



**Core Network and Interoperability Testing (INT);
Message Waiting Indication (MWI) 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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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 the Conformance Test Specification of Message Waiting Indication (MWI) using IP Multimedia (IM) Core Network (CN) subsystem, as identified below:

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

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).

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1 Scope

The present document specifies the Test Suite Structure and Test Purposes (TSS&TP) of the Message Waiting Indication (MWI) service, based on 3GPP stage three Protocol Description of the MWI service, based on stage one and two of the ISDN MWI supplementary services.

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>.

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

- [1] ETSI TS 124 606: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); LTE; Message Waiting Indication (MWI) using IP Multimedia (IM) Core Network (CN) subsystem; Protocol specification (3GPP TS 24.606 Release 12)".
- [2] ETSI TS 102 891-1: "Core Network and Interoperability Testing (INT); Message Waiting Indication (MWI) using IP Multimedia (IM) Core Network (CN) subsystem; Conformance Test Specification (3GPP™ Release 12); Part 1: Protocol Implementation Conformance Statement (PICS)".
- [3] IETF RFC 3842: "A Message Summary and Message Waiting Indication Event Package for the Session Initiation Protocol (SIP)".
- [4] IETF RFC 3265: "Session Initiation Protocol (SIP)-Specific Event Notification".
- [5] ISO/IEC 9646-1: "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 1: General concepts".

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.

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in ETSI TS 124 606 [1] and the following apply:

Abstract Test Suite (ATS): Refer to ISO/IEC 9646-1 [5].

Implementation Under Test (IUT): Refer to ISO/IEC 9646-1 [5].

PICS pro forma: Refer to ISO/IEC 9646-1 [5].

point of control and observation: Refer to ISO/IEC 9646-1 [5].

Protocol Implementation Conformance Statement (PICS): Refer to ISO/IEC 9646-1 [5].

System Under Test (SUT): Refer to ISO/IEC 9646-1 [5].

Test Purpose (TP): Refer to ISO/IEC 9646-1 [5].

3.2 Abbreviations

For the purposes of the present document, the abbreviations given in ETSI TS 124 606 [1] and the following apply:

ATS	Abstract Test Suite
IUT	Implementation Under Test
PICS	Protocol Implementation Conformance Statement
SUT	System Under Test
TP	Test Purpose
TSS	Test Suite Structure
TSS&TP	Test Suite Structure and Test Purposes

4 Test Suite Structure (TSS)

4.0 Table of Test suite Structure

Table 1: Test Suite Structure (TSS)

UserEquipment		MWI_U01_xxx
Network	AS_ServedUser	MWI_N01_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 ETSI TS 124 606 [1]. The stage 3 description respects the requirements to several network entities and also to requirements regarding to end devices. Therefore several interfaces (reference points) are addressed to satisfy the test of the different entities.

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

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

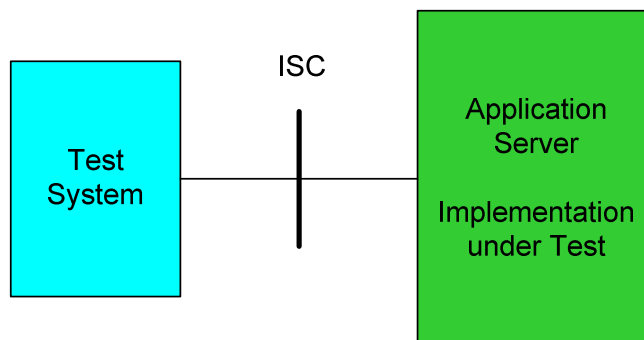


Figure 1: Applicable interface to test AS functionalities

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

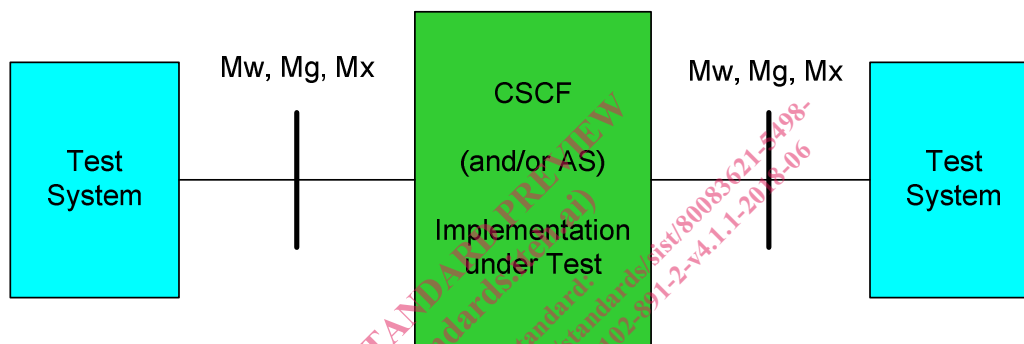


Figure 2: Applicable interfaces to test using the (generic) NNI interface

Figure 3 illustrates the usage of any NNI interface.

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

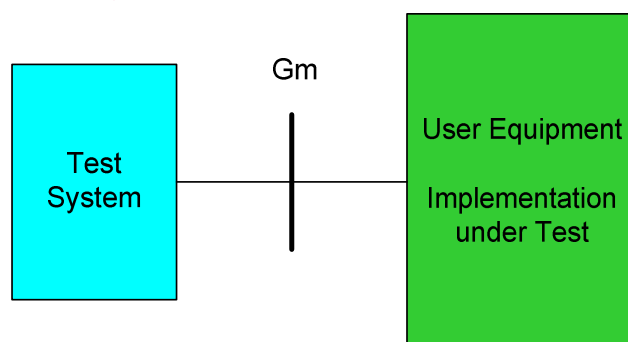


Figure 3: Applicable configuration to test the User Equipment

5 Test Purposes (TP)

5.1 Introduction

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 2).

Table 2: TP identifier naming convention scheme

Identifier: <ss>_<iut><group>_<nnn>			
<ss>	=	supplementary service:	e.g. "MWI"
<iut>	=	type of IUT:	U User - equipment N Network
<group>	=	group	2 digit field representing group reference according to TSS
<nnn>	=	3 digit sequential number	(001-999)

5.1.2 Test strategy

As the base standard ETSI TS 124 606 [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 102 891-1 [2]. The criteria applied include the following:

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

5.1.3 Reference column "MWI reference"

The column "MWI reference" makes reference to ETSI TS 124 606 [1], except where explicitly stated otherwise.

5.2 Invocation and operation

5.2.1 Actions at the UE

TSS	TP	MWI reference	Selection expression
UserEquipment	MWI_U01_001	4.7.2.1	PICS 4.5.1/1 AND PICS 4.6.1/1
Test purpose: <i>Initial subscription for a public user identity using the public service identity</i>			
Ensure that the user equipment is able to subscribe to the MWI service. A SUBSCRIBE message is sent. The Request line contains the public service identity of the MA. The Event header is set to 'message-summary', the Expires header is set to a proper value, Accept header is set to 'application/simple-message-summary'.			
SIP header: SUBSCRIBE sip: public service identity @server SIP/2.0 Event: message-summary Expires: <a valid value> Accept: application/simple-message-summary			
Comments:			
User Equipment		➔	Test Equipment
		➔	SUBSCRIBE
		➔	200 OK (SUBSCRIBE)

TSS UserEquipment	TP MWI_U01_003	MWI reference 4.7.2.1, 3.6/[3]	Selection expression PICS 4.5.1/1																		
<p>Test purpose: <i>Re-Subscription before subscription is expired</i></p> <p>Ensure that the user equipment is able to re-subscribe the current subscription before the subscription expires. A SUBSCRIBE message is sent. The Event header is set to 'message-summary', the Expires header is set to a proper value, Accept header is set to 'application/simple-message-summary'. The Call-ID is equal to the Call-ID of the initial subscription.</p>																					
<p>SIP header: SUBSCRIBE Event: message-summary Expires: 500 Accept: application/simple-message-summary</p>																					
<p>Comments:</p> <table style="width: 100%; border: none;"> <tr> <td style="text-align: center; width: 50%;">User Equipment</td> <td style="width: 10%;"></td> <td style="text-align: center; width: 50%;">Test Equipment</td> </tr> <tr> <td></td> <td style="text-align: center;">→</td> <td>SUBSCRIBE</td> </tr> <tr> <td></td> <td style="text-align: center;">←</td> <td>200 OK (SUBSCRIBE)</td> </tr> <tr> <td colspan="3" style="text-align: center;">Before subscription expires</td> </tr> <tr> <td></td> <td style="text-align: center;">→</td> <td>SUBSCRIBE</td> </tr> <tr> <td></td> <td style="text-align: center;">←</td> <td>200 OK (SUBSCRIBE)</td> </tr> </table>				User Equipment		Test Equipment		→	SUBSCRIBE		←	200 OK (SUBSCRIBE)	Before subscription expires				→	SUBSCRIBE		←	200 OK (SUBSCRIBE)
User Equipment		Test Equipment																			
	→	SUBSCRIBE																			
	←	200 OK (SUBSCRIBE)																			
Before subscription expires																					
	→	SUBSCRIBE																			
	←	200 OK (SUBSCRIBE)																			

TSS UserEquipment	TP MWI_U01_004	MWI reference 4.7.2.1, 3.6/[3]	Selection expression PICS 4.5.1/1																								
<p>Test purpose: <i>Subscription after re-subscription fails</i></p> <p>Ensure that the user equipment is able to subscribe to the MWI service after a re-subscription failed. A SUBSCRIBE message is sent. The Event header is set to 'message-summary', the Expires header is set to a proper value, Accept header is set to 'application/simple-message-summary'.</p>																											
<p>SIP header: SUBSCRIBE 1 Event: message-summary Expires: 500 Accept: application/simple-message-summary SUBSCRIBE 2 Call-ID: <different from Call-ID of SUBSCRIBE 1> Event: message-summary Expires: 500 Accept: application/simple-message-summary</p>																											
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TSS UserEquipment	TP MWI_U01_005	MWI reference 4.7.2.1, 3.1.4.3/[4]	Selection expression PICS 4.5.1/1															
Test purpose: <i>Unsubscribe from MWI service</i> Ensure that the user equipment is able to unsubscribe the current subscription. A SUBSCRIBE message is sent. The Event header is set to 'message-summary', the Expires header is set to zero, Accept header is set to 'application/simple-message-summary'. The Call-ID is equal to the Call-ID of the initial subscription.																		
SIP header: SUBSCRIBE 2 Event: message-summary Expires: 0 Accept: application/simple-message-summary																		
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	→	SUBSCRIBE 1																
	←	200 OK (SUBSCRIBE)																
	→	SUBSCRIBE 2																
	←	200 OK (SUBSCRIBE)																

TSS UserEquipment	TP MWI_U01_006	MWI reference 4.7.2.1, IETF RFC 3842 [3] 3.9	Selection expression PICS 4.5.1/1															
Test purpose: <i>Reception of status information after subscription</i> Upon receipt of a valid NOTIFY request after subscription, the user equipment accepts the information and sends a 200 OK response [4].																		
SIP header: NOTIFY Event: message-summary Subscription-State: active Content-Type: application/simple-message-summary Messages-Waiting: yes Message-Account: sip: served_user @Server Voice-Message: 4/1 (2/0) Video-Message: 3/1 (1/0) Fax-Message: 2/1 (0/1)																		
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