

Protocol Implementation Conformance Statement for signaling at the Q reference point

INTERWORKING DESCRIPTION



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1 INTRODUCTION

This document states the conformance of the implemented QSIG standards for ASP 113 01 release according to ISO/IEC International standard.

The conformance of a specific standard is stated in PICS taken from the corresponding ECMA standard which align to the ISO/IEC International standard.

This document does not cover layer 1 and layer 2 specific information. Some ISO standards do not contain any PICS and therefore no PICS will be available for that specific standard in this document.

The ECMA standards can be ordered from ECMA (<http://www.ecma.ch>) free of charge whilst the ISO/IEC International standards must be purchased from ISO (<http://www.iso.ch>).

1.1 PICS INSTRUCTIONS

The PICS information are taken from the corresponding ECMA standard and is a statement of which capabilities and options of the protocol that have been implemented.

Each supported feature (i.e. each supported ISO/IEC standard) is divided into sub-clauses each containing a group of individual items. Each item is identified by an item number, the name of the item and the reference(s) to the clause(s) that specifies (specify) the item in the main body of the specified standard.

All specified references, refer to the references for each corresponding ECMA standard. Any difference between the ECMA standard and the ISO/IEC International standard is clearly identified.

The status column indicates whether an item is applicable and if so whether support is mandatory or optional. The following terms are used:

m	mandatory (the capability is required for conformance to the protocol);
o	optional (the capability is not required for conformance to the protocol, but if the capability is implemented it is required to conform to the protocol specifications);
o.<n>	optional, but support of at least one of the group of options labelled by the same numeral <n> is required;
x	prohibited;
c.<cond>	conditional requirement, depending on support for the item or items listed in condition <cond>;
<item>:m	simple conditional requirement, the capability being mandatory if item number <item> is supported, otherwise not applicable;
<item>:o	simple conditional requirement, the capability being optional if item number <item> is supported, otherwise not applicable.

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ACRONYMS

ACSE	Association Control Service Element
ANF	Additional Network Feature
ANF-CINT	Call Interception additional network feature
ANF-CMN	Common Information additional network feature
ANF-CTMI	Cordless Terminal Incoming Call additional network feature
ANF-PR	Path Replacement additional network feature
ANF-TC	Transit Counter additional network feature
APDU	Application Protocol Data Unit
BRA	Basic Rate Access
CLIP	Calling Line Identification Presentation
CLIR	Calling Line Identification Restriction
CNIP	Calling Name identification Presentation
COLP	Connected Line identification Presentation
CONP	Connected Name identification Presentation
DSE	Dialogue Service Element
ECMA	European Computer Manufactures Association
IEC	International Electrotechnical Commission
ISDN	Integrated Service Digital Network
ISO	International Organization for Standardization
PICS	Protocol Implementation Conformance Statement
PINX	Private Integrated Network eXchange
PISN	Private Integrated Service Network
PRA	Primary Rate Access
PTNA	Private Telecommunication Network Addressing
QSIG	ISDN signaling at the Q reference point
ROSE	Remote Operations Service Element
SS	Supplementary Service
SS-CCBS	Call Completion on Busy Subscriber supplementary service
SS-CCNR	Call Completion on No Reply supplementary service
SS-CFB	Call Forwarding Busy supplementary service
SS-CFNR	Call Forwarding No Reply supplementary service
SS-CFU	Call Forwarding Unconditional supplementary service
SS-CD	Call Deflection supplementary service
SS-CDA	Call Deflection from Alert supplementary service
SS-CDI	Call Deflection Immediate supplementary service
SS-CI	Call Intrusion supplementary service

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SS-CO	Call Offer supplementary service
SS-CT	Call Transfer supplementary service
SS-DNDO	Do Not Disturb Override supplementary service

3

SUPPORTED FEATURES

Service	Supported ISO/IEC standard.	Corresponding ECMA doc.	Corresponding ETSI doc.
Basic call, BCSD, QSIG-BC	IS 11574 IS 11572	ECMA 142 ECMA 143	ETS 300 171 ETS 300 172
Addressing in PISN, PTNA	IS 11571	ECMA 155	ETS 300 189
Identification supplementary service, ISSD	IS 14136	ECMA 148	ETS 300 173
Generic functional Protocol, QSIG-GF	IS 11582	ECMA 165	ETS 300 239
Name Identification, NISD, QSIG-NA	IS 13864 IS 13868	ECMA 163 ECMA 164	ETS 300 237 ETS 300 238
Advice of charge, QSIG-AOC	IS 15049 IS 15050	ECMA 211 ECMA 212	EN 301 254 EN 301 264
Call Completion, CCSD, QSIG-CC	IS 13866 IS 13870	ECMA 185 ECMA 186	ETS 300 365 ETS 300 366
Transit Counter ANF-TCSD, QSIG-TC	IS 15055 IS 15056	ECMA 224 ECMA 225	EN 301 047 EN 301 048
Common Information ANF-CMN, QSIG-CMN	IS 15771 IS 15772	ECMA 250 ECMA 251	
Call Diversion, CFSD, QSIG-CF	IS 13872 IS 13873	ECMA 173 ECMA 174	ETS 300 256 ETS 300 257
Call Transfer, CTSD, QSIG-CT	IS 13865 IS 13869	ECMA 177 ECMA 178	ETS 300 260 ETS 300 261
Path Replacement, ANF-PRSD, QSIG-PR	IS 13863 IS 13874	ECMA 175 ECMA 176	ETS 300 258 ETS 300 259
Call Offer, QSIG-CO	IS 14841 IS 14843	ECMA 191 ECMA 192	ETS 300 361 ETS 300 362

4 CIRCUIT-MODE BASIC SERVICES (ISO/IEC 11572/11574)

4.1 SCOPE

This Standard defines the signaling procedures and protocol for the purpose of circuit-switched Call Control at the Q-reference point between Private Integrated Network Exchanges (PINXes) connected together within a Private Integrated Services Network (PISN).

4.2 BEARER SUPPORT

Item	Question/Feature	Reference	Status	N/A	Support
Z1	Support of the 64 kbit/s Unrestricted Bearer	14.5.5	o.1		Yes[X] No[]
Z2	Support of the 64 kbit/s Bearer with Speech Transfer Capability	14.5.5	o.1		Yes[X] No[]
Z3	Support of the 64 kbit/s Bearer with 3.1 kHz/Audio Transfer Capability	14.5.5	o.1		Yes[X] No[]
Z4	Support of the Multi-rate Unrestricted Bearer	14.5.5	o.1		Yes[] No[X]
Z5	Support of A-law User Information layer 1 protocol	14.5.5	(Z2 OR Z3):o.3	[]	Yes[X] No[]
Z6	Support of mu-law User Information layer 1 protocol	14.5.5	(Z2 OR Z3):o.3	[]	Yes[X] No[]
Z7	Support of the unrestricted digital information with tones / announcements bearer	14.5.5	o		Yes[X] No[]
Difference from ISO/IEC 11572 Item Z7 above does not exist in the ISO/IEC International Standard. End of Difference					

4.3 GENERAL PROCEDURES

4.3.1 USE OF THE SERVICES OF THE SIGNALING CARRIAGE MECHANISM

Item	Question/Feature	Reference	Status	N/A	Support
A1	Use of the services of the signaling Carriage Mechanism	9.1	m		Yes[X]

4.3.2

HANDLING OF PROTOCOL ERROR CONDITIONS

Item	Question/Feature	Reference	Status	N/A	Support
A6	Treatment of protocol discriminator error	9.2.1	m		Yes[X]
A7	Treatment of message too short	9.2.2	m		Yes[X]
A8	Treatment of call reference error	9.2.3	m		Yes[X]
A9	Treatment of message type or message sequence errors	9.2.4	m		Yes[X]
A10	Treatment of information element errors	9.2.5 - 9.2.7	m		Yes[X]
A11	signaling Carriage Mechanism reset	9.2.8	m		Yes[X]
A12	signaling Carriage Mechanism failure	9.2.9	m		Yes[X]

4.3.3

STATUS AND STATUS ENQUIRY PROTOCOL PROCEDURES

Item	Question/Feature	Reference	Status	N/A	Support
A13	Receipt of a STATUS ENQUIRY message	9.3.1	m		Yes[X]
A14	Sending of a STATUS ENQUIRY message	9.3.1	o		Yes[X] No[]
A15	Receipt of a solicited STATUS message	9.3.2	c.1		Yes[X] No[]
A16	Receipt of an Unsolicited STATUS message	9.3.2	m		Yes[X]

c.1 If A14 then mandatory else optional

4.4

CIRCUIT SWITCHED CALL CONTROL

4.4.1

GENERAL

Item	Question/Feature	Reference	Status	N/A	Support
B1	Is the implementation capable of functioning as an Originating PINX?	10.5	o.2		Yes[X] No[]
B2	Is the implementation capable of functioning as an Incoming Gateway PINX?	10.7	o.2		Yes[X] No[]

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B3	Is the implementation capable of functioning as a Transit PINX?	10.4	o.2		Yes[X] No[]
B4	Is the implementation capable of functioning as a Terminating PINX?	10.6	o.2		Yes[X] No[]
B5	Is the implementation capable of functioning as an Outgoing Gateway PINX?	10.8	o.2		Yes[X] No[]
B6	Support procedures for call request	10.1.1	c.2	[]	Yes[X]
B7	Does the implementation include a Sending Complete information element in every generated SETUP message?	10.1.1	c.3	[]	Yes[] No[X]
B8	Information channel selection	10.1.2	m	[]	Yes[X]
B9	Overlap Receiving procedures	10.1.3	c.4	[]	Yes[X] (Note 1)
B10	Overlap Sending procedures	10.1.3	c.5	[]	Yes[X]
B11	Call Proceeding - Enbloc Sending (Receipt and Origination)	10.1.4/ 10.1.4.1	m	[]	Yes[X]
B12	Receipt of Call Proceeding - Overlap Sending	10.1.4/ 10.1.4.2	B10:m	[]	Yes[X]
B13	Sending of Call Proceeding - Overlap Receiving	10.1.4/ 10.1.4.2	B9:m	[]	Yes[X]
B14	Support of ALERTING origination	10.1.5	c.4	[]	Yes[X]
B15	Support of ALERTING termination	10.1.5	c.2	[]	Yes[X]
B16	Support of call connection procedures	10.1.6	m	[]	Yes[X] (Note 2) (info.1)
B17	Sending of call progress information during call establishment	10.1.7	c.6	[]	Yes[X]
B18	Receipt of call progress information during call establishment	10.1.7	m		Yes[X]
B19	Support of call clearing procedures	10.2	m		Yes[X]
B20	Support of call collision procedures	10.3	m		Yes[X]

Note 1 If enbloc signaling only is used between two adjacent PINXes, overlap receiving procedures need not be tested.

Note 2 If by mutual agreement between adjacent PINXes T313 is not implemented, then the sending of CONNECT ACKNOWLEDGE message is optional.

info.1 ASP 113 01 always starts timer T313.

c.2 If B1 or B2 or B3 then mandatory else N/A

c.3 If B1 or B2 or B3 then optional else N/A

c.4 If B3 or B4 or B5 then mandatory else N/A

c.5 If (B1 or B2 or B3) AND NOT B7 then mandatory else N/A

c.6 If (B3 or B4 or B5) then optional else N/A

4.4.2

CALL CONTROL AT A TRANSIT PINX

Item	Question/Feature	Reference	Status	N/A	Support
C1	Call origination/termination procedures	10.4/10.4.1 to 10.4.9	B3:m	[]	Yes[X]
C2	Call abort procedures	10.4.10.2	B3:o		Yes[X] No[]
C3	Call clearing procedures	10.4.10.1	B3:m	[]	Yes[X]
C4	Handling of Category 1, 2 and 3 information elements at a Transit PINX	10.4.11	B3:m	[]	Yes[X]

4.4.3

CALL CONTROL AT AN ORIGINATING PINX

Item	Question/Feature	Reference	Status	N/A	Support
D1	Call origination procedures	10.5/10.5.1 to 10.5.5	B1:m	[]	Yes[X]
D2	Call clearing procedures	10.5.6	B1:m	[]	Yes[X]

4.4.4

CALL CONTROL AT A TERMINATING PINX

Item	Question/Feature	Reference	Status	N/A	Support
E1	Call termination procedures	10.6/10.6.1 to 10.6.4	B4:m	[]	Yes[X]
E2	Call clearing procedures	10.6.5	B4:m	[]	Yes[X]

4.4.5

CALL CONTROL AT AN INCOMING GATEWAY PINX

Item	Question/Feature	Reference	Status	N/A	Support
F1	Establishment of calls from another network	10.7/10.7.1 to 10.7.6	B2:m	[]	Yes[X]
F2	Call clearing procedures	10.7.7	B2:m	[]	Yes[X]

4.4.6

CALL CONTROL AT AN OUTGOING GATEWAY PINX

Item	Question/Feature	Reference	Status	N/A	Support
G1	Establishment of calls to another network	10.8/10.8.1 to 10.8.5	B5:m	[]	Yes[X]
G2	Call clearing procedures	10.8.6	B5:m	[]	Yes[X]

4.5

PROCEDURES FOR LAYER MANAGEMENT

Item	Question/Feature	Reference	Status	N/A	Support
H1	Initiation of Restart procedures - All channels	11.1.1	o		Yes[X] No[]
H2	Initiation of Restart procedures - Multiple channels	11.1.1	Z4:o	[]	Yes[] No[X]
H3	Initiation of Restart procedures - Single channels	11.1.1	o		Yes[X] No[]
H4	Receipt of RESTART - All channels	11.1.2	m		Yes[X]
H5	Receipt of RESTART - Single channels	11.1.2	m		Yes[X]
H6	Receipt of RESTART - multiple channels	11.1.2	Z4:m	[X]	Yes[]
H7	Restart procedures - Restart collision	11.1.3	(H1 OR H2 OR H3):m	[]	Yes[X]

4.6

TIMERS

Item	Question/Feature	Reference	Status	N/A	Support
I1	Implementation of T301	12	c.7	[]	Yes[X] No[] Value [180s]
I2	Implementation of T302	12	c.8	[]	Yes[X]
I3	Implementation of T303	12	c.9	[]	Yes[X]
I4	Implementation of T304	12	B10:m	[]	Yes[X]
I5	Implementation of T305	12/10.2.3	m		Yes[X]
I6	Implementation of T308	12/10.2.3	m		Yes[X]
I7	Implementation of T309	12	m		Yes[X] Value[90s]
I8	Implementation of T310	12	c.10	[]	m:Yes[X] o:Yes[] No[] Value [60s]
I9	Implementation of T313	12	c.11	[]	Yes[X] No[]
I10	Implementation of T316	12/11.1.1	c.12	[]	Yes[X]
I11	Implementation of T322	12/9.3.1	A14:m	[]	Yes[X]

- c.7** If B1 or B2 or B3 then optional else N/A
- c.8** If B3 or B4 or B5 then mandatory else N/A
- c.9** If B1 or B2 or B3 then mandatory else N/A

- c.10** If B1 or B2 mandatory, else If B3 optional, else N/A
c.11 If B3 or B4 or B5 then optional else, N/A
c.12 If H1 or H2 then mandatory else N/A

4.7

MESSAGES AND INFORMATION ELEMENTS FOR
GENERAL PROCEDURES

4.7.1

GENERAL

Note: Although an implementation may be marked Yes for questions regarding sending optional information elements, they will only be sent, for example, if they are received from a terminal or a preceding PINX

Item	Question/Feature	Reference	Status	N/A	Support
J1	Receipt of the messages in accordance with the procedures supported, and receipt of all the permitted information elements in those messages	13	m		Yes[X]
J2	Sending of messages, including for each message those information elements marked as mandatory for that message, in accordance with the procedures supported	13	m		Yes[X]
J3	Sending of the Channel Identification information element when mandatory in a SETUP ACKNOWLEDGE, CALL PROCEEDING, ALERTING or CONNECT message when that message is the first response to a SETUP message	13	m		Yes[X]
J4	Sending of a Sending Complete information element in an INFORMATION message when overlap sending is complete	13.2.6	o		Yes[X] No[]
J5	Sending of a Progress Indicator information element in an ALERTING message (except when relaying at a Transit PINX in accordance with C4)	13.2.1	o		Yes[X] No[]
J6	Sending of a Progress Indicator information element in a CONNECT message (except when relaying at a Transit PINX in accordance with C4)	13.2.3	o		Yes[X] No[]
J7	Sending of a Low layer compatibility information element in a CONNECT message (except when relaying at a Transit PINX in accordance with C4)	13.2.3	o		Yes[] No[X]

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J8	Sending of a Connected Number information element in a CONNECT message (except when relaying at a Transit PINX in accordance with C4)	13.2.3	o		Yes[X] No[]
J9	Sending of a Connected Subaddress information element in a CONNECT message (except when relaying at a Transit PINX in accordance with C4)	13.2.3	o		Yes[X] No[]
J10	Sending of a Cause information element in a PROGRESS message (except when relaying at a Transit PINX in accordance with C4)	13.2.7	o		Yes[] No[X]
J11	Sending of a Cause information element in a RELEASE or a RELEASE COMPLETE message when it is not the first clearing message	13.2.8, 13.2.9	o		Yes[X] No[]
J12	Sending of a Sending Complete information element in a SETUP message when enbloc sending	13.2.10	o		Yes[] No[X]
J13	Sending of a Progress Indicator information element in a SETUP message (except when relaying at a Transit PINX in accordance with C4)	13.2.10	o		Yes[X] No[]
J14	Sending of a Calling Party Number information element in a SETUP message (except when relaying at a Transit PINX in accordance with C4)	13.2.10	o		Yes[X] No[]
J15	Sending of a Calling Party Subaddress information element in a SETUP message (except when relaying at a Transit PINX in accordance with C4)	13.2.11	o		Yes[X] No[]
J16	Sending of a Called Party Subaddress information element in a SETUP message (except when relaying at a Transit PINX in accordance with C4)	13.2.11	o		Yes[X] No[]
J17	Sending of a Low Layer Compatibility information element in a SETUP message (except when relaying at a Transit PINX in accordance with C4)	13.2.10	o		Yes[X] No[]
J18	Sending of a High Layer Compatibility information element in a SETUP message (except when relaying at a Transit PINX in accordance with C4)	13.2.10	o		Yes[X] No[]
J19	Sending of a Channel Identification information element in a RESTART message	13.3.1	H2:m	[]	Yes[X]
J20	Sending of a Channel Identification information element in a RESTART ACKNOWLEDGE message	13.3.2	o		Yes[X] No[]
J21	Support of channel map	14.5.12	o		Yes[] No[X]

J22	Type of number supported for ISDN/Telephony Numbering Plan:	14.5.7	o		
	Unknown				Yes[X] No[]
	International number				Yes[X] No[]
	National number				Yes[X] No[]
	Subscriber number				Yes[X] No[]
J23	Type of number supported for Private Numbering Plan:	14.5.7	o		
	Unknown				Yes[X] No[]
	Level 2 regional number				Yes[] No[X]
	Level 1 regional number				Yes[X] No[]
	PISN specific number				Yes[] No[X]
	Level 0 regional number				Yes[X] No[]
	Abbreviated number				Yes[] No[X]
J24	Type of number supported for Unknown Numbering Plan:	14.5.7	o		
	Unknown				Yes[X] No[]
J25	Message formats and codings for messages and information elements supported	14	m		Yes[X]

4.7.2

MESSAGE SEGMENTATION/RE-ASSEMBLY PROCEDURES

Item	Question/Feature	Reference	Status	N/A	Support
K1	Maximum message size generated	ZA.3	m		Size [260]
K2	Maximum message size received	ZA.3	m		Size [260]
K3	Is length of signaling carriage mechanism information field < max. generated message size?	ZA.3	o		Yes [] No [X]
K4	Is length of signaling carriage mechanism information field < max. received message size?	ZA.3	o		Yes [] No [X]
K5	Procedures for messages segmentation	ZA.3.1	c.12	[X]	Yes []
K6	Procedures for messages re-assembly	ZA.3.2	c.13	[X]	Yes []
K7	Message formats and codings for segmented messages and information elements supported	ZA.4, ZA.5	c.14	[X]	Yes []
K8	Implementation of T314	ZA.6	c.13	[X]	Yes []

c.12

If K3, then mandatory, else, prohibited

- c.13** If K4, then mandatory, else, not applicable
- c.14** If K3 or K4, then mandatory, else, not applicable

4.7.3 ADDITIONAL PROGRESS DESCRIPTIONS

Item	Question/Feature	Reference	Status	N/A	Support
M1	Up to three Progress indicator information elements within the same message	annex ZB	m		Yes [X]
M2	Additional progress descriptions	annex ZB	m		Yes [X]

4.7.4 PARTY CATEGORY FUNCTIONALITY

Difference from ISO/IEC 11572 Does not exist in the ISO/IEC International Standard. End of Difference

Note: The protocol and procedures for Party Category information element are superseded by the protocol and procedures specified for ANF-CMN.

Item	Question/Feature	Reference	Status	N/A	Support
N1	Party category functionality	ZC.2	o		Yes [X] No []
N2	Behavior as Originating PINX for Party category functionality	ZC.2.3.1	c.21	[]	Yes [X]
N3	Behavior as Incoming Gateway PINX for Party category functionality	ZC.2.4.1	c.22	[]	Yes [X]
N4	Behavior as Transit PINX for Party category functionality	ZC.2.3.3	c.23	[]	Yes [X]
N5	Behavior as Terminating PINX for Party category functionality	ZC.2.3.2	c.24	[]	Yes [X]
N6	Behavior as Outgoing Gateway PINX for Party category functionality	ZC.2.4.2	c.25	[]	Yes [X]
N7	Sending of a Party category information element in a SETUP message	ZC.2.3, ZC.2.4	c.26	[]	Yes [X] No []
N8	Sending of a Party category information element in an ALERTING message	ZC.2.3, ZC.2.4	c.27	[]	Yes [X] No []
N9	Sending of a Party category information element in a CONNECT message	ZC.2.3, ZC.2.4	c.27	[]	Yes [X] No []

- c.21** If B1 and N1 then mandatory, else, not applicable
- c.22** If B2 and N1 then mandatory, else, not applicable

- c.23** If B3 and N1 then mandatory, else, not applicable
- c.24** If B4 and N1 then mandatory, else, not applicable
- c.25** If B5 and N1 then mandatory, else, not applicable
- c.26** If N2 or N3 or N4 then optional, else, not applicable
- c.27** If N4 or N5 or N6 then optional, else, not applicable

5 ADDRESSING IN PISN, PTNA (ISO/IEC 11571)

5.1 SCOPE

This Standard specifies the handling of network addresses for the identification of entities which use or provide telecommunication services offered by Private Service Networks (PISNs). It covers numbering, including the requirements for the support of a private numbering plan, the addressing of network service access points for open systems interconnection (OSI NSAP addressing), and the support of sub addressing.

6 IDENTIFICATION SUPPLEMENTARY SERVICE, ISSD (ISO/IEC 14136)

6.1 SCOPE

This Standard specifies the following Identification supplementary services:

Calling Line Identification Presentation (SS-CLIP), Connected Line Identification Presentation (SS-COLP) and Calling/Connected Line Identification Restriction (SS-CLIR), which are applicable to various basic services supported by Private Integrated Services Networks (PISN). Basic services are specified in ISO/IEC 11574.

Calling Line Identification Presentation (SS-CLIP) is a supplementary service which is offered to the called user and which provides the calling user's PISN number, and possibly a subaddress, to the called user.

Connected Line Identification Presentation (SS-COLP) is a supplementary service which is offered to the calling user and which provides the called (connected) user's PISN number, and possibly a sub address, to the calling user.

Calling/connected Line Identification Restriction (SS-CLIR) is a supplementary service offered to a user to restrict presentation of that user's PISN number to another user.

All identification supplementary services mentioned above are supported by the ASP 113 01 release.

7 NAME IDENTIFICATION, QSIG-NA (ISO/IEC 13864/13868)

7.1 SCOPE

This Standard specifies the signaling protocol for the support of name identification supplementary services at the Q reference point between Private Integrated Services Network Exchanges (PINXes) connected together within a Private Integrated Services Network (PISN). The name identification supplementary services are Calling Name Identification Presentation (SS-CNIP) and Connected Name Identification Presentation (SS-CONP). Calling Name Identification Presentation (CNIP) is a supplementary service which is offered to the called user and which provides the name of the calling user (calling party name) to the called user.

Connected Name Identification Presentation (CONP) is a supplementary service, which is offered to the calling user and which provides to the calling user the following:

- the name of the user who answers the call (connected party name)
- optionally the name of the alerting user (called party name)
- optionally the name of the called user who cannot be reached (busy party name)

7.2 SUPPLEMENTARY SERVICES

Item	Question/Feature	Reference	Status	N/A	Support
A1	Support of SS-CNIP	7	o.1		Yes [X] No []
A2	Support of SS-CONP	8	o.1		Yes [X] No []

7.3 PROCEDURES FOR SS-CNIP

Item	Question/Feature	Reference	Status	N/A	Support
B1	Procedures at the Originating PINX	7.4.1	A1:o.2		Yes [X] No []
B2	Procedures at the Terminating PINX	7.4.2	A1:o.2		Yes [X] No []
B3	Procedures at the Incoming Gateway PINX	7.5.1	A1:o.2		Yes [] No [X] (Note)
B4	Procedures at the Outgoing Gateway PINX	7.5.2	A1:o.2		Yes [] No [X] (Note)
B5	Encoding of the callingName APDU	6	A1:m		Yes [X]
B6	Sending of the callingName APDU in SETUP	6, 7.4.1	c.1	[]	Yes [X]
B7	Receipt of callingName APDU in SETUP	6, 7.4.2	c.2	[]	Yes [X]

B8	Sending of character set number	6.1	c.3	[]	Yes [] No [X]
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Note: There is no equivalent service for other signaling systems.

- c.1** If B1 or B3 then m else N/A
c.2 If B2 or B4 then m else N/A
c.3 If B1 or B3 then o else N/A

7.4

PROCEDURES FOR SS-CONP

Item	Question/Feature	Reference	Status	N/A	Support
C1	Procedures at the Terminating PINX	8.4.1	A2:o.3		Yes [X] No []
C2	Procedures at the Originating PINX	8.4.2	A2:o.3		Yes [X] No []
C3	Procedures at the Outgoing Gateway PINX	8.5.1	A2:o.3		Yes [] No [X] (Note)
C4	Procedures at the Incoming Gateway PINX	8.5.2	A2:o.3		Yes [] No [X] (Note)
C5	Encoding of connectedName APDU	6	A2:m		Yes [X]
C6	Encoding of busyName APDU	6	A2:o		Yes [X] No []
C7	Encoding of calledName APDU	6	A2:o		Yes [X] No []
C8	Sending of connectedName APDU in CONNECT	6, 8.4.1	c.1	[]	Yes [X]
C9	Receipt of connectedName APDU in CONNECT	6, 8.4.2	c.2	[]	Yes [X]
C10	Sending of busyName APDU in DISCONNECT	6, 8.4.1	c.3	[]	Yes [X] No []
C11	Receipt of busyName APDU in DISCONNECT	6, 8.4.2	c.4	[]	Yes [X] No []
C12	Sending of calledName APDU in ALERTING	6, 8.4.1	c.3	[]	Yes [X] No []
C13	Receipt of calledName APDU in ALERTING	6, 8.4.3	c.4	[]	Yes [X] No []
C14	Sending of character set number	6.1	c.3	[]	Yes [] No [X]

Note: There is no equivalent service for other signaling systems.

- c.1** If C1 or C3 then m else N/A
c.2 If C2 or C4 then m else N/A
c.3 If C1 or C3 then o else N/A
c.4 If C2 or C4 then o else N/A

8 GENERIC FUNCTION PROTOCOL, QSIG-GF (ISO/IEC 11582)

8.1 SCOPE

This Standard defines the signaling protocol for the control of Supplementary services and Additional Network Features (ANFs) at the Q reference point. The Q reference point exists between Private Integrated Services Network Exchanges (PINX) connected together within a Private Integrated Services Network (PISN) and is defined in ISO/IEC 11579-1 (ECMA 133).

Detailed procedures applicable to individual Supplementary services and ANFs are beyond the scope of this Standard and will be specified by other Standards for those services, which are standardised.

8.2 CALL RELATED PROTOCOL CONTROL AND GFT-CONTROL REQUIREMENTS

Item	Question/Feature	Reference	Status	N/A	Support
A1	Can the implementation act as a Source PINX for APDUs?	7.1.1.1	o		Yes[X] No []
A3	Sending the Facility information element	7.1.1.1	m		Yes [X]
A4	Receiving the Facility information element	7.1.1.2	m		Yes [X]
A5	Actions at a Source PINX	7.1.2.1	A1:m	[]	Yes [X]
A6	Actions at a Receiving PINX	7.1.2.2	m		Yes [X]
A7	Can the PINX act as an Originating, Terminating, Incoming or Outgoing Gateway PINX as defined in ECMA-143?	4 & ECMA-143	o.1		Yes[X] No []
A8	End PINX actions	7.1.2.2.1	A7:m	[]	Yes [X]
A9	Actions at a Destination PINX	7.1.2.3	m		Yes [X]
A10	Can the PINX act as a Transit PINX as defined in ECMA-143 ?	4 & ECMA-143	o.1		Yes[X] No []
A11	Transit PINX actions	7.1.2.2.2	A10:m	[]	Yes [X]
A12	Can the implementation generate notification information ?	7.4	o		Yes[] No [X]
A13	Sending notification information	7.4.2.1	A12:m	[X]	Yes []
A14	Receiving notification information	7.4.2.2	m		Yes [X]
A15	Actions at a PINX which generates notifications	7.4.3.1	A12:m	[X]	Yes []

A16	Actions at a Transit PINX	7.4.3.2	A10:m	[]	Yes [X]
A17	Actions at a Receiving End PINX	7.4.3.3	A7:m	[]	Yes [X]

8.3

CONNECTIONLESS APDU TRANSPORT MECHANISM

Item	Question/Feature	Reference	Status	N/A	Support
B1	Does the PINX support Connectionless APDU transport?	7.2	o		Yes [] No [X]
B2	Requirements for sending a Connectionless message	7.2.1.1	B1:m	[X]	Yes []
B3	Requirements for receiving a Connectionless message	7.2.1.2	B1:m	[X]	Yes []
B4	Actions at a Receiving PINX	7.2.2.2	B1:m	[X]	Yes []
B6	Actions at a Destination PINX	7.2.2.3	B1:m	[X]	Yes [] No []
B7	Actions at a Source PINX	7.2.2.1	B1:o	[X]	Yes [] No []

8.4

CONNECTION ORIENTED APDU TRANSPORT MECHANISM

Item	Question/Feature	Reference	Status	N/A	Support
C1	Does the PINX support connection-oriented APDU transport?	7.3	o		Yes[X] No []
C2	Can the implementation act as a Source PINX for APDUs when supporting the Connection oriented APDU transport mechanism?	7.3	C1:o	[]	Yes[X] No []
C3	Connection oriented transport mechanism - Protocol Control requirements	7.3.1	C1:m	[]	Yes [X]
C4	Actions at an Originating PINX	7.3.3.1	C1:o	[]	Yes [X] No []
C5	Actions at a Transit PINX	7.3.3.2	c.1	[]	Yes [X]
C6	Actions at a Terminating PINX	7.3.3.3	C1:o	[]	Yes [X] No []
C7	Actions at a Source PINX	7.3.3.4	C2:m	[]	Yes [X]
C8	Actions at a Destination PINX	7.3.3.5	C1:m	[]	Yes [X]

c.1

If (A10 and C1) then m, else N/A

8.5 CO-ORDINATION FUNCTION REQUIREMENTS

Item	Question/Feature	Reference	Status	N/A	Support
D1	Inclusion of an Interpretation APDU at a Source PINX	8.1.1	o		Yes [X] No []
D2	Handling of APDUs at a Destination PINX	8.1.2	m		Yes [X]

8.6 ROSE REQUIREMENTS

Item	Question/Feature	Reference	Status	N/A	Support
E1	ROSE requirements	8.2	m		Yes [X]

8.7 ACSE REQUIREMENTS

Item	Question/Feature	Reference	Status	N/A	Support
G1	Does implementation support the ACSE protocol?	8.3	o		Yes [] No [X]
G2	ACSE requirements	8.3	G1:m	[X]	Yes []

8.8 DSE REQUIREMENTS

Item	Question/Feature	Reference	Status	N/A	Support
F1	Does implementation support the DSE protocol?	8.4	o		Yes [] No [X]
F2	Actions at the PINX which initiates the dialogue	8.4.1	F1:o.2	[X]	Yes [] No []
F3	Actions at the PINX which terminates the dialogue	8.4.2	F1:o.2	[X]	Yes [] No []
F4	Actions for dialogue continuation	8.4.3	F1:m	[X]	Yes []
F5	T_Originating_Dialogue	8.4.4	F2:m	[X]	Yes [] value [s]
F6	Error procedures relating to dialogue control	8.4.5	F1:m	[X]	Yes []

8.9

MANUFACTURER SPECIFIC INFORMATION

Item	Question/Feature	Reference	Status	N/A	Support
H1	Manufacturer specific operations	9.1	o		Yes [X] No []
H2	Manufacturer specific additions to standardized operations	9.2	o		Yes [X] No []
H3	Manufacturer specific notifications	9.3	o		Yes [X] No []

8.10

MESSAGES AND INFORMATION ELEMENTS

Item	Question/Feature	Reference	Status	N/A	Support
I1	General message format and information element coding	11	m		Yes [X]
I2	Message type	11.1	m		Yes [X]
I3	Dummy Call reference	11.2	B1:m	[X]	Yes []
I4	Bearer Capability	11.3.1	C1:m	[]	Yes [X]
I5	Channel identification	11.3.2	C1:m	[]	Yes [X]
I6	Facility information element structure	11.3.3	m		Yes [X]
I7	Network Facility Extension	11.3.3.1	m		Yes [X]
I8	Interpretation APDU	11.3.3.2	m		Yes [X]
I9	DSE APDUs	11.3.3.3	F1:m	[X]	Yes []
I10	ROSE APDUs	11.3.3.4	m		Yes [X]
I11	Notification indicator	11.3.4	m		Yes [X]
I12	ACSE APDUs	11.3.3.5	G1:m	[X]	Yes []
I13	Encoding of ASN.1 defined elements	11.4	m		Yes [X]
I14	Network Protocol Profile	11.3.3	m		Yes [X]

8.11

IMPLEMENTED PARAMETERS IN ECMA-165 MESSAGES

Note:

In the following clauses, the expressions *Orig* and *Rx* should be interpreted as follows:

Orig : the capability to originate the element specified - i.e. create the element and send it on an PSS1link; not relay the element having received it from a Preceding PINX.

Rx : the capability to correctly receive and process the specified element as a valid element from a Preceding PINX; including relay of the element to a Subsequent PINX if acting as a Transit PINX for the related call or connection.

8.11.1 ALERTING MESSAGE

Item	Question/Feature	Reference	Status	N/A	Support
J1	Facility information element - Orig	10.1, 11.3.3	A1:o.3	[]	Yes [X] No []
J2	Facility information element - Rx	10.1, 11.3.3	m		Yes [X]
J3	Notification indicator information element - Orig	10.1, 11.3.4	A12:o.4	[X]	Yes [] No []
J4	Notification indicator information element - Rx	10.1, 11.3.4	m		Yes [X]

8.11.2 CONNECT MESSAGE

Item	Question/Feature	Reference	Status	N/A	Support
K1	Facility information element - Orig	10.3, 11.3.3	c.2	[]	Yes [X] No []
K2	Facility information element - Rx	10.3, 11.3.3	m		Yes [X]
K3	Notification indicator information element - Orig	10.3, 11.3.4	A12:o.4	[X]	Yes [] No []
K4	Notification indicator information element - Rx	10.3, 11.3.4	m		Yes [X]

c.2 If (A1 or C2) then o.3, else N/A

8.11.3 SETUP MESSAGE

Item	Question/Feature	Reference	Status	N/A	Support
L1	Facility information element - Orig	10.4, 11.3.3	c.2	[]	Yes [X] No []
L2	Facility information element - Rx	10.4, 11.3.3	m		Yes [X]
L3	Notification indicator information element - Orig	10.4, 11.3.4	A12:o.4	[X]	Yes [] No []
L4	Notification indicator information element - Rx	10.4, 11.3.4	m		Yes [X]
L5	Transit counter information element - Orig	7.3.1.1, 6.3 of ECMA-225	o		Yes [] No [] (info.1)
L6	Transit counter information element - Rx	7.3.1.1, 6.3 of ECMA-225	m		Yes [] (info.1)

info.1 See the description for QSIG-TC

Difference from ISO/IEC 11582 The PICS items L5 and L6 in the above table are a consequence of the added procedures for Transit Counter in 7.3.1.1 above. These questions do not yet appear in the ISO/IEC International Standard. End of Difference

8.11.4 DISCONNECT MESSAGE

Item	Question/Feature	Reference	Status	N/A	Support
M1	Facility information element - Orig	10.5, 11.3.3	A1:o.3	[]	Yes [X] No []
M2	Facility information element - Rx	10.5, 11.3.3	m		Yes [X]
M3	Notification indicator information element - Orig	10.5, 11.3.4	A12:o.4	[X]	Yes [] No []
M4	Notification indicator information element - Rx	10.5, 11.3.4	m		Yes [X]

8.11.5 RELEASE MESSAGE

Item	Question/Feature	Reference	Status	N/A	Support
N1	Facility information element - Orig	10.6, 11.3.3	c.2	[]	Yes [X] No []
N2	Facility information element - Rx	10.6, 11.3.3	m		Yes [X]

8.11.6 RELEASE COMPLETE MESSAGE

Item	Question/Feature	Reference	Status	N/A	Support
O1	Facility information element - Orig	10.7, 11.3.3	c.2	[]	Yes [X] No []
O2	Facility information element - Rx	10.7, 11.3.3	m		Yes [X]

8.11.7 FACILITY MESSAGE

Item	Question/Feature	Reference	Status	N/A	Support
P1	FACILITY message - Orig	10.8	c.3	[]	Yes [X] No []
P2	Protocol discriminator- Orig	10.8, (14.2 ECMA-143)	P1:m	[]	Yes [X]
P3	Protocol discriminator- Rx	10.8, (14.2 ECMA-143)	m		Yes [X]
P4	Call reference-Orig	10.8, 11.2	P1:m	[]	Yes [X]
P5	Call reference-Rx	10.8, 11.2	m		Yes [X]
P6	Message type-Orig	10.8, 11.1	P1:m	[]	Yes [X]
P7	Message type-Rx	10.8, 11.1	m		Yes [X]

PROTOCOL IMPLEMENTATION CONFORMANCE STATEMENT FOR SIGNALING AT THE Q REFERENCE POINT

P8	Calling party number - Orig	10.8, 14.5 of ECMA-143	B7:m	[X]	Yes []
P9	Calling party number - Rx	10.8, 14.5 of ECMA-143	B1:m	[X]	Yes []
P10	Called party number - Orig	10.8, 14.5 of ECMA-143	B7:m	[X]	Yes []
P11	Called party number - Rx	10.8, 14.5 of ECMA-143	B1:m	[X]	Yes []
P12	Facility information element - Orig	10.8, 11.3.3	P1:m	[]	Yes [X]
P13	Facility information element - Rx	10.8, 11.3.3	m		Yes [X]
P14	Notification indicator information element - Orig	10.8, 11.3.4	c.4	[X]	Yes [] No []
P15	Notification indicator information element - Rx	10.8, 11.3.4	m		Yes [X]

c.3 If (A1 or C2) then o.3, else if B7 then m, else N/A

c.4 If (P1 and A12) then o.4, else N/A

8.11.8

NOTIFY MESSAGE

Item	Question/Feature	Reference	Status	N/A	Support
Q1	NOTIFY message - Orig	10.9	A12:o.4	[]	Yes [] No [X]
Q2	Protocol discriminator - Orig	10.9, (14.2 of ECMA-143)	Q1:m	[X]	Yes []
Q3	Protocol discriminator- Rx	10.9, (14.2 of ECMA-143)	m		Yes [X]
Q4	Call reference - Orig	10.9, 11.2	Q1:m	[X]	Yes []
Q5	Call reference - Rx	10.9, 11.2	m		Yes [X]
Q6	Message type - Orig	10.9, 11.1	Q1:m	[X]	Yes []
Q7	Message type - Rx	10.9, 11.1	m		Yes [X]
Q8	Notification Indicator - Orig	10.9, 11.3.4	Q1:m	[X]	Yes []
Q9	Notification Indicator - Rx	10.9, 11.3.4	m		Yes [X]

8.11.9

PROGRESS MESSAGE

Item	Question/Feature	Reference	Status	N/A	Support
R1	Facility information element - Orig	10.10, 11.3.3	A1:o.3	[]	Yes [X] No []
R2	Facility information element - Rx	10.10, 11.3.3	m		Yes [X]

R3	Notification indicator information element - Orig	10.10, 11.3.4	A12:o.4	[X]	Yes [] No []
R4	Notification indicator information element - Rx	10.10, 11.3.4	m		Yes [X]

9 ADVICE OF CHARGE, QSIG-AOC (ISO/IEC 15049/15050)

9.1 SCOPE

This Standard specifies the signaling protocol for the support of the Advice Of Charge supplementary services (SS-AOC) at the Q reference point between Private Integrated Services Network Exchanges (PINXes) connected together within a Private Integrated Services Network (PISN).

SS-AOC is a set of supplementary services which enable a user to receive information about the charging of its calls that leave the PISN and enter another network. The three AOC supplementary services are:

- Charging information at call set-up time (AOC-S) SS-AOC-S enables the user to receive information about the charging rates at call set-up time and also to receive further information during the call if there is a change of charging rates.
- Charging information during the call (AOC-D) SS-AOC-D enables a user to receive information on the recorded charges for a call during the active phase of the call.
- Charging information at the end of the call (AOC-E) SS-AOC-E enables a user to receive information on the recorded charges for a call when the call is terminated.

9.2 GENERAL

Item	Question/Feature	Reference	Status	N/A	Support
A1	Support of SS-AOC in Originating PINX?		o.1		Yes [X] No []
A2	Support of SS-AOC in Terminating PINX?		o.1		Yes [X] No []
A3	Support of SS-AOC in Outgoing Gateway PINX?		o.1		Yes [X] No []
A4	Support of charge rate provision		o.2		Yes [] No[X]
A5	Support of interim charge provision		o.2		Yes [X] No []
A6	Support of final charge provision		o.2		Yes [X] No []

9.3 PROCEDURES

Item	Question/Feature	Reference	Status	N/A	Support
B1	Support of relevant ECMA-143 and ECMA-165 procedures at the Originating PINX	6.2.1	A1:m	[]	m:Yes [X]

B2	Support of relevant ECMA-143 and ECMA-165 procedures at the Terminating PINX	6.2.2	A2:m	[]	m:Yes [X]
B3	Support of relevant ECMA-143 and ECMA-165 procedures at the Outgoing Gateway PINX	6.2.3	A3:m	[]	m:Yes [X]
B4	Procedures at the Originating PINX	6.6.1.1.1, 6.6.1.1.3, 6.6.1.1.4, 6.6.1.2	A1:m	[]	m:Yes [X] (info.1)
B5	Additional procedures at the Originating PINX for invocation during the call	6.6.1.1.2	A1:o	[]	o:Yes [] No [X]
B6	Procedures at the Terminating PINX	6.6.4	A2:m	[]	m:Yes [] (info.2)
B7	Procedures at the Outgoing Gateway PINX	6.6.2	A3:m	[]	m:Yes [] (info.3)

info.1 AOC-E is only supported when the public party disconnects the call. When a terminal becomes idle, the idle information will override any charging information.

info.2 Additional procedures for Call Diversion are not supported

info.3 Additional procedures for Call Diversion and Call Transfer are not supported

9.4

CODING

Item	Question/Feature	Reference	Status	N/A	Support
C1	Sending of chargeRequest invoke APDU and receipt of chargeRequest return result and error APDU	6.3.1	A1:m	[]	m:Yes [X]
C2	Receipt of chargeRequest invoke APDU and sending of chargeRequest return result and error APDU	6.3.1	c.1	[]	m:Yes [X]
C3	Sending of getFinalcharge invoke APDU	6.3.1	c.2	[]	m:Yes [] (info.1)
C4	Sending of aocFinal invoke APDU	6.3.1	c.3	[]	M:Yes [X]
C5	Sending of aocInterim invoke APDU	6.3.1	c.4	[]	M:Yes [X]
C6	Sending of aocRate invoke APDU	6.3.1	c.5	[X]	M:Yes []
C7	Receipt of getFinalcharge invoke APDU	6.3.1	c.6	[]	M:Yes [] (info.1)
C8	Receipt of aocFinal invoke APDU	6.3.1	c.7	[]	M:Yes [X]
C9	Receipt of aocInterim invoke APDU	6.3.1	c.8	[]	M:Yes [X]

C10	Receipt of aocRate invoke APDU	6.3.1	c.9	[X]	m:Yes []
C11	Receipt of aocComplete invoke APDU	6.3.1	A3:m	[]	m:Yes [] (info.2)
C12	Receipt of aocDivChargeReq invoke APDU	6.3.1	c.3	[]	m:Yes [] (info.2)

- c.1** If A2 or A3 then mandatory, else N/A
- c.2** If (A1 and (A5 or A6)) then mandatory, else N/A
- c.3** If (A3 and (A5 or A6)) then mandatory, else N/A
- c.4** If (A3 and A5) then mandatory, else N/A
- c.5** If (A3 and A4) then mandatory, else N/A
- c.6** If (A3 and (A5 or A6)) then mandatory, else N/A
- c.7** If (A1 and (A5 or A6)) then mandatory, else N/A
- c.8** If (A1 and A5) then mandatory, else N/A
- c.9** If (A1 and A4) then mandatory, else N/A
- info.1** AOC-E is only supported when the public party disconnects the call. When a terminal becomes idle, the idle information will override any charging information.
- info.2** Additional procedures for Call Diversion and Call Transfer are not supported

9.5 TIMERS

Item	Question/Feature	Reference	Status	N/A	Support
D1	Support of timer T1	6.10	A1:m	[]	m:Yes [] (info.1)
D2	Support of timer T2	6.10	A1:m	[]	m:Yes [] (info.2)

- info.1** Not needed since invocation during a call is not supported.
- info.2** Not needed since getFinalcharge is not sent.

9.6 INTERACTIONS BETWEEN SS-AOC AND SS-CT

Item	Question/Feature	Reference	Status	N/A	Support
E1	Support of SS-CT		o		Yes [X] No []

E2	Actions at an SS-AOC Originating PINX	6.9.3.1	c.11	[]	m:Yes [] (info.1)
E3	Actions at a Primary PINX	6.9.3.2	c.12	[]	o:Yes [] No [X]
E4	Actions at a Secondary PINX	6.9.3.3	c.12	[]	o:Yes [] No [X]
E5	Sending of aocComplete invoke APDU	6.3.1	E2:m	[]	m:Yes [] (info.2)

c.11 If (E1 and A1) then mandatory, else N/A

c.12 If (E1 and A1) then optional, else N/A

info.1 If the transferred-to party resides outside the exchange but within the private network the transferred-to party will not have the AOC feature active (nor is it possible to activate AOC after transfer).

info.2 Additional procedures for Call Transfer are not supported.

9.7

INTERACTIONS BETWEEN SS-AOC AND SS-DIV

Item	Question/Feature	Reference	Status	N/A	Support
F1	Support of SS-DIV		o		Yes [X] No []
F2	Able to act as an SS-DIV Rerouting PINX		F1:o	[]	o:Yes [X] No []
F3	Actions at an SS-DIV Served User PINX	6.9.4.1	c.13	[]	o:Yes [] No [X]
F4	Actions at an SS-DIV Rerouting PINX	6.9.4.2	F2:m	[]	m:Yes [] (info.1)
F5	Sending of aocDivChargeReq invoke APDU	6.3.1	F3:m	[X]	m:Yes [] (info.2)

c.13 If (F1 and A1) then optional, else N/A

info.1 Rerouting to public network will be rejected.

info.2 Additional procedures for Call Diversion not supported

9.8

INTERACTIONS BETWEEN SS-AOC AND ANF-CINT

Item	Question/Feature	Reference	Status	N/A	Support
G1	Support of ANF-CINT		o		Yes [] No [X]
G2	Interaction at an ANF-CINT Intercepting PINX	6.9.13.1	G1:m	[X]	m:Yes []

9.9

INTERACTIONS BETWEEN SS-AOC AND ANF-CTMI

Difference from ISO/IEC 15050 Clause A.3.10 does not exist in the ISO/IEC International Standard. End of Difference

Item	Question/Feature	Reference	Status	N/A	Support
H1	Support of ANF-CTMI		o		Yes [] No [X]
H2	Able to act as an ANF-CTMI Rerouting PINX		H1:o	[X]	o:Yes [] No []
H3	Actions at an ANF-CTMI Rerouting PINX	6.9.15.1	H2:m	[X]	m:Yes []

10 CALL COMPLETION, QSIG-CC (ISO/IEC 13866/13870)

10.1 SCOPE

This Standard specifies the signaling protocol for the support of the Call Completion supplementary services at the Q reference point between Private Integrated Network Exchanges (PINXes) connected together within a Private Integrated Services Network (PISN).

The Call Completion supplementary services are Completion of Calls to Busy Subscribers (SS-CCBS) and Completion of Calls on No Reply (SS-CCNR). SS-CCBS enables a calling User A, encountering a busy destination User B, to have the call completed when User B becomes not busy, without having to make a new call attempt.

SS-CCNR enables a calling User A, encountering a destination User B that, though alerted, does not answer, to have the call completed when User B becomes not busy again after a period of activity, without having to make a new call attempt.

10.2 GENERAL

Item	Question/Feature	Reference	Status	N/A	Support
A1	PINX can act as Originating PINX		o.1		Yes [X] No []
A2	PINX can act as Terminating PINX		o.1		Yes [X] No []
A3	Support of CCBS		o.2		Yes [X] No []
A4	Support of CCNR		o.2		Yes [X] No []
A5	Incoming Gateway Function		o		Yes [] No [X]
A6	Outgoing Gateway Function		o		Yes [] No [X]
A7	Support of (Path-) Non-reservation method		m		Yes [X]
A8	Support of Path Reservation method		c.0		m:Yes [X] o: Yes [] No []
A9	Support of Service Retention option		o		Yes [] No [X]
A10	Support of relevant procedures of ECMA-143 and ECMA-165	6.2	m		Yes [X]

c.0 If A2 then m else o

10.3 PROCEDURES AT THE ORIGINATING PINX

This table shall apply only if item A1 is supported.

Item	Question/Feature	Reference	Status	N/A	Support
B1	CCBS invocation	6.5.2.1.1 6.5.2.1.3	A3:m	[]	m:Yes [X]
B2	CCNR invocation	6.5.2.1.2 6.5.2.1.3	A4:m	[]	m:Yes [X]
B3	Procedures for connection retention method	6.5.2.1	m		Yes [X]
B4	Procedures for connection release method	6.5.2.1	A8:m	[]	m:Yes [X]
B5	Procedures for receiving indication that User B is not busy	6.5.2.1.4	m		Yes [X]
B6	Set up CC Call without Path Reservation	6.5.2.1.5	m		Yes [X]
B7	Set up CC Call with Path Reservation	6.5.2.1.6	A8:o	[]	o: Yes [X] No []
B8	Procedures for User A busy, (path-) non-reservation method	6.5.2.1.7	m		Yes [X]
B9	Procedures for User A busy, path reservation method	6.5.2.1.8 6.5.2.1.9	A8:m	[]	m:Yes [X]
B10	Cancellation of a CC Request	6.5.2.1.10	m		Yes [X]
B11	Exceptional procedures except failure of CC Call presentation	6.5.2.2,1 through 6.5.2.2,5	m		Yes [X]
B12	Failure of CC Call presentation, service retention if User B is busy again	6.5.2.2.6	A9:m	[X]	m:Yes []
B13	Failure of CC Call presentation, no service retention if User B is busy again, failure indication to User A	6.5.2.2.6	o.1		Yes [X] No []
B14	Failure of CC Call presentation, no service retention if User B is busy again, automatic re-invocation of SS-CCBS	6.5.2.2.6	o.1		Yes [] No [X]

10.4

PROCEDURES AT THE TERMINATING PINX

This table shall apply only if item A2 is supported.

Item	Question/Feature	Reference	Status	N/A	Support
C1	CCBS invocation	6.5.3.1.1 6.5.3.1.3	A3:m	[]	m:Yes [X]
C2	CCNR invocation	6.5.3.1.2 6.5.3.1.3	A4:m	[]	m:Yes [X]
C3	Procedures for connection retention method	6.5.3.1	m		Yes [X]

C4	Procedures for connection release method	6.5.3.1	m		Yes [X]
C5	Procedures for indicating that User B is not busy	6.5.3.1.4	m		Yes [X]
C6	Receive CC Call without Path Reservation	6.5.3.1.5	m		Yes [X]
C7	Receive CC Call with Path Reservation	6.5.3.1.6	m		Yes [X]
C8	CCBS/CCNR suspension / resumption	6.5.3.1.7	m		Yes [X]
C9	Cancellation of a CC Request	6.5.3.1.8	m		Yes [X]
C10	Exceptional procedures except User B Busy again on CC Call presentation	6.5.3.2.1 6.5.3.2.2 6.5.3.2.3 6.5.3.2.5	m		Yes [X]
C11	Service retention procedure if User B is busy again on CC Call presentation	6.5.3.2.4	A9:m	[X]	m:Yes []
C12	Procedure without service retention if User B is busy again on CC Call presentation	6.5.3.2.4	m		Yes [X]

10.5

PROCEDURES AT A GATEWAY PINX

This table shall apply only if item A5 or A6 is supported.

Item	Question/Feature	Reference	Status	N/A	Support
D1	Interworking if CCBS Request comes from a public ISDN	6.6.1	A5:o.1	[X]	o: Yes [] No []
D2	Interworking if CCBS/CCNR Request comes from a non-ISDN	6.7.1	A5:o.1	[X]	o: Yes [] No []
D3	Interworking if CCBS Request goes to a public ISDN	6.6.2	A6:o.2	[X]	o: Yes [] No []
D4	Interworking if CCBS/CCNR Request goes to a non-ISDN	6.7.2	A6:o.2	[X]	o: Yes [] No []

10.6

CODING

Item	Question/Feature	Reference	Status	N/A	Support
E1	Sending and receipt of ccbsRequest APDUs	6.3.1	A3:m	[]	m:Yes [X]
E2	Sending and receipt of ccnrRequest APDUs	6.3.1	A4:m	[]	m:Yes [X]
E3	Sending and receipt of ccCancel invoke APDU	6.3.1	m		Yes [X]

E4	Sending of ccExecPossible invoke APDU	6.3.1	c.1	[]	m:Yes [X]
E5	Receipt of ccExecPossible invoke APDU	6.3.1	c.2	[]	m:Yes [X]
E6	Sending of ccPathReserve invoke and receipt of return result and return error APDUs	6.3.1	c.3	[]	m:Yes [X] o: Yes [] No []
E7	Receipt of ccPathReserve invoke and sending of return result or return error APDUs	6.3.1	c.1	[]	m:Yes [X]
E8	Sending of ccRingout invoke and receipt of return error APDU	6.3.1	c.2	[]	m:Yes [X]
E9	Receipt of ccRingout invoke and sending of return error APDU	6.3.1	c.1	[]	m:Yes [X]
E10	Sending of ccSuspend invoke APDU	6.3.1	c.2	[]	m:Yes [X]
E11	Receipt of ccSuspend invoke APDU	6.3.1	c.1	[]	m:Yes [X]
E12	Sending of ccResume invoke APDU	6.3.1	c.2	[]	m:Yes [X]
E13	Receipt of ccResume invoke APDU	6.3.1	c.1	[]	m:Yes [X]

- c.1** If A2 or A6) then m else N/A
- c.2** If (A1 or A5) then m else N/A
- c.3** If (A1 and A8) then m else if D2 then o else N/A

10.7

INTERACTIONS BETWEEN SS-CCBS AND SS-CFU/SS-CDI

Item	Question/Feature	Reference	Status	N/A	Support
F1	Support of SS-CFU or SS-CDI		o		Yes [X] No []
F2	Originating PINX procedures for invoking SS-CCBS at an SS-CFU/SS-CDI diverted-to user	6.8.5.1	c.1	[]	Yes [X] No []

- c.1** If F1 and A1 and A3 then optional, else N/A

10.8

INTERACTIONS BETWEEN SS-CCBS AND SS-CFB

Item	Question/Feature	Reference	Status	N/A	Support
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G1	Support of SS-CFB		o		Yes [X] No []
G2	Originating PINX procedures for invoking SS-CCBS at an SS-CFB diverted-to user	6.8.6.1	c.1	[]	Yes [] No [X] (info.1)

c.1 If G1 and A1 and A3 then optional, else N/A

info.1 CCBS is invoked towards the served user.

10.9

INTERACTIONS BETWEEN SS-CCNR AND SS-CFU/SS-CDI

Item	Question/Feature	Reference	Status	N/A	Support
H1	Support of SS-CFU or SS-CDI		o		Yes [X] No [X]
H2	Originating PINX procedures for invoking SS-CCNR at an SS-CFU/SS-CDI diverted-to user	6.9.5.1	c.1	[]	Yes [X] No []

c.1 If H1 and A1 and A4 then optional, else N/A

10.10

INTERACTIONS BETWEEN SS-CCNR AND SS-CFB

Item	Question/Feature	Reference	Status	N/A	Support
I1	Support of SS-CFB		o		Yes [X] No []
I2	Originating PINX procedures for invoking SS-CCNR at an SS-CFB diverted-to user	6.9.6.1	c.1	[]	Yes [X] No []

c.1 If H1 and A1 and A4 then optional, else N/A

10.11

INTERACTIONS BETWEEN SS-CCNR AND SS-CFNR/SS-CDA

Item	Question/Feature	Reference	Status	N/A	Support
J1	Support of SS-CFNR or SS-CDA		o		Yes [X] No []

J2	Originating PINX procedures for invoking SS-CCNR at an SS-CFNR/SS-CDA diverted-to user	6.9.7.1	c.1	[]	Yes [] No [X] (info.1)
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c.1 If J1 and A1 and A4 then optional, else N/A

info.1 CCNR is invoked towards the served user.

10.12

TIMERS

Item	Question/Feature	Reference	Status	N/A	Support
K1	Support of timer T1	6.10.1	A1:m	[]	m:Yes [X] Value: 10 s
K2	Support of timer T2	6.10.1	A1:m	[]	m:Yes [X] Value: 7200 s (info.1)
K3	Support of timer T3	6.10.1	A1:m	[]	m:Yes [X] Value: 8 s (info.2)
K4	Support of timer T4	6.10.1	c.1	[]	m:Yes [X] Value: 30 s

c.1 If (A1 and A8) then m else N/A

info.1 Controlled by application system parameter, *PARNUM=127*.

info.2 Controlled by application system parameter, *PARNUM=29*.

11

TRANSIT COUNTER, QSIG-TC (ISO/IEC 15055/15056)

11.1

SCOPE

This Standard specifies the signaling protocol for the support of the Transit Counter additional network feature (ANF-TC) at the Q reference point between Private Integrated Services Network Exchanges (PINXes) connected together within a Private Integrated Services Network (PISN).

ANF-TC is a feature that limits the number of Transit PINXs that a call setup request may be routed through e.g., to protect the network against indefinite looping.

11.2

GENERAL

Item	Question/Feature	Reference	Status	N/A	Support
A1	Behavior as an Originating PINX for ANF-TC in association with basic circuit switched call control (ECMA-143)	6.2.1, 6.4.1	o.1		Yes [X] No []
A2	Behavior as an Originating PINX for ANF-TC in association with call independent signaling connections (ECMA-165)	6.2.1, 6.4.1	o.1		Yes [X] No []
A3	Behavior as a Terminating PINX for ANF-TC in association with basic circuit switched call control (ECMA-143)	6.2.2, 6.4.2	o.1		Yes [X] No []
A4	Behavior as a Terminating PINX for ANF-TC in association with call independent signaling connections (ECMA-165)	6.2.2, 6.4.2	o.1		Yes [X] No []
A5	Behavior as a Transit PINX for ANF-TC in association with basic circuit switched call control (ECMA-143)	6.2.3, 6.4.3	o.1		Yes [X] No []
A6	Behavior as a Transit PINX for ANF-TC in association with call independent signaling connections (ECMA-165)	6.2.3, 6.4.3	o.1		Yes [X] No []
A7	Behavior as an Incoming Gateway PINX for ANF-TC in association with basic circuit switched call control (ECMA-143)	6.4.4	o.1		Yes [X] No []
A8	Behavior as an Incoming Gateway PINX for ANF-TC in association with call independent signaling connections (ECMA-165)	6.4.4	o.1		Yes [X] No []

A9	Behavior as an Outgoing Gateway PINX for ANF-TC in association with basic circuit switched call control (ECMA-143)	6.4.5	o.1		Yes [X] No []
A10	Behavior as an Outgoing Gateway PINX for ANF-TC in association with call independent signaling connections (ECMA-165)	6.4.5	o.1		Yes [X] No []

11.3

PROTOCOL INTERACTIONS WITH SS-CC

Item	Question/Feature	Reference	Status	N/A	Support
B1	Support of SS-CCBS		o		Yes [X] No []
B2	Support of SS-CCNR		o		Yes [X] No []
B3	Interactions with SS-CCBS	6.5.3	c.1	[]	m: Yes [X]
B4	Interactions with SS-CCNR	6.5.4	c.2	[]	m: Yes [X]

c.1 If B1 and A1 then m, else N/A

c.2 If B2 and A1 then m, else N/A

11.4

PROTOCOL INTERACTIONS WITH SS-CT

Item	Question/Feature	Reference	Status	N/A	Support
C1	Support of SS-CT by rerouting		o		Yes [] No [X]
C2	Interactions with SS-CT	6.5.5	C1:m	[X]	m: Yes []

11.5

PROTOCOL INTERACTIONS WITH SS-DIV

Item	Question/Feature	Reference	Status	N/A	Support
D1	Support of SS-CFU		o		Yes [X] No []
D2	Support of SS-CFB		o		Yes [X] No []
D3	Support of SS-CFNR		o		Yes [X] No []
D4	Support of SS-CD		o		Yes [] No [X]
D5	Interactions with SS-CFU	6.5.6	D1:m	[]	m: Yes [X]
D6	Interactions with SS-CFB	6.5.7	D2:m	[]	m: Yes [X]
D7	Interactions with SS-CFNR	6.5.8	D3:m	[]	m: Yes [X]

D8	Interactions with SS-CD	6.5.9	D4:m	[X]	m: Yes []
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11.6

PROTOCOL INTERACTIONS WITH ANF-PR

Item	Question/Feature	Reference	Status	N/A	Support
E1	Support of ANF-PR		o		Yes [X] No []
E2	Interactions with ANF-PR	6.5.10	E1:m	[]	m: Yes [X]

11.7

PROTOCOL INTERACTIONS WITH ANF-CINT

Item	Question/Feature	Reference	Status	N/A	Support
F1	Support of ANF-CINT		o		Yes [] No [X]
F2	Interactions with ANF-CINT	6.5.15	F1:m	[X]	m: Yes []

12 COMMON INFORMATION, QSIG-CMN (ISO/IEC 15771/15772)

12.1 SCOPE

This Standard specifies the signaling protocol for the support of the Common Information additional network feature (ANF-CMN) at the Q reference point between Private Integrated Services Network Exchanges (PINXes) connected together within a Private Integrated Services Network (PISN).

ANF-CMN is an additional network feature which enables the exchange of Common Information between entities acting on behalf of the two ends of a connection through a PISN. This Common Information relates to the user or equipment at one end of a connection and includes one or more of the following: Feature Identifiers, Party Category, Equipment Identity. This information, when received by an entity, can be used for any purpose, e.g. as the basis for indications to the local user or to another network or in order to filter feature requests.

12.2 GENERAL

Item	Question/Feature	Reference	Status	N/A	Support
A1	Support of ANF-CMN solicited service in an originating PINX		o.1		Yes[] No[X]
A2	Support of ANF-CMN unsolicited service in an originating PINX		o.1		Yes[X] No[]
A3	Support of ANF-CMN solicited service in a terminating PINX		o.1		Yes[] No[X]
A4	Support of ANF-CMN unsolicited service in a terminating PINX		o.1		Yes[X] No[]
A5	Support of ANF-CMN solicited service as Incoming Gateway PINX		o.1		Yes[] No[X]
A6	Support of ANF-CMN unsolicited service as Incoming Gateway PINX		o.1		Yes[X] No[]
A7	Support of ANF-CMN solicited service as Outgoing Gateway PINX		o.1		Yes[] No[X]
A8	Support of ANF-CMN unsolicited service as Outgoing Gateway PINX		o.1		Yes[X] No[]

12.3 PROCEDURES

Item	Question/Feature	Reference	Status	N/A	Support
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B1	Support of relevant procedures as specified in ECMA 143 and ECMA 165 for an originating PINX	6.2.1	c1: m	[]	m:Yes[X]
B2	Support of relevant procedures as specified in ECMA 143 and ECMA 165 for a terminating PINX	6.2.2	c2: m	[]	m:Yes[X]
B3	Support of signaling procedures for the invocation of the solicited service at call establishment at the originating PINX	6.6.1	A1: m	[X]	m:Yes[]
B4	Support of signaling procedures for the invocation of the solicited service in active call at the originating PINX	6.6.1	A1: o	[X]	Yes[] No[]
B5	Support of signaling procedures for responding to the solicited service at the originating PINX	6.6.1	A1: m	[X]	m:Yes[]
B6	Support of signaling procedures for the invocation of the unsolicited service at call establishment at the originating PINX	6.6.1	A2: m	[]	m:Yes[X]
B7	Support of signaling procedures for the invocation of the unsolicited service in active call at the originating PINX	6.6.1	A2: o	[]	Yes[X] No[]
B8	Support of signaling procedures for the receipt of the unsolicited service at the originating PINX	6.6.1	A2: m	[]	m:Yes[X]
B9	Support of signaling procedures for the invocation of the solicited service at call establishment at the terminating PINX	6.6.2	A3: m	[X]	m:Yes[]
B10	Support of signaling procedures for the invocation of the solicited service in active call at the terminating PINX	6.6.2	A3: o	[X]	Yes[] No[]
B11	Support of signaling procedures for responding to the solicited service at the terminating PINX	6.6.2	A3: m	[X]	m:Yes[] (info.1)
B12	Support of signaling procedures for the invocation of the unsolicited service at call establishment at the terminating PINX	6.6.2	A4: m	[]	m:Yes[X]
B13	Support of signaling procedures for the invocation of the unsolicited service in active call at the terminating PINX	6.6.2	A4: o	[]	Yes[X] No[]
B14	Support of signaling procedures for the receipt of the unsolicited service at the terminating PINX	6.6.2	A4: m	[]	m:Yes[X]
B15	Support of signaling procedures for the interworking with public ISDNs	6.7	c.3: m	[]	m:Yes[X]
B16	Support of signaling procedures for the interworking with non-ISDNs	6.8	c.3: m	[]	m:Yes[X]

- c.1** If A1 or A2 or A5 or A6 then mandatory, else N/A
- c.2** If A3 or A4 or A7 or A8 then mandatory, else N/A
- c.3** If A5 or A6 or A7 or A8 then mandatory, else N/A
- info.1** If a solicited service is received in a SETUP message, ASP 113 01 will send the result in an ALERTING message.

12.4 CODING

Item	Question/Feature	Reference	Status	N/A	Support
C1	Sending of CmnRequest invoke and receipt of CmnRequest return result	6.3.1	c.1: m	[X]	m:Yes[]
C2	Receipt of CmnRequest invoke and sending of CmnRequest return result	6.3.1	c.2: m	[X]	m:Yes[]
C3	Sending of CmnInform invoke	6.3.1	c.3: m	[]	m:Yes[X]
C4	Receipt of CmnInform invoke	6.3.1	c.4: m	[]	m:Yes[X]

- c.1** If B3 or B4 or B9 or B10 then mandatory, else N/A
- c.2** If B5 or B11 then mandatory, else N/A
- c.3** If B6 or B7 or B12 or B13 then mandatory, else N/A
- c.4** If B8 or B14 then mandatory, else N/A

12.5 TIMER

Item	Question/Feature	Reference	Status	N/A	Support
D1	Support of Timer T1 at an originating PINX	6.10	B4: m	[X]	m:Yes[]
D2	Support of Timer T1 at a terminating PINX	6.10	B10: m	[X]	m:Yes[]

12.6 INTERACTIONS BETWEEN ANF-CMN AND SS-CFU

Item	Question/Feature	Reference	Status	N/A	Support
E1	Support of SS-CFU as a rerouting PINX		o	[]	Yes[X] No[]
E2	Support of procedures for interaction with SS-CFU	6.9.3	E1: m	[]	m:Yes[X]

12.7

INTERACTIONS BETWEEN ANF-CMN AND SS-CFB

Item	Question/Feature	Reference	Status	N/A	Support
F1	Support of SS-CFB as a rerouting PINX		o	[]	Yes[X] No[]
F2	Support of procedures for interaction with SS-CFB	6.9.4	F1: m	[]	m:Yes[X]

12.8

INTERACTIONS BETWEEN ANF-CMN AND SS-CFNR

Item	Question/Feature	Reference	Status	N/A	Support
G1	Support of SS-CFNR as a rerouting PINX		o	[]	Yes[X] No[]
G2	Support of procedures for interaction with SS-CFNR	6.9.5	G1: m	[]	m:Yes[X]

12.9

INTERACTIONS BETWEEN ANF-CMN AND SS-CD

Item	Question/Feature	Reference	Status	N/A	Support
H1	Support of SS-CD as a rerouting PINX		o	[]	Yes[] No[X]
H2	Support of procedures for interaction with SS-CD	6.9.6	H1: m	[X]	m:Yes[]

12.10

INTERACTIONS BETWEEN ANF-CMN AND SS-CINT

Item	Question/Feature	Reference	Status	N/A	Support
I1	Support of SS-Call Interception as an intercepting PINX		o	[]	Yes[] No[X]
I2	Support of procedures for interaction with SS-CINT	6.9.14	I1: m	[X]	m:Yes[]

12.11

INTERACTIONS BETWEEN ANF-CMN AND ANF-CTMI

Item	Question/Feature	Reference	Status	N/A	Support
J1	Support of ANF-CTMI as a rerouting PINX or (in case of forward switching) as a CTMI detect PINX		o	[]	Yes[] No[X]

PROTOCOL IMPLEMENTATION CONFORMANCE STATEMENT FOR SIGNALING AT THE Q REFERENCE POINT

J2	Support of procedures for interaction with ANF-CTMI	6.9.20	J1: m	<input checked="" type="checkbox"/>	m:Yes[]
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13 CALL DIVERSION, QSIG-CF (ISO/IEC 13872/13873)

13.1 SCOPE

This Standard specifies the signaling protocol for the support of Call Diversion supplementary services (SS-DIV) at the Q reference point between Private Integrated Services Network Exchanges (PINXes) connected together within a Private Integrated Services Network (PISN).

The Call Diversion supplementary services are Call Forwarding Unconditional (SS-CFU), Call Forwarding Busy (SS-CFB), Call Forwarding No Reply (SS-CFNR) and Call Deflection (SS-CD).

SS-CFU, SS-CFB, SS-CFNR and SS-CD are supplementary services which permit a served user to have the PISN send all or specific incoming calls, addressed to the served user's PISN number, to another number.

13.2 GENERAL

Item	Question/Feature	Reference	Status	N/A	Support
A1	Support of SS-CFU		o.1		Yes [X] No []
A2	Support of SS-CFB		o.1		Yes [X] No []
A3	Support of SS-CFNR		o.1		Yes [X] No []
A4	Support of SS-CDI		o.1		Yes [] No [X]
A5	Support of SS-CDA		o.1		Yes [] No [X]
A6	Behavior as Originating PINX		o.2		Yes [X] No []
A7	Behavior as Terminating PINX		o.2		Yes [X] No []
A8	Behavior as Transit PINX		o.2		Yes [X] No []
A9	Behavior as Incoming Gateway PINX		o.2		Yes [] No [X]
A10	Behavior as Outgoing Gateway PINX		o.2		Yes [] No [X]

13.3 PROCEDURES

Item	Question/Feature	Reference	Status	N/A	Support
B1	Procedures at the Originating PINX	6.5.1	A6:m	[]	m: Yes [X]
B2	Procedures at the Transit PINX	6.5.2	A8:m	[]	m: Yes [X]
B3	Procedures at the Rerouting PINX	6.5.4	c.1	[]	m: Yes [X] o: Yes [] No []

PROTOCOL IMPLEMENTATION CONFORMANCE STATEMENT FOR SIGNALING AT THE Q REFERENCE POINT

B4	Procedures at the Served User PINX activation	6.5.3.1.1 6.5.3.2.1	A7:o	[]	o: Yes [X] No []
B5	Procedures at the Served User PINX deactivation	6.5.3.1.2 6.5.3.2.2	A7:o	[]	o: Yes [X] No []
B6	Procedures at the Served User PINX interrogation	6.5.3.1.3 6.5.3.2.3	A7:o	[]	o: Yes [] No [X]
B7	Procedures at the Served User PINX verification of diverted-to number	6.5.3.1.4 6.5.3.2.4	A7:o	[]	o: Yes [X] No []
B8	Procedures at the Served User PINX invocation	6.5.3.1.5 6.5.3.2.5	A7:m	[]	m: Yes [X]
B9	Procedures at the Diverted-to PINX invocation	6.5.5.1.1 6.5.5.2.1	A7:m	[]	m: Yes [X]
B10	Procedures at the Diverted-to PINX verification of diverted-to number	6.5.5.1.2 6.5.5.2.2	A7:o	[]	o: Yes [X] No []
B11	Procedures at the Activating PINX	6.5.6	o		Yes [X] No []
B12	Procedures at the Deactivating PINX	6.5.7	o		Yes [X] No []
B13	Procedures at the Interrogation PINX	6.5.8	o		Yes [] No [X]
B14	Procedures at the Incoming Gateway PINX to public ISDN, diverting within the PISN	6.6.1.1	A9:m	[X]	m: Yes []
B15	Procedures at the Incoming Gateway PINX, diverting within the public ISDN	6.6.1.2	A9:m	[X]	m: Yes []
B16	Procedures at the Incoming Gateway PINX to public ISDN, partial rerouting	6.6.1.3	A9:o	[X]	o: Yes [] No []
B17	Procedures at the Outgoing Gateway PINX to public ISDN, diverting within the PISN	6.6.2.1	A10:m	[X]	m: Yes []
B18	Procedures at the Outgoing Gateway PINX, diverting within the public ISDN	6.6.2.2	A10:m	[X]	m: Yes []
B19	Procedures at the Incoming Gateway PINX to another network (Non-ISDN)	6.7.1	A9:o	[X]	o: Yes [] No []
B20	Procedures at the Outgoing Gateway PINX to another network (Non-ISDN)	6.7.2	A10:o	[X]	o: Yes [] No []

c.1 If A6 or A9 then mandatory else if A7 then optional else N/A

13.4

CODING

Item	Question/Feature	Reference	Status	N/A	Support
C1	Sending of redirectionName element in divertingLegInformation3 APDU	6.3.1	B9:o	[]	o: Yes [X] No []

C2	Receipt of redirectionName element in divertingLegInformation3 APDU	6.3.1	B1:o	[]	o: Yes [X] No []
C3	Sending of divertingName element in callRerouteing and divertingLegInformation2 APDUs	6.3.1	c.1	[]	o: Yes [X] No []
C4	Receipt of divertingName element in callRerouteing and divertingLegInformation2 APDUs	6.3.1	c.2	[]	o: Yes [X] No []
C5	Sending of originalCalledName element in callRerouteing and divertingLegInformation2 APDUs	6.3.1	c.1	[]	o: Yes [X] No []
C6	Receipt of originalCalledName element in callRerouteing and divertingLegInformation2 APDUs	6.3.1	c.2	[]	o: Yes [X] No []
C7	Sending of activateDiversionQ invoke APDU and receipt of return result and return error APDUs	6.3.1	B11:m	[]	m: Yes [X]
C8	Receipt of activateDiversionQ invoke APDU and sending of return result and return error APDUs	6.3.1	B4:m	[]	m: Yes [X] (info.1) (info.2)
C9	Sending of deactivateDiversionQ invoke APDU and receipt of return result and return error APDUs	6.3.1	B12:m	[]	m: Yes [X]
C10	Receipt of deactivateDiversionQ invoke APDU and sending of return result and return error APDUs	6.3.1	B5:m	[]	m: Yes [X] (info.2)
C11	Sending of interrogateDiversionQ invoke APDU and receipt of return result and return error APDUs	6.3.1	B13:m	[X]	m: Yes []
C12	Receipt of interrogateDiversionQ invoke APDU and sending of return result and return error APDUs	6.3.1	B6:m	[X]	m: Yes []
C13	Sending of checkRestriction invoke APDU and receipt of return result and return error APDUs	6.3.1	B7:m	[]	m: Yes [X]
C14	Receipt of checkRestriction invoke APDU and sending of return result and return error APDUs	6.3.1	B10:m	[]	m: Yes [X] (info.3)
C15	Sending of callRerouteing invoke APDU and receipt of return result and return error APDUs	6.3.1	B8:m	[]	m: Yes [X]
C16	Receipt of callRerouteing invoke APDU and sending of return result and return error APDUs	6.3.1	B3:m	[]	m: Yes [X] (info.4) (info.5)
C17	Sending of divertingLegInformation1 invoke APDU	6.3.1	B3:m	[]	m: Yes [X]
C18	Receipt of divertingLegInformation1 invoke APDU	6.3.1	B1:m	[]	m: Yes [X] (info.4)

C19	Sending of divertingLegInformation2 invoke APDU	6.3.1	B3:m	[]	m: Yes [X]
C20	Receipt of divertingLegInformation2 invoke APDU	6.3.1	B9:m	[]	m: Yes [X]
C21	Sending of divertingLegInformation3 invoke APDU	6.3.1	B9:m	[]	m: Yes [X]
C22	Receipt of divertingLegInformation3 invoke APDU	6.3.1	B1:m	[]	m: Yes [X]
C23	Sending of cfnrDivertedLegFailed invoke APDU	6.3.1	c.3	[]	m: Yes [X]
C24	Receipt of cfnrDivertedLegFailed invoke APDU	6.3.1	c.4	[]	m: Yes [X]
C25	Sending of Notification indicator containing <i>call is diverted</i> or embedded Redirection number information element	6.3.2.2	c.5	[X]	m: Yes []
C26	Recognition of <i>call is diverted</i> notification and embedded Redirection number information element in received Notification information element	6.3.2.2	c.6	[]	o: Yes [] No [X]

- c.1** If B3 or B8 then optional, else N/A
- c.2** If B3 or B9 then optional, else N/A
- c.3** If B3 and A3 then mandatory, else N/A
- c.4** If B8 and A3 then mandatory, else N/A
- c.5** If B18 or B20 then mandatory, else N/A
- c.6** If B1 or B14 or B19 then optional, else N/A
- info.1** A subaddress received in the divertedToAddress data element is ignored.
- info.2** The value *cfu* for data element procedure is supported. A request for activation/deactivation of *cfb* or *cfnr* is rejected with a return error APDU
- info.3** The values *allServices* , *speech* and *telephony* for data element basicService are supported. Other values are rejected with a return error APDU.
- info.4** If the subscriptionOption data element is received with value 0 , the calling user will be notified as if value 1 was received.
- info.5** A subaddress received in the calledAddress data element is ignored. When a callRerouting invoke APDU with reroutingReason *cfnr* is received at multiple stages of Call Forwarding, the originalDiversionReason is set to *cfnr*.

13.5

TIMERS

Item	Question/Feature	Reference	Status	N/A	Support
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D1	Support of timer T1	6.8.1	B8:m	[]	m: Yes [X]
D2	Support of timer T2	6.8.2	B11:m	[]	m: Yes [X]
D3	Support of timer T3	6.8.3	B12:m	[]	m: Yes [X]
D4	Support of timer T4	6.8.4	B13:m	[X]	m: Yes []
D5	Support of timer T5	6.8.5	B7:m	[]	m: Yes [X]

13.6

INTERACTIONS BETWEEN SS-CFU/SS-CDI AND SS-CCBS

Item	Question/Feature	Reference	Status	N/A	Support
E1	Support of SS-CCBS (Originating PINX)		o		Yes [X] No []
E2	Originating PINX procedures for invoking SS-CCBS at an SS-CFU/SS-CDI diverted-to user	6.8.1.3.1	c.1	[]	Yes [X] No []

c.1 If E1 and (A1 or A4) and A6 then optional, else N/A

13.7

INTERACTIONS BETWEEN SS-CFU/SS-CDI AND SS-CCNR

Item	Question/Feature	Reference	Status	N/A	Support
F1	Support of SS-CCNR (Originating PINX)		o		Yes [X] No []
F2	Originating PINX procedures for invoking SS-CCNR at an SS-CFU/SS-CDI diverted-to user	6.8.1.4.1	c.1	[]	Yes [X] No []

c.1 If F1 and (A1 or A4) and A6 then optional, else N/A

13.8

INTERACTIONS BETWEEN SS-CFB AND SS-CCBS

Item	Question/Feature	Reference	Status	N/A	Support
G1	Support of SS-CCBS (Originating PINX)		o		Yes [X] No []

G2	Originating PINX procedures for invoking SS-CCBS at an SS-CFB diverted-to user	6.8.2.3.1	c.1	[]	Yes [] No [X] (info.1)
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c.1 If G1 and A2 and A6 then optional, else N/A

info.1 CCBS is invoked towards the served user.

13.9

INTERACTIONS BETWEEN SS-CFB AND SS-CCNR

Item	Question/Feature	Reference	Status	N/A	Support
H1	Support of SS-CCNR (Originating PINX)		o		Yes [X] No []
H2	Originating PINX procedures for invoking SS-CCNR at an SS-CFB diverted-to user	6.8.2.4.1	c.1	[]	Yes [X] No []

c.1 If H1 and A2 and A6 then optional, else N/A

13.10

INTERACTIONS BETWEEN SS-CFNR/SS-CDA AND SS-CCNR

Item	Question/Feature	Reference	Status	N/A	Support
I1	Support of SS-CCNR (Originating PINX)		o		Yes [X] No []
I2	Originating PINX procedures for invoking SS-CCNR at an SS-CFNR/SS-CDA diverted-to user	6.8.3.4.1	c.1	[]	Yes [] No [X] (info.1)

c.1 If I1 and (A3 or A5) and A6 then optional, else N/A

info.1 CCNR is invoked towards the served user,

13.11

INTERACTIONS BETWEEN SS-CFNR AND SS-CT

Item	Question/Feature	Reference	Status	N/A	Support
J1	Support of SS-CT (transfer by join)		o		Yes [X] No []

J2	Support of SS-CT (transfer by rerouting)		o		Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
J3	Support of SS-CFNR or SS-CDA by forward switching at a Served User PINX		B8:o	<input type="checkbox"/>	m: Yes <input checked="" type="checkbox"/>
J4	Actions at a Transferring PINX for rerouting and SS-CFNR/SS-CDA Originating PINX	6.8.3.5.1	c.1	<input checked="" type="checkbox"/>	m: Yes
J5	Actions at a Transferring PINX for join or rerouting and SS-CFNR/SS-CDA Originating PINX	6.8.3.5.2	c.2	<input type="checkbox"/>	m: Yes <input checked="" type="checkbox"/>
J6	Actions at a Secondary PINX for rerouting and SS-CFNR/SS-CDA Served User PINX	6.8.3.5.3	c.3	<input checked="" type="checkbox"/>	m: Yes
J7	Actions at a Secondary PINX for rerouting and SS-CFNR/SS-CDA Served User / Rerouting PINX	6.8.3.5.4	c.4	<input checked="" type="checkbox"/>	m: Yes
J8	Actions at a Secondary PINX for join and SS-CFNR/SS-CDA Served User / Rerouting PINX	6.8.3.5.5	c.5	<input type="checkbox"/>	m: Yes <input checked="" type="checkbox"/>
J9	Actions at a Transferring PINX for join	6.8.3.5.6	c.6	<input type="checkbox"/>	m: Yes <input checked="" type="checkbox"/>
J10	Actions at a Primary PINX for join	6.8.3.5.7	c.6	<input type="checkbox"/>	m: Yes <input checked="" type="checkbox"/>

- c.1** If J2 and (A3 or A5) and A6 then mandatory, else N/A
- c.2** If (J1 or J2) and (A3 or A5) and A6 then mandatory, else N/A
- c.3** If J2 and (A3 or A5) and B8 then mandatory, else N/A
- c.4** If J2 and (A3 or A5) and J3 then mandatory, else N/A
- c.5** If J1 and (A3 or A5) and J3 then mandatory, else N/A
- c.6** If J1 and (A3 or A5) then mandatory, else N/A

14 CALL TRANSFER, QSIG-CT (ISO/IEC 13865/13869)

14.1 SCOPE

This Standard specifies the signaling protocol for the support of the Call Transfer supplementary service (SS-CT) at the Q reference point between Private Integrated Network Services Exchanges (PINXes) connected together within a Private Integrated Services Network (PISN). SS-CT is a supplementary service which enables a User to transform two of that User's calls (at least one of which must be answered) into a new call between the two other users in the two calls.

14.2 GENERAL

Item	Question/Feature	Reference	Status	N/A	Support
A1	Support of SS-CT by join		m		Yes [X]
A2	Support of SS-CT by rerouting		o		Yes [] No [X]

14.3 PROCEDURES

Item	Question/Feature	Reference	Status	N/A	Support
B1	Support of relevant ECMA-143 and ECMA-165 procedures	6.2	m		Yes [X]
B2	signaling procedures at a Transferring PINX	6.5.1.1 6.5.1.2	m		Yes [X]
B3	signaling procedures at a Transferring PINX for interworking with a non-ISDN	6.7.2	m		Yes [X]
B4	signaling procedures at a Primary PINX	6.5.2.1 6.5.2.2, 6.5.5	m		Yes [X]
B5	signaling procedures at a Secondary PINX	6.5.3.1 6.5.3.2, 6.5.5	m		Yes [X]
B6	Behaviour as Gateway PINX to a public ISDN to support transfer of users in the ISDN by a user in the PISN	6.6.1.1	o		Yes [] No [X]
B7	Behaviour as Gateway PINX to a public ISDN to support transfer of users in the PISN by a user in the ISDN	6.6.1.2	o		Yes [] No [X]

B8	Behaviour as Gateway PINX to a non-ISDN to support transfer of users in the other network by a user in the PISN	6.7.1.1	o		Yes [] No [X]
B9	Behaviour as Gateway PINX to a non-ISDN to support transfer of users in the PISN by a user in the other network	6.7.1.2	o		Yes [] No [X]

14.4

ADDITIONAL PROCEDURES FOR SS-CT-REROUTING

Item	Question/Feature	Reference	Status	N/A	Support
C1	signaling procedures at a Transferring PINX	6.5.1.3 6.5.1.4	A2:m	[X]	Yes []
C2	signaling procedures at a Primary PINX	6.5.2.3 6.5.2.4, 6.5.5	A2:m	[X]	Yes []
C3	signaling procedures at a Secondary PINX	6.5.3.3 6.5.3.4, 6.5.5	A2:m	[X]	Yes []
C4	Behaviour as Gateway PINX to a public ISDN to support transfer of users in the ISDN by a user in the PISN (using transfer by rerouting in the PISN)	6.6.1.1	o		Yes [] No [X]
C5	Behaviour as Gateway PINX to a non-ISDN to support transfer of users in the other network by a user in the PISN (using transfer by rerouting procedures)	6.7.1.1	o		Yes [] No [X]
C6	Behaviour as Gateway PINX to a non-ISDN to support transfer of users in the PISN by a user in the other network (using transfer by rerouting procedures)	6.7.1.3	o		Yes [] No [X]

14.5

CODING

Item	Question/Feature	Reference	Status	N/A	Support
D1	Sending of callTransferComplete invoke APDU	6.3	m		Yes [X]
D2	Sending of callTransferActive invoke APDU	6.3	m		Yes [X]
D3	Receipt of callTransferComplete invoke APDUs	6.3	m		Yes [X]
D4	Receipt of callTransferActive invoke APDU	6.3	m		Yes [X]

D5	Sending of callTransferUpdate invoke APDU	6.3	o		Yes [X] No []
D6	Receipt of callTransferUpdate invoke APDU	6.3	m		Yes [X]
D7	Sending of subaddressTransfer invoke APDU	6.3	o		Yes [] No [X]
D8	Receipt of subaddressTransfer invoke APDU	6.3	m		Yes [X] (info.1)
D9	Sending of callTransferIdentify invoke APDU and receipt of return result and return error APDUs	6.3	A2:m	[X]	m: Yes []
D10	Sending of callTransferInitiate invoke APDU and receipt of return result and return error APDUs	6.3	A2:m	[X]	m: Yes []
D11	Sending of callTransferSetup invoke APDU and receipt of return result and return error APDUs	6.3	A2:m	[X]	m: Yes []
D12	Receipt of callTransferIdentify invoke APDU and sending of return result and return error APDUs	6.3	A2:m	[X]	m: Yes []
D13	Receipt of callTransferInitiate invoke APDU and sending of return result and return error APDUs	6.3	A2:m	[X]	m: Yes []
D14	Receipt of callTransferSetup invoke ADPU and sending of return result and return error APDUs	6.3	A2:m	[X]	m: Yes []
D15	Sending of callTransferAbandon invoke APDU	6.3	A2:m	[X]	m: Yes []
D16	Receipt of callTransferAbandon invoke APDU	6.3	A2:m	[X]	m: Yes []

info.1

When the ASP 113 01 acts as Transferring PINX, any received subaddressTransfer from Primary or Secondary PINX is passed on to Secondary or Primary PINX respectively. When the ASP 113 01 acts as Primary or Secondary PINX, any received subaddressTransfer will be discarded.

14.6

TIMERS

Item	Question/Feature	Reference	Status	N/A	Support
G1	Support of timer T1	6.8.1	A2:m	[X]	m: Yes []
G2	Support of timer T2	6.8.2	A2:m	[X]	m: Yes []
G3	Support of timer T3	6.8.3	A2:m	[X]	m: Yes []
G4	Support of timer T4	6.8.4	A2:o	[X]	o: Yes [] No []

14.7

INTERACTIONS BETWEEN SS-CT AND SS-CFNR/SS-CD

Item	Question/Feature	Reference	Status	N/A	Support
E1	Support of SS-CFNR or SS-CDA		o		Yes [X] No []
E2	Support of SS-CFNR or SS-CDA at an Originating PINX		o		Yes [X] No []
E3	Support of SS-CFNR or SS-CDA at an SS-CFNR/SS-CDA Served User PINX		o		Yes [X] No []
E4	Support of SS-CFNR or SS-CDA by forward switching at an SS-CFNR/SS-CDA Served User PINX		E3:o	[]	o: Yes [X] No []
E5	Actions at a Transferring PINX for rerouting and SS-CFNR/SS-CDA Originating PINX	6.8.7.1	c.1	[X]	m: Yes []
E6	Actions at a Transferring PINX for join or rerouting and SS-CFNR/SS-CDA Originating PINX	6.8.7.2	E2:m	[]	m: Yes [X]
E7	Actions at a Secondary PINX for rerouting and SS-CFNR/SS-CDA Served User PINX	6.8.7.3	c.2	[X]	m: Yes []
E8	Actions at a Secondary PINX for rerouting and SS-CFNR/SS-CDA Served User / rerouting PINX	6.8.7.4	c.3	[X]	m: Yes []
E9	Actions at a Secondary PINX for join and SS-CFNR/SS-CDA Served User / rerouting PINX	6.8.7.5	E4:m	[]	m: Yes [X]
E10	Actions at a Transferring PINX for join	6.8.7.6	E1:m	[]	m: Yes [X]
E11	Actions at a Primary PINX for join	6.8.7.7	E1:m	[]	m: Yes [X]

c.1 If A2 and E2 then mandatory, else N/A

c.2 If A2 and E3 then mandatory, else N/A

c.3 If A2 and E4 then mandatory, else N/A

14.8

INTERACTIONS BETWEEN SS-CT AND ANF-PR

Item	Question/Feature	Reference	Status	N/A	Support
F1	Support of ANF-PR at a Requesting PINX		o		Yes [] No [X]
F2	Support of ANF-PR at a Cooperating PINX		o		Yes [] No [X]

PROTOCOL IMPLEMENTATION CONFORMANCE STATEMENT FOR SIGNALING AT THE Q REFERENCE POINT

F3	Interactions between SS-CT and ANF-PR at an ANF-PR Requesting PINX	6.8.9.1	<input type="radio"/>	<input checked="" type="checkbox"/>	m: Yes <input type="checkbox"/>
F4	Interactions between SS-CT and ANF-PR at an ANF-PR Cooperating PINX	6.8.9.2	<input type="radio"/>	<input checked="" type="checkbox"/>	m: Yes <input type="checkbox"/>

15

PATH REPLACEMENT, QSIG-PR (ISO/IEC 13863/13874)

15.1

SCOPE

This Standard specifies the signaling protocol for the support of the Path Replacement additional network feature (ANF-PR) at the Q reference point between Private Integrated Services Network Exchanges (PINXes) connected together within a Private Integrated Services Network (PISN).

ANF-PR is a feature which applies to an established call, allowing that call's connection between PINXes to be replaced by a new connection.

15.2

GENERAL

Item	Question/Feature	Reference	Status	N/A	Support
A1	Behaviour as Cooperating PINX for ANF-PR		o.1		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
A2	Behaviour as Requesting PINX for ANF-PR		o.1		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Conditions for invoking ANF-PR should be given as Additional Information (info.1)
A3	Behaviour as Transit PINX for ANF-PR		o.1		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
A4	Behaviour as gateway PINX to another network which provides Cooperating PINX functionality	6.8	o.1		Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
A5	Behaviour as gateway PINX to another network which provides Requesting PINX functionality	6.8	o.1		Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
A6	Procedures for retaining part or all of the old connection		o		Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
A7	Behaviour as Inviting PINX for ANF-PR	6.5.5	o		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
A8	Are methods of avoiding <i>loss of user information</i> (as described in annex B of ECMA-175) supported at the Requesting PINX?		o		Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Please provide information regarding which methods are supported and for which basic services these methods are applicable. (info.2)

A9	Are methods of avoiding <i>loss of user information</i> (as described in annex B of ECMA-175) supported at the Cooperating/Branching PINX?		o		Yes [] No [X] Please provide information regarding which methods are supported and for which basic services these methods are applicable.
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info.1 Conditions for invoking ANF-PR are: transfer, extending, termination of conference and alternative routing [4].

info.2 Method supported is the conference bridge. Speech is the only basic service supported for ANF-PR.

15.3

PROCEDURES

Item	Question/Feature	Reference	Status	N/A	Support
B1	Support of relevant ECMA-143 and ECMA-165 procedures at a Cooperating PINX	6.2.1	A1:m	[]	m: Yes [X]
B2	Support of relevant ECMA-143 and ECMA-165 procedures at a Requesting PINX	6.2.2	A2:m	[]	m: Yes [X]
B3	Support of relevant ECMA-143 and ECMA-165 procedures at a Transit PINX	6.2.3.1 6.2.3.2	A3:m	[]	m: Yes [X]
B4	Support of relevant ECMA-143 and ECMA-165 procedures at a Transit PINX on a retained connection	6.2.3.3 6.2.3.4	c.1	[X]	m: Yes []
B5	signaling procedures at a Cooperating PINX	6.5.2	A1:m	[]	m: Yes[X]
B6	signaling procedures at a Requesting PINX	6.5.1.3 6.5.1.4	A2:m	[]	m: Yes [X]
B7	signaling procedures at a Cooperating/-Requesting PINX in the case of a trombone connection	6.5.3	c.2	[]	m: Yes[X]
B8	Additional signaling procedures at a Requesting PINX when whole of old connection is retained	6.6.1	c.4	[X]	m: Yes []
B9	Additional signaling procedures at a Cooperating PINX for retention of part or all of the old connection	6.6.2	c.3	[X]	m: Yes []
B10	Additional signaling procedures at a Transit PINX for retention of part or all of the old connection	6.6.3	c.1	[X]	m: Yes[]

B11	signaling procedures at Inviting PINX	6.5.5	A7:m	[]	m: Yes[X]
B12	Additional procedure for support of request from an Inviting PINX	6.5.1.2	A2:o		o: Yes[X], No[]
B13	Additional signaling procedure at Inviting PINX on retained part of the old connection	6.6.6	A7:m	[]	m: Yes[X] (info.1)

- c.1** if A3 and A6 then m, else N/A
- c.2** if A1 and A2 then m, else N/A
- c.3** if A1 and A6 then m, else N/A
- c.4** if A2 and A6 then m, else N/A
- info.1** This scenario cannot exist when ASP 113 01 is involved in the call.

15.4

CODING

Item	Question/Feature	Reference	Status	N/A	Support
C1	Sending of pathReplacePropose invoke APDU and receipt of return error APDU	6.3.1 6.3.2.1	c.1	[]	m: Yes[X]
C2	Sending of pathReplaceSetup invoke APDU and receipt of return result and return error APDUs	6.3.1 6.3.2.1	c.2	[]	m: Yes[X] (info.1)
C3	Sending of pathReplaceRetain invoke APDU and receipt of return result and return error APDUs	6.3.1 6.3.2.1	c.3	[X]	m: Yes[]
C4	Receipt of pathReplacePropose invoke APDU and sending of return error APDU	6.3.1 6.3.2.1	c.2	[]	m: Yes[X]
C5	Receipt of pathReplaceSetup invoke APDU and sending of return result and return error APDUs	6.3.1 6.3.2.1	c.1	[]	m: Yes[X]
C6	Receipt of pathReplaceRetain invoke APDU and sending of return result and return error APDUs	6.3.1 6.3.2.1	c.4	[X]	m: Yes[]
C7	Receipt of pathReplacelInvite invoke APDU	6.3.1 6.3.2.1	A2:o	[]	o: Yes[X], No []
C8	Sending of pathReplacelInvite return error	6.3.1 6.3.2.1	C7:o	[]	o: Yes[X], No []
C9	Sending of pathReplacelInvite invoke APDU and receipt of errors	6.3.1 6.3.2.1	A7:m	[]	m: Yes [X]

- c.1** if A2 or A5 then m, else N/A

- c.2** if A1 or A4 then m, else N/A
- c.3** if (A1 or A3 or A4) and A6 then m, else N/A
- c.4** if (A2 or A3 or A5) and A6 then m, else N/A
- info.1** ASP 113 01 only supports speech.

15.5 TIMERS

Item	Question/Feature	Reference	Status	N/A	Support
D1	Support of timer T1	6.10.1	A2:m	[]	m: Yes [X]
D2	Support of timer T2	6.10.2	A2:m	[]	m: Yes [X]
D3	Support of timer T3	6.10.3	c.1	[]	o: Yes [X] No []
D4	Support of timer T4	6.10.4	c.2	[X]	m: Yes []

- c.1** if A1 or (A3 and A6) then o, else N/A
- c.2** if (A1 or A3) and A6 then m, else N/A

15.6 PROTOCOL INTERACTIONS WITH SS-CT

Item	Question/Feature	Reference	Status	N/A	Support
E1	Support of SS-CT		o		Yes [X] No []
E2	Interactions between SS-CT and ANF-PR at an ANF-PR Requesting PINX	6.9.5.1	c.1	[]	m: Yes [X]
E3	Interactions between SS-CT and ANF-PR at an ANF-PR Cooperating PINX	6.9.5.2	c.2	[]	m: Yes [X]

- c.1** if E1 and A2 then m, else N/A
- c.2** if E1 and A1 then m, else N/A

16 CALL OFFER, QSIG-CO (ISO/IEC 14841/14843)

16.1 SCOPE

This Standard specifies the signaling protocol for the support of Call Offer supplementary services (SS-CO) at the Q reference point between Private Integrated Services Network Exchanges (PINXes) connected together within a Private Integrated Services Network (PISN).

The Call Offer service makes it possible for the calling user at the Originating PINX in a PISN to invoke call waiting to a busy user in the Terminating PINX

16.2 GENERAL

Item	Question/Feature	Reference	Status	N/A	Support
A1	Support of SS-CO in Originating PINX	6.6.1	o.1		Yes [X] No []
A2	Support of SS-CO in Terminating PINX	6.6.2	o.1		Yes [X] No []
A3	Behavior as Gateway to support SS-CO from user in PINX to user in public ISDN	6.7	o		Yes [] No [X]
A4	Behavior as Gateway to support SS-CO from user in PINX to user in other network	6.8	o		Yes [] No [X]
A5	Behavior as Gateway to support SS-CO from user in other network to user in PINX	6.8	o		Yes [] No [X]

16.3 PROCEDURES

Item	Question/Feature	Reference	Status	N/A	Support
B1	Support of relevant ECMA-143 and ECMA-165 procedures	6.2.1, 6.2.2, 6.2.3	m		Yes [X]
B2	SS-CO invocation without path retention in Originating PINX	6.6.1	A1:o.2	[]	Yes [X] No []
B3	SS-CO invocation with path retention in Originating PINX	6.6.1, A.2.1, A.5.1	A1:o.2	[]	Yes [X] No [] (info.1)
B4	SS-CO invocation without path retention in Terminating PINX	6.6.2	A2:m	[]	Yes [X]
B5	SS-CO invocation with path retention in Terminating PINX	6.6.2, A.2.2, A.5.2	A2:m	[]	Yes [X]

info.1 Supported only for an operator.

16.4 CODING

Item	Question/Feature	Reference	Status	N/A	Support
C1	Sending of callOfferRequest invoke APDU and receipt of callOfferRequest return result and error APDU in Originating PINX	6.3.1, 6.3.3.1 6.3.4	A1:m	[]	Yes [X]
C2	Sending of pathRetain invoke APDU and receipt of serviceAvailable invoke APDU in Originating PINX	6.3.1, A.3	B3:m	[]	Yes [X]
C3	Receipt of callOfferRequest invoke APDU and sending of callOfferRequest return result and error APDU in Terminating PINX	6.3.1, 6.3.3.1 6.3.4	A2:m	[]	Yes [X]
C4	Receipt of pathRetain invoke APDU and sending of serviceAvailable invoke APDU in Terminating PINX	6.3.1, A.3	A2:m	[]	Yes [X]
C5	Sending of notification remoteUserAlerting in Terminating PINX	6.3.2, 6.3.3.2 6.3.4	A2:o	[]	Yes [X] No []

16.5 TIMERS

Item	Question/Feature	Reference	Status	N/A	Support
D1	Support of timer T1	6.10	A1:m	[]	Yes [X] Value [30s]
D2	Support of timer PRT1	A.8	A2:m	[]	Yes [X] Value [90s]

16.6 INTERACTIONS WITH CALL TRANSFER (SS-CT)

Item	Question/Feature	Reference	Status	N/A	Support
E1	Support of SS-CT (transfer by join)		o		Yes [X] No []
E2	Support of SS-CT (transfer by rerouting)		o		Yes [] No [X]
E3	Interactions at Initiation of SS-CT during SS-CO at Transferring PINX	6.9.5.1.1	c.1	[]	m: Yes [X]

E4	Interactions at Initiation of SS-CT during SS-CO at Secondary PINX	6.9.5.1.2	c.2	[]	m: Yes [X]
E5	Interactions between SS-CT by join and SS-CO for notifications at Secondary PINX	6.9.5.2.1	c.3	[]	m: Yes [X]
E6	Interactions between SS-CT by rerouteing and SS-CO for notification at Secondary PINX	6.9.5.2.2	c.4	[X]	m: Yes []

c.1 If (A1 and E1) or (A1 and E2) then mandatory, else N/A.

c.2 If (A2 and E1) or (A2 and E2) then mandatory, else N/A.

c.3 If (A2 and E1) then mandatory, else N/A.

c.4 If (A2 and E2) then mandatory, else N/A.

16.7

INTERACTIONS WITH CALL FORWARDING UNCONDITIONAL (SS-CFU)

Item	Question/Feature	Reference	Status	N/A	Support
F1	Support of SS-CFU (Rerouteing PINX)		o		Yes [X] No []
F2	Support of SS-CFU (Originating PINX)		o		Yes [X] No []
F3	Interactions at Rerouting PINX	6.9.6.1	F1:m	[]	m: Yes [X]
F4	Interactions at Originating PINX	6.9.6.2	c.1	[]	m: Yes [X]

c.1 If (A1 and F2) then mandatory, else N/A.

16.8

INTERACTIONS WITH CALL FORWARDING BUSY (SS-CFB)

Item	Question/Feature	Reference	Status	N/A	Support
G1	Support of SS-CFB (Originating PINX)		o		Yes [X] No []
G2	Support of SS-CFB (Rerouting PINX)		o		Yes [X] No []
G3	Support of SS-CFB (Served User PINX)		o		Yes [X] No [] (info.2)
G4	Interactions at Rerouting PINX	6.9.7.1	c.1	[]	m: Yes [X]
G5	Interactions at Originating PINX	6.9.7.2	c.2	[]	m: Yes [X]
G6	Interactions at Served User PINX	6.9.7.3	c.3	[]	m: Yes [X]

- c.1** If (A1 or A2) and F2 then mandatory, else N/A.
- c.2** If (A1 and G1) then mandatory, else N/A.
- c.3** If (A2 and G3) then mandatory, else N/A.
- info.2** Invocation of SS-CO without path retention is done at the first busy user, thereby overriding SS-CFB at that user.

16.9 INTERACTIONS WITH DO NOT DISTURB OVERRIDE (SS-DNDO)

Item	Question/Feature	Reference	Status	N/A	Support
H1	Support of SS-DNDO (Terminating PINX)		o		Yes [] No [X]
H2	Interactions at the Terminating PINX	6.9.11.1	c.1	[X]	m: Yes []

- c.1** If (A2 and H1) then mandatory, else N/A.

16.10 INTERACTIONS WITH CALL INTRUSION (SS-CI)

Item	Question/Feature	Reference	Status	N/A	Support
I1	Support of SS-CI (Originating PINX)		o		Yes [] No [X]
I2	Support of SS-CI (Terminating PINX)		o		Yes [] No [X]
I3	Interactions at the Originating PINX	6.9.12.1	c.1	[X]	Yes [] No []
I4	Interactions at the Terminating PINX	6.9.12.2	c.2	[X]	Yes [] No []

- c.1** If (A1 and I1) then optional, else N/A.
- c.2** If (A2 and I2) then optional, else N/A.