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IMS Network Testing (INT);

Abstract Test Suite for IMS & EPC Interoperability

Reference
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Foreword

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

1 Scope

The present document describes the Abstract Test Suite (ATS) to test interoperability for interconnection between IMS and EPC subsystems, based on TS 123 401 [4]. The ATS has been specified on the basis of the Test Descriptions for IMS/EPC interoperability testing presented in TS 103 029 [i.1]. It defines a TTCN-3 framework as well as codec and adapter requirements for analysing interoperability test execution traces generated from the manual or automatic execution of IMS interoperability tests.

The scope of this ATS is not to cover all requirements specified in TS 124 229 [1]. It only assesses requirements that are observable at the NMI between EPC and IMS core network implementations specified in TS 103 029 [i.1].

2 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 http://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.

2.1 Normative references

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

[1] ETSI TS 124 229 (V8.10.0): "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); LTE; Internet Protocol (IP) multimedia call control protocol based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP); Stage 3 (3GPP TS 24.229 version 8.10.0 Release 8)".

[2] ETSI TS 186 011-3 (V3.1.1): "IMS Network Testing (INT); IMS NNI Interoperability Test Specifications; Part 3: Abstract Test Suite (ATS) and partial Protocol Implementation eXtra Information for Testing (PIXIT)".

[3] ETSI ES 201 873-1: "Methods for Testing and Specification (MTS); The Testing and Test Control Notation version 3; Part 1: TTCN-3 Core Language".

[4] ETSI TS 123 401 (V10.5.0): "LTE; General Packet Radio Service (GPRS) enhancements for Evolved Universal Terrestrial Radio Access Network (E-UTRAN) access (3GPP TS 23.401 version 10.5.0 Release 10)".

2.2 Informative references

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.

[i.1] ETSI TS 103 029: " IMS Network Testing (INT); IMS & EPC Interoperability test descriptions".

[i.2] ETSI TS 101 580-3: "IMS Network Testing (INT); Diameter Conformance testing for Rx interface; Part 3: Abstract Test Suite (ATS) and partial Protocol Implementation eXtra Information for Testing (PIXIT) proforma specification".

3 Abbreviations

For the purposes of the present document, the abbreviations given in [1], [i.1], [i.2] and the following apply:

EPC	Evolved Packet Core
SIP	Session Internet Protocol

4 Overview

4.1 Network architecture

The NI/IMS ATS is enhanced to observe Diameter and SIP communication between EPC and IMS core network P-CSCF). Figure 1 shows a general architecture of two IMS core networks including the related interfaces.

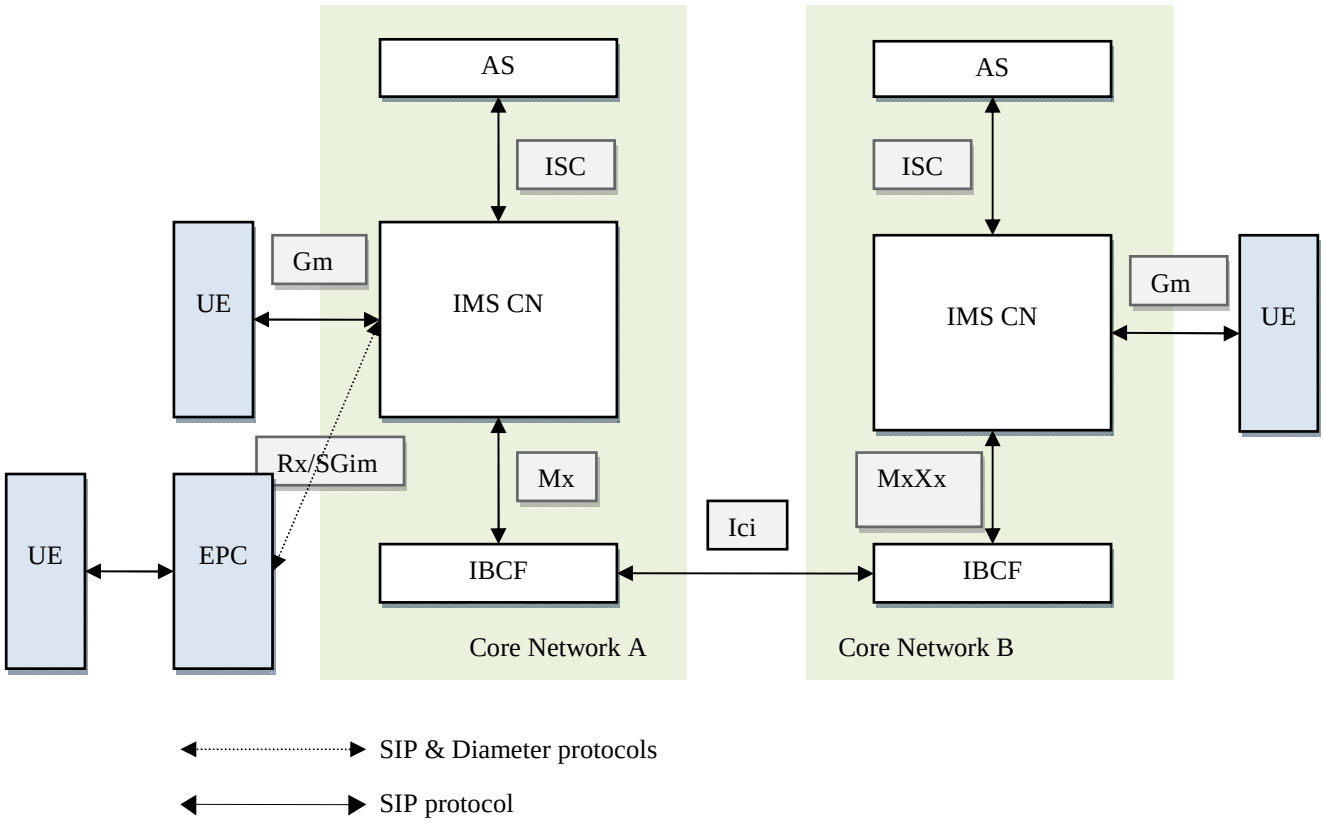

Figure 1: Network Architecture

NOTE: Roaming for User B is not allowed.

4.1.1 Core IMS Nodes

Core IMS as introduced in TS 186 011-3 [2], clause 4.1.1 apply to the present document.

4.1.2 External IMS Nodes

External IMS nodes as introduced in TS 186 011-3 [2], clause 4.1.1 apply to the present document.

In addition, EPC is considered to be within a "black box" for testing purposes. Interfaces between EPC and the IMS are described in TS 123 401 [4] and TS 103 029 [i.1].

5 Not applicable test purposes

Table 1 depicts the test purposes and the reasons for which they are not applicable in the context of the Automated IMS Testing Framework.

Table 1

Test purpose ID	Reasons
TP_EPC_6003_01	This test purpose cannot be tested according to IMS testing methodologies based on Ethernet link. This TP required radio testing methodologies.
TP_EPC_6009_02	This test purpose cannot be tested according to IMS testing methodologies based on Ethernet link. This TP required radio testing methodologies.
TP_EPC_6011_01	This test purpose cannot be tested according to IMS testing methodologies based on Ethernet link. This TP required radio testing methodologies.

6 Test configuration

The test configuration is described by TS 186 011-3 [2], clause 5.

Figure 2 extends the test configuration architecture shown in TS 186 011-3 [2], figure 2: "IMS NNI interoperability test system configuration".

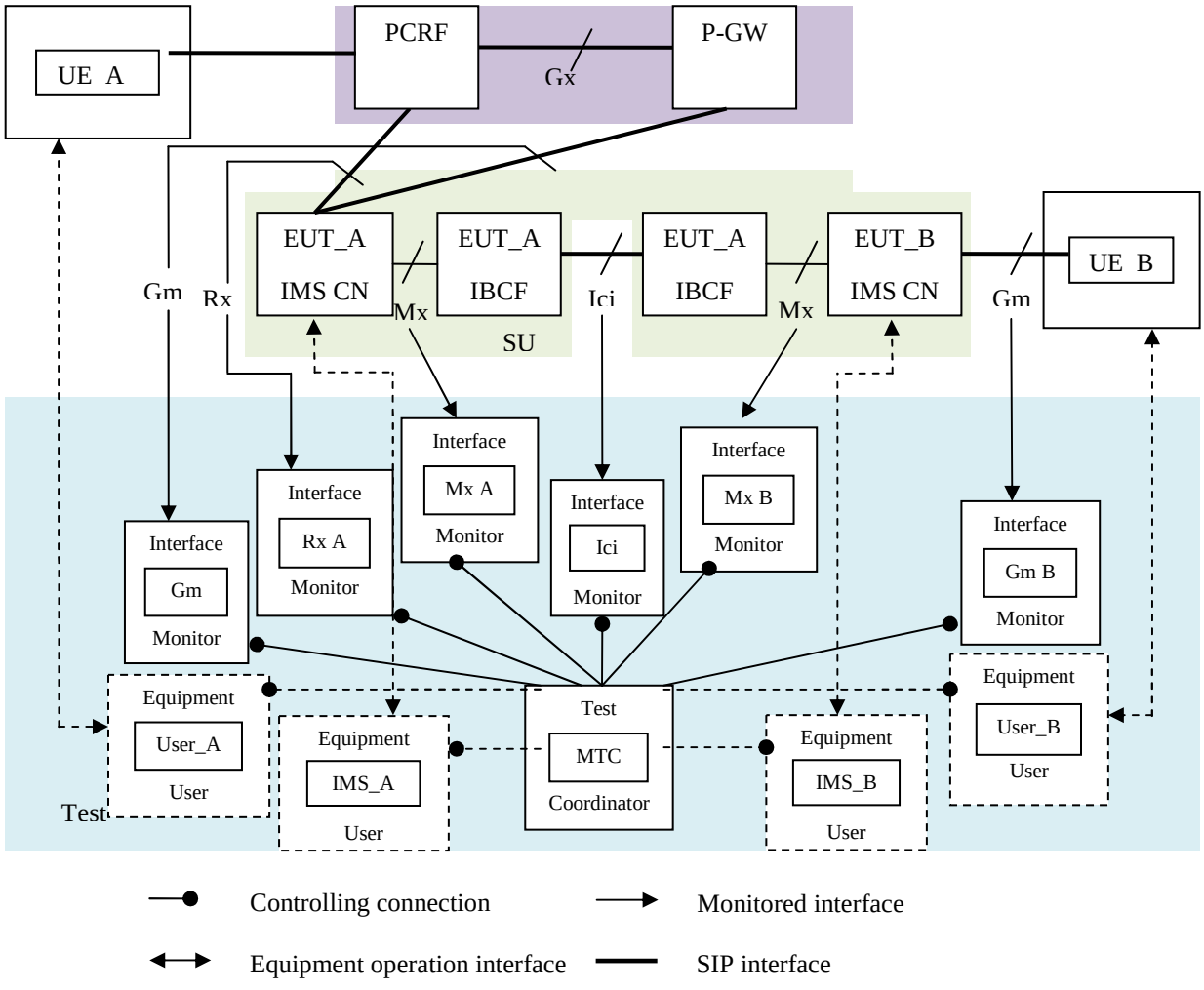

Figure 2: Test system architecture in case of EPC/IMS configuration

7 Test design

This clause defines guidelines and design patterns used in the Abstract Test Suite (ATS).

7.1 TTCN-3 naming convention

Conventions introduced in TS 186 011-3 [2], clause 6.1 apply to the present document.

7.2 TTCN-3 language version

This test suite has been developed based on the concepts available in version 4.4.1 of the TTCN-3 core language defined in ES 201 873-1 [3]. In order to simplify codec and test implementation, this test suite avoids and should avoid in future versions the use of nested TTCN-3 type definitions as well as features deprecated in this version of the language, e.g. the use of the all keyword in TTCN-3 port type definitions, or port types of type mixed.

7.3 Modularization

Conventions introduced in TS 186 011-3 [2], clause 6.3 apply to the present document.

In addition, IMS/EPC ATS requires the TTCN-3 library Diameter [i.2].

7.4 SIP message template design

Refer to TS 186 011-3 [2], clause 6.4.

7.5 Function design

Refer to TS 186 011-3 [2], clause 6.5.

7.6 Handling of proprietary interfaces

Refer to TS 186 011-3 [2], clause 6.6.

7.7 Message skipping

Refer to TS 186 011-3 [2], clause 6.7.

7.8 Documentation

Refer to TS 186 011-3 [2], clause 6.8.

7.9 Mapping of test descriptions to test cases

The ATS define one test case (TC) per EPC/IMS test description (TD).

The following naming convention is used by the ATS for test cases:

Test case name	**=**	**<TC_PREFIX>_<TD_ID>**	
<TC_PREFIX>	=	the test cases prefix as specified in the TTCN-3 naming conventions	e.g. "TC_"
<TD_ID>	=	the test description Id	e.g. "IMSEPC_Network_Attachment_0001"

8 Test system

Refer to TS 186 011-3 [2], clause 7.

9 Test execution

Refer to TS 186 011-3 [2], clause 8.

No more PIXITs were added.

Annex A (normative): Zip file with TTCN-3 code

Refer to TS 186 011-3 [2], annex A.

Refer to TS 101 580-3 [i.2], annex A.

Annex B (informative): Bibliography

ETSI TS 186 011-1 (V4.1.1): "IMS Network Testing (INT); IMS NNI Interoperability Test Specifications; Part 1: Test Purposes for IMS NNI Interoperability".

ETSI TS 186 011-2 (V4.1.1): "IMS Network Testing (INT); IMS NNI Interoperability Test Specifications; Part 2: Test Descriptions for IMS NNI Interoperability".

ETSI ES 201 873-5: "Methods for Testing and Specification (MTS); The Testing and Test Control Notation version 3; Part 5: TTCN-3 Runtime Interface (TRI)".

ETSI ES 201 873-6: "Methods for Testing and Specification (MTS); The Testing and Test Control Notation version 3; Part 6: TTCN-3 Control Interface (TCI)".

ETSI ES 201 873-10: "Methods for Testing and Specification (MTS); The Testing and Test Control Notation version 3; Part 10: TTCN-3 Documentation Comment Specification".

History

Document history		
V1.1.1	April 2012	Publication