SLOVENSKI STANDARD
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Digitalno omrežje z integriranimi storitvami (ISDN) - Signalizacija št. 7 - Krmilni del signalizacijske zveze (SCCP) (nepovezavni in povezavni razred 2) za podporo mednarodnega medsebojnega povezovanja - 1. del: Specifikacija protokola (prilagojena priporočila ITU-T Q.711 do Q.714 in Q.716 (1993))

Integrated Services Digital Network (ISDN); Signalling System No.7; Signalling Connection Control Part (SCCP) (connectionless and connection-oriented class 2) to support international interconnection; Part 1: Protocol specification [ITU-T Recommendations Q.711 to Q.714 and Q.716 (1993), modified]

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Integrated Services Digital Network (ISDN); Signalling System No.7; Signalling Connection Control Part (SCCP) (connectionless and connection-oriented class 2) to support international interconnection; Part 1: Protocol specification

[ITU-T Recommendations Q.711 to Q.714 and Q.716 (1993), modified]

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Foreword

This third edition European Telecommunication Standard (ETS) has been produced by the Signalling Protocols and Switching (SPS) Technical Committee of the European Telecommunications Standards Institute (ETSI).

The third edition of ETS 300 009 covering the Signalling System No.7 Signalling Connection Control Part (SCCP) to support international interconnection is structured as a multi-part standard (of which this ETS forms part 1) as described below:

Part 1: **"Protocol specification [ITU-T Recommendations Q.711 to Q.714 and Q.716 (1993), modified]";**

Part 2: "Protocol Implementation Conformance Statement (PICS) proforma specification";

Part 3: "Abstract Test Suite (ATS) and partial Protocol Implementation eXtra Information for Testing (PIXIT) proforma specification".

This ETS implies the existence of a number of functional subsets of the SCCP protocol without, however, explicitly identifying them. Depending on their functional requirements, conforming implementations would probably only implement a subset of the overall functions, e.g. a switch might only implement Class 2 embedded, or a GSM basestation might not handle Global Titles. The possibility of having such implementations is reflected by the optionality of the corresponding capabilities in the PICS proforma specification, ETS 300 009-2.

Transposition dates	
Date of adoption of this ETS:	6 September 1996
Date of latest announcement of this ETS (doa):	31 December 1996
Date of latest publication of new National Standard or endorsement of this ETS (dop/e):	30 June 1997
Date of withdrawal of any conflicting National Standard (dow):	30 June 1997

Endorsement notice

The text of ITU-T Recommendations Q.711 (1993), Q.712 (1993), Q.713 (1993), Q.714 (1993) and Q.716 (1993) was approved by ETSI as an ETS with agreed modifications as given below.

NOTE: New or modified text is indicated using sidebars. In addition, underlining and/or strikeout are used to highlight detailed modifications where necessary.

Global modifications to ITU-T Recommendations Q.711 to Q.714 and Q.716

Insert the following three clauses (scope, normative references and abbreviations):

Scope

This first part of ETS 300 009 defines the Signalling Connection Control Part (SCCP) signalling protocol of Signalling System No.7 for use in and between international relay points and gateways and, optionally, in public networks.

This ETS covers the use of connectionless functions (Class 0 and Class 1) and connection-oriented functions (Class 2, including embedded connection setup).

NOTE: The SCCP gateway functions are relay functions that bridge two Message Transfer Part (MTP) networks.

This ETS is applicable to the international network and does not intend to restrict national networks. However, to facilitate SCCP interworking, its adoption within national networks is recommended.

Concerning the interconnection of SCCPs, this ETS is based on the assumption that the Message Transfer Part (MTP) specified in ETS 300 008 [1] supports the SCCP.

Normative references

This ETS incorporates by dated and 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] ETS 300 008 (1991): "Signalling System No.7; Message Transfer Part (MTP) to support international interconnection".

Abbreviations

For the purposes of this ETS, the following abbreviations apply:

CC	Connection Confirm message
CR	Connection Request message
CREF	Connection Refused message
DPC	Destination Point Code
ERR	protocol data unit Error message
GT	Global Title
ISDN	Integrated Services Digital Network
ISUP	ISDN User Part
IT	Inactivity Test message
MTP	Message Transfer Part
OPC	Originating Point Code
RI	Routing Indicator
RLC	Release Complete message
RLSD	Released message
SCCP	Signalling Connection Control Part
SLS	Signalling Link Selection
SPC	Signalling Point Code
SS	Subsystem
SSN	Subsystem Number
UDT	Unitdata message
UDTS	Unitdata Service message
UUS3	User-to-User Signalling, service 3
XUDT	Extended Unitdata message
XUDTS	Extended Unitdata Service message

Modifications to ITU-T Recommendation Q.711

Page 4, subclause 2

Class 3 is not in the scope of this ETS.

Page 4, subclause 2.1

Permanent signalling connections are not in the scope of this ETS.

Page 5, subclause 2.1.1.1.2

Sequence control and flow control are not in the scope of this ETS.

Page 6, subclause 2.1.1.2.1

N-EXPEDITED DATA, N-DATA ACKNOWLEDGE, and N-RESET are not in the scope of this ETS.

Page 8, figure 7/Q.711

Add the following note to figure 7/Q.711:

NOTE: ISUP requests connection setup with the REQUEST Type 1 or REQUEST Type 2 interface elements.

Page 8, subclause 2.1.1.2.2

Negotiation of expedited data is not in the scope of this ETS.

Page 9, subclause 2.1.1.2.3

N-EXPEDITED DATA, N-DATA ACKNOWLEDGE, and N-RESET are not in the scope of this ETS.

Page 13, subclause 2.1.1.3.2

Connection establishment interface elements are used by ISUP for the embedded setup of connections. The "receipt confirmation selection" shall be set to false. The "quality of service parameter set" shall indicate Class 2.

NOTE: In the international network, the REQUEST Type 1 interface element would normally not be used. This interface element only applies at the originating node in the national network. However, it should be possible that ISUP performs an association ("chaining") of connection sections itself on the user level (see figure 12 of ITU-T Recommendation Q.730 as modified by ETS 300 356-2). This may be necessary if different versions of SCCP are used in the national and international networks, or if User-to-user data is transported in the national network in another way.

Page 14, subclause 2.1.2

Delete subclause 2.1.2. Permanent signalling connections are not in the scope of this ETS.

Page 15, subclause 2.2.1

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. This mapping may be different for different signalling relations.

Page 18, subclause 2.3.2.1

N-COORD is only needed in nodes that contain local replicated subsystems.

Page 19, subclause 2.3.2.3.1

N-COORD is only needed in nodes that contain local replicated subsystems.

Page 21, table 16/Q.711, note b)

Replace note b) by:

b) The Cause parameter in the MTP-STATUS primitive may take the values:

"Signalling network congested";
"User Part unavailable".

For the cause "Signalling network congested", and where an MTP according to ETS 300 008 [1] is used, no congestion levels are reported. MTPs employed in national networks may provide congestion levels.

NOTE: The values:

- "User Part unavailability: unknown";
- "User Part unavailability: unequipped remote user";
- "User Part unavailability: inaccessible remote user",

occur in ITU-T Recommendation Q.701 clause 8. The first one corresponds to "User Part unavailable" in ETS 300 008 [1], the latter two are not part of ETS 300 008 [1].

Page 21, subclause 3.2.4, first paragraph

Insert after the first paragraph:

The Cause parameter in the MTP-STATUS primitive may take the values:

- "Signalling network congested";
- "User Part unavailable".

For the cause "Signalling network congested", and where an MTP according to ETS 300 008 [1] is used, no congestion levels are reported. MTPs employed in national networks may provide congestion levels.

NOTE: The values:

- "User Part unavailability: unknown";
- "User Part unavailability: unequipped remote user";
- "User Part unavailability: inaccessible remote user",

occur in ITU-T Recommendation Q.701, clause 8. The first one corresponds to "User Part unavailable" in ETS 300 008 [1], the latter two are not part of ETS 300 008 [1].

Page 22, subclause 4.1

Class 3 functions are not in the scope of this ETS.

Page 22, subclause 4.1.1.2

Flow control is not in the scope of this ETS.

Expedited data support is not in the scope of this ETS.

Missequence detection is not in the scope of this ETS.

Reset is not in the scope of this ETS.

Receipt confirmation is not in the scope of this ETS.

Page 23, subclause 4.1.2

Delete subclause 4.1.2. Functions for permanent signalling connections are not in the scope of this ETS.

Page 23, subclause 4.3

Co-ordinated state change is only needed in nodes that contain local replicated subsystems.

Page 23, subclause 4.4

The routing and translation function of SCCP does not apply for the embedded method.

NOTE: ISUP executes its own routing function. It provides the minimal necessary information for SCCP in the MTP-routing label and the Originating Point Code (OPC) field of the embedded request (see subclause 3.15 of ITU-T Recommendation Q.763 as modified by ETS 300 356-1).

Modifications to ITU-T Recommendation Q.712

Page 1, subclause 1.4

Delete subclause 1.4. Data acknowledgement is not in the scope of this ETS.

Page 1, subclause 1.6

Delete subclause 1.6. Data form 2 is not in the scope of this ETS.

Page 1, subclause 1.7

Delete subclause 1.7. Expedited data is not in the scope of this ETS.

Page 1, subclause 1.8

Delete subclause 1.8. Expedited data acknowledgement is not in the scope of this ETS.

Page 2, subclause 1.13

Delete subclause 1.13. Reset confirm is not in the scope of this ETS.

Page 2, subclause 1.14

Delete subclause 1.14. Reset request is not in the scope of this ETS.

Page 2, subclause 1.16

Subsystem-out-of-service-grant is only needed in nodes that contain local replicated subsystems.

Page 2, subclause 1.17

Subsystem-out-of-service-request is only needed in nodes that contain local replicated subsystems.

Page 3, subclause 2.4

Delete subclause 2.4. Credit is not in the scope of this ETS.

Page 4, subclause 2.6

Delete subclause 2.6. Diagnostic is not in the scope of this ETS.

Page 4, subclause 2.11

Delete subclause 2.11. Receive sequence number is not in the scope of this ETS.

Page 4, subclause 2.14

Delete subclause 2.14. Reset cause is not in the scope of this ETS.

Page 4, subclause 2.17

Delete subclause 2.17. Sequencing/segmenting is not in the scope of this ETS.

Modifications to ITU-T Recommendation Q.713

Page 6, subclause 3.4.1, third paragraph

Insert after the third paragraph, beginning with "A "1" in bit 2 ...":

On transmission of the called or calling party address, the Subsystem Number (SSN) indicator field shall always be included and set to 0 if unknown.

Page 7, subclause 3.4.1, last paragraph

Insert after the last paragraph:

Bit 8 (reserved for national use) shall always be coded 0 and is not evaluated.

Page 8, subclause 3.4.2.2, list of subsystem numbers

Replace all codepoints below 0000 1010 (AUC) by:

0000 1011	ISS (ISDN Supplementary Services)
0000 1100	INAP (Intelligent Network Application Protocol)
0000 1101 to 1111 1110	Spare
1111 1111	Reserved for expansion

NOTE: Except for ISUP, there are currently no SCCP users in the international network. Nevertheless, SSNs need to be allocated for all those SCCP subsystems whose messages may cross network boundaries, so that international agreement is required for the SSNs used. An additional SSN is required for ISDN Supplementary Services (ISS) to identify the services that are based on Transaction Capabilities (TC) (CCBS, Reverse charging, etc.).

Page 9, subclause 3.4.2.3.1

Global title indicator = 0001 is not in the scope of this ETS.

Page 10, subclause 3.4.2.3.2

Global title indicator = 0010 is not in the scope of this ETS.

Page 11, subclause 3.4.2.3.3

Global title indicator = 0011 is not in the scope of this ETS.

Page 12, subclause 3.5, last paragraph

Insert after the last paragraph:

If segmenting/reassembly of connectionless messages or the return option are used, an unambiguous[1)] identification of the originating SCCP user (possibly complemented by additional MTP information) shall be supplied in the calling party address.

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1) "unambiguous" is used here as defined in ITU-T Recommendation X.650:
"A name is unambiguous within a given scope when it identifies one and only one object within that scope. Unambiguity does not preclude the existence of synonyms".

Page 13, subclause 3.8

Delete subclause 3.8. Receive sequence number is not in the scope of this ETS.

Page 14, subclause 3.9

Delete subclause 3.9. Sequencing/segmenting is not in the scope of this ETS.

Page 14, subclause 3.10

Delete subclause 3.10. Credit is not in the scope of this ETS.

Page 15, subclause 3.13

Delete subclause 3.13. Reset cause is not in the scope of this ETS.

Page 21, subclause 4.8

Delete subclause 4.8. Data form 2 is not in the scope of this ETS.

Page 22, subclause 4.9

Delete subclause 4.9. Data acknowledgement is not in the scope of this ETS.

Page 23, subclause 4.12

Delete subclause 4.12. Expedited data is not in the scope of this ETS.

Page 24, subclause 4.13

Delete subclause 4.13. Expedited data acknowledgement is not in the scope of this ETS.

Page 24, subclause 4.14

Delete subclause 4.14. Reset request is not in the scope of this ETS.

Page 25, subclause 4.15

Delete subclause 4.15. Reset confirm is not in the scope of this ETS.

Page 30, annex A

Annex A has the status of a normative annex.

Modifications to ITU-T Recommendation Q.714

Page 1, subclause 1.1.2

Class 3 procedures are not in the scope of this ETS.

Page 2, subclause 1.1.2.2, last paragraph

Insert after the last paragraph:

The in-sequence delivery not only relies on the properties of the MTP network, but also SCCP shall guarantee the sequential processing of SCCP messages. This excludes e.g. arbitrary parallel processing of Global Title translations in relay nodes.

Page 2, subclause 1.1.2.4

Delete subclause 1.1.2.4. Protocol Class 3 is not in the scope of this ETS.

Page 2, subclause 1.1.3

Insert after the last paragraph:

NOTE: The ITU-T White Book (1993) leaves the possibility of having relay points without coupling for connection-oriented services for further study because it is not clear how a connection can be completed (with a Connection Confirm (CC) message) to the originator without changing or including the Calling address parameter of the Connection Request (CR) message in relay nodes.

For the embedded method, there is in fact the possibility of having no association in an ISUP relay point (ISUP would in this case simply pass the embedded request further on, without issuing a REQUEST Type 2). This poses no problem, since the OPC of the originating node or of the last relay node with coupling is included in the embedded connect request of the IAM message. It is therefore always possible to route back the CC message to the correct originator.

Page 3, subclause 1.2.1, last paragraph

Insert after the last paragraph:

When the embedded method is used, ISUP determines whether association of connection sections is required or not. If the SCCP receives a REQUEST Type 2 from ISUP, with the "reply bit" set, an association of connection sections shall be performed.

NOTE: The ITU-T White Book (1993) leaves the possibility of having relay points without coupling for connection-oriented services for further study because it is not clear how a connection can be completed (with a CC message) to the originator without changing or including the Calling address parameter of the CR message in relay nodes.

For the embedded method, there is in fact the possibility of having no association in an ISUP relay point (ISUP would in this case simply pass the embedded request further on, without issuing a REQUEST Type 2). This poses no problem, since the OPC of the originating node or of the last relay node with coupling is included in the embedded connect request of the IAM message. It is therefore always possible to route back the CC message to the correct originator.