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Inteligentno omrežje (IN) - Razširitev prvega nabora zmožnosti inteligentnega omrežja (CS1) - Aplikacijski protokol inteligentnega omrežja (INAP) - 1. del: Specifikacija protokola za drugo fazo uporabniških aplikacij za izboljšanje logike mobilnega omrežja (CAMEL)

Intelligent Network (IN); Intelligent Network Capability Set 1 (CS1) extension; Intelligent Network Application Protocol (INAP); Part 1: Protocol specification for Camel Phase 2

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Foreword

This European Standard (Telecommunications series) has been produced by ETSI Technical Committee Services and Protocols for Advanced Networks (SPAN).

The present document is part 1 of a multi-part standard covering the IN Capability Set 1 (CS1) extension; Intelligent Network Application Protocol (INAP); Customized Applications for Mobile network Enhanced Logic (CAMEL) Phase 2 as described below:

Part 1: "Protocol specification for Camel Phase 2";

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

NOTE: Further parts of the present document may be identified later.

National transposition dates	
Date of adoption of this EN:	7 July 2000
Date of latest announcement of this EN (doa):	31 October 2000
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1 Scope

The present document specifies the additions for Intelligent Network Application Protocol (INAP) to support the Camel Phase 2 Capability. The present document is based on ETS 300 374-1 [4].

ETS 300 374-1 [4] is also taken as an editorial basis for the present document. Only additions and modifications in respect to that ETS are specified in the present document. For Customized Applications for Mobile network Enhanced Logic (CAMEL) Phase 2 only a restricted subset of the protocol aspects of ETS 300 374-1 [4] is necessary. This restriction is not defined in the present document. A profiling of CAMEL, i.e. which protocol aspects are used, is given by EN 301 668-2 [27]. Clauses and subclauses of ETS 300 374-1 [4] for which neither additions nor modifications are made do not appear in the present document. However, to ensure the same clause numbering of the present document as of ETS 300 374-1 [4], deleted clauses and subclauses are numbered implicitly.

As the present document specifies the additions in respect to the SSF it is assumed that the SCF is according to ETS 300 374-1 [4] taking into account the requirements defined in the present document for the SSF.

The protocol specification of the CAMEL Capability to the present document is considered as equivalent to GSM 09.78 [11].

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, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies.
- A non-specific reference to an ETS shall also be taken to refer to later versions published as an EN with the same number.

The following references are in addition to those of ETS 300 374-1 [4]:

[1] ETSI EN 301 140-1: "Intelligent Network (IN); Intelligent Network Application Protocol (INAP); Capability Set 2 (CS2); Part 1: Protocol specification".

[2] ETSI ETS 300 287: "Integrated Services Digital Network (ISDN); Signalling System No.7; Transaction Capabilities Application Part (TCAP) version 2".

[3] ETSI ETS 300 356-1: "Integrated Services Digital Network (ISDN); Signalling System No.7; ISDN User Part (ISUP) version 2 for the international interface; Part 1: Basic services [ITU-T Recommendations Q.761 to Q.764 (1993), modified]".

[4] ETSI ETS 300 374-1: "Intelligent Network (IN); Intelligent Network Capability Set 1 (CS1); Core Intelligent Network Application Protocol (INAP); Part 1: Protocol specification".

[5] ETSI ETS 300 403-1: "Integrated Services Digital Network (ISDN); Digital Subscriber Signalling System No. one (DSS1) protocol; Signalling network layer for circuit-mode basic call control; Part 1: Protocol specification [ITU-T Recommendation Q.931 (1993), modified]".

[6] ETSI ETS 300 974: "Digital cellular telecommunications system (Phase 2+); Mobile Application Part (MAP) specification (GSM 09.02)".

[7] GSM 02.24: "Digital cellular telecommunications system (Phase 2); Description of Charge Advice Information (CAI)".

[8] GSM 02.78: "Digital cellular telecommunications system (Phase 2+); Customized Applications for Mobile network Enhanced Logic (CAMEL) - Phase 2. Service description. Stage 1".

[9] GSM 03.40: "Digital cellular telecommunications system (Phase 2+); Technical realization of the Short Message Service (SMS); Point-to-Point (PP)".

[10] GSM 03.78 (Release 1998) V7.3.0 (2000-04): "Digital cellular telecommunications system (Phase 2+); Customized Applications for Mobile network Enhanced Logic (CAMEL) - Phase 2; Stage 2".

[11] GSM 09.78 (Release 1998) V7.0.0 (1999-08): "Digital cellular telecommunications system (Phase 2+); Customized Applications for Mobile network Enhanced Logic (CAMEL); CAMEL Application Part (CAP) specification".

[12] ANSI T1.113 (1995): "Signalling System No. 7(SS7); Integrated Services Digital Network (ISDN) User Part".

[13] ITU-T Recommendation Q.711: "Functional Description of the Signalling Connection Control Part".

[14] ITU-T Recommendation Q.712: "Definition and function of signalling connection control part messages".

[15] ITU-T Recommendation Q.713 : "Signalling Connection Control Part formats and codes".

[16] ITU-T Recommendation Q.714: "Signalling Connection control part procedures".

[17] ITU-T Recommendation Q.716: "Signalling System No. 7 – Signalling Connection Control Part (SCCP) Performance".

[18] ITU-T Recommendation Q.773: "Transaction capabilities formats and encoding".

[19] ITU-T Recommendation X.209: "Specification of basic encoding rules for Abstract Syntax Notation One (ASN.1)".

[20] ITU-T Recommendation X.680 (1994) | ISO/IEC 8824-1 (1995): "Information technology; Abstract Syntax Notation One (ASN.1): Specification of basic notation".

[21] ITU-T Recommendation X.681 (1994) | ISO/IEC 8824-2 (1995): "Information technology; Abstract Syntax Notation One (ASN.1): Information object specification".

[22] ITU-T Recommendation X.682 (1994) | ISO/IEC 8824-3 (1995): "Information technology; Abstract Syntax Notation One (ASN.1): Constraint specification".

[23] ITU-T Recommendation X.683 (1994) | ISO/IEC 8824-4 (1995): "Information technology; Abstract Syntax Notation One (ASN.1): Parameterization of ASN.1 specifications".

[24] ITU-T Recommendation X.690 (1994) | ISO/IEC 8825-1 (1995): "Information technology; ASN.1 encoding rules: Specification of Basic Encoding Rules (BER), Canonical Encoding Rules (CER) and Distinguished Encoding Rules (DER)".

[25] ITU-T Recommendation X.880 (1994) | ISO/IEC 13712-1 (1995): "Information technology; Remote Operations: Concepts, model and notation".

[26] ITU-T Recommendation X.208 (1988): "Specification of Abstract Syntax Notation One (ASN.1)".

[27] ETSI EN 301 668-2 (V1.1): "Intelligent Network (IN); IN Capability Set 1 (CS1) extension; Intelligent Network Application Protocol (INAP); Customized Applications for Mobile network Enhanced Logic (CAMEL) Phase 2; Part 2: Protocol Implementation Conformance Statement (PICS) proforma specification".

[28] ANSI T1.112-1996: "American National Standards for Telecommunications– Signalling System Number 7 (SS7) – Signalling Connection Control Part (SCCP)".

3 Abbreviations

For the purposes of the present document, the following abbreviations apply in addition to those of ETS 300 374-1 [4]:

ACM	Address Complete Message
CAMEL	Customized Applications for Mobile network Enhanced Logic
CAP	CAMEL Application Part
CIC	Carrier Identification Code
CSE	CAMEL Service Environment
CSI	CAMEL Subscription Information
IAM	Initial Address Message
IN	Intelligent Network
INAP	Intelligent Network Application Protocol
NA	North American
OCSI	Originating CSI
REL	Release

Within the present document the terms gsmSSF and SSF and the terms gsmSCF and SCF respectively are used synonymously.

4 General

4.1 Definition methodology

For the purpose of the present document, ITU-T Recommendation X.880 [25] and the ITU-T Recommendations for ASN.1 X.680 [20], X.681 [21], X.682 [22], X.683 [23] and X.690 [24] for the basic encoding rules apply.

4.2 Example physical scenarios

The following physical scenarios as defined in ETS 300 374-1 [4] subclause 7.3.5.1.1 "SRF connect physical procedures" are supported:

- case a) SSF relay; Non-integrated SRF and Integrated SRF;
- case b) direct path SCP to IP;
- case c) Assist with relay; return control to Initiating SSP on completion of UI; Non-integrated SRF and Integrated SRF;
- case d) Assist without relay; return control to Initiating SSP on completion of UI.

4.3 Void

4.4 INAP addressing

CAMEL Applications Part (CAP) makes use of the services offered by the Signalling Connection Control Part (SCCP).

The following SCCP versions are supported by CAP Version 2:

- signalling Connection Control Part , Signalling System no. 7 CCITT ('Blue Book SCCP');
- signalling Connection Control Part , Signalling System no. 7 ITU-T Recommendation Q.711 to Q.716 ('White Book SCCP');
- ANSI T1.112-1996: "American National Standards for Telecommunications – Signalling System Number 7 (SS7) – Signalling Connection Control Part (SCCP)".

SCCP version used for CAP version 2 is a network option.

When CAP uses White Book SCCP to send a message, then:

- if the CAP message can be sent in one UDT message either UDT message or XUDT message shall be used;
- if the CAP message cannot be sent in one UDT message SCCP segments the message into two or more XUDT messages.

The transmission of XUDT messages may fail. Failure will occur when the destination SCCP, or any intermediate SCCP, does not support White Book SCCP.

Support of ANSI T1.112 SCCP applies only to PLMNs in North America. Interworking between a PLMN in North America and a PLMN outside North America will involve an STP to translate between ANSI SCCP and ITU-T/CCITT SCCP.

4.4.1 Void

4.4.2 Quality of service parameters

The class (class 0 or class 1) of SCCP is set as required by the application. However, class 1 shall be requested by any application that can send more than 1 TCAP message to its peer (iconsecutive TR-CONTINUE) before receiving a response from its peer (TR-CONTINUE or TR-END).

On receipt of a TC-RESULT-NL indication, the TC-USER shall request the transfer of a reject component using TC-U-REJECT request primitive, with the appropriate problem code (mistyped parameter).

The return option may be used if requested by the application (Network Operator to determine).

4.4.3 SCCP addressing

Using the CAMEL Application Part (CAP) for this function implies the use of Transaction Capabilities (TC) of CCITT Signalling System No. 7 and the Signalling Connection Control Part (SCCP) of either CCITT Signalling System No. 7 (for non-North American PLMNs) or ANSI Signalling System No. 7 (for North American PLMNs).

4.5 Definition and usage of LegID

NOTE: This subclause is not part of ETS 300 374-1 [4].

For all operations containing a LegID:

- LegID = 1 shall always refer to the Calling Party, more specifically that party in the call present when InitialDP is sent to the SCF;
- LegID = 2 shall always refer to the Called Party, more specifically that party in the call created as a result of the Connect or Continue operations.

4.6 Void