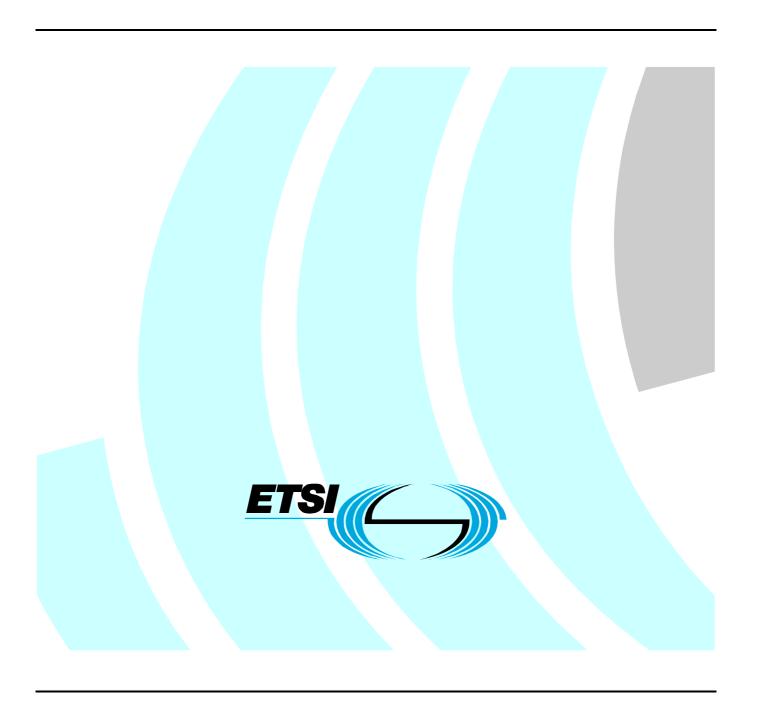
ETSITS 186 021-2 V2.1.1 (2009-07)

Technical Specification

Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN);
PSTN/ISDN simulation services;
Completion of Communications to Busy Subscriber (CCBS)
Completion of Communications by No Reply (CCNR);
Part 2: Test Suite Structure and Test Purposes (TSS&TP)



Reference

DTS/TISPAN-06041-2-NGN-R2

Keywords

CCBS, CCNR, IMS, testing, TSS&TP

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Foreword

This Technical Specification (TS) has been produced by ETSI Technical Committee Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN).

The present document is part 2 of a multi-part deliverable covering test suite structure and test purposes for the Completion of Communications to Busy Subscriber (CCBS) Completion of Communications by No Reply (CCNR), as identified below:

- Part 1: "Protocol Implementation Conformance Statement (PICS)";
- Part 2: "Test Suite Structure and Test Purposes (TSS&TP)";
- Part 3: "Abstract Test Suite (ATS) and partial Protocol Implementation eXtra Information for Testing (PIXIT) proforma specification".

1 Scope

The present document specifies the test suite structure and test purposes of the Completion of Communications to Busy Subscriber (CCBS) service and the Completion of Communication on no Reply (CCNR) service, based on stage three of the IMS simulation services. Within the Next Generation Network (NGN) the stage 3 description is specified using the IP-Multimedia Call Control Protocol based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP).

2 References

References are either specific (identified by date of publication and/or edition number or version number) or non-specific.

- For a specific reference, subsequent revisions do not apply.
- Non-specific reference may be made only to a complete document or a part thereof and only in the following cases:
 - if it is accepted that it will be possible to use all future changes of the referenced document for the purposes of the referring document;
 - for informative references.

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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 indispensable for the application of the present document. For dated references, only the edition cited applies. For non-specific references, the latest edition of the referenced document (including any amendments) applies.

- [1] ETSI TS 183 042 (V2.1.1): "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); PSTN/ISDN Simulation Services; Completion of Communications to Busy Subscriber (CCBS), Completion of Communications by No Reply (CCNR); Protocol Specification".
- [2] ETSI TS 186 021-1: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); PSTN/ISDN simulation services; Completion of Communications to Busy Subscriber (CCBS) Completion of Communications by No Reply (CCNR); Part 1: Protocol Implementation Conformance Statement (PICS)".

2.2 Informative references

The following referenced documents are not essential to the use of the present document but they assist the user with regard to a particular subject area. For non-specific references, the latest version of the referenced document (including any amendments) applies.

Not applicable.

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in [1] apply.

3.2 Abbreviations

For the purposes of the present document, the abbreviations given in [1] apply.

4 Test Suite Structure (TSS)

CC			
	originating_AS	Invocation	CC_N01_xxx
		Revocation	CC_N02_xxx
		Operation	CC_N03_xxx
	terminating_AS	possibleIndication	CC_N04_xxx
		Invocation	CC_N05_xxx
		Revocation	CC_N06_xxx
		CCOperation	CC_N07_xxx
	Interaction	CDIV	CC_N08_xxx

4.1 Configuration

The scope of the current specification is to test the signalling and procedural aspects of the stage 3 requirements as described in [1]. The stage 3 description respects the requirements to several network entities and also to requirements regarding to end devices. Therefore several interfaces (reference points) are addressed to satisfy the test of the different entities.

Therefore to test the appropriate entities the configurations below are applicable:

Testing of the Application Server: This entity is responsible to perform the service. Hence the ISC interface is the appropriate access point. Figure 1 points to this.

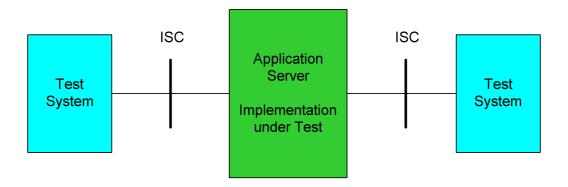


Figure 1: Applicable interface to test AS functionalities

If the ISC interface is not accessible it is also applicable to perform the test of the AS using any NNI (Mw, Mg, Mx) interface (consider figure 2). In case only the Gm interface is accessible this shall be used instead. In this case, be aware that the verification of several requirements is impeded.

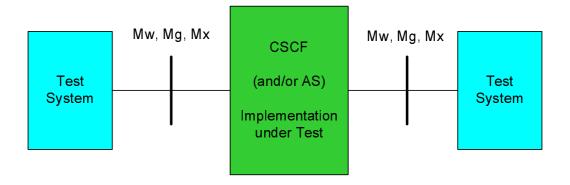


Figure 2: Applicable interfaces to test using the (generic) NNI interface

Figure 3 illustrates the usage of any NNI interface.

Testing of User Equipment: There are several requirements regarding to the end devices. Therefore a special configuration appears.

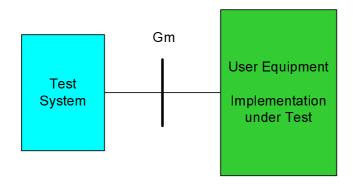


Figure 3: Applicable configuration to test the User Equipment

Testing of the IBCF functionality: The IBCF is the division between the trusted and the untrusted networks.

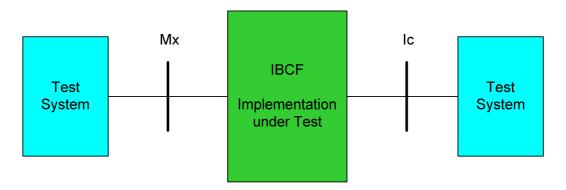


Figure 3: Applicable configuration to test the IBCF

If the Mx interface is not accessible it is also applicable to perform the test of the IBCF using any NNI (Mw, Mg, Mx) interface (consider figure 2). In case only the Gm interface is accessible this shall be used instead. In this case, be aware that the verification of several requirements is impeded.

5 Test Purposes (TP)

5.1 Introduction

For each test requirement a TP is defined.

5.1.1 TP naming convention

TPs are numbered, starting at 001, within each group. Groups are organized according to the TSS. Additional references are added to identify the actual test suite and whether it applies to the network or the user (see table 1).

Table 1: TP identifier naming convention scheme

```
Identifier: <ss>_<iut><group>_<nnn>
                   supplementary service:
                                            e.g. "CC"
   <SS>
                   type of IUT:
                                            U
                                                         User - equipment
   <iut>
                                            Ν
                                                         Network
   <group>
                                            2 digit field representing group reference according to TSS
                   group
                   sequential number
                                            (001 to 999)
   <nnn>
```

5.1.2 Test strategy

As the base standard TS 183 042 [1] contains no explicit requirements for testing, the TPs were generated as a result of an analysis of the base standard and the PICS specification TS 186 021-1 [2]. The criteria applied include the following:

• whether or not a test case can be built from the TP is not considered.

5.2 Actions at the originating AS

5.2.1 CC Invocation

TSS	TP	Reference	Selection expression
CC/originating_AS/Invocation	CC_N01_001	4.5.4.2.1	-

Test purpose

Successful CCBS request.

A 486 (Busy Here) is received from the terminating AS containing a Call-Info header field a purpose parameter set to call-completion and the m parameter is set to BS. Ensure that the AS withholds the 486 and sends a 183 Session Progress and starts to play an announcement to inform the originating user that Call Completion is possible. The originating user activates via inband interaction the CCBS call completion service. Ensure that the AS sends a SUBSCRIBE to the terminating AS. The NOTIFY received from the terminating AS confirms the successful invocation of the CC service.

Preconditions:

SIP header values:

486 Busy Here:

Call-Info: <sip:UE-B>;purpose=call-completion;m=BS

SUBSRIBE sip:T-AS;m=BS

From:<UE-A>

To:<UE-B>

Contact:<O-AS>

Event:call-completion

NOTIFY sip:O-AS

Event:call-completion

Content-Type: application/call-completion

state: queued service-retention

_		 			
u	u	 	ㄷ	 ts	-

SIP 1 (ISC)		SUT	SIP 2 (ISC)
INVITE	→	→	INVITÉ
100 Trying	←	←	100 Trying
		←	486 (Busy Here)
183 Session Progress	←	→	ACK

Announcement that CCBS is possible

Inband-interaction procedures for the CC activation

→ SUBSCRIBE← 202 Accepted

← NOTIFY

→ 200 OK NOTIFY

Confirm to the caller that the invocation was successful

486 (Busy Here) ← ACK →

Apply post test routine

TSS	TP	Reference	Selection expression
CC/originating_AS/Invocation	CC_N01_002	4.5.4.2.1	-

Test purpose

CCBS not possible, no CCBS indication received.

A 486 (Busy Here) is received from the terminating user containing and no Call-Info header field is contained. The originating AS does not starts announcement to provide the activation of the call completion service and pass thru the 486 response.

Preconditions:

SIP header values:

486 Busy Here:

Comments: SIP 1 (ISC)		SUT		SIP 2 (ISC)
INVITE	→		→	INVITE
100 Trying	←		←	100 Trying
486 (Busy Here)	←		←	486 (Busy Here)
ACK	→		→	ACK

TSS	TP	Reference	Selection expression
CC/originating_AS/Invocation	CC_N01_003	4.5.4.2.1	_

CCBS not possible, A CC queue limit has been exceeded.

Ensure that the AS does not offer the activation of the call completion service if the user A CCBS queue limit has been exceeded. The 486 is passed thru.

Preconditions: CCBS queue limit exceeded

SIP header values:

486 Busv Here:

Call-Info: <sip:UE-B>;purpose=call-completion;m=BS

Comments:

SIP 1 (ISC) SUT SIP 2 (ISC) Set the A queue to limit INVITE **→ INVITE** 100 Trying 100 Trying (**←** 486 (Busy Here) **←** 486 (Busy Here) **←** ACK **→ → ACK**

TSS	TP	Reference	Selection expression
CC/originating_AS/Invocation	CC_N01_004	4.5.4.2.1	PICS 1/3

Test purpose

CCBS not possible, further identical request (communication parameters).

Ensure that the AS does not offer the activation of the CCBS call completion service if a request was activated for an identical communication, determined by the stored basic communication information.

Preconditions:

SIP header values:

486 Busy Here:

Call-Info: <sip:UE-B>;purpose=call-completion;m=BS

Comments: SIP 1 (ISC)	SUT	SIP 2 (ISC)
Invoke a successful CCBS	5 request	
INVITE	→	INVITE
100 Trying	← ←	100 Trying
486 (Busy Here)	+	486 (Busy Here)
ACK	→	ACK

TSS	TP	Reference	Selection expression
CC/originating AS/Invocation	CC N01 005	4.5.4.2.1	

CCNR successful request.

A 180 (Ringing) is received from the terminating AS containing a Call-Info header field a purpose parameter set to call-completion and the m parameter is set to BS. Ensure that the sends a 180 (Ringing) without the Call-Info header and starts to play an announcement to inform the originating user that Call Completion is possible. The originating user activates via inband interaction the CCNR call completion service. Ensure that the AS sends a SUBSCRIBE to the terminating AS. The NOTIFY received from the terminating AS confirms the successful invocation of the CC service.

Preconditions:

SIP header values:

180 Ringing 2:

Call-Info: <sip:UE-B>;purpose=call-completion;m=NR

SUBSRIBE sip:T-AS;m=NR

From:<UE-A>
To:<UE-B>
Contact:<O-AS>
Event:call-completion

NOTIFY sip:O-AS Event:call-completion

Content-Type: application/call-completion

state: queued service-retention

Comments:			
SIP 1 (ISC)	•	SUT	SIP 2 (ISC)
INVITE	→	→	INVITÉ
100 Trying	←	←	100 Trying
		←	180 Ringing 1
180 Ringing 2	←		
	Announcement	that CCNR is po	ossible

Inband-interaction procedures for the CC activation

→ SUBSCRIBE← 202 Accepted

NOTIFY→ 200 OK NOTIFY

Confirm to the caller that the invocation was successful

CANCEL

200 OK CANCEL

487 Request Terminated

CANCEL

200 OK CANCEL

487 Request Terminated

ACK → ACK
Apply post test routine

TSS	TP	Reference	Selection expression
CC/originating AS/Invocation	CC N01 006	4.5.4.2.1	_

Test purpose

CCNR not possible, no CCBS indication received.

Ensure that the originating AS does not offer the call completion service if a 180 (Ringing) is received and a Call-Info header is not present. The 180 (Ringing) is passed unchanged.

Preconditions:

SIP header values:

Comments: SIP 1 (ISC)		SUT		SIP 2 (ISC)
INVITE	→		→	INVITE
100 Trying	←		←	100 Trying
			←	180 Ringing
180 Ringing	←			
CANCEL	→		→	CANCEL
200 OK CANCEL	←		←	200 OK CANCEL
487 Request Terminated	←		←	487 Request Terminated
ACK	→		→	ACK

TSS	TP	Reference	Selection expression
CC/originating_AS/Invocation	CC_N01_007	4.5.4.2.1	-

CCNR not possible, A CC queue limit has been exceeded.

Ensure that the originating AS does not offered the call completion service if a 180 (Ringing) is received and a Call-Info header with a purpose parameter set to call-completion and a m parameter set to NR is received and the CCBS queue limit is exceeded.

Preconditions: CCBS queue limit exceeded

SIP header values:

180 Ringing 2:
Call-Info: <sip:UE-B>:purpose=call-completion:m=NR

Call-Info: <slp:ue-b>;purpose</slp:ue-b>	=call-completion;m=ivi	K		
Comments:				
SIP 1 (ISC)		SUT	SIP 2 (ISC)	
	Set the	A queue to limit	,	
INVITE	→	→	INVITE	
100 Trying	←	(100 Trying	
, ,		←	180 Ringing 1	
180 Ringing 2	←		5 5	
CANCEL	→	→	CANCEL	
200 OK CANCEL	←	←	200 OK CANCEL	
487 Request Terminated	←	←	487 Request Terminated	
ACK	→	→	ACK	

TSS	TP	Reference	Selection expression
CC/originating_AS/Invocation	CC_N01_008	4.5.4.2.1	PICS 1/3

Test purpose

CCNR not possible, further identical request (communication parameters).

Ensure that the AS does not offer the activation of the CCNR call completion service if a request was activated for an identical communication, determined by the stored basic communication information.

Preconditions:

SIP header values:

180 Ringing 1:

Call-Info: <sip:ue-b>;purpose</sip:ue-b>	=call-completion;m=N	IR		
Comments:	•			
SIP 1 (ISC)		SUT	SIP 2 (ISC)	
	Success	ful CCNR reques	• •	
INVITE	→	→	INVITE	
100 Trying	←	←	100 Trying	
, ,		←	180 Ringing 1	
180 Ringing 2	(3 3	
	No offer	to invoke CCNR		
CANCEL	→	→	CANCEL	
200 OK CANCEL	←	←	200 OK CANCEL	
487 Request Terminated	←	←	487 Request Terminated	
ACK .	→	→	ACK	

TSS	TP	Reference	Selection expression
CC/originating_AS/Invocation	CC_N01_009	4.5.4.2.1	
Test purpose			
Unsuccessful CCBS request.			
Ensure that the originating AS does not terminating AS is rejected by the termin			
set to terminated.	ating A5 indicated in a NO	in i request and th	e Subscription-State header is

Preconditions:

SIP header values:

486 Busy Here:

Call-Info: <sip:UE-B>;purpose=call-completion;m=BS

SUBSRIBE sip:T-AS;m=BS

From:<UE-A>
To:<UE-B>
Contact:<O-AS>

Event:call-completion

NOTIFY sip:O-AS

Event:call-completion

Subscription-State: terminated; reason=rejected

Comments: SIP 1 (ISC) SUT SIP 2 (ISC) INVITE → INVITE 100 Trying ← 486 (Busy Here) + + ACK

Announcement that CCBS is possible

Inband-interaction procedures for the CC activation

→ SUBSCRIBE← 202 Accepted

← NOTIFY→ 200 OK NOTIFY

Indication to the caller that the invocation was unsuccessful

486 (Busy Here) ← ACK →

TSS	TP	Reference	Selection expression
CC/originating_AS/Invocation	CC_N01_010	4.5.4.2.1	
Test purpose	·	<u> </u>	·
CCNR unsuccessful request.			
•			
Ensure that the originating AS does not	confirm the CCNR request	to the originating us	ser, if the request sent to the
terminating AS is rejected by the termin			
cat to tarminated	9	•	'

set to terminated. Preconditions:

SIP header values:

180 Ringing 2:
Call-Info: <sip:UE-B>;purpose=call-completion;m=NR
SUBSRIBE sip:T-AS;m=NR

From:<UE-A>
To:<UE-B> Contact:<O-AS> Event:call-completion NOTIFY sip:O-AS

Event:call-completion

Subscription-State: terminate	d; reason=rejected			
Comments:				
SIP 1 (ISC)		SUT	SIP 2 (ISC)	
INVITÈ	→	→	INVITÈ	
100 Trying	←	←	100 Trying	
, ,		←	180 Ringing 1	
180 Ringing 2	(5 5	
3 3	Announcement	t that CCNR is po	ossible	
Inband-interaction pro				
		→	SUBSCRIBE	
		←	202 Accepted	
		+	NOTIFY	
		→	200 OK NOTIFY	
Indica	ation to the caller tha	t the invocation	was unsuccessful	
CANCEL	→	→	CANCEL	
200 OK CANCEL	←	←	200 OK CANCEL	
487 Request Terminated	←	←	487 Request Terminated	
ACK	→	→	ACK	
_			-	

5.2.2 CC Revocation

TSS	TP	Reference	Selection expression
CC/originating_AS/Revocation	CC_N02_001	4.5.4.2.2	PICS 1/8

Test purpose

CCBS revocation request received from the user.

Ensure that the originating AS sends a SUBCRIBE request and the Expires header is set to zero when the originating user revokes the outstanding CCBS request. The revocation is performed by an INVITE request and the userpart of the Request URI is set to the service code command to cancel a CCBS request.

Preconditions:

SIP header values:

INVITE: Request URI= Service Code Command (revoke CCBS request)

SUBSRIBE sip:T-AS;m=BS

From:<UE-A>
To:<UE-B>
Contact:<O-AS>
Event:call-completion
Expires=0

NOTIFY sip:O-AS Event:call-completion

Subscription-State: terminated; reason=rejected

Comments:

SIP 1 (ISC) SUT SIP 2 (ISC)

Establish a successful CCBS request

Revocation request from the user

→ SUBSCRIBE← 202 Accepted

NOTIFY→ 200 OK NOTIFY

Confirm to the caller that the revocation was successful

BYE → 200 OK BYE ←

TSS	TP	Reference	Selection expression
CC/originating_AS/Revocation	CC_N02_002	4.5.4.2.2	PICS 1/8
Test purpose			

CCNR revocation request received from the user.

Ensure that the originating AS sends a SUBCRIBE request and the Expires header is set to zero when the originating user revokes the outstanding CCNR request. The revocation is performed by an INVITE request and the userpart of the Request URI is set to the service code command to cancel a CCNR request.

Preconditions:

SIP header values:

Request URI= Service Code Command (revoke CCNR request)

SUBSRIBE sip:T-AS;m=NR

From:<UE-A> To:<UE-B> Contact:<O-AS> Event:call-completion Expires=0

NOTIFY sip:O-AS

Event:call-completion

Subscription-State: terminated; reason=rejected

Comments:

SIP 1 (ISC) SUT SIP 2 (ISC)

Establish a successful CCBS request

Revocation request from the user

INVITE \rightarrow 200 OK INVITE **←** ACK

> **SUBSCRIBE** 202 Accepted

← NOTIFY

200 OK NOTIFY Confirm to the caller that the revocation was successful

BYE \rightarrow 200 OK BYE **←**

TSS	TP	Reference	Selection expression
CC/originating_AS/Revocation	CC_N02_003	4.5.4.2.2	

Test purpose

CCBS revocation caused by timer expiry.

Ensure that the originating AS revokes the outstanding CCBS request if the CC service duration timer CC-T3 expires.

Preconditions:

SIP header values:

SUBSRIBE sip:T-AS;m=BS

From:<UE-A> To:<UE-B>

Contact:<O-AS>

Event:call-completion

Expires=0

NOTIFY sip:O-AS

Event:call-completion

Subscription-State: terminated; reason=rejected

Comments:

SIP 1 (ISC) **SUT** SIP 2 (ISC)

Establish a successful CCBS request

Start CC-T3

Timeout CC-T3

→ SUBSCRIBE 202 Accepted

NOTIFY

200 OK NOTIFY

TSS	TP	Refe	erence	Selection expression
CC/originating_AS/Revocation	CC_N02_004	4.5.4	4.2.2	
Test purpose				
CCBS revocation caused by timer expiry.				
Ensure that the originating AS revokes the outst	anding CCNR req	uest if th	ne CC service dura	ation timer CC-T3 expires.
Preconditions:				
SIP header values:				
SUBSRIBE sip:T-AS;m=NR				
From: <ue-a></ue-a>				
To: <ue-b></ue-b>				
Contact: <o-as></o-as>				
Event:call-completion				
Expires=0				
NOTIFY sip:O-AS				
Event:call-completion				
Subscription-State: terminated; reason=reject	eted			
Comments:				
SIP 1 (ISC)	SUT		SIP 2 (ISC)	
Establish a successful CCBS	S request			
Start CC-T3				
Timeout CC-T3				
1111100010010		→	SUBSCRIBE	
		É	202 Accepted	
		•	202 / 1000ptou	
		←	NOTIFY	
		→	200 OK NOTIF	Y

5.2.3 **CC** Operation

TSS	TP	Reference	Selection expression
CC/originating_AS/Operation	CC_N03_001	4.5.4.2.3	NOT PICS 1/4

Test purpose

CCBS Recall successful by sending a REFER request to the originating user.

Ensure that the originating AS starts the CCBS recall procedure when the indication that the callee is available to recall indicated in a NOTIFY request and the state header in the call-completion MIME body is set to "ready". A REFER request is sent to the caller. The m parameter of the Request line is set to BS in the INVITE request sent to the callee as the result of the received INVITE request from the caller.

Preconditions:

SIP header values:

NOTIFY 1 sip:O-AS

Event:call-completion

Content-Type: application/call-completion

state: ready

REFER: sip: SIP 1; m=BS

Refer-To; SIP 2; method=INVITE

sip: SIP 2; m=BS INVITE 1:

From: SIP 1 To: SIP 2

NOTIFY 2 sip:O-AS

Event:call-completion

Subscription-State: terminated; reason=rejected

Comments:

SIP 1 (ISC) SIP 2 (ISC)

Invoke CCBS request CCBS request confirmed by AS

Terminating user available for recall

NOTIFY NOTIFY 1 200 OK NOTIFY 200 OK NOTIFY

REFER REFER 202 Accepted 202 Accepted

NOTIFY (100) NOTIFY (100) 200 OK NOTÍFY 200 OK NOTÍFY

INVITE INVITE

INVITE 1 INVITE

180 Ringing 180 Ringing **NOTIFY** NOTIFY 2

200 OK NOTIFY 200 OK NOTIFY 200 OK INVITE

200 OK INVITE

ACK → → ACK

NOTIFY (200) NOTIFY (200) → 200 OK NOTIFY 200 OK NOTIFY

TSS	TP	Reference	Selection expression
CC/originating_AS/Operation	CC_N03_002	4.5.4.2.3	NOT PICS 1/4

CCNR Recall successful by sending a REFER request to the originating user.

Ensure that the originating AS starts the CCNR recall procedure when the indication that the callee is available to recall indicated in a NOTIFY request and the state header in the call-completion MIME body is set to "ready". A REFER request is sent to the caller. The m parameter of the Request line is set to NR in the INVITE request sent to the callee as the result of the received INVITE request from the caller.

Preconditions:

SIP header values:

NOTIFY 1 sip:O-AS

Event:call-completion

Content-Type: application/call-completion

state: ready

REFER: sip: SIP 1; m=NR

Refer-To; SIP 2; method=INVITE

INVITE 1: sip: SIP 2; m=NR From: SIP 1

To: SIP 2

NOTIFY 2 sip:O-AS

Event:call-completion

Subscription-State: terminated; reason=rejected

Comments:

SIP 1 (ISC) SUT SIP 2 (ISC)

Invoke CCNR request CCNR request confirmed by AS

Terminating user available for recall

NOTIFY ← NOTIFY 1

200 OK NOTIFY → 200 OK NOTIFY

REFER
202 Accepted

★ REFER
202 Accepted

NOTIFY (100) → NOTIFY (100) 200 OK NOTIFY ← 200 OK NOTIFY

INVITE → INVITE

→ INVITE 1
180 Ringing ← 180 Ringing

NOTIFY ← NOTIFY 2
200 OK NOTIFY → 200 OK NOTIFY

NOTIFY (200) → NOTIFY (200) 200 OK NOTIFY ← 200 OK NOTIFY

TSS	TP	Reference	Selection expression
CC/originating_AS/Operation	CC_N03_003	4.5.4.2.3	PICS 1/4

CCBS Recall successful by using the special REFER interworking. Sending an INVITE request to the originating user.

Ensure that the originating AS starts the CCBS recall procedure when the indication that the callee is available to recall indicated in a NOTIFY request and the state header in the call-completion MIME body is set to "ready". An INVITE request is sent to the caller. When the session with the caller is answered, an INVITE request is sent to the callee and the m parameter in the Request line is set to BS. When the callee answers the session, caller and callee are connected.

Preconditions:

SIP header values:

NOTIFY 1 sip:O-AS

Event:call-completion

Content-Type: application/call-completion

state: ready

INVITE 2: sip: SIP 2; m=BS

From: SIP 1 To: SIP 2

NOTIFY 2 sip:O-AS

Event:call-completion

Subscription-State: terminated; reason=rejected

Comments:

SIP 1 (ISC) SUT SIP 2 (ISC)

Invoke CCBS request CCBS request confirmed by AS

Terminating user available for recall

NOTIFY ← NOTIFY 1

200 OK NOTIFY → 200 OK NOTIFY

INVITE ← INVITE 1 180 Ringing → 180 Ringing

200 OK INVITE → 200 OK INVITE

ACK ← ACK → INVITE 2 ← 180 Ringing

NOTIFY ← NOTIFY 2 200 OK NOTIFY → 200 OK NOTIFY

← 200 OK INVITE

→ ACK

TSS	TP	Reference	Selection expression
CC/originating_AS/Operation	CC_N03_004	4.5.4.2.3	PICS 1/4

CCNR Recall successful by using the special REFER interworking. Sending an INVITE request to the originating user.

Ensure that the originating AS starts the CCNR recall procedure when the indication that the callee is available to recall indicated in a NOTIFY request and the state header in the call-completion MIME body is set to "ready". An INVITE request is sent to the caller. When the session with the caller is answered, an INVITE request is sent to the callee and the m parameter in the Request line is set to NR. When the callee answers the session, caller and callee are connected.

Preconditions:

SIP header values:

NOTIFY 1 sip:O-AS

Event:call-completion

Content-Type: application/call-completion

state: ready

INVITE 2: sip: SIP 2; m=NR

From: SIP 1 To: SIP 2

NOTIFY 2 sip:O-AS

Event:call-completion

Subscription-State: terminated; reason=rejected

Comments:

SIP 1 (ISC) SUT SIP 2 (ISC)

Invoke CCNR request CCNR request confirmed by AS

Terminating user available for recall

NOTIFY ← NOTIFY 1

200 OK NOTIFY → 200 OK NOTIFY

INVITE ← INVITE 1
180 Ringing → 180 Ringing

200 OK INVITE → 200 OK INVITE → INVITE 2
ACK ← ACK ← 180 Ringing

NOTIFY ← NOTIFY 2 200 OK NOTIFY → 200 OK NOTIFY

← 200 OK INVITE

→ ACK

Apply post test routine

ETSI

TSS	TP	Reference	Selection expression
CC/originating_AS/Operation	CC_N03_005	4.5.4.2.3	-

CCBS Recall not accepted by originating user. CC-T4 expires.

Ensure that the originating AS revokes the outstanding CCBS request after having received the notification that the CCBS recall to the callee is possible and the caller does not accept the recall offer. A SUBCRIBE is sent to the terminating AS and the Expires header is set to zero.

Preconditions:

SIP header values:

NOTIFY 1 sip:O-AS

Event:call-completion

Content-Type: application/call-completion

state: ready

sip: SIP 1; m=BS REFER:

Refer-To; SIP 2; method=INVITE

SUBSRIBE sip:T-AS;m=BS

From:<UE-A> To:<UE-B> Contact:<O-AS> Event:call-completion

Expires=0 NOTIFY 2 sip:O-AS Event:call-completion

Subscription-State: terminated; reason=rejected

Comments:

SIP 1 (ISC) **SUT** SIP 2 (ISC)

Invoke CCBS request CCBS request confirmed by AS

Terminating user available for recall

NOTIFY **+** NOTIFY 1

200 OK NOTIFY 200 OK NOTIFY

REFER REFER 202 Accepted 202 Accepted

Start Timer CC-T4

Timeout Timer CC-T4

SUBSCRIBE SUBSCRIBE 202 Accepted 202 Accepted

NOTIFY ← NOTIFY 2 200 OK NOTIFY 200 OK NOTIFY

TSS	TP	Reference	Selection expression
CC/originating_AS/Operation	CC_N03_006	4.5.4.2.3	-

CCNR Recall not accepted by originating user.

Ensure that the originating AS revokes the outstanding CCNR request after having received the notification that the CCNR recall to the callee is possible and the caller does not accept the recall offer. A SUBCRIBE is sent to the terminating AS and the Expires header is set to zero.

Preconditions:

SIP header values:

NOTIFY 1 sip:O-AS

Event:call-completion

Content-Type: application/call-completion

state: ready

REFER:

sip: SIP 1; m=NR Refer-To; SIP 2; method=INVITE

SUBSRIBE sip:T-AS;m=NR

From:<UE-A> To:<UE-B> Contact:<O-AS> Event:call-completion

Expires=0 NOTIFY 2 sip:O-AS Event:call-completion

Subscription-State: terminated; reason=rejected

Comments:

SIP 1 (ISC) **SUT** SIP 2 (ISC)

Invoke CCBS request CCBS request confirmed by AS

Terminating user available for recall

NOTIFY **+** NOTIFY 1

200 OK NOTIFY 200 OK NOTIFY

REFER REFER 202 Accepted 202 Accepted

Start Timer CC-T4

Timeout Timer CC-T4

SUBSCRIBE SUBSCRIBE 202 Accepted 202 Accepted

NOTIFY ← NOTIFY 2 200 OK NOTIFY 200 OK NOTIFY

TSS	TP	Reference	Selection expression
CC/originating_AS/Operation	CC_N03_007	4.5.4.2.3.2.2	

CCBS Caller is found to be busy, when a CC recall notification has been received.

Ensure that when the caller is found to be busy, when a CCBS CC recall notification has been received, then the originating AS shall suspend the CC request until the caller becomes not busy. The originating AS shall send a PUBLISH request to the terminating AS containing a presence XML body status set to "closed". The originating AS shall send a PUBLISH request to the terminating AS containing a presence XML body status set to "open" when the caller is not longer busy.

Preconditions:

SIP header values:

NOTIFY 1 sip:O-AS

Event:call-completion

Content-Type: application/call-completion

state: ready

REFER: sip: SIP 1; m=BS

Refer-To; SIP 2; method=INVITE

PUBLISH 1: sip T-AS

To: SIP 2 Event: presence

Content-Type: application/pidf+xml <?xml version="1.0" encoding="UTF-8"?>

<status>

<basic>closed</basic>

NOTIFY 2 sip:O-AS

Event:call-completion

Content-Type: application/call-completion

state: queued service-retention PUBLISH 2: sip T-AS To: SIP 2

Event: presence

Content-Type: application/pidf+xml <?xml version="1.0" encoding="UTF-8"?>

<status>

<basic>open</basic>

Comments:

SIP 1 (ISC) SUT SIP 2 (ISC)

Invoke CCBS request CCBS request confirmed by AS

Terminating user available for recall

Establish a session to SIP 2

NOTIFY 1 ← NOTIFY 1

200 OK NOTIFY → 200 OK NOTIFY

REFER ← REFER

486 (Busy Here) → 486 (Busy Here)

PUBLISH 1 → PUBLISH

200 OK PUBLISH ← 200 OK PUBLISH

NOTIFY 1 ← NOTIFY 2

200 OK NOTIFY → 200 OK NOTIFY

Disconnect session to SIP 2

PUBLISH 2 → PUBLISH

200 OK PUBLISH ← 200 OK PUBLISH

NOTIFY 1 ← NOTIFY 2 200 OK NOTIFY → 200 OK NOTIFY

TSS	TP	Reference	Selection expression
CC/originating_AS/Operation	CC_N03_008	4.5.4.2.3.2.2	-

CCNR Caller is found to be busy, when a CC recall notification has been received.

Ensure that when the caller is found to be busy, when a CCNR CC recall notification has been received, then the originating AS shall suspend the CC request until the caller becomes not busy. The originating AS shall send a PUBLISH request to the terminating AS containing a presence XML body status set to "closed". The originating AS shall send a PUBLISH request to the terminating AS containing a presence XML body status set to "open" when the caller is not longer busy.

Preconditions:

SIP header values:

NOTIFY 1 sip:O-AS

Event:call-completion

Content-Type: application/call-completion

state: ready

REFER: sip: SIP 1; m=NR

Refer-To; SIP 2; method=INVITE

PUBLISH 1: sip T-AS

To: SIP 2 Event: presence

Content-Type: application/pidf+xml <?xml version="1.0" encoding="UTF-8"?>

<status>

<basic>closed</basic>

NOTIFY 2 sip:O-AS

Event:call-completion

Content-Type: application/call-completion

state: queued service-retention PUBLISH 2: sip T-AS To: SIP 2

Event: presence

Content-Type: application/pidf+xml <?xml version="1.0" encoding="UTF-8"?>

<status>

<basic>open</basic>

Comments:

SIP 1 (ISC) SUT SIP 2 (ISC)

Invoke CCNR request CCNR request confirmed by AS

Terminating user available for recall

Establish a session to SIP 2

NOTIFY 1 ← NOTIFY 1

200 OK NOTIFY → 200 OK NOTIFY

REFER ← REFER

486 (Busy Here) → 486 (Busy Here)

PUBLISH 1 → PUBLISH

200 OK PUBLISH ← 200 OK PUBLISH

NOTIFY 1 ← NOTIFY 2

200 OK NOTIFY → 200 OK NOTIFY

Disconnect session to SIP 2

PUBLISH 2 → PUBLISH

200 OK PUBLISH ← 200 OK PUBLISH

NOTIFY 1 ← NOTIFY 2 200 OK NOTIFY → 200 OK NOTIFY

TSS	TP	Reference	Selection expression
CC/originating_AS/Operation	CC_N03_009	4.5.4.2.3.2.3	NOT PICS 1/3

The caller initiates another communication to the same destination B and activates the same CC service CCBS again. The two communications are identical. The AS discards the current request.

Ensure that the caller initiates another communication to the same destination B and activates the same CC service (CCBS) again then the originating AS retain the original request and discards the current request and informs the caller that the request has not been accepted because a CC request had already been stored against the requested callee.

Preconditions:

SIP header values:

486 Busy Here:

Call-Info: <sip:UE-B>;purpose=call-completion;m=BS

Comments:

SIP 1 (ISC) SIP 2 (ISC)

> **Invoke CCBS request CCBS** request confirmed by AS

INVITE INVITE 100 Trying 100 Trying 486 (Busy Here) 486 (Busy Here)

183 Session Progress 183 Session Progress **ACK**

Announcement that CCBS is possible Inband-interaction procedures for the CC activation

Announcement that CCBS is not invoked

Apply post test routine

TSS	TP	Reference	Selection expression			
CC/originating_AS/Operation	CC_N03_010	4.5.4.2.3.2.3	NOT PICS 1/3			
Test purpose						
The caller initiates another communication	to the same destination	n B and activates the s	same CC service CCNR again.			
The two communications are identical. The	AS discards the curre	nt request.				
Ensure that the caller initiates another communication to the same destination B and activates the same CC service						
(CCNR) again then the originating AS retain the original request and discards the current request and informs the caller						
that the request has not been accepted because a CC request had already been stored against the requested callee.						
Preconditions:						

SIP header values:

180 Ringing 2:

Call-Info: <sip:UE-B>;purpose=call-completion;m=NR

Comments:

180 Ringing 2

SIP 1 (ISC) **SUT** SIP 2 (ISC)

Invoke CCNR request CCNR request confirmed by AS

4 INVITE INVITE 100 Trying 100 Trying 180 Ringing 1

Announcement that CCNR is possible

Inband-interaction procedures for the CC activation

Announcement that CCBS is not invoked

CANCEL 200 OK CANCEL 200 OK CANCEL 487 Request Terminated 487 Request Terminated ACK **ACK**

TSS	TP	Reference	Selection expression
CC/originating_AS/Operation	CC_N03_011	4.5.4.2.3.2.3	PICS 1/3

The caller initiates another communication to the same destination B and activates the same CC service CCBS again. The two communications are identical. The AS treat this as a new CC request.

Ensure that the caller initiates another communication to the same destination B and activates the same CC service (CCBS) again, the originating AS shall treat this as a new CC request, A SUBSRIBE request is sent to the terminating AS indicating a CCBS request - a m parameter set to "BS" is attached at the Request line.

Preconditions:

SIP header values:

486 Busy Here:

Call-Info: <sip:UE-B>;purpose=call-completion;m=BS

SUBSRIBE sip:T-AS;m=BS

From:<UE-A>

To:<UE-B>

Contact:<O-AS>

Event:call-completion

NOTIFY sip:O-AS

Event:call-completion

Content-Type: application/call-completion

state: queued service-retention

Comments:

100 Trying

SIP 1 (ISC) SUT SIP 2 (ISC)

Invoke CCBS request

CCBS request confirmed by AS
INVITE →

486 (Busy Here) ← 486 (Busy Here) 183 Session Progress ← 183 Session Progress → ACK

Announcement that CCBS is possible

Inband-interaction procedures for the CC activation

→ SUBSCRIBE

← 202 Accepted

NOTIFY

→ 200 OK NOTIFY

Confirm to the caller that the invocation was successful

TSS	TP	Reference	Selection expression
CC/originating_AS/Operation	CC_N03_012	4.5.4.2.3.2.3	PICS 1/4

The caller initiates another communication to the same destination B and activates the same CC service CCNR again. The two communications are identical. The AS treat this as a new CC request.

Ensure that the caller initiates another communication to the same destination B and activates the same CC service (CCNR) again, the originating AS shall treat this as a new CC request, A SUBSRIBE request is sent to the terminating AS indicating a CCBS request - a m parameter set to "NR" is attached at the Request line.

Preconditions:

SIP header values:

180 Ringing 2:

Call-Info: <sip:UE-B>;purpose=call-completion;m=NR

SUBSRIBE sip:T-AS;m=NR

From:<UE-A>

To:<UE-B>

Contact:<O-AS>

Event:call-completion

NOTIFY sip:O-AS

Event:call-completion

Content-Type: application/call-completion

state: queued service-retention

Comments:

SIP 1 (ISC) SUT SIP 2 (ISC)

Invoke CCNR request CCNR request confirmed by AS

 INVITE
 →
 INVITE

 100 Trying
 ←
 100 Trying

 ←
 180 Ringing 1

180 Ringing 2 ←

Announcement that CCNR is possible

Inband-interaction procedures for the CC activation

→ SUBSCRIBE← 202 Accepted

♦ NOTIFY

→ 200 OK NOTIFY

Confirm to the caller that the invocation was successful

CANCEL → CANCEL
200 OK CANCEL ← 200 OK CANCEL
487 Request Terminated ← 487 Request Terminated

ACK → ACK
Apply post test routine

TSS		TP	Reference	Selection expression
CC/originating_AS/Operation		CC_N03_013	4.8.1	-
Test purpose				
CCBS request. Timeout CC-T2.				
Encure that the CC request oper	tion timor CC -	T2 is started after (CPS request	is received from caller. When the
				r as an confirmation that the CCBS
request was successful at the ter				
Preconditions:	minating AS the	e CCBS request is	rejected. The	caller is illioithed.
SIP header values:				
o				
486 Busy Here:	_aall aamplatic	n·m_DC		
Call-Info: <sip:ue-b>;purpose SUBSRIBE sip:T-AS;m=BS</sip:ue-b>	=call-completic	лі,пі= Б З		
From: <ue-a></ue-a>				
To: <ue-b></ue-b>				
Contact: <o-as></o-as>				
Event:call-completion				
Comments:				
SIP 1 (ISC)		SUT	SID	2 (ISC)
INVITE	→	301	→ INVI	
100 Trying	-			Trying
100 Trying	`			(Busy Here)
183 Session Progress	4		→ ACK	
100 Gession i Togress	Annound	cement that CCB		\
Inband-interaction pro			o is possible	
mbana mtoraotion pro	ocaaroo ioi tii		→ SUB	SCRIBE
				Accepted
		Start Timer CC-1		, toooptou
			_	
	т	imeout Timer CC	-T2	
~		and the state of t	· . -	

Confirm to the caller that the invocation was not successful

Apply post test routine

← →

486 (Busy Here) ACK

TSS	TP	Ref	erence	Selection expression
CC/originating_AS/Operation	CC_N03_014	4.8	.1	-
Test purpose				
CCNR request. Timeout CC-T2.				
Ensure that the CC request operation	timer CC-T2 is started afte	r CCNR	request is rec	ceived from caller. When the
timer CC-T2 is expired because no NO	OTIFY is received from the	terminat	ting user as ar	n confirmation that the CCBS
request was successful at the termina	ting AS the CCNR request	is reject	ed. The caller	is informed.
Preconditions:	<u> </u>			
SIP header values:				
180 Ringing 2:				
Call-Info: <sip:ue-b>;purpose=cal</sip:ue-b>	I-completion;m=NR			
SUBSRIBE sip:T-AS;m=NR	•			
From: <ue-a></ue-a>				
To: <ue-b></ue-b>				
Contact: <o-as></o-as>				
Event:call-completion				
Comments:				
SIP 1 (ISC)	SUT		SIP 2 (ISC	C)
INVITE	→	→	INVITE	
100 Trying	←	←	100 Trying	
		←	180 Ringir	ng 1
180 Ringing 2	←			
1.1	Announcement that CC		ossible	
Inband-interaction proced	ures for the CC activation		OLIDOGE	DE
		→	SUBSCRI	
	Start Timer CC	-T2	202 Accep	Jieu
	Start Timer CC	-12		
	↓ Timeout Timer C	C-T2		
Confirm t	o the caller that the invo		as not succe	eeful
CANCEL		ation w →	CANCEL	-331UI
200 OK CANCEL	-	-	200 OK C	ANCEL
487 Request Terminated	÷	÷		est Terminated
ACK	→	À	ACK	oct i ominatou
· · ·	Apply post test	-	7.01	

Apply post test routine

Selection expression

Reference

TP

CC/originating_AS/Operation	CC_N03_015	4.8.1	CIICC	Selection expression
Test purpose	00_1100_010	7.0.1		
CCBS request. Timeout CC-T3.				
CODO request. Timeout CO 15.				
Ensure that the CC service duration timer	CC-T3 is started. When	CC-T3 e	expires the call co	mpletion request is
deleted. The CCBS request is revoked ind				
to zero.				g a =/\pcccaac. cc.
Preconditions:				
SIP header values:				
SUBSRIBE sip:T-AS;m=BS				
From: <ue-a></ue-a>				
To: <ue-b></ue-b>				
Contact: <o-as></o-as>				
Event:call-completion				
Expires=0				
NOTIFY sip:O-AS				
Event:call-completion				
Subscription-State: terminated; reason	=rejected			
Comments:				
SIP 1 (ISC)	SUT		SIP 2 (ISC)	
Invoke CCBS re				
CCBS request confi	med by AS			
	Start Timer CC-T3			
	\downarrow			
Time	out Timer CC-T3			
	SUBSCRIBE	→	SUBSCRIBE	
	202 Accepted	←	202 Accepted	
	NOTIC		NOTICY	
	NOTIF)		NOTIFY	,
	200 OK NOTIF		200 OK NOTIF	ſ
	Apply post test ro	utine		

TSS	TP	Reference	Selection expression
CC/originating_AS/Operation	CC_N03_016	4.8.1	
Test purpose			
CCNR request. Timeout CC-T3.			
•			
Ensure that the CC service duration	timer CC-T3 is started. W	hen CC-T3 expires, the	call completion request is
deleted. The CCNR request is revok			

to zero.

Preconditions:

TSS

SIP header values: SUBSRIBE sip:T-AS;m=NR From:<UE-A>

To:<UE-B>

Contact:<O-AS>

Event:call-completion

Expires=0 NOTIFY sip:O-AS

Event:call-completion

Subscription-State: terminated; reason=rejected

Comments:

SIP 1 (ISC) SIP 2 (ISC)

Invoke CCNR request CCNR request confirmed by AS **Start Timer CC-T3**

Timeout Timer CC-T3

SUBSCRIBE → **SUBSCRIBE** 202 Accepted ← 202 Accepted

> NOTIFY ← **NOTIFY** 200 OK NOTIFY → 200 OK NOTIFY

5.3 Actions at the terminating AS

5.3.1 CC possible indication

TSS	TP	Reference	Selection expression
CC/terminating_AS/possibleIndication	CC_N04_001	4.5.4.3.1	-

Test purpose

The terminating AS inserts a Call-Info header in the 486 final response received from the terminating user.

Ensure that the terminating AS inserts a Call-Info header and the purpose parameter is set to call-completion and the mparameter is set to BS in the 486 (Busy Here) received from the callee and forwards to the originating AS.

Preconditions:

SIP header values:

486 (Busy Here) 1:

Call-Info: <sip:UE-B>;purpose=call-completion;m=BS

Comments:

SIP 1 (ISC)		SUT	SIP 2 (ISC)	
, ,	_	301	` '	
INVITE	→	→	INVITE	
100 Trying	←	+	100 Trying	
486 (Busy Here) 1	←	←	486 (Busy Here)	
ACK	→	→	ACK	
	Anni	v nost test routine		

TSS	TP	Reference	Selection expression
CC/terminating_AS_AS/possibleIndication	CC_N04_002	4.5.4.3.1	

Test purpose

The terminating AS inserts a Call-Info header in the 486 final response in case of NDUB.

Ensure that the terminating AS in case of NDUB sends a 486 (Busy Here) containing a Call-Info header and the purpose parameter is set to call-completion and the mparameter is set to BS to the originating AS.

Preconditions: Callee is network determined user busy

SIP header values:

486 (Busy Here) 1:

Call-Info: <sip:UE-B>;purpose=call-completion;m=BS

Comments: SIP 1 (ISC)

INVITÈ →
100 Trying ←
486 (Busy Here) 1 ←
ACK →

SIP 2 (ISC)

TSS	TP	Reference	Selection expression
CC/terminating_AS_AS/possibleIndication	CC_N04_003	4.5.4.3.1	_

Apply post test routine

SUT

Test purpose

The terminating AS inserts a Call-Info header in the 180 provisional response.

Ensure that the terminating AS inserts a Call-Info header in the 180 (Ringing) and the purpose parameter is set to call-completion and the mparameter is set to NR received from the callee and forwards to the originating AS.

Preconditions:

SIP header values:

180 (Ringing) 1:

Call-Info: <sip:UE-B>;purpose=call-completion;m=NR

Comments:

SIP 1 (ISC)		SUT	SIP 2 (ISC)
INVITE	→	→	INVITE
100 Trying	←	←	100 Trying
180 (Ringing) 1	←	←	180 (Ringing)
, , ,	Appl	y post test routine	

TSS	TP	Refe	erence	Selection expression
CC/terminating_AS_AS/possibleIndication	CC_N04_004	4.5.4	4.3.1.1	
Test purpose				
Terminating user does not subscribe to the CO	CBS service. No Cal	II-Info he	eader field include	ed.
Ensure that no Call-Info header is included in	the 486 (Busy Here)	If the te	erminating AS kn	ows that the CC is not
possible on destination B (callee).				
Preconditions: Terminating user does not su	bscribe to the CC se	ervice		
SIP header values:				
486 (Busy Here) 1:				
Call-Info not included				
Comments:				
SIP 1 (ISC)	SUT		SIP 2 (ISC)	
INVITÈ -		→	INVITÈ	
100 Trying ←		←	100 Trying	
486 (Busy Here) 1 ←		←	486 (Busy He	re)
ACK →		→	ACK	
	Apply post test ro	outine		

TSS	TP	Refe	rence	Selection expression
CC/terminating_AS_AS/possibleIndication	CC_N04_005	4.5.4	.3.1.1	_
Test purpose		•		·
Terminating user does not subscribe to the	e CCNR service. No Ca	III-Info he	ader field inc	luded.
Ensure that no Call-Info header is included	I in the 180 (Ringing) If	the termi	nating AS kn	ows that the CC is not possible
on destination B (callee).				
Preconditions: Terminating user does not	subscribe to the CC s	ervice		
SIP header values:				
180 (Ringing) 1:				
Call-Info not included				
Comments:				
SIP 1 (ISC)	SUT		SIP 2 (ISC))
INVITE	→	→	INVITE	
100 Trying	→	-	100 Trying	
180 (Ringing) 1	-	-	180 (Ringir	
100 (Kinging) 1	Apply post test r	-	100 (IXIIIgii	197

5.3.2 CC Invocation

TSS	TP	Reference	Selection expression
CC/terminating_AS/Invocation	CC_N05_001	4.5.4.3.2	

Test purpose

CCBS service invocation successful at the terminating AS.

Ensure that the terminating AS is able to queue the CCBS request received in a SUBSCRIBE request from the originating AS and responds with a NOTIY request. In the NOTIFY request the state header of the call-completion MIME body is set to queued.

Preconditions:

SIP header values:

486 (Busy Here) 1:

Call-Info: <sip:UE-B>;purpose=call-completion;m=BS

SUBSRIBE sip:T-AS;m=BS

From:<UE-A> To:<UE-B>

Contact:<O-AS>
Event:call-completion

NOTIFY sip:O-AS

Event:call-completion

Content-Type: application/call-completion

state: queued

1				
Comments:				
SIP 1 (ISC)		SUT	SIP 2 (ISC)	
INVITE	→	→	INVITE	
100 Trying	←	←	100 Trying	
486 (Busy Here) 1	←	←	486 (Busy Here)	
ACK	→	→	ACK	
SUBSCRIBE 202 Accepted	→			
NOTIFY	←			
200 OK NOTIFY	→			
	App	ly post test routin	e	

TSS	TP	Reference	Selection expression
CC/terminating_AS/Invocation	CC_N05_002	4.5.4.3.2	-

CCNR service invocation successful at the terminating AS.

Ensure that the terminating AS is able to queue the CCNR request received in a SUBSCRIBE request from the originating AS and responds with a NOTIY request. In the NOTIFY request the state header of the call-completion MIME body is set to gueued.

Preconditions:

SIP header values:

180 Ringing 1:

Call-Info: <sip:UE-B>;purpose=call-completion;m=NR

SUBSRIBE sip:T-AS;m=NR

From:<UE-A>
To:<UE-B>
Contact:<O-AS>
Event:call-completion
NOTIFY sip:O-AS

Event:call-completion

Content-Type: application/call-completion

state: queued

State. queueu		
Comments:		
SIP 1 (ISC)	SUT	SIP 2 (ISC)
INVITE	→ →	INVITÉ
100 Trying	+ +	100 Trying
180 Ringing 1	← ←	180 Ringing
SUBSCRIBE	→	
202 Accepted	←	
NOTIFY	←	
200 OK NOTIFY	→	
	Apply post test routine	

TSS	TP	Reference	Selection expression
CC/terminating_AS/Invocation	CC_N05_003	4.5.4.3.2	

Test purpose

CCBS service invocation unsuccessful at the terminating AS. Maximum number of queue entries is reached.

Ensure that the terminating AS responds to the SUBSCRIBE request containing the CCBS invoke received from the originating AS with a 480 (Temporarily Unavailable) if the callee's B queue limit is reached.

Preconditions:

SIP header values:

486 (Busy Here) 1:

Call-Info: <sip:UE-B>;purpose=call-completion;m=BS

SUBSRIBE sip:T-AS;m=BS

From:<UE-A>
To:<UE-B>
Contact:<O-AS>
Event:call-completion

Comments:

SIP 1 (ISC)	SUT	SIP 2 (ISC)

Set the B queue to limit

 INVITE
 →
 INVITE

 100 Trying
 ←
 ←
 100 Trying

 486 (Busy Here)
 +
 ←
 486 (Busy Here)

 ACK
 →
 ACK

SUBSCRIBE →

480 Temporarily Unavailable ← Apply post test routine

TSS	TP	Reference	Selection expression
CC/terminating_AS/Invocation	CC_N05_004	4.5.4.3.2	

CCBS service invocation unsuccessful at the terminating AS. To header of the SUBSCRIBE is not available for the service request.

Ensure that the terminating AS responds to the SUBSCRIBE request containing the CCBS invoke received from the originating AS with a 403 Forbidden if the URI in the To header field of the SUBSCRIBE request is not available for the requested CC service at the terminating AS.

Preconditions:

SIP header values:

486 (Busy Here) 1:

Call-Info: <sip:UE-B>;purpose=call-completion;m=BS

SUBSRIBE sip:T-AS;m=BS

From:<UE-A>

To:<other URI (PIXIT)> Contact:<O-AS> Event:call-completion

Comments

SIP 1 (ISC) INVITE 100 Trying 486 (Busy Here) 1 ACK	→ ← ←	SUT → ← →	SIP 2 (ISC) INVITE 100 Trying 486 (Busy Here) ACK	
SUBSCRIBE 403 Forbidden	→ ←			

TSS	TP	Reference	Selection expression
CC/terminating_AS/Invocation	CC_N05_005	4.5.4.3.2	_

Test purpose

CCNR service invocation unsuccessful at the terminating AS. Maximum number of queue entries is reached.

Ensure that the terminating AS responds to the SUBSCRIBE request containing the CCNR invoke received from the originating AS with a 480 (Temporarily Unavailable) if the callee's B queue limit is reached.

Preconditions:

SIP header values:

180 Ringing 1:

Call-Info: <sip:UE-B>;purpose=call-completion;m=NR

SUBSRIBE sip:T-AS;m=NR

From:<UE-A>
To:<UE-B>
Contact:<O-AS>
Event:call-completion

Comments:

SIP 1 (ISC)	SUT	SIP 2 (ISC)

Set the B queue to limit

 INVITE
 →
 INVITE

 100 Trying
 ←
 ←
 100 Trying

 180 Ringing 1
 ←
 +
 180 Ringing

SUBSCRIBE →
480 Temporarily Unavailable ←

TSS	TP	Reference	Selection expression
CC/terminating_AS/Invocation	CC_N05_006	4.5.4.3.2	-

CCNR service invocation unsuccessful at the terminating AS. To header of the SUBSCRIBE is not available for the service request.

Ensure that the terminating AS responds to the SUBSCRIBE request containing the CCNR invoke received from the originating AS with a 403 Forbidden if the URI in the To header field of the SUBSCRIBE request is not available for the requested CC service at the terminating AS.

Preconditions:

SIP header values:

180 Ringing 1:

Call-Info: <sip:UE-B>;purpose=call-completion;m=NR

SUBSRIBE sip:T-AS;m=NR

From:<UE-A>

To:<other URI (PIXIT)> Contact:<O-AS> Event:call-completion

Comments

SIP 1 (ISC) INVITE 100 Trying 486 (Busy Here) 1 ACK	→ ← ←	SUT	→ ← ←	SIP 2 (ISC) INVITE 100 Trying 486 (Busy Here) ACK
SUBSCRIBE 403 Forbidden	→ ←			

TSS	TP	Reference	Selection expression
CC/terminating_AS/Invocation	CC_N05_007	4.5.4.3.2	PICS 1/2

Test purpose

CCBS service invocation successful at the terminating AS. Retain option supported.

Ensure that the terminating AS is able to queue the CCBS request received in a SUBSCRIBE request from the originating AS and responds with a NOTIY request. In the NOTIFY request the state header of the call-completion MIME body is set to queued and the service-retention header is present.

Preconditions:

SIP header values:

486 (Busy Here) 1:

Call-Info: <sip:UE-B>;purpose=call-completion;m=BS

SUBSRIBE sip:T-AS;m=BS

From:<UE-A>

To:<UE-B>

Contact:<O-AS>

Event:call-completion

NOTIFY sip:O-AS

Event:call-completion

Content-Type: application/call-completion

state: queued service-retention

Co	mn	nen	ıts:

SIP 1 (ISC)	SUT	SIP 2 (ISC)
INVITÈ -	→	INVITÈ
100 Trying ←	· ←	100 Trying
486 (Busy Here) 1		486 (Busy Here)
ACK →		ACK
SUBSCRIBE ->		
202 Accepted ←	1	
NOTIFY	•	
200 OK NOTIFY →		
	Apply post test routine	

TSS	TP	Reference	Selection expression
CC/terminating_AS/Invocation	CC_N05_008	4.5.4.3.2	NOT PICS 1/2

CCNR service invocation successful at the terminating AS. Retain option not supported.

Ensure that the terminating AS is able to queue the CCBS request received in a SUBSCRIBE request from the originating AS and responds with a NOTIY request. In the NOTIFY request the state header of the call-completion MIME body is set to queued and the service-retention header is **not** present.

Preconditions:

SIP header values:

180 Ringing 1:

Call-Info: <sip:UE-B>;purpose=call-completion;m=NR

SUBSRIBE sip:T-AS;m=NR

From:<UE-A>
To:<UE-B>
Contact:<O-AS>
Event:call-completion
NOTIFY sip:O-AS

Event:call-completion

Content-Type: application/call-completion

state: queued

ciato: quodod				
Comments:				
SIP 1 (ISC)		SUT		SIP 2 (ISC)
INVITÈ	→		→	INVITÈ
100 Trying	←		←	100 Trying
180 Ringing 1	←		←	180 Ringing
SUBSCRIBE	→			
202 Accepted	(
NOTIFY	←			
200 OK NOTIFY	÷			
200 0101101111		post test ro	utine	

5.3.3 CC Revocation

TSS	TP	Reference	Selection expression
CC/terminating_AS/Revocation	CC_N06_001	4.5.4.3.3	

Test purpose

CCBS service revocation successful at the terminating AS.

Ensure that the terminating AS is able to respond a NOTIFY request and the Subscription-State header is set to terminated and the reason parameter is set to rejected for a CCBS queue entry if a SUBSCRIBE request is received and the Expires header is set to zero.

Preconditions:

SIP header values:

SUBSRIBE sip:T-AS;m=BS

From:<UE-A>
To:<UE-B>
Contact:<O-AS>
Event:call-completion
Expires=0
NOTIFY sip:O-AS

Event:call-completion

Subscription-State: terminated; reason=rejected

Comments:

200 OK NOTIFY

SIP 1 (ISC)	Invoke CCBS request	SUT	SIP 2 (ISC)	
SUBSCRIBE 202 Accepted	→ ←			
NOTIFY	←			

Apply post test routine

TSS	TP	Reference	Selection expression
CC/terminating_AS/Revocation	CC_N06_002	4.5.4.3.3	-
Test purpose			

CCNR service revocation successful at the terminating AS.

Ensure that the terminating AS is able to respond a NOTIFY request and the Subscription-State header is set to terminated and the reason parameter is set to rejected for a CCNR queue entry if a SUBSCRIBE request is received and the Expires header is set to zero.

Preconditions:

SIP header values:

SUBSRIBE sip:T-AS:m=NR

From:<UE-A> To:<UE-B> Contact:<O-AS> Event:call-completion

Expires=0 NOTIFY sip:O-AS

Event:call-completion

Subscription-State: terminated; reason=rejected

Comments:

SIP 1 (ISC) SUT SIP 2 (ISC)

Invoke CCBS request

SUBSCRIBE 202 Accepted NOTIFY 200 OK NOTIFY

Apply post test routine

TSS	TP	Reference	Selection expression
CC/terminating_AS/Revocation	CC_N06_003	4.5.4.3.3	

Test purpose

CCBS service revocation at the terminating AS. CC-T7 expires.

Ensure that the terminating AS is able to revoke a CCBS queue entry if the CC service duration timer CC-T7 expires. A NOTIFY request is sent to the originating AS and the Subscription-State header is set to "terminated" and the reason header is set to "rejected".

Preconditions:

SIP header values:

NOTIFY sip:O-AS

Event:call-completion

Subscription-State: terminated; reason=rejected

Comments:

SIP 1 (ISC) SUT SIP 2 (ISC)

Invoke CCBS request

Start CC-T7

CC-T7 expires

NOTIFY 200 OK NOTIFY

Apply post test routine

TSS		TP	Reference	Selection expression
CC/terminating_AS/Revocation		CC_N06_004	4.5.4.3.3	-
Test purpose				
CCNR service revocation at the	e terminating AS.	CC-T7 expires.		
Ensure that the terminating AS	is able to revoke	a CCNR queue en	try if the CC service	duration timer CC-T7 expires. A
NOTIFY request is sent to the	originating AS and	d the Subscription-S	State header is set to	o "terminated" and the reason
header is set to "rejected".		·		
Preconditions:				
SIP header values:				
NOTIFY sip:O-AS				
Event:call-completion				
Subscription-State: termina	ed; reason=rejec	ted		
Comments:				
SIP 1 (ISC)		SUT	SIP 2 (ISC)
Invoke C	CNR request			
		Start CC-T7		
		\downarrow		
		CC-T7 expires		
NOTIFY	←			
200 OK NOTIFY	→			
	,	Apply post test rou	utine	

5.3.4 **CC** Operation

TSS		TP	Reference	Selection expression
CC/terminating_AS/0	COperation	CC_N07_001	4.5.4.3.4.1.1	
Test purpose				·
Callee becomes not	busy, CC recall procedure	performed. Retain o	ption is not support	ted.
	nating AS starts the call co			
				expires, a NOTIFY request is
sent to the originating	g AS. The state header in t	he call-completion N	IIME body is set to	"ready", the service-retention
header is not presen	t			
Preconditions:				
SIP header values:				
NOTIFY sip:O-AS				
From: Sip 2				
To: SIP 1				
Event:call-comple				
	plication/call-completion			
state: ready				
Comments:		O	017.0 (10.0	
SIP 1 (ISC)	1	SUT	SIP 2 (ISC	;)
	Invoke CCBS request	0-11 !-		
DVE	_	Callee is busy		
BYE 200 OK BYE	←		BYE 200 OK BY	VE
200 OK BTE	7	Start CC-T8	7 200 OK B	1 -
		Start CC-16 ↓		
		CC-T8 expires		
NOTIFY	←	-		
200 OK NOTIFY	→			
		Apply post test rou	ıtina	

TSS	TP	Reference	Selection expression
CC/terminating_AS/CCOperation	CC_N07_002	4.5.4.3.4.1.1	PICS 1/2

Callee becomes not busy after having initiated an activity, CC recall procedure performed. Retain option is not supported.

Ensure that the terminating AS starts the call completion recall procedure if the callee is having initiated an activity. The terminating AS starts the Destination B idle guard timer CC-T8. When the timer CC-T8 expires, a NOTIFY request is sent to the originating AS. The state header in the call-completion MIME body is set to "ready", the service-retention header is not present.

Preconditions:

SIP header values:

NOTIFY sip:O-AS From: Sip 2

From: Sip 2 To: SIP 1

Event:call-completion

Content-Type: application/call-completion

state: ready

Comments:

SIP 1 (ISC) SUT SIP 2 (ISC)
Invoke CCNR request

Callee is idle
INVITE ←

486 Busy Here → 486 Busy Here ACK ← ACK

Start CC-T8
↓
CC-T8 expires

NOTIFY 4

Apply post test routine

INVITE

TSS	TP	Reference	Selection expression
CC/terminating_AS/CCOperation	CC_N07_003	4.5.4.3.4.1.1	PICS 1/2

Test purpose

Callee becomes not busy, CC recall procedure performed. Retain option is supported.

Ensure that the terminating AS starts the call completion recall procedure if the callee becomes not busy. The terminating AS starts the Destination B idle guard timer CC-T8. When the timer CC-T8 expires, a NOTIFY request is sent to the originating AS. The state header in the call-completion MIME body is set to "ready", the service-retention header is present.

Preconditions:

SIP header values:

NOTIFY sip:O-AS From: Sip 2

To: SIP 1

Event:call-completion

Content-Type: application/call-completion

state: ready service-retention

Comments:

SIP 1 (ISC) SUT SIP 2 (ISC)

Invoke CCBS request

Callee is busy

200 OK BYE → 200 OK BYE Start CC-T8

NOTIFY ← 200 OK NOTIFY →

Apply post test routine

CC-T8 expires

TSS	TP	Reference	Selection expression
CC/terminating_AS/CCOperation	CC_N07_004	4.5.4.3.4.1.1	PICS 1/2

Callee becomes not busy after having initiated an activity, CC recall procedure performed. Retain option is supported.

Ensure that the terminating AS starts the call completion recall procedure if the callee having initiated an activity. The terminating AS starts the Destination B idle guard timer CC-T8. When the timer CC-T8 expires, a NOTIFY request is sent to the originating AS. The state header in the call-completion MIME body is set to "ready", the service-retention header is present.

Preconditions:

SIP header values:

NOTIFY sip:O-AS From: Sip 2

To: SIP 1

Event:call-completion

Content-Type: application/call-completion

state: ready service-retention

Comments:

SIP 1 (ISC)

Invoke CCNR request

Callee is idle

 INVITE
 ←
 INVITE

 486 Busy Here
 →
 486 Busy Here

 ACK
 ←
 ★

 Start CC-T8
 CK

NOTIFY ←
200 OK NOTIFY →

Apply post test routine

CC-T8 expires

TSS	TP	Reference	Selection expression
CC/terminating_AS/CCOperation	CC_N07_005	4.5.4.3.4.1.3,	-
		4.5.4.3.4.1.4	

CCBS: An INVITE request received while a CC recall is processed. CC call indicator present in the Request line.

Ensure that when an INVITE request is received from the originating AS while CC-T9 is running and in the Request line the m parameter is present set to "BS", this INVITE is processed to the callee. An INVITE is sent to the callee and the m parameter is not present in the Request line. When a 180 (Ringing) is received from the callee a NOTIFY request is sent to the originating AS and Subscription-State header is set to "terminated" and the reason header is set to "rejected".

Preconditions:

SIP header values:

NOTIFY 1 sip:O-AS From: Sip 2 To: SIP 1

Event:call-completion

Content-Type: application/call-completion

state: ready

INVITE 1: sip: SIP 2; m=BS

NOTIFY 2 sip:O-AS

Event:call-completion

Caboonption Ctat	e. terriiriatea, reason—rejecte	u .		
Comments:				
SIP 1 (ISC)		SUT	SIP 2 (ISC)	
	Invoke CCBS request			
		Callee is busy		
BYE	←	+	BYE	
200 OK BYE	→	→	200 OK BYE	
NOTIFY 1	←			
200 OK NOTIFY	→			
INVITE 1	→	→	INVITE	
180 Ringing	←	←	180 Ringing	
3 3			3 3	
NOTIFY 2	←			
200 OK NOTIFY	→			
200 OK INVITE	←	←	200 OK INVITE	
ACK	→	→	ACK	
	Ap	ply post test routine		

TSS	TP	Reference	Selection expression
CC/terminating_AS/CCOperation	CC_N07_006	4.5.4.3.4.1.3,	-
		4543414	

CCNR: An INVITE request received while a CC recall is processed. CC call indicator present in the Request line.

Ensure that when an INVITE request is received from the originating AS while CC-T9 is running and in the Request line the m parameter is present set to "NR", this INVITE is processed to the callee. An INVITE is sent to the callee and the m parameter is not present in the Request line. When a 180 (Ringing) is received from the callee a NOTIFY request is sent to the originating AS and Subscription-State header is set to "terminated" and the reason header is set to "rejected".

Preconditions:

SIP header values:

NOTIFY sip:O-AS

From: Sip 2

To: SIP 1

Event:call-completion

Content-Type: application/call-completion

state: ready

INVITE 1: sip: SIP 2; m=NR

NOTIFY 2 sip:O-AS

Event:call-completion

Comments: SIP 1 (ISC)		SUT	SIP 2 (ISC)	
	Invoke CCNR request		•	
		Callee is idle		
INVITE	←	←	INVITE	
486 Busy Here	→	→	486 Busy Here	
ACK	←	←	ACK	
NOTIFY 1	←			
200 OK NOTIFY	→			
INVITE 1	→	→	INVITE	
180 Ringing	←	←	180 Ringing	
NOTIFY 2	←			
200 OK NOTIFY	→			
200 OK INVITE	←	←	200 OK INVITE	
ACK	→	→	ACK	
	Α	pply post test routine		

TSS	TP	Reference	Selection expression
CC/terminating_AS/CCOperation	CC_N07_007	4.5.4.3.4.1.3,	PICS 1/9
		4.5.4.3.4.1.4	

CCBS: An INVITE request received while a CC recall is processed. CC call indicator not present in the Request line. Service requirements and destination selection information are identical to the stored values. The call is offered.

Ensure that the terminating AS has sent a NOTIFY request and the state parameter in the call-completion MIME body was set to "ready" after the terminating AS receives an INVITE request and there is no m parameter in the Request line the terminating AS compares the destination selection information and service requirements with the stored value received in the CCBS request. If the match is true the call is offered to the callee. When a 180 (Ringing) is received from the callee a NOTIFY request is sent to the originating AS and Subscription-State header is set to "terminated" and the reason header is set to "rejected".

Preconditions:

SIP header values:

NOTIFY sip:O-AS

From: Sip 2 To: SIP 1

Event:call-completion

Content-Type: application/call-completion

state: ready

INVITE 1: sip: SIP 2

destination selection information and Service requirements as used in the dialogue as CCBS was requested NOTIFY 2 sip:O-AS

Event:call-completion

Comments: SIP 1 (ISC)	Invoke CCBS request	SUT	SIP 2 (ISC)
	invoke GODO request	Callee is busy	
BYE 200 OK BYE	← →	· ← →	BYE 200 OK BYE
NOTIFY 1 200 OK NOTIFY	← →		
INVITE 1 180 Ringing	→ ←	→	INVITE 180 Ringing
NOTIFY 2 200 OK NOTIFY	← →		
200 OK INVITE ACK	← →	← → Apply post test routine	200 OK INVITE ACK

TSS	TP	Reference	Selection expression
CC/terminating_AS/CCOperation	CC_N07_008	4.5.4.3.4.1.3,	PICS 1/9
		4.5.4.3.4.1.4	

CCNR: An INVITE request received while a CC recall is processed. CC call indicator not present in the Request line. Service requirements and destination selection information are identical to the stored values. The call is offered.

Ensure that the terminating AS has sent a NOTIFY request and the state parameter in the call-completion MIME body was set to "ready" after the terminating AS receives an INVITE request and there is no m parameter in the Request line the terminating AS compares the destination selection information and service requirements with the stored value received in the CCNR request. If the match is true the call is offered to the callee. When a 180 (Ringing) is received from the callee a NOTIFY request is sent to the originating AS and Subscription-State header is set to "terminated" and the reason header is set to "rejected".

Preconditions:

SIP header values:

NOTIFY sip:O-AS

From: Sip 2

To: SIP 1

Event:call-completion

Content-Type: application/call-completion

state: ready

INVITE 1: sip: SIP 2

destination selection information and Service requirements as used in the dialogue as CCNR was requested NOTIFY 2 sip:O-AS

Event:call-completion

Comments: SIP 1 (ISC)		SUT	SIP 2 (ISC)
	Invoke CCNR request		
		Callee is idle	
INVITE	←	←	INVITE
486 Busy Here	→	→	486 Busy Here
ACK	+	←	ACK
NOTIFY 1	+		
200 OK NOTIFY	→		
N N 475 4	•	•	NO 075
INVITE 1	→	→	INVITE
180 Ringing	+	←	180 Ringing
NOTIFY 2	←		
200 OK NOTIFY	→		
	L	L	200 OK INIVITE
200 OK INVITE	((200 OK INVITE
ACK	→	→	ACK
		Apply post test routine	

TSS	TP	Reference	Selection expression
CC/terminating_AS/CCOperation	CC_N07_009	4.5.4.3.4.1.3,	NOT PICS 1/9
		4543414	

CCBS: An INVITE request received while a CC recall is processed. CC call indicator not present in the Request line. Service requirements and destination selection information are not identical to the stored values. The call is rejected.

Ensure that the terminating AS has sent a NOTIFY request to a CCBS entry and the state parameter in the call-completion MIME body was set to "ready" after the terminating AS receives an INVITE request and there is no mean parameter in the Request line the terminating rejects the call.

Preconditions:

SIP header values:

NOTIFY sip:O-AS

From: Sip 2 To: SIP 1

Event:call-completion

Content-Type: application/call-completion

state: ready INVITE: sip: SIP 2

destination selection information and Service requirements not identical as used in the dialogue as CCBS was

requested NOTIFY 2 sip:O-AS Event:call-completion

Subscription-S	tate: terminated; reason=reje	cted		
Comments:				
SIP 1 (ISC)		SUT	SIP 2 (ISC)	
, ,	Invoke CCBS request		•	
	•	Callee is busy		
BYE	←	´ ←	BYE	
200 OK BYE	→	→	200 OK BYE	
NOTIFY 1	←			
200 OK NOTIFY	→			
INVITE	→			
4xx	←			
ACK	→			
		Apply post test routine		

TSS	TP	Reference	Selection expression
CC/terminating_AS/CCOperation	CC_N07_010	4.5.4.3.4.1.3,	NOT PICS 1/9
		4543414	

CCNR: An INVITE request received while a CC recall is processed. CC call indicator not present in the Request line. Service requirements and destination selection information are not identical to the stored values. The call is rejected.

Ensure that the terminating AS has sent a NOTIFY request to a CCNR entry and the state parameter in the call-completion MIME body was set to "ready" after the terminating AS receives an INVITE request and there is no mean parameter in the Request line the terminating rejects the call.

Preconditions:

SIP header values:

NOTIFY sip:O-AS

From: Sip 2 To: SIP 1

Event:call-completion

Content-Type: application/call-completion

state: ready INVITE: sip: SIP 2

destination selection information and Service requirements not identical as used in the dialogue as CCNR

was requested NOTIFY 2 sip:O-AS Event:call-completion

Subscription-State:	terminated; reason=rejected			
Comments:				
SIP 1 (ISC)	;	SUT	SIP 2 (ISC)	
	voke CCNR request			
		llee is idle		
INVITE	←	←	INVITE	
486 Busy Here	→	→	486 Busy Here	
ACK	←	←	ACK	
NOTIFY 1	←			
200 OK NOTIFY	÷			
	•			
INVITE	→			
4xx	←			
ACK	→			
1 1 2 1 1	Apply po	ost test routine		

TSS	TP	Reference	Selection expression
CC/terminating_AS/CCOperation	CC_N07_011	4.5.4.3.4.2	_

CCBS: Terminating user becomes busy while CC-T8 is running.

If in case of CCBS, upon expiry of the destination B idle guard timer CC-T8, the callee is busy (e.g. the callee has initiated an outgoing communication), then the terminating AS shall defer servicing of the destination B CC queue until the callee becomes not busy again. After the callee is not busy, the terminating AS starts the recall procedure again.

Preconditions:

SIP header values:

NOTIFY 1 sip:O-AS From: Sip 2

To: SIP 1 (S2)

Event:call-completion
Content-Type: application/call-completion

state: ready	/			
Comments: SIP 1 (ISC)	Invoke CCBS request	SUT	SIP 2 (ISC)	
	mivele CCCC requeet	Callee is busy		
BYE	←	+	BYE	
200 OK BYE	→	→	200 OK BYE	
		Start CC-T8		
		↓		
INVITE (S1)	←	←	INVITE	
200 OK ÎNVITE	→	→	200 OK INVITE	
ACK	←	-	ACK	
		CC-T8 expires		
BYE	(←	BYE	
200 OK BYE	→	→	200 OK BYE	
		Start CC-T8		
		\downarrow		
		CC-T8 expires		
NOTIFY 1	←			
200 OK NOTIFY	→			
		Apply post test routine		

TSS	TP	Reference	Selection expression
CC/terminating_AS/CCOperation	CC_N07_012	4.5.4.3.4.2	-

CCNR: Terminating user becomes busy while CC-T8 is running.

If in case of CCNR, upon expiry of the destination B idle guard timer CC-T8, the callee is busy (e.g. the callee has initiated an outgoing communication), then the terminating AS shall defer servicing of the destination B CC queue until the callee becomes not busy again. After the callee is not busy, the terminating AS starts the recall procedure again.

Preconditions:

SIP header values:

NOTIFY 1 sip:O-AS From: Sip 2

To: SIP 1 (S2)

Event:call-completion
Content-Type: application/call-completion

state: ready service-retention

Service-rete	endon				
Comments:					
SIP 1 (ISC)		SUT		SIP 2 (ISC)	
	Invoke CCNR request				
	-	Callee is idle			
INVITE	←		←	INVITE	
486 Busy Here	→		→	486 Busy Here	
ACK	←		←	ACK	
		Start CC-T8			
		↓			
INVITE (S1)	+	·	←	INVITE	
200 OK INVITE	→		À	200 OK INVITE	
ACK	-		←	ACK	
	_	CC-T8 expires	-	7.0.1	
BYE	←	00 10 0Mp00	←	BYE	
200 OK BYE	→		→	200 OK BYE	
200 011 212	_	Start CC-T8	-	200 011 212	
		.l.			
		CC-T8 expires			
NOTIFY 1	+	OO TO CAPITES			
200 OK NOTIFY	→				
200 OK NOTH T	,	Apply post test ro	utine		
		Thhis hast rest in	utille		

TSS	TP	Reference	Selection expression
CC/terminating_AS/CCOperation	CC_N07_013	4.5.4.3.4.2	NOT PICS 1/2

CCBS: The callee is busy upon arrival of the CC call. Retain option not supported.

Ensure that if the callee is busy upon arrival of the CC call and the retain option is not supported at the terminating AS, the terminating AS shall cancel the corresponding CCBS request; the terminating AS shall send a 486 (Busy Here) response with an Call-Info header field with a "purpose" header field parameter set to "call-completion" and a m parameter set to "BS" to the originating AS.

Preconditions:

SIP header values:

NOTIFY sip:O-AS

From: Sip 2

To: SIP 1

Event:call-completion

Content-Type: application/call-completion

state: ready

INVITE 1: sip: SIP 2; m=BS

486 (Busy Here):

Call-Info: <sip:l< th=""><th>JE-B>;purpose=call-complet</th><th>ion;m=BS</th><th></th></sip:l<>	JE-B>;purpose=call-complet	ion;m=BS	
Comments:			
SIP 1 (ISC)		SUT	SIP 2 (ISC)
	Invoke CCBS request		, ,
	•	Callee is busy	
BYE	←	· (BYE
200 OK BYE	→	→	200 OK BYE
NOTIFY 1	←		
200 OK NOTIFY	→		
INVITE	←	←	INVITE (S1)
200 OK INVITE	→	→	200 OK INVITE
ACK	←	←	ACK
INVITE 1 (S2)	→		
486 (Busy Here)	←		
ACK` ´ ´	→		
BYE	←	←	BYE
200 OK BYE	→	→	200 OK BYE
		Ferminating user is not nonitored, CC-T8 is not started	
		Apply post test routine	

TSS	TP	Reference	Selection expression
CC/terminating_AS/CCOperation	CC_N07_014	4.5.4.3.4.2	NOT PICS 1/2

CCNR: The callee is busy upon arrival of the CC call. Retain option not supported.

Ensure that if the callee is busy upon arrival of the CC call and the retain option is not supported at the terminating AS, the terminating AS shall cancel the corresponding CCNR request; the terminating AS shall send a 486 (Busy Here) response with an Call-Info header field with a "purpose" header field parameter set to "call-completion" and a m parameter set to "BS" to the originating AS.

Preconditions:

SIP header values:

NOTIFY sip:O-AS

From: Sip 2

To: SIP 1

Event:call-completion

Content-Type: application/call-completion

state: ready

INVITE 1: sip: SIP 2; m=NR

486 (Busy Here):

Call-Info: <sip:1 IF-B>:purpose=call-completion:m=BS

Call-Info: <sip:\< th=""><th>JE-B>;purpose=call-completion</th><th>on;m=BS</th><th></th><th></th></sip:\<>	JE-B>;purpose=call-completion	on;m=BS		
Comments:				
SIP 1 (ISC)		SUT	SIP 2 (ISC)	
, ,	Invoke CCNR request		` ,	
	•	Callee is idle		
INVITE	←	←	INVITE	
486 Busy Here	→	→	486 Busy Here	
ACK	←	←	ACK	
NOTIFY 1	←			
200 OK NOTIFY	→			
INVITE	←	←	INVITE (S1)	
200 OK INVITE	→	→	200 OK INVITE	
ACK	←	←	ACK	
INVITE 1 (S2)	→			
486 (Busy Here)	-			
ACK	→			
BYE	←	←	BYE	
200 OK BYE	→	→	200 OK BYE	
		erminating user is not		
	m	onitored, CC-T8 is not		
		started		
1	A	Apply post test routine		

TSS	TP	Reference	Selection expression
CC/terminating_AS/CCOperation	CC_N07_015	4.5.4.3.4.2	PICS 1/2

CCBS: The callee is busy upon arrival of the CC call. Retain option supported.

Ensure that if the callee is busy upon arrival of the CC call and the retain option is supported at the terminating AS, the terminating AS shall retain the original CCBS request in the queue; in this case the terminating AS shall continue to monitor destination B, shall not restart the timer CCBS-T7, shall stop timer CC-T9 and shall send a 486 (Busy Here) response with an Call-Info header field with a "purpose" header field parameter set to "call-completion" and the m parameter set to "BS" to the originating AS. After the callee becomes not busy, the recall procedure is started again.

Preconditions:

SIP header values:

NOTIFY sip:O-AS

From: Sip 2 To: SIP 1

Event:call-completion

Content-Type: application/call-completion

state: ready service-retention INVITE 1: sip: SIP 2; m=BS

486 (Busy Here):

Call-Info: <sip:UE-B>;purpose=call-completion;m=BS

Comments: SIP 1 (ISC)	Invoke CCBS request	SUT		SIP 2 (ISC)
BYE 200 OK BYE	← →	Callee is busy	←	BYE 200 OK BYE
NOTIFY 1 200 OK NOTIFY	← →			
INVITE 200 OK INVITE ACK	← → ←		← → ←	INVITE (S1) 200 OK INVITE ACK
INVITE 1 (S2) 486 (Busy Here) ACK	→			
BYE 200 OK BYE	← →	Start CC-T8 ↓	← →	BYE 200 OK BYE
NOTIFY 1 200 OK NOTIFY	← → A	CC-T8 expires pply post test routi	ne	

TSS	TP	Reference	Selection expression
CC/terminating_AS/CCOperation	CC_N07_016	4.5.4.3.4.2	PICS 1/2

CCNR: The callee is busy upon arrival of the CC call. Retain option supported.

Ensure that if the callee is busy upon arrival of the CC call and the retain option is supported at the terminating AS, the terminating AS shall retain the original CCNR request in the queue; in this case the terminating AS shall continue to monitor destination B, shall not restart the timer CCBS-T7, shall stop timer CC-T9 and shall send a 486 (Busy Here) response with an Call-Info header field with a "purpose" header field parameter set to "call-completion" and the m parameter set to "BS" to the originating AS. After the callee becomes not busy, the recall procedure is started again.

Preconditions:

SIP header values:

NOTIFY sip:O-AS From: Sip 2 To: SIP 1

Event:call-completion

Content-Type: application/call-completion

state: ready service-retention INVITE 1: sip: SIP 2; m=NR

486 (Busy Here):
Call-Info: <sip:UE-B>;purpose=call-completion;m=BS

Comments: SIP 1 (ISC) SUT SIP 2 (ISC) **Invoke CCNR request** Callee is idle INVITE INVITE 486 Busy Here 486 Busy Here ACK ACK NOTIFY 1 200 OK NOTIFY INVITE INVITE (S1) 200 OK INVITE 200 OK INVITE ACK **ACK** INVITE 1 (S2) 486 (Busy Here) **ACK** BYE BYE 200 OK BYE 200 OK BYE Start CC-T8 **CC-T8** expires NOTIFY 1 200 OK NOTIFY Apply post test routine

TSS	TP	Reference	Selection expression
CC/terminating_AS/CCOperation	CC_N07_017	4.5.4.3.4.2	

CCBS: Recall does not apply, CC-T9 expires.

Ensure that the terminating As revokes the CCBS request after the Recall timer. CC-T9 is expired. The terminating AA sends a NOTIFY request to the originating AS and the Subscription-State header is set to "terminated" and the reason header is set to "rejected".

Preconditions:

SIP header values:

NOTIFY 1 sip:O-AS From: Sip 2

To: SIP 1
Event:call-completion

Content-Type: application/call-completion

state: ready
NOTIFY 2 sip:O-AS
Event:call-completion

Subscription-State: terminated; reason=rejected

Comments: SIP 1 (ISC) **SUT** SIP 2 (ISC) **Invoke CCBS request** Callee is busy BYE **BYE** 200 OK BYE **→** 200 OK BYE Start CC-T8 **CC-T8 expires NOTIFY 1** 200 OK NOTIFY Start CC-T9 **CC-T9** expires NOTIFY 2 200 OK NOTIFY

TSS	TP	Reference	Selection expression
CC/terminating_AS/CCOperation	CC_N07_018	4.5.4.3.4.2	-

CCNR: Recall does not apply, CC-T9 expires.

Ensure that the terminating As revokes the CCNR request after the Recall timer. CC-T9 is expired. The terminating AA sends a NOTIFY request to the originating AS and the Subscription-State header is set to "terminated" and the reason parameter is set to "rejected".

Preconditions:

SIP header values:

NOTIFY sip:O-AS

From: Sip 2 To: SIP 1

Event:call-completion

Content-Type: application/call-completion

state: ready NOTIFY 2 sip:O-AS

Event:call-completion

Subscription-State: terminated; reason=rejected

Comments: SIP 1 (ISC) SUT SIP 2 (ISC) **Invoke CCNR request** Callee is idle INVITE INVITE 486 Busy Here **→** 486 Busy Here ACK **ACK** Start CC-T8 **CC-T8** expires NOTIFY 1 200 OK NOTIFY Start CC-T9 **CC-T9** expires NOTIFY 2 200 OK NOTIFY Apply post test routine

TSS	TP	Reference	Selection expression
CC/terminating_AS/CCOperation	CC_N07_019	4.8.2	
			·

Test purpose

CCBS: Service duration timer, CC-T7 expires.

Ensure that the terminating AS revoke the CCBS request after the CC service duration timer CC-T7 expires. A NOTIFY is sent to the originating AS and the Subscription-State header is set to "terminated" and the reason parameter is set to "rejected".

Preconditions:

SIP header values:

NOTIFY 2 sip:O-AS

Event:call-completion

Subscription-State: terminated; reason=rejected

Comments:

SIP 1 (ISC) SUT SIP 2 (ISC)

Invoke CCBS request

Start CC-T7
Callee is busy

CC-T7 expires

NOTIFY 2 ← 200 OK NOTIFY →

ETSI

TSS	TP	Reference	Selection expression					
CC/terminating_AS/CCOperation	CC_N07_020	4.8.2	-					
Test purpose								
CCNR: Service duration timer, CC-T7 expires	S.							
	Ensure that the terminating AS revoke the CCNR request after the CC service duration timer CC-T7 expires. A NOTIFY is sent to the originating AS and the Subscription-State header is set to "terminated" and the reason parameter is set to "rejected".							
Preconditions:								
SIP header values:								
NOTIFY 1 sip:O-AS								
Event:call-completion								
Subscription-State: terminated; reason=re	ejected							
Comments:								
SIP 1 (ISC)	SUT	SIP 2 (ISC)						
Invoke CCBS reques	st							
	Start CC-T7 Callee is idle ↓ CC-T7 expires							
NOTIFY 1 ← 200 OK NOTIFY →	5 5 5 6 6 6 6 6 6							

TSS	TP	Reference	Selection expression
CC/terminating_AS/CCOperation	CC_N07_021	4.5.4.3.4.2	-

CCBS: Caller becomes busy while CC recall procedure.

Ensure that the terminating AS after expiry of the B idle guard timer CC-T8 sends again the remote user free indication after the caller indicates no longer busy. A NOTIFY is sent an den MIME body contains the state parameter set to "queued".

Preconditions:

SIP header values:

NOTIFY 1 sip:O-AS From: Sip 2 To: SIP 1

Event:call-completion

Content-Type: application/call-completion

state: ready PUBLISH 1 sip:T-AS

Event: presence

Content-Type: application/pidf+xml <?xml version="1.0" encoding="UTF-8"?> cpresence

<status>

<basic>closed</basic>

PUBLISH 2 sip:T-AS

Event: presence

Content-Type: application/pidf+xml <?xml version="1.0" encoding="UTF-8"?>

<status>

<basic>copen</basic>

NOTIFY 2 sip:O-AS

Event:call-completion

Content-Type: application/call-completion

state: queued

Comments: SIP 1 (ISC)	Invoke CCBS request	SUT		SIP 2 (ISC)	
BYE 200 OK BYE	HIVORE CCBS request ← →	Callee is busy	←	BYE 200 OK BYE	
NOTIFY 1 200 OK NOTIFY	← →	NOTIFY 1 200 OK NOTIFY			
PUBLISH 200 OK PUBLISH	→ ←	PUBLISH 200 OK PUBLISH			
NOTIFY 2 200 OK NOTIFY	← →	NOTIFY 2 200 OK NOTIFY			
PUBLISH 200 OK PUBLISH	→ ←	PUBLISH 200 OK PUBLISH			
NOTIFY 2 200 OK NOTIFY	← →	NOTIFY 2 200 OK NOTIFY Start CC-T8 ↓			
NOTIFY 1 200 OK NOTIFY	+ +	CC-T8 expires NOTIFY 1 200 OK NOTIFY Apply post test routin	ne		

5.4 Interaction of Call-Completion with other services

5.4.1 Communication diversion services (CDIV)

TSS	TP	Reference	Selection expression
CC/Interaction/CDIV	CC_N08_001	4.6.8.2	PICS 1/7

Test purpose

CCBS: indication is sent if the original call was unconditional diverted.

In case of a callee is busy and the callee has subscribed the call completion service, ensure that terminating AS inform the caller that CCBS is possible at the callee if the INVITE request contains a History-Info header that indicates that a communication diversion unconditional occurred.

Preconditions:

SIP header values: INVITE: sip SIP 2

History-Info: <SIP 1>;index=1, <SIP 2; cause=302>;index=1.1

486 (Busy Here) 1:

Call-Info: <sip:SIP 2>;purpose=call-completion;m=BS

Comments:

5	SIP 1 (ISC)	SUT	SIP 2 (ISC)				
ı	NVITÉ →	→	INVITE				
1	100 Trying ←	-	100 Trying				
4	486 (Busy Here) 1 ←	←	486 (Busy Here)				
A	ACK` →	→	ACK				
	Apply post test routine						

TSS	TP	Reference	Selection expression
CC/Interaction/CDIV	CC_N08_002	4.6.8.2	PICS 1/7

Test purpose

CCNR: indication is sent if the original call was unconditional diverted.

In case of a callee does not answer the communication request and the callee has subscribed the call completion service, ensure that terminating AS inform the caller that CCNR is possible at the callee if the INVITE request contains a History-Info header that indicates that a communication diversion unconditional occurred.

Preconditions:

SIP header values:

INVITE: sip SIP 2

History-Info: <SIP 1>;index=1, <SIP 2; cause=302>;index=1.1

180 (Ringing) 1:

Call-Info: <sip:UE-B>;purpose=call-completion;m=NR

Comments:

 SIP 1 (ISC)
 SUT
 SIP 2 (ISC)

 INVITE
 →
 →
 INVITE

 100 Trying
 ←
 ←
 100 Trying

 180 (Ringing) 1
 ←
 ←
 Apply post test routine

TSS	TP	Reference	Selection expression
CC/Interaction/CDIV	CC_N08_003	4.6.8.2	NOT PICS 1/7

CCBS: indication is not sent if the original call was unconditional diverted.

In case of a callee is busy and the callee has subscribed the call completion service, ensure that terminating AS does not inform the caller that CCBS is possible at the callee if the INVITE request contains a History-Info header that indicates that a communication diversion unconditional occurred.

Preconditions:

SIP header values:

INVITE: sip SIP 2

History-Info: <SIP 1>;index=1, <SIP 2; cause=302>;index=1.1

486 (Busy Here) 1:

Call-Info: not present

Comments:

 SIP 1 (ISC)
 SUT
 SIP 2 (ISC)

 INVITE
 →
 →
 INVITE

 100 Trying
 ←
 ←
 100 Trying

 486 (Busy Here)
 →
 486 (Busy Here)

 ACK
 →
 ACK

 Apply post test routine

TSS TP Reference Selection expression

CC_N08_004

Test purpose

CC/Interaction/CDIV

CCNR: indication is not sent if the original call was unconditional diverted.

In case of a callee does not answer the communication request and the callee has subscribed the call completion service, ensure that terminating AS does not inform the caller that CCNR is possible at the callee if the INVITE request contains a History-Info header that indicates that a communication diversion unconditional occurred.

4.6.8.2

Preconditions:

SIP header values:

INVITE: sip SIP 2

History-Info: <SIP 1>;index=1, <SIP 2; cause=302>;index=1.1

180 (Ringing) 1:

Call-Info: not present

 Comments:

 SIP 1 (ISC)
 SUT
 SIP 2 (ISC)

 INVITE
 →
 →
 INVITE

 100 Trying
 ←
 ←
 100 Trying

 180 (Ringing)
 1
 ←
 180 (Ringing)

Apply post test routine

TSS	TP	Reference	Selection expression
CC/Interaction/CDIV	CC_N08_005	4.6.8.2	

Test purpose

CCBS request is cancelled after the callee activates CFU.

Ensure that the terminating AS revokes the outstanding CCBS request if the callee activates Communication Forwarding unconditional.

Preconditions:

SIP header values:

NOTIFY 2 sip:O-AS

Event:call-completion

Subscription-State: terminated; reason=rejected

Comments:

SIP 1 (ISC) SUT SIP 2 (ISC)

Invoke CCBS request

Terminating user activates CFU

NOTIFY ← NOTIFY

200 OK NOTIFY → 200 OK NOTIFY

Apply post test routine

TSS	TP	Reference	Selection expression
CC/Interaction/CDIV	CC_N08_006	4.6.8.2	-

CCNR request is cancelled after the callee activates CFU.

Ensure that the terminating AS revokes the outstanding CCNR request if the callee activates Communication Forwarding unconditional.

Preconditions:

SIP header values:

NOTIFY 2 sip:O-AS

Event:call-completion

Subscription-State: terminated; reason=rejected

Comments:

SIP 1 (ISC) SUT SIP 2 (ISC)

Invoke CCNR request

Terminating user activates CFU

NOTIFY NOTIFY

200 OK NOTIFY 200 OK NOTIFY

Apply post test routine

TSS	TP	Reference	Selection expression			
CC/Interaction/CDIV	CC_N08_007	4.6.8.3				
Test purpose						
CCBS indication is sent if the original call was diverted on Busy.						

In case of a callee is busy and the callee has subscribed the call completion service, ensure that terminating AS inform the caller that CCBS is possible at the callee if the INVITE request contains a History-Info header that indicates that a communication diversion busy occurred.

Preconditions: Communication Forwarding Busy is activated

SIP header values:

INVITE: sip SIP 2

History-Info: <SIP 1>;index=1, <SIP 2; cause=486>;index=1.1

486 (Busy Here) 1:

Call-Info: <sip:SIP 2>;purpose=call-completion;m=BS

Comments:

SIP 1 (ISC)	S	UT SIP 2 (ISC)		
INVITE	→	→ INVITÉ		
100 Trying	←	← 100 Trying		
486 (Busy Here) 1	←	← 486 (Busy Here)		
ACK	→	→ ACK		
	Apply post test routine			

TSS	TP	Reference	Selection expression
CC/Interaction/CDIV	CC_N08_008	4.6.8.3	

Test purpose

CCNR indication is sent if the original call was diverted on Busy.

In case of a callee does not answer the communication request and the callee has subscribed the call completion service, ensure that terminating AS inform the caller that CCNR is possible at the callee if the INVITE request contains a History-Info header that indicates that a communication diversion Busy occurred.

Preconditions:

SIP header values:

INVITE: sip SIP 2

History-Info: <SIP 1>;index=1, <SIP 2; cause=486>;index=1.1

180 (Ringing) 1:

Call-Info: <sip:UE-B>;purpose=call-completion;m=NR

Comments: SIP 1 (ISC) SUT SIP 2 (ISC) INVITE INVITE 100 Trying 100 Trying 180 (Ringing) 1 180 (Ringing) Apply post test routine

TSS	TP	Reference	Selection expression
CC/Interaction/CDIV	CC_N08_009	4.6.8.3	-

CCBS indication is not sent if the original call was diverted on Busy.

In case of a callee is busy and the callee has subscribed the call completion service, ensure that terminating AS does not inform the caller that CCBS is possible at the callee if the INVITE request contains a History-Info header that indicates that a communication diversion busy occurred.

Preconditions: Communication Forwarding Busy is activated

SIP header values:

INVITE: sip SIP 2

History-Info: <SIP 1>;index=1, <SIP 2; cause=486>;index=1.1

486 (Busy Here) 1:

Call-Info: not present

Comments:

 SIP 1 (ISC)
 SUT
 SIP 2 (ISC)

 INVITE
 →
 INVITE

 100 Trying
 ←
 486 (Busy Here)

 486 (Busy Here)
 →
 486 (Busy Here)

 ACK
 Apply post test routine

TSS	TP	Reference	Selection expression
CC/Interaction/CDIV	CC_N08_010	4.6.8.3	

Test purpose

CCBS recall after the callee activates CFB. Recall is considered as being busy.

Ensure that the terminating AS considers a CCBS recall to a busy callee that has activated CFB as being busy. The entry is removed from the queue and a CCBS possible indication is sent to the caller.

Preconditions:

SIP header values:

NOTIFY 1 sip:O-AS From: Sip 2

To: SIP 1

Event:call-completion

Content-Type: application/call-completion

state: ready 486 (Busy Here) 2

Call-Info: <sip:UE-B>;purpose=call-completion;m=BS

NOTIFY 2 sip:O-AS Event:call-completion

Subscription-State: terminated; reason=rejected

Comments:

SIP 1 (ISC)	Invoke CCBS request	SUT	SIP 2 (ISC)
BYE 200 OK BYE	← →	← →	BYE 200 OK BYE
NOTIFY 200 OK NOTIFY	← NOTIFY 1→ 200 OK NOTIFY	IFY	
INVITE 200 OK INVITE ACK	← →	Terminating user ac ← → ←	
INVITE 486 (Busy Here) 2 ACK	→ ← →	→ ← →	INVITE 486 (Busy Here) ACK
NOTIFY 200 OK NOTIFY	 ← NOTIFY 2 → 200 OK NOTINAPPI 	IFY y post test routine	

TSS	TP	Reference	Selection expression
CC/Interaction/CDIV	CC_N08_011	4.6.8.2	-

CCBS: indication is sent if the original call was diverted on no Reply.

In case of a callee is busy and the callee has subscribed the call completion service, ensure that terminating AS inform the caller that CCBS is possible at the callee if the INVITE request contains a History-Info header that indicates that a communication diversion on No Reply occurred.

Preconditions:

SIP header values:

INVITE: sip SIP 2

History-Info: <SIP 1>;index=1, <SIP 2; cause=408>;index=1.1

486 (Busy Here) 1:

Call-Info: <sip:SIP 2>;purpose=call-completion;m=BS

Comments:

 SIP 1 (ISC)
 SUT
 SIP 2 (ISC)

 INVITE
 > INVITE

 100 Trying
 ←
 +
 100 Trying

 486 (Busy Here) 1
 ←
 +
 486 (Busy Here)

 ACK
 Apply post test routine

TSS	TP	Reference	Selection expression
CC/Interaction/CDIV	CC_N08_012	4.6.8.3	-

Test purpose

CCNR indication is sent if the original call was diverted on no Reply.

In case of a callee does not answer the communication request and the callee has subscribed the call completion service, ensure that terminating AS inform the caller that CCNR is possible at the callee if the INVITE request contains a History-Info header that indicates that a communication diversion on No Reply occurred.

Preconditions:

SIP header values:

INVITE: sip SIP 2

History-Info: <SIP 1>;index=1, <SIP 2; cause=408>;index=1.1

180 (Ringing) 1:

Call-Info: <sip:UE-B>;purpose=call-completion;m=NR

Comments:

 SIP 1 (ISC)
 SUT
 SIP 2 (ISC)

 INVITE
 →
 →
 INVITE

 100 Trying
 ←
 ←
 100 Trying

 180 (Ringing) 1
 ←
 ←
 180 (Ringing)

 Apply post test routine

TSS	TP	Reference	Selection expression
CC/Interaction/CDIV	CC_N08_013	4.6.6	-

CCBS: Recall after CCNR was activated.

Ensure that the CC AS applies the procedures for CCNR when the callee activates CFNR after the CCBS recall procedure was started by the CC AS. After the 180 was sent to the caller AS, a NOTIFY is sent to indicate the CCBS request is removed from the queue.

Preconditions:

SIP header values:

NOTIFY 1 sip:O-AS From: Sip 2

To: SIP 1
Event:call-completion

Content-Type: application/call-completion

state: ready

INVITE 1: sip: SIP 2; m=BS

NOTIFY 2 sip:O-AS

Event:call-completion

Subscription-State: terminated; reason=rejected

Comments: SIP 1 (ISC) **SUT** SIP 2 (ISC) **Invoke CCBS request** Callee is busy BYE BYE **→** 200 OK BYE 200 OK BYE **NOTIFY 1** 200 OK NOTIFY Callee activates CCNR INVITE 1 INVITE 180 Ringing 180 Ringing NOTIFY 2 200 OK NOTIFY Apply post test routine

TSS	TP	Reference	Selection expression
CC/Interaction/CDIV	CC_N08_014	4.6.6	_

CCNR: Recall after CCNR was activated.

Ensure that the CC AS applies the procedures for CCNR when the callee activates CFNR after the CCNR recall procedure was started by the CC AS. After the 180 was sent to the caller AS, a NOTIFY is sent to indicate the CCNR request is removed from the queue.

Preconditions:

SIP header values:

NOTIFY 1 sip:O-AS From: Sip 2

To: SIP 1 Event:call-completion

Content-Type: application/call-completion

state: ready

INVITE 1: sip: SIP 2; m=NR NOTIFY 2 sip:O-AS

Event:call-completion

Subscription-State: terminated: reason=rejected

	iale. lemmaleu, reason–reject	.eu		
Comments:				
SIP 1 (ISC)		SUT	SIP 2 (ISC)	
	Invoke CCBS request			
		Callee is idle		
INVITE	←	←	INVITE	
486 Busy Here	→	→	486 Busy Here	
ACK	←	←	ACK	
/ COTO	•	•	7.OK	
NOTIFY 1	←			
200 OK NOTIFY	→			
			Callee activates CCNR	
INVITE 1	→	→	INVITE	
180 Ringing	-	-	180 Ringing	
100 Kinging	•	•	100 Kinging	
NOTIFY 2	←			
200 OK NOTIFY	÷			
200 OK NOTIFY	-			
	Α	pply post test routine		

TSS	TP	Reference	Selection expression
CC/Interaction/CDIV	CC_N08_015	4.6.8.2	

Test purpose

CCBS: indication is sent if the original call was diverted on not Logged-in.

In case of a callee is busy and the callee has subscribed the call completion service, ensure that terminating AS inform the caller that CCBS is possible at the callee if the INVITE request contains a History-Info header that indicates that a communication diversion on Not Logged-in occurred.

Preconditions:

SIP header values:

INVITE: sip SIP 2

History-Info: <SIP 1>;index=1, <SIP 2; cause=404>;index=1.1

486 (Busy Here) 1:

Call-Info: <sip:SIP 2>;purpose=call-completion;m=BS

Comments:

SIP 1 (ISC)	SI	UT SIP 2 (ISC)	
INVITE	→	→ INVITE	
100 Trying	←	100 Trying	
486 (Busy Here) 1	←	← 486 (Busy Here)	
ACK	→	→ ACK	
	Apply pos	t test routine	

TSS	TP	Reference	Selection expression
CC/Interaction/CDIV	CC_N08_016	4.6.8.3	-

CCNR indication is sent if the original call was diverted on not Logged-in.

In case of a callee does not answer the communication request and the callee has subscribed the call completion service, ensure that terminating AS inform the caller that CCNR is possible at the callee if the INVITE request contains a History-Info header that indicates that a communication diversion on Not Logged-in occurred.

Preconditions:

SIP header values:

INVITE: sip SIP 2

History-Info: <SIP 1>;index=1, <SIP 2; cause=404>;index=1.1

180 (Ringing) 1:

Call-Info: <sip:UE-B>;purpose=call-completion;m=NR

Comments:

 SIP 1 (ISC)
 SUT
 SIP 2 (ISC)

 INVITE
 →
 INVITE

 100 Trying
 ←
 ←
 100 Trying

 180 (Ringing) 1
 ←
 ←
 Apply post test routine

TSS	TP	Reference	Selection expression
CC/Interaction/CDIV	CC_N08_017	4.6.8.2	

Test purpose

CCBS: indication is sent if the original call was deflected.

In case of a callee is busy and the callee has subscribed the call completion service, ensure that terminating AS inform the caller that CCBS is possible at the callee if the INVITE request contains a History-Info header that indicates that a communication is deflected.

Preconditions:

SIP header values:

INVITE: sip SIP 2

... History-Info: <SIP 1>;index=1, <SIP 2; cause=487>;index=1.1

486 (Busy Here) 1:

Call-Info: <sip:SIP 2>;purpose=call-completion;m=BS

Comments:

 SIP 1 (ISC)
 SUT
 SIP 2 (ISC)

 INVITE
 →
 INVITE

 100 Trying
 ←
 486 (Busy Here)

 486 (Busy Here)
 +
 486 (Busy Here)

 ACK
 Apply post test routine

TSS	TP	Reference	Selection expression
CC/Interaction/CDIV	CC_N08_018	4.6.8.3	

Test purpose

CCNR indication is sent if the original call was deflected.

In case of a callee does not answer the communication request and the callee has subscribed the call completion service, ensure that terminating AS inform the caller that CCNR is possible at the callee if the INVITE request contains a History-Info header that indicates that a communication is deflected.

Preconditions:

SIP header values:

INVITE: sip SIP 2

History-Info: <SIP 1>;index=1, <SIP 2; cause=487>;index=1.1

180 (Ringing) 1:

Call-Info: <sip:UE-B>;purpose=call-completion;m=NR

Comments: SIP 1 (ISC)		SUT	SIP 2 (ISC)
INVITÈ	→	→	INVITÈ
100 Trying	←	+	100 Trying
180 (Ringing) 1	←	+	180 (Ringing)
\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	Annly	nost test routine	(0 0,

History

Document history		
V2.1.1	July 2009	Publication