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Technical Specification

**Telecommunications and Internet converged Services and
Protocols for Advanced Networking (TISPAN);
PSTN/ISDN simulation services;
Communication Waiting (CW);
Part 2: Test Suite Structure and Test Purposes (TSS&TP)**



Reference

DTS/TISPAN-06039-2-NGN-R2

Keywords

CW, IMS, testing, TSS&TP

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Foreword

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

The present document is part 2 of a multi-part deliverable covering PSTN/ISDN simulation services; Communication Waiting (CW), as identified below:

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

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

1 Scope

The present document specifies the Test Suite Structure and Test Purposes of the Communication Waiting (CW) service, based on stage 1 and stage 2 of the ISDN call waiting supplementary services. It provides the protocol details in the IP Multimedia (IM) Core Network (CN) subsystem based on the Session Initiation Protocol (SIP) and the Session Description Protocol (SDP).

2 References

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

- For a specific reference, subsequent revisions do not apply.
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 - if it is accepted that it will be possible to use all future changes of the referenced document for the purposes of the referring document;
 - for informative references.

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2.1 Normative references

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

- [1] ETSI TS 124 615: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); LTE; Communication Waiting (CW) using IP Multimedia (IM) Core Network (CN) subsystem; Protocol Specification (3GPP TS 24.615 version 8.0.1 Release 8)".
- [2] ETSI TS 186 022-1: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); PSTN/ISDN simulation services; Communication Waiting (CW); Part 1: Protocol Implementation Conformance Statement (PICS)".

2.2 Informative references

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

Not applicable.

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in TS 124 615 [1] apply.

3.2 Abbreviations

For the purposes of the present document, the abbreviations given in TS 124 615 [1] apply.

4 Test Suite Structure (TSS) and Configuration

Table 1a

CW			
	destination_UE		CW_U01_xxx
	originating_UE		CW_U02_xxx
	AS		CW_N01_xxx
	interaction	CDIV	CW_N02_xxx
	configuration		CW_N03_xxx

4.1 Configuration

The scope of the 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 also to requirments regarding to end devices. Therefore several interfaces (reference points) are addressed to sadsify the test of the different entities.

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

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

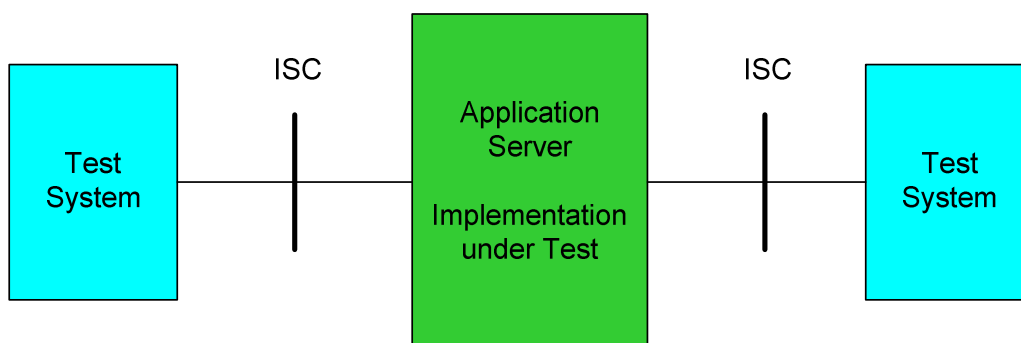


Figure 1: Applicable interface to test AS functionalities

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

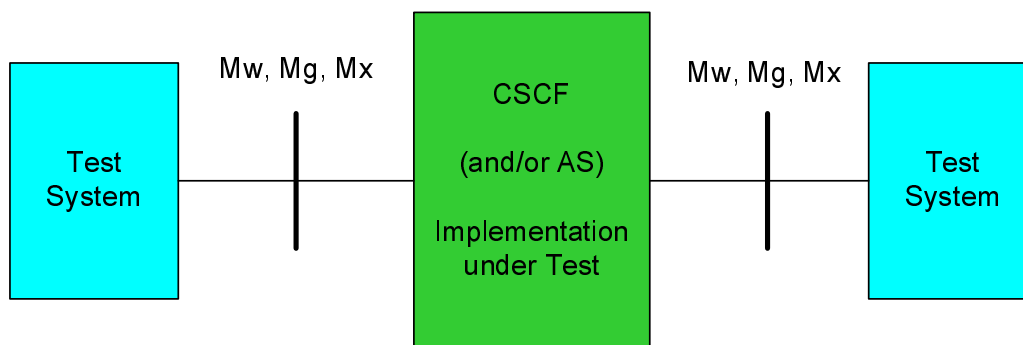


Figure 2: Applicable interfaces to test using the (generic) NNI interface

Figure 3 illustrates the usage of any NNI interface.

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

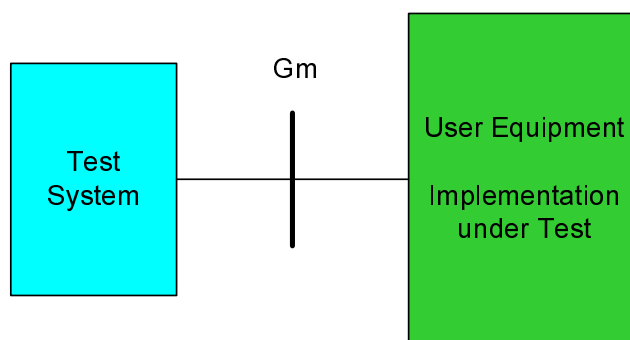


Figure 3: Applicable configuration to test the User Equipment

5 Test Purposes (TP)

5.1 Introduction

For each test requirement a TP is defined.

5.1.1 TP naming convention

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

Table 1: TP identifier naming convention scheme

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

5.1.2 Test strategy

As the base standard TS 124 615 [1] contains no explicit requirements for testing, the TPs were generated as a result of an analysis of the base standard and the PICS specification TS 186 022-1 [2]. The criteria applied include the following:

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

5.2 TPs for Communication Waiting (CW)

5.2.1 Test purposes at the destination (user B) UE

TSS	TP	Reference	Selection expression														
CW/destination_UE	CW_U01_001	4.5.5.3.2	PICS 2/1 AND PICS 2/4														
Test purpose <i>The terminating User Equipment applies the Communication Waiting indication to the user.</i>																	
Ensure that the user B User Equipment is able to notify the user that the communication establishment is waiting.																	
Preconditions:																	
SIP header values: INVITE: MIME body Content-Type: application/3gpp-ims+xml Content-Disposition: 3gpp-alternative-service MIME XML ims-3gpp version="1" alternative-service action call-waiting-indication																	
Comments: <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">Test System</td> <td style="width: 50%; text-align: right;">User Equipment</td> </tr> <tr> <td colspan="2" style="text-align: center;">Establish a confirmed communication</td> </tr> <tr> <td>INVITE</td> <td style="text-align: center;">→</td> </tr> <tr> <td>100 Trying</td> <td style="text-align: center;">←</td> </tr> <tr> <td>180 Ringing</td> <td style="text-align: center;">←</td> </tr> <tr> <td colspan="2" style="text-align: right;">Indicate Communication Waiting to the user</td> </tr> <tr> <td colspan="2" style="text-align: center;">Apply post test routine</td> </tr> </table>				Test System	User Equipment	Establish a confirmed communication		INVITE	→	100 Trying	←	180 Ringing	←	Indicate Communication Waiting to the user		Apply post test routine	
Test System	User Equipment																
Establish a confirmed communication																	
INVITE	→																
100 Trying	←																
180 Ringing	←																
Indicate Communication Waiting to the user																	
Apply post test routine																	

TSS	TP	Reference	Selection expression
CW/destination_UE	CW_U01_002	4.5.5.3.2	PICS 2/4
Test purpose <i>The terminating User Equipment sends a 180 Ringing if UDUB does not apply.</i>			
Ensure that the user B User Equipment is able to send a 180 Ringing if the terminal is not User determined User Busy.			
Preconditions:			
SIP header values: INVITE: MIME body Content-Type: application/3gpp-ims+xml Content-Disposition: 3gpp-alternative-service MIME XML ims-3gpp version="1" alternative-service action call-waiting-indication			
Comments:			
Test System		User Equipment	
Establish a confirmed communication			
INVITE	→		
100 Trying	←		
180 Ringing	←		
Apply post test routine			

TSS	TP	Reference	Selection expression
CW/destination_UE	CW_U01_003	4.5.5.3.2	PICS 2/3 AND PICS 2/4
Test purpose <i>The terminating User Equipment sends a 180 Ringing if UDUB does not apply. A Communication Waiting indication is contained in the 180.</i>			
Ensure that the user B User Equipment is able to send a 180 Ringing if the terminal is not User determined User Busy.			
Ensure that Communication Waiting is contained in the Alert-Info header and the value is <urn:alert:service:call-waiting>.			
Preconditions:			
SIP header values: INVITE: MIME body Content-Type: application/3gpp-ims+xml Content-Disposition: 3gpp-alternative-service MIME XML ims-3gpp version="1" alternative-service action call-waiting-indication			
180 Ringing Alert-Info: <urn:alert:service:call-waiting>			
Test System		User Equipment	
Establish a confirmed communication			
INVITE	→		
100 Trying	←		
180 Ringing Alert-Info: <urn:alert:service:call-waiting>	←		
Apply post test routine			

TSS	TP	Reference	Selection expression
CW/destination_UE	CW_U01_004	4.5.5.3.2	PICS 2/3
Test purpose <i>The terminating User Equipment is able to sent a Communication Waiting indication in a 180 response.</i>			
Ensure that the user B User Equipment is able accept a waiting communication and sends a Communication Waiting indication I the 180 Ringing response. An Alert-Info header is contained in the 180 and the value is <urn:alert:service:call-waiting>.			
Preconditions:			
SIP header values:			
180 Ringing Alert-Info: <urn:alert:service:call-waiting>			
Comments:			
Test System	User Equipment		
Establish a confirmed communication			
INVITE	→		
100 Trying	←		
180 Ringing Alert-Info: <urn:alert:service:call-waiting>	←		
Apply post test routine			

TSS	TP	Reference	Selection expression
CW/destination_UE	CW_U01_005	4.5.5.3.3	PICS 2/4 AND PICS 3/2
Test purpose <i>The terminating User Equipment starts timer T_{AS-CW} and the timer is expired.</i>			
Ensure that the user B User Equipment is able starts timer T_{AS-CW} . If the timer is exired, the User Equipment stops the Communication Waiting to the user.			
Preconditions:			
SIP header values:			
INVITE: MIME body Content-Type: application/3gpp-ims+xml Content-Disposition: 3gpp-alternative-service MIME XML ims-3gpp version="1" alternative-service action call-waiting-indication			
Comments:			
Test System	User Equipment		
Establish a confirmed communication			
INVITE	→		
100 Trying	←		
180 Ringing	←		
	Start timer T_{AS-CW}		
	Timeout T_{AS-CW}		
480 Temporarily Unavailable	←		
ACK	→		
Apply post test routine			

TSS CW/destination_UE	TP CW_U01_006	Reference 4.5.5.3.2	Selection expression NOT PICS 2/4
Test purpose <i>The terminating User Equipment sends a 415 Unsupported Media Type if the received INVITE contains a XML CW MIME attachment indicating CW</i>			
Ensure that the user B User Equipment is able to send a 415 Unsupported Media Type if the User Equipment does not support the CW XML MIME attachment indicating Communication Waiting.			
Preconditions:			
SIP header values: INVITE: MIME body Content-Type: application/3gpp-ims+xml Content-Disposition: 3gpp-alternative-service MIME XML ims-3gpp version="1" alternative-service action call-waiting-indication			
Comments:			
Test System			User Equipment
		Establish a confirmed communication	
INVITE		→	
415 Unsupported Media Type		←	
ACK		→	

TSS CW/destination_UE	TP CW_U01_007	Reference 4.5.5.3.3	Selection expression PICS 2/4
Test purpose <i>The terminating User Equipment hold s current communication and accepts the waiting call.</i>			
<p>Ensure that the user B User Equipment is able set the current active communication on hold and accepts the waiting communication. After the communication with the previous waiting communication is active, the CW indication is stopped.</p>			
Preconditions:			
SIP header values: INVITE: MIME body Content-Type: application/3gpp-ims+xml Content-Disposition: 3gpp-alternative-service MIME XML ims-3gpp version="1" alternative-service action call-waiting-indication			
Comments:			
Test System		User Equipment	
Establish a confirmed communication (1)			
INVITE (2)			→
100 Trying			←
180 Ringing (2)			←
INVITE (1, sendonly)			←
200 OK INVITE (1, recvonly)			→
ACK			←
200 OK INVITE (2)			←
ACK			→
Apply post test routine			

TSS CW/destination_UE	TP CW_U01_008	Reference 4.5.5.3.3	Selection expression PICS 2/4
Test purpose <i>The terminating User Equipment is able to release current communication and accepts the waiting call.</i>			
<p>Ensure that the user B User Equipment is able release the current active communication and accepts the waiting communication. After the communication with the previous waiting communication is active, the CW indication to the user is stopped.</p>			
Preconditions:			
SIP header values: INVITE: MIME body Content-Type: application/3gpp-ims+xml Content-Disposition: 3gpp-alternative-service MIME XML ims-3gpp version="1" alternative-service action call-waiting-indication			
Comments:			
Test System		User Equipment	
Establish a confirmed communication (1)			
INVITE (2)			→
100 Trying			←
180 Ringing (2)			←
BYE (1)			←
200 OK BYE (1)			→
200 OK INVITE (2)			←
ACK			→
Apply post test routine			

TSS CW/destination_UE	TP CW_U01_009	Reference 4.5.5.3.3	Selection expression PICS 2/4
<p>Test purpose The terminating User Equipment is able to accept the waiting call after the current active communication is released by the User A.</p> <p>Ensure that the user B User Equipment is able to accept the waiting communication after the remote active user (user A) released the active communication. After the communication with the previous waiting communication is active, the CW indication to the user is stopped.</p>			
Preconditions:			
<p>SIP header values: INVITE: MIME body Content-Type: application/3gpp-ims+xml Content-Disposition: 3gpp-alternative-service MIME XML ims-3gpp version="1" alternative-service action call-waiting-indication</p>			
Comments:			
Test System		User Equipment	
Establish a confirmed communication (1)			
INVITE (2)	→		
100 Trying	←		
180 Ringing (2)	←		
BYE (1)	→		
200 OK BYE (1)	←		
200 OK INVITE (2)	←		
ACK	→		
Apply post test routine			

TSS	TP	Reference	Selection expression																																
CW/destination_UE	CW_U01_010	4.5.5.3.3	PICS 2/4																																
<p>Test purpose <i>The terminating User Equipment is able to accept the waiting call after the current active communication is released by the User C.</i></p> <p>Ensure that the user B User Equipment is able apply the terminating UE procedures upon receipt of BYE from user C. After the communication with the previous waiting communication is released, the CW indication to the user is stopped.</p>																																			
<p>Preconditions:</p> <p>SIP header values: INVITE: MIME body Content-Type: application/3gpp-ims+xml Content-Disposition: 3gpp-alternative-service MIME XML ims-3gpp version="1" alternative-service action call-waiting-indication</p>																																			
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Test System	User Equipment																																		
Establish a confirmed communication (1)																																			
INVITE (2)	→																																		
100 Trying	←																																		
180 Ringing (2)	←																																		
CASE A																																			
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487 Request Terminated	←																																		
ACK	→																																		
CASE B																																			
CANCEL (2)	→																																		
200 OK CANCEL (2)	←																																		
487 Request Terminated	←																																		
ACK	→																																		
Apply post test routine																																			

5.2.2 Test purposes at the originating (user C) UE

TSS CW/originating_UE	TP CW_U02_001	CB reference clause 4.5.2.10	Selection expression PICS 2/2
Test purpose <i>The originating user receives the Communication waiting indication.</i> Ensure that the originating user equipment has the ability to receive the "communication is waiting" indication in the Alert-Info header value <urn:alert:service:call-waiting>. Ensure that this notification is reported to the user.			
Preconditions:			
SIP header values: 180 Ringing Alert-Info: <urn:alert:service:call-waiting>			
Comments: User Equipment			
	←		Test System
	→		INVITE
	→		100 Trying
			180 Ringing Alert-Info: <urn:alert:service:call-waiting>
Apply post test routine			

5.2.3 Test purposes at the Application Server

TSS CW/AS	TP CW_N01_001	Reference 4.5.5.2/ [1]	Selection expression PICS 1/2
Test purpose <i>CW indication determined by approaching NDUB condition. The indication for CW is sent to the terminating user.</i> Ensure that on receipt of an INVITE request that fulfils the approaching NDUB condition for user B the AS determines that a Communication Waiting condition has occurred. The AS sends an INVITE request to the served user. Ensure that the INVITE contains:			
<ul style="list-style-type: none"> • a MIME body with the "call-waiting-indication" element contained in a "action" element, with that "action" element in turn contained in a "alternative-service" element, with that "alternative-service" element in turn contained in the "ims-3gpp" root element; and • the Content-Type header field is set to "application/3gpp-ims+xml"; and • the Content-Disposition header field is set to "3gpp-alternative-service". 			
The 180 Ringing sent to the originating user may insert an Alert-Info header indicating Communication Waiting by value <urn:alert:service:call-waiting>			
Preconditions: Terminating user subscribes to the CW simulation service			
SIP header values: INVITE: MIME body Content-Type: application/3gpp-ims+xml Content-Disposition: 3gpp-alternative-service MIME XML ims-3gpp version="1" alternative-service action call-waiting-indication			
180 Ringing: possible Alert-Info: <urn:alert:service:call-waiting>			
Comments:			
Test System (ISC)	AS		Test System (ISC)
INVITE	→		INVITE
100 Trying	←		100 Trying
180 Ringing	←		180 Ringing
Apply post test routine			

TSS CW/AS	TP CW_N01_002	Reference 4.5.5.2/ [1]	Selection expression PICS 1/2 AND PICS 1/3																														
<p>Test purpose <i>CW indication determined by approaching NDUB condition. The AS applies an announcement to the originating user.</i></p> <p>Ensure that on receipt of an INVITE request that fulfils the approaching NDUB condition for user B the AS determines that a Communication Waiting condition has occurred. The As sends an INVITE request to the served user. Ensure that the INVITE contains:</p> <ul style="list-style-type: none"> • a MIME body with the "call-waiting-indication" element contained in a "action" element, with that "action" element in turn contained in a "alternative-service" element, with that "alternative-service" element in turn contained in the "ims-3gpp" root element; and • the Content-Type header field is set to "application/3gpp-ims+xml"; and • the Content-Disposition header field is set to "3gpp-alternative-service". <p>Ensure that an announcement is applied to the originating user. The 180 Ringing sent to the originating user may insert an Alert-Info header indicating Communication Waiting by value <urn:alert:service:call-waiting></p>																																	
<p>Preconditions: Terminating user subscribes to the CW simulation service</p>																																	
<p>SIP header values: INVITE: MIME body Content-Type: application/3gpp-ims+xml Content_Disposition: 3gpp-alternative-service MIME XML ims-3gpp version="1" alternative-service action call-waiting-indication 180 Ringing: possible Alert-Info: <urn:alert:service:call-waiting></p>																																	
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Test System (ISC)		AS		Test System (ISC)																													
INVITE	→		→	INVITE																													
100 Trying	←		←	100 Trying																													
180 Ringing	←		←	180 Ringing																													
		Apply announcement to originating user																															
		Apply post test routine																															

TSS	TP	Reference	Selection expression												
CW/AS	CW_N01_003	4.5.5.2/ [1]	PICS 1/2												
<p>Test purpose <i>CW indication determined by approaching NDUB condition. Call establishment unsuccessful due to the terminating User Equipment do not support the CW indication in the received INVITE.</i></p> <p>Ensure that on receipt of an INVITE request that fulfils the approaching NDUB condition for user B the AS determines that a Communication Waiting condition has occurred. The As sends an INVITE request to the served user. Ensure that the INVITE contains:</p> <ul style="list-style-type: none"> • a MIME body with the "call-waiting-indication" element contained in a "action" element, with that "action" element in turn contained in a "alternative-service" element, with that "alternative-service" element in turn contained in the "ims-3gpp" root element; and • the Content-Type header field is set to "application/3gpp-ims+xml"; and • the Content-Disposition header field is set to "3gpp-alternative-service". <p>If a 415 Unsupported Media Type final response is received from the terminating user, a 486 Busy Here is sent to the originating user.</p>															
<p>Preconditions: Terminating user subscribes to the CW simulation service</p>															
<p>SIP header values: INVITE: MIME body Content-Type: application/3gpp-ims+xml Content_Disposition: 3gpp-alternative-service MIME XML ims-3gpp version="1" alternative-service action call-waiting-indication</p>															
<p>Comments:</p> <table> <thead> <tr> <th>Test System (ISC)</th> <th>AS</th> <th>Test System (ISC)</th> </tr> </thead> <tbody> <tr> <td>INVITE</td> <td>→</td> <td>→ INVITE</td> </tr> <tr> <td>486 Busy Here</td> <td>←</td> <td>← 415 Unsupported Media Type</td> </tr> <tr> <td>ACK</td> <td>→</td> <td>→ ACK</td> </tr> </tbody> </table>				Test System (ISC)	AS	Test System (ISC)	INVITE	→	→ INVITE	486 Busy Here	←	← 415 Unsupported Media Type	ACK	→	→ ACK
Test System (ISC)	AS	Test System (ISC)													
INVITE	→	→ INVITE													
486 Busy Here	←	← 415 Unsupported Media Type													
ACK	→	→ ACK													

TSS	TP	Reference	Selection expression												
CW/AS	CW_N01_004	4.5.5.2/ [1]	PICS 1/1												
<p>Test purpose <i>CW indication determined by receiving a 180 (Ringing) response with a Alert-Info header field set to "urn:alert:service:call-waiting".</i></p> <p>Ensure that on receipt of an 180 (Ringing) response with a Alert-Info header field set to "urn:alert:service:call-waiting" Communication Waiting is determined. Ensure that the 180 Ringing is passed to the originating user.</p>															
<p>Preconditions:</p>															
<p>SIP header values: 180 Ringing: Alert-Info: <urn:alert:service:call-waiting></p>															
<p>Comments:</p> <table> <thead> <tr> <th>Test System (ISC)</th> <th>AS</th> <th>Test System (ISC)</th> </tr> </thead> <tbody> <tr> <td>INVITE</td> <td>→</td> <td>→ INVITE</td> </tr> <tr> <td>100 Trying</td> <td>←</td> <td>← 100 Trying</td> </tr> <tr> <td>180 Ringing Alert-Info <urn:alert:service:call-waiting></td> <td>←</td> <td>← 180 Ringing Alert-Info <urn:alert:service:call-waiting></td> </tr> </tbody> </table> <p style="text-align: center;">Apply post test routine</p>				Test System (ISC)	AS	Test System (ISC)	INVITE	→	→ INVITE	100 Trying	←	← 100 Trying	180 Ringing Alert-Info <urn:alert:service:call-waiting>	←	← 180 Ringing Alert-Info <urn:alert:service:call-waiting>
Test System (ISC)	AS	Test System (ISC)													
INVITE	→	→ INVITE													
100 Trying	←	← 100 Trying													
180 Ringing Alert-Info <urn:alert:service:call-waiting>	←	← 180 Ringing Alert-Info <urn:alert:service:call-waiting>													

TSS	TP	Reference	Selection expression
CW/AS	CW_N01_005	4.5.5.2/ [1]	PICS 1/3
<p>Test purpose <i>CW indication determined by receiving a 180 (Ringing) response with a Alert-Info header field set to "urn:alert:service:call-waiting". An announcement is applied to the originating user.</i></p> <p>Ensure that on receipt of an 180 (Ringing) response with a Alert-Info header field set to "urn:alert:service:call-waiting" Communication Waiting is determined. Ensure that an announcement is applied to the originating user. Ensure that the 180 Ringing is passed to the originating user.</p>			
Preconditions:			
SIP header values:			
180 Ringing: Alert-Info: <urn:alert:service:call-waiting>			
Comments:			
Test System (ISC)	AS	Test System (ISC)	
INVITE	→	→ INVITE	
100 Trying	←	← 100 Trying	
180 Ringing Alert-Info	←	← 180 Ringing Alert-Info	
<urn:alert:service:call-waiting>	←	← <urn:alert:service:call-waiting>	
Apply announcement to originating user			
Apply post test routine			

TSS	TP	Reference	Selection expression
CW/AS	CW_N01_006	4.5.5.2/ [1]	PICS 1/1 AND PICS 3/1
<p>Test purpose <i>CW indication determined by receiving a 180 (Ringing) response with a Alert-Info header field set to "urn:alert:service:call-waiting". The T_{AS-CW} timer expires.</i></p> <p>Ensure that on receipt of an 180 (Ringing) response with a Alert-Info header field set to "urn:alert:service:call-waiting" Communication Waiting is determined. Ensure that the 180 Ringing is passed to the originating user.</p>			
Preconditions:			
SIP header values:			
180 Ringing: Alert-Info: <urn:alert:service:call-waiting>			
480 Temporarily unavailable: Reason: SIP;cause=408			
Comments:			
Test System (ISC)	AS	Test System (ISC)	
INVITE	→	→ INVITE	
100 Trying	←	← 100 Trying	
180 Ringing Alert-Info	←	← 180 Ringing Alert-Info	
<urn:alert:service:call-waiting>	←	← <urn:alert:service:call-waiting>	
Start timer T _{AS-CW}			
T _{AS-CW} expired			
480 Temporarily unavailable	←	→ CANCEL	
ACK	→	← 200 OK CANCEL	
		← 487 Request Terminated	
		→ ACK	

5.3 Interaction with other supplementary services

5.3.1 Communication diversion services (CDIV)

TSS CW/interaction/CDIV	TP CW_N02_001	CB reference 4.6.8.1	Selection expression PICS 1/5																		
Test purpose <i>A Communication diversion activation is successful while a communication is waiting</i> Ensure that communication forwarding unconditional supplementary service can be activated while a communication is waiting.																					
Preconditions: Configuration of simulation services via Ut interface is applicable																					
SIP header values: HTTP PUT <simservs <call-waiting active="true"/> </simservs>																					
Comments: Test System (Ut) <table style="width:100%; border:none;"> <tr> <td style="width:30%;"></td> <td style="width:40%; text-align:center;">XCAP server</td> <td style="width:30%;"></td> </tr> <tr> <td></td> <td style="text-align:center;">Establish a confirmed communication (SIP, Gm)</td> <td></td> </tr> <tr> <td></td> <td style="text-align:center;">Establish a waiting dialogue (SIP, Gm)</td> <td></td> </tr> <tr> <td>HTTP PUT</td> <td style="text-align:center;">→</td> <td></td> </tr> <tr> <td>HTTP 200 OK PUT</td> <td style="text-align:center;">←</td> <td></td> </tr> <tr> <td></td> <td style="text-align:center;">Apply post test routine</td> <td></td> </tr> </table>					XCAP server			Establish a confirmed communication (SIP, Gm)			Establish a waiting dialogue (SIP, Gm)		HTTP PUT	→		HTTP 200 OK PUT	←			Apply post test routine	
	XCAP server																				
	Establish a confirmed communication (SIP, Gm)																				
	Establish a waiting dialogue (SIP, Gm)																				
HTTP PUT	→																				
HTTP 200 OK PUT	←																				
	Apply post test routine																				

TSS CW/interaction/CDIV	TP CW_N02_002	CB reference 4.6.8.1	Selection expression																				
Test purpose <i>A forwarded communication can invoke the CW service</i> Ensure that a forwarded communication (CFU) can invoke the CW service.																							
Preconditions: Configuration of simulation services via Ut interface is applicable																							
SIP header values: INVITE; History-Info header <sip:URI any (PIXIT);index=1, <sip:URI CW served user; cause=302>;index=1.1 180 Ringing Alert-Info: <urn:alert:service:call-waiting>																							
Comments: Test System <table style="width:100%; border:none;"> <tr> <td style="width:25%;"></td> <td style="width:25%; text-align:center;">AS CW</td> <td style="width:25%; text-align:center;">AS CDIV</td> <td style="width:25%;"></td> </tr> <tr> <td></td> <td colspan="2" style="text-align:center;">Establish a confirmed communication (SIP, Gm)</td> <td></td> </tr> <tr> <td>INVITE</td> <td style="text-align:center;">→</td> <td style="text-align:center;">→</td> <td>→ INVITE</td> </tr> <tr> <td>180 Ringing Alert-Info: <urn:alert:service:call-waiting></td> <td style="text-align:center;">←</td> <td style="text-align:center;">←</td> <td>← 180 Ringing (2) Alert-Info: <urn:alert:service:call-waiting></td> </tr> <tr> <td></td> <td colspan="2" style="text-align:center;">Apply post test routine</td> <td></td> </tr> </table>					AS CW	AS CDIV			Establish a confirmed communication (SIP, Gm)			INVITE	→	→	→ INVITE	180 Ringing Alert-Info: <urn:alert:service:call-waiting>	←	←	← 180 Ringing (2) Alert-Info: <urn:alert:service:call-waiting>		Apply post test routine		
	AS CW	AS CDIV																					
	Establish a confirmed communication (SIP, Gm)																						
INVITE	→	→	→ INVITE																				
180 Ringing Alert-Info: <urn:alert:service:call-waiting>	←	←	← 180 Ringing (2) Alert-Info: <urn:alert:service:call-waiting>																				
	Apply post test routine																						

TSS	TP	CB reference	Selection expression
CW/interaction/CDIV	CW_N02_003	4.6.8.3	
Test purpose <i>A waiting communication can be forwarded no reply.</i> Ensure that if user B has activated the communication forwarding no reply service, then a waiting communication shall still be offered. Ensure that waiting communication is able to be forwarded on no reply when the CFNR timer expires. The communication waiting ceases.			
Preconditions: communication forwarding no reply supplementary service is activated			
SIP header values: 180 Ringing Alert-Info: <urn:alert:service:call-waiting>			
Comments:			
Test System	AS CW	AS CDIV	Test System
	Establish a confirmed communication (1)		
INVITE	→	→	→ INVITE (2)
180 Ringing Alert-Info: <urn:alert:service:call-waiting>	←	←	← 180 Ringing (2) Alert-Info: <urn:alert:service:call-waiting>
		CANCEL (2) →	→ CANCEL (2)
		200 OK CANCEL (2) ←	← 200 OK CANCEL (2)
		487 (2) ←	← 487 (2)
		ACK (2) →	→ ACK (2)
		INVITE (3) →	→ INVITE (3)
180 Ringing	←	180 Ringing ←	← 180 Ringing
Apply post test routine			

TSS	TP	CB reference	Selection expression
CW/interaction/CDIV	CW_N02_004	4.6.8.3	
Test purpose <i>A forwarded no reply communication invokes the CW supplementary service.</i> Ensure that forwarded communication invokes the call waiting communication. The "communication is waiting" indication is sent in the 180 Ringing response. Ensure that an active communication is successful after the current communication is terminated.			
Preconditions:			
SIP header values: INVITE: History-Info: <sip: URI any (PIXIT);index=1, <sip: URI CW served user; cause=408;>;index=1.1 180 Ringing Alert-Info: <urn:alert:service:call-waiting>			
Comments:			
Test System	AS CW	AS CDIV	Test System
	Establish a confirmed communication (SIP, Gm)		
INVITE	→	→	→ INVITE
180 Ringing Alert-Info: <urn:alert:service:call-waiting>	←	←	← 180 Ringing (2) Alert-Info: <urn:alert:service:call-waiting>
Apply post test routine			

TSS CW/interaction/CDIV	TP CW_N02_005	CB reference 4.6.8.5	Selection expression
Test purpose <i>A waiting communication can be deflected.</i> Ensure that when receiving the communication waiting indication, user B can invoke the communication deflection service.			
Preconditions: communication forwarding no reply supplementary service is activated			
SIP header values: 180 Ringing Alert-Info: <urn:alert:service:call-waiting>			
Comments:			
Test System	AS CW	AS CDIV	Test System
	Establish a confirmed communication (1)		
INVITE →	→		→ INVITE (2)
180 Ringing Alert-Info: <urn:alert:service:call-waiting>	←	←	← 180 Ringing (2) Alert-Info: <urn:alert:service:call-waiting>
		302 Moved Temporarily ←	← 302 Moved Temporarily
		ACK →	→ ACK
		INVITE (3) →	→ INVITE (3)
		180 Ringing ←	← 180 Ringing
Apply post test routine			

TSS CW/interaction/CDIV	TP CW_N02_006	CB reference 4.6.8.5	Selection expression PICS 1/4
Test purpose <i>A deflected communication invokes the CW supplementary service.</i> Ensure that forwarded communication invokes the call waiting communication. The "communication is waiting" indication is sent in the 180 Ringing response. Ensure that an active communication is successful after the current communication is terminated.			
Preconditions:			
SIP header values: INVITE: History-Info: <sip: URI any (PIXIT);index=1, <sip: URI CW served user; cause=480;>;index=1.1			
180 Ringing Alert-Info: <urn:alert:service:call-waiting>			
Comments:			
Test System	AS CW	AS CDIV	Test System
	Establish a confirmed communication (SIP, Gm)		
INVITE →	→		→ INVITE
180 Ringing Alert-Info: <urn:alert:service:call-waiting>	←	←	← 180 Ringing (2) Alert-Info: <urn:alert:service:call-waiting>
	Apply post test routine		

5.4 Test purposes for Service Configuration

TSS	TP	CB reference	Selection expression
CW/int	CW_N03_001	4.8	PICS 1/5
Test purpose <i>Communication Waiting can successful activated using Ut interface.</i> Ensure that Communication Waiting can be activated by the user, a XML document is sent to the XCAP server.			
Preconditions: Configuration of simulation services via Ut interface is applicable			
SIP header values: HTTP PUT <pre><?xml version="1.0" encoding="UTF-8"?> <simservs xmlns="http://uri.etsi.org/ngn/params/xml/simservs/xcap" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"> <call-waiting active="true"/> </simservs></pre>			
Comments: Test System (Ut)			
		XCAP server	
HTTP PUT	→		
HTTP 200 OK PUT	←		

TSS	TP	CB reference	Selection expression
CW/int	CW_N03_002	4.5.1	NOT PICS 1/5
Test purpose <i>Communication Waiting can successful SIP based activated.</i> Ensure that Communication Waiting can be activated by the user, the contents of the Request-URI in a SIP INVITE request is used to convey the configuration code to the Application Server that hosts the supplementary service.			
Preconditions: Configuration of simulation services via CW Application Server is applicable			
SIP header values: INVITE: sip:<service code>;phone-context=home1.net;user=dialstring SIP/2.0			
Comments: Test System (Ut)			
		CW AS	
INVITE	→		
200 OK INVITE	←		
ACK	→		
BYE	→		
200 OK BYE	←		
NOTE: Service code e.g "*43**"			

History

Document history		
V2.1.1	July 2009	Publication