ETSI TS 103 795-3 V1.1.1 (2024-03)

Core Network and Interoperability Testing (INT);
Network Interoperability Test Description for emergency services over VoLTE;
(3GPP™ Release 15);
Part 3: Abstract Test Suite (ATS)
and partial Protocol Implementation eXtra Information for Testing (PIXIT) pro forma specification

Reference
DTS/INT-00187-3

Keywords
ATS, interoperability, PIXIT, testing, VoLTE

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Contents

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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 3 of a multi-part deliverable. Full details of the entire series can be found in part 1 [11].

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 Abstract Test Suite (ATS) and partial Protocol Implementation eXtra Information for Testing (PIXIT) pro forma for emergency services over VoLTE in compliance with the relevant requirements and in accordance with the relevant guidance given in ISO/IEC 9646-7 [i.3] and ETSI ETS 300 406 [i.4].

The test notation used in the ATS is TTCN-3 (see ETSI ES 201 873-1 [i.5]).

The following test specification and design considerations can be found in the body of the present document:

- the overall test suite structure;
- the testing architecture;
- the test methods and port definitions;
- the test configurations;
- TTCN styles and conventions;
- the partial PIXIT pro forma;
- the modules containing the TTCN-3 ATS.

Annex A provides the Partial Implementation Extra Information for Testing (PIXIT) pro forma.

Annex B provides the Abstract Test Suite (ATS) part of the ATS.

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 124 229: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; 5G; IP multimedia call control protocol based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP); Stage 3 (3GPP TS 24.229 Release 15)".

[2] ETSI TS 129 165: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; 5G; Inter-IMS Network to Network Interface (NNI) (3GPP TS 29.165 Release 15)".

[3] ETSI TS 129 228: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; IP Multimedia (IM) Subsystem Cx and Dx Interfaces; Signalling flows and message contents (3GPP TS 29.228 Release 15)".

[4] ETSI TS 129 229: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; Cx and Dx interfaces based on the Diameter protocol; Protocol details (3GPP TS 29.229 Release 15)".

[5] ETSI TS 129 214: "Universal Mobile Telecommunications System (UMTS); LTE; 5G; Policy and charging control over Rx reference point (3GPP TS 29.214 Release 15)".

[6] ETSI TS 129 212: "Universal Mobile Telecommunications System (UMTS); LTE; 5G; Policy and Charging Control (PCC); Reference points (3GPP TS 29.212 Release 15)".

[7] ETSI TS 129 272: "Universal Mobile Telecommunications System (UMTS); LTE; 5G; Evolved Packet System (EPS); Mobility Management Entity (MME) and Serving GPRS Support Node (SGSN) related interfaces based on Diameter protocol (3GPP TS 29.272 Release 15)".

[8] ETSI TS 129 215: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; Policy and Charging Control (PCC) over S9 reference point; Stage 3 (3GPP TS 29.215 Release 15)".

[9] ETSI TS 129 328: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; 5G; IP Multimedia (IM) Subsystem Sh interface; Signalling flows and message contents (3GPP TS 29.328 Release 15)".

[10] ETSI TS 129 329: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; 5G; Sh interface based on the Diameter protocol; Protocol details (3GPP TS 29.329 Release 15)".

[11] ETSI TS 103 795-1: "Core Network and Interoperability Testing (INT); Network Interoperability Test Description for emergency services over VoLTE; Part 1: Test Purposes".

[12] ISO/IEC 9646-6: "Information technology -- Open Systems Interconnection -- Conformance testing methodology and framework -- Part 6: Protocol profile test specification".

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.

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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 132 299: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); LTE; Telecommunication management; Charging management; Diameter charging applications (3GPP TS 32.299 Release 15)".

[i.2] ISO/IEC 9646-1: "Information technology -- Open Systems Interconnection -- Conformance testing methodology and framework -- Part 1: General concepts".

[i.3] ISO/IEC 9646-7: "Information technology -- Open Systems Interconnection -- Conformance testing methodology and framework -- Part 7: Implementation Conformance Statements".

[i.4] ETSI ETS 300 406: "Methods for testing and Specification (MTS); Protocol and profile conformance testing specifications; Standardization methodology".

[i.5] 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".

3 Definition of terms, symbols and abbreviations

3.1 Terms

For the purposes of the present document, the terms given in ISO/IEC 9646-7 [i.3], ETSI TS 124 229 [1], ETSI TS 129 165 [2], ETSI TS 129 228 [3], ETSI TS 129 229 [4], ETSI TS 132 299 [i.1], ETSI TS 129 214 [5], ETSI TS 129 212 [6], ETSI TS 129 272 [7], ETSI TS 129 215 [8], ETSI TS 129 328 [9] and ETSI TS 129 329 [10] apply.

3.2 Symbols

Void.

3.3 Abbreviations

For the purposes of the present document, the abbreviations given in ISO/IEC 9646-1 [i.2], ISO/IEC 9646-6 [12], ISO/IEC 9646-7 [i.3], ETSI TS 124 229 [1], ETSI TS 129 165 [2], ETSI TS 129 228 [3], ETSI TS 129 229 [4], ETSI TS 132 299 [i.1], ETSI TS 129 214 [5], ETSI TS 129 212 [6], ETSI TS 129 272 [7], ETSI TS 129 215 [8], ETSI TS 129 328 [9] and ETSI TS 129 329 [10] apply.

4 Abstract Test Method (ATM)

4.1 Introduction

The following clauses describe the ATM used to test the VoLTE interoperability emergency services over 4G in physical/virtual environments.

4.2 Test architecture

The test architecture foreseen is a complex system of all involved components. The following figures give an overview. Figure 1 shows the network entities involved in the interoperability testing and the mapping to test components. Figure 2 adds a more technical view of the implementation plans for the test system components.

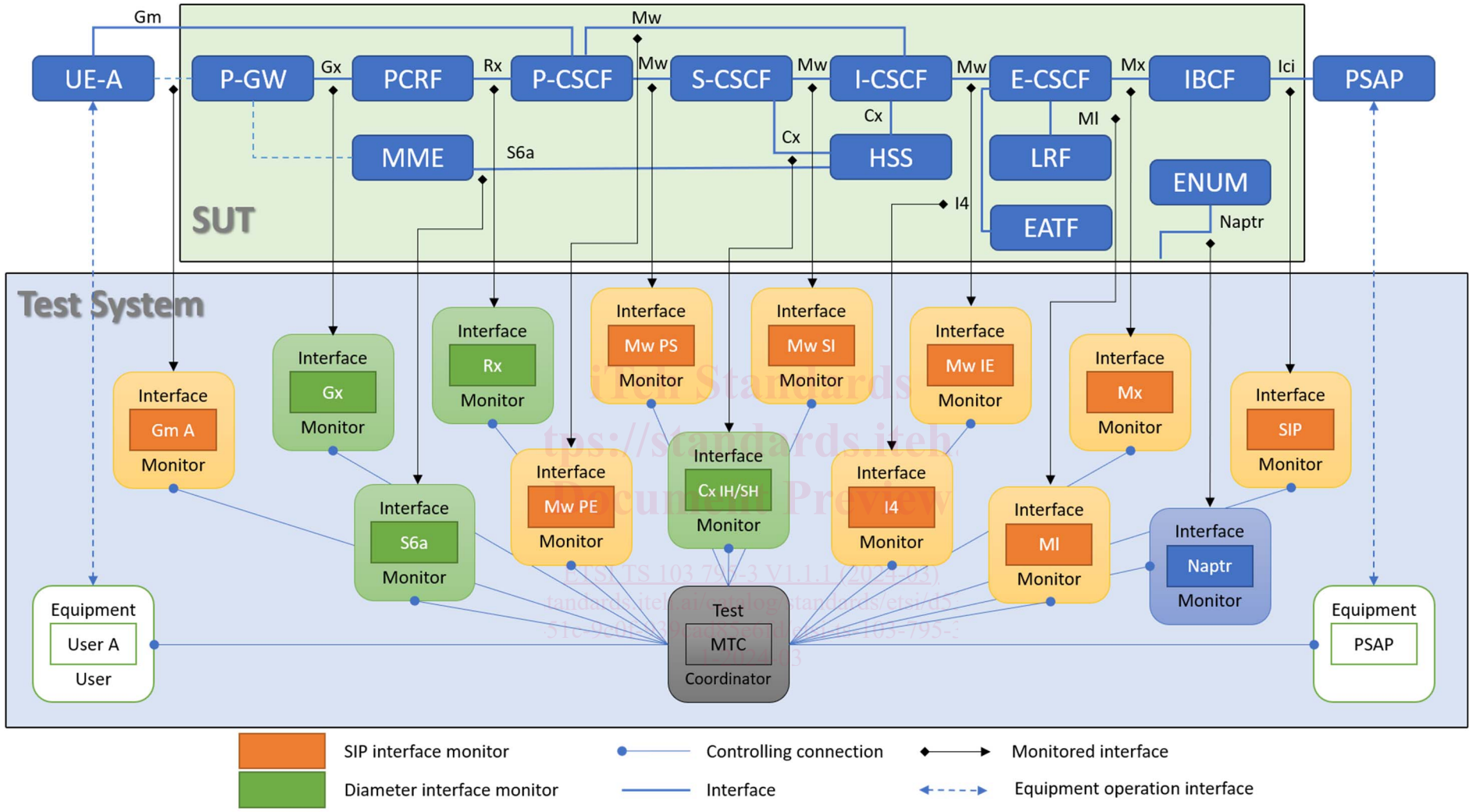

Figure 1: VoLTE emergency interoperability test system configuration

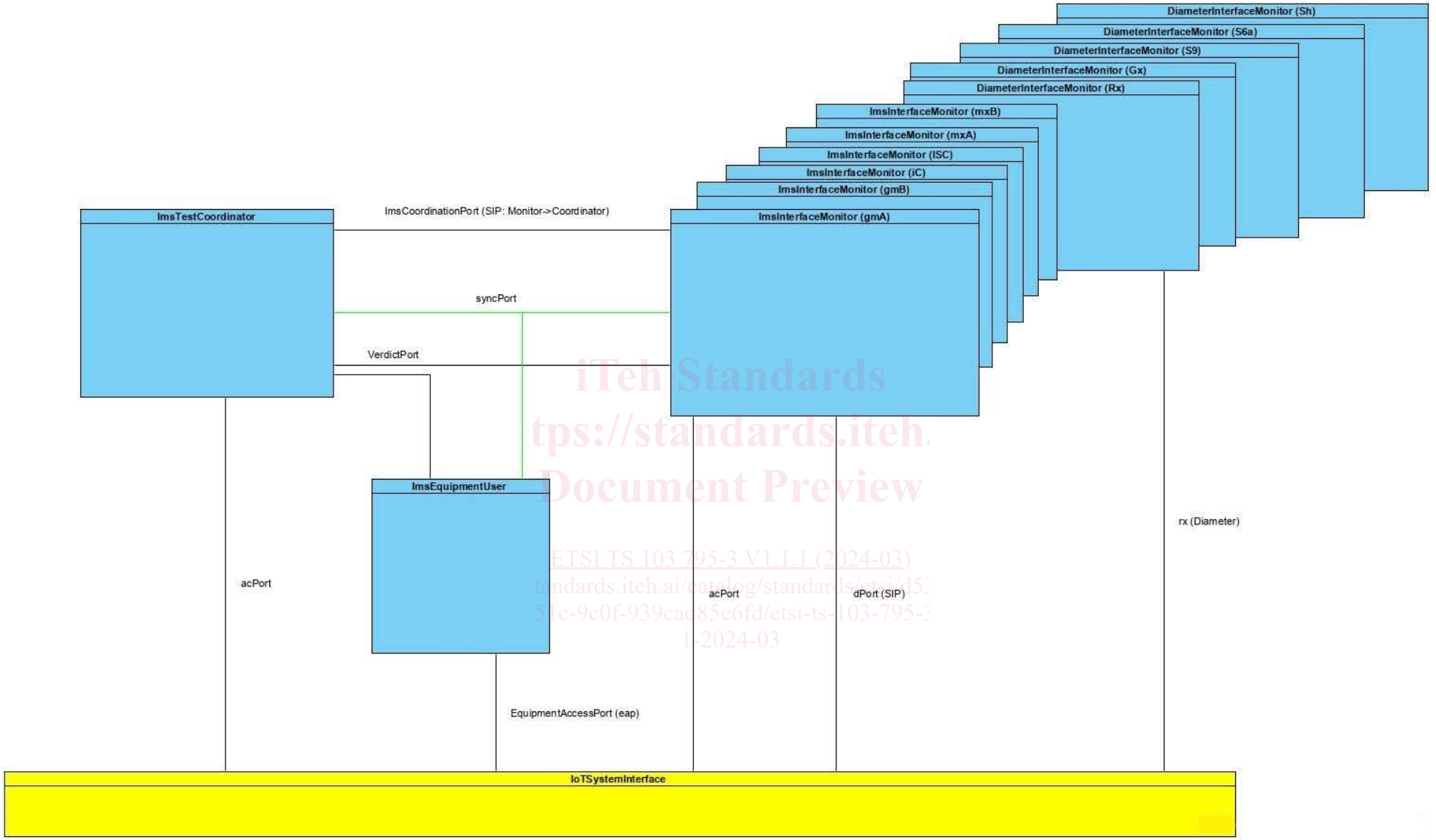

Figure 2: VoLTE interoperability test component view

4.3 Interconnection of TS and SUT

The interconnection of the Test System (TS) and the System Under Test (SUT) is depicted in figure 2.

The ImsTestCoordinator controls the overall test execution by coordinating the ImsInterfacesMonitor components on the SIP and Diameter interfaces under observation. It synchronizes those test components and receives individual test verdicts from them which are processed for the determination of the final overall test verdict.

ImsTestCoordinator and the ImsInterfacesMonitor components connect through the IoTSystemInterface to the SUT. The ImsEquipmentUser entity is responsible for the connection and management of external equipment.

4.4 Implementation of TS

The implementation of the TS in TTCN-3 is depicted in figure 3 which gives the names of all test components and the related TTCN-3 ports, variables and timers. It also shows the connections between the test components via ImsCoordinationPort, VerdictPort and SyncPort and the connections to the IotSystemInterface via SipPort, DiameterPort, eaPort and acPort.