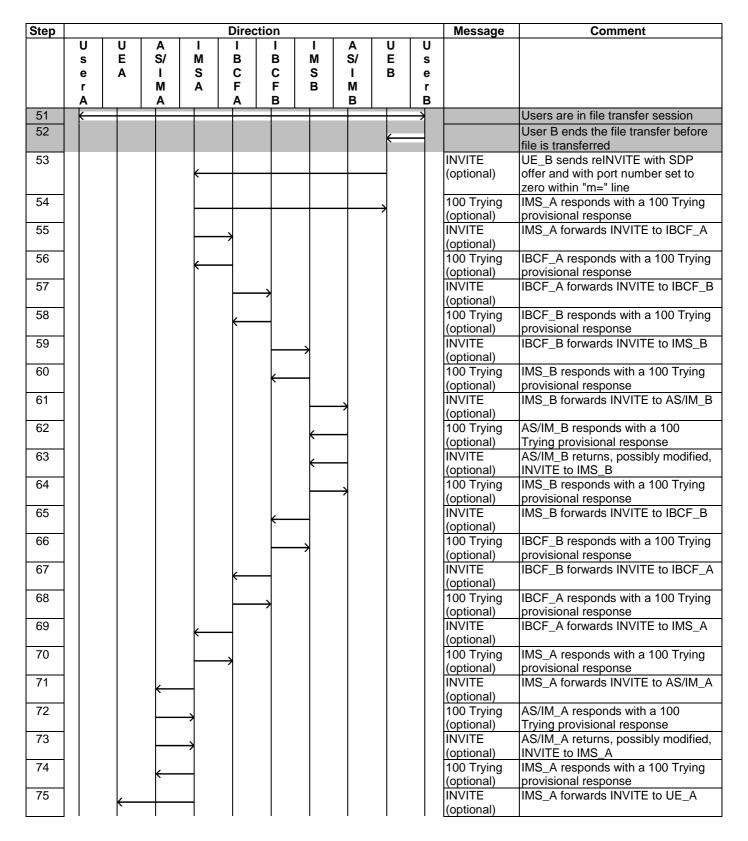


Step					Direc	tion					Message	Comment
	U	U	Α	_	_	ı	ı	Α	U	U		
	s	E	S/	M	В	В	M	S/	E	S		
	е	Α	l l	S	C	Ç	S	l I	В	е		
	r A		M	Α	A	r B	В	M B		r B		
97				\rightarrow						Ī	200 OK	AS/IM_A returns, possibly modified, 200 OK response to IMS_A
98		\leftarrow									200 OK	IMS_A forwards 200 OK response to UE_A
99	\leftarrow	+										User A is informed that file transfer session has ended
NOTE:	RF(C 5547	[12], cl	ause 8.	4: Rath	er than	close t	he MSF	RP sess	ion by	setting the p	ort number to zero in the related "m="
	line	, the fil	e sende	er could	also te	ar dow	n the w	hole se	ssion, e	g. by	sending a SI	P BYE request.

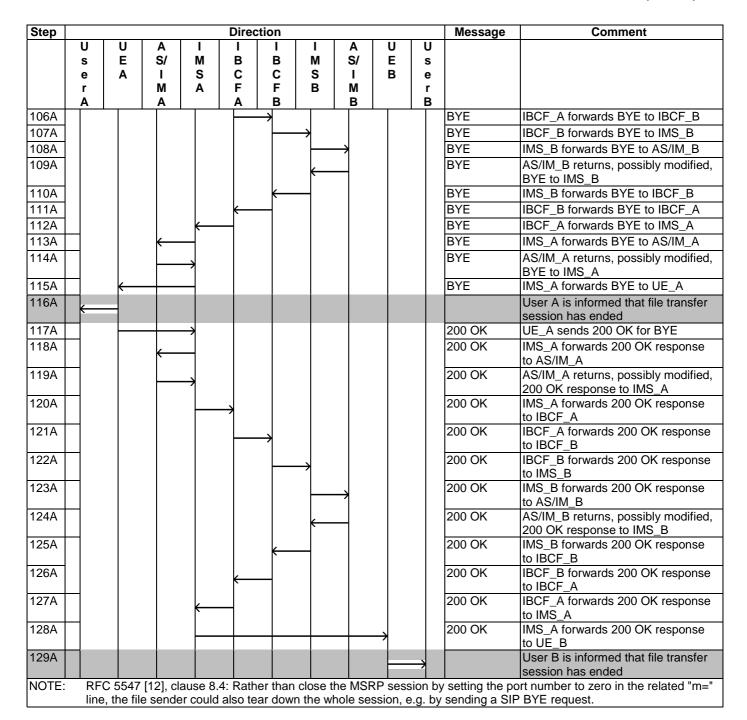
4.5.4.3.2 Cancel file transfer - initiator - roaming

		Interoperability Test Descr	rintion									
Identifier:												
Summary:	An established file transfer session is cancelled by the roaming initiator of the session.											
Odminary.	CF_ROAM_AS											
Configuration:	CE ROAM AS											
SUT	IMS_A Test Purpose Specification Reference											
References			Specification Reference									
	TP_IMS_5048	01	TS 124 229 [1], clause 5.2.6.3.5 ¶1									
	(1 st numbered list)											
	TP_IMS_5080_01 TS 124 229 [1], clause 5.2.9.1 ¶2											
Use Case ref.:	UC_RCS_4_R											
Pre-test	HSS of I	IMS_A and of IMS B is config	ured according to table 1									
conditions:			tablished to their respective IMS networks									
		S 186 011-2 [11], clause 4.2										
		registered in IMS_A using u										
		s configured to contact AS_A										
			_A using userFT according to table 1									
		s configured to contact AS_B										
	 User A a 	and B are subscribed to file to	ansfer service									
	UE_B at	utomatically answer on file tra	ansfer invitation									
		within the trust domain of IMS										
	• IMS_A r	not configured for topology hi	dina									
			anig									
			amg									
Test Sequence:	Step											
Test Sequence:	1 User	r B starts file transfer invitatio	n to User A									
Test Sequence:	1 User 2 User	r B starts file transfer invitation r A automatically accepts file	n to User A transfer invitation									
Test Sequence:	1 User 2 User 3 Verif	r B starts file transfer invitation r A automatically accepts file fy that users can perform file	n to User A transfer invitation transfer									
Test Sequence:	1 User 2 User 3 Verif 4 User	r B starts file transfer invitation r A automatically accepts file fy that users can perform file r B releases file transfer sess	n to User A transfer invitation transfer ion before the file is transferred									
Test Sequence:	1 User 2 User 3 Verif 4 User 5 Verif	r B starts file transfer invitation r A automatically accepts file fy that users can perform file r B releases file transfer sessify that user A is informed about 1	n to User A transfer invitation transfer ion before the file is transferred out cancelled file transfer session									
Test Sequence:	1 User 2 User 3 Verif 4 User 5 Verif 6 Verif	r B starts file transfer invitation r A automatically accepts file fy that users can perform file r B releases file transfer sessify that user A is informed about that file transfer has stopped to the start of the	n to User A transfer invitation transfer ion before the file is transferred out cancelled file transfer session ed									
Test Sequence:	1 User 2 User 3 Verif 4 User 5 Verif 6 Verif 7 User	r B starts file transfer invitation r A automatically accepts file for that users can perform file r B releases file transfer sessify that user A is informed about that file transfer has stopped r B ends the file transfer sessing that the file transfer sessing that the file transfer sessing the file tra	n to User A transfer invitation transfer ion before the file is transferred out cancelled file transfer session ed ion									
Test Sequence:	1 User 2 User 3 Verif 4 User 5 Verif 6 Verif 7 User 8 Verif	r B starts file transfer invitation r A automatically accepts file for that users can perform file r B releases file transfer sessify that user A is informed about that file transfer has stopped r B ends the file transfer sessify that User A is informed that	n to User A transfer invitation transfer ion before the file is transferred out cancelled file transfer session ed ion t file transfer session has been released									
Test Sequence:	1 User 2 User 3 Verif 4 User 5 Verif 6 Verif 7 User 8 Verif	r B starts file transfer invitation r A automatically accepts file for that users can perform file r B releases file transfer sessify that user A is informed about that file transfer has stopped r B ends the file transfer sessify that User A is informed that	n to User A transfer invitation transfer ion before the file is transferred out cancelled file transfer session ed ion									
·	1 User 2 User 3 Verif 4 User 5 Verif 6 Verif 7 User 8 Verif 9 Verif	r B starts file transfer invitation r A automatically accepts file for that users can perform file r B releases file transfer sessify that user A is informed about that file transfer has stopped r B ends the file transfer sessify that User A is informed that	n to User A transfer invitation transfer ion before the file is transferred out cancelled file transfer session ed ion t file transfer session has been released									
Conformance	1 User 2 User 3 Verif 4 User 5 Verif 6 Verif 7 User 8 Verif 9 Verif	r B starts file transfer invitation of A automatically accepts file fy that users can perform file of that users can perform file of that user A is informed about the file transfer has stopped of the transfer sessing that User A is informed that fy that User B is informed that	n to User A transfer invitation transfer ion before the file is transferred out cancelled file transfer session ed ion t file transfer session has been released t file transfer session has been released									
·	1 User 2 User 3 Verif 4 User 5 Verif 6 Verif 7 User 8 Verif 9 Verif Check 1 TP_I	r B starts file transfer invitation of A automatically accepts file for that users can perform file or B releases file transfer sessify that user A is informed about that file transfer has stopped or B ends the file transfer sessify that User A is informed that for that User B is informed that the file transfer sessify the file transfer sessify that User B is informed that the file transfer sessify the file transfer sessify the file transfer sessify that User B is informed that the file transfer sessify that User B is informed that the file transfer sessify the file transfer sessify the file transfer sessify the file transfer sessify the file transfer sessify the file transfer sessify the file transfer sessify the file transfer sessify the file transfer sessify the file transfer sessify the file transfer sessify the file transfer sessify the file transfer sessify the file transf	n to User A transfer invitation transfer ion before the file is transferred out cancelled file transfer session ed ion t file transfer session has been released t file transfer session has been released									
Conformance	1 User 2 User 3 Verif 4 User 5 Verif 6 Verif 7 User 8 Verif 9 Verif Check 1 TP_L ensu	r B starts file transfer invitation A automatically accepts file fy that users can perform file r B releases file transfer sess fy that user A is informed about the file transfer has stopped r B ends the file transfer sess fy that User A is informed that fy that User B is informed that fy that User B is informed that fy that User B is informed that file transfer sess for that User B is informed that file transfer sess for that User B is informed that file transfer sess for that User B is informed that file transfer sess for that file transfer invitation for the file transfer invitation f	n to User A transfer invitation transfer ion before the file is transferred out cancelled file transfer session ed ion t file transfer session has been released t file transfer session has been released									
Conformance	1 User 2 User 3 Verif 4 User 5 Verif 6 Verif 7 User 8 Verif 9 Verif Check 1 TP_L ensu	r B starts file transfer invitation of A automatically accepts file fy that users can perform file or B releases file transfer sessify that user A is informed about that file transfer has stopped or B ends the file transfer sessify that User A is informed that fy that User B is informed that fy that User B is informed that fy that User B is informed that for the file transfer sessify that User B is informed that for the file file file file file file file fil	n to User A transfer invitation transfer ion before the file is transferred out cancelled file transfer session ed ion t file transfer session has been released t file transfer session has been released 7 (INVITE): quent INVITE from UE_B }									
Conformance	1 User 2 User 3 Verif 4 User 5 Verif 6 Verif 7 User 8 Verif 9 Verif Check 1 TP_L ensu	r B starts file transfer invitation of A automatically accepts file fy that users can perform file or B releases file transfer sessify that user A is informed about that file transfer has stopped or B ends the file transfer sessify that User A is informed that fy that User B is informed that fy that User B is informed that file transfer sessify that User B is informed that for the file transfer sessify that User B is informed that file transfer sessify that User B is informed that file file file file file file file file	n to User A transfer invitation transfer ion before the file is transferred out cancelled file transfer session ed ion t file transfer session has been released t file transfer session has been released 7 (INVITE): quent INVITE from UE_B } to IMS_B									
Conformance	1 User 2 User 3 Verif 4 User 5 Verif 6 Verif 7 User 8 Verif 9 Verif Check 1 TP_L ensu	r B starts file transfer invitation of A automatically accepts file fy that users can perform file or B releases file transfer sessify that user A is informed about that file transfer has stopped or B ends the file transfer sessify that User A is informed that fy that User B is informed that fy that User B is informed that fy that User B is informed that for the file of the f	n to User A transfer invitation transfer ion before the file is transferred out cancelled file transfer session ed ion t file transfer session has been released t file transfer session has been released 7 (INVITE): quent INVITE from UE_B } to IMS_B									
Conformance	1 User 2 User 3 Verif 4 User 5 Verif 6 Verif 7 User 8 Verif 9 Verif Check 1 TP_L ensu	r B starts file transfer invitation of A automatically accepts file fy that users can perform file or B releases file transfer sessify that user A is informed about that file transfer has stopped or B ends the file transfer sessify that User A is informed that fy that User B is informed that fy that User B is informed that fy that User B is informed that for the films_A receives a subsetting the films_A sends the INVITE containing a topmost Round indicating the P-CS containing an additional N	n to User A transfer invitation transfer ion before the file is transferred out cancelled file transfer session ed ion t file transfer session has been released t file transfer session has been released 7 (INVITE): quent INVITE from UE_B } to IMS_B tte_header CCF_SIP_URI of IMS_A and Via_header									
Conformance	1 User 2 User 3 Verif 4 User 5 Verif 6 Verif 7 User 8 Verif 9 Verif Check 1 TP_L ensu	r B starts file transfer invitation of A automatically accepts file fy that users can perform file or B releases file transfer sessify that user A is informed about that file transfer has stopped or B ends the file transfer sessify that User A is informed that fy that User B is informed that fy that User B is informed that fy that User B is informed that films_5048_01 in CFW step 50 are that { en { IMS_A receives a subsetent { IMS_A sends the INVITE containing a topmost Round to indicating the P-CSC containing an additional National Containing (the P-CSC)	n to User A transfer invitation transfer ion before the file is transferred out cancelled file transfer session ed ion t file transfer session has been released t file transfer session has been released 7 (INVITE): quent INVITE from UE_B } to IMS_B tte_header CCF_SIP_URI of IMS_A and Via_header F_via_port_number and									
Conformance	1 User 2 User 3 Verif 4 User 5 Verif 6 Verif 7 User 8 Verif 9 Verif Check 1 TP_L ensu	r B starts file transfer invitation of A automatically accepts file fy that users can perform file or B releases file transfer sessify that user A is informed about that file transfer has stopped or B ends the file transfer sessify that User A is informed that fy that User B is informed that fy that User B is informed that fy that User B is informed that for the films_A receives a subset on { IMS_A sends the INVITE containing a topmost Round to indicating the P-CSC containing an additional formula for the file of the P-CSCF-FC (the P-CSCF-FC)	n to User A transfer invitation transfer ion before the file is transferred out cancelled file transfer session ed ion t file transfer session has been released t file transfer session has been released T (INVITE): quent INVITE from UE_B } to IMS_B tte_header ICF_SIP_URI of IMS_A and Via_header F_via_port_number and QDN_address or									
Conformance	1 User 2 User 3 Verif 4 User 5 Verif 6 Verif 7 User 8 Verif 9 Verif Check 1 TP_L ensu	r B starts file transfer invitation of A automatically accepts file fy that users can perform file or B releases file transfer sessify that user A is informed about that file transfer has stopped or B ends the file transfer sessify that User A is informed that fy that User B is informed that fy that User B is informed that fy that User B is informed that for the films_A receives a subset on { IMS_A sends the INVITE containing a topmost Round to indicating the P-CSC containing an additional formula for the file of the P-CSCF-FC (the P-CSCF-FC)	n to User A transfer invitation transfer ion before the file is transferred out cancelled file transfer session ed ion t file transfer session has been released t file transfer session has been released 7 (INVITE): quent INVITE from UE_B } to IMS_B tte_header CCF_SIP_URI of IMS_A and Via_header F_via_port_number and									





Step					Direc	tion					Message	Comment
	U	U	Α	ı	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		
	A		A	Α .	Ā	г В	В	B		r B		
76				J	T '	Ī				Ī	100 Trying	UE_A optionally responds with a
				7							(optional)	100 Trying provisional response
77	\vdash											User A is informed about cancelled
78											200 OK	[(a-z)] [(a-z)]file transfer UE_A responds INVITE with 200
70											(optional)	OK response with SDP to indicate
				\rightarrow							(optional)	that the session has been accepted
												and inform A-side with specific data
70											200 OK	for MSRP connection set up
79			←								(optional)	IMS_A forwards 200 OK response to AS/IM_A
80											200 OK	AS/IM_A returns, possibly modified,
				7							(optional)	200 OK response to IMS_A
81					\rightarrow						200 OK	IMS_A forwards 200 OK response
82											(optional) 200 OK	to IBCF_A IBCF_A forwards 200 OK response
82						\rightarrow					(optional)	to IBCF_B
83											200 OK	IBCF_B forwards 200 OK response
							\rightarrow				(optional)	to IMS_B
84								\rightarrow			200 OK	IMS_B forwards 200 OK response
85											(optional) 200 OK	to AS/IM_B AS/IM_B returns, possibly modified,
65							←				(optional)	200 OK response to IMS_B
86											200 OK	IMS_B forwards 200 OK response
											(optional)	to IBCF_B
87					←						200 OK	IBCF_B forwards 200 OK response
88											(optional) 200 OK	to IBCF_A IBCF_A forwards 200 OK response
00				←							(optional)	to IMS_A
89											200 OK	IMS_A forwards 200 OK response
											(optional)	to UE_B
90				←							ACK	UE_B acknowledges the receipt of
91											(optional) ACK	200 OK for INVITE IMS_A forwards ACK to IBCF_A
31					\rightarrow						(optional)	INIO_A IOI WAI US ACIT TO IBOI _A
92						_					ACK	IBCF_A forwards ACK to IBCF_B
						1					(optional)	
93							\rightarrow				ACK (optional)	IBCF_B forwards ACK to IMS_B
94											ACK	IMS_B forwards ACK to AS/IM_B
0.								\rightarrow			(optional)	
95											ACK	AS/IM_B returns, possibly modified,
-00											(optional)	ACK to IMS_B
96						\leftarrow	\dashv				ACK (optional)	IMS_B forwards ACK to IBCF_B
97											ACK	IBCF_B forwards ACK to IBCF_A
											(optional)	
98				<u></u>							ACK	IBCF_A forwards ACK to IMS_A
00											(optional)	IMS A forwards ACK to AC/IMA A
99			\leftarrow	\dashv							ACK (optional)	IMS_A forwards ACK to AS/IM_A
100											ACK	AS/IM_A returns, possibly modified,
				7							(optional)	ACK to IMS_A
101		\leftarrow		_							ACK	IMS_A forwards ACK to UE_A
102											(optional)	File transfer is stopped
102 103A												User B ends the file transfer session
103A											BYE	UE_B releases the enhanced
				\leftarrow					\exists			messages session with BYE
105A				\vdash	\rightarrow						BYE	IMS_A forwards BYE to IBCF_A

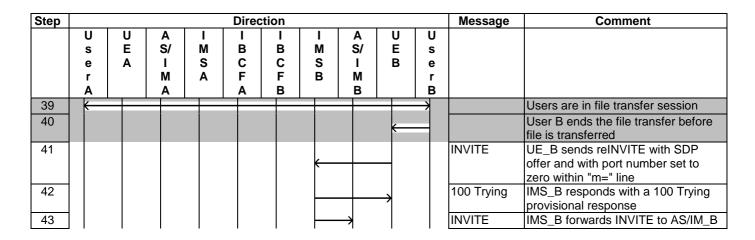


4.5.4.4 Cancel file transfer - destination

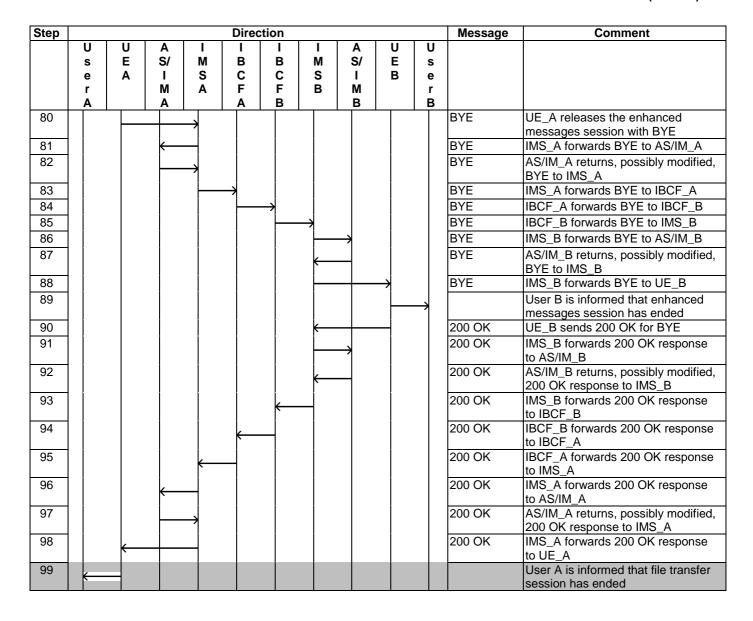
4.5.4.4.1 Cancel file transfer - destination - interworking

	Interoperability	Test Description							
Identifier:	TD_IMS_FILE_0013								
Summary:	An established file transfer session is cancelled by the destination of the file transfer.								
Configuration:	CF_INT_AS								
SUT	IMS_A								
References	Test Purpose	Specification Reference							
	TP_IMS_5310_01	TS 124 229 [1], clause 5.4.6.1.2 ¶1							
	TP_IMS_5312_01	TS 124 229 [1], clause 5.4.6.1.3 ¶1							
Use Case ref.:	UC_RCS_4_I	•							

		Interoperability Test Description							
Pre-test conditions:	UE as UE IM UE IM UE UE IM UE IM UE IM UE IM IM IM	SS of IMS_A and of IMS B is configured according to table 1 E_A and UE_B have IP bearers established to their respective IMS networks E per TS 186 011-2 [11], clause 4.2.1 E_A is registered in IMS_A using userFT according to table 1 IS_A is configured to contact AS_A (IM_A) E_B is registered in IMS_B using userFT according to table 1 IS_B is configured to contact AS_B (IM_B) E=B is configured to contact AS_B (IM_B) E=C A and B are subscribed to file transfer service E=B automatically answer on file transfer invitation IS_A within the trust domain of IMS_B IS_A not configured for topology hiding							
Toot Soguenes:	Ston								
Test Sequence:	Step								
	1	User A starts file transfer invitation to User B							
	2	User B automatically accepts file transfer invitation							
	3	Verify that User A is informed that file transfer invitation has been started							
	4	User A starts file transfer to User B							
	5	User B accept file transfer from User A							
	6	Verify that User A is informed that file transfer has been started Verify that User B is informed that file transfer is in progress User B release file transfer session before file is transferred							
	7								
	8								
	9	Verify with UE_A that file transfer session has been released							
	10	Verify with UE_B that file transfer session has been released							
Conformance	Check								
Criteria:	1	TP_IMS_5310_01 in CFW step 49 (INVITE)							
		ensure that {							
		when { UE_B sends a subsequent INVITE to IMS_B							
		containing a P-Charging-Vector_header							
		containing a P-Charging-Vector_header containing an access-network-charging-info_parameter }							
		containing a P-Charging-Vector_header containing an access-network-charging-info_parameter } then { IMS_B sends the INVITE to AS_B							
		containing a P-Charging-Vector_header containing an access-network-charging-info_parameter } then { IMS_B sends the INVITE to AS_B containing a P-Charging-Vector_header							
		containing a P-Charging-Vector_header containing an access-network-charging-info_parameter } then { IMS_B sends the INVITE to AS_B containing a P-Charging-Vector_header containing an access-network-charging-info_parameter							
		containing a P-Charging-Vector_header containing an access-network-charging-info_parameter } then { IMS_B sends the INVITE to AS_B containing a P-Charging-Vector_header							
	2	containing a P-Charging-Vector_header containing an access-network-charging-info_parameter } then { IMS_B sends the INVITE to AS_B containing a P-Charging-Vector_header containing an access-network-charging-info_parameter } }							
	2	containing a P-Charging-Vector_header containing an access-network-charging-info_parameter } then { IMS_B sends the INVITE to AS_B containing a P-Charging-Vector_header containing an access-network-charging-info_parameter } TP_IMS_5312_01 in CFW step 64 (200 OK)							
	2	containing a P-Charging-Vector_header containing an access-network-charging-info_parameter } then { IMS_B sends the INVITE to AS_B containing a P-Charging-Vector_header containing an access-network-charging-info_parameter } TP_IMS_5312_01 in CFW step 64 (200 OK) ensure that {							
	2	containing a P-Charging-Vector_header containing an access-network-charging-info_parameter } then { IMS_B sends the INVITE to AS_B containing a P-Charging-Vector_header containing an access-network-charging-info_parameter } } TP_IMS_5312_01 in CFW step 64 (200 OK) ensure that { when { IMS_B receives a 200_response from IMS_A							
	2	containing a P-Charging-Vector_header containing an access-network-charging-info_parameter } then { IMS_B sends the INVITE to AS_B containing a P-Charging-Vector_header containing an access-network-charging-info_parameter } } TP_IMS_5312_01 in CFW step 64 (200 OK) ensure that { when { IMS_B receives a 200_response from IMS_A containing a P-Charging-Vector_header							
	2	containing a P-Charging-Vector_header containing an access-network-charging-info_parameter } then { IMS_B sends the INVITE to AS_B containing a P-Charging-Vector_header containing an access-network-charging-info_parameter } } TP_IMS_5312_01 in CFW step 64 (200 OK) ensure that { when { IMS_B receives a 200_response from IMS_A							
	2	containing a P-Charging-Vector_header containing an access-network-charging-info_parameter } then { IMS_B sends the INVITE to AS_B containing a P-Charging-Vector_header containing an access-network-charging-info_parameter } TP_IMS_5312_01 in CFW step 64 (200 OK) ensure that { when { IMS_B receives a 200_response from IMS_A containing a P-Charging-Vector_header containing an access-network-charging-info_parameter }							
	2	containing a P-Charging-Vector_header containing an access-network-charging-info_parameter } then { IMS_B sends the INVITE to AS_B containing a P-Charging-Vector_header containing an access-network-charging-info_parameter } } TP_IMS_5312_01 in CFW step 64 (200 OK) ensure that { when { IMS_B receives a 200_response from IMS_A containing a P-Charging-Vector_header containing an access-network-charging-info_parameter } then { IMS_B sends the 200_response to AS_B							
	2	containing a P-Charging-Vector_header containing an access-network-charging-info_parameter } then { IMS_B sends the INVITE to AS_B containing a P-Charging-Vector_header containing an access-network-charging-info_parameter } } TP_IMS_5312_01 in CFW step 64 (200 OK) ensure that { when { IMS_B receives a 200_response from IMS_A containing a P-Charging-Vector_header containing an access-network-charging-info_parameter } then { IMS_B sends the 200_response to AS_B containing a P-Charging-Vector_header							
	2	containing a P-Charging-Vector_header containing an access-network-charging-info_parameter } then { IMS_B sends the INVITE to AS_B containing a P-Charging-Vector_header containing an access-network-charging-info_parameter } } TP_IMS_5312_01 in CFW step 64 (200 OK) ensure that { when { IMS_B receives a 200_response from IMS_A containing a P-Charging-Vector_header containing an access-network-charging-info_parameter } then { IMS_B sends the 200_response to AS_B							



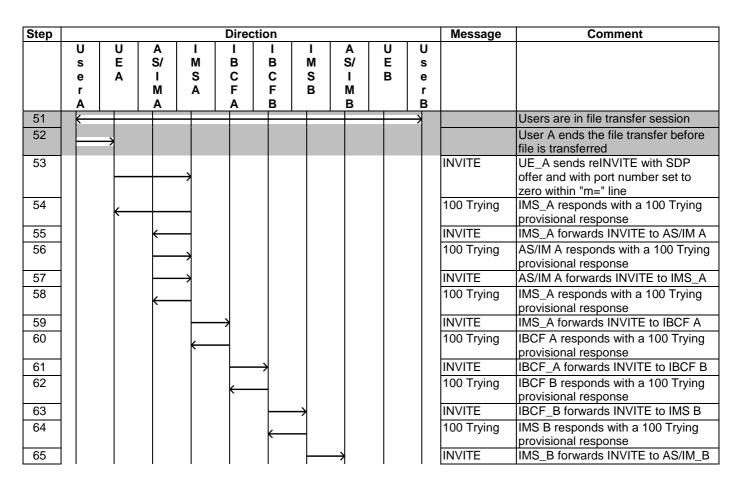
Step					Direct	ion					Message	Comment
	U	U	A	1	I	Ī	I	A	U	U		
	s e	E A	S/	M S	B C	B C	M S	S/	E B	s e		
	r	^	M	A	F	F	В	М	"	r		
	Α		Α		Α	В		В	<u> </u>	В		
44							\leftarrow				100 Trying	AS/IM_B responds with a 100
45											INVITE	Trying provisional response AS/IM_B forwards INVITE to
												IMS_B
46								\rightarrow			100 Trying	IMS B responds with a 100 Trying
47											INVITE	provisional response IMS_B forwards INVITE to IBCF_B
48											100 Trying	IBCF_B responds with a 100 Trying
							7					provisional response
49					\leftarrow						INVITE	IBCF_B forwards INVITE to IBCF_A
50)					100 Trying	IBCF A responds with a 100 Trying provisional response
51											INVITE	IBCF A returns, possibly modified,
												INVITE to IMS_A
52					\rightarrow						100 Trying	IMS_A responds with a 100 Trying provisional response
53			<u></u>								INVITE	IMS_A forwards INVITE to AS/IMA
54			ľ								100 Trying	IBCF_A responds with a 100 Trying
				7								provisional response
55				\rightarrow							INVITE	AS/IMA forwards INVITE to IMS_A
56			\leftarrow								100 Trying	IMS_A responds with a 100 Trying provisional response
57		←									INVITE	IMS_A forwards INVITE to UE A
58				_							100 Trying	UE A responds with a 100 Trying
-												provisional response
59												User A is informed about cancelled [(a-z)] [(a-z)]file transfer
60											200 OK	UE_A responds INVITE with 200
0.4				1							000 014	OK response
61			\leftarrow	_							200 OK	IMS_A forwards 200 OK response to AS/IM_A
62											200 OK	AS/IM_A returns, possibly modified,
											222 217	200 OK response to IMS_A
63					→						200 OK	IMS_A forwards 200 OK response to IBCF_A
64)					200 OK	IBCF_A forwards 200 OK response to IBCF_B
65							\rightarrow				200 OK	IBCF_B forwards 200 OK response
66											200 OK	to IMS_B IMS_B forwards 200 OK response
00								\rightarrow			200 OK	to AS/IM_B
67							\leftarrow				200 OK	AS/IM_B returns, possibly modified, 200 OK response to IMS_B
68									\rightarrow		200 OK	IMS_B forwards 200 OK response to UE_B
69											ACK	UE_B acknowledges the receipt of 200 OK for INVITE
70							<u> </u>	\rightarrow			ACK	IMS_B forwards ACK to AS/IM_B
71							_				ACK	AS/IM_B returns, possibly modified,
70							`				A 01/	ACK to IMS_B
72 73							\neg				ACK ACK	IMS_B forwards ACK to IBCF_B IBCF_B forwards ACK to IBCF_A
74											ACK	IBCF_A forwards ACK to IMS_A
75				_							ACK	IMS_A forwards ACK to AS/IM_A
76				_							ACK	AS/IM_A returns, possibly modified,
				7							1011	ACK to IMS_A
77		\leftarrow									ACK	IMS_A forwards ACK to UE_A
78 79		_										File transfer is stopped User A ends the file transfer session
13		1										OSEI A CHOS THE HE TRANSIEL SESSION



4.5.4.4.2 Cancel file transfer - destination - roaming

	Interoperability Test Descr	rintion							
Identifier:	TD IMS FILE 0014								
Summary:	An established file transfer session is cancelled by the destination of the file transfer.								
	The detailment and trainered detailer to darries	and by the decimation of the me transfer.							
Configuration:	CF ROAM AS								
SUT	IMS_A								
References	Test Purpose	Specification Reference							
	TP_IMS_5048_01	TS 124 229 [1], clause 5.2.6.3.5 ¶1 (1 st numbered list)							
	TP_IMS_5080_01	TS 124 229 [1], clause 5.2.9.1 ¶2							
Use Case ref.:	UC_RCS_4_R								
Pre-test	HSS of IMS_A and of IMS B is config	jured 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 [11], clause 4.2.1 UE_A is registered in IMS_A using userFT according to table 1 IMS_A is configured to contact AS_A (IM_A) 								
	 UE_B is registered in IMS_B via IMS_A using userFT according to table 1 IMS_B is configured to contact AS_B (IM_B) 								
	 User A and B are subscribed to file transfer service UE_B automatically answer on file transfer invitation IMS A within the trust domain of IMS B 								

		Interoperability Test Description
	• IM	S_A not configured for topology hiding
Test Sequence:	Step	
	1	User B starts file transfer invitation to User A
	2	User A automatically accepts file transfer invitation
	3	Verify that User B is informed that file transfer invitation has been started
	4	User B starts file transfer to User A
	5	User A accept file transfer from User B
	6	Verify that User B is informed that file transfer has been started
	7	Verify that User A is informed that file transfer is in progress
	8	User A release file transfer session before file is transferred
	9	Verify with UE_B that file transfer session has been released
	10	Verify with UE_A that file transfer session has been released
Conformance	Check	
Criteria:	1	TP_IMS_5048_01 in CFW step 61 (INVITE):
		ensure that {
		when { IMS_A receives a subsequent INVITE from UE_B }
		then { IMS_A sends the INVITE to IMS_B
		containing a topmost Route_header
		not indicating the P-CSCF_SIP_URI of IMS_A 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 }
	2	TP_IMS_5080_01 in CFW step 61 (INVITE):
		ensure that {
		when { IMS_A receives subsequent INVITE from UE_B }
		then { IMS_A sends the INVITE to IMS_B
		containing a P-Charging-Vector_header
		containing an updated access-network-charging-info_parameter}



Step					Direct	tion					Message	Comment
	U	Ū	Α	I	I		ı	A	Ū	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		
66							←				100 Trying	AS/IM_B responds with a 100 Trying provisional response
67											INVITE	AS/IM_B returns, possibly modified,
												INVITE to IMS_B
68								\rightarrow			100 Trying	IMS_B responds with a 100 Trying
69						<u> </u>					INVITE	provisional response IMS_B forwards INVITE to IBCF_B
70						ľ					100 Trying	IBCF_B responds with a 100 Trying
												provisional response
71					\leftarrow						INVITE	IBCF_B forwards INVITE to IBCF_A
72						\rightarrow					100 Trying	IBCF_A responds with a 100 Trying provisional response
73				←—							INVITE	IBCF_A forwards INVITE to IMS_A
74					_						100 Trying	IMS_A responds with a 100 Trying
75											INVITE	provisional response IMS_A forwards INVITE to UE B
76											100 Trying	UE_B responds with a 100 Trying
/ 0				←							100 Trying	provisional response
77												User B is informed about cancelled
										\rightarrow		[(a-z)] [(a-z)]enhanced messaging session
78											200 OK	UE_A responds INVITE with 200
				\leftarrow								OK response with SDP to indicate
79											200 OK	that the session has been accepted IMS_A forwards 200 OK response
79					\rightarrow						200 OK	to IBCF A
80						_					200 OK	IBCF_A forwards 200 OK response
0.4						1					000 01/	to IBCF_B
81							\rightarrow				200 OK	IBCF_B forwards 200 OK response to IMS_B
82								_			200 OK	IMS_B forwards 200 OK response
00								1			000 01/	to AS/IM_B
83							←				200 OK	AS/IM_B returns, possibly modified, 200 OK response to IMS_B
84						,					200 OK	IMS_B forwards 200 OK response
0.5											000 01/	to IBCF_B
85					\leftarrow						200 OK	IBCF_B forwards 200 OK response to IBCF_A
86											200 OK	IBCF_A forwards 200 OK response
												to IMS_A
87			\leftarrow	_							200 OK	IMS_A forwards 200 OK response to AS/IM A
88											200 OK	AS/IM A forwards 200 OK response
				7								to IMS_A
89		\leftarrow	_								200 OK	IMS_A forwards 200 OK response
90											ACK	to UE_A UE A forwards ACK to IMS_A
				\rightarrow								_
91			←								ACK	IMS_A forwards ACK to AS/IM_A
92											ACK	AS/IM A acknowledges the receipt
				\rightarrow								of 200 OK for INVITE
93					\rightarrow						ACK	IMS_A forwards ACK to IBCF_A
94											ACK	IBCF_A forwards ACK to IBCF_B
3-						\rightarrow						TOT _/ TOTWARDS ACIT TO IDOT _D
95							\rightarrow				ACK	IBCF_B forwards ACK to IMS_B
96											ACK	IMS_B forwards ACK to AS/IM_B
90								\rightarrow			ACK	INVIS_D IOI WAIUS ACK TO AS/IIVI_B
			•		•	'	ı	1	1	•		

Step					Directi	on					Message	Comment
	U	ū	A	I	Ī	I	I I	Α	Ū	U		
	s e	E A	S/	M S	B C	B C	M S	S/	E B	s e		
	ř	^	M	Ä	F	F	В	M	_	r		
	Α		Α		Α	В		В		В		
97											ACK	AS/IM_B returns, possibly modified,
							ľ				4.014	ACK to IMS_B
98						\leftarrow					ACK	IMS_B forwards ACK to IBCF_B
99						_					ACK	IBCF_B forwards ACK to IBCF_A
100				—							ACK	IBCF_A forwards ACK to IMS_A
101									→		ACK	IMS_A forwards ACK to UE B
102	(\rightarrow		File transfer is stopped
103A					İ				—			User B ends the file transfer session
104A				—							BYE	UE_B releases the enhanced messages session with BYE
105A					•						BYE	IMS_A forwards BYE to IBCF_A
106A						>					BYE	IBCF_A forwards BYE to IBCF_B
107A							\rightarrow				BYE	IBCF_B forwards BYE to IMS_B
108A								\rightarrow			BYE	IMS B forwards BYE to AS/IM B
109A											BYE	AS/IM_B returns, possibly modified,
												BYE to IMS_B
110A						\leftarrow	_				BYE	IMS_B forwards BYE to IBCF_B
111A						-					BYE	IBCF_B forwards BYE to IBCF_A
112A				\leftarrow	-						BYE	IBCF_A forwards BYE to IMS_A
113A			\leftarrow								BYE	IMS_A forwards BYE to AS/IM_A
114A				>							BYE	AS/IM_A returns, possibly modified, BYE to IMS_A
115A		\leftarrow	_								BYE	IMS_A forwards BYE to UE_A
116A	-											User A is informed that file transfer session has ended
117A				>							200 OK	UE A sends 200 OK for BYE
118A											200 OK	IMS_A forwards 200 OK response
												to AS/IM_A
119A)							200 OK	AS/IM_A returns, possibly modified, 200 OK response to IMS_A
120A					>						200 OK	IMS_A forwards 200 OK response to IBCF_A
121A)					200 OK	IBCF_A forwards 200 OK response to IBCF_B
122A							\rightarrow				200 OK	IBCF_B forwards 200 OK response to IMS_B
123A								→			200 OK	IMS_B forwards 200 OK response
124A							<u></u>				200 OK	to AS/IM_B AS/IM_B returns, possibly modified,
125A											200 OK	200 OK response to IMS_B IMS_B forwards 200 OK response
126A					<u></u>						200 OK	to IBCF_B IBCF_B forwards 200 OK response
127A											200 OK	to IBCF_A IBCF_A forwards 200 OK response
128A											200 OK	to IMS_A IMS_A forwards 200 OK response
129A									7			to UE_B User B is informed that file transfer
129A										\rightarrow		session has ended

4.5.5 Content Sharing

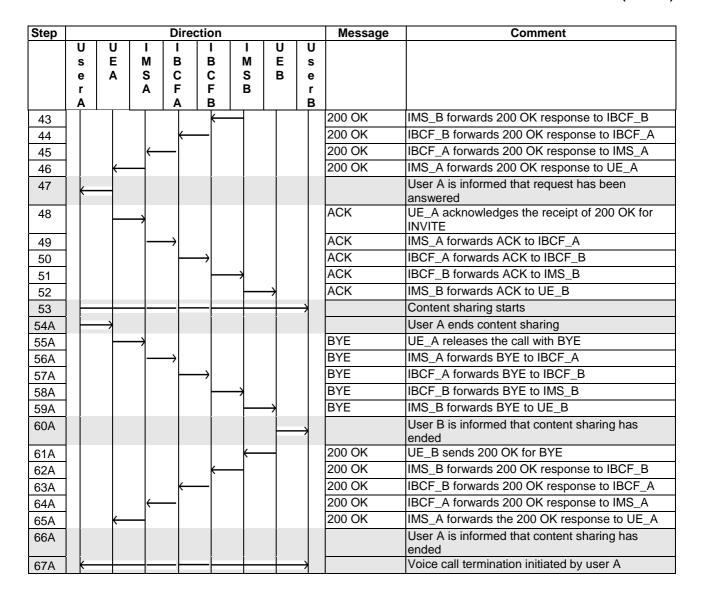
Shared content in the following clauses should be images or videos.

4.5.5.1 Content Sharing from calling to called user

4.5.5.1.1 Content Sharing from calling to called user - interworking

		Interoperability Test Desc	cription				
Identifier:		SHARE_0001					
Summary:	User A sets up a voice call to user B and shares content with user B.						
Configuration:	CF_INT_CALL						
SUT	IMS_A and IMS_B and UE_B						
References	Test Purp	pose	Specification Reference				
		CONTENT_SHARING_01	Rich Communication Suite Release 2, Technical realization [10], clause 8.1				
		CONTENT_SHARING_02	Rich Communication Suite Release 2, Technical realization [10], clause 8.1				
Use Case ref.:	UC_RCS	_11_l					
Dec to at	1.16	00 (1140 A) (1140 D)					
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 [11], clause 4.2.1 UE_A is registered in IMS_A using userSHARE according to table 1 UE_B is registered in IMS_B using userSHARE according to table 1 User A and B are subscribed to file transfer service IMS_A within the trust domain of IMS_B UE_A and UE_B support content sharing 						
Test Sequence:	Step						
·	1 2 3 4 5 6 7 8 9		content sharing capabilities of user B content sharing capabilities of user A nt with user B share content t with User A at request has been answered				
Conformance Criteria:	Check 1	then { IUT sends the OPTIONS	ONS from UE_A addressed_to UE_B } S to IMS_B header poice_feature_tag and Contact_header poice_feature_tag } 2 in CFW step 29 (INVITE): uent content_share INVITE from UE_A				

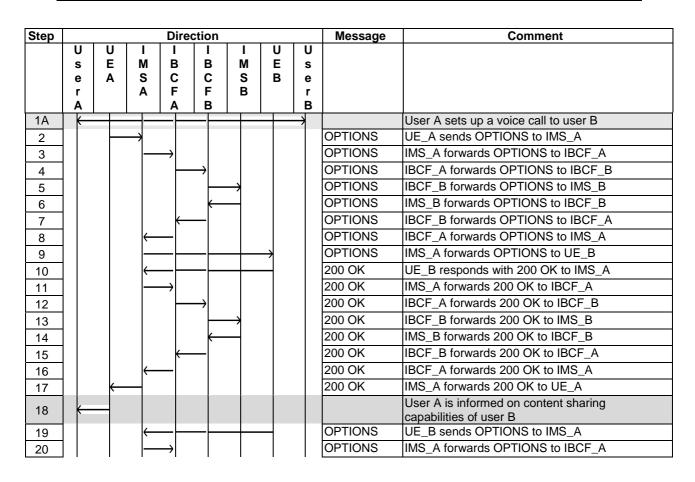
Step			D	irection	on				Message	Comment
	U	U I	I		I		U	U	5-	
	s	E N					E	s		
	e r	AS				S I B	В	e r		
	Å	[`		В	_		В		
1A	\vdash				<u> </u>)		User A establishes a voice call to user B
2		\longrightarrow							OPTIONS	UE_A sends OPTIONS to IMS_A
3			\longrightarrow						OPTIONS	IMS_A forwards OPTIONS to IBCF_A
4				\longrightarrow					OPTIONS	IBCF_A forwards OPTIONS to IBCF_B
5					\longrightarrow				OPTIONS	IBCF_B forwards OPTIONS to IMS_B
6						\longrightarrow			OPTIONS	IMS_B forwards OPTIONS to UE_B
7						(200 OK	UE_B responds with 200 OK to IMS_B
8				,	\leftarrow				200 OK	IMS_B forwards 200 OK to IBCF_B
9			,	(200 OK	IBCF_B forwards 200 OK to IBCF_A
10			\leftarrow						200 OK 200 OK	IBCF_A forwards 200 OK to IMS_A
11									200 OK	IMS_A forwards 200 OK to UE_A User A is informed on content sharing
12										capabilities of user B
13									OPTIONS	UE_B sends OPTIONS to IMS_B
14									OPTIONS	IMS_B forwards OPTIONS to IBCF_B
15				\leftarrow					OPTIONS	IBCF_B forwards OPTIONS to IBCF_A
16									OPTIONS	IBCF_A forwards OPTIONS to IMS_A
17		\leftarrow							OPTIONS	IMS_A forwards OPTIONS to UE_A
18		\longrightarrow							200 OK	UE_A responds 200 OK to IMS_A
19			\longrightarrow						200 OK	IMS_A forwards 200 OK to IBCF_A
20				\longrightarrow					200 OK	IBCF_A forwards 200 OK to IBCF_B
21					\longrightarrow				200 OK	IBCF_B forwards 200 OK to IMS_B
22						\longrightarrow			200 OK	IMS_B forwards 200 OK to UE_B
23								*		User B is informed of content sharing capabilities of user A
24		\rightarrow								User A requests to share content with user B
25									INVITE	UE_A sends INVITE to share content with user
									100 Truing	B IMS A responds with a 100 Trying provisional
26		\leftarrow							100 Trying	response with a 100 Trying provisional
27			\longrightarrow						INVITE	IMS_A forwards INVITE to IBCF_A
28			,		Ì				100 Trying	IBCF_A responds with a 100 Trying provisional
										response
29				\longrightarrow					INVITE	IBCF_A forwards INVITE to IBCF_B
30				\leftarrow					100 Trying	IBCF_B responds with a 100 Trying provisional response
31					\longrightarrow				INVITE	IBCF_B forwards INVITE to IMS_B
32					_ ^				100 Trying	IMS_B responds with a 100 Trying provisional
									, ,	response
33						\longmapsto			INVITE	IMS_B forwards INVITE to UE_B
34									100 Trying	UE_B responds with a 100 Trying provisional
35										response User B is requested to accept to share content
36									180 Ringing	UE_B responds to initial INVITE with 180
					[Ringing to indicate that it has started alerting
37					<u> </u>				180 Ringing	IMS_B forwards 180 Ringing response to
20					-				180 Ringing	IBCF_B IBCF_B forwards 180 Ringing response to
38				(100 Kinging	IBCF_A
39									180 Ringing	IBCF_A forwards 180 Ringing response to IMS_A
40		\longleftarrow							180 Ringing	IMS_A forwards the 180 Ringing response to UE_A
41							(-		User B accepts to share content
42						,			200 OK	UE_B responds INVITE with 200 OK to indicate
					[`				that the request has been accepted

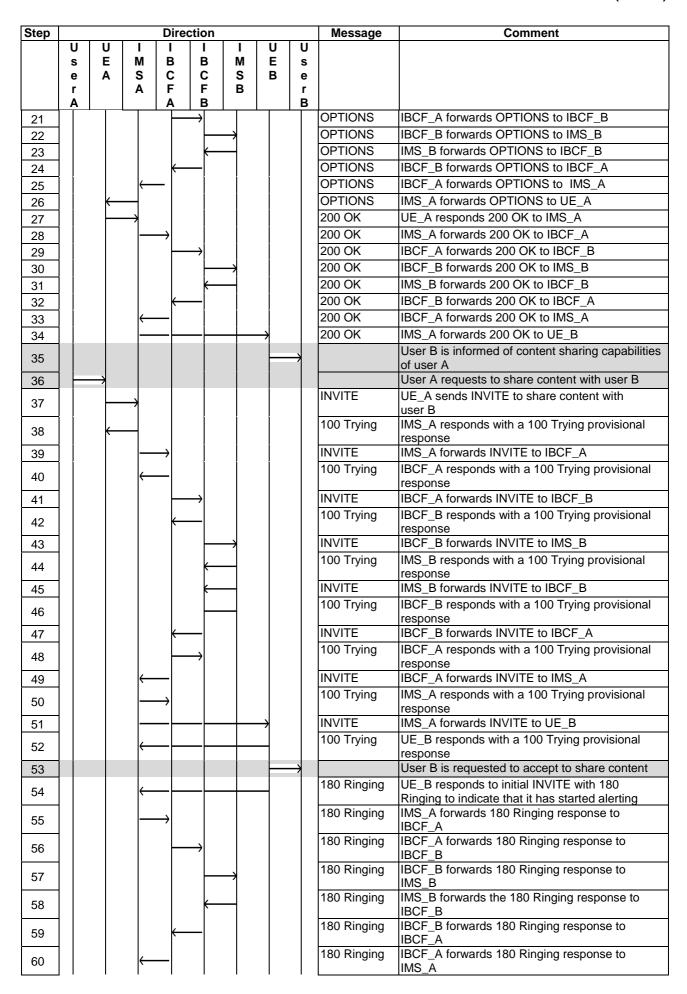


4.5.5.1.2 Content Sharing from calling to called user - roaming

	Interoperability Test D	escription					
Identifier:	TD_IMS_SHARE_0002						
Summary:	User A sets up a voice call to user B and	d shares content with user B.					
Configuration:	CF_ROAM_CALL						
SUT	IMS_A and IMS_B and UE_B						
References	Test Purpose	Specification Reference					
	TP_IMS_CONTENT_SHARING_01	Rich Communication Suite Release 2, Technical realization [10], clause 8.1					
	TP_IMS_CONTENT_SHARING_02	Rich Communication Suite Release 2, Technical realization [10], clause 8.1					
Use Case ref.:	UC_RCS_11_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 [11], clause 4.2.1 UE_A is registered in IMS_A using userSHARE according to table 1 UE_B is registered in IMS_B via IMS_A using userSHARE according to table 1 User A and B are subscribed to file transfer service IMS_A within the trust domain of IMS_B UE_A and UE_B support content sharing 						

		Interoperability Test Description						
Test Sequence:	Step							
	1	Setup of voice call between User A and user B						
	2	Verify that user A is informed of content sharing capabilities of user B						
	3	Verify that user B is informed on content sharing capabilities of user A						
	4	User A requests to share content with user B						
	5	User B is requested to accept to share content						
	6	User B accepts to share content with User A						
	7	Verify that user A is informed that request has been answered						
	8	User A ends content sharing						
	9	Verify that user B is informed that content sharing terminates						
	10	Content sharing terminates						
	11	User A ends voice call						
Conformance	Check							
Criteria:	1	TP_IMS_CONTENT_SHARE_01 in CFW step 4 (OPTIONS):						
		ensure that {						
		when { IUT receives an OPTIONS from UE_A addressed_to UE_B }						
		then { IUT sends the OPTIONS to IMS_B						
		containing a Contact_header						
		indicating g.3gpp.cs-voice_feature_tag and						
		containing a Accept-Contact_header						
		indicating g.3gpp.cs-voice_feature_tag }						
		}						
	2	TP_IMS_CONTENT_SHARE_02 in CFW step 41 (INVITE):						
		ensure that {						
		when { IUT receives a subsequent content_share INVITE from UE_A						
		addressed_to UE_B}						
		then { IUT sends the INVITE to IMS_B						
		containing a Contact_header						
		indicating g.3gpp.cs-voice_feature_tag and						
		containing a Accept-Contact_header indicating g.3gpp.cs-voice_feature_tag }						





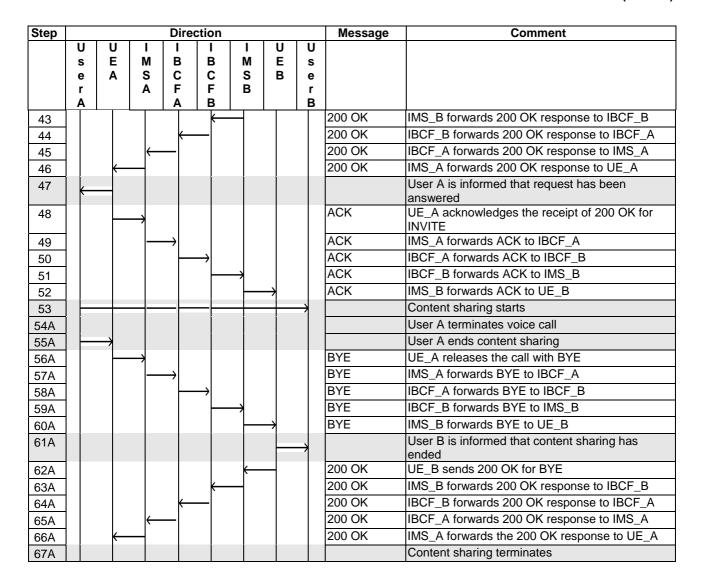
Step			Dire	ection				Message	Comment
_	U	UI	I	I	I	U	U		
	S	E M	В	В	M	E	S		
	e r	A S	C	C	S B	В	e r		
	À	^	Ä	В			В		
61								180 Ringing	IMS_A forwards 180 Ringing response to UE_A
62						K			User B accepts to share content
63								200 OK	UE_B responds INVITE with 200 OK to indicate
63									that the request has been accepted
64			\longrightarrow					200 OK	IMS_A forwards 200 OK response to IBCF_A
65				\longrightarrow				200 OK	IBCF_A forwards 200 OK response to IBCF_B
66					\rightarrow			200 OK	IBCF_B forwards 200 OK response to IMS_B
67				←				200 OK	IMS_B forwards 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 response to IMS_A
70									IMS_A forwards 200 OK response to UE_A
71	←								User A is informed that request has been answered
								ACK	UE_A acknowledges the receipt of 200 OK for
72		\longrightarrow						AOR	INVITE
73		-	\longrightarrow		Ì	i I		ACK	IMS_A forwards ACK to IBCF_A
74				\longrightarrow	Ì	i I		ACK	IBCF_A forwards ACK to IBCF_B
75				-	\rightarrow			ACK	IBCF_B forwards ACK to IMS_B
76				←		Ì		ACK	IMS_B forwards ACK to IBCF_B
77			←					ACK	IBCF_B forwards ACK to IBCF_A
78		←						ACK	IBCF_A forwards ACK to IMS_A
79		-)		ACK	IMS_A forwards ACK to UE_B
80		_					\rightarrow		Content sharing starts
81A	\vdash	_					\rightarrow		User A ends content sharing
82A		\longrightarrow						BYE	UE_A releases the call with BYE
83A		-	\longrightarrow					BYE	IMS_A forwards BYE to IBCF_A
84A				\longrightarrow				BYE	IBCF_A forwards BYE to IBCF_B
85A					\rightarrow			BYE	IBCF_B forwards BYE to IMS_B
86A				\leftarrow	\dashv			BYE	IMS_B forwards BYE to IBCF_B
87A			⊬	—				BYE	IBCF_B forwards BYE to IBCF_A
88A			—					BYE	IBCF_A forwards BYE to IMS_A
89A)		BYE	IMS_A forwards BYE to UE_B
90A						H	\rightarrow		User B is informed that content sharing has ended
91A		←						200 OK	UE_B sends 200 OK for BYE
92A		-	\longrightarrow					200 OK	IMS_A forwards 200 OK response to IBCF_A
93A			\vdash	\longrightarrow				200 OK	IBCF_A forwards 200 OK response to IBCF_B
94A				-	\rightarrow			200 OK	IBCF_B forwards 200 OK response to IMS_B
95A				←				200 OK	IMS_B forwards the 200 OK response to IBCF_B
96A			k-					200 OK	IBCF_B forwards 200 OK response to IBCF_A
97A		←						200 OK	IBCF_A forwards 200 OK response to IMS_A
98A								200 OK	IMS_A forwards the 200 OK response to UE_A
99A									Content sharing terminates
100A									User A terminates voice call

4.5.5.2 Termination of Voice Call

4.5.5.2.1 Termination of Voice Call - interworking

		Interoperability Test Desc	ription						
Identifier:	TD_IMS_SHARE_0003								
Summary:	Termination of voice call during content sharing								
Configuration:	CF_INT_CALL								
SUT	IMS_A and IMS_B and UE_B								
References	Test Purp	oose	Specification Reference						
	TP_IMS_0	CONTENT_SHARING_01	Rich Communication Suite Release 2, Technical realization [10], clause 8.1						
	TP_IMS_0	CONTENT_SHARING_02	Rich Communication Suite Release 2, Technical realization [10], clause 8.1						
Use Case ref.:	UC_RCS_	_11_I							
Pre-test conditions:		S of IMS_A and of IMS B is config A and UE_B have IP bearers es	gured according to table 1 tablished to their respective IMS networks						
		per TS 186 011-2 [11], clause 4.2							
		_A is registered in IMS_A using u							
		_B is registered in IMS_B using u							
		er A and B are subscribed to file t	•						
		S_A within the trust domain of IMS							
		E_A and UE_B support content sha							
	Į UL	_A and OL_B support content she	anng						
Test Sequence:	Step								
rest ocquence.	1	Setup of voice call between User	· Δ and user B						
	2	·	content sharing capabilities of user B						
	3		content sharing capabilities of user A						
	4								
		User A requests to share content							
	5	User B is requested to accept to							
	6	User B accepts to share content							
	7	i	t request has been answered						
	8	User A ends voice call	t contact aboring to we in ato						
	9	Verify that user B is informed that	t content snaring terminates						
	10	Content sharing terminates							
Conformance	Chook								
Criteria:	Check 1	TO IMC CONTENT CHARE OF	in CEW stop 4 (ORTIONS).						
Criteria.	l l	TP_IMS_CONTENT_SHARE_01 ensure that {	in CFW step 4 (OPTIONS):						
			NS from UE_A addressed_to UE_B }						
		then { IUT sends the OPTIONS							
		containing a Contact_h							
		indicating g.3gpp.cs-vo							
		containing a Accept-Co							
		indicating g.3gpp.cs-vo							
		indicating grouppies vo	100_10dtd10_tdg						
	2	TP_IMS_CONTENT_SHARE_02	in CFW step 29 (INVITE):						
		ensure that {							
		when { IUT receives a subsequent content_share INVITE from UE_A							
		addressed_to UE_B }							
		then { IUT sends the INVITE to	IMS_B						
		containing a Contact_header							
		indicating g.3gpp.cs-vo							
		containing a Accept-Co							
		indicating g.3gpp.cs-vo	ice_feature_tag }						
		}							

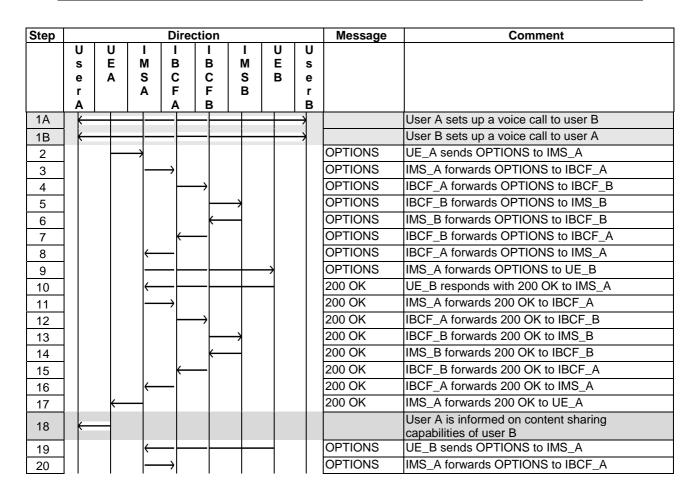
Step			Dire	ction				Message	Comment
•	U	UI	ı	ı	ı	U	U		
	S	EM	В	В	M	E B	S		
	e r	AS	C	C	S B	В	e r		
	A		A	В			В		
1									User A sets up a voice call to user B
2								OPTIONS	UE_A sends OPTIONS to IMS_A
3			\rightarrow					OPTIONS	IMS_A forwards OPTIONS to IBCF_A
4				\rightarrow				OPTIONS OPTIONS	IBCF_A forwards OPTIONS to IBCF_B
5					7			OPTIONS	IBCF_B forwards OPTIONS to IMS_B IMS_B forwards OPTIONS to UE_B
6 7								200 OK	UE_B responds with 200 OK to IMS_B
8								200 OK	IMS_B forwards 200 OK to IBCF_B
9			_					200 OK	IBCF_B forwards 200 OK to IBCF_A
10		←	`					200 OK	IBCF_A forwards 200 OK to IMS_A
11		<u> </u>						200 OK	IMS_A forwards 200 OK to UE_A
12		·							User A is informed on content sharing
									capabilities of user B
13					\leftarrow			OPTIONS	UE_B sends OPTIONS to IMS_B
14				\leftarrow				OPTIONS	IMS_B forwards OPTIONS to IBCF_B
15			\leftarrow					OPTIONS	IBCF_B forwards OPTIONS to IBCF_A
16								OPTIONS	IBCF_A forwards OPTIONS to IMS_A
17								OPTIONS	IMS_A forwards OPTIONS to UE_A
18								200 OK 200 OK	UE_A responds 200 OK to IMS_A
19			→					200 OK 200 OK	IMS_A forwards 200 OK to IBCF_A IBCF_A forwards 200 OK to IBCF_B
20				$\neg ldsymbol{oxed}$				200 OK 200 OK	IBCF_B forwards 200 OK to IMS_B
22					1			200 OK	IMS_B forwards 200 OK to UE_B
23						1		200 010	User B is informed of content sharing capabilities
23									of user A
24									User A requests to share content with user B
25		\longrightarrow						INVITE	UE_A sends INVITE to share content with user B
26		\leftarrow						100 Trying	IMS_A responds with a 100 Trying provisional response
27		-	\longrightarrow					INVITE	IMS_A forwards INVITE to IBCF_A
28		 	_					100 Trying	IBCF_A responds with a 100 Trying provisional response
29				\rightarrow				INVITE	IBCF_A forwards INVITE to IBCF_B
30			\leftarrow					100 Trying	IBCF_B responds with a 100 Trying provisional response
31				-	\rightarrow			INVITE	IBCF_B forwards INVITE to IMS_B
32				—				100 Trying	IMS_B responds with a 100 Trying provisional response
33					-	\rightarrow		INVITE	IMS_B forwards INVITE to UE_B
34					—	\dashv		100 Trying	UE_B responds with a 100 Trying provisional response
35									User B is requested to accept to share content
36					—			180 Ringing	UE_B responds to initial INVITE with 180 Ringing to indicate that it has started alerting
37				—				180 Ringing	IMS_B forwards 180 Ringing response to IBCF_B
38			 					180 Ringing	IBCF_B forwards 180 Ringing response to IBCF_A
39								180 Ringing	IBCF_A forwards 180 Ringing response to IMS_A
40								180 Ringing	IMS_A forwards the 180 Ringing response to UE_A
41						\leftarrow			User B accepts to share content
42					_			200 OK	UE_B responds INVITE with 200 OK to indicate
									that the request has been accepted

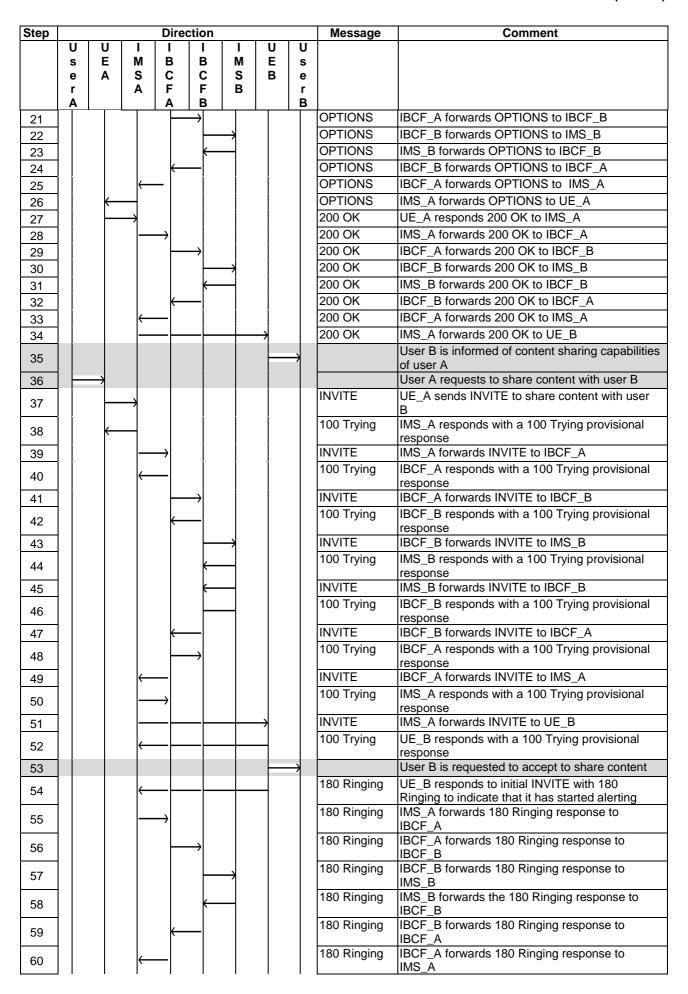


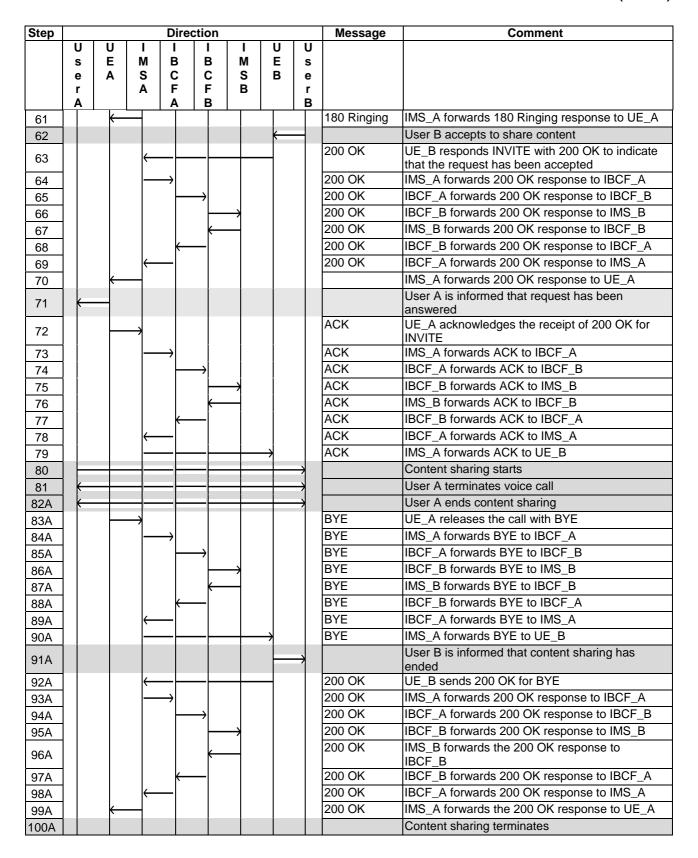
4.5.5.2.2 Termination of Voice Call - roaming

	Interoperability Test Description								
Identifier:	TD_IMS_SHARE_0004								
Summary:	Termination of voice call during content	sharing							
Configuration:	CF_ROAM_CALL								
SUT	IMS_A and IMS_B and UE_B								
References	Test Purpose	Specification Reference							
	TP_IMS_CONTENT_SHARING_01	Rich Communication Suite Release 2, Technical realization [10], clause 8.1							
	TP_IMS_CONTENT_SHARING_02 Rich Communication Suite Rel Technical realization [10], claus								
Use Case ref.:	UC_RCS_11_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 [11], clause 4.2.1 UE_A is registered in IMS_A using userSHARE according to table 1 UE_B is registered in IMS_B via IMS_A using userSHARE according to table 1 User A and B are subscribed to file transfer service IMS_A within the trust domain of IMS_B UE_A and UE_B support content sharing 								

		Interoperability Test Description
Test Sequence:	Step	
	1	Setup of voice call between User A and user B
	2	Verify that user A is informed of content sharing capabilities of user B
	3	Verify that user B is informed on content sharing capabilities of user A
	4	User A requests to share content with user B
	5	User B is requested to accept to share content
	6	User B accepts to share content with User A
	7	Verify that user A is informed that request has been answered
	8	User A ends voice call
	9	Verify that user B is informed that content sharing terminates
	10	Content sharing terminates
Conformance	Check	
Criteria:	1	TP_IMS_CONTENT_SHARE_01 in CFW step 4 (OPTIONS): ensure that { when { IUT receives an OPTIONS from UE_A addressed_to UE_B } then { IUT sends the OPTIONS to IMS_B
	2	TP_IMS_CONTENT_SHARE_02 in CFW step 41 (INVITE): ensure that { when { IUT receives a subsequent content_share INVITE from UE_A addressed_to UE_B } then { IUT sends the INVITE to IMS_B





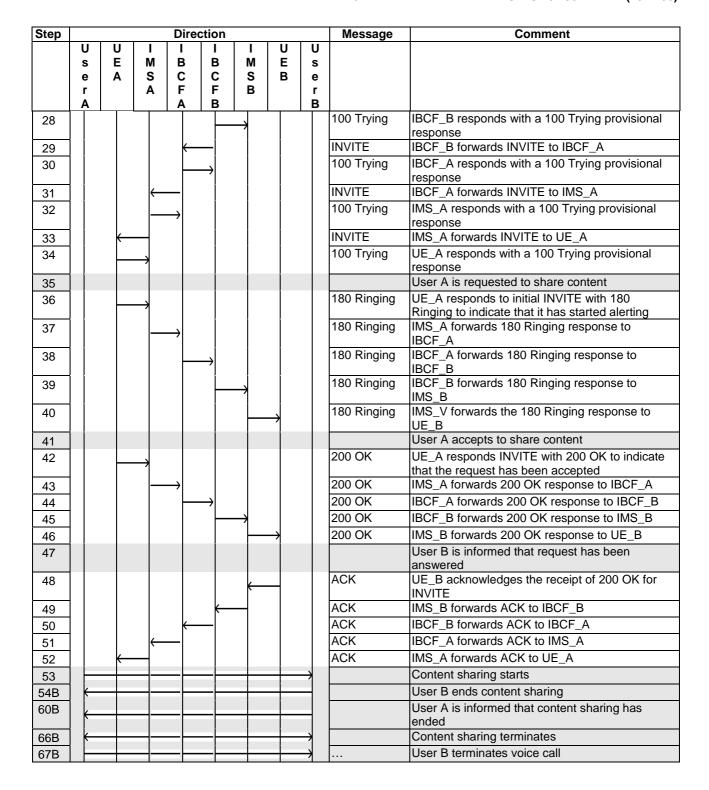


4.5.5.3 Content Sharing from called to calling user

4.5.5.3.1 Content Sharing from called to calling user - interworking

		Interoperability Test Des	cription								
Identifier:	TD_IMS_SHARE_0005										
Summary:	User A se	User A sets up a voice call to user B and user B shares content with user A.									
Configuration:	CF_INT_CALL										
SUT	IMS_A and IMS_B and UE_B										
References	Test Pur	pose	Specification Reference								
	TP_IMS_	CONTENT_SHARING_02	Rich Communication Suite Release 2,								
			Technical realization [10], clause 8.1								
Use Case ref.:	UC_RCS	_11_I									
Pre-test	• HS	SS of IMS_A and of IMS B is conf	igured according to table 1								
conditions:			stablished to their respective IMS networks								
		per TS 186 011-2 [11], clause 4.									
		E_A is registered in IMS_A using									
		E_B is registered in IMS_B using									
		ser A and B are subscribed to file									
		IS_A within the trust domain of IM									
		E_A and UE_B support content st									
			icinig								
Test Sequence:	Step										
	1	Setup of voice call between Use	er A and user B								
	2		Verify that user A is informed of content sharing capabilities of user B								
	3		hat user B is informed on content sharing capabilities of user A								
	4	User B wishes to share content									
	5	User A is requested to share co									
	6	User A accepts to share conten									
	7	Verify that user B is informed th									
	8	User B ends content sharing	at request has been answered								
	9	Verify that user A is informed th	at contant charing terminates								
	10	Content sharing terminates	at content sharing terminates								
	11	User A ends voice call									
	11	10361 A GIIUS VOICE CAII									
Conformance	Check										
Criteria:	1	TP IMS CONTENT SHARE O	1 in CEW step 4 (OPTIONS):								
Ontona.	'	ensure that {	Till Ci W step 4 (Or HONS).								
			NS from UE_A addressed_to UE_B }								
		then { IUT sends the OPTIONS									
	1	containing a Contact									
	1	indicating g.3gpp.cs-v									
		containing a Accept-C									
		indicating g.3gpp.cs-v									
		indicating g.ogpp.os-v	oloo_loatalo_tag j								
		IJ									

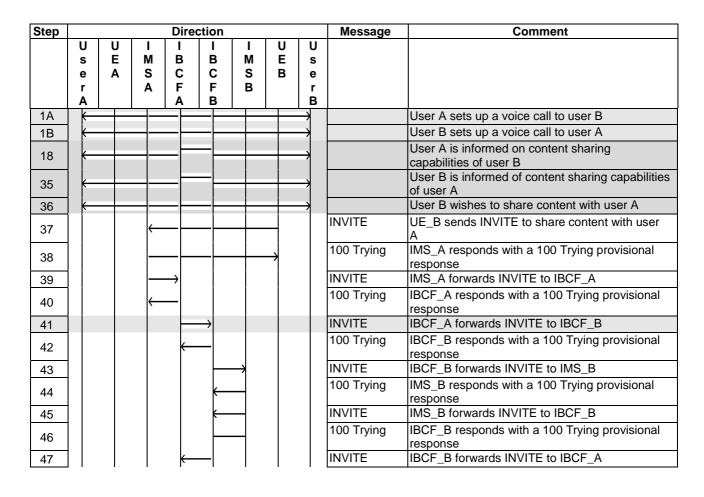
Step	Direction								Message	Comment
	U s e r A	U E A	I M S A	I B C F A	I B C F B	M S B	U E B	U s e r B		
1	\leftarrow							\rightarrow		User A sets up a voice call to user B
12	\vdash		-	-	_			\rightarrow		User A is informed on content sharing capabilities of user B
23	\leftarrow				_			\rightarrow		User B is informed of content sharing capabilities of user A
24	\vdash		_				_	\rightarrow		User B wishes to share content with user A
25						\leftarrow			INVITE	UE_B sends INVITE to share content with user A
26							\rightarrow		100 Trying	IMS_B responds with a 100 Trying provisional response
27					\leftarrow	\dashv			INVITE	IMS_B forwards INVITE to IBCF_B

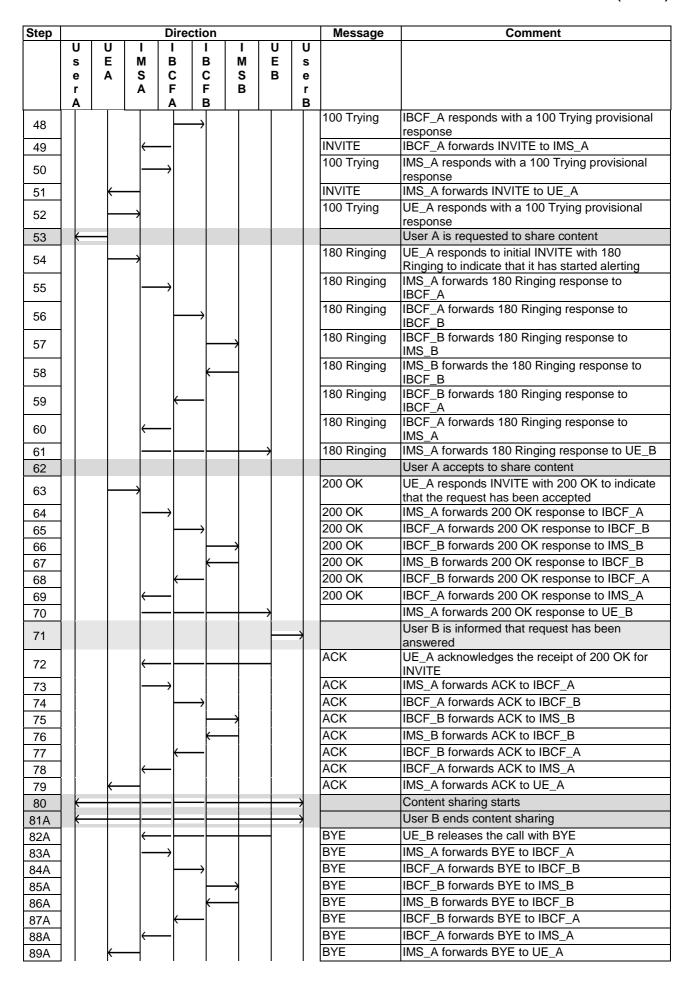


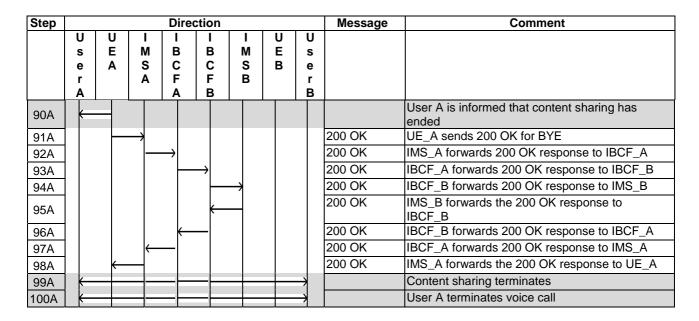
4.5.5.3.2 Content Sharing from called to calling user - roaming

	Interoperability Test Description							
Identifier:	TD_IMS_SHARE_0006							
Summary:	User A sets up a voice call to user B and us	er B shares content with user A.						
Configuration:	CF_ROAM_CALL							
SUT	IMS_A and IMS_B and UE_B							
References	Test Purpose	Specification Reference						
	TP_IMS_CONTENT_SHARING_01	Rich Communication Suite Release 2,						
	Technical realization [10], clause 8.1							
Use Case ref.:	UC_RCS_11_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 networks as per TS 186 011-2 [11], clause 4.2.1 UE_A is registered in IMS_A using userSHARE according to table 1 UE_B is registered in IMS_B via IMS_A using userSHARE according to table 1 User A and B are subscribed to file transfer service IMS_A within the trust domain of IMS_B UE_A and UE_B support content sharing					
Test Sequence:	1 2 3 4	Setup of voice call between User A and user B Verify that user A is informed of content sharing capabilities of user B Verify that user B is informed on content sharing capabilities of user A User B wishes to share content with user A				
	5 6 7 8 9	User A is requested to share content User A accepts to share content with User B Verify that user B is informed that request has been answered User B ends content sharing Verify that user A is informed that content sharing terminates				
	10	Content sharing terminates User A ends voice call				
Conformance Criteria:	Check 1	TP_IMS_CONTENT_SHARE_01 in CFW step 4 (OPTIONS): ensure that { when { IUT receives an OPTIONS from UE_A addressed_to UE_B } then { IUT sends the OPTIONS to IMS_B				



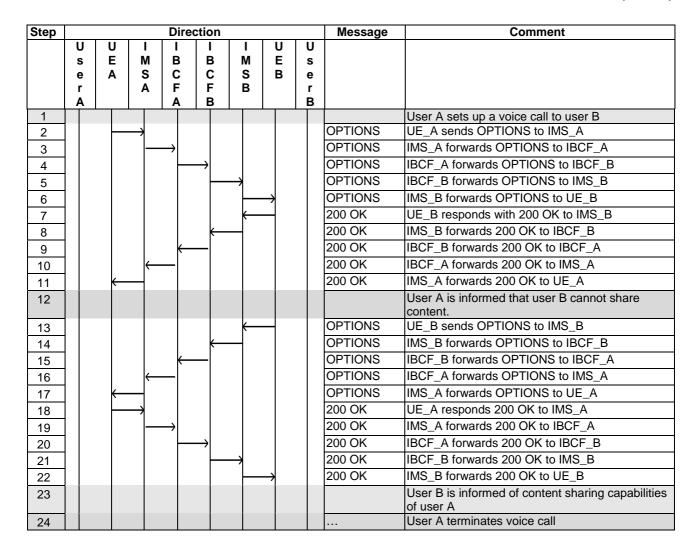




4.5.5.4 User without content sharing capability

4.5.5.4.1 User without content sharing capability - interworking

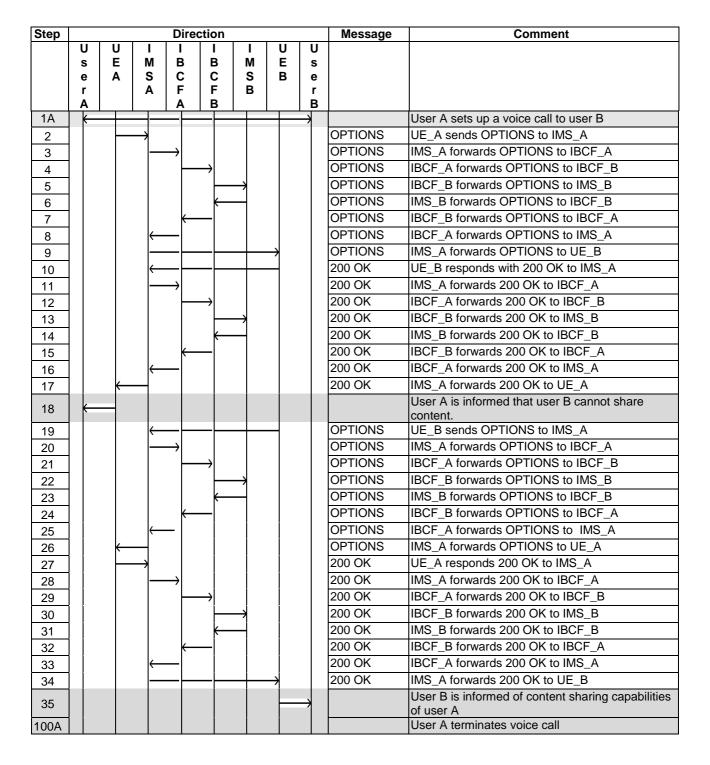
	Interoperability Test Description									
Identifier:	TD_IMS_SHARE_0007									
Summary:	User A receive information that content sharing is not possible with user B.									
Configuration:	CF_INT_CALL									
SUT	IMS_A and IMS_B and UE_B									
References	Test Purp		Specification Reference							
	TP_IMS_0	CONTENT_SHARING_01	Rich Communication Suite Release 2,							
			Technical realization [10], clause 8.1							
Use Case ref.:	UC_RCS_	_11_I								
	1									
Pre-test		S of IMS_A and of IMS B is config								
conditions:			ablished to their respective IMS networks							
		per TS 186 011-2 [11], clause 4.2.								
		_A is registered in IMS_A using us								
		_B is registered in IMS_B using us								
	• Us	er A and B are subscribed to file tr	ansfer service							
	• IMS	S_A within the trust domain of IMS	_B							
	• UE	_A supports content sharing								
	• UE	_B does not support content shari	ng or has service disabled							
Test Sequence:	Step									
	1	Setup of voice call between User								
	2	Verify that user A is informed that								
	3	Verify that user B is informed on o	content sharing capabilities of user A							
	4	User A ends voice call								
Conformance	Check									
Criteria:	1	TP_IMS_CONTENT_SHARE_01	in CFW step 4 (OPTIONS):							
		ensure that {								
			IS from UE_A addressed_to UE_B }							
		then { IUT sends the OPTIONS								
		containing a Contact_h								
		indicating g.3gpp.cs-voi								
		containing a Accept-Co								
		indicating g.3gpp.cs-voi	ce_reature_tag }							
		 }								



4.5.5.4.2 User without content sharing capability - roaming

		Interoperability Test De	escription							
Identifier:	TD_IMS_SHARE_0008									
Summary:	User A receive information that content sharing is not possible with user B.									
Configuration:	CF_ROAM_CALL									
SUT	IMS_A and	IMS_B and UE_B								
References	Test Purpo	ose	Specification Reference							
	TP_IMS_C	ONTENT_SHARING_01	Rich Communication Suite Release 2, Technical realization [10], clause 8.1							
Use Case ref.:	UC_RCS_1	11_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 [11], clause 4.2.1 UE_A is registered in IMS_A using userSHARE according to table 1 UE_B is registered in IMS_B via IMS_A using userSHARE according to table 1 User A and B are subscribed to file transfer service IMS_A within the trust domain of IMS_B UE_A supports content sharing UE_B does not support content sharing or has service disabled 									
Test Sequence:	uence: Step 1 Setup of voice call between User A and user B 2 Verify that user A is informed that user B cannot share content. 3 Verify that user B is informed on content sharing capabilities of user A 4 User A ends voice call									
	,									

	Interoperability Test Description							
Conformance	Check							
Criteria:	1	TP_IMS_CONTENT_SHARING_01in CFW step 4 (OPTIONS): ensure that { when { IBCF_A receives an OPTIONS from UE_A} then { IBCF_A sends a OPTIONS to IBCF_B containing Contact_header including g.3gpp.cs-voice_featuretag and Accept-Contact_header including g.3gpp.cs-voice_featuretag } }						

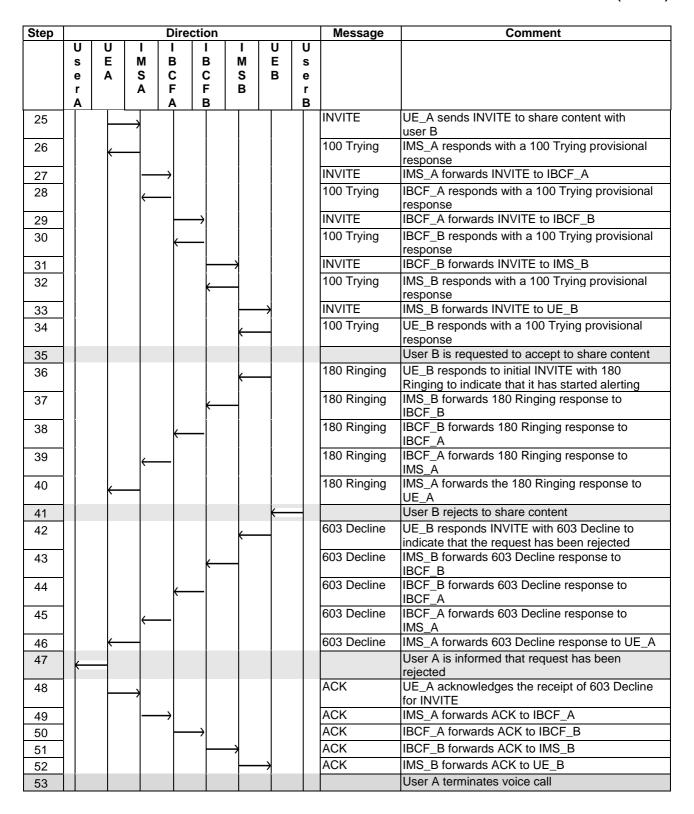


4.5.5.5 Content sharing rejection

4.5.5.5.1 Content sharing rejection - interworking

		Interoperability Test De	escription									
Identifier:	TD_IMS_SHARE_0009											
Summary:	User B rejects to share content with user A CF INT CALL											
Configuration:	CF_INT_CALL IMS_A and IMS_B and UE_B											
SUT												
References			Specification Reference									
	TP_IMS_	CONTENT_SHARING_01	Rich Communication Suite Release 2,									
			Technical realization [10], clause 8.1									
	IP_IMS_	CONTENT_SHARING_03	Rich Communication Suite Release 2,									
	110 000	44.1	Technical realization [10], clause 8.1									
Use Case ref.:	UC_RCS	_11_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 If as per TS 186 011-2 [11], clause 4.2.1 UE_A is registered in IMS_A using userSHARE according to table UE_B is registered in IMS_B using userSHARE according to table User A and B are subscribed to file transfer service IMS_A within the trust domain of IMS_B UE_A and UE_B support content sharing												
Test Sequence:	Step											
rest Sequence.	1	Setup of voice call between user A and user B										
	2	Verify that user A is informed of content sharing capabilities of user B										
	3 Verify that user B is informed on content sharing capabilities of user A											
	4											
	5	User B is requested to accept										
	6	User B rejects to share conte										
	7		that request has been rejected									
	8	User A ends voice call										
	- ma											
Conformance	Check											
Criteria:	1	TP_IMS_CONTENT_SHARE ensure that {	_01 in CFW step 4 (OPTIONS):									
			TIONS from UE_A addressed_to UE_B }									
		then { IUT sends the OPTIO										
		containing a Contac										
		containing a Accept	t-voice_feature_tag and									
			:-voice_feature_tag }									
			voice_routure_tag j									
	3		IG_03 in CFW step 38 (603 response):									
		ensure that {										
			response from UE_B addressed_to UE_A }									
		then { IUT sends the 603_re	sponse to IMS_A }									
		}										

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	UEB	U s e r B		
1										User A sets up a voice call to user B
12										User A is informed on content sharing capabilities of user B
23										User B is informed of content sharing capabilities of user A
24										User A requests to share content with user B



4.5.5.5.2 Content sharing rejection - roaming

		Interoperability Test De	scription								
Identifier:	TD_IMS_SHARE_0010										
Summary:	Content sharing rejection										
Configuration:	CF_ROA										
SUT	User B rejects to share content with user A										
References		Test Purpose Specification Reference									
	TP_IMS_	CONTENT_SHARING_01	Rich Communication Suite Release 2,								
			Technical realization [10], clause 8.1								
	TP_IMS_	CONTENT_SHARING_04	Rich Communication Suite Release 2,								
			Technical realization [10], clause 8.1								
Use Case ref.:	UC_RCS	5_11_R									
Pre-test		SS of IMS_A and of IMS B is co									
conditions:			established to their respective IMS networks								
	as per TS 186 011-2 [11], clause 4.2.1										
			g userSHARE according to table 1								
			MS_A using userSHARE according to table 1								
	• U:	ser A and B are subscribed to fil	e transfer service								
	• IN	IS_A within the trust domain of I	MS_B								
	• U	E_A and UE_B support content	sharing								
Test Sequence:	Step										
-	Setup of voice call between User A and user B										
	2		of content sharing capabilities of user B								
	3		on content sharing capabilities of user A								
	4	User A requests to share cont									
	5	User B is requested to accept									
	6	User B rejects to share conten									
	7		that request has been rejected								
	8	User A ends voice call	lat request riae been rejected								
	, u	Cool / Collab Voice call									
Conformance	Check										
Criteria:	1	TP IMS CONTENT SHARE	01 in CFW step 4 (OPTIONS):								
	'	ensure that {	_01 iii 01 vv diop 1 (01 110110).								
			IONS from UE_A addressed_to UE_B }								
		then { IUT sends the OPTIO									
		containing a Contac									
			-voice_feature_tag and								
		containing a Accept									
		indicating g.3gpp.cs									
		}	. 5.555atar 5_tag j								
	3 TP_IMS_CONTENT_SHARING_04 in CFW step 65 (603 response)										
		esponse from UE_B addressed_to UE_A }									
		then { IUT sends the 603_res									
		1	pondo to IIVIO_D j								
		J									

Step		Direction								Comment
	DøerA	N M C	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		
1A)		User A sets up a voice call to user B
18	\vdash			-	=			\rightarrow		User A is informed on content sharing capabilities of user B
35	←			-	=			\rightarrow		User B is informed of content sharing capabilities of user A
36	\vdash		_					\rightarrow		User A requests to share content with user B
37			\rightarrow						INVITE	UE_A sends INVITE to share content with user B
38		(100 Trying	IMS_A responds with a 100 Trying provisional response

Step				Dir	ectio	n			Message	Comment
	U	Ū	I	I	I	I	Ū	U		
	s e	E	M S	B	B	M		s e		
	r		Ā	F	F	В		r		
	Α		<u> </u>	A	<u>B</u>		1	В	INVITE	IMS_A forwards INVITE to IBCF_A
39				\rightarrow					100 Trying	IBCF_A responds with a 100 Trying provisional
40			←							response
41					\longrightarrow				INVITE	IBCF_A forwards INVITE to IBCF_B
42				←					100 Trying	IBCF_B responds with a 100 Trying provisional response
43					-	→			INVITE	IBCF_B forwards INVITE to IMS_B
44					+				100 Trying	IMS_B responds with a 100 Trying provisional
					Ì				INVITE	response IMS_B forwards INVITE to IBCF_B
45									100 Trying	IBCF_B responds with a 100 Trying provisional
46										response
47				←					INVITE	IBCF_B forwards INVITE to IBCF_A
48					\longrightarrow				100 Trying	IBCF_A responds with a 100 Trying provisional response
49			\leftarrow						INVITE	IBCF_A forwards INVITE to IMS_A
50				\rightarrow					100 Trying	IMS_A responds with a 100 Trying provisional
51			_	_					INVITE	response IMS_A forwards INVITE to UE_B
52			_						100 Trying	UE_B responds with a 100 Trying provisional
										response
53								_	180 Ringing	User B is requested to accept to share content UE_B responds to initial INVITE with 180
54			←						100 Kinging	Ringing to indicate that it has started alerting
55			_	\rightarrow					180 Ringing	IMS_A forwards 180 Ringing response to
									180 Ringing	IBCF_A IBCF_A forwards 180 Ringing response to
56					\longrightarrow					IBCF_B
57					_	\longrightarrow			180 Ringing	IBCF_B forwards 180 Ringing response to IMS_B
58					+				180 Ringing	IMS_B forwards the 180 Ringing response to IBCF_B
59				←					180 Ringing	IBCF_B forwards 180 Ringing response to IBCF_A
60			←						180 Ringing	IBCF_A forwards 180 Ringing response to IMS_A
61		\leftarrow							180 Ringing	IMS_A forwards 180 Ringing response to UE_A
62							←			User B rejects to share content
63			\leftarrow						603 Decline	UE_B responds INVITE with 603 Decline to
									603 Decline	indicate that the request has been accepted IMS A forwards 603 Decline response to
64				\rightarrow						IBCF_A
65				-	\longrightarrow				603 Decline	IBCF_A forwards 603 Decline response to IBCF_B
66						\longrightarrow			603 Decline	IBCF_B forwards 603 Decline response to IMS_B
67					+				603 Decline	IMS_B forwards 603 Decline response to IBCF_B
68				k					603 Decline	IBCF_B forwards 603 Decline response to IBCF_A
69			←	_					603 Decline	IBCF_A forwards 603 Decline response to IMS_A
70		←							603 Decline	IMS_A forwards 603 Decline response to UE_A
71	←									User A is informed that request has been rejected
72			\rightarrow						ACK	UE_A acknowledges the receipt of 603 Decline for INVITE
73			-	\longrightarrow					ACK	IMS_A forwards ACK to IBCF_A

Step				Dire	ction				Message	Comment
	C	U	ı	I	I	ı	U	U		
	s	Ε	М	В	В	M	E	s		
	е	Α	S	С	С	S	В	е		
	r		Α	F	F	В		r		
	Α			Α	В			В		
74				_	\rightarrow				ACK	IBCF_A forwards ACK to IBCF_B
75									ACK	IBCF_B forwards ACK to IMS_B
76					\leftarrow	-			ACK	IMS_B forwards ACK to IBCF_B
77				\leftarrow	_				ACK	IBCF_B forwards ACK to IBCF_A
78			\leftarrow	—					ACK	IBCF_A forwards ACK to IMS_A
79						-	\rightarrow		ACK	IMS_A forwards ACK to UE_B
100	\vdash							\rightarrow		User A terminates voice call

Annex A (informative): Bibliography

ETSI TS 133 203: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); LTE; 3G security; Access security for IP-based services (3GPP TS 33.203 Release 8)".

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History

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