



**Core Network and Interoperability Testing (INT);  
Completion of Communications to Busy Subscriber (CCBS)  
and Completion of Communications by No Reply (CCNR)  
using IP Multimedia (IM) Core Network (CN) subsystem;  
Conformance Test Specification (3GPP™ Release 12);  
Part 2: Test Suite Structure and Test Purposes (TSS&TP)**

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**Reference**

RTS/INT-00149-2

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**Keywords**CCBS, CCNR, conformance, IMS, testing,  
TSS&TP**ETSI**

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## Foreword

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

The present document is part 2 of a multi-part deliverable covering Completion of Communications to Busy Subscriber (CCBS) and Completion of Communications by No Reply (CCNR) using IP Multimedia (IM) Core Network (CN) subsystem; Conformance Test Specification, as identified below:

Part 1: "Protocol Implementation Conformance Statement (PICS)";

**Part 2: "Test Suite Structure and Test Purposes (TSS&TP)".**

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## Modal verbs terminology

In the present document "**shall**", "**shall not**", "**should**", "**should not**", "**may**", "**need not**", "**will**", "**will not**", "**can**" and "**cannot**" are to be interpreted as described in clause 3.2 of the [ETSI Drafting Rules](#) (Verbal forms for the expression of provisions).

"**must**" and "**must not**" are **NOT** allowed in ETSI deliverables except when used in direct citation.

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# 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) as defined in ETSI TS 124 642 [1] in compliance with the relevant requirements.

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## 2 References

### 2.1 Normative references

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

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

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

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

- [1] ETSI TS 124 642: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); LTE; Completion of Communications to Busy Subscriber (CCBS) and Completion of Communications by No Reply (CCNR) using IP Multimedia (IM) Core Network (CN) subsystem; Protocol specification (3GPP TS 24.642 Release 12)".
- [2] ETSI TS 101 588-1: "Core Network and Interoperability Testing (INT); Completion of Communications to Busy Subscriber (CCBS) and Completion of Communications by No Reply (CCNR) using IP Multimedia (IM) Core Network (CN) subsystem; Conformance Test Specification (3GPP™ Release 12); Part 1: Protocol Implementation Conformance Statement (PICS)".

### 2.2 Informative references

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

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

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

Not applicable.

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## 3 Definitions, symbols and abbreviations

### 3.1 Definitions

For the purposes of the present document, the terms and definitions given in ETSI TS 124 642 [1] apply.

## 3.2 Symbols

For the purposes of the present document, the symbols given in ETSI TS 124 642 [1] apply.

## 3.3 Abbreviations

For the purposes of the present document, the abbreviations given in ETSI TS 124 642 [1] apply.

# 4 Test Suite Structure (TSS)

## 4.0 Table of Test Suite Structure

**Table 4-1: Test Suite Structure**

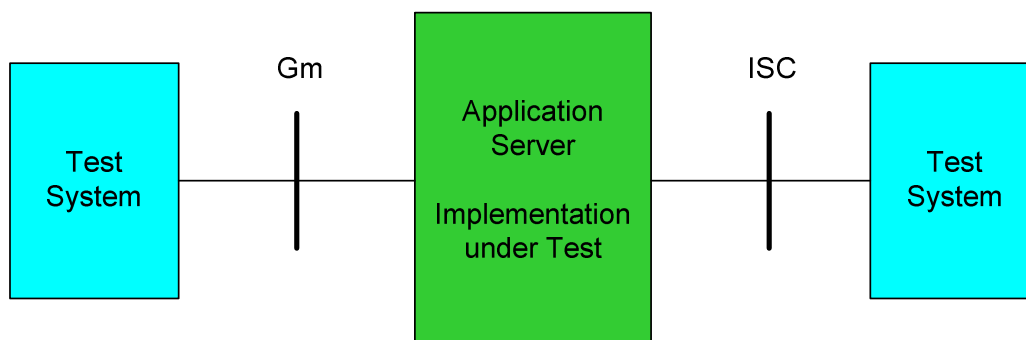
CC			
	originating_AS	Invocation	CC_N01_xxx
		Revocation	CC_N02_xxx
		Operation	CC_N03_xxx
	terminating_AS	possibleIndication	CC_N04_xxx
		Invocation	CC_N05_xxx
		Revocation	CC_N06_xxx
		CCOperation	CC_N07_xxx
	Interaction	TIR	CC_N08_xxx
		CDIV	CC_N09_xxx

## 4.1 Configuration

The scope of the present document 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 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 4-1 points to this.



**Figure 4-1: 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 4-2). 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.

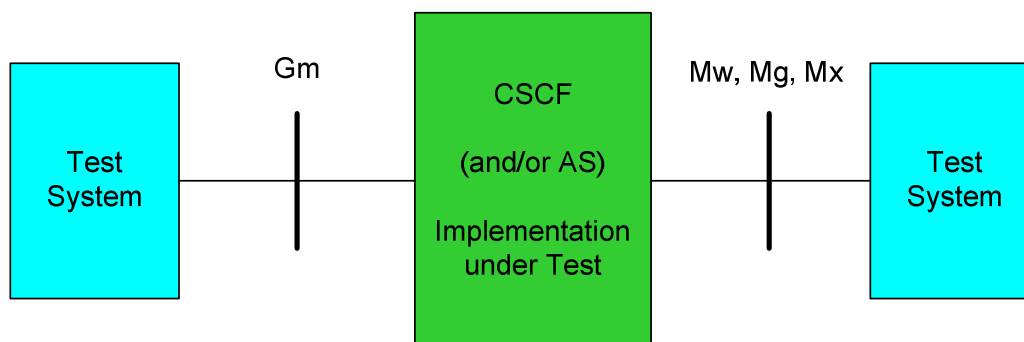


Figure 4-2: Applicable interfaces to test using the (generic) NNI interface

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

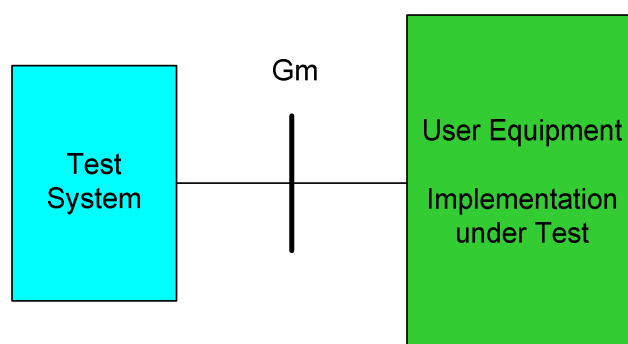


Figure 4-3: Applicable configuration to test the User Equipment

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## 5 Test Purposes (TP)

### 5.1 Introduction

#### 5.1.0 General treatment

For each test requirement a TP is defined.

#### 5.1.1 TP naming convention

TGs 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 5-1).

**Table 5-1: TP identifier naming convention scheme**

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

## 5.1.2 Test strategy

As the base standard ETSI TS 124 642 [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 ETSI TS 101 588-1 [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

<b>TSS</b> CC/originating_AS/Invocation	<b>TP</b> CC_N01_001	<b>Reference</b> 4.5.4.2.1.1.1, 4.5.4.2.1.1.3	<b>Selection expression</b> PICS 4.7.1/9
<b>Test purpose</b> <i>Detecting CCNL is possible.</i>			
Ensure that when an originating user establishes a session to a terminating user not logged in, a 183 (Session Progress) response is forwarded to the originating user if a 480 (Temporarily Unavailable) response has been received. The Application Server provides an announcement.			
<b>Preconditions:</b>			
<b>SIP header values:</b> 480 Temporarily Unavailable Call-Info: <sip:UE-B or T-AS>;purpose=call-completion;m=NL			
<b>Comments:</b>			
<b>SIP 1 (Gm)</b> INVITE	→	<b>SUT</b>	→
			←
183 Session Progress	←		→
			→
<b>Announcement that CC is possible</b>		<b>SIP 2 (ISC)</b> INVITE 480 (Temporarily Unavailable) ACK	
<b>Apply post test routine</b>			



TSS	TP	Reference	Selection expression												
CC/originating_AS/Invocation	CC_N01_002	4.5.4.2.1.1.1, 4.5.4.2.1.1.3													
<b>Test purpose</b> <i>Detecting CCBS is possible.</i>															
Ensure that when an originating user establishes a session to a terminating user is busy, a 183 (Session Progress) response is forwarded to the originating user if a 486 (Busy Here) response has been received. The Application Server provides an announcement.															
<b>Preconditions:</b>															
<b>SIP header values:</b> 486 Busy Here: Call-Info: <sip:UE-B or T-AS>;purpose=call-completion;m=BS															
<b>Comments:</b> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">SIP 1 (Gm)</th> <th style="text-align: center;">SUT</th> <th style="text-align: right;">SIP 2 (ISC)</th> </tr> </thead> <tbody> <tr> <td>INVITE</td> <td style="text-align: center;">→</td> <td style="text-align: right;">INVITE</td> </tr> <tr> <td></td> <td></td> <td style="text-align: right;">← 486 (Busy Here)</td> </tr> <tr> <td>183 Session Progress</td> <td style="text-align: center;">←</td> <td style="text-align: right;">→ ACK</td> </tr> </tbody> </table> <p style="text-align: center;"> <b>Announcement that CC is possible</b>  <b>Apply post test routine</b> </p>				SIP 1 (Gm)	SUT	SIP 2 (ISC)	INVITE	→	INVITE			← 486 (Busy Here)	183 Session Progress	←	→ ACK
SIP 1 (Gm)	SUT	SIP 2 (ISC)													
INVITE	→	INVITE													
		← 486 (Busy Here)													
183 Session Progress	←	→ ACK													

TSS	TP	Reference	Selection expression												
CC/originating_AS/Invocation	CC_N01_003	4.5.4.2.1.1.1, 4.5.4.2.1.1.3													
<b>Test purpose</b> <i>Detecting CCNR is possible.</i>															
Ensure that when an originating user establishes a session to a terminating user is busy, a 183 (Session Progress) response is forwarded to the originating user if a 180 (Ringing) response has been received. The Application Server provides an announcement. The Call-Info header is removed from the 180 (Ringing) sent to the originating user.															
<b>Preconditions:</b>															
<b>SIP header values:</b> 180 Ringing 1 Call-Info: <sip:UE-B or T-AS>;purpose=call-completion;m=NR															
<b>Comments:</b> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">SIP 1 (Gm)</th> <th style="text-align: center;">SUT</th> <th style="text-align: right;">SIP 2 (ISC)</th> </tr> </thead> <tbody> <tr> <td>INVITE</td> <td style="text-align: center;">→</td> <td style="text-align: right;">INVITE</td> </tr> <tr> <td></td> <td></td> <td style="text-align: right;">← 180 (Ringing) 1</td> </tr> <tr> <td>180 (Ringing)</td> <td style="text-align: center;">←</td> <td style="text-align: right;">Start CCNR-T5</td> </tr> </tbody> </table> <p style="text-align: center;"> <b>Timeout CCNR-T5</b>  <b>Announcement that CC is possible</b>  <b>Apply post test routine</b> </p>				SIP 1 (Gm)	SUT	SIP 2 (ISC)	INVITE	→	INVITE			← 180 (Ringing) 1	180 (Ringing)	←	Start CCNR-T5
SIP 1 (Gm)	SUT	SIP 2 (ISC)													
INVITE	→	INVITE													
		← 180 (Ringing) 1													
180 (Ringing)	←	Start CCNR-T5													

TSS	TP	Reference	Selection expression
CC/originating_AS/Invocation	CC_N01_004	4.5.4.2.1.1.3	PICS 4.7.1/9
<b>Test purpose</b> <i>CCNL is possible hence not confirmed.</i>			
Ensure that when the originating user does not confirm the CCNL indication to invoke the service a 486 (Busy Here) is forwarded to the originating user when Retention timer CC-T1 is expired.			
<b>Preconditions:</b>			
<b>SIP header values:</b> 480 Temporarily Unavailable 1 Call-Info: <sip:UE-B or T-AS>;purpose=call-completion;m=NL			
<b>Comments:</b>			
<b>SIP 1 (Gm)</b>	<b>SUT</b>	<b>SIP 2 (ISC)</b>	
INVITE	→	→ INVITE	
183 Session Progress	←	← 480 (Temporarily Unavailable) 1	
<b>Announcement that CC is possible</b>		→ ACK	
480 (Temporarily Unavailable)	←	← Timeout CC-T1	
ACK	→		
<b>Apply post test routine</b>			

TSS	TP	Reference	Selection expression
CC/originating_AS/Invocation	CC_N01_005	4.5.4.2.1.1.3	
<b>Test purpose</b> <i>CCBS is possible hence not confirmed.</i>			
Ensure that when the originating user does not confirm the CCBS indication to invoke the service a 486 (Busy Here) is forwarded to the originating user when Retention timer CC-T1 is expired.			
<b>Preconditions:</b>			
<b>SIP header values:</b> 486 Busy Here: Call-Info: <sip:UE-B or T-AS>;purpose=call-completion;m=BS			
<b>Comments:</b>			
<b>SIP 1 (Gm)</b>	<b>SUT</b>	<b>SIP 2 (ISC)</b>	
INVITE	→	→ INVITE	
183 Session Progress	←	← 486 (Busy Here)	
<b>Announcement that CC is possible</b>		→ ACK	
486 (Busy Here)	←	← Timeout CC-T1	
ACK	→		
<b>Apply post test routine</b>			

TSS CC/originating_AS/Invocation	TP CC_N01_006	Reference 4.5.4.2.1.1.3	Selection expression																																								
<b>Test purpose</b> <i>CCNR is possible hence not confirmed.</i>  Ensure that when the originating user does not confirm the CCBS indication to invoke the service a 199 (Early Dialog Terminated) is forwarded to the originating user when Retention timer CC-T1 is expired.																																											
<b>Preconditions:</b>																																											
<b>SIP header values:</b> 180 Ringing 1 Call-Info: <sip:UE-B or T-AS>;purpose=call-completion;m=NR																																											
<b>Comments:</b> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; width: 30%;">SIP 1 (Gm)</th> <th style="text-align: center; width: 10%;"></th> <th style="text-align: center; width: 30%;">SUT</th> <th style="text-align: center; width: 10%;"></th> <th style="text-align: right; width: 19%;">SIP 2 (ISC)</th> </tr> </thead> <tbody> <tr> <td>INVITE</td> <td style="text-align: center;">→</td> <td></td> <td></td> <td style="text-align: right;">→ INVITE</td> </tr> <tr> <td>180 (Ringing)</td> <td style="text-align: center;">←</td> <td style="text-align: center;">Start CCNR-T5, CC-T1</td> <td></td> <td style="text-align: right;">← 180 (Ringing) 1</td> </tr> <tr> <td></td> <td></td> <td style="text-align: center;">Timeout CCNR-T5</td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td style="text-align: center;">Announcement that CC is possible</td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td style="text-align: center;">Timeout CC-T1</td> <td></td> <td></td> </tr> <tr> <td>199 (Early Dialog Terminated)</td> <td style="text-align: center;">←</td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td style="text-align: center;">Apply post test routine</td> <td></td> <td></td> </tr> </tbody> </table>				SIP 1 (Gm)		SUT		SIP 2 (ISC)	INVITE	→			→ INVITE	180 (Ringing)	←	Start CCNR-T5, CC-T1		← 180 (Ringing) 1			Timeout CCNR-T5					Announcement that CC is possible					Timeout CC-T1			199 (Early Dialog Terminated)	←						Apply post test routine		
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		Timeout CC-T1																																									
199 (Early Dialog Terminated)	←																																										
		Apply post test routine																																									

TSS CC/originating_AS/Invocation	TP CC_N01_007	Reference 4.5.4.2.1.1.5, 4.5.4.2.1.1.6	Selection expression NOT PICS 4.7.1/10 AND NOT PICS 4.7.1/11																																													
<p><b>Test purpose</b> <i>Successful CCBS request.</i></p> <p>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. The Application Server confirms the successful invocation to the originating user by sending of a 486 (Busy Here) final response.</p>																																																
<p><b>Preconditions:</b></p>																																																
<p><b>SIP header values:</b> 486 Busy Here 1: Call-Info: &lt;sip:UE-B or T-AS&gt;;purpose=call-completion;m=BS</p> <p><b>SUBSCRIBE sip: T-AS;m=BS</b> From:&lt;UE-A&gt; To:&lt;UE-B&gt; Contact:&lt;O-AS&gt; Call-Info: &lt;UE-A&gt;; purpose=call-completion;m=BS P-Assertd-Identity: UE-A Expires: CC-T3 Event:call-completion</p> <p>NOTIFY Event:call-completion Content-Type: application/call-completion cc-state: queued</p>																																																
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<b>TSS</b> CC/originating_AS/Invocation	<b>TP</b> CC_N01_008	<b>Reference</b> 4.5.4.2.1.1.5, 4.5.4.2.1.1.6	<b>Selection expression</b> PICS 4.7.1/10 AND PICS 4.7.1/11																																										
<p><b>Test purpose</b> <i>Successful CCBS request.</i></p> <p>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. The Application Server confirms the successful invocation to the originating user by sending of a 486 (Busy Here) final response. Ensure that a Date header and a Content-Type header containing a message/external-body value are present in the 486 sent to the originating user.</p>																																													
<p><b>Preconditions:</b></p> <p><b>SIP header values:</b> 486 Busy Here 1: Call-Info: &lt;sip:UE-B or T-AS&gt;;purpose=call-completion;m=BS</p> <p><b>SUBSCRIBE sip: T-AS;m=BS</b> From:&lt;UE-A&gt; To:&lt;UE-B&gt; Contact:&lt;O-AS&gt; Call-Info: &lt;UE-A&gt;; purpose=call-completion;m=BS P-Assertd-Identity: UE-A Expires: CC-T3 Event:call-completion</p> <p>NOTIFY Event:call-completion Content-Type: application/call-completion cc-state: queued</p> <p>486 Busy Here 2: Date: &lt;current date and time&gt; Content-Type: message/external-body; access-type="URL"; URL= &lt; any url &gt;</p>																																													
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<b>TSS</b> CC/originating_AS/Invocation	<b>TP</b> CC_N01_009	<b>Reference</b> 4.5.4.2.1.1.1	<b>Selection expression</b>
<b>Test purpose</b> <i>CCBS not possible, A CC queue limit has been exceeded.</i>			
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 through.			
<b>Preconditions:</b> CCBS queue limit exceeded			
<b>SIP header values:</b> 486 Busy Here: Call-Info: <sip:UE-B>;purpose=call-completion;m=BS			
<b>Comments:</b>			
<b>SIP 1 (Gm)</b>	<b>SUT</b>	<b>SIP 2 (ISC)</b>	
	<b>Set the A queue to limit</b>		
INVITE	→	→	INVITE
100 Trying	←	←	100 Trying
486 (Busy Here)	←	←	486 (Busy Here)
ACK	→	→	ACK

<b>TSS</b> CC/originating_AS/Invocation	<b>TP</b> CC_N01_010	<b>Reference</b> 4.5.4.2.1.1.1	<b>Selection expression</b> NOT PICS 4.7.1/3
<b>Test purpose</b> <i>CCBS invocation not possible, further identical request (communication parameters).</i>			
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.			
<b>Preconditions:</b>			
<b>SIP header values:</b> 486 Busy Here: Call-Info: <sip:UE-B>;purpose=call-completion;m=BS			
<b>Comments:</b>			
<b>SIP 1 (Gm)</b>	<b>SUT</b>	<b>SIP 2 (ISC)</b>	
	<b>A successful CCBS request is already invoked</b>		
INVITE	→	→	INVITE
100 Trying	←	←	100 Trying
486 (Busy Here)	←	←	486 (Busy Here)
ACK	→	→	ACK

TSS CC/originating_AS/Invocation	TP CC_N01_011	Reference 4.5.4.2.1.2	Selection expression																																				
<b>Test purpose</b> <i>Unsuccessful CCBS request.</i>  Ensure when the originating user invokes the CCBS service and the Application Server receives a 480 (Temporarily Unavailable) to indicate short term denial or a 403 (Forbidden) to indicate long term denial the originating user receives a confirmation that the CCBS request was not successful.																																							
<b>Preconditions:</b>  <b>SIP header values:</b> 486 Busy Here 1: Call-Info: <sip:UE-B or T-AS>;purpose=call-completion;m=BS  <b>SUBSCRIBE sip: T-AS; m=BS</b> From:<UE-A> To:<UE-B> Contact:<O-AS> Call-Info: <UE-A>; purpose=call-completion;m=BS P-Assertd-Identity: UE-A Expires: CC-T3 Event:call-completion																																							
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TSS CC/originating_AS/Invocation	TP CC_N01_012	Reference 4.5.4.2.1.1.5 4.8.1	Selection expression																																													
<b>Test purpose</b> CCBS request. Timeout CC-T2.  Ensure that the CC request operation timer CC-T2 is started after CCBS request is received from caller. When the timer CC-T2 is expired because no NOTIFY is received from the terminating user as a confirmation that the CCBS request was successful at the terminating AS the CCBS request is rejected. The caller is informed.																																																
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<b>SIP header values:</b> 486 Busy Here: Call-Info: <sip:UE-B>;purpose=call-completion;m=BS SUBSCRIBE sip:T-AS;m=BS From:<UE-A> To:<UE-B> Contact:<O-AS> <b>Call-Info: &lt;UE-A&gt;; purpose=call-completion;m=BS</b> <b>P-Assertd-Identity: UE-A</b> <b>Expires: CC-T3</b> Event:call-completion																																																
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CC/originating_AS/Invocation	CC_N01_013	4.5.4.2.1.1.5, 4.5.4.2.1.1.6																																														
<p><b>Test purpose</b> CCNR successful request.</p> <p>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 Application Server forwards a 180 (Ringing) without the Call-Info header to the originating user 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. The Application Server confirms the successful invocation to the originating user by sending of a 480 (Temporarily Unavailable) final response.</p>																																																
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<p><b>SIP header values:</b> 180 Ringing 2: Call-Info: &lt;sip:UE-B or T-AS&gt;;purpose=call-completion;m=NR</p> <p><b>SUBSCRIBE sip: T-AS;m=NR</b> From:&lt;UE-A&gt; To:&lt;UE-B&gt; Contact:&lt;O-AS&gt; Call-Info: UE-A; purpose=call-completion;m=NR P-Assertd-Identity: UE-A Expires: CC-T3 Event:call-completion</p> <p>NOTIFY Event:call-completion Content-Type: application/call-completion cc-state: queued</p> <p>480 Temporarily Unavailable Date: &lt;current date and time&gt; Content-Type: message/external-body; access-type="URL"; URL= &lt; any url &gt;</p>																																																
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TSS	TP	Reference	Selection expression
CC/originating_AS/Invocation	CC_N01_014	4.5.4.2.1	
<b>Test purpose</b> 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.			
<b>Preconditions:</b> CCBS queue limit exceeded			
<b>SIP header values:</b> 180 Ringing 1: Call-Info: <sip:UE-B>;purpose=call-completion;m=NR			
<b>Comments:</b>			
<b>SIP 1 (Gm)</b>	<b>SUT</b>		<b>SIP 2 (ISC)</b>
	<b>Set the A queue to limit</b>		
INVITE	→	→	INVITE
100 Trying	←	←	100 Trying
180 Ringing 2	←	←	180 Ringing 1
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_015	4.5.4.2.1	NOT PICS 4.7.1/3
<b>Test purpose</b> CCNR invocation 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.			
<b>Preconditions:</b>			
<b>SIP header values:</b> 180 Ringing 1: Call-Info: <sip:UE-B>;purpose=call-completion;m=NR			
<b>Comments:</b>			
<b>SIP 1 (Gm)</b>	<b>SUT</b>		<b>SIP 2 (ISC)</b>
	<b>A successful CCNR request is already invoked</b>		
INVITE	→	→	INVITE
100 Trying	←	←	100 Trying
180 Ringing 2	←	←	180 Ringing 1
	<b>No offer to invoke CCNR</b>		
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_016	4.5.4.2.1.1.4	PICS 4.7.1/12																																																
<b>Test purpose</b> <i>Communication to user B is cancelled when CCNR is invoked by the originating user.</i>																																																			
Ensure when the confirmation of the CCNR invocation is received from user A before timeout CC-T1 the Application Server terminated the session with user B by sending a CANCEL request to user B.																																																			
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TSS	TP	Reference	Selection expression																																								
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<b>Test purpose</b> <i>Unsuccessful CCNR request.</i>																																											
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<b>SIP header values:</b> 180 Ringing 1: Call-Info: <sip:UE-B or T-AS>;purpose=call-completion;m=NR																																											
<b>SUBSCRIBE sip: T-AS;m=NR</b> <b>From:&lt;UE-A&gt;</b> <b>To:&lt;UE-B&gt;</b> <b>Contact:&lt;O-AS&gt;</b> <b>Call-Info: &lt;UE-A&gt;; purpose=call-completion;m=NR</b> <b>P-Assertd-Identity: UE-A</b> <b>Expires: CC-T3</b> <b>Event:call-completion</b>																																											
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<b>Apply post test routine</b>																																											

TSS CC/originating_AS/Invocation	TP CC_N01_018	Reference 4.5.4.2.1.1.5 4.8.1	Selection expression																																				
<b>Test purpose</b> CCNR request. Timeout CC-T2.  Ensure that the CC request operation timer CC-T2 is started after CCNR request is received from caller. When the timer CC-T2 is expired because no NOTIFY is received from the terminating user as a confirmation that the CCBS request was successful at the terminating AS the CCNR request is rejected. The caller is informed.																																							
<b>Preconditions:</b>																																							
<b>SIP header values:</b> 180 Ringing 2: Call-Info: <sip:UE-B>;purpose=call-completion;m=NR SUBSCRIBE sip:T-AS;m=NR From:<UE-A> To:<UE-B> Contact:<O-AS> <b>Call-Info: &lt;UE-A&gt;; purpose=call-completion;m=NR</b> <b>P-Assertd-Identity: UE-A</b> <b>Expires: CC-T3</b> Event:call-completion																																							
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TSS CC/originating_AS/Invocation	TP CC_N01_019	Reference 4.5.4.2.1.1.5, 4.5.4.2.1.1.6	Selection expression PICS 4.7.1/9																																										
<p><b>Test purpose</b> CCNL successful request.</p> <p>A 480 (Temporarily Unavailable) 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 NL. Ensure that the Application Server sends a 183 (Session Progress) to the originating user and starts to play an announcement to inform the originating user that Call Completion is possible. The originating user activates via inband interaction the CCNL 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. The Application Server confirms the successful invocation to the originating user by sending of a 480 (Temporarily Unavailable) final response.</p>																																													
<p><b>Preconditions:</b></p> <p><b>SIP header values:</b> 480 Temporarily Unavailable 1: Call-Info: &lt;sip:UE-B or T-AS&gt;;purpose=call-completion;m=NL</p> <p><b>SUBSCRIBE sip: T-AS;m=NL</b> From:&lt;UE-A&gt; To:&lt;UE-B&gt; Contact:&lt;O-AS&gt; Call-Info: UE-A; purpose=call-completion;m=NL P-Assertd-Identity: UE-A Expires: CC-T3 Event:call-completion</p> <p>NOTIFY Event:call-completion Content-Type: application/call-completion cc-state: queued</p> <p>480 Temporarily Unavailable 2 Date: &lt;current date and time&gt; Content-Type: message/external-body; access-type="URL"; URL= &lt; any url &gt;</p>																																													
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<b>TSS</b> CC/originating_AS/Invocation	<b>TP</b> CC_N01_020	<b>Reference</b> 4.5.4.2.1.1.1	<b>Selection expression</b> PICS 4.7.1/9
<b>Test purpose</b> <i>CCNL not possible, A CC queue limit has been exceeded.</i>			
<p>Ensure that the AS does not offer the activation of the call completion service if the user A CCNL queue limit has been exceeded. The 480 (Temporarily Unavailable) is passed through.</p>			
<b>Preconditions:</b> CCBS queue limit exceeded			
<b>SIP header values:</b> 480 Temporarily Unavailable 1: Call-Info: <sip:UE-B>;purpose=call-completion;m=NL			
<b>Comments:</b>			
<b>SIP 1 (Gm)</b>	<b>SUT</b>		<b>SIP 2 (ISC)</b>
	<b>Set the A queue to limit</b>		
INVITE	→	→	INVITE
100 Trying	←	←	100 Trying
480 (Temporarily Unavailable)	←	←	480 (Temporarily Unavailable) 1
ACK	→	→	ACK

<b>TSS</b> CC/originating_AS/Invocation	<b>TP</b> CC_N01_021	<b>Reference</b> 4.5.4.2.1.1.1	<b>Selection expression</b> PICS 4.7.1/9 AND NOT PICS 4.7.1/3
<b>Test purpose</b> <i>CCNL invocation not possible, further identical request (communication parameters).</i>			
<p>Ensure that the AS does not offer the activation of the CCNL call completion service if a request was activated for an identical communication, determined by the stored basic communication information. The 480 (Temporarily Unavailable) is passed through.</p>			
<b>Preconditions:</b>			
<b>SIP header values:</b> 480 Temporarily Unavailable 1: Call-Info: <sip:UE-B>;purpose=call-completion;m=NL			
<b>Comments:</b>			
<b>SIP 1 (Gm)</b>	<b>SUT</b>		<b>SIP 2 (ISC)</b>
	<b>A successful CCNL request is already invoked</b>		
INVITE	→	→	INVITE
100 Trying	←	←	100 Trying
480 (Temporarily Unavailable)	←	←	480 (Temporarily Unavailable) 1
ACK	→	→	ACK

TSS CC/originating_AS/Invocation	TP CC_N01_022	Reference 4.5.4.2.1.2	Selection expression PICS 4.7.1/9																																				
<p><b>Test purpose</b> <i>Unsuccessful CCNL request.</i></p> <p>Ensure when the originating user invokes the CCNL service and the Application Server receives a 480 (Temporarily Unavailable) to indicate short term denial or a 403 (Forbidden) to indicate long term denial the originating user receives a confirmation that the CCNL request was not successful.</p>																																							
<p><b>Preconditions:</b></p> <p><b>SIP header values:</b> 480 Temporarily Unavailable 1: Call-Info: &lt;sip:UE-B or T-AS&gt;;purpose=call-completion;m=NL</p> <p><b>SUBSCRIBE sip: T-AS;m=NL</b> From:&lt;UE-A&gt; To:&lt;UE-B&gt; Contact:&lt;O-AS&gt; Call-Info: &lt;UE-A&gt;; purpose=call-completion;m=NL P-Assertd-Identity: UE-A Expires: CC-T3 Event:call-completion</p>																																							
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<b>TSS</b> CC/originating_AS/Invocation	<b>TP</b> CC_N01_023	<b>Reference</b> 4.5.4.2.1.1.5 4.8.1	<b>Selection expression</b> PICS 4.7.1/9																																																
<b>Test purpose</b> <i>CCNL request. Timeout CC-T2.</i>																																																			
<p>Ensure that the CC request operation timer CC-T2 is started after CCNL request is received from caller. When the timer CC-T2 is expired because no NOTIFY is received from the terminating user as a confirmation that the CCNL request was successful at the terminating AS the CCNL request is rejected. The caller is informed.</p>																																																			
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## 5.2.2 CC Revocation

TSS CC/originating_AS/Revocation	TP CC_N02_001	Reference 4.5.4.2.2.1.2	Selection expression PICS 4.7.1/8																																																				
<p><b>Test purpose</b> CCBS revocation request received from the user.</p> <p>Ensure that the originating AS sends a SUBSCRIBE 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 user part of the Request URI is set to the service code command to cancel a CCBS request.</p>																																																							
<p><b>Preconditions:</b></p> <p><b>SIP header values:</b>            INVITE: Request URI= <b>Service Code Command (revoke CCBS request)</b>            SUBSCRIBE sip:T-AS;m=BS  <b>Call.Info: UE-A</b> (Public user identity); purpose=call-completion;m=BS  <b>P-Assertd-Identity: UE-A</b> (Public user identity)            Event:call-completion            Expires=0</p> <p>NOTIFY sip:O-AS            Event:call-completion            Subscription-State: terminated; reason=timeout</p>																																																							
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TSS	TP	Reference	Selection expression																																							
CC/originating_AS/Revocation	CC_N02_002	4.5.4.2.2.1.2	PICS 4.7.1/8																																							
<p><b>Test purpose</b>  <i>CCNR revocation request received from the user.</i></p> <p>Ensure that the originating AS sends a SUBSCRIBE 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 user part of the Request URI is set to the service code command to cancel a CCNR request.</p>																																										
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<b>TSS</b> CC/originating_AS/Revocation	<b>TP</b> CC_N02_003	<b>Reference</b> 4.5.4.2.2.1.2	<b>Selection expression</b> PICS 4.7.1/8 AND PICS 4.7.1/9
<b>Test purpose</b> CCNL revocation request received from the user.  Ensure that the originating AS sends a SUBSCRIBE request and the Expires header is set to zero when the originating user revokes the outstanding CCNL request. The revocation is performed by an INVITE request and the user part of the Request URI is set to the service code command to cancel a CCNL request.			
<b>Preconditions:</b>			
<b>SIP header values:</b> INVITE: Request URI= <b>Service Code Command (revoke CCNL request)</b>  SUBSCRIBE sip:T-AS; m=NL <b>Call.Info: UE-A</b> (Public user identity); purpose=call-completion;m=NL <b>P-Assertd-Identity: UE-A</b> (Public user identity) Event:call-completion Expires=0  NOTIFY sip:O-AS Event:call-completion Subscription-State: terminated; reason=timeout			
<b>Comments:</b>			
<b>SIP 1 (Gm)</b>	<b>SUT</b>	<b>SIP 2 (ISC)</b>	
	<b>Establish a successful CCNL request</b>		
	<b>Revocation request from the user</b>		
INVITE	→		
200 OK INVITE	←		
ACK	→		
		→	SUBSCRIBE
		←	200 OK SUBSCRIBE
		←	NOTIFY
		→	200 OK NOTIFY
	<b>Confirm to the caller that the revocation was successful</b>		
BYE	→		
200 OK BYE	←		

TSS	TP	Reference	Selection expression																								
CC/originating_AS/Revocation	CC_N02_004	4.5.4.2.2.1.3																									
<b>Test purpose</b> CCBS revocation caused by timer expiry CC-T3.  Ensure that the originating AS revokes the outstanding CCBS request if the CC service duration timer CC-T3 expires.																											
<b>Preconditions:</b>																											
<b>SIP header values:</b> SUBSCRIBE sip:T-AS;m=BS Event:call-completion <b>Call.Info: UE-A</b> (Public user identity); purpose=call-completion;m=NL <b>P-Assertd-Identity: UE-A</b> (Public user identity) Expires=0  NOTIFY sip:O-AS Event:call-completion Subscription-State: terminated; reason=timeout																											
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<b>SIP 1 (Gm)</b>	<b>SUT</b>	<b>SIP 2 (ISC)</b>																									
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	Start CC-T3																										
	Timeout CC-T3																										
		→ SUBSCRIBE																									
		← 200 OK SUBSCRIBE																									
		← NOTIFY																									
		→ 200 OK NOTIFY																									

TSS	TP	Reference	Selection expression																								
CC/originating_AS/Revocation	CC_N02_005	4.5.4.2.2.1.3																									
<b>Test purpose</b> CCNR revocation caused by timer expiry CC-T3.  Ensure that the originating AS revokes the outstanding CCNR request if the CC service duration timer CC-T3 expires.																											
<b>Preconditions:</b>																											
<b>SIP header values:</b> SUBSCRIBE sip:T-AS;m=NR Call.Info: UE-A (Public user identity); purpose=call-completion;m=NR <b>P-Assertd-Identity: UE-A</b> (Public user identity) Event:call-completion Expires=0  NOTIFY sip:O-AS Event:call-completion Subscription-State: terminated; reason=timeout																											
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<b>SIP 1 (Gm)</b>	<b>SUT</b>	<b>SIP 2 (ISC)</b>																									
	Establish a successful CCBS request																										
	Start CC-T3																										
	Timeout CC-T3																										
		→ SUBSCRIBE																									
		← 200 OK SUBSCRIBE																									
		← NOTIFY																									
		→ 200 OK NOTIFY																									

<b>TSS</b> CC/originating_AS/Revocation	<b>TP</b> CC_N02_006	<b>Reference</b> 4.5.4.2.2.1.3	<b>Selection expression</b> PICS 4.7.1/9
<b>Test purpose</b> CCNL revocation caused by timer expiry CC-T3.			
Ensure that the originating AS revokes the outstanding CCNL request if the CC service duration timer CC-T3 expires.			
<b>Preconditions:</b>			
<b>SIP header values:</b> SUBSCRIBE sip:T-AS <b>Call.Info: UE-A</b> (Public user identity); purpose=call-completion;m=NL <b>P-Assertd-Identity: UE-A</b> (Public user identity) Event:call-completion Expires=0  NOTIFY sip:O-AS Event:call-completion Subscription-State: terminated; reason=timeout			
<b>Comments:</b>			
<b>SIP 1 (Gm)</b>	<b>SUT</b>	<b>SIP 2 (ISC)</b>	
	Establish a successful CCNL request		
	Start CC-T3		
	Timeout CC-T3		
		→	SUBSCRIBE
		←	200 OK SUBSCRIBE
		←	NOTIFY
		→	200 OK NOTIFY

<b>TSS</b> CC/originating_AS/Revocation	<b>TP</b> CC_N02_007	<b>Reference</b> 4.5.4.2.2.2	<b>Selection expression</b>
<b>Test purpose</b> CCBS revocation caused by terminating AS.			
Ensure that the originating AS revokes the outstanding CCBS request if the AS receives a NOTIFY request from the terminating user and the Subscription-State header field set to "terminated"; and the "reason" Subscription-State header field parameter set to "noresource".			
<b>Preconditions:</b>			
<b>SIP header values:</b> NOTIFY sip:O-AS Event:call-completion Subscription-State: terminated; reason= noresource			
<b>Comments:</b>			
<b>SIP 1 (Gm)</b>	<b>SUT</b>	<b>SIP 2 (ISC)</b>	
	Establish a successful CCBS request		
		←	NOTIFY
		→	200 OK NOTIFY

TSS	TP	Reference	Selection expression
CC/originating_AS/Revocation	CC_N02_008	4.5.4.2.2.2	
<b>Test purpose</b> <i>CCNR revocation caused by terminating AS.</i>  Ensure that the originating AS revokes the outstanding CCNR request if the AS receives a NOTIFY request from the terminating user and the Subscription-State header field set to "terminated"; and the "reason" Subscription-State header field parameter set to "noresource".			
<b>Preconditions:</b>			
<b>SIP header values:</b> NOTIFY sip:O-AS Event:call-completion Subscription-State: terminated; reason= noresource			
<b>Comments:</b>			
<b>SIP 1 (Gm)</b>	<b>SUT</b>	<b>SIP 2 (ISC)</b>	
	<b>Establish a successful CCNR request</b>		
		← NOTIFY	
		→ 200 OK NOTIFY	

TSS	TP	Reference	Selection expression
CC/originating_AS/Revocation	CC_N02_009	4.5.4.2.2.2	PICS 4.7.1/9
<b>Test purpose</b> <i>CCNL revocation caused by terminating AS.</i>  Ensure that the originating AS revokes the outstanding CCNL request if the AS receives a NOTIFY request from the terminating user and the Subscription-State header field set to "terminated"; and the "reason" Subscription-State header field parameter set to "noresource".			
<b>Preconditions:</b>			
<b>SIP header values:</b> NOTIFY sip:O-AS Event:call-completion Subscription-State: terminated; reason= noresource			
<b>Comments:</b>			
<b>SIP 1 (Gm)</b>	<b>SUT</b>	<b>SIP 2 (ISC)</b>	
	<b>Establish a successful CCNL request</b>		
		← NOTIFY	
		→ 200 OK NOTIFY	

## 5.2.3 CC Operation

TSS	TP	Reference	Selection expression
CC/originating_AS/Operation	CC_N03_001	4.5.4.2.3.1	NOT PICS 4.7.1/4
<b>Test purpose</b> <i>CCBS Recall successful by sending a REFER request to the originating user.</i>			
<p>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.</p>			
<b>Preconditions:</b>			
<b>SIP header values:</b>			
NOTIFY 1	sip:O-AS Event:call-completion Content-Type: application/call-completion cc-state: ready		
REFER:	sip: UE A; m=BS <b>Refer-To</b> : UE B; method=INVITE		
INVITE 1:	sip: UE B; m=BS From: UE A To: UE B Call-Info: <sip:UE-A>;purpose=call-completion;m=BS		
NOTIFY 2	sip:O-AS Event:call-completion Subscription-State: terminated; reason=timeout		
<b>Comments:</b>			
<b>SIP 1 (Gm)</b>	<b>SUT</b>	<b>SIP 2 (ISC)</b>	
	<b>Invoke CCBS request</b>	<b>Terminating user available for recall</b>	
	<b>CCBS request confirmed by AS</b>	NOTIFY ← NOTIFY 1	
		200 OK NOTIFY →	200 OK NOTIFY
REFER	← REFER		
200 OK SUBSCRIBE	→ 200 OK SUBSCRIBE		
NOTIFY (100)	→ NOTIFY (100)		
200 OK NOTIFY	← 200 OK NOTIFY		
INVITE	→ INVITE		
180 Ringing	←	INVITE 1 → INVITE	← 180 Ringing
		NOTIFY ←	NOTIFY 2
200 OK INVITE	←	200 OK NOTIFY →	200 OK NOTIFY
ACK	→	←	200 OK INVITE
		→	ACK
NOTIFY (200)	→ NOTIFY (200)		
200 OK NOTIFY	← 200 OK NOTIFY		
<b>Apply post test routine</b>			

TSS	TP	Reference	Selection expression
CC/originating_AS/Operation	CC_N03_002	4.5.4.2.3.1	NOT PICS 4.7.1/4
<b>Test purpose</b> <i>CCNR Recall successful by sending a REFER request to the originating user.</i>			
<p>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.</p>			
<b>Preconditions:</b>			
<b>SIP header values:</b>			
NOTIFY 1	sip:O-AS Event:call-completion Content-Type: application/call-completion cc-state: ready		
REFER:	sip: UE A; m=NR Refer-To; UE B; method=INVITE		
INVITE 1:	sip: UE B; m=NR From: UE A To: UE B Call-Info: <sip:UE-A>;purpose=call-completion;m=NR		
NOTIFY 2	sip:O-AS Event:call-completion Subscription-State: terminated; reason=timeout		
<b>Comments:</b>			
<b>SIP 1 (Gm)</b>	<b>SUT</b>	<b>SIP 2 (ISC)</b>	
	<b>Invoke CCNR request</b>	<b>Terminating user available for recall</b>	
	<b>CCNR request confirmed by AS</b>	NOTIFY ← NOTIFY 1	
		200 OK NOTIFY →	200 OK NOTIFY
REFER	← REFER		
200 OK SUBCSRIBE	→ 200 OK SUBCSRIBE		
NOTIFY (100)	→ NOTIFY (100)		
200 OK NOTIFY	← 200 OK NOTIFY		
INVITE	→ INVITE		
180 Ringing	←	→ INVITE 1	
		← 180 Ringing	
		← NOTIFY	
		← NOTIFY 2	
		→ 200 OK NOTIFY	
200 OK INVITE	←	← 200 OK INVITE	
ACK	→	→ ACK	
NOTIFY (200)	→ NOTIFY (200)		
200 OK NOTIFY	← 200 OK NOTIFY		
<b>Apply post test routine</b>			



<b>TSS</b> CC/originating_AS/Operation	<b>TP</b> CC_N03_003	<b>Reference</b> 4.5.4.2.3.1	<b>Selection expression</b> NOT PICS 4.7.1/4 AND PICS 4.7.1/9
<b>Test purpose</b> CCNL Recall successful by sending a REFER request to the originating user.			
Ensure that the originating AS starts the CCNL 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 NL in the INVITE request sent to the callee as the result of the received INVITE request from the caller.			
<b>Preconditions:</b>			
<b>SIP header values:</b>			
NOTIFY 1	sip:O-AS Event:call-completion Content-Type: application/call-completion cc-state: ready		
REFER:	sip: UE A; m=NL Refer-To; UE B; method=INVITE		
INVITE 1:	sip: UE B; m=NL From: UE A To: UE B Call-Info: <sip:UE-A>;purpose=call-completion;m=NL		
NOTIFY 2	sip:O-AS Event:call-completion Subscription-State: terminated; reason=timeout		
<b>Comments:</b>			
<b>SIP 1 (Gm)</b>	<b>SUT</b>	<b>SIP 2 (ISC)</b>	
	Invoke CCNL request CCNL request confirmed by AS	Terminating user available for recall	
		NOTIFY ← NOTIFY 1	
		200 OK NOTIFY → 200 OK NOTIFY	
REFER	← REFER		
200 OK SUBSCRIBE	→ 200 OK SUBSCRIBE		
NOTIFY (100)	→ NOTIFY (100)		
200 OK NOTIFY	← 200 OK NOTIFY		
INVITE	→ INVITE		
180 Ringing	←	→ INVITE 1	
		← 180 Ringing	
		← NOTIFY	
		← NOTIFY 2	
		→ 200 OK NOTIFY	
200 OK INVITE	←	← 200 OK INVITE	
ACK	→	→ ACK	
NOTIFY (200)	→ NOTIFY (200)		
200 OK NOTIFY	← 200 OK NOTIFY		
<b>Apply post test routine</b>			

TSS	TP	Reference	Selection expression
CC/originating_AS/Operation	CC_N03_004	4.5.4.2.3.1	PICS 4.7.1/4
<p><b>Test purpose</b>  <i>CCBS Recall successful by using the special REFER interworking. Sending an INVITE request to the originating user.</i></p> <p>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.</p>			
<b>Preconditions:</b>			
<b>SIP header values:</b>			
NOTIFY 1	sip:O-AS Event:call-completion Content-Type: application/call-completion cc-state: ready		
INVITE 2:	sip: UE B; m=BS From: UE A To: UE B Call-Info: <sip:UE-A>;purpose=call-completion;m=BS		
NOTIFY 2	sip:O-AS Event:call-completion Subscription-State: terminated; reason=noresource		
<b>Comments:</b>			
<b>SIP 1 (Gm)</b>	<b>SUT</b>	<b>SIP 2 (ISC)</b>	
	<b>Invoke CCBS request</b>	<b>Terminating user available for recall</b>	
	<b>CCBS request confirmed by AS</b>	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	
<b>Apply post test routine</b>			

TSS	TP	Reference	Selection expression
CC/originating_AS/Operation	CC_N03_005	4.5.4.2.3.1	PICS 4.7.1/4
<p><b>Test purpose</b>  <i>CCNR Recall successful by using the special REFER interworking. Sending an INVITE request to the originating user.</i></p> <p>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.</p>			
<b>Preconditions:</b>			
<b>SIP header values:</b>			
NOTIFY 1	sip:O-AS Event:call-completion Content-Type: application/call-completion cc-state: ready		
INVITE 2:	sip: UE B; m=NR From: UE A To: UE B Call-Info: <sip:UE-A>;purpose=call-completion;m=NR		
NOTIFY 2	sip:O-AS Event:call-completion Subscription-State: terminated; reason=noresource		
<b>Comments:</b>			
<b>SIP 1 (Gm)</b>	<b>SUT</b>	<b>SIP 2 (ISC)</b>	
	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
<b>Apply post test routine</b>			

<b>TSS</b> CC/originating_AS/Operation	<b>TP</b> CC_N03_006	<b>Reference</b> 4.5.4.2.3.1	<b>Selection expression</b> PICS 4.7.1/4 AND PICS 4.7.1/9
<b>Test purpose</b> CCNL Recall successful by using the special REFER interworking. Sending an INVITE request to the originating user.			
Ensure that the originating AS starts the CCNL 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 NL. When the callee answers the session, caller and callee are connected.			
<b>Preconditions:</b>			
<b>SIP header values:</b>			
NOTIFY 1	sip:O-AS Event:call-completion Content-Type: application/call-completion cc-state: ready		
INVITE 2:	sip: UE B; m=NL From: UE A To: UE B Call-Info: <sip:UE-A>;purpose=call-completion;m=NL		
NOTIFY 2	sip:O-AS Event:call-completion Subscription-State: terminated; reason=noresource		
<b>Comments:</b>			
<b>SIP 1 (Gm)</b>	<b>SUT</b>	<b>SIP 2 (ISC)</b>	
	<b>Invoke CCNL request</b>	<b>Terminating user available for recall</b>	
	<b>CCNL request confirmed by AS</b>	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	
<b>Apply post test routine</b>			

TSS	TP	Reference	Selection expression																																																																																																									
CC/originating_AS/Operation	CC_N03_007	4.5.4.2.3.2.1																																																																																																										
<b>Test purpose</b> <i>CCBS Recall not accepted by originating user. CC-T4 expires.</i>																																																																																																												
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 SUBSCRIBE is sent to the terminating AS and the Expires header is set to zero.																																																																																																												
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CC/originating_AS/Operation	CC_N03_009	4.5.4.2.3.2.1	PICS 4.7.1/9																																																															
<b>Test purpose</b> <i>CCNL Recall not accepted by originating user.</i>																																																																		
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TSS	TP	Reference	Selection expression
CC/originating_AS/Operation	CC_N03_010	4.5.4.2.3.2.2	NOT PICS 4.7.1/4
<b>Test purpose</b>			
<i>CCBS Caller is found to be busy, when a CC recall notification has been received.</i>			
<p>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 no longer busy.</p>			
<b>Preconditions:</b>			
<b>SIP header values:</b>			
NOTIFY 1	sip:O-AS Event:call-completion Content-Type: application/call-completion cc-state: ready		
REFER:	sip: UE A; m=BS Refer-To; UE B; method=INVITE		
INVITE:	sip: UE A; m=BS <b>Call.Info: UE-A</b> ( <i>from the From header of original communication</i> ); purpose=call-completion;m=BS From: UE B		
PUBLISH 1:	sip T-AS <b>Call.Info: UE-A</b> ( <i>Public user identity</i> ); purpose=call-completion;m=BS <b>P-Assertd-Identity: UE A</b> ( <i>Public user identity</i> ) Expires>(> 0) Event: presence <b>Content-Type: application/pidf+xml</b> <?xml version="1.0" encoding="UTF-8"?> <presence <tuple id=" any uri "> <status> <basic>closed</basic>		
NOTIFY 2	sip:O-AS Event:call-completion Content-Type: application/call-completion cc-state: queued		
PUBLISH 2:	sip T-AS To: UE B <b>Call.Info: UE-A</b> ( <i>Public user identity</i> ); purpose=call-completion;m=BS <b>P-Assertd-Identity: UE A</b> ( <i>Public user identity</i> ) Expires>(> 0) Event: presence <b>Content-Type: application/pidf+xml</b> <?xml version="1.0" encoding="UTF-8"?> <presence <tuple id=" any uri "> <status> <basic>open</basic>		



Comments:	SUT	SIP 2 (ISC)
SIP 1 (Gm)		
	Invoke CCBS request	
	CCBS request confirmed by AS	
		Terminating user available for recall
	NOTIFY 1	← NOTIFY 1
	200 OK NOTIFY	→ 200 OK NOTIFY
	Establish a session to SIP 2 (make UE A busy)	
<b>CASE A</b>		
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
<b>CASE B</b>		
INVITE	← INVITE	
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 (make UE A available)	
	PUBLISH 2	→ PUBLISH
	200 OK PUBLISH	← 200 OK PUBLISH
	NOTIFY 1	← NOTIFY 2
	200 OK NOTIFY	→ 200 OK NOTIFY
	Apply post test routine	

TSS	TP	Reference	Selection expression
CC/originating_AS/Operation	CC_N03_011	4.5.4.2.3.2.2	NOT PICS 4.7.1/4
<p><b>Test purpose</b>  <i>CCNR Caller is found to be busy, when a CC recall notification has been received.</i></p> <p>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 no longer busy.</p>			
<p><b>Preconditions:</b></p>			
<p><b>SIP header values:</b></p> <p>NOTIFY 1 sip:O-AS  Event:call-completion  Content-Type: application/call-completion  cc-state: ready</p> <p>REFER: sip: UE A; m=NR  Refer-To; UE B; method=INVITE</p> <p>INVITE: sip: UE A; m=NR  <b>Call.Info: UE-A</b> (from the From header of original communication); purpose=call-completion;m=NR  From: UE B</p> <p>PUBLISH 1: sip T-AS  <b>Call.Info: UE-A</b> (Public user identity); purpose=call-completion;m=NR  <b>P-Assertd-Identity: UE A</b> (Public user identity)  Expires&gt;(&gt; 0)  Event: presence  Content-Type: application/pidf+xml  &lt;?xml version="1.0" encoding="UTF-8"?&gt;  &lt;presence  &lt;tuple id=" any uri "&gt;  &lt;status&gt;  &lt;basic&gt;closed&lt;/basic&gt;</p> <p>NOTIFY 2 sip:O-AS  Event:call-completion  Content-Type: application/call-completion  cc-state: queued</p> <p>PUBLISH 2: sip T-AS  To: UE B  <b>Call.Info: UE-A</b> (Public user identity); purpose=call-completion;m=NR  <b>P-Assertd-Identity: UE A</b> (Public user identity)  Expires&gt;(&gt; 0)  Event: presence  Content-Type: application/pidf+xml  &lt;?xml version="1.0" encoding="UTF-8"?&gt;  &lt;presence  &lt;tuple id=" any uri "&gt;  &lt;status&gt;  &lt;basic&gt;open&lt;/basic&gt;</p>			

Comments:	SUT	SIP 2 (ISC)
SIP 1 (Gm)		
	Invoke CCNR request	
	CCNR request confirmed by AS	
		Terminating user available for recall
	NOTIFY 1	← NOTIFY 1
	200 OK NOTIFY	→ 200 OK NOTIFY
	Establish a session to SIP 2 (make UE A busy)	
<b>CASE A</b>		
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
<b>CASE B</b>		
INVITE	← INVITE	
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 (make UE A available)	
	PUBLISH 2	→ PUBLISH
	200 OK PUBLISH	← 200 OK PUBLISH
	NOTIFY 1	← NOTIFY 2
	200 OK NOTIFY	→ 200 OK NOTIFY
	Apply post test routine	

TSS CC/originating_AS/Operation	TP CC_N03_012	Reference 4.5.4.2.3.2.2	Selection expression NOT PICS 4.7.1/4PICS 4.7.1/9
<p><b>Test purpose</b>  <i>CCNL Caller is found to be busy, when a CC recall notification has been received.</i></p> <p>Ensure that when the caller is found to be busy, when a CCNL 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 no longer busy.</p>			
<p><b>Preconditions:</b></p> <p><b>SIP header values:</b></p> <p>NOTIFY 1 sip:O-AS  Event:call-completion  Content-Type: application/call-completion  cc-state: ready</p> <p>REFER: sip: UE A; m=NL  Refer-To; UE B; method=INVITE</p> <p>INVITE: sip: UE A; m=NL  <b>Call.Info: UE-A</b> (from the From header of original communication); purpose=call-completion;m=NL  From: UE B</p> <p>PUBLISH 1: sip T-AS  <b>Call.Info: UE-A</b> (Public user identity); purpose=call-completion;m=NL  <b>P-Assertd-Identity: UE A</b> (Public user identity)  Expires=(&gt; 0)  Event: presence  Content-Type: application/pidf+xml  &lt;?xml version="1.0" encoding="UTF-8"?&gt;  &lt;presence  &lt;tuple id=" any uri "&gt;  &lt;status&gt;  &lt;basic&gt;closed&lt;/basic&gt;</p> <p>NOTIFY 2 sip:O-AS  Event:call-completion  Content-Type: application/call-completion  cc-state: queued</p> <p>PUBLISH 2: sip T-AS  To: UE B  <b>Call.Info: UE-A</b> (Public user identity); purpose=call-completion;m=NL  <b>P-Assertd-Identity: UE A</b> (Public user identity)  Expires=(&gt; 0)  Event: presence  Content-Type: application/pidf+xml  &lt;?xml version="1.0" encoding="UTF-8"?&gt;  &lt;presence  &lt;tuple id=" any uri "&gt;  &lt;status&gt;  &lt;basic&gt;open&lt;/basic&gt;</p>			

<b>Comments:</b>			
<b>SIP 1 (Gm)</b>		<b>SUT</b>	<b>SIP 2 (ISC)</b>
		<b>Invoke CCNL request</b>	
		<b>CCNL request confirmed by AS</b>	
			<b>Terminating user available for recall</b>
		NOTIFY 1	← NOTIFY 1
		200 OK NOTIFY	→ 200 OK NOTIFY
		<b>Establish a session to SIP 2 (make UE A busy)</b>	
<b>CASE A</b>			
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
<b>CASE B</b>			
INVITE	←	INVITE	
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
		<b>Disconnect session to SIP 2 (make UE A available)</b>	
		PUBLISH 2	→ PUBLISH
		200 OK PUBLISH	← 200 OK PUBLISH
		NOTIFY 1	← NOTIFY 2
		200 OK NOTIFY	→ 200 OK NOTIFY
		<b>Apply post test routine</b>	

<b>TSS</b>	<b>TP</b>	<b>Reference</b>	<b>Selection expression</b>
CC/originating_AS/Operation	CC_N03_013	4.5.4.2.3.2.3	NOT PICS 4.7.1/3
<b>Test purpose</b>			
<i>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.</i>			
Ensure that the caller initiates another communication to the same destination B and activates the same CC service (CCBS) again then the originating AS retains 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.			
<b>Preconditions:</b>			
<b>SIP header values:</b>			
486 Busy Here: Call-Info: <sip:UE-B>;purpose=call-completion;m=BS			
<b>Comments:</b>			
<b>SIP 1 (Gm)</b>		<b>SUT</b>	<b>SIP 2 (ISC)</b>
		<b>Invoke CCBS request</b>	
		<b>CCBS request confirmed by AS</b>	
INVITE	→		→ INVITE
100 Trying	←		← 100 Trying
		486 (Busy Here)	← 486 (Busy Here)
183 Session Progress	←	183 Session Progress	→ ACK
		<b>Announcement that CCBS is possible</b>	
		<b>Inband-interaction procedures for the CC activation</b>	
		<b>Announcement that CCBS is not invoked</b>	
		<b>Apply post test routine</b>	

<b>TSS</b> CC/originating_AS/Operation	<b>TP</b> CC_N03_014	<b>Reference</b> 4.5.4.2.3.2.3	<b>Selection expression</b> NOT PICS 4.7.1/3
<p><b>Test purpose</b> 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 discards the current request.</p> <p>Ensure that the caller initiates another communication to the same destination B and activates the same CC service (CCNR) again then the originating AS retains 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.</p>			
<b>Preconditions:</b>			
<p><b>SIP header values:</b> 180 Ringing 2: Call-Info: &lt;sip:UE-B&gt;;purpose=call-completion;m=NR</p>			
<b>Comments:</b>			
<b>SIP 1 (Gm)</b>	<b>SUT</b>		<b>SIP 2 (ISC)</b>
	<b>Invoke CCNR request</b>		
	<b>CCNR request confirmed by AS</b>		
INVITE	→		→ INVITE
100 Trying	←		← 100 Trying
			← 180 Ringing 1
180 Ringing 2	←		
			<b>Announcement that CCNR is possible</b>
			<b>Inband-interaction procedures for the CC activation</b>
			<b>Announcement that CCBS is not invoked</b>
CANCEL	→		→ CANCEL
200 OK CANCEL	←		← 200 OK CANCEL
487 Request Terminated	←		← 487 Request Terminated
ACK	→		→ ACK
			<b>Apply post test routine</b>

<b>TSS</b> CC/originating_AS/Operation	<b>TP</b> CC_N03_015	<b>Reference</b> 4.5.4.2.3.2.3	<b>Selection expression</b> PICS 4.7.1/9 AND NOT PICS 4.7.1/3
<p><b>Test purpose</b> The caller initiates another communication to the same destination B and activates the same CC service CCNL again. The two communications are identical. The AS discards the current request.</p> <p>Ensure that the caller initiates another communication to the same destination B and activates the same CC service (CCNL) again then the originating AS retains 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.</p>			
<b>Preconditions:</b>			
<p><b>SIP header values:</b> 480 Temporarily Unavailable: Call-Info: &lt;sip:UE-B&gt;;purpose=call-completion;m=NL</p>			
<b>Comments:</b>			
<b>SIP 1 (Gm)</b>	<b>SUT</b>		<b>SIP 2 (ISC)</b>
	<b>Invoke CCBS request</b>		
	<b>CCBS request confirmed by AS</b>		
INVITE	→		→ INVITE
100 Trying	←		← 100 Trying
		480 (Temporarily Unavailable)	← 480 (Temporarily Unavailable)
183 Session Progress	←	183 Session Progress	→ ACK
			<b>Announcement that CCBS is possible</b>
			<b>Inband-interaction procedures for the CC activation</b>
			<b>Announcement that CCBS is not invoked</b>
			<b>Apply post test routine</b>

<b>TSS</b> CC/originating_AS/Operation	<b>TP</b> CC_N03_016	<b>Reference</b> 4.5.4.2.3.2.3	<b>Selection expression</b> PICS 4.7.1/3
<p><b>Test purpose</b> 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.</p> <p>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 SUBSCRIBE request is sent to the terminating AS indicating a CCBS request - a m parameter set to "BS" is attached at the Request line.</p>			
<b>Preconditions:</b>			
<p><b>SIP header values:</b> 486 Busy Here: Call-Info: &lt;sip:UE-B&gt;;purpose=call-completion;m=BS SUBSCRIBE sip:T-AS;m=BS From:&lt;UE-A&gt; To:&lt;UE-B&gt; Contact:&lt;O-AS&gt; <b>Call-Info: &lt;UE-A&gt;; purpose=call-completion;m=BS</b> <b>P-Assertd-Identity: UE-A</b> <b>Expires: CC-T3</b> Event:call-completion NOTIFY sip:O-AS Event:call-completion Content-Type: application/call-completion cc-state: queued</p>			
<b>Comments:</b>			
<b>SIP 1 (Gm)</b>	<b>SUT</b>	<b>SIP 2 (ISC)</b>	
	<b>Invoke CCBS request CCBS request confirmed by AS</b>		
INVITE	→		→ INVITE
100 Trying	←		← 100 Trying
		486 (Busy Here)	← 486 (Busy Here)
183 Session Progress	←	183 Session Progress	→ ACK
		<b>Announcement that CCBS is possible</b>	
		<b>Inband-interaction procedures for the CC activation</b>	
			→ SUBSCRIBE
			← 200 OK SUBSCRIBE
			← NOTIFY
			→ 200 OK NOTIFY
		<b>Confirm to the caller that the invocation was successful</b>	
		<b>Apply post test routine</b>	

<b>TSS</b> CC/originating_AS/Operation	<b>TP</b> CC_N03_017	<b>Reference</b> 4.5.4.2.3.2.3	<b>Selection expression</b> PICS 4.7.1/4
<p><b>Test purpose</b> 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.</p> <p>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 SUBSCRIBE request is sent to the terminating AS indicating a CCBS request - a m parameter set to "NR" is attached at the Request line.</p>			
<b>Preconditions:</b>			
<p><b>SIP header values:</b> 180 Ringing 2: Call-Info: &lt;sip:UE-B&gt;;purpose=call-completion;m=NR SUBSCRIBE sip:T-AS;m=NR From:&lt;UE-A&gt; To:&lt;UE-B&gt; Contact:&lt;O-AS&gt; <b>Call-Info: &lt;UE-A&gt;; purpose=call-completion;m=NR</b> <b>P-Assertd-Identity: UE-A</b> <b>Expires: CC-T3</b> Event:call-completion NOTIFY sip:O-AS Event:call-completion Content-Type: application/call-completion cc-state: queued</p>			
<b>Comments:</b>			
<b>SIP 1 (Gm)</b>	<b>SUT</b>	<b>SIP 2 (ISC)</b>	
	<b>Invoke CCNR request CCNR request confirmed by AS</b>		
INVITE	→	→	INVITE
100 Trying	←	←	100 Trying
180 Ringing 2	←	←	180 Ringing 1
	<b>Announcement that CCNR is possible Inband-interaction procedures for the CC activation</b>		
		→	SUBSCRIBE
		←	200 OK SUBSCRIBE
		←	NOTIFY
		→	200 OK NOTIFY
	<b>Confirm to the caller that the invocation was successful Apply post test routine</b>		



<b>TSS</b> CC/originating_AS/Operation	<b>TP</b> CC_N03_018	<b>Reference</b> 4.5.4.2.3.2.3	<b>Selection expression</b> PICS 4.7.1/3 AND PICS 4.7.1/9
<p><b>Test purpose</b>  <i>The caller initiates another communication to the same destination B and activates the same CC service CCNL again. The two communications are identical. The AS treats this as a new CC request.</i></p> <p>Ensure that the caller initiates another communication to the same destination B and activates the same CC service (CCNL) again, the originating AS shall treat this as a new CC request, A SUBSCRIBE request is sent to the terminating AS indicating a CCNL request - a m parameter set to "NL" is attached at the Request line.</p>			
<b>Preconditions:</b>			
<p><b>SIP header values:</b>  480 Temporarily Unavailable:    Call-Info: &lt;sip:UE-B&gt;;purpose=call-completion;m=NL  SUBSCRIBE sip:T-AS;m=NL    From:&lt;UE-A&gt;    To:&lt;UE-B&gt;    Contact:&lt;O-AS&gt;  <b>Call-Info: &lt;UE-A&gt;; purpose=call-completion;m=NL</b>  <b>P-Assertd-Identity: UE-A</b>  <b>Expires: CC-T3</b>    Event:call-completion  NOTIFY sip:O-AS    Event:call-completion    Content-Type: application/call-completion    cc-state: queued</p>			
<b>Comments:</b>			
<b>SIP 1 (Gm)</b>	<b>SUT</b>	<b>SIP 2 (ISC)</b>	
	<b>Invoke CCBS request</b>		
	<b>CCBS request confirmed by AS</b>		
INVITE	→		→ INVITE
100 Trying	←		← 100 Trying
		480 (Temporarily Unavailable)	← 480 (Temporarily Unavailable)
183 Session Progress	←	183 Session Progress	→ ACK
		<b>Announcement that CCBS is possible</b>	
		<b>Inband-interaction procedures for the CC activation</b>	
			→ SUBSCRIBE
			← 200 OK SUBCSRIBE
			← NOTIFY
			→ 200 OK NOTIFY
		<b>Confirm to the caller that the invocation was successful</b>	
		<b>Apply post test routine</b>	

## 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	4.5.4.3.1.1																
<b>Test purpose</b> <i>The terminating AS inserts a Call-Info header in the 486 final response received from the terminating user.</i>																		
Ensure that the terminating AS inserts a Call-Info header and the purpose parameter is set to call-completion and the m parameter is set to BS in the 486 (Busy Here) received from the callee and forwards to the originating AS.																		
<b>Preconditions:</b>																		
<b>SIP header values:</b> 486 (Busy Here) 1: Call-Info: <sip:UE-B>;purpose=call-completion;m=BS																		
<b>Comments:</b> <table style="width:100%; border:none;"> <thead> <tr> <th style="text-align:left;">SIP 1 (ISC)</th> <th style="text-align:center;">SUT</th> <th style="text-align:right;">SIP 2 (Gm)</th> </tr> </thead> <tbody> <tr> <td>INVITE</td> <td style="text-align:center;">→</td> <td style="text-align:right;">INVITE</td> </tr> <tr> <td>100 Trying</td> <td style="text-align:center;">←</td> <td style="text-align:right;">100 Trying</td> </tr> <tr> <td>486 (Busy Here) 1</td> <td style="text-align:center;">←</td> <td style="text-align:right;">486 (Busy Here)</td> </tr> <tr> <td>ACK</td> <td style="text-align:center;">→</td> <td style="text-align:right;">ACK</td> </tr> </tbody> </table> <p style="text-align:center;"><b>Apply post test routine</b></p>				SIP 1 (ISC)	SUT	SIP 2 (Gm)	INVITE	→	INVITE	100 Trying	←	100 Trying	486 (Busy Here) 1	←	486 (Busy Here)	ACK	→	ACK
SIP 1 (ISC)	SUT	SIP 2 (Gm)																
INVITE	→	INVITE																
100 Trying	←	100 Trying																
486 (Busy Here) 1	←	486 (Busy Here)																
ACK	→	ACK																

TSS	TP	Reference	Selection expression															
CC/terminating_AS_AS/possibleIndication	CC_N04_002	4.5.4.3.1.1																
<b>Test purpose</b> <i>The terminating AS inserts a Call-Info header in the 486 final response in case of NDUB.</i>																		
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 m parameter is set to BS to the originating AS.																		
<b>Preconditions:</b> Callee is network determined user busy																		
<b>SIP header values:</b> 486 (Busy Here) 1: Call-Info: <sip:UE-B>;purpose=call-completion;m=BS																		
<b>Comments:</b> <table style="width:100%; border:none;"> <thead> <tr> <th style="text-align:left;">SIP 1 (ISC)</th> <th style="text-align:center;">SUT</th> <th style="text-align:right;">SIP 2 (Gm)</th> </tr> </thead> <tbody> <tr> <td>INVITE</td> <td style="text-align:center;">→</td> <td style="text-align:right;"></td> </tr> <tr> <td>100 Trying</td> <td style="text-align:center;">←</td> <td style="text-align:right;"></td> </tr> <tr> <td>486 (Busy Here) 1</td> <td style="text-align:center;">←</td> <td style="text-align:right;"></td> </tr> <tr> <td>ACK</td> <td style="text-align:center;">→</td> <td style="text-align:right;"></td> </tr> </tbody> </table> <p style="text-align:center;"><b>Apply post test routine</b></p>				SIP 1 (ISC)	SUT	SIP 2 (Gm)	INVITE	→		100 Trying	←		486 (Busy Here) 1	←		ACK	→	
SIP 1 (ISC)	SUT	SIP 2 (Gm)																
INVITE	→																	
100 Trying	←																	
486 (Busy Here) 1	←																	
ACK	→																	

TSS	TP	Reference	Selection expression												
CC/terminating_AS_AS/possibleIndication	CC_N04_003	4.5.4.3.1.1													
<b>Test purpose</b> <i>The terminating AS inserts a Call-Info header in the 180 provisional response.</i>															
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 m parameter is set to NR received from the callee and forwards to the originating AS.															
<b>Preconditions:</b>															
<b>SIP header values:</b> 180 (Ringing) 1: Call-Info: <sip:UE-B>;purpose=call-completion;m=NR															
<b>Comments:</b> <table style="width:100%; border:none;"> <thead> <tr> <th style="text-align:left;">SIP 1 (ISC)</th> <th style="text-align:center;">SUT</th> <th style="text-align:right;">SIP 2 (Gm)</th> </tr> </thead> <tbody> <tr> <td>INVITE</td> <td style="text-align:center;">→</td> <td style="text-align:right;">INVITE</td> </tr> <tr> <td>100 Trying</td> <td style="text-align:center;">←</td> <td style="text-align:right;">100 Trying</td> </tr> <tr> <td>180 (Ringing) 1</td> <td style="text-align:center;">←</td> <td style="text-align:right;">180 (Ringing)</td> </tr> </tbody> </table> <p style="text-align:center;"><b>Apply post test routine</b></p>				SIP 1 (ISC)	SUT	SIP 2 (Gm)	INVITE	→	INVITE	100 Trying	←	100 Trying	180 (Ringing) 1	←	180 (Ringing)
SIP 1 (ISC)	SUT	SIP 2 (Gm)													
INVITE	→	INVITE													
100 Trying	←	100 Trying													
180 (Ringing) 1	←	180 (Ringing)													

<b>TSS</b> CC/terminating_AS/possibleIndication	<b>TP</b> CC_N04_004	<b>Reference</b> 4.5.4.3.1.1	<b>Selection expression</b> PICS 4.7.1/9
<b>Test purpose</b> <i>The terminating AS inserts a Call-Info header in the 480 final response if the terminating user is not logged-in.</i>			
Ensure that the terminating AS inserts a Call-Info header and the purpose parameter is set to call-completion and the m parameter is set to NL in the 480 (Temporarily Unavailable) if the terminating user is not logged-in and forwards to the originating AS.			
<b>Preconditions:</b>			
<b>SIP header values:</b> 480 Temporarily Unavailable: Call-Info: <sip:UE-B>;purpose=call-completion;m=NL			
<b>Comments:</b>			
<b>SIP 1 (ISC)</b>	<b>SUT</b>	<b>SIP 2 (Gm)</b>	
INVITE	→		
100 Trying	←		
480 (Temporarily Unavailable)	←		
ACK	→		
<b>Apply post test routine</b>			

<b>TSS</b> CC/terminating_AS_AS/possibleIndication	<b>TP</b> CC_N04_005	<b>Reference</b> 4.5.4.3.1.1	<b>Selection expression</b>
<b>Test purpose</b> <i>Terminating user does not subscribe to the CCBS service. No Call-Info header field included.</i>			
Ensure that no Call-Info header is included in the 486 (Busy Here) If the terminating AS knows that the CC is not possible on destination B (callee).			
<b>Preconditions:</b> Terminating user does not subscribe to the CC service			
<b>SIP header values:</b> 486 (Busy Here) 1: Call-Info not included			
<b>Comments:</b>			
<b>SIP 1 (ISC)</b>	<b>SUT</b>	<b>SIP 2 (Gm)</b>	
INVITE	→	→	INVITE
100 Trying	←	←	100 Trying
486 (Busy Here) 1	←	←	486 (Busy Here)
ACK	→	→	ACK
<b>Apply post test routine</b>			

<b>TSS</b> CC/terminating_AS_AS/possibleIndication	<b>TP</b> CC_N04_006	<b>Reference</b> 4.5.4.3.1.1	<b>Selection expression</b>
<b>Test purpose</b> <i>Terminating user does not subscribe to the CCNR service. No Call-Info header field included.</i>			
Ensure that no Call-Info header is included in the 180 (Ringing) If the terminating AS knows that the CC is not possible on destination B (callee).			
<b>Preconditions:</b> Terminating user does not subscribe to the CC service			
<b>SIP header values:</b> 180 (Ringing) 1: Call-Info not included			
<b>Comments:</b>			
<b>SIP 1 (ISC)</b>	<b>SUT</b>	<b>SIP 2 (Gm)</b>	
INVITE	→	→	INVITE
100 Trying	←	←	100 Trying
180 (Ringing) 1	←	←	180 (Ringing)
<b>Apply post test routine</b>			

<b>TSS</b> CC/terminating_AS_AS/possibleIndication	<b>TP</b> CC_N04_007	<b>Reference</b> 4.5.4.3.1.1	<b>Selection expression</b> PICS 4.7.1/9
<b>Test purpose</b> <i>Terminating user does not subscribe to the CCNL service. No Call-Info header field included.</i>			
Ensure that no Call-Info header is included in the 480 (Temporarily Unavailable) If the terminating AS knows that the CC is not possible on destination B (callee) and the terminating user is not logged-in.			
<b>Preconditions:</b> Terminating user does not subscribe to the CC service			
<b>SIP header values:</b> 480 Temporarily Unavailable: Call-Info not included			
<b>Comments:</b>			
<b>SIP 1 (ISC)</b>	<b>SUT</b>	<b>SIP 2 (Gm)</b>	
INVITE	→		
100 Trying	←		
480 (Temporarily Unavailable)	←		
ACK	→		
<b>Apply post test routine</b>			

### 5.3.2 CC Invocation

<b>TSS</b> CC/terminating_AS/Invocation	<b>TP</b> CC_N05_001	<b>Reference</b> 4.5.4.7.1	<b>Selection expression</b>
<b>Test purpose</b> <i>CCBS service invocation successful at the terminating AS.</i>			
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 NOTIFY request. In the NOTIFY request the state header of the call-completion MIME body is set to queued.			
<b>Preconditions:</b>			
<b>SIP header values:</b> 486 (Busy Here) 1: Call-Info: <sip:UE-B>;purpose=call-completion;m=BS SUBSCRIBE sip:T-AS;m=BS From:<UE-A> To:<UE-B> Contact:<O-AS> Call-Info: <UE-A>; purpose=call-completion;m=BS P-Assertd-Identity: UE-A Expires: CC-T3 Event:call-completion 200 OK SUBCSRIBE Expires: ≤ value received in SUBSCRIBE			
<b>NOTIFY sip:O-AS</b> <b>From:&lt;UE-B&gt;</b> <b>To:&lt;UE-A&gt;</b> <b>Event:call-completion</b> <b>Subscription-State: active;expires=&lt; any value &gt;</b> <b>Content-Type: application/call-completion</b> <b>cc-state: queued</b>			
<b>Comments:</b>			
<b>SIP 1 (ISC)</b>	<b>SUT</b>	<b>SIP 2 (Gm)</b>	
INVITE	→	→	INVITE
100 Trying	←	←	100 Trying
486 (Busy Here) 1	←	←	486 (Busy Here)
ACK	→	→	ACK
SUBSCRIBE	→		
200 OK SUBCSRIBE	←		
NOTIFY	←		
200 OK NOTIFY	→		
<b>Apply post test routine</b>			

TSS	TP	Reference	Selection expression																														
CC/terminating_AS/Invocation	CC_N05_002	4.5.4.7.1																															
<p><b>Test purpose</b> CCNR service invocation successful at the terminating AS.</p> <p>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 NOTIFY request. In the NOTIFY request the state header of the call-completion MIME body is set to queued.</p>																																	
<b>Preconditions:</b>																																	
<p><b>SIP header values:</b></p> <p>180 Ringing 1:  Call-Info: &lt;sip:UE-B&gt;;purpose=call-completion;m=NR  SUBSCRIBE sip:T-AS;m=NR  From:&lt;UE-A&gt;  To:&lt;UE-B&gt;  Contact:&lt;O-AS&gt;  Call-Info: &lt;UE-A&gt;; purpose=call-completion;m=NR  P-Assertd-Identity: UE-A  Expires: CC-T3  Event:call-completion</p> <p>200 OK SUBCSRIBE  Expires: ≤ value received in SUBSCRIBE</p> <p><b>NOTIFY sip:O-AS</b>  <b>From:&lt;UE-B&gt;</b>  <b>To:&lt;UE-A&gt;</b>  <b>Event:call-completion</b>  <b>Subscription-State: active;expires=&lt; any value &gt;</b>  <b>Content-Type: application/call-completion</b>  <b>cc-state: queued</b></p>																																	
<p><b>Comments:</b></p> <table border="0" style="width: 100%;"> <thead> <tr> <th style="text-align: left;">SIP 1 (ISC)</th> <th style="text-align: center;">SUT</th> <th style="text-align: right;">SIP 2 (Gm)</th> </tr> </thead> <tbody> <tr> <td>INVITE</td> <td style="text-align: center;">→</td> <td style="text-align: right;">→ INVITE</td> </tr> <tr> <td>100 Trying</td> <td style="text-align: center;">←</td> <td style="text-align: right;">← 100 Trying</td> </tr> <tr> <td>180 Ringing 1</td> <td style="text-align: center;">←</td> <td style="text-align: right;">← 180 Ringing</td> </tr> <tr> <td colspan="3"> </td> </tr> <tr> <td>SUBSCRIBE</td> <td style="text-align: center;">→</td> <td></td> </tr> <tr> <td>200 OK SUBCSRIBE</td> <td style="text-align: center;">←</td> <td></td> </tr> <tr> <td colspan="3"> </td> </tr> <tr> <td>NOTIFY</td> <td style="text-align: center;">←</td> <td></td> </tr> <tr> <td>200 OK NOTIFY</td> <td style="text-align: center;">→</td> <td></td> </tr> </tbody> </table> <p style="text-align: right;"><b>Apply post test routine</b></p>				SIP 1 (ISC)	SUT	SIP 2 (Gm)	INVITE	→	→ INVITE	100 Trying	←	← 100 Trying	180 Ringing 1	←	← 180 Ringing				SUBSCRIBE	→		200 OK SUBCSRIBE	←					NOTIFY	←		200 OK NOTIFY	→	
SIP 1 (ISC)	SUT	SIP 2 (Gm)																															
INVITE	→	→ INVITE																															
100 Trying	←	← 100 Trying																															
180 Ringing 1	←	← 180 Ringing																															
SUBSCRIBE	→																																
200 OK SUBCSRIBE	←																																
NOTIFY	←																																
200 OK NOTIFY	→																																

TSS CC/terminating_AS/Invocation	TP CC_N05_003	Reference 4.5.4.7.1	Selection expression PICS 4.7.1/9																											
<p><b>Test purpose</b> CCNL service invocation successful at the terminating AS.</p> <p>Ensure that the terminating AS is able to queue the CCNL request received in a SUBSCRIBE request from the originating AS and responds with a NOTIFY request. In the NOTIFY request the state header of the call-completion MIME body is set to queued.</p>																														
<p><b>Preconditions:</b></p> <p><b>SIP header values:</b> 480 (Temporarily Unavailable) 1: Call-Info: &lt;sip:UE-B&gt;;purpose=call-completion;m=NL SUBSCRIBE sip:T-AS;m=NL From:&lt;UE-A&gt; To:&lt;UE-B&gt; Contact:&lt;O-AS&gt; Call-Info: &lt;UE-A&gt;; purpose=call-completion;m=NL P-Assertd-Identity: UE-A Expires: CC-T3 Event:call-completion 200 OK SUBSCRIBE Expires: ≤ value received in SUBSCRIBE</p> <p><b>NOTIFY sip:O-AS</b> <b>From:&lt;UE-B&gt;</b> <b>To:&lt;UE-A&gt;</b> <b>Event:call-completion</b> <b>Subscription-State: active;expires=&lt; any value &gt;</b> <b>Content-Type: application/call-completion</b> <b>cc-state: queued</b></p>																														
<p><b>Comments:</b></p> <table border="0" style="width: 100%;"> <tr> <td style="width: 35%;"><b>SIP 1 (ISC)</b></td> <td style="width: 30%; text-align: center;"><b>SUT</b></td> <td style="width: 35%;"><b>SIP 2 (Gm)</b></td> </tr> <tr> <td>INVITE</td> <td style="text-align: center;">→</td> <td>INVITE</td> </tr> <tr> <td>100 Trying</td> <td style="text-align: center;">←</td> <td>100 Trying</td> </tr> <tr> <td>480 (Temporarily Unavailable) 1</td> <td style="text-align: center;">←</td> <td>480 (Temporarily Unavailable)</td> </tr> <tr> <td>ACK</td> <td style="text-align: center;">→</td> <td>ACK</td> </tr> <tr> <td> SUBSCRIBE</td> <td style="text-align: center;"> →</td> <td></td> </tr> <tr> <td>200 OK SUBSCRIBE</td> <td style="text-align: center;">←</td> <td></td> </tr> <tr> <td> NOTIFY</td> <td style="text-align: center;"> ←</td> <td></td> </tr> <tr> <td>200 OK NOTIFY</td> <td style="text-align: center;">→</td> <td></td> </tr> </table> <p style="text-align: center;"><b>Apply post test routine</b></p>				<b>SIP 1 (ISC)</b>	<b>SUT</b>	<b>SIP 2 (Gm)</b>	INVITE	→	INVITE	100 Trying	←	100 Trying	480 (Temporarily Unavailable) 1	←	480 (Temporarily Unavailable)	ACK	→	ACK	 SUBSCRIBE	 →		200 OK SUBSCRIBE	←		 NOTIFY	 ←		200 OK NOTIFY	→	
<b>SIP 1 (ISC)</b>	<b>SUT</b>	<b>SIP 2 (Gm)</b>																												
INVITE	→	INVITE																												
100 Trying	←	100 Trying																												
480 (Temporarily Unavailable) 1	←	480 (Temporarily Unavailable)																												
ACK	→	ACK																												
 SUBSCRIBE	 →																													
200 OK SUBSCRIBE	←																													
 NOTIFY	 ←																													
200 OK NOTIFY	→																													

TSS	TP	Reference	Selection expression
CC/terminating_AS/Invocation	CC_N05_004	4.5.4.3.2.2	
<b>Test purpose</b> <i>CCBS service invocation unsuccessful at the terminating AS. Maximum number of queue entries is reached.</i>			
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.			
<b>Preconditions:</b>			
<b>SIP header values:</b> SUBSCRIBE sip:T-AS;m=BS From:<UE-A> To:<UE-B> Call.Info: <UE-A>; purpose=call-completion;m=BS P-Assertd-Identity: UE-A Expires: CC-T3 Contact:<O-AS> Event:call-completion			
<b>Comments:</b>			
<b>SIP 1 (ISC)</b>	<b>SUT</b>	<b>SIP 2 (Gm)</b>	
	<b>Set the B queue to limit</b>		
INVITE	→	→	INVITE
100 Trying	←	←	100 Trying
486 (Busy Here)	←	←	486 (Busy Here)
ACK	→	→	ACK
SUBSCRIBE	→		
480 Temporarily Unavailable	←		
	<b>Apply post test routine</b>		

TSS	TP	Reference	Selection expression
CC/terminating_AS/Invocation	CC_N05_005	4.5.4.3.2.2	
<b>Test purpose</b> <i>CCBS service invocation unsuccessful at the terminating AS. No CC queue for the terminating user available.</i>			
Ensure that the terminating AS responds to the SUBSCRIBE request containing the CCBS invoke received from the originating AS with a 403 Forbidden if no CC queue is available for the requested CC service at the terminating AS for the terminating user.			
<b>Preconditions:</b>			
<b>SIP header values:</b> SUBSCRIBE sip:T-AS;m=BS From:<UE-A> To:<UE B> Call.Info: <UE-A>; purpose=call-completion;m=BS P-Assertd-Identity: UE-A Expires: CC-T3 Contact:<O-AS> Event:call-completion			
<b>Comments:</b>			
<b>SIP 1 (ISC)</b>	<b>SUT</b>	<b>SIP 2 (Gm)</b>	
INVITE	→	→	INVITE
100 Trying	←	←	100 Trying
486 (Busy Here)	←	←	486 (Busy Here)
ACK	→	→	ACK
SUBSCRIBE	→		
403 Forbidden	←		
	<b>Apply post test routine</b>		

TSS	TP	Reference	Selection expression
CC/terminating_AS/Invocation	CC_N05_006	4.5.4.3.2.2	
<b>Test purpose</b> 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.			
<b>Preconditions:</b>			
<b>SIP header values:</b> SUBSCRIBE sip:T-AS;m=NR From:<UE-A> To:<UE-B> Call.Info: <UE-A>; purpose=call-completion;m=BS P-Assertd-Identity: UE-A Expires: CC-T3 Contact:<O-AS> Event:call-completion			
<b>Comments:</b>			
<b>SIP 1 (ISC)</b>	<b>SUT</b>	<b>SIP 2 (Gm)</b>	
	Set the B queue to limit		
INVITE	→	→	INVITE
100 Trying	←	←	100 Trying
180 Ringing 1	←	←	180 Ringing
SUBSCRIBE	→		
480 Temporarily Unavailable	←		
	Apply post test routine		

TSS	TP	Reference	Selection expression
CC/terminating_AS/Invocation	CC_N05_007	4.5.4.3.2.2	
<b>Test purpose</b> CCNR service invocation unsuccessful at the terminating AS. No CC queue for the terminating user available.			
Ensure that the terminating AS responds to the SUBSCRIBE request containing the CCNR invoke received from the originating AS with a 403 Forbidden if no CC queue is available for the requested CC service at the terminating AS.			
<b>Preconditions:</b>			
<b>SIP header values:</b> SUBSCRIBE sip:T-AS;m=NR From:<UE-A> To:<UE B> Call.Info: <UE-A>; purpose=call-completion;m=BS P-Assertd-Identity: UE-A Expires: CC-T3 Contact:<O-AS> Event:call-completion			
<b>Comments:</b>			
<b>SIP 1 (ISC)</b>	<b>SUT</b>	<b>SIP 2 (Gm)</b>	
INVITE	→	→	INVITE
100 Trying	←	←	100 Trying
180 (Ringing)	←	←	180 (Ringing)
SUBSCRIBE	→		
403 Forbidden	←		
	Apply post test routine		



<b>TSS</b> CC/terminating_AS/Invocation	<b>TP</b> CC_N05_008	<b>Reference</b> 4.5.4.3.2.2	<b>Selection expression</b> PICS 4.7.1/9
<b>Test purpose</b> CCNL 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 CCNL invoke received from the originating AS with a 480 (Temporarily Unavailable) if the callee's B queue limit is reached.			
<b>Preconditions:</b>			
<b>SIP header values:</b> SUBSCRIBE sip:T-AS;m=NL From:<UE-A> To:<UE-B> Call.Info: <UE-A>; purpose=call-completion;m=NL P-Assertd-Identity: UE-A Expires: CC-T3 Contact:<O-AS> Event:call-completion			
<b>Comments:</b>			
<b>SIP 1 (ISC)</b>	<b>SUT</b>	<b>SIP 2 (Gm)</b>	
	<b>Set the B queue to limit</b>		
INVITE	→	→	INVITE
100 Trying	←	←	100 Trying
486 (Busy Here)	←	←	486 (Busy Here)
ACK	→	→	ACK
SUBSCRIBE	→		
480 Temporarily Unavailable	←		
	<b>Apply post test routine</b>		

<b>TSS</b> CC/terminating_AS/Invocation	<b>TP</b> CC_N05_009	<b>Reference</b> 4.5.4.3.2.2	<b>Selection expression</b> PICS 4.7.1/9
<b>Test purpose</b> CCNL service invocation unsuccessful at the terminating AS. No CC queue for the terminating user available.			
Ensure that the terminating AS responds to the SUBSCRIBE request containing the CCNL invoke received from the originating AS with a 403 Forbidden if no CC queue is available for the requested CC service at the terminating AS for the terminating user.			
<b>Preconditions:</b>			
<b>SIP header values:</b> SUBSCRIBE sip:T-AS;m=BS From:<UE-A> To:<UE B> Call.Info: <UE-A>; purpose=call-completion;m=BS P-Assertd-Identity: UE-A Expires: CC-T3 Contact:<O-AS> Event:call-completion			
<b>Comments:</b>			
<b>SIP 1 (ISC)</b>	<b>SUT</b>	<b>SIP 2 (Gm)</b>	
INVITE	→	→	INVITE
100 Trying	←	←	100 Trying
486 (Busy Here)	←	←	486 (Busy Here)
ACK	→	→	ACK
SUBSCRIBE	→		
403 Forbidden	←		
	<b>Apply post test routine</b>		

TSS	TP	Reference	Selection expression																																	
CC/terminating_AS/Invocation	CC_N05_010	4.5.4.7.1	PICS 4.7.1/2																																	
<p><b>Test purpose</b>  <i>CCBS service invocation successful at the terminating AS. Retain option supported.</i></p> <p>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 NOTIFY 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 and set to 'true'.</p>																																				
<p><b>Preconditions:</b></p> <p><b>SIP header values:</b>  486 (Busy Here) 1:  Call-Info: &lt;sip:UE-B&gt;;purpose=call-completion;m=BS  SUBSCRIBE sip:T-AS;m=BS  From:&lt;UE-A&gt;  To:&lt;UE-B&gt;  Call-Info: &lt;UE-A&gt;; purpose=call-completion;m=BS  P-Assertd-Identity: UE-A  Expires: CC-T3  Contact:&lt;O-AS&gt;  Event:call-completion  NOTIFY sip:O-AS  <b>From:&lt;UE-B&gt;</b>  <b>To:&lt;UE-A&gt;</b>  <b>Event:call-completion</b>  <b>Subscription-State: active;expires=&lt; any value &gt;</b>  Event:call-completion  Content-Type: application/call-completion  cc-state: queued  cc-service-retention: true</p>																																				
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SIP 1 (ISC)	SUT	SIP 2 (Gm)																																		
INVITE	→	INVITE																																		
100 Trying	←	100 Trying																																		
486 (Busy Here) 1	←	486 (Busy Here)																																		
ACK	→	ACK																																		
SUBSCRIBE	→																																			
200 OK SUBSCRIBE	←																																			
NOTIFY	←																																			
200 OK NOTIFY	→																																			

TSS CC/terminating_AS/Invocation	TP CC_N05_0011	Reference 4.5.4.7.1	Selection expression NOT PICS 4.7.1/2																											
<p><b>Test purpose</b> CCNR service invocation successful at the terminating AS. Retain option not supported.</p> <p>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 NOTIFY request. In the NOTIFY request the state header of the call-completion MIME body is set to queued and the service-retention header is <b>not</b> present.</p>																														
<p><b>Preconditions:</b></p> <p><b>SIP header values:</b> 486 Busy Here 1: Call-Info: &lt;sip:UE-B&gt;;purpose=call-completion;m=BS SUBSCRIBE sip:T-AS;m=BS From:&lt;UE-A&gt; To:&lt;UE-B&gt; Call-Info: &lt;UE-A&gt;; purpose=call-completion;m=BS P-Assertd-Identity: UE-A Expires: CC-T3 Contact:&lt;O-AS&gt; Event:call-completion NOTIFY sip:O-AS <b>From:&lt;UE-B&gt;</b> <b>To:&lt;UE-A&gt;</b> <b>Event:call-completion</b> <b>Subscription-State: active;expires=&lt; any value &gt;</b> Event:call-completion Content-Type: application/call-completion cc-state: queued</p>																														
<p><b>Comments:</b></p> <table border="0"> <thead> <tr> <th data-bbox="151 996 606 1025">SIP 1 (ISC)</th> <th data-bbox="742 996 798 1025">SUT</th> <th data-bbox="965 996 1093 1025">SIP 2 (Gm)</th> </tr> </thead> <tbody> <tr> <td data-bbox="151 1025 606 1055">INVITE</td> <td data-bbox="606 1025 798 1055">→</td> <td data-bbox="965 1025 1093 1055">→ INVITE</td> </tr> <tr> <td data-bbox="151 1055 606 1084">100 Trying</td> <td data-bbox="606 1055 798 1084">←</td> <td data-bbox="965 1055 1093 1084">← 100 Trying</td> </tr> <tr> <td data-bbox="151 1084 606 1113">486 (Busy Here) 1</td> <td data-bbox="606 1084 798 1113">←</td> <td data-bbox="965 1084 1093 1113">← 486 (Busy Here)</td> </tr> <tr> <td data-bbox="151 1113 606 1142">ACK</td> <td data-bbox="606 1113 798 1142">→</td> <td data-bbox="965 1113 1093 1142">→ ACK</td> </tr> <tr> <td data-bbox="151 1164 606 1193">SUBSCRIBE</td> <td data-bbox="606 1164 798 1193">→</td> <td></td> </tr> <tr> <td data-bbox="151 1193 606 1223">200 OK SUBSCRIBE</td> <td data-bbox="606 1193 798 1223">←</td> <td></td> </tr> <tr> <td data-bbox="151 1245 606 1274">NOTIFY</td> <td data-bbox="606 1245 798 1274">←</td> <td></td> </tr> <tr> <td data-bbox="151 1274 606 1303">200 OK NOTIFY</td> <td data-bbox="606 1274 798 1303">→</td> <td></td> </tr> </tbody> </table> <p style="text-align: right;"><b>Apply post test routine</b></p>				SIP 1 (ISC)	SUT	SIP 2 (Gm)	INVITE	→	→ INVITE	100 Trying	←	← 100 Trying	486 (Busy Here) 1	←	← 486 (Busy Here)	ACK	→	→ ACK	SUBSCRIBE	→		200 OK SUBSCRIBE	←		NOTIFY	←		200 OK NOTIFY	→	
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TSS	TP	Reference	Selection expression																														
CC/terminating_AS/Invocation	CC_N05_012	4.5.4.7.1	PICS 4.7.1/2																														
<p><b>Test purpose</b>  <i>CCNR service invocation successful at the terminating AS. Retain option supported.</i></p> <p>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 NOTIFY 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 and set to 'true'.</p>																																	
<p><b>Preconditions:</b></p> <p><b>SIP header values:</b></p> <p>180 Ringing 1:  Call-Info: &lt;sip:UE-B&gt;;purpose=call-completion;m=NR  SUBSCRIBE sip:T-AS;m=NR  From:&lt;UE-A&gt;  To:&lt;UE-B&gt;  Call-Info: &lt;UE-A&gt;; purpose=call-completion;m=NR  P-Assertd-Identity: UE-A  Expires: CC-T3  Contact:&lt;O-AS&gt;  Event:call-completion</p> <p>NOTIFY sip:O-AS  <b>From:&lt;UE-B&gt;</b>  <b>To:&lt;UE-A&gt;</b>  <b>Event:call-completion</b>  <b>Subscription-State: active;expires=&lt; any value &gt;</b>  Event:call-completion  Content-Type: application/call-completion  cc-state: queued  cc-service-retention: true</p>																																	
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TSS CC/terminating_AS/Invocation	TP CC_N05_0013	Reference 4.5.4.7.1	Selection expression NOT PICS 4.7.1/2																														
<p><b>Test purpose</b> CCNR service invocation successful at the terminating AS. Retain option not supported.</p> <p>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 NOTIFY request. In the NOTIFY request the state header of the call-completion MIME body is set to queued and the service-retention header is <b>not</b> present.</p>																																	
<p><b>Preconditions:</b></p> <p><b>SIP header values:</b> 180 Ringing 1: Call-Info: &lt;sip:UE-B&gt;;purpose=call-completion;m=NR SUBSCRIBE sip:T-AS;m=NR From:&lt;UE-A&gt; To:&lt;UE-B&gt; Call-Info: &lt;UE-A&gt;; purpose=call-completion;m=NR P-Assertd-Identity: UE-A Expires: CC-T3 Contact:&lt;O-AS&gt; Event:call-completion NOTIFY sip:O-AS <b>From:&lt;UE-B&gt;</b> <b>To:&lt;UE-A&gt;</b> <b>Event:call-completion</b> <b>Subscription-State: active;expires=&lt; any value &gt;</b> Event:call-completion Content-Type: application/call-completion cc-state: queued</p>																																	
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<b>TSS</b> CC/terminating_AS/Invocation	<b>TP</b> CC_N05_014	<b>Reference</b> 4.5.4.7.1	<b>Selection expression</b> PICS 4.7.1/2 AND PICS 4.7.1/9																																	
<b>Test purpose</b> <i>CCNL service invocation successful at the terminating AS. Retain option supported.</i>																																				
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NOTIFY	←																																			
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<b>TSS</b> CC/terminating_AS/Invocation	<b>TP</b> CC_N05_0015	<b>Reference</b> 4.5.4.7.1	<b>Selection expression</b> NOT PICS 4.7.1/2 AND PICS 4.7.1/9																																																							
<p><b>Test purpose</b> CCNL service invocation successful at the terminating AS. Retain option not supported.</p> <p>Ensure that the terminating AS is able to queue the CCNL request received in a SUBSCRIBE request from the originating AS and responds with a NOTIFY request. In the NOTIFY request the state header of the call-completion MIME body is set to queued and the service-retention header is <b>not</b> present.</p>																																																										
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<b>SIP 1 (ISC)</b>		<b>SUT</b>		<b>SIP 2 (Gm)</b>																																																						
INVITE	→		→	INVITE																																																						
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200 OK SUBSCRIBE	←																																																									
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### 5.3.3 CC Revocation

TSS	TP	Reference	Selection expression																					
CC/terminating_AS/Revocation	CC_N06_001	4.5.4.3.3.1																						
<p><b>Test purpose</b>  <i>CCBS service revocation successful at the terminating AS.</i></p> <p>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 timeout for a CCBS queue entry if a SUBSCRIBE request is received and the Expires header is set to '0'.</p>																								
<p><b>Preconditions:</b></p> <p><b>SIP header values:</b>  SUBSCRIBE sip:T-AS;m=BS  From:&lt;UE-A&gt;  To:&lt;UE-B&gt;  Contact:&lt;O-AS&gt;  Call.Info: &lt;UE-A&gt;; purpose=call-completion;m=BS  P-Assertd-Identity: UE-A  Expires: CC-T3  Event:call-completion  Expires=0  NOTIFY sip:O-AS  <b>From:&lt;UE-B&gt;</b>  <b>To:&lt;UE-A&gt;</b>  <b>Event:call-completion</b>  <b>Subscription-State: terminated; reason=timeout</b></p>																								
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SIP 1 (ISC)	SUT	SIP 2 (Gm)																						
Invoke CCBS request																								
SUBSCRIBE	→																							
200 OK SUBCSRIBE	←																							
NOTIFY	←																							
200 OK NOTIFY	→																							
<b>Apply post test routine</b>																								



<b>TSS</b> CC/terminating_AS/Revocation	<b>TP</b> CC_N06_002	<b>Reference</b> 4.5.4.3.3.1	<b>Selection expression</b>
<b>Test purpose</b> 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 timeout for a CCNR queue entry if a SUBSCRIBE request is received and the Expires header is set to '0'.			
<b>Preconditions:</b>			
<b>SIP header values:</b> SUBSCRIBE sip:T-AS;m=NR From:<UE-A> To:<UE-B> Call.Info: <UE-A>; purpose=call-completion;m=NR P-Assertd-Identity: UE-A Expires: CC-T3 Event:call-completion Expires=0 NOTIFY sip:O-AS Event:call-completion Subscription-State: terminated; reason=timeout			
<b>Comments:</b>			
<b>SIP 1 (ISC)</b>	<b>SUT</b>	<b>SIP 2 (Gm)</b>	
<b>Invoke CCBS request</b>			
SUBSCRIBE	→		
200 OK SUBSCRIBE	←		
NOTIFY	←		
200 OK NOTIFY	→		
<b>Apply post test routine</b>			

<b>TSS</b> CC/terminating_AS/Revocation	<b>TP</b> CC_N06_003	<b>Reference</b> 4.5.4.3.3.1	<b>Selection expression</b> PICS 4.7.1/9
<b>Test purpose</b> CCNL 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 timeout for a CCNL queue entry if a SUBSCRIBE request is received and the Expires header is set to '0'.			
<b>Preconditions:</b>			
<b>SIP header values:</b> SUBSCRIBE sip:T-AS;m=NL From:<UE-A> To:<UE-B> Call.Info: <UE-A>; purpose=call-completion;m=NL P-Assertd-Identity: UE-A Expires: CC-T3 Event:call-completion Expires=0 NOTIFY sip:O-AS Event:call-completion Subscription-State: terminated; reason=timeout			
<b>Comments:</b>			
<b>SIP 1 (ISC)</b>	<b>SUT</b>	<b>SIP 2 (Gm)</b>	
<b>Invoke CCBS request</b>			
SUBSCRIBE	→		
200 OK SUBSCRIBE	←		
NOTIFY	←		
200 OK NOTIFY	→		
<b>Apply post test routine</b>			





<b>TSS</b> CC/terminating_AS/CCOperation	<b>TP</b> CC_N07_002	<b>Reference</b> 4.5.4.3.4.1.1, 4.5.4.3.4.1.2	<b>Selection expression</b>
<b>Test purpose</b> <i>Callee becomes not busy after having initiated an activity, CCNR recall procedure performed.</i>			
<p>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".</p>			
<b>Preconditions:</b>			
<b>SIP header values:</b> NOTIFY sip:O-AS From: UE B To: UE A Event:call-completion Subscription-State: active; expires=< any value > Content-Type: application/call-completion cc-state: ready			
<b>Comments:</b>			
<b>SIP 1 (ISC)</b>	<b>Invoke CCNR request</b>	<b>SUT</b>	<b>SIP 2 (Gm)</b>
		<b>Callee is idle</b>	
INVITE	←		← INVITE
486 Busy Here	→		→ 486 Busy Here
ACK	←		← ACK
		<b>Start CC-T8</b>	
		↓	
		<b>CC-T8 expires</b>	
NOTIFY	←		
200 OK NOTIFY	→		
		<b>Apply post test routine</b>	

<b>TSS</b> CC/terminating_AS/CCOperation	<b>TP</b> CC_N07_003	<b>Reference</b> 4.5.4.3.4.1.1, 4.5.4.3.4.1.2	<b>Selection expression</b> PICS 4.7.1/9
<b>Test purpose</b> <i>Callee becomes not busy after is logged-in, CCNL recall procedure performed.</i>			
<p>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".</p>			
<b>Preconditions:</b>			
<b>SIP header values:</b> NOTIFY sip:O-AS From: UE B To: UE A Event:call-completion Subscription-State: active; expires=< any value > Content-Type: application/call-completion cc-state: ready			
<b>Comments:</b>			
<b>SIP 1 (ISC)</b>	<b>Invoke CCNL request</b>	<b>SUT</b>	<b>SIP 2 (Gm)</b>
		<b>Callee is logged-in</b>	
		<b>Start CC-T8</b>	
		↓	
		<b>CC-T8 expires</b>	
NOTIFY	←		
200 OK NOTIFY	→		
		<b>Apply post test routine</b>	

TSS CC/terminating_AS/CCOperation	TP CC_N07_004	Reference 4.5.4.3.4.1.3, 4.5.4.3.4.1.4	Selection expression																																																
<p><b>Test purpose</b>  <i>CCBS: An INVITE request received while a CC recall is processed. CC call indicator present in the Request line.</i></p> <p>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" and a Call-Info header is present the m parameter is 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 "noresource".</p>																																																			
<p><b>Preconditions:</b></p> <p><b>SIP header values:</b>  NOTIFY 1 sip:O-AS  From: UE B  To: UE A  Subscription-State: active; expires=&lt; any value &gt;  Event:call-completion  Content-Type: application/call-completion  cc-state: ready  INVITE 1: sip: UE B; m=BS  Call-Info: &lt;sip:UE-A&gt;;purpose=call-completion;m=BS  <b>NOTIFY 2 sip:O-AS</b>  <b>Event:call-completion</b>  <b>Subscription-State: terminated; reason=noresource</b></p>																																																			
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SIP 1 (ISC)	Invoke CCBS request	SUT	SIP 2 (Gm)																																																
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ACK	→		ACK																																																

TSS CC/terminating_AS/CCOperation	TP CC_N07_005	Reference 4.5.4.3.4.1.3, 4.5.4.3.4.1.4	Selection expression																																																				
<p><b>Test purpose</b> CCNR: An INVITE request received while a CC recall is processed. CC call indicator present in the Request line.</p> <p>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" and a Call-Info header is present the m parameter is 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 "noresource".</p>																																																							
<p><b>Preconditions:</b></p> <p><b>SIP header values:</b> NOTIFY sip:O-AS From: UE B To: UE A Subscription-State: active; expires=&lt; any value &gt; Event:call-completion Content-Type: application/call-completion cc-state: ready INVITE 1: sip: UE B; m=NR Call-Info: &lt;sip:UE-A&gt;;purpose=call-completion;m=NR <b>NOTIFY 2 sip:O-AS</b> <b>Event:call-completion</b> <b>Subscription-State: terminated; reason=noresource</b></p>																																																							
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200 OK NOTIFY	→																																																						
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ACK	→		ACK																																																				

<b>TSS</b> CC/terminating_AS/CCOperation	<b>TP</b> CC_N07_006	<b>Reference</b> 4.5.4.3.4.1.3, 4.5.4.3.4.1.4	<b>Selection expression</b> PICS 4.7.1/9																																								
<p><b>Test purpose</b> CCNL: An INVITE request received while a CC recall is processed. CC call indicator present in the Request line.</p> <p>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 "NL" and a Call-Info header is present the m parameter is set to 'NL', 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 "noresource".</p>																																											
<p><b>Preconditions:</b></p> <p><b>SIP header values:</b>  NOTIFY 1 sip:O-AS  From: UE B  To: UE A  Subscription-State: active; expires=&lt; any value &gt;  Event:call-completion  Content-Type: application/call-completion  cc-state: ready  INVITE 1: sip: UE B; m=NL  Call-Info: &lt;sip:UE-A&gt;;purpose=call-completion;m=NL  <b>NOTIFY 2 sip:O-AS</b>  <b>Event:call-completion</b>  <b>Subscription-State: terminated; reason=noresource</b></p>																																											
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TSS CC/terminating_AS/CCOperation	TP CC_N07_007	Reference 4.5.4.3.4.1.3, 4.5.4.3.4.1.4	Selection expression																																				
<p><b>Test purpose</b>  <i>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.</i></p> <p>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 'm' parameter in the Request line and no Call-Info header is present the m parameter set to 'NL', the terminating AS rejects the call.</p>																																							
<p><b>Preconditions:</b></p> <p><b>SIP header values:</b>  NOTIFY sip:O-AS  From: UE B  To: UE A  Subscription-State: active; expires=&lt; any value &gt;  Event:call-completion  Content-Type: application/call-completion  cc-state: ready</p> <p>INVITE: sip: UE B  <b>destination selection information</b> and <b>Service requirements</b> not identical as used in the dialogue as CCBS was requested  486 Busy Here  Call-Info: &lt; sip:UE-B&gt;;purpose=call-completion;m=BS</p>																																							
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SIP 1 (ISC)	Invoke CCBS request	SUT	SIP 2 (Gm)																																				
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INVITE	→																																						
486 (Busy Here)	←																																						
ACK	→																																						



TSS CC/terminating_AS/CCOperation	TP CC_N07_008	Reference 4.5.4.3.4.1.3, 4.5.4.3.4.1.4	Selection expression																																								
<p><b>Test purpose</b>  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.</p> <p>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 'm' parameter in the Request line the terminating AS rejects the call.</p>																																											
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486 (Busy Here)	←																																										
ACK	→																																										

<b>TSS</b> CC/terminating_AS/CCOperation	<b>TP</b> CC_N07_009	<b>Reference</b> 4.5.4.3.4.1.3, 4.5.4.3.4.1.4	<b>Selection expression</b> PICS 4.7.1/9
<p><b>Test purpose</b>  <i>CCNL: 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.</i></p> <p>Ensure that the terminating AS has sent a NOTIFY request to a CCNL 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 'm' parameter in the Request line the terminating AS rejects the call.</p>			
<b>Preconditions:</b>			
<p><b>SIP header values:</b>  NOTIFY sip:O-AS  From: UE B  To: UE A  Subscription-State: active; expires=&lt; any value &gt;  Event:call-completion  Content-Type: application/call-completion  cc-state: ready  INVITE: sip: UE B  <b>destination selection information</b> and <b>Service requirements</b> not identical as used in the dialogue as CCNL was requested  486 Busy Here  Call-Info: &lt;sip:UE-B&gt;;purpose=call-completion;m=BS</p>			
<b>Comments:</b>			
<b>SIP 1 (ISC)</b>	<b>Invoke CCNR request</b>	<b>SUT</b>	<b>SIP 2 (Gm)</b>
		<b>Callee is logged-in</b>	
NOTIFY 1	←		
200 OK NOTIFY	→		
INVITE	→		
486 (Busy Here)	←		
ACK	→		
<b>Apply post test routine</b>			

TSS CC/terminating_AS/CCOperation	TP CC_N07_010	Reference 4.5.4.3.4.2 a)	Selection expression																																																																																										
<p><b>Test purpose</b>  <i>CCBS: Terminating user becomes busy while CC-T8 is running.</i></p> <p>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.</p>																																																																																													
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TSS	TP	Reference	Selection expression
CC/terminating_AS/CCOperation	CC_N07_012	4.5.4.3.4.2 a)	PICS 4.7.1/9
<b>Test purpose</b> CCNL: Terminating user becomes busy while CC-T8 is running.			
If in case of CCNL, 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.			
<b>Preconditions:</b>			
<b>SIP header values:</b> NOTIFY 1 sip:O-AS From: UE B To: UE A (S2) Subscription-State: active; expires=< any value > Event:call-completion Content-Type: application/call-completion cc-state: ready			
<b>Comments:</b>			
<b>SIP 1 (ISC)</b>	<b>Invoke CCNL request</b>	<b>SUT</b>	<b>SIP 2 (Gm)</b>
		<b>Callee is logged-in Start CC-T8</b>	
		↓	
INVITE (S1)	←		←
200 OK INVITE	→		→
ACK	←		←
		<b>CC-T8 expires</b>	
BYE	←		←
200 OK BYE	→		→
		<b>Start CC-T8</b>	
		↓	
		<b>CC-T8 expires</b>	
NOTIFY	←		
200 OK NOTIFY	→		
		<b>Apply post test routine</b>	

TSS	TP	Reference	Selection expression
CC/terminating_AS/CCOperation	CC_N07_013	4.5.4.3.4.2 c)	NOT PICS 4.7.1/2
<p><b>Test purpose</b>  <i>CCBS: The callee is busy upon arrival of the CC call. Retain option not supported.</i></p> <p>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; <b>the terminating AS shall send a 486 (Busy Here) response with a Call-Info header field</b> with a "purpose" header field parameter set to "call-completion" and a m parameter set to "BS" to the originating AS. The CC request is cancelled.</p>			
<b>Preconditions:</b>			
<p><b>SIP header values:</b>  NOTIFY sip:O-AS  From: UE B  To: UE A  Subscription-State: active; expires=&lt; any value &gt;  Event:call-completion  Content-Type: application/call-completion  cc-state: ready  INVITE 1: sip: UE B; m=BS  Call-Info: &lt;sip:UE-A&gt;;purpose=call-completion;m=BS  486 (Busy Here):  Call-Info: &lt;sip:UE-B&gt;;purpose=call-completion;m=BS  <b>NOTIFY 2 sip:O-AS</b>  <b>Event:call-completion</b>  <b>Subscription-State: terminated; reason=noresource</b></p>			
<b>Comments:</b>			
<b>SIP 1 (ISC)</b>	<b>Invoke CCBS request</b>	<b>SUT</b> <b>Callee is busy</b>	<b>SIP 2 (Gm)</b>
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)	→		→ <i>INVITE</i>
486 (Busy Here)	←		← <i>486 (Busy Here)</i>
ACK	→		→ <i>ACK</i>
NOTIFY 2	←		
200 OK NOTIFY	→		
BYE	←		← BYE
200 OK BYE	→		→ 200 OK BYE

TSS	TP	Reference	Selection expression
CC/terminating_AS/CCOperation	CC_N07_014	4.5.4.3.4.2 c)	NOT PICS 4.7.1/2
<p><b>Test purpose</b>  CCNR: <i>The callee is busy upon arrival of the CC call. Retain option not supported.</i></p> <p>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; <b>the terminating AS shall send a 486 (Busy Here) response with a Call-Info header field</b> with a "purpose" header field parameter set to "call-completion" and a m parameter set to "BS" to the originating AS. The CC request is cancelled.</p>			
<b>Preconditions:</b>			
<p><b>SIP header values:</b>  NOTIFY sip:O-AS  From: UE B  To: UE A  Subscription-State: active; expires=&lt; any value &gt;  Event:call-completion  Content-Type: application/call-completion  cc-state: ready  INVITE 1: sip: UE B; m=NR  Call-Info: &lt;sip:UE-A&gt;;purpose=call-completion;m=NR  486 (Busy Here):  Call-Info: &lt;sip:UE-B&gt;;purpose=call-completion;m=BS  <b>NOTIFY 2 sip:O-AS</b>  <b>Event:call-completion</b>  <b>Subscription-State: terminated; reason=noresource</b></p>			
<b>Comments:</b>			
<b>SIP 1 (ISC)</b>	<b>Invoke CCNR request</b>	<b>SUT</b> Callee is idle	<b>SIP 2 (Gm)</b>
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)	→		→ INVITE
486 (Busy Here)	←		← 486 (Busy Here)
ACK	→		→ ACK
NOTIFY 2	←		
200 OK NOTIFY	→		
BYE	←		← BYE
200 OK BYE	→		→ 200 OK BYE

<b>TSS</b> CC/terminating_AS/CCOperation	<b>TP</b> CC_N07_015	<b>Reference</b> 4.5.4.3.4.2 c)	<b>Selection expression</b> NOT PICS 4.7.1/2 AND PICS 4.7.1/9
<p><b>Test purpose</b> CCNL: <i>The callee is busy upon arrival of the CC call. Retain option not supported.</i></p> <p>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; <b>the terminating AS shall send a 486 (Busy Here) response with a Call-Info header field</b> with a "purpose" header field parameter set to "call-completion" and a m parameter set to "BS" to the originating AS. The CC request is cancelled.</p>			
<b>Preconditions:</b>			
<p><b>SIP header values:</b> NOTIFY sip:O-AS From: UE B To: UE A Subscription-State: active; expires=&lt; any value &gt; Event:call-completion Content-Type: application/call-completion cc-state: ready INVITE 1: sip: UE B; m=NL Call-Info: &lt;sip:UE-A&gt;;purpose=call-completion;m=NL 486 (Busy Here): Call-Info: &lt;sip:UE-B&gt;;purpose=call-completion;m=BS <b>NOTIFY 2 sip:O-AS</b> <b>Event:call-completion</b> <b>Subscription-State: terminated; reason=noresource</b></p>			
<b>Comments:</b>			
<b>SIP 1 (ISC)</b>	<b>Invoke CCNL request</b>	<b>SUT</b> Callee is logged-in	<b>SIP 2 (Gm)</b>
NOTIFY 1	←		
200 OK NOTIFY	→		
INVITE	←		← INVITE (S1)
200 OK INVITE	→		→ 200 OK INVITE
ACK	←		← ACK
INVITE 1 (S2)	→		→ INVITE
486 (Busy Here)	←		← 486 (Busy Here)
ACK	→		→ ACK
NOTIFY 2	←		
200 OK NOTIFY	→		
BYE	←		← BYE
200 OK BYE	→		→ 200 OK BYE



TSS	TP	Reference	Selection expression																																																																																															
CC/terminating_AS/CCOperation	CC_N07_016	4.5.4.3.4.2 c)	PICS 4.7.1/2																																																																																															
<p><b>Test purpose</b>  <i>CCBS: The callee is busy upon arrival of the CC call. Retain option supported.</i></p> <p>Ensure that if the callee is busy upon arrival of the CC call and the retain option is supported at the terminating AS, <b>the terminating AS shall</b> 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 <b>send a 486 (Busy Here) response with a Call-Info header field</b> 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.</p>																																																																																																		
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TSS CC/terminating_AS/CCOperation	TP CC_N07_019	Reference 4.5.4.3.4.2 d)	Selection expression																				
<p><b>Test purpose</b>  <i>CCBS: Recall does not apply, CC-T9 expires.</i></p> <p>Ensure that the terminating AS revokes the CCBS request after the Recall timer. CC-T9 is expired. The terminating AS 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".</p>																							
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TSS CC/terminating_AS/CCOperation	TP CC_N07_020	Reference 4.5.4.3.4.2 d)	Selection expression																																												
<p><b>Test purpose</b> CCNR: Recall does not apply, CC-T9 expires.</p> <p>Ensure that the terminating AS revokes the CCNR request after the Recall timer. CC-T9 is expired. The terminating AS 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".</p>																																															
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TSS	TP	Reference	Selection expression
CC/terminating_AS/CCOperation	CC_N07_021	4.5.4.3.4.2 d)	PICS 4.7.1/9
<b>Test purpose</b> <i>CCNL: Recall does not apply, CC-T9 expires.</i>			
<p>Ensure that the terminating AS revokes the CCNL request after the Recall timer. CC-T9 is expired. The terminating AS 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".</p>			
<b>Preconditions:</b>			
<b>SIP header values:</b> NOTIFY sip:O-AS From: UE B To: UE A Subscription-State: active; expires=< any value > Event:call-completion Content-Type: application/call-completion cc-state: ready NOTIFY 2 sip:O-AS From: UE B To: UE A Event:call-completion Subscription-State: terminated; reason=rejected			
<b>Comments:</b>			
<b>SIP 1 (ISC)</b>	<b>Invoke CCNR request</b>	<b>SUT</b>	<b>SIP 2 (Gm)</b>
INVITE	←	Callee is idle	← 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	→		

TSS	TP	Reference	Selection expression
CC/terminating_AS/CCOperation	CC_N07_022	4.5.4.3.3.2	
<b>Test purpose</b> <i>CCBS: Service duration timer, CC-T7 expires.</i>			
<p>Ensure that the terminating AS revokes 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 "noresource".</p>			
<b>Preconditions:</b>			
<b>SIP header values:</b> NOTIFY 2 sip:O-AS From: UE B To: UE A Event:call-completion Subscription-State: terminated; reason= noresource			
<b>Comments:</b>			
<b>SIP 1 (ISC)</b>	<b>Invoke CCBS request</b>	<b>SUT</b>	<b>SIP 2 (Gm)</b>
		Start CC-T7	
		Callee is busy	
		↓	
		CC-T7 expires	
NOTIFY 2	←		
200 OK NOTIFY	→		

TSS	TP	Reference	Selection expression
CC/terminating_AS/CCOperation	CC_N07_023	4.5.4.3.3.2	
<b>Test purpose</b> CCNR: Service duration timer, CC-T7 expires.			
Ensure that the terminating AS revokes 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 "noresource".			
<b>Preconditions:</b>			
<b>SIP header values:</b> NOTIFY 1 sip:O-AS From: UE B To: UE A Event:call-completion Subscription-State: terminated; reason= noresource			
<b>Comments:</b> <div style="display: flex; justify-content: space-between;"> <div style="width: 30%;"> <b>SIP 1 (ISC)</b>             Invoke CCNR request             NOTIFY 1            200 OK NOTIFY         </div> <div style="width: 30%; text-align: center;"> <b>SUT</b>             Start CC-T7            Callee is idle            ↓            CC-T7 expires         </div> <div style="width: 30%; text-align: right;"> <b>SIP 2 (Gm)</b> </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <span>←</span> <span>→</span> </div>			

TSS	TP	Reference	Selection expression
CC/terminating_AS/CCOperation	CC_N07_024	4.5.4.3.3.2	PICS 4.7.1/9
<b>Test purpose</b> CCNL: Service duration timer, CC-T7 expires.			
Ensure that the terminating AS revokes the CCNL 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 "noresource".			
<b>Preconditions:</b>			
<b>SIP header values:</b> NOTIFY 1 sip:O-AS From: UE B To: UE A Event:call-completion Subscription-State: terminated; reason= noresource			
<b>Comments:</b> <div style="display: flex; justify-content: space-between;"> <div style="width: 30%;"> <b>SIP 1 (ISC)</b>             Invoke CCNL request             NOTIFY 1            200 OK NOTIFY         </div> <div style="width: 30%; text-align: center;"> <b>SUT</b>             Start CC-T7            Callee is idle            ↓            CC-T7 expires         </div> <div style="width: 30%; text-align: right;"> <b>SIP 2 (ISC)</b> </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <span>←</span> <span>→</span> </div>			

TSS CC/terminating_AS/CCOperation	TP CC_N07_025	Reference 4.5.4.3.4.1.5	Selection expression
<b>Test purpose</b> CCBS: Caller becomes busy while CC recall procedure.			
Ensure that the terminating AS after the originating AS has suspended the CC recall procedure sends a NOTIFY request and the MIME body contains the state parameter set to 'queued'. When the originating AS resumes the CC call procedure 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 and the MIME body contains the state parameter set to "queued".			
<b>Preconditions:</b>			
<b>SIP header values:</b> NOTIFY 1 sip:O-AS From: UE B To: UE A Subscription-State: active; expires=< any value > Event:call-completion Content-Type: application/call-completion cc-state: ready PUBLISH 1 sip:T-AS Event: presence Content-Type: application/pdf+xml <?xml version="1.0" encoding="UTF-8"?> <presence <status> <basic>closed</basic> PUBLISH 2 sip:T-AS Event: presence Content-Type: application/pdf+xml <?xml version="1.0" encoding="UTF-8"?> <presence <status> <basic>open</basic> NOTIFY 2 sip:O-AS From: UE B To: UE A Subscription-State: active; expires=< any value > Event:call-completion Content-Type: application/call-completion cc-state: queued			
<b>Comments:</b>			
<b>SIP 1 (ISC)</b>	<b>Invoke CCBS request</b>	<b>SUT</b>	<b>SIP 2 (Gm)</b>
BYE 200 OK BYE	← →	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	
<b>Apply post test routine</b>			



TSS	TP	Reference	Selection expression
CC/terminating_AS/CCOperation	CC_N07_026	4.5.4.3.4.1.5	
<p><b>Test purpose</b> CCNR: Caller becomes busy while CC recall procedure.</p> <p>Ensure that the terminating AS after the originating AS has suspended the CC recall procedure sends a NOTIFY request and the MIME body contains the state parameter set to 'queued'. When the originating AS resumes the CC call procedure 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 and the MIME body contains the state parameter set to "queued".</p>			
<b>Preconditions:</b>			
<p><b>SIP header values:</b></p> <p>NOTIFY 1 sip:O-AS From: UE B To: UE A Subscription-State: active; expires=&lt; any value &gt; Event:call-completion Content-Type: application/call-completion cc-state: ready</p> <p>PUBLISH 1 sip:T-AS Event: presence Content-Type: application/pdf+xml &lt;?xml version="1.0" encoding="UTF-8"?&gt; &lt;presence   &lt;status&gt;     &lt;basic&gt;closed&lt;/basic&gt;</p> <p>PUBLISH 2 sip:T-AS Event: presence Content-Type: application/pdf+xml &lt;?xml version="1.0" encoding="UTF-8"?&gt; &lt;presence   &lt;status&gt;     &lt;basic&gt;open&lt;/basic&gt;</p> <p>NOTIFY 2 sip:O-AS From: UE B To: UE A Subscription-State: active; expires=&lt; any value &gt; Event:call-completion Content-Type: application/call-completion cc-state: queued</p>			
<b>Comments:</b>			
<b>SIP 1 (ISC)</b>	<b>SUT</b>	<b>SIP 2 (Gm)</b>	
	Invoke CCNR request		
		Callee is available for CC recall	
NOTIFY 1	←	NOTIFY 1	
200 OK NOTIFY	→	200 OK NOTIFY	
PUBLISH	→	PUBLISH	
200 OK PUBLISH	←	200 OK PUBLISH	
NOTIFY 2	←	NOTIFY 2	
200 OK NOTIFY	→	200 OK NOTIFY	
PUBLISH	→	PUBLISH	
200 OK PUBLISH	←	200 OK PUBLISH	
NOTIFY 2	←	NOTIFY 2	
200 OK NOTIFY	→	200 OK NOTIFY	
		Start CC-T8	
		↓	
		CC-T8 expires	
NOTIFY 1	←	NOTIFY 1	
200 OK NOTIFY	→	200 OK NOTIFY	
		Apply post test routine	

TSS CC/terminating_AS/CCOperation	TP CC_N07_027	Reference 4.5.4.3.4.1.5	Selection expression PICS 4.7.1/9
<b>Test purpose</b> CCNL: Caller becomes busy while CC recall procedure.			
Ensure that the terminating AS after the originating AS has suspended the CC recall procedure sends a NOTIFY request and the MIME body contains the state parameter set to 'queued'. When the originating AS resumes the CC call procedure 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 and the MIME body contains the state parameter set to "queued".			
<b>Preconditions:</b>			
<b>SIP header values:</b> NOTIFY 1 sip:O-AS From: UE B To: UE A Subscription-State: active; expires=< any value > Event:call-completion Content-Type: application/call-completion cc-state: ready PUBLISH 1 sip:T-AS Event: presence Content-Type: application/pdf+xml <?xml version="1.0" encoding="UTF-8"?> <presence <status> <basic>closed</basic> PUBLISH 2 sip:T-AS Event: presence Content-Type: application/pdf+xml <?xml version="1.0" encoding="UTF-8"?> <presence <status> <basic>open</basic> NOTIFY 2 sip:O-AS From: UE B To: UE A Subscription-State: active; expires=< any value > Event:call-completion Content-Type: application/call-completion cc-state: queued			
<b>Comments:</b>			
<b>SIP 1 (ISC)</b>		<b>SUT</b>	<b>SIP 2 (Gm)</b>
	<b>Invoke CCNL request</b>		
		<b>Callee is available for CC recall</b>	
NOTIFY 1		←	NOTIFY 1
200 OK NOTIFY		→	200 OK NOTIFY
PUBLISH		→	PUBLISH
200 OK PUBLISH		←	200 OK PUBLISH
NOTIFY 2		←	NOTIFY 2
200 OK NOTIFY		→	200 OK NOTIFY
PUBLISH		→	PUBLISH
200 OK PUBLISH		←	200 OK PUBLISH
NOTIFY 2		←	NOTIFY 2
200 OK NOTIFY		→	200 OK NOTIFY
NOTIFY 1		←	NOTIFY 1
200 OK NOTIFY		→	200 OK NOTIFY
		<b>Apply post test routine</b>	

## 5.4 Interaction of Call-Completion with other services

### 5.4.1 Terminating Identification Restriction (TIR)

TSS	TP	Reference	Selection expression
CC/ Interaction/TIR	CC_N08_001	4.6.4	PICS 4.7.1/4
<b>Test purpose</b> CCBS, CCNR, CCNL Recall successful by using the special REFER interworking. TIR settings considered in the CC recall.			
Ensure that the originating AS starts the CCBS recall procedure and in the 200 OK INVITE from the originating user is privacy indicated, the P-Asserted-Identity in the INVITE request set to the terminating user is also restricted.			
<b>Preconditions:</b>			
<b>SIP header values:</b> 200 OK 1 INVITE 2: Privacy: id sip: UE B; m=BS/NR/NL From: UE A To: UE B <b>P-Asserted-Identity: UE-A</b> <b>Privacy: id</b> Call-Info: <sip:UE-A>;purpose=call-completion;m=BS/NR/NL			
<b>Comments:</b> <div style="display: flex; justify-content: space-between;"> <div style="width: 30%;"> <b>SIP 1 (Gm)</b>            INVITE            180 Ringing            200 OK INVITE 1            ACK         </div> <div style="width: 40%; text-align: center;"> <b>SUT</b>            Invoke CCBS request            CCBS request confirmed by AS            INVITE 1            180 Ringing            200 OK INVITE            ACK         </div> <div style="width: 30%;"> <b>SIP 2 (ISC)</b>            Terminating user available for recall            NOTIFY ← NOTIFY 1            200 OK NOTIFY → 200 OK NOTIFY            INVITE 2            180 Ringing            NOTIFY ← NOTIFY 2            200 OK NOTIFY → 200 OK NOTIFY            200 OK INVITE            ACK         </div> </div> <p style="text-align: center;"><b>Apply post test routine</b></p>			

### 5.4.2 Communication diversion services (CDIV)

TSS	TP	Reference	Selection expression
CC/Interaction/CDIV	CC_N09_001	4.6.8.2	
<b>Test purpose</b> Detecting CCBS is possible.			
Ensure that when an originating user establishes a session to User B and the user B has activated communication diversion unconditional to user C, the terminating user C is busy, a 486 (Busy Here) response is sent to the originating AS and the Call-Info header contains the URI of user C or the terminating AS.			
<b>Preconditions:</b>			
<b>SIP header values:</b> 486 Busy Here 1: Call-Info: <sip:UE-C or T-AS>;purpose=call-completion;m=BS			
<b>Comments:</b> <div style="display: flex; justify-content: space-between;"> <div style="width: 30%;"> <b>SIP 1 (ISC)</b>            INVITE            486 (Busy Here) 1            ACK         </div> <div style="width: 40%; text-align: center;"> <b>SUT</b>            INVITE            486 (Busy Here)            ACK         </div> <div style="width: 30%;"> <b>SIP 2 (Gm) UE C</b>            INVITE            486 (Busy Here)            ACK         </div> </div> <p style="text-align: center;"><b>Apply post test routine</b></p>			

TSS	TP	Reference	Selection expression															
CC/Interaction/CDIV	CC_N09_002	4.6.8.2																
<b>Test purpose</b> <i>Detecting CCNR is possible.</i>																		
Ensure that when an originating user establishes a session to User B and the user B has activated communication diversion unconditional to user C, a 180 (Ringing) response is sent to the originating AS and the Call-Info header contains the URI of user C or the terminating AS.																		
<b>Preconditions:</b>																		
<b>SIP header values:</b> 180 Ringing 1: Call-Info: <sip:UE-C or T-AS>;purpose=call-completion;m=NR																		
<b>Comments:</b> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;">SIP 1 (ISC)</th> <th style="width: 10%;"></th> <th style="width: 30%; text-align: center;">SUT</th> <th style="width: 10%;"></th> <th style="width: 17%;">SIP 2 (Gm) UE C</th> </tr> </thead> <tbody> <tr> <td>INVITE</td> <td style="text-align: center;">→</td> <td></td> <td style="text-align: center;">→</td> <td>INVITE</td> </tr> <tr> <td>180 (Ringing) 1</td> <td style="text-align: center;">←</td> <td></td> <td style="text-align: center;">←</td> <td>180 (Ringing)</td> </tr> </tbody> </table> <p style="text-align: center;"><b>Apply post test routine</b></p>				SIP 1 (ISC)		SUT		SIP 2 (Gm) UE C	INVITE	→		→	INVITE	180 (Ringing) 1	←		←	180 (Ringing)
SIP 1 (ISC)		SUT		SIP 2 (Gm) UE C														
INVITE	→		→	INVITE														
180 (Ringing) 1	←		←	180 (Ringing)														

TSS	TP	Reference	Selection expression																				
CC/Interaction/CDIV	CC_N09_003	4.6.8.2	PICS 4.7.1/9																				
<b>Test purpose</b> <i>Detecting CCNL is possible.</i>																							
Ensure that when an originating user establishes a session to User B and the user B has activated communication diversion unconditional to user C, the terminating user C is not logged-in, a 480 (Temporarily Unavailable) response is sent to the originating AS and the Call-Info header contains the URI of user C or the terminating AS.																							
<b>Preconditions:</b>																							
<b>SIP header values:</b> 480 Temporarily Unavailable 1: Call-Info: <sip:UE-C or T-AS>;purpose=call-completion;m=NL																							
<b>Comments:</b> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;">SIP 1 (ISC)</th> <th style="width: 10%;"></th> <th style="width: 30%; text-align: center;">SUT</th> <th style="width: 10%;"></th> <th style="width: 17%;">SIP 2 (Gm) UE C</th> </tr> </thead> <tbody> <tr> <td>INVITE</td> <td style="text-align: center;">→</td> <td></td> <td style="text-align: center;">→</td> <td>INVITE</td> </tr> <tr> <td>480 (Temporarily Unavailable) 1</td> <td style="text-align: center;">←</td> <td></td> <td style="text-align: center;">←</td> <td>480 (Temporarily Unavailable)</td> </tr> <tr> <td>ACK</td> <td style="text-align: center;">→</td> <td></td> <td style="text-align: center;">→</td> <td>ACK</td> </tr> </tbody> </table> <p style="text-align: center;"><b>Apply post test routine</b></p>				SIP 1 (ISC)		SUT		SIP 2 (Gm) UE C	INVITE	→		→	INVITE	480 (Temporarily Unavailable) 1	←		←	480 (Temporarily Unavailable)	ACK	→		→	ACK
SIP 1 (ISC)		SUT		SIP 2 (Gm) UE C																			
INVITE	→		→	INVITE																			
480 (Temporarily Unavailable) 1	←		←	480 (Temporarily Unavailable)																			
ACK	→		→	ACK																			

TSS	TP	Reference	Selection expression																																				
CC/Interaction/CDIV	CC_N09_004	4.6.8.2																																					
<p><b>Test purpose</b>  <i>CCBS Recall is given to the <b>CC served user</b> after CFU was activated.</i></p> <p>User A invokes a CCBS request to user B. subsequently user A activates CFU to user C. Ensure that the CCBS recall is sent to user A instead of forwarded to user C.</p>																																							
<p><b>Preconditions:</b></p>																																							
<p><b>SIP header values:</b>  NOTIFY sip:O-AS  From: UE B  To: UE A  Event:call-completion  Subscription-State: active; expires=&lt; any value &gt;  Content-Type: application/call-completion  cc-state: ready  REFER: sip: UE A; m=BS  Refer-To; UE B method=INVITE  INVITE: sip: UE A; m=BS  Call.Info: UE-A; purpose=call-completion;m=BS</p>																																							
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INVITE	←	INVITE																																					
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TSS CC/Interaction/CDIV	TP CC_N09_005	Reference 4.6.8.2	Selection expression																																				
<p><b>Test purpose</b> CCNR Recall is given to the <b>CC served user</b> after CFU was activated.</p> <p>User A invokes a CCNR request to user B. subsequently user A activates CFU to user C. Ensure that the CCNR recall is sent to user A instead of forwarded to user C.</p>																																							
<p><b>Preconditions:</b></p>																																							
<p><b>SIP header values:</b> NOTIFY sip:O-AS</p> <p style="padding-left: 40px;">From: UE B To: UE A Event:call-completion Subscription-State: active; expires=&lt; any value &gt; Content-Type: application/call-completion cc-state: ready</p> <p>REFER: sip: UE A; m=NR Refer-To; UE B method=INVITE</p> <p>INVITE: sip: UE A; m=NR Call.Info: UE-A; purpose=call-completion;m=NR</p>																																							
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180 (Ringing)	→	180 (Ringing)																																					

TSS	TP	Reference	Selection expression																																				
CC/Interaction/CDIV	CC_N09_006	4.6.8.2	PICS 4.7.1/9																																				
<b>Test purpose</b> CCNL Recall is given to the <b>CC served user</b> after CFU was activated.																																							
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<b>SIP header values:</b> NOTIFY sip:O-AS From: UE B To: UE A Event:call-completion Subscription-State: active; expires=< any value > Content-Type: application/call-completion cc-state: ready REFER: sip: UE A; m=NL Refer-To; UE B method=INVITE INVITE: sip: UE A; m=NL Call.Info: UE-A; purpose=call-completion;m=NL																																							
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200 OK SUBSCRIBE	→	200 OK SUBSCRIBE																																					
<b>CASE B</b>																																							
INVITE	←	INVITE																																					
180 (Ringing)	→	180 (Ringing)																																					

TSS	TP	Reference	Selection expression															
CC/Interaction/CDIV	CC_N09_007	4.6.8.2																
<b>Test purpose</b> CCBS revocation after terminating user has activated.																		
Ensure that the terminating AS revokes the outstanding CCBS request if the terminating user activates CFU to user C after the originating user has established CCBS on the terminating user B. The terminating AS sends a NOTIFY request to the originating AS and the Subscription-State header field set to "terminated"; and the "reason" Subscription-State header field parameter set to "noresource".																		
<b>Preconditions:</b>																		
<b>SIP header values:</b> NOTIFY sip:O-AS From:<UE-B> To:<UE-A> Event:call-completion Subscription-State: terminated; reason= noresource																		
<b>Comments:</b> <table style="width:100%; border:none;"> <tr> <td style="width:33%;"><b>SIP 1 (ISC)</b></td> <td style="width:33%; text-align:center;"><b>SUT</b></td> <td style="width:33%; text-align:right;"><b>SIP 2 (Gm) User B</b></td> </tr> <tr> <td></td> <td style="text-align:center;"><b>Establish a successful CCBS request</b></td> <td></td> </tr> <tr> <td></td> <td></td> <td style="text-align:right;"><b>Activate CFU to user C</b></td> </tr> <tr> <td>NOTIFY</td> <td style="text-align:center;">←</td> <td></td> </tr> <tr> <td>200 OK NOTIFY</td> <td style="text-align:center;">→</td> <td></td> </tr> </table>				<b>SIP 1 (ISC)</b>	<b>SUT</b>	<b>SIP 2 (Gm) User B</b>		<b>Establish a successful CCBS request</b>				<b>Activate CFU to user C</b>	NOTIFY	←		200 OK NOTIFY	→	
<b>SIP 1 (ISC)</b>	<b>SUT</b>	<b>SIP 2 (Gm) User B</b>																
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NOTIFY	←																	
200 OK NOTIFY	→																	

TSS	TP	Reference	Selection expression												
CC/Interaction/CDIV	CC_N09_008	4.6.8.2													
<b>Test purpose</b> <i>CCNR revocation after terminating user has activated.</i>															
<p>Ensure that the terminating AS revokes the outstanding CCNR request if the terminating user activates CFU to user C after the originating user has established CCNR on the terminating user B. The terminating AS sends a NOTIFY request to the originating AS and the Subscription-State header field set to "terminated"; and the "reason" Subscription-State header field parameter set to "noresource".</p>															
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<b>SIP 1 (ISC)</b>	<b>SUT</b>	<b>SIP 2 (Gm) User B</b>													
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NOTIFY	←														
200 OK NOTIFY	→														

TSS	TP	Reference	Selection expression												
CC/Interaction/CDIV	CC_N09_009	4.6.8.2	PICS 4.7.1/9												
<b>Test purpose</b> <i>CCNL revocation after terminating user has activated.</i>															
<p>Ensure that the terminating AS revokes the outstanding CCNL request if the terminating user activates CFU to user C after the originating user has established CCNL on the terminating user B. The terminating AS sends a NOTIFY request to the originating AS and the Subscription-State header field set to "terminated"; and the "reason" Subscription-State header field parameter set to "noresource".</p>															
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NOTIFY	←														
200 OK NOTIFY	→														



TSS	TP	Reference	Selection expression	
CC/Interaction/CDIV	CC_N09_010	4.6.8.3		
<b>Test purpose</b> <i>CCBS indication is sent if the original call is diverted on Busy.</i>				
<p>The terminating user has activated the CFB service. In case of a callee is busy the communication is forwarded to User C and the callee has subscribed the call completion service, ensure that terminating AS inform the caller that CCBS is possible at the diverted-to user UE C if busy or at the callee UE B.</p>				
<b>Preconditions:</b> Communication Forwarding Busy is activated				
<b>SIP header values:</b> 486 Busy Here 1: Call-Info: <sip:UE C>;purpose=call-completion;m=BS 486 Busy Here 2: Call-Info: <sip: UE B>;purpose=call-completion;m=BS				
<b>Comments:</b>				
<b>SIP 1 (ISC)</b> INVITE	→	<b>SUT</b>	<b>SIP 2 (Gm) UE B</b> → INVITE ← 486 (Busy Here) → ACK <b>CFB applies</b>	<b>SIP 3 (Gm) UE C</b>
<b>CASE A</b> 486 (Busy Here) 1 ACK	← →			→ INVITE ← 486 (Busy Here) → ACK
<b>CASE B</b> 486 (Busy Here) 2 ACK	← →			→ INVITE ← 486 (Busy Here) → ACK
<b>Apply post test routine</b>				

TSS	TP	Reference	Selection expression	
CC/Interaction/CDIV	CC_N09_0011	4.6.8.3		
<b>Test purpose</b> <i>CCNR indication is sent if the original call was diverted on Busy.</i>				
<p>The terminating user has activated the CFNR service. In case of a callee is busy the communication is forwarded to User C and the callee has subscribed the call completion service, ensure that terminating AS inform the caller that CCNR is possible at the diverted-to user UE C if not answer the communication or at the callee UE B.</p>				
<b>Preconditions:</b>				
<b>SIP header values:</b> 180 Ringing 1: Call-Info: <sip:UE-C>;purpose=call-completion;m=NR 486 Busy Here 1 Call-Info: <sip:UE-B>;purpose=call-completion;m=BS				
<b>Comments:</b>				
<b>SIP 1 (ISC)</b> INVITE	→	<b>SUT</b>	<b>SIP 2 (Gm) UE B</b> → INVITE ← 486 (Busy Here) → ACK <b>CFB applies</b>	<b>SIP 3 (Gm) UE C</b>
<b>CASE A</b> 180 (Ringing) 1	←			→ INVITE ← 180 (Ringing)
<b>CASE B</b> 486 (Busy Here) 1 ACK	← →			→ INVITE ← 180 (Ringing)
<b>Apply post test routine</b>				

TSS CC/Interaction/CDIV	TP CC_N09_0012	Reference 4.6.8.3	Selection expression PICS 4.7.1/9																																																																													
<p><b>Test purpose</b> CCNL indication is sent if the original call was diverted on Busy.</p> <p>The terminating user has activated the CFNL service. In case of a callee is busy the communication is forwarded to User C and the callee has subscribed the call completion service, ensure that terminating AS inform the caller that CCNL is possible at the diverted-to user UE C if not logged-in or at the callee UE B.</p>																																																																																
<p><b>Preconditions:</b></p> <p><b>SIP header values:</b> 480 Temporarily Unavailable 1: Call-Info: &lt;sip:UE-C&gt;;purpose=call-completion;m=NL 486 (Busy Here) 1 Call-Info: &lt;sip:UE-B&gt;;purpose=call-completion;m=BS</p>																																																																																
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TSS CC/Interaction/CDIV	TP CC_N09_013	Reference 4.6.8.3	Selection expression
<p><b>Test purpose</b>  <i>CCBS recall after the callee activates CFB. Recall is considered as being busy.</i></p> <p>Ensure that User B activates CFB after User A has activated CCBS on User B. The CC recall from user A encounters a busy condition at user B:</p> <ul style="list-style-type: none"> <li>the terminating AS considers a CC recall to a busy callee and the AS indicates CCBS is possible to the originating AS</li> <li>or</li> <li>the AS forwards the communication to User C.</li> </ul>			
<b>Preconditions:</b>			
<p><b>SIP header values:</b>  NOTIFY 1 sip:O-AS  From: UE-B  To: UE-A  Event:call-completion  Content-Type: application/call-completion  cc-state: ready  486 Busy Here 1  Call-Info: &lt;sip:UE-B&gt;;purpose=call-completion;m=BS</p>			
<b>Comments:</b>			
<b>SIP 1 (ISC)</b>  Invoke CCBS request  NOTIFY 200 OK NOTIFY  INVITE 200 OK INVITE ACK  INVITE <b>CASE A</b> 486 (Busy Here) 1 ACK  <b>CASE B</b> 180 (Ringing)	<b>SUT</b>  ← NOTIFY 1 → 200 OK NOTIFY  ← → ←  →  ← →  ←	<b>SIP 2 (Gm) UE B</b>  Terminating user activates CFB User B becomes available  ← INVITE → 200 OK INVITE ← ACK  → INVITE ← 486 (Busy Here) → ACK  → INVITE ← 180 (Ringing)	<b>SIP 2 (Gm) UE C</b>          → INVITE ← 180 (Ringing)
<b>Apply post test routine</b>			

TSS CC/Interaction/CDIV	TP CC_N09_014	Reference 4.6.8.3	Selection expression																																																																																																																
<p><b>Test purpose</b> CCNR recall after the callee activates CFB. Recall is considered as being busy.</p> <p>Ensure that User B activates CFB after User A has activated CCNR on User B. The CC recall from user A encounters a busy condition at user B:</p> <ul style="list-style-type: none"> <li>the terminating AS considers a CC recall to a busy callee and the AS indicates CCBS is possible to the originating AS</li> <li>or</li> <li>the AS forwards the communication to User C.</li> </ul>																																																																																																																			
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TSS CC/Interaction/CDIV	TP CC_N09_015	Reference 4.6.8.3	Selection expression PICS 4.7.1/9
<p><b>Test purpose</b> CCNL recall after the callee activates CFB. Recall is considered as being busy.</p> <p>Ensure that User B activates CFB after User A has activated CCNL on User B. The CC recall from user A encounters a busy condition at user B:</p> <ul style="list-style-type: none"> <li>the terminating AS considers a CC recall to a busy callee and the AS indicates CCBS is possible to the originating AS</li> <li>or</li> <li>the AS forwards the communication to User C.</li> </ul>			
<p><b>Preconditions:</b></p>			
<p><b>SIP header values:</b>  NOTIFY 1 sip:O-AS  From: UE-B  To: UE-A  Event:call-completion  Content-Type: application/call-completion  cc-state: ready  486 Busy Here 1  Call-Info: &lt;sip:UE-B&gt;;purpose=call-completion;m=BS</p>			
<p><b>Comments:</b></p>			
<p><b>SIP 1 (ISC)</b></p> <p>Invoke CCNL request</p> <p>NOTIFY ← 200 OK NOTIFY →</p> <p>INVITE ← 200 OK INVITE → ACK ←</p> <p>INVITE →</p> <p><b>CASE A</b></p> <p>486 (Busy Here) 1 ← ACK →</p> <p><b>CASE B</b></p> <p>180 (Ringing) ←</p>	<p><b>SUT</b></p> <p>NOTIFY 1 200 OK NOTIFY</p>	<p><b>SIP 2 (Gm) UE B</b></p> <p>Terminating user activates CFB User B becomes available</p> <p>← INVITE → 200 OK INVITE ← ACK</p> <p>→ INVITE ← 486 (Busy Here) → ACK</p>	<p><b>SIP 2 (Gm) UE C</b></p> <p>→ INVITE ← 180 (Ringing)</p>
<p style="text-align: center;"><b>Apply post test routine</b></p>			

TSS	TP	Reference	Selection expression																																								
CC/Interaction/CDIV	CC_N09_016	4.6.8.4																																									
<b>Test purpose</b> <i>CCBS: indication is sent if the original call was diverted on no Reply.</i>																																											
In case of a diverted-to user after CFNR was performed is busy and the callee has subscribed the call completion service, ensure that the terminating AS informs the caller: <ul style="list-style-type: none"> <li>that CCBS is possible at User C; or</li> <li>that CCNR is possible at User B.</li> </ul>																																											
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TSS	TP	Reference	Selection expression
CC/Interaction/CDIV	CC_N09_021	4.6.8.4	PICS 4.7.1/9
<p><b>Test purpose</b>  <i>CCNL: Recall after CFNR was activated.</i></p> <p>The terminating user activates CFNR after the originating user has requested the CCNL service at the terminating user. Ensure that the CC recall is:</p> <ul style="list-style-type: none"> <li>applied as a CC recall;</li> <li>or</li> <li>forwarded as a normal call.</li> </ul>			
<b>Preconditions:</b>			
<p><b>SIP header values:</b>  NOTIFY 1 sip:O-AS  From: UE-B  To: UE-A  Event:call-completion  Content-Type: application/call-completion  cc-state: ready  INVITE 1: sip: UE-B; m=NL</p>			
<b>Comments:</b>			
<b>SIP 1 (ISC)</b>	<b>SUT</b>	<b>SIP 2 (Gm) UE B</b>	<b>SIP 3 (Gm) UE C</b>
	Invoke CCNL request		
		User B becomes available	
NOTIFY 1	←		
200 OK NOTIFY	→		
		Callee activates CCNR	
INVITE 1	→		
<b>CASE A</b>		→ INVITE	
180 Ringing	←	← 180 Ringing	
<b>CASE B</b>		→ INVITE	
180 Ringing	←	← 180 Ringing	
		<b>CFNR is performed</b>	
180 Ringing	←		→ INVITE
			← 180 Ringing
		<b>Apply post test routine</b>	

TSS	TP	Reference	Selection expression
CC/Interaction/CDIV	CC_N09_022	4.6.8.5	
<p><b>Test purpose</b>  <i>CCBS: indication is sent if the original call was diverted on not logged-in.</i></p> <p>In case of a diverted-to user after CFNL was performed is busy and the diverted-to user (User C) has subscribed the call completion service, ensure that the terminating AS inform the caller:</p> <ul style="list-style-type: none"> <li>that CCBS is possible at User C;</li> <li>or</li> <li>that CCNL is possible at User B.</li> </ul>			
<b>Preconditions:</b>			
<p><b>SIP header values:</b>  486 Busy Here 1:  Call-Info: &lt;sip:UE C&gt;;purpose=call-completion;m=BS  480 Temporarily Unavailable 1  Call-Info: &lt;sip: UE B&gt;;purpose=call-completion;m=NL</p>			
<b>Comments:</b>			
<b>SIP 1 (ISC)</b>	<b>SUT</b>	<b>SIP 2 (Gm) UE B</b>	<b>SIP 3 (Gm) UE C</b>
INVITE	→		
		<b>CFNL applies</b>	
<b>CASE A</b>			→ INVITE
486 (Busy Here) 1	←		← 486 (Busy Here)
ACK	→		→ ACK
<b>CASE B</b>			→ INVITE
480 (Temporarily Unavailable) 1	←		← 486 (Busy Here)
ACK	→		→ ACK
		<b>Apply post test routine</b>	

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TSS	TP	Reference	Selection expression
CC/Interaction/CDIV	CC_N09_025	4.6.8.6	
<b>Test purpose</b> <i>CCBS: indication is sent if the original call was deflected.</i>			
In case of a diverted-to user after CD (alerting) was performed is busy and the diverted-to user has subscribed the call completion service, ensure that the terminating AS informs the caller that CCBS is possible at User C.			
<b>Preconditions:</b>			
<b>SIP header values:</b> 486 (Busy Here) 1: Call-Info: <sip:UE C>;purpose=call-completion;m=BS			
<b>Comments:</b>			
<b>SIP 1 (ISC)</b>	<b>SUT</b>	<b>SIP 2 (Gm) UE B</b>	<b>SIP 3 (Gm) UE C</b>
INVITE	→	→ INVITE	
180 (Ringing)	←	← 180 (Ringing)	
		← 302 (Moved Temporarily)	
		→ ACK	
	<b>CD applies</b>		
486 (Busy Here) 1	←		→ INVITE
ACK	→		← 486 (Busy Here)
			→ ACK
<b>Apply post test routine</b>			

TSS	TP	Reference	Selection expression
CC/Interaction/CDIV	CC_N09_026	4.6.8.6	
<b>Test purpose</b> <i>CCNR: indication is sent if the original call was deflected.</i>			
In case of a diverted-to user after CD (alerting) was performed does not answer the communication request and the diverted-to user has subscribed the call completion service, ensure that the terminating AS informs the caller that CCNR is possible at User C.			
<b>Preconditions:</b>			
<b>SIP header values:</b> 180 Ringing 1: Call-Info: <sip:UE C>;purpose=call-completion;m=NR			
<b>Comments:</b>			
<b>SIP 1 (ISC)</b>	<b>SUT</b>	<b>SIP 2 (Gm) UE B</b>	<b>SIP 3 (Gm) UE C</b>
INVITE	→	→ INVITE	
180 (Ringing)	←	← 180 (Ringing)	
		← 302 (Moved Temporarily)	
		→ ACK	
	<b>CD applies</b>		
180 (Ringing) 1	←		→ INVITE
			← 180 (Ringing)
<b>Apply post test routine</b>			

TSS	TP	Reference	Selection expression																																																														
CC/Interaction/CDIV	CC_N09_027	4.6.8.6	PICS 4.7.1/9																																																														
<b>Test purpose</b> CCNL: indication is sent if the original call was deflected.																																																																	
In case of a diverted-to user after CD (alerting) was performed is not logged-in and the diverted-to user has subscribed the call completion service, ensure that the terminating AS informs the caller that CCNL is possible at User C.																																																																	
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CC/Interaction/CDIV	CC_N09_028	4.6.8.6																																														
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TSS	TP	Reference	Selection expression																								
CC/Interaction/CDIV	CC_N09_029	4.6.8.6																									
<b>Test purpose</b> CCNR recall is not deflected.																											
Ensure that a CCNR recall is not deflected at the terminating Application Server.																											
<b>Preconditions:</b>																											
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TSS	TP	Reference	Selection expression																								
CC/Interaction/CDIV	CC_N09_030	4.6.8.6	PICS 4.7.1/9																								
<b>Test purpose</b> CCNL recall is not deflected.																											
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4xx	←	← 302 (Moved Temporarily)																									
ACK	→	→ ACK																									

TSS CC/Interaction/CDIV	TP CC_N09_031	Reference 4.6.8.1	Selection expression																		
<p><b>Test purpose</b> CCBS recall is not forwarded.</p> <p>The originating user activates CCBS. Before the terminating user becomes available the originating user activates CFU: Ensure that the CCBS recall is not forwarded if the originating user has activated CFU.</p>																					
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<p><b>CASE B</b> INVITE 180 (Ringing)</p>	<p>← INVITE → 180 (Ringing)</p>																				

TSS CC/Interaction/CDIV	TP CC_N09_032	Reference 4.6.8.1	Selection expression												
<p><b>Test purpose</b> CCNR recall is not forwarded.</p> <p>The originating user activates CCNR. Before the terminating user becomes available the originating user activates CFU. Ensure that the CCNR recall is not forwarded if the originating user has activated CFU.</p>															
<p><b>Preconditions:</b></p> <p><b>SIP header values:</b>  NOTIFY 1 sip:O-AS  From: UE-B  To: UE-A  Event:call-completion  Content-Type: application/call-completion  cc-state: ready  REFER: sip: UE A; m=NR  Refer-To; UE B; method=INVITE  INVITE 1: sip: UE B; m=NR  From: UE A  To: UE B  Call-Info: &lt;sip:UE-A&gt;;purpose=call-completion;m=NR</p>															
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TSS CC/Interaction/CDIV	TP CC_N09_033	Reference 4.6.8.1	Selection expression PICS 4.7.1/9												
<p><b>Test purpose</b> CCNL recall is not forwarded.</p> <p>The originating user activates CCNL. Before the terminating user becomes available the originating user activates CFU. Ensure that the CCNL recall is not forwarded if the originating user has activated CFU.</p>															
<p><b>Preconditions:</b></p> <p><b>SIP header values:</b>  NOTIFY 1 sip:O-AS  From: UE-B  To: UE-A  Event:call-completion  Content-Type: application/call-completion  cc-state: ready  REFER: sip: UE A; m=NL  Refer-To; UE B; method=INVITE  INVITE 1: sip: UE B; m=NL  From: UE A  To: UE B  Call-Info: &lt;sip:UE-A&gt;;purpose=call-completion;m=NL</p>															
<p><b>Comments:</b></p> <table border="0"> <thead> <tr> <th data-bbox="151 801 507 831">SIP 1 (Gm) UE A</th> <th data-bbox="512 801 906 831">SUT</th> <th data-bbox="911 801 1442 831">SIP 2 (ISC)</th> </tr> </thead> <tbody> <tr> <td data-bbox="151 837 507 887"> Invoke CCBS request  Activate CFU to user C </td> <td data-bbox="512 893 906 913"> User B becomes available </td> <td data-bbox="911 916 1442 965"> NOTIFY ← NOTIFY 1  200 OK NOTIFY → 200 OK NOTIFY </td> </tr> <tr> <td data-bbox="151 999 507 1077"> <b>CASE A</b>  REFER  200 OK SUBSCRIBE </td> <td data-bbox="512 1025 906 1077"> ← REFER  → 200 OK SUBSCRIBE </td> <td data-bbox="911 999 1442 1077"></td> </tr> <tr> <td data-bbox="151 1111 507 1189"> <b>CASE B</b>  INVITE  180 (Ringing) </td> <td data-bbox="512 1137 906 1189"> ← INVITE  → 180 (Ringing) </td> <td data-bbox="911 1111 1442 1189"></td> </tr> </tbody> </table> <p style="text-align: center;"><b>Apply post test routine</b></p>				SIP 1 (Gm) UE A	SUT	SIP 2 (ISC)	Invoke CCBS request Activate CFU to user C	User B becomes available	NOTIFY ← NOTIFY 1 200 OK NOTIFY → 200 OK NOTIFY	<b>CASE A</b> REFER 200 OK SUBSCRIBE	← REFER → 200 OK SUBSCRIBE		<b>CASE B</b> INVITE 180 (Ringing)	← INVITE → 180 (Ringing)	
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TSS CC/Interaction/CDIV	TP CC_N09_034	Reference 4.6.8.1	Selection expression																											
<p><b>Test purpose</b> CCBS recall is not forwarded. Originating user is not logged-in.</p> <p>The originating user activates CCBS. Before the terminating user becomes available the originating user activates CFU. Ensure that the CCBS recall is suspended if the originating user has activated CFU and is not logged-in.</p>																														
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TSS CC/Interaction/CDIV	TP CC_N09_035	Reference 4.6.8.1	Selection expression															
<p><b>Test purpose</b> CCNR recall is not forwarded. Originating user is not logged-in.</p> <p>The originating user activates CCNR. Before the terminating user becomes available the originating user activates CFU. Ensure that the CCNR recall is suspended if the originating user has activated CFU and is not logged-in.</p>																		
<p><b>Preconditions:</b></p> <p><b>SIP header values:</b>  NOTIFY 1 sip:O-AS  From: UE-B  To: UE-A  Event:call-completion  Content-Type: application/call-completion  cc-state: ready  PUBLISH: sip T-AS  Call.Info: UE-A; purpose=call-completion;m=NR  P-Assertd-Identity: UE A  Expires=(&gt; 0)  Event: presence  Content-Type: application/pidf+xml  &lt;?xml version="1.0" encoding="UTF-8"?&gt;  &lt;presence  &lt;tuple id=" any uri "&gt;  &lt;status&gt;  &lt;basic&gt;closed&lt;/basic&gt;</p>																		
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<b>TSS</b> CC/Interaction/CDIV	<b>TP</b> CC_N09_036	<b>Reference</b> 4.6.8.1	<b>Selection expression</b> PICS 4.7.1/9																											
<p><b>Test purpose</b> CCNL recall is not forwarded. Originating user is not logged-in.</p> <p>The originating user activates CCNL. Before the terminating user becomes available the originating user activates CFU. Ensure that the CCNL recall is suspended if the originating user has activated CFU and is not logged-in.</p>																														
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## History

<b>Document history</b>		
V5.1.1	October 2012	Publication
V6.1.1	July 2018	Publication