

# Interkonnektion – SS7 ISUP Specification at the J-NNI

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## 1 Scope

- <sup>1.</sup> This document provides an overview of the Signalling System No. 7 ISDN User Part (ISUP) implementation, supported at the Joining-Network Node Interface (J-NNI). It is based on European Telecommunications Standards (ETS) and/or European Norms (EN).
- <sup>2.</sup> The exceptions, clarifications and differences to the ETS (EN) are listed further down in this document.

## 2 References

	Title
[1]	EN 300 356 1 V3.2.2 (1998-08): "Integrated Services Digital Network (ISDN); Signalling System No.7; ISDN User Part (ISUP) version 3 for the international interface; Part 1: Basic services [ITU-T Recommendations Q.761 to Q.764 (1997), modified]".
[2]	ETS 300 485 (01/96):"Integrated Services Digital Network (ISDN); Definition and usage of cause and location in Digital Subscriber Signalling System No. one (DSS1) and Signalling System No.7 ISDN User Part (ISUP) [ITU-T Recommendation Q.850 (1993), modified]".
[3]	EN 300 356 2 V3.2.2 (1998-08): "Integrated Services Digital Network (ISDN); Signalling System No.7; ISDN User Part (ISUP) version 3 for the international interface; Part 2: ISDN supplementary services [ITU-T Recommendation Q.730 (1997), modified]".
[4]	ITU-T Recommendation Q.761 (09/97): "Functional description of the ISDN User Part of Signalling System No. 7".
[5]	ITU-T Recommendation Q.762 (09/97): "General function of messages and signals of the ISDN User Part of Signalling System No. 7".
[6]	ITU-T Recommendation Q.763 (09/97): "Formats and codes of the ISDN User Part of Signalling System No. 7".
[7]	ITU-T Recommendation Q.764 (09/97): "Signalling System No. 7 – ISDN User Part signalling procedures".
[8]	Anhang 2 zur Verordnung der ComCom (20. August 1999) BAKOM; die freie Wahl der Dienstanbieterin für nationale und internationale Verbindungen; (Carrier Selection).
[9]	ETS 300 646-1 (May 1997): "Integrated Services Digital Network (ISDN); Signalling System No.7; 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 4.1.1).
[10]	ITU-T Recommendation Q.765 (06/00): Signalling System No. 7 – Application transport mechanism.
[11]	ES 201 296 V1.1.2 (1998-09): Integrated Services Digital Network (ISDN); Signalling System No.7; Signalling aspects of charging.
[12]	ITU-T Recommendations Q.711-Q.714 (March 1993) – Signalling System No.7 – Signalling Connection Control Part
[13]	ITU-T Recommendations Q.771 - Q.775 (June 1997) - Signalling System No.7 – Transaction Capabilities

### 3 Supported services

- <sup>1.</sup> The ISUP at the J-NNI provides signalling for the functions and services as specified for the ETSI international use in EN 300 356 1 [1]. Exceptions and clarifications to this list are given in the following chapter.
- <sup>3.</sup> For J-NNI to a mobile network, the specifications in ETS 300 646-1 [9] shall also be considered.

### 4 Exceptions and clarifications to the ISUP implementatino at the J-NNI

- <sup>1.</sup> If this implementation differs from the one specified in the referenced ETS (EN) or if an option contained in the ITU-T Recommendation(s) is also an ETSI option, then the reference is directly made to the ITU-T Recommendation(s). If no remarks are listed, the implementation complies with the ETS (EN).

Section	exception / clarification
Q.761 [4] Table 1, page 4 (resp. page 10)	<p>The following functions/services are not supported compared to the ETS (EN):</p> <p>Basic call</p> <ul style="list-style-type: none"> <li>- multirate connection types</li> <li>- nx64 kbit/s connection types</li> <li>- enhanced echo control signalling procedures</li> <li>- temporary alternative routing (TAR)</li> <li>- call collect request procedure</li> <li>- generic signalling procedures for supplementary services</li> <li>- end to end signalling — SCCP connection oriented</li> <li>- service activation procedure</li> </ul> <p>For supplementary services to be supported at he J-NNI see table 2</p>
Q.763 [6] General	<p>Signalling information marked as 'for national use' are not supported at the J-NNI.</p>
Q.763 [6] 3.9 Called party number	<p>Nature of address indicator is set to 'national number' for Carrier selection calls. The address signals will contain the CSC (see [10])</p> <p>The number of address digits is limited to 16 by default and may be extended based on bilateral agreement.</p>
Q.763 [6] 3.10 Calling party number	<p>The nature of address indicator is set to</p> <ul style="list-style-type: none"> <li>- 'national number' for calls originating in the national network</li> <li>- 'international number' for incoming calls from the international network (i.e. outside Switzerland)</li> </ul> <p>The number of address digits is limited to 16 by default and may be extended based on bilateral agreement.</p>
Q.763 [6] 3.11 Calling party's category	<p>A received codepoint 'calling subscriber with priority' will be changed to 'ordinary calling subscriber'.</p>

Q.763 [6] 3.54 Transmission medium requirement	Following codepoints are supported: <ul style="list-style-type: none"> <li>- speech</li> <li>- 64 kbit/s unrestricted</li> <li>- 3.1 kHz audio</li> <li>- 64 kbit/s preferred</li> </ul>
Q.763 [6] 3.76 Conference treatment indicator	The parameter is passed on. No procedure is invoked in the Swisscom network.
Q.764 [7] 2.1.1 / 2.1.2 Forward address signalling	En-block and overlap operations are supported. An interworking from overlap to en-block operation is not provided.  A number length up to 22 digits shall be supported. By default, the Initial Address Message CCSS7 (IAM) contains 16 digits as a maximum. Following digits are conveyed in Subsequent Address Messages (SAM). On bilateral agreement more than 16 address digits may be sent in the IAM. The transmission path will be through connected in the backward direction immediately after sending of IAM.
Q.764 [7] 2.1.8 Continuity check	The use of the continuity check procedure on a per call basis is not supported by Swisscom, i.e. no continuity check request on a per call basis will be performed. However a loop will be performed if a continuity check request is received.  Since only Pulse Code Modulation (PCM)-Links are used for NNI it is recommended to the PTS not to use this procedure actively; i.e. no continuity check request will be performed on a per call basis. However relevant information shall be passed on. A continuity check request generated manually by an operator shall be treated properly.
Q.764 [7] 2.1.10 Forward transfer message (Note)	No procedures are started on receipt of the FOT message.
Q.764 [7] 2.7 Dynamic echo control procedures (Note)	No echo control devices may be available for calls originating or terminating in the Swisscom fixed network. However relevant information shall be passed on.

Note:

These exceptions, clarifications or options may also have impact on Q.761 [4], Q.762 [5] and Q.763 [6]. However, only reference to the procedural text in Q.764 [7] is made.

Table 1 Exception and clarifications to EN 300 356-1 (1)

### Supported Supplementary Services with signalling relevance at the J-NNI

CLIP	Calling Line Identification Presentation
CLIR	Calling Line Identification Restriction
COLP	Connected Line Identification Presentation
COLR	Connected Line Identification Restriction
MCID	Malicious Call Identification

SUB	Sub-addressing
CFB	Call Forwarding Busy
CFNR	Call Forwarding No Reply
CFU	Call Forwarding Unconditional
CD	Call Deflection
HOLD	Call Hold
TP	Terminal Portability
3PTY	Three Party Services
UUS1	User-to-User Signalling Service 1 implicit

Table 2 Exception and clarifications to EN 300 356-2 (3) Page 7 / 8, list of supplementary services