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Services and Protocols for Advanced Networks (SPAN); Network Integration Testing between GSM Phase 2+, ISDN and PSTN; Part 1: Test Suite Structure and Test Purposes (TSS&TP)

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Services and Protocols for Advanced Networks (SPAN); Network Integration Testing between GSM Phase 2+, ISDN and PSTN; Part 1: Test Suite Structure and Test Purposes (TSS&TP)

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Foreword

This Technical Specification (TS) has been produced by ETSI Technical Committee Services and Protocols for Advanced Networks (SPAN).

The present document was developed by EURESCOM P1106 as Deliverable 2 Volume 1 and made freely and publicly available to ETSI TC SPAN for publication.

The present document is part 1 of a multi-part deliverable covering the Network Integration Testing between GSM Phase 2+, ISDN and PSTN, as identified below:

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

Introduction

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The present document contains the Test Suite Structure and Test Purposes (TSS&TP) for Network Integration Testing for the European ISDN and PLMN, covering Network Integration Testing (NIT) between ISDN-GSM, PSTN-GSM, GSM-ISDN, GSM-PSTN and GSM-GSM networks. The objective is to verify the level of international or national end-to-end support of ISDN and GSM (PLMN) services.

1 Scope

The present document specifies the Test Suite Structure and Test Purposes (TSS&TP) for Network Integration Testing (NIT) to verify the overall compatibility of GSM Phase 2+, ISDN and non-ISDN (PSTN) over the national or international ISUP between networks. Network Integration Testing will assure that the appropriate requested features passes between an ISDN subscriber and the mobile subscriber across the national or international ISUP (ISUP V2) interface.

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- 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.
- For a non-specific reference, the latest version applies.

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- [96] ETSI EN 300 646-1: "Integrated Services Digital Network (ISDN); Signalling System No.7 (SS7); Digital cellular telecommunications system (Phase 2); Application of ISDN User Part (ISUP) version 2 for the ISDN-Public Land Mobile Network (PLMN) signalling interface; Part 1: Protocol specification (GSM 09.12 version 4.2.2)".
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- [98] ETSI TS 123 087: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); User-to-User Signalling (UUS) supplementary service; Stage 2 (3GPP TS 23.087 version 5.0.0 Release 5)".
- [99] ITU-T Recommendation Q.734.1: "Stage 3 description for multiparty supplementary services using Signalling System No. 7: Conference calling".
- [100] ITU-T Recommendation Q.734.2: "Stage 3 description for multiparty supplementary services using Signalling System No. 7: Three-party service".
- [101] ETSI EN 300 065-1: "ElectroMagnetic Compatibility and Radio Spectrum Matters (ERM); Narrow-band direct-printing telegraph equipment for receiving meteorological or navigational information (NAVTEX); Part 1: Technical characteristics and methods of measurement".

- [102] ETSI EN 300 001: "Attachments to the Public Switched Telephone Network (PSTN); General technical requirements for equipment connected to an analogue subscriber interface in the PSTN".
- [103] ETSI ETS 300 604: "Digital cellular telecommunications system (Phase 2) (GSM); General requirements on interworking between the Public Land Mobile Network (PLMN) and the Integrated Services Digital Network (ISDN) or Public Switched Telephone Network (PSTN) (GSM 09.07 version 4.13.1)".
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- [105] ISO/IEC 8208: "Information technology; Data communications; X.25 Packet Layer Protocol for Data Terminal Equipment".
- [106] ITU-T Recommendation E.163: "Numbering plan for the international telephone service".
- [107] ETSI ETS 300 519: "Digital cellular telecommunications system (Phase 2) (GSM); Advice of Charge (AoC) supplementary services; Stage 1 (GSM 02.86)".
- [108] ETSI TS 100 517: "Digital cellular telecommunications system (Phase 2+) (GSM); MultiParty (MPY) Supplementary Services; Stage 1 (GSM 02.84 version 7.0.0 Release 1998)".
- [109] ETSI TS 100 545: "Digital cellular telecommunications system (Phase 2+) (GSM); Multi Party (MPY) supplementary services; Stage 2 (GSM 03.84 version 7.0.0 Release 1998)".
- [110] ETSI ETS 300 649: "Public Switched Telephone Network (PSTN); Calling Line Identification Restriction (CLIR) supplementary service; Service description".
- [111] ITU-T Recommendation Q.735.1: "Stage 3 description for community of interest supplementary services using Signalling System No. 7: Closed user group (CUG)".
- [112] ETSI ETS 300 566: "Digital cellular telecommunications system (Phase 2) (GSM); Call Forwarding (CF) supplementary services; Stage 3 (GSM 04.82)".
- [113] ETSI ETS 300 557: "Digital cellular telecommunications system (Phase 2) (GSM); Mobile radio interface; Layer 3 specification (GSM 04.08 version 4.23.1)".
- [114] ETSI TS 124 093: "Digital cellular telecommunications system (Phase 2+) (GSM); Universal Mobile Telecommunications System (UMTS); Completion of calls to Busy Subscriber (CCBS) - Stage 3 (3G TS 24.093 version 3.0.0 Release 1999)".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in ISO/IEC 9646-1 [38] and the following apply:

Abstract Test Case (ATC): Refer to ISO/IEC 9646-1 [38].

Abstract Test Suite (ATS): Refer to ISO/IEC 9646-1 [38].

Implementation Conformance Statement (ICS) proforma: Refer to ISO/IEC 9646-1 [38].

Implementation eXtra Information for Testing (IXIT) proforma: Refer to ISO/IEC 9646-1 [38].

Implementation Under Test (IUT): Refer to ISO/IEC 9646-1 [38].

Lower Tester: Refer to ISO/IEC 9646-1 [38].

Point of Control and Observation (PCO): Refer to ISO/IEC 9646-1 [38].

Protocol Implementation Conformance Statement (PICS): Refer to ISO/IEC 9646-1 [38].

Protocol Implementation eXtra Information for Testing (PIXIT): Refer to ISO/IEC 9646-1 [38].

System Under Test (SUT): Refer to ISO/IEC 9646-1 [38].

Test Purpose (TP): Refer to ISO/IEC 9646-1 [38].

3.2 Definitions related to test purpose descriptions

BC=3,1 kHz audio: bearer capability information element with its information transfer capability field set to "3,1 kHz Audio" and its user information layer one protocol field set to "G.711 A-law"

NOTE: See ETS 300 084 [3].

BC=speech: bearer capability information element with its information transfer capability field set to "speech" and its user information layer one protocol field set to "G.711 A-law"

NOTE: See ETS 300 083 [2].

BC=UDI: bearer capability information element with its information transfer capability set to "unrestricted digital information"

NOTE: See EN 300 403-1 [1].

BC=UDI/TA: bearer capability information element with its information transfer capability set to "unrestricted digital information with tones/announcements" and its user information layer one protocol field set to "ITU-T Recommendations H.221 and H.242"

NOTE: See EN 300 267-1 [4].

BC=V110/X30: bearer capability information element with its information transfer capability set to "unrestricted digital information" and its user information layer 1 field set to "ITU standardized rate adaption V.110/X.30", including sync/async and user rate values.

NOTE: See EN 300 403-1 [1].

CF active: call forwarding (U, B or NR) supplementary service already activated with the address of user C

NOTE: See EN 300 207-1 [17].

CUG default request: the calling user does not include in the outgoing SETUP message an explicit request for the CUG supplementary service

NOTE: See EN 300 138-1 [11].

GSM - Bearer service categories: all bearer service categories provide information transfer between R/S reference points and allow the use of sub-rate information streams which are rate adapted

GSM-BC=UD: Unrestricted Digital information (UD) which provides the transfer of unrestricted digital information

GSM-BC=3,1 kHz: (external to the PLMN) service used to select a "3,1 kHz audio" interworking function at the MSC

NOTE: This service category is used when interworking with the ISDN or PSTN "3,1 kHz audio" service and includes the capability to select a modem at the interworking function. "External to the PLMN" indicates that the "3,1 kHz audio" service is only used outside of the PLMN, in the ISDN/PSTN. The connection within the PLMN, user access point to the interworking function, is an unrestricted digital connection.

Alternate Speech/Data: service which provides the capability to swap between speech and data during a call

NOTE 1: If either the speech or data portion of the call requires a full rate channel, a full rate channel shall be used for the duration of the call.

NOTE 2: The access interface at the mobile station for the data portion is assumed to be a standard data interface. Some means must be provided to select the speech/data capability.