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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
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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 Implemetaion 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.

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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 Specfication (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. Therfore several interfaces (reference points) are addressed to sadisfy the test of the different entities.

Therfore 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

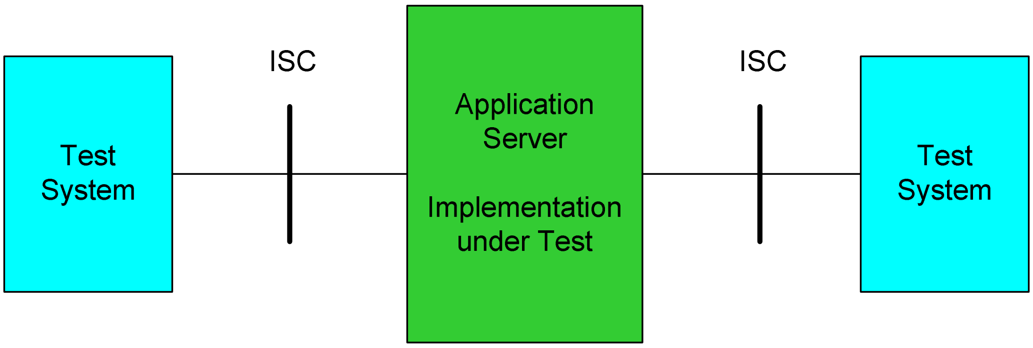

Figure 1: Applicable interface to test AS functionalities

If the ISC interface is not accessable 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 accessable this shall be used instead. In this case, be aware that the verification of several requirements is impeded.

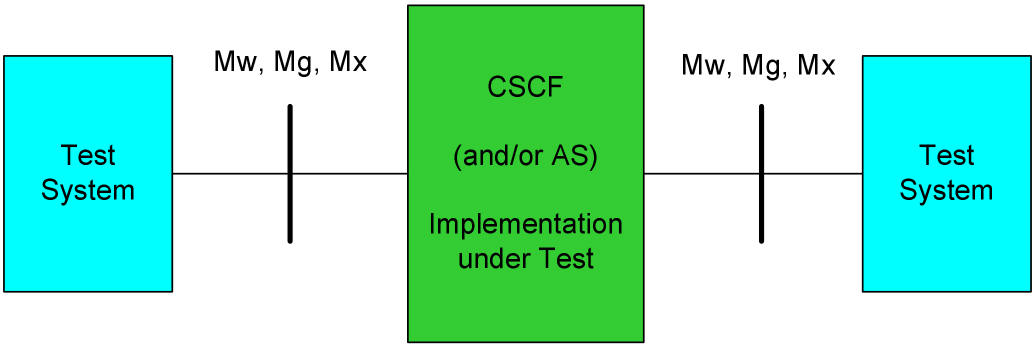

Figure 2: Applicable interfaces to test using the (generic) NNI interface

Figure 3 illustrates the usage of any NNI interface.

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

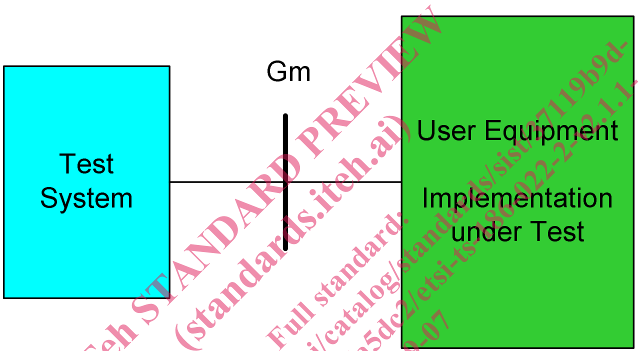

Figure 3: Applicable configuration to test the User Equipment

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 N	User - equipment 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 CW/destination_UE	**TP** CW_U01_001	**Reference** 4.5.5.3.2	**Selection expression** PICS 2/1 AND PICS 2/4
Test purpose *The terminating User Equipment applies the Communication Waiting indication to the user.* 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: **Test System** **User Equipment** **Establish a confirmed communication** INVITE → 100 Trying ← 180 Ringing ← **Indicate Communication Waiting to the user** **Apply post test routine**			

<table>
<tr><td>TSS
CW/destination_UE</td><td>TP
CW_U01_002</td><td>Reference
4.5.5.3.2</td><td>Selection expression
PICS 2/4</td></tr>
<tr><td colspan="4">Test purpose
The terminating User Equipment sends a 180 Ringing if UDUB does not apply.

Ensure that the user B User Equipment is able to send a 180 Ringing if the termina is not User determined User Busy.</td></tr>
<tr><td colspan="4">Preconditions:</td></tr>
<tr><td colspan="4">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</td></tr>
<tr><td colspan="4">Comments:
Test System User Equipment

Establish a confirmed communication

INVITE →
100 Trying ←
180 Ringing ←

Apply post test routine</td></tr>
</table>

<table>
<tr><td>TSS
CW/destination_UE</td><td>TP
CW_U01_003</td><td>Reference
4.5.5.3.2</td><td>Selection expression
PICS 2/3 AND
PICS 2/4</td></tr>
<tr><td colspan="4">Test purpose
The terminating User Equipment sends a 180 Ringing if UDUB does not apply. A Communication Waiting indication is contained in the 180.

Ensure that the user B User Equipment is able to send a 180 Ringing if the termina 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>.</td></tr>
<tr><td colspan="4">Preconditions:</td></tr>
<tr><td colspan="4">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></td></tr>
<tr><td colspan="4">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</td></tr>
</table>

TSS	**TP**	**Reference**	**Selection expression**
CW/destination_UE	CW_U01_004	4.5.5.3.2	PICS 2/3

Test purpose

The terminating User Equipment is able to sent a Communication Waiting indication in a 180 response.

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

The terminating User Equipment starts timer T_{AS-CW} *and the timer is expiered.*

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	