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Integrated Services Digital Network (ISDN); CCITT Signalling System No. 7 Signalling Connection Control Part (SCCP) [connectionless service] to support international interconnection

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Contents

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Foreword

This European Telecommunication Standard (ETS) has been produced by the Signalling Protocols and Switching (SPS) Technical Committee of the European Telecommunications Standards Institute (ETSI), as working document T/S 43-03, and was adopted having passed through the ETSI standards approval procedure.

This ETS is based on CCITT Recommendations Q.711 [1] to Q.714 [4] as recommended in the CCITT Blue Book, 1988. The requirements of these CCITT Recommendations apply unless modified by the exception statements contained in Clause 4 of this ETS. In addition, the standard includes the specific requirements contained in Clause 5 of this ETS.

CCITT Recommendation Q.716 [5] shall also apply.

This ETS is also based on the following assumptions concerning the interconnection of national Signalling Connection Control Parts (SCCPs):

- the Message Transfer Part (MTP) specified in ETS 300 008 [6] supports the SCCP for international interconnection;

- at present, no SCCP users (subsystem) have been identified in the international network and, therefore, no need exists for management messages to be originated or terminated. However, Unitdata messages containing management information should be carried in the international network as all other Unitdata messages.

- a global title including the country code, is required for routing in the international network. The global title format of CCITT Recommendation Q.713 [3], § 3.4.2.3.4, is to be used (Global Title Indicator = 0100).

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1 Scope

The scope of this ETS is the further development of the CCITT Signalling System No. 7 protocols for both the Integrated Services Digital Network (ISDN) and Public Switched Telephone Network (PSTN) following the publication of CCITT Recommendations Q.711 [1] to Q.714 [4] and Q.716 [5].

This ETS is applicable to the international network and is not meant to restrict national networks. It provides the connectionless relay point functions, gateway functions but not end point functions.

The SCCP gateway functions are relay functions that bridge two MTP networks.

2 Normative references

This ETS incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this ETS only when incorporated in it by amendment or revision. For undated references, the latest edition of the publication referred to applies.

[1] CCITT Recommendation Q.711 (1988): "Functional description of the signalling connection control part".

[2] CCITT Recommendation Q.712 (1988): "Definition and function of SCCP messages".

[3] CCITT Recommendation Q.713 (1988): "SCCP formats and codes".

[4] CCITT Recommendation Q.714 (1988): "Signalling connection control part procedures".

[5] CCITT Recommendation Q.716 (1988): "Signalling connection control part (SCCP) performances".

[6] ETS 300 008 (1991): "Integrated Services Digital Network (ISDN); CCITT Signalling System No. 7; Message Transfer Part (MTP) to support international interconnection".

3 Symbols and abbreviations

For the purposes of this ETS the following abbreviations apply.

DPC	Destination Point Code
EIR	Equipment Identification Register
GT	Global Titles
HLR	Home Location Register
MAP	Mobile Application Part
MSC	Mobile Switching Centre
MTP	Message Transfer Part
RI	Routing Indicator
SCCP	Signalling Connection Control Part
SLS	Signalling Link Selection

SSN SubSystem Number

VLR Visited Location Register

4 Exceptions to CCITT Recommendations Q.711 to Q.714

The following exceptions to CCITT Recommendations Q.711 - 714 [1] - [4] shall apply.

4.1 General

4.1.1 Routing

In order to route a Signalling Connection Control Part (SCCP) message from one country to another it shall always be necessary that a global title is available. Therefore the possibilities of routing on Destination Point Code (DPC) only, or DPC and SubSystem Number (SSN), as mentioned in CCITT Recommendation Q.714 [4], § 2.2.2, shall not apply.

For routing in the international network, the Routing Indicator (RI) shall always be set to route on global title.

4.1.2 Address Information

In the international network the following address element shall be required to meet this standard:

- GT + SSN

(See the suggestion in CCITT Recommendation Q.713 [3], § 3.4.1, that the SSN is always included, which shall be adopted in this standard. In the international network no use can be seen by the SCCP for a DPC in the calling and called party address).

NOTE: This does not restrict the addressing schemes used in national networks, e.g. use of DPC and SSN for messages not leaving the national network.

4.1.3 Management procedures

No management procedures are required except for those for updating SCCP translation tables in order to transfer messages to the back up node, under primary node failure conditions, i.e. only CCITT Recommendation Q.714 [4], § 5.2 applies, modified as indicated below.

5.2 Signalling point status management

5.2.1 General

Signalling point status management updates translation and status based on the information of network failure or recovery provided by the MTP-PAUSE indication and MTP-RESUME indication primitives. This allows alternative routing to back up signalling points.

5.2.2 Signalling point prohibited

When the SCCP management receives an MTP-PAUSE indication relating to a destination that becomes inaccessible, SCCP management:

1) marks the translation as: "translate to back up node" if that signalling point has a back-up;

2) marks as "prohibited" the status of that signalling point.

5.2.3 Signalling point allowed

When SCCP management receives an MTP-RESUME indication relating to a destination that becomes accessible, SCCP management:

1) marks the translation as: "translate to primary node" if that signalling point has a back-up,

2) marks as "allowed" the status of that signalling point.

SCCP management messages and SCCP primitives are not required. No SCCP reaction to a received MTP-STATUS indication is necessary.

4.2 Protocol classes

4.2.1 Protocol classes 2 & 3

Protocol classes 2 & 3 are not specified in this document, since this document refers to the connectionless service only.

4.2.2 Load sharing

Reference: CCITT Recommendation Q.711 [1], § 2.2.1 b.

If the in-sequence delivery is not required (protocol class 0), the SCCP shall insert Signalling Link Selection (SLS) codes with respect to the appropriate load sharing within the signalling network. If the in-sequence delivery is required (protocol class 1), the SCCP at the originating node, while adhering to the sequence control instruction from the user, shall allocate SLS codes between sequence streams with respect to appropriate load sharing within the signalling network.

As in relay nodes user sequence control is not available, there shall be a fixed mapping between incoming and outgoing SLS code values for class 1.

5 Additions to CCITT Recommendations

5.1 SubSystem Number (SSN) allocation

Reference: CCITT Recommendation Q.713 [3], § 3.4.2.2.

NOTE: Though SubSystems are not presently required in the international CCITT Signalling System No. 7 network and the information in the SSN field would be transparent, this information should be seen as SSN allocation rules for Home Location Registers (HLRs), Visited Location Registers (VLRs), Mobile Switching Centres (MSCs), Equipment Identification Register (EIRs) and authentication centres in national networks.

In addition to the code points allocated to identify SSNs supported by the SCCP the following additional SSNs to support Mobile Application Part (MAP) are required by this standard:

00000110 - Home Location Register (HLR);

00000111 - Visited Location Register (VLR);

00001000 - Mobile Switching Centre (MSC);

00001001 - Equipment Identification Register (EIR);

00001010 - reserved for authentication centre.

History

Document history	
December 1991	First Edition
May 1996	Converted into Adobe Acrobat Portable Document Format (PDF)