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EUROPEAN COMPUTER MANUFACTURERS ASSOCIATION

STANDARD ECMA-204

PRIVATE TELECOMMUNICATION NETWORKS (PTN)

-

INTER-EXCHANGE SIGNALLING PROTOCOL

-

SUPPLEMENTARY SERVICE INTERACTIONS

(QSIG-IA)

December 1993

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Brief history

This Standard is one of a series of ECMA standards defining services and signalling protocols applicable to Private Telecommunication Networks (PTNs). The series uses the ISDN concepts as developed by the ITU-T and is also within the framework of standards for open systems interconnection as defined by ISO. It has been produced under ETSI IMCC work item DE/ECMA-00063, with the intention of submission to ETSI as a proposed ETS.

This Standard specifies the signalling protocol requirements for the support of interactions between supplementary services at the Q reference point between Private Telecommunication Network Exchanges (PTNXs) connected together within a Private Telecommunication Network (PTN).

The Standard is based upon the practical experience of ECMA member companies and the results of their active and continuous participation in the work of ISO/IEC JTC1, ITU-T, ETSI and other international and national standardization bodies. It represents a pragmatic and widely based consensus.

This ECMA Standard has been contributed to ETSI for adoption as an ETS.

Accepted as Standard ECMA-204 by the General Assembly of December 1993.

Table of contents

1 Scope

This Standard specifies the additional signalling protocol requirements for the support of interactions between supplementary services at the Q reference point between Private Telecommunication Network Exchanges (PTNXs) connected together within a Private Telecommunication Network (PTN).

The Q reference point is defined in ECMA-133.

Service specifications are produced in three stages and according to the method specified in ENV 41005. This Standard contains the stage 3 specification for the Q reference point for the interactions between supplementary services.

For a given pair of supplementary services, this Standard specifies the impact of interactions, if any, on the signalling protocol at the Q reference point. The protocol for each individual supplementary service is specified in a separate standard, operates in addition to the signalling protocol for basic circuit switched call control, as specified in ECMA-143, and uses certain aspects of the generic functional protocol for the control of supplementary services specified in ECMA-165.

NOTE 1

Additional interactions that have no impact on the signalling protocol at the Q reference point can be found in the relevant stage 1 specifications.

This Standard also specifies interactions between Additional Network Features (ANFs) and between ANFs and supplementary services.

This Standard is applicable to PTNXs which can be interconnected to form a PTN and which support signalling protocols at the Q reference point for two or more supplementary services.

2 Conformance

In order to conform to this Standard, a PTNX shall satisfy the requirements identified in the Protocol Implementation Conformance Statement (PICS) proforma in annex A.

Conformance to this Standard involves conforming to those clauses that specify interactions between supplementary services for which signalling protocols at the Q reference point are supported in accordance with the Stage 3 standards concerned.

3 References

ECMA-133	Reference Configurations for Calls through Exchanges of Private Telecommunication Networks (1989)
ECMA-142	Specification, Functional Model and Information Flows for Control Aspects of Circuit Mode Basic Services in Private Telecommunication Networks (BCSD) (1990)
ECMA-143	Private Telecommunication Networks (PTN) - Inter-exchange Signalling Protocol - Circuit Mode Basic Services (QSIG-BC) (1992)
ECMA-164	Private Telecommunication Networks (PTN) - Inter-exchange Signalling Protocol - Name Identification Supplementary Services (QSIG-NA) (1993)
ECMA-165	Private Telecommunication Networks (PTN) - Inter-exchange Signalling - Generic Functional Protocol for the Support of Supplementary Services (QSIG-GF) (1993)
ECMA-174	Private Telecommunication Networks (PTN) - Inter-exchange Signalling Protocol - Diversion Supplementary Services (QSIG-CF) (1992)
ECMA-176	Private Telecommunication Networks (PTN) - Inter-exchange Signalling Protocol - Path Replacement Additional Network Feature (QSIG-PR) (1992)
ECMA-178	Private Telecommunication Networks (PTN) - Inter-exchange Signalling Protocol - Call Transfer Supplementary Service (QSIG-CT) (1992)

ECMA-186	Private Telecommunication Networks (PTN) - Inter-exchange Signalling Protocol - Call Completion Supplementary Services (QSIG-CC) (1992)
ECMA-192	Private Telecommunication Networks (PTN) - Inter-exchange Signalling Protocol - Call Offer Supplementary Service (QSIG-CO) (1993)
ECMA-194	Private Telecommunication Networks (PTN) - Inter-exchange Signalling Protocol - Do Not Disturb and Do Not Disturb Override Supplementary Services (QSIG-DND(O)) (1993)
ECMA-203	Private Telecommunication Networks (PTN) - Inter-exchange Signalling Protocol - Call Intrusion Supplementary Service (QSIG-CI) (1993)
ENV 41005	Method for the specification of basic and supplementary services of private telecommunication networks (1990)
ENV 41007	Definition of terms in private telecommunication networks (1989)
CCITT Rec. I.112	Vocabulary of terms for ISDNs (1988)
CCITT Rec. I.210	Principles of telecommunication services supported by an ISDN and the means to describe them (1988)

4 Definitions

For the purpose of this Standard the following definitions apply.

4.1 External definitions

This Standard uses the following terms defined in other documents:

- Additional Network Feature (ECMA-165)
- Application Protocol Data Unit (ECMA-165)
- Basic Service (CCITT Rec. I.210)
- Call, Basic Call (ECMA-165)
- Integrated Services Digital Network (CCITT Rec. I.112)
- Originating PTNX (ECMA-143)
- Private (ENV 41007)
- Private Telecommunication Network Exchange (ENV 41007)
- Signalling (CCITT Rec. I.112)
- Supplementary Service (ECMA-165)
- Supplementary Service Control Entity (ECMA-165)
- Telecommunication Network (ENV 41007)
- Terminating PTNX (ECMA-143)
- Transit PTNX (ECMA-143)
- User (ECMA-142)

5 List of acronyms

APDU	Application Protocol Data Unit
ASN.1	Abstract Syntax Notation One
CCBS	Call Completion to Busy Subscriber
CCNR	Call Completion on No Reply
CFB	Call Forwarding Busy
CFNR	Call Forwarding No Reply
CFU	Call Forwarding Unconditional
CI	Call Intrusion
CNIP	Calling Name Identification Presentation
CO	Call Offer
CONP	Connected Name Identification Presentation
CT	Call Transfer
DND	Do Not Disturb
DNDO	Do Not Disturb Override

ISDN	Integrated Services Digital Network
NFE	Network Facility Extension
PICS	Protocol Implementation Conformance Statement
PR	Path Replacement
PTN	Private Telecommunication Network
PTNX	Private Telecommunication Network Exchange
SSCE	Supplementary Service Control Entity
SS-xxx	"xxx" Supplementary Service
ANF-xxx	"xxx" Additional Network Feature

6 Overview of the interactions between supplementary services

Table 1 provides an overview of interactions between supplementary services. For a given pair of supplementary services, the interaction can be identified by reference to the entry in the column headed by one of the supplementary services and the row headed by the other supplementary service. If the entry contains a clause reference, the interaction requirements between the two supplementary services are specified in that clause in this Standard. If the entry contains "N/I", there is no interaction between the two services.

NOTE 2

Multiple occurrence of a service at the same time is not considered as an interaction and is outside the scope of this Standard. Simultaneous conveyance of APDUs for different supplementary services in the same message, each in accordance with the requirements of its own supplementary service stage 3 standard, does not, on its own, constitute a protocol interaction.

Table 1 - Overview of the interactions between supplementary services

SS/ANF	CNIP	CONP	CFU	CFB	CFNR	CT	PR	CCBS	CCNR	CO	DND	DNDO	CI
CNIP	-												
CONP	N/I	-											
CFU	8.1.2	8.2.1	-										
CFB	8.1.3	8.2.2	8.3.1	-									
CFNR	8.1.4	8.2.3	8.3.2	8.4.1	-								
CT	8.1.5	8.2.4	N/I	N/I	8.5.1	-							
PR	N/I	N/I	N/I	N/I	N/I	8.6.1	-						
CCBS	N/I	N/I	8.3.5	8.4.4	N/I	N/I	N/I	-					
CCNR	N/I	N/I	8.3.6	8.4.5	8.5.4	N/I	N/I	N/I	-				
CO	N/I	N/I	8.3.7	8.4.6	N/I	8.6.4	N/I	N/I	N/I	-			
DND	N/I	N/I	N/I	N/I	N/I	N/I	N/I	8.8.3	8.9.2	N/I	-		
DNDO	N/I	N/I	8.3.9	8.4.8	N/I	N/I	N/I	N/I	N/I	8.10.2	8.11.1	-	
CI	N/I	N/I	8.3.10	8.4.9	N/I	8.6.7	8.7.6	N/I	N/I	8.10.3	N/I	8.12.1	-

7 Coding of operations and notifications

7.1 Operations

The following operations in ASN.1 in table 2 shall apply in addition to those defined in the standards for the supplementary services concerned.

Table 2 - Operations in support of interactions

```
Interactions-Operations
        { iso identified-organization icd-ecma(0012) standard(0)
        qsig-interactions(204) interactions-operations(0) }


DEFINITIONS  ::=
BEGIN
IMPORTS     OPERATION FROM Remote-Operation-Notation
                { joint-iso-ccitt (2) remote-operations (4) notation (0) }
            Extension FROM Manufacturer-specific-service-extension-definition
                { iso identified-organization icd-ecma(0012) standard(0)
                  qsig-generic-procedures(165) msi-definition(0) };


ptn OBJECT IDENTIFIER ::= { iso identified-organization icd-ecma(0012)
                            private-isdn-signalling-domain(9) }

DummyArg                ::= CHOICE {
                              NULL,
                              [1] IMPLICIT Extension,
                              [2] IMPLICIT SEQUENCE OF Extension }


-- Interactions SS-CFB and SS-CO, and SS-CFB and SS-CI:

CfbOverride             ::= OPERATION
                            ARGUMENT DummyArg

cfbOverride             CfbOverride ::= { ptn cfb-override(49) }



END                     -- of Interactions-Operations
```

8 Procedures

The specification of the interactions between supplementary services in this clause is structured in the same order as the columns of overview in table 1.

If the signalling protocol at the Q reference point is supported for two supplementary services or two ANFs or one supplementary service and one ANF in accordance with the relevant standards, the interaction requirements in the corresponding subclause shall apply. For this purpose, the following standards are relevant:

SS-CNIP	ECMA-164
SS-CONP	ECMA-164
SS-CFU	ECMA-174
SS-CFB	ECMA-174
SS-CFNR	ECMA-174
ANF-PR	ECMA-176
SS-CT	ECMA-178
SS-CCBS	ECMA-186
SS-CCNR	ECMA-186
SS-CO	ECMA-192
SS-DND	ECMA-194
SS-DNDO	ECMA-194
SS-CI	ECMA-203

8.1 Interactions of Calling Name Identification Presentation (SS-CNIP)

8.1.1 Connected Name Identification Presentation (SS-CONP) and SS-CNIP

No interactions.

8.1.2 Call Forwarding Unconditional (SS-CFU) and SS-CNIP

Interactions are specified in ECMA-174.

8.1.3 Call Forwarding Busy (SS-CFB) and SS-CNIP

Interactions are specified in ECMA-174.

8.1.4 Call Forwarding No Reply (SS-CFNR) and SS-CNIP

Interactions are specified in ECMA-174.

8.1.5 Call Transfer (SS-CT) and SS-CNIP

Interactions are specified in ECMA-178.

8.1.6 Path Replacement (ANF-PR) and SS-CNIP

No interactions.

8.1.7 Call Completion to Busy Subscriber (SS-CCBS) and SS-CNIP

No interactions.

8.1.8 Call Completion on No Reply (SS-CCNR) and SS-CNIP

No interactions.

8.1.9 Call Offer (SS-CO) and SS-CNIP

No interactions.

8.1.10 Do Not Disturb (SS-DND) and SS-CNIP

No interactions.

8.1.11 Do Not Disturb Override (SS-DNDO) and SS-CNIP

No interactions.

8.1.12 Call Intrusion (SS-CI) and SS-CNIP

No interactions.

8.2 Interactions of Connected Name Identification Presentation (SS-CONP)

8.2.1 Call Forwarding Unconditional (SS-CFU) and SS-CONP

Interactions are specified in ECMA-174.

8.2.2 Call Forwarding Busy (SS-CFB) and SS-CONP

Interactions are specified in ECMA-174.

8.2.3 Call Forwarding No Reply (SS-CFNR) and SS-CONP

Interactions are specified in ECMA-174.

8.2.4 Call Transfer (SS-CT) and SS-CONP

Interactions are specified in ECMA-178.

8.2.5 Path Replacement (ANF-PR) and SS-CONP

No interactions.

8.2.6 Call Completion to Busy Subscriber (SS-CCBS) and SS-CONP

No interactions.

8.2.7 Call Completion on No Reply (SS-CCNR) and SS-CONP

No interactions.

8.2.8 Call Offer (SS-CO) and SS-CONP

No interactions.

8.2.9 Do Not Disturb (SS-DND) and SS-CONP

No interactions.

8.2.10 Do Not Disturb Override (SS-DNDO) and SS-CONP

No interactions.

8.2.11 Call Intrusion (SS-CI) and SS-CONP

No interactions.

8.3 Interactions of Call Forwarding Unconditional (SS-CFU)

8.3.1 Call Forwarding Busy (SS-CFB) and SS-CFU

Interactions are specified in ECMA-174.

8.3.2 Call Forwarding No Reply (SS-CFNR) and SS-CFU

Interactions are specified in ECMA-174.

8.3.3 Call Transfer (SS-CT) and SS-CFU

No interactions.

8.3.4 Path Replacement (ANF-PR) and SS-CFU

No interactions.

8.3.5 Call Completion to Busy Subscriber (SS-CCBS) and SS-CFU

8.3.5.1 Originating PTNX procedures for invoking CCBS at a CFU diverted-to user

NOTE 3

In this case the Originating PTNX with regard to CCBS is also the Originating PTNX with regard to CFU.

If CCBS is to be invoked at a busy diverted-to user, the Originating PTNX shall store the content of element nominatedNr, if received in the argument of operation divertingLegInformation1, and use it:

– as element numberB in the argument of any CCBS operation which requires this element;

– as Called party number information element in the SETUP message of any call independent signalling procedure;

– as Called party number information element in the SETUP message of the CC Call.

The address of the originally called user shall not be used for CCBS.

If element nominatedNr is not available, a CCBS request received from User A shall be rejected.

8.3.5.2 Originating PTNX procedures if CFU is activated by User A

NOTE 4

In this case the Originating PTNX with regard to CCBS is the Served User PTNX with regard to CFU.

If User A, having a CCBS request outstanding against User B, has activated CFU and the connection release option of CCBS applies, an arriving call independent signalling connection (conveying a ccExecPossible invoke APDU or a ccCancel invoke APDU) shall not be diverted.

8.3.5.3 Terminating PTNX procedures if CFU is activated by User B after CCBS has been invoked

No interactions.

8.3.6 Call Completion on No Reply (SS-CCNR) and SS-CFU

8.3.6.1 Originating PTNX procedures for invoking CCNR at a CFU diverted-to user

NOTE 5

In this case the Originating PTNX with regard to CCNR is also the Originating PTNX with regard to CFU.

If CCNR is to be invoked at a diverted-to user who does not answer, the Originating PTNX shall store the content of element nominatedNr, if received in the argument of operation divertingLegInformation1, and use it:

– as element numberB in the argument of any CCNR operation which requires this element;

– as Called party number information element in the SETUP message of any call independent signalling procedure;

– as Called party number information element in the SETUP message of the CC Call.

The address of the originally called user shall not be used for CCNR.

If element nominatedNr is not available, a CCNR request received from User A shall be rejected.

8.3.6.2 Originating PTNX procedures if CFU is activated by User A

NOTE 6

In this case the Originating PTNX with regard to CCNR is the Served User PTNX with regard to CFU.

If User A, having a CCNR request outstanding against User B, has activated CFU and the connection release option of CCNR applies, an arriving call independent signalling connection (conveying a ccExecPossible invoke APDU or a ccCancel invoke APDU) shall not be diverted.

8.3.6.3 Terminating PTNX procedures if CFU is activated by User B after CCNR has been invoked

No interactions.

8.3.7 Call Offer (SS-CO) and SS-CFU

8.3.7.1 Actions at the Rerouteing PTNX

When executing call forwarding, the Rerouteing PTNX shall act as follows:

– Include a callOfferRequest invoke APDU in the SETUP message to the Diverted-to PTNX if either:

  • this was included in the SETUP message to the Diverting PTNX and a callOfferRequest return error APDU has not been sent by the Diverting PTNX to the Originating PTNX; or

  • SS-CO was invoked successfully at the diverting user following path retention.

- Include a pathRetain invoke APDU with callOffer bit set to ONE in the SETUP message to the Diverted-to PTNX if and only if this was included in the SETUP message to the Diverting PTNX and neither a callOfferRequest return result APDU nor a callOfferRequest return error APDU has been sent by the Diverting PTNX to the Originating PTNX.
- Discard a callOfferRequest return result APDU or callOfferRequest return error APDU received from the Diverted-to PTNX if a callOfferRequest invoke APDU has been sent by the Rerouteing PTNX to the Diverted-to PTNX and either a callOfferRequest return result APDU or callOfferRequest return error APDU has been sent by the Diverting PTNX to the Originating PTNX.

8.3.7.2 Actions at the Originating PTNX

In order to invoke SS-CO without path retention after a call has encountered a busy diverted-to user, the Originating PTNX shall include a callOfferRequest invoke APDU in addition to the divertingLegInformation2 invoke APDU in the SETUP message of the new call to the diverted-to user.

8.3.8 Do Not Disturb (SS-DND) and SS-CFU

No interactions.

8.3.9 Do Not Disturb Override (SS-DNDO) and SS-CFU

8.3.9.1 Actions at the Rerouteing PTNX

When executing call forwarding, the Rerouteing PTNX shall act as follows:

- Include a doNotDisturbOverrideQ invoke APDU in the SETUP message to the Diverted-to PTNX if either this was included in the SETUP message to the Diverting PTNX, or SS-DNDO has been invoked successfully at the diverting user following path retention.
- Include a pathRetain invoke APDU with bit dndo-low, dndo-medium or dndo-high set to ONE in the SETUP message to the Diverted-to PTNX if and only if this was included in the SETUP message to the Diverting PTNX and SS-DNDO has not been successfully invoked at the diverting user.

8.3.9.2 Actions at the Originating PTNX

In order to invoke SS-DNDO without path retention after a call has encountered a diverted-to user with DND active, the Originating PTNX shall include a doNotDisturbOverrideQ invoke APDU in addition to the divertingLegInformation2 invoke APDU in the SETUP message of the new call to the diverted-to user.

8.3.10 Call Intrusion (SS-CI) and SS-CFU

8.3.10.1 Actions at the Rerouteing PTNX

On receiving a callRerouting invoke APDU, the Rerouteing PTNX shall include in the SETUP message to the Diverted-to PTNX any callIntrusionRequest invoke APDU or pathRetain invoke APDU with bit ci-low, ci-medium or ci-high set to ONE that has been sent in the original SETUP message.

8.3.10.2 Actions at the Originating PTNX

In order to invoke SS-CI without path retention after a call has encountered a busy diverted-to user, the Originating PTNX shall include a callIntrusionRequest invoke APDU in addition to the divertingLegInformation2 invoke APDU in the SETUP message of the new call to the diverted-to user.

8.4 Interactions of Call Forwarding Busy (SS-CFB)

8.4.1 Call Forwarding No Reply (SS-CFNR) and SS-CFB

Interactions are specified in ECMA-174.

8.4.2 Call Transfer (SS-CT) and SS-CFB

No interactions.

8.4.3 Path Replacement (ANF-PR) and SS-CFB

No interactions.

8.4.4 Call Completion to Busy Subscriber (SS-CCBS) and SS-CFB

8.4.4.1 Originating PTNX procedures for invoking CCBS at a CFB diverted-to user

NOTE 7

In this case the Originating PTNX with regard to CCBS is also the Originating PTNX with regard to CFB.

The procedures of 8.3.5.1 shall apply.

8.4.4.2 Originating PTNX procedures if CFB is activated by User A

No interactions.

8.4.4.3 Terminating PTNX procedures if CFB is activated by User B after CCBS has been invoked

No interactions.

8.4.5 Call Completion on No Reply (SS-CCNR) and SS-CFB

8.4.5.1 Originating PTNX procedures for invoking CCNR at a CFB diverted-to user

NOTE 8

In this case the Originating PTNX with regard to CCNR is also the Originating PTNX with regard to CFB.

The procedures of 8.3.6.1 shall apply.

8.4.5.2 Originating PTNX procedures if CFB is activated by User A

No interactions.

8.4.5.3 Terminating PTNX procedures if CFB is activated by User B after CCNR has been invoked

No interactions.

8.4.6 Call Offer (SS-CO) and SS-CFB

8.4.6.1 Actions at the Rerouteing PTNX

On receiving a callRerouting invoke APDU, the Rerouteing PTNX shall include in the SETUP message to the Diverted-to PTNX any callOfferRequest invoke APDU or pathRetain invoke APDU with bit callOffer set to ONE that has been sent in the original SETUP message.

8.4.6.2 Actions at the Originating PTNX

In order to invoke SS-CO without path retention directly at the last busy diverted-to user after a call has encountered two or more busy users that have been reached as a result of one or more invocations of SS-CFB, the Originating PTNX shall include a callOfferRequest invoke APDU in addition to the divertingLegInformation2 invoke APDU in the SETUP message of the new call to the busy diverted-to user.

If SS-CO is to be invoked at the first busy user after a call has encountered two or more busy users that have been reached as a result of one or more invocations of SS-CFB, the Originating PTNX shall act in one of the following ways:

- In order to invoke SS-CO without path retention at the first busy user, thereby overriding SS-CFB at that user, the Originating PTNX shall include a callOfferRequest invoke APDU and a cfbOverride invoke APDU, as defined in 7.1, in a Facility information element in the SETUP message of the new call. When conveying the invoke APDU of operation cfbOverride, the NFE shall be included as defined for operation callOfferRequest.
- In order to invoke SS-CO with path retention at the first busy user, thereby overriding SS-CFB at that user, the Originating PTNX shall include a pathRetain invoke APDU with bit callOffer set to ONE and a cfbOverride invoke APDU, as defined in 7.1, in a Facility information element in the SETUP message of the new call. When conveying the invoke APDU of operation cfbOverride, the NFE shall be included as defined for operation callOfferRequest.

8.4.6.3 Actions at the Served (Called) User PTNX

On receiving a SETUP message containing a callOfferRequest invoke APDU together with a cfbOverride invoke APDU, if the called user is busy, SS-CFB shall be overridden and the procedures of SS-CO shall apply.

8.4.7 Do Not Disturb (SS-DND) and SS-CFB

No interactions.

8.4.8 Do Not Disturb Override (SS-DNDO) and SS-CFB

8.4.8.1 Actions at the Rerouteing PTNX

When executing call forwarding, the Rerouteing PTNX shall act as follows:

- Include a doNotDisturbOverrideQ invoke APDU in the SETUP message to the Diverted-to PTNX if either this was included in the SETUP message to the Diverting PTNX, or SS-DNDO has been invoked successfully at the diverting user following path retention.
- Include a pathRetain invoke APDU with bit dndo-low, dndo-medium or dndo-high set to ONE in the SETUP message to the Diverted-to PTNX if and only if this was included in the SETUP message to the Diverting PTNX and SS-DNDO was not successfully invoked at the diverting user.

8.4.8.2 Actions at the Originating PTNX

In order to invoke SS-DNDO without path retention after a call has encountered a diverted-to user with DND active, the Originating PTNX shall include a doNotDisturbOverrideQ invoke APDU in the SETUP message of the new call to the diverted-to user.

8.4.9 Call Intrusion (SS-CI) and SS-CFB

8.4.9.1 Actions at the Rerouteing PTNX

On receiving a callRerouting invoke APDU, the Rerouteing PTNX shall include in the SETUP message to the Diverted-to PTNX any callIntrusionRequest invoke APDU or pathRetain invoke APDU with bit ci-low, ci-medium or ci-high set to ONE that has been sent in the original SETUP message.

8.4.9.2 Actions at the Originating PTNX

In order to invoke SS-CI without path retention directly at the last busy diverted-to user after a call has encountered two or more busy users that have been reached as a result of one or more invocations of SS-CFB, the Originating PTNX shall include a callIntrusionRequest invoke APDU in addition to the divertingLegInformation2 invoke APDU in the SETUP message of the new call to the busy diverted-to user.

If SS-CI is to be invoked at the first busy user after a call has encountered two or more busy users that have been reached as a result of one or more invocations of SS-CFB, the Originating PTNX shall act in one of the following ways:

- In order to invoke SS-CI without path retention at the first busy user, thereby overriding SS-CFB at that user, the Originating PTNX shall include a callIntrusionRequest invoke APDU and a cfbOverride invoke APDU, as defined in 7.1, in a Facility information element in the SETUP message of the new call. When conveying the invoke APDU of operation cfbOverride, the NFE shall be included as defined for operation callIntrusionRequest.
- In order to invoke SS-CI with path retention at the first busy user, thereby overriding SS-CFB at that user, the Originating PTNX shall include a pathRetain invoke APDU with bit ci-low, ci-medium or ci-high set to ONE and a cfbOverride invoke APDU, as defined in 7.1, in a Facility information element in the SETUP message of the new call. When conveying the invoke APDU of operation cfbOverride, the NFE shall be included as defined for operation callIntrusionRequest.

8.4.9.3 Actions at the Served (Called) User PTNX

On receiving a SETUP message containing a callIntrusionRequest invoke APDU together with a cfbOverride invoke APDU, if the called user is busy, SS-CFB shall be overridden and the procedures of SS-CI shall apply.

8.5 Interactions of Call Forwarding No Reply (SS-CFNR)

8.5.1 Call Transfer (SS-CT) and SS-CFNR

NOTE 9

If SS-CFNR is invoked for an unanswered, transferred call, either the Transferring PTNX acts as the Rerouteing PTNX (call transfer by join and call forwarding by rerouteing) or the Primary PTNX acts as the Rerouteing

PTNX (call transfer by rerouteing and call forwarding by rerouteing) or the Secondary PTNX acts as the Rerouteing PTNX (call forwarding by forward switching).

8.5.1.1 Actions at a Transferring PTNX for rerouteing and SS-CFNR Originating PTNX

On receipt of a callRerouting invoke APDU after initiating call transfer by rerouteing, the Transferring PTNX shall send a callRerouting return error APDU containing error value supplementaryServiceInteractionNotAllowed to the SS-CFNR Served User PTNX.

The Transferring PTNX shall not pass on a received divertingLegInformation1 invoke APDU and divertingLegInformation3 invoke APDU after initiating call transfer by rerouteing.

8.5.1.2 Actions at a Transferring PTNX for join or rerouteing and SS-CFNR Originating PTNX

The Transferring PTNX shall not initiate signalling for SS-CT while performing call forwarding by rerouteing and prior to clearing either the call to the diverting user or the call to the diverted-to user.

8.5.1.3 Actions at a Secondary PTNX for rerouteing and SS-CFNR Served User PTNX

On receipt of a callTransferIdentify invoke APDU after initiating call forwarding by rerouteing, the SS-CFNR Served User PTNX shall send a callTransferIdentify return error APDU containing error value supplementaryServiceInteractionNotAllowed to the Transferring PTNX.

On detection of a SS-CFNR request while being involved in call transfer by rerouteing, the SS-CFNR Served User PTNX shall not initiate call forwarding by rerouteing.

8.5.1.4 Actions at a Secondary PTNX for rerouteing and SS-CFNR Served User and Rerouteing PTNX

On receipt of a callTransferIdentify invoke APDU after initiating call forwarding by forward switching and before a divertingLegInformation1 invoke APDU has been sent, the SS-CFNR Rerouteing PTNX shall send a callTransferIdentify return error APDU containing error value supplementaryServiceInteractionNotAllowed to the Transferring PTNX.

8.5.1.5 Actions at a Secondary PTNX for join and SS-CFNR Served User and Rerouteing PTNX

On receipt of a callTransferComplete, callTransferUpdate or subaddressTransfer invoke APDU after initiating call forwarding by forward switching, the SS-CFNR Rerouteing PTNX shall not pass on the APDU to the Diverted-to PTNX while the SS-CFNR rerouteing procedure is in progress. After receipt of an ALERTING or CONNECT message from the Diverted-to PTNX and if the diverting user has not already answered the call, the information received in callTransferComplete, callTransferUpdate or subaddressTransfer invoke APDUs shall be passed on to the Diverted-to PTNX.

8.5.1.6 Actions at a Transferring PTNX for join

In state CT-Await-Answer-From-UserC the Transferring PTNX shall convey any received divertingLegInformation1 invoke APDU or divertingLegInformation3 invoke APDU from the Secondary PTNX to the Primary PTNX.

In state CT-Await-Answer-From-UserC, on receipt of a callRerouting invoke APDU from the Secondary PTNX, the Transferring PTNX shall act as the Rerouteing PTNX. Any divertingLegInformation1 invoke APDUs or divertingLegInformation3 invoke APDUs generated in accordance with Rerouteing PTNX procedures shall be sent to the Primary PTNX.

8.5.1.7 Actions at a Primary PTNX for join

The actions at an Originating PTNX in 6.5.1.1 and 6.5.1.2 of ECMA-174 shall apply also to the Primary PTNX with the following exceptions:

- The basic call protocol control state in which a divertingLegInformation1 invoke APDU can be received is "Active".
- On receipt of a callTransferActive invoke APDU, the Primary PTNX shall enter state CFO-Idle.

8.5.2 Path Replacement (ANF-PR) and SS-CFNR

No interactions.

8.5.3 Call Completion to Busy Subscriber (SS-CCBS) and SS-CFNR

No interactions.

8.5.4 Call Completion on No Reply (SS-CCNR) and SS-CFNR

8.5.4.1 Originating PTNX procedures for invoking CCNR at a CFNR diverted-to user

The procedures of 8.3.6.1 shall apply.

8.5.4.2 Originating PTNX procedures if CFNR is activated by User A

No interactions.

8.5.4.3 Terminating PTNX procedures if CFNR is activated by User B after CCNR has been invoked

No interactions.

8.5.5 Call Offer (SS-CO) and SS-CFNR

No interactions.

8.5.6 Do Not Disturb (SS-DND) and SS-CFNR

No interactions.

8.5.7 Do Not Disturb Override (SS-DNDO) and SS-CFNR

No interactions.

8.5.8 Call Intrusion (SS-CI) and SS-CFNR

No interactions.

8.6 Interactions of Call Transfer (SS-CT)

8.6.1 Path Replacement (ANF-PR) and SS-CT

8.6.1.1 Actions at an ANF-PR Requesting PTNX

8.6.1.1.1 Invocation of Call Transfer

For the purpose of the requirements below, the following events shall be considered as invocation of SS-CT:

- receipt of callTransferComplete invoke APDU;
- receipt of callTransferIdentify invoke APDU;
- receipt of callTransferInitiate invoke APDU;
- invocation of Call Transfer by the local user.

SS-CT shall be allowed to proceed normally if invoked while the PTNX is acting as a Requesting PTNX for ANF-PR. If SS-CT is invoked while in ANF-PR state PR-Req-Initiating or PR-Req-Rejecting, all signalling for SS-CT shall occur on the old path. If SS-CT is invoked while in ANF-PR state PR-Req-Completing, all subsequent signalling for SS-CT shall be sent on the new path and received SS-CT signals shall be accepted from either path.

A pathReplaceSetup invoke APDU shall be responded to with a return error APDU containing error temporarilyUnavailable if, since sending the pathReplacePropose invoke APDU, SS-CT has been invoked.

NOTE 10

This will prevent switching over to the new path, so that all signalling for SS-CT can take place on the old path without risk of loss during switch over.

8.6.1.1.2 Initiation of ANF-PR during Call Transfer

ANF-PR shall not be initiated while the PTNX is acting as a Transferring PTNX, a Primary PTNX or a Secondary PTNX during SS-CT.

8.6.1.2 Actions at an ANF-PR Cooperating PTNX

8.6.1.2.1 Invocation of Call Transfer

On receipt of a callTransferComplete, callTransferIdentify or callTransferInitiate invoke APDU while acting as an ANF-PR Cooperating PTNX in ANF-PR state PR-Coop-Establishment or PR-Coop-Retain, SS-CT shall be allowed to proceed normally using the old path for further signalling, except that if the old path is released as a result of successful ANF-PR, signalling shall continue using the new path.

NOTE 11

The Requesting PTNX will normally abandon ANF-PR by sending back a pathReplaceSetup return error APDU because SS-CT has been invoked. Therefore switch over to a new path will not normally occur.

While acting as an ANF-PR Cooperating PTNX in ANF-PR state PR-Coop-Establishment or PR-Coop-Retain, an SS-CT invocation request from the local user shall be treated in one of the following ways:

- reject the request for SS-CT; or
- wait until ANF-PR is complete before processing the request for SS-CT; or
- carry out SS-CT using transfer by join, using the old path for signalling until such time as it is released, and then using the new path.

8.6.1.2.2 Initiation of ANF-PR during Call Transfer

On receipt of a pathReplacePropose invoke APDU while acting as a Transferring PTNX, a Primary PTNX or a Secondary PTNX during SS-CT, a pathReplacePropose return error APDU shall be sent. The error shall be temporarilyUnavailable.

8.6.2 Call Completion to Busy Subscriber (SS-CCBS) and SS-CT

No interactions.

8.6.3 Call Completion on No Reply (SS-CCNR) and SS-CT

No interactions.

8.6.4 Call Offer (SS-CO) and SS-CT

8.6.4.1 Initiation of Call Transfer during Call Offer

NOTE 12

SS-CT already allows call transfer during alerting, i.e. when the Transferring PTNX is in protocol control state Call Delivered.

8.6.4.1.1 Actions at the Transferring PTNX

If user A requests call transfer for two calls in which the user is involved, one of the calls (primary call) being in protocol control state Active and the other call (secondary call) in protocol control state Outgoing Call Proceeding and for which SS-CO has been successfully invoked, the actions at the Transferring PTNX of SS-CT for transfer during alerting (i.e. when the secondary call is in protocol control state Call Delivered) shall apply.

8.6.4.1.2 Actions at the Secondary PTNX

A PTNX shall treat as valid an APDU indicating that it is the Secondary PTNX for SS-CT also if the protocol state is Incoming Call Proceeding and SS-CO has been successfully invoked.

8.6.4.2 Notifications to User B of SS-CT

8.6.4.2.1 Actions at the Secondary PTNX for transfer by join

If call transfer by join is performed and the Secondary PTNX is also a SS-CO Terminating PTNX in state CO-Dest-Invoked, the Secondary PTNX may send a "call is a waiting call" notification, as defined in ECMA-165, in a Notification indicator information element in a NOTIFY message to the Primary PTNX using the call reference on which the callTransferComplete invoke APDU was received. If this notification is not sent, then when User C of SS-CT becomes not busy, no remoteUserAlerting notification shall be sent.

8.6.4.2.2 Actions at the Secondary PTNX for transfer by rerouteing

If call transfer by rerouteing is performed and the Secondary PTNX is also a SS-CO Terminating PTNX in state CO-Dest-Invoked, the Secondary PTNX may send a "call is a waiting call" notification, as defined in ECMA-165, in a Notification indicator information element in addition to the callTransferSetup return result in the ALERTING message to the Primary PTNX. If this notification has been sent, the Secondary PTNX shall send a remoteUserAlerting notification in a Notification indicator information element in a NOTIFY message to the Primary PTNX when User C of SS-CT becomes not busy.

8.6.5 Do Not Disturb (SS-DND) and SS-CT

No interactions.

8.6.6 Do Not Disturb Override (SS-DNDO) and SS-CT

No interactions.

8.6.7 Call Intrusion (SS-CI) and SS-CT

8.6.7.1 Notifications to User B of SS-CT

8.6.7.1.1 Actions at the Transferring PTNX for transfer by join

If call transfer by join is performed at the SS-CI Originating PTNX during state CI-Orig-WOB, the Transferring PTNX shall initiate the normal procedures for transfer by join except that the behaviour shall be as if the secondary call basic call protocol control state were "Call Delivered". On receipt of a callIntrusionCompleted invoke APDU from the Secondary PTNX, the Transferring PTNX shall act as if a CONNECT message had been received, i.e. send a FACILITY message with a callTransferActive invoke APDU to the Primary PTNX and enter state CT-Idle.

8.6.7.1.2 Actions at the Secondary PTNX for transfer by join

If call transfer by join is performed and the Secondary PTNX is also a SS-CI Terminating PTNX in state CO-Dest-WOB, the Secondary PTNX may send a "call is a waiting call" notification, as defined in ECMA-165, in a Notification indicator information element in a NOTIFY message to the Primary PTNX using the call reference on which the callTransferComplete invoke APDU was received. If this notification is not sent, then when User C of SS-CT becomes not busy, no remoteUserAlerting notification shall be sent.

8.6.7.1.3 Actions at the Secondary PTNX for transfer by rerouteing

If call transfer by rerouteing is performed and the SS-CI Terminating PTNX is in state CI-Dest-WOB, the Secondary PTNX shall act as if the secondary call had been in basic call protocol control state Call Received, i.e. send the callTransferSetup return result APDU in an ALERTING message. The ALERTING message may contain a notification "call is a waiting call", as defined in ECMA-165. If this notification is not sent, then when User C of SS-CT becomes not busy, no remoteUserAlerting notification shall be sent. When User C of SS-CT answers and a CONNECT message is sent, no callIntrusionCompleted invoke APDU shall be sent.

8.7 Interactions of Path Replacement (ANF-PR)

8.7.1 Call Completion to Busy Subscriber (SS-CCBS) and ANF-PR

No interactions.

8.7.2 Call Completion on No Reply (SS-CCNR) and ANF-PR

No interactions.

8.7.3 Call Offer (SS-CO) and ANF-PR

No interactions.

8.7.4 Do Not Disturb (SS-DND) and ANF-PR

No interactions.

8.7.5 Do Not Disturb Override (SS-DNDO) and ANF-PR

No interactions.

8.7.6 Call Intrusion (SS-CI) and ANF-PR

8.7.6.1 Actions at an ANF-PR Requesting PTNX

8.7.6.1.1 Sending of callIntrusionGetCIPL invoke APDU

As part of invocation of SS-CI, the SS-CI Terminating PTNX may send a FACILITY message containing a callIntrusionGetCIPL invoke APDU while also acting as an ANF-PR Requesting PTNX.

NOTE 13

If the ANF-PR state is PR-Req-Initiating, the Requesting PTNX should take steps to protect against release of the old connection before a response to the callIntrusionGetCIPL invoke APDU has been received. This can be achieved by responding to a pathReplaceSetup invoke APDU with a return error APDU containing error value temporarilyUnavailable, thereby causing ANF-PR to fail and ensuring that the old connection is kept. ANF-PR can be attempted again later.

If the ANF-PR state is PR-Req-Completing, the callIntrusionGetCIPL invoke APDU shall be sent using the new connection.

8.7.6.1.2 Receipt of callIntrusionGetCIPL invoke APDU

The response to a callIntrusionGetCIPL invoke APDU shall be sent on the connection on which the invoke APDU was received.

8.7.6.1.3 Sending of Notification to the Unwanted User

An SS-CI Terminating PTNX may send a NOTIFY message containing a notification to the unwanted user while also acting as an ANF-PR Requesting PTNX.

NOTE 14

If the ANF-PR state is PR-Req-Initiating, the Requesting PTNX should take steps to protect against release of the old connection before the notification reaches the Unwanted User's PTNX (the ANF-PR Cooperating PTNX). This can be achieved by responding to a pathReplaceSetup invoke APDU with a return error APDU containing error value temporarilyUnavailable, thereby causing ANF-PR to fail and ensuring that the old connection is kept. ANF-PR can be attempted again later.

If the ANF-PR state is PR-Req-Completing, the notification shall be sent using the new connection.

8.7.6.2 Actions at an ANF-PR Cooperating PTNX

8.7.6.2.1 Sending of callIntrusionGetCIPL invoke APDU

As part of invocation of SS-CI, the SS-CI Terminating PTNX may send a FACILITY message containing a callIntrusionGetCIPL invoke APDU while also acting as an ANF-PR Cooperating PTNX.

If the ANF-PR state is PR-Coop-Establishment, the callIntrusionGetCIPL invoke APDU shall be sent using the old connection.

NOTE 15

The Cooperating PTNX should postpone release of the old connection until a response has been received.

NOTE 16

If the ANF-PR state is PR-Coop-Retain, the Cooperating PTNX will have no means of preventing a Transit PTNX releasing the old connection before a response has been received, and therefore should either postpone sending of the callIntrusionGetCIPL invoke APDU until completion of ANF-PR or send it again if no response is obtained.

8.7.6.2.2 Receipt of callIntrusionGetCIPL invoke APDU

The response to a callIntrusionGetCIPL invoke APDU shall be sent on the connection on which the invoke APDU was received.

8.7.6.2.3 Sending of Notification to the Unwanted User

An SS-CI Terminating PTNX may send a NOTIFY message containing a notification to the unwanted user while also acting as an ANF-PR Cooperating PTNX. If the ANF-PR state is PR-Coop-Establishment, the notification shall be sent using the old connection.

8.8 Interactions of Call Completion to Busy Subscriber (SS-CCBS)

8.8.1 Call Completion on No Reply (SS-CCNR) and SS-CCBS

No interactions.

8.8.2 Call Offer (SS-CO) and SS-CCBS

No interactions.

8.8.3 Do Not Disturb (SS-DND) and SS-CCBS

8.8.3.1 Actions at the Terminating PTNX

If SS-CCBS is invoked on a destination with SS-DND active, then the SS-CCBS invocation shall fail due to SS-DND active. The Destination PTNX shall return a ccbsRequest return error APDU on the existing signalling connection. Error value shortTermRejection shall be included. The ccbsRequest return error APDU shall be sent in the RELEASE message with Cause no.16 "normal call clearing".

If at the time the PTN attempts to complete the call to the destination following CCBS recall, SS-DND is active at the destination, then SS-CCBS shall fail with the appropriate indication to the calling user. The Terminating PTNX shall return a DISCONNECT message and a doNotDisturb notification shall be included.

8.8.3.2 Actions at the Originating PTNX

No interactions.

8.8.4 Do Not Disturb Override (SS-DNDO) and SS-CCBS

No interactions.

NOTE 17

SS-DNDO cannot apply to a CCBS recall.

8.8.5 Call Intrusion (SS-CI) and SS-CCBS

No interactions.

8.9 Interactions of Call Completion on No Reply (SS-CCNR)

8.9.1 Call Offer (SS-CO) and SS-CCNR

No interactions.

8.9.2 Do Not Disturb (SS-DND) and SS-CCNR

8.9.2.1 Actions at the Terminating PTNX

If SS-CCNR is invoked on a destination with SS-DND active, then the SS-CCNR invocation shall fail due to SS-DND active. The Destination PTNX shall return a ccnrRequest return error APDU on the existing signalling connection. Error value shortTermRejection shall be included. The ccnrRequest return error APDU shall be sent in the RELEASE message with Cause no.16 "normal call clearing".

If at the time the PTN attempts to complete the call to the destination following CCNR recall, SS-DND is active at the destination, then SS-CCNR shall fail with the appropriate indication to the calling user. The Terminating PTNX shall return a DISCONNECT message and a doNotDisturb notification shall be included.

8.9.2.2 Actions at the Originating PTNX

No interactions.

8.9.3 Do Not Disturb Override (SS-DNDO) and SS-CCNR

No interactions.

8.9.4 Call Intrusion (SS-CI) and SS-CCNR

No interactions.

8.10 Interactions of Call Offer (SS-CO)

8.10.1 Do Not Disturb (SS-DND) and SS-CO

No interactions.

8.10.2 Do Not Disturb Override (SS-DNDO) and SS-CO

8.10.2.1 Actions at the Originating PTNX

The Originating PTNX shall not include a callOfferRequest invoke APDU and a pathRetain invoke APDU with bit dndo-low, dndo-medium or dndo-high set to ONE in the same SETUP message.

The Originating PTNX shall not include a doNotDisturbOverrideQ invoke APDU and a pathRetain invoke APDU with bit callOffer set to ONE in the same SETUP message.

8.10.2.2 Actions at the Terminating PTNX

On receiving a SETUP message containing a callOfferRequest invoke APDU together with a doNotDisturbOverrideQ invoke APDU, the procedures of SS-DNDO shall apply and, if SS-DND is not active or is successfully overridden, the procedures of SS-CO shall apply.

8.10.3 Call Intrusion (SS-CI) and SS-CO

8.10.3.1 Actions at the Originating PTNX

The Originating PTNX may request SS-CI by sending a callIntrusionRequest invoke APDU in a FACILITY message during basic call protocol state Outgoing Call Proceeding or Call Delivered, starting timer T1 of SS-CI and entering state CI-Wait-Ack. The procedures of SS-CI shall then apply.

8.10.3.2 Actions at the Terminating PTNX

8.10.3.2.1 Normal Procedures

After SS-CO has been successfully invoked and prior to completion of SS-CO, on receipt of a callIntrusionRequest invoke APDU in a FACILITY message, the Terminating PTNX shall act in accordance with SS-CI.

NOTE 18

If SS-CI is successfully invoked, SS-CO returns to state CO-Idle, since a CONNECT message is sent.

8.10.3.2.2 Exceptional Procedures

The procedures of SS-CI shall apply. If SS-CI is rejected, SS-CO shall continue.

8.11 Interactions of Do Not Disturb (SS-DND)

8.11.1 Do Not Disturb Override (SS-DNDO) and SS-DND

Interactions are specified in ECMA-194.

8.11.2 Call Intrusion (SS-CI) and SS-DND

No interactions.

8.12 Interactions of Do Not Disturb Override (SS-DNDO)

8.12.1 Call Intrusion (SS-CI) and SS-DNDO

8.12.1.1 Actions at the Originating PTNX

The Originating PTNX shall not include a callIntrusionRequest invoke APDU and a pathRetain invoke APDU with bit dndo-low, dndo-medium or dndo-high set to ONE in the same SETUP message.

The Originating PTNX shall not include a doNotDisturbOverrideQ invoke APDU and a pathRetain invoke APDU with bit ci-low, ci-medium or ci-high set to ONE in the same SETUP message.

8.12.1.2 Actions at the Terminating PTNX

On receiving a SETUP message containing a callIntrusionRequest invoke APDU together with a doNotDisturbOverrideQ invoke APDU, the procedures of SS-DNDO shall apply and, if DND is not active or is successfully overridden, the procedures of SS-CI shall apply.

Annex A

(normative)

Protocol Implementation Conformance Statement (PICS) Proforma

A.1 Introduction

The supplier of a protocol implementation which is claimed to conform to this Standard shall complete the Protocol Implementation Conformance Statement (PICS) proforma in A.3.

A completed PICS proforma is the PICS for the implementation in question. The PICS is a statement of which capabilities and options of the protocol have been implemented. The PICS can have a number of uses, including use:

- by a protocol implementor, as a check list to reduce the risk of failure to conform to the standard through oversight;
- by the supplier and acquirer (or potential acquirer) of the implementation, as a detailed indication of the capabilities of the implementation, stated relative to the common basis for understanding provided by the standard PICS proforma;
- by the user (or potential user) of the implementation, as a basis for initially checking the possibility of interworking with another implementation (note that, while interworking can not be guaranteed, failure to interwork can often be predicted from incompatible PICS);
- by a protocol tester, as the basis for selecting appropriate tests against which to asses the claim for conformance of the implementation.

A.2 Instructions for completing the PICS proforma

A.2.1 General structure of the PICS proforma

The PICS proforma is a fixed format questionnaire divided into subclauses each containing a group of individual items. Each item is identified by an item number, the name of the item (question to be answered) and the reference(s) to the clause(s) that specifies (specify) the item in the main body of this Standard.

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.

Answers to the questionnaire items are to be provided either in the Support column, by simply marking an answer to indicate a restricted choice (Yes or No) or in the Not Applicable (N/A) column.

A.2.2 Additional information

Items of Additional information allow a supplier to provide further information intended to assist the interpretation of the PICS. It is not intended or expected that a large quantity will be supplied, and a PICS can be considered complete without any such information. Examples might be an outline of the ways in which a (single) implementation can be set up to operate in a variety of environments and configurations.

References to items of Additional information may be entered next to any answer in the questionnaire, and may be included in items of Exception information.

A.2.3 Exception information

It may occasionally happen that a supplier will wish to answer an item with mandatory or prohibited status (after any conditions have been applied) in a way that conflicts with the indicated requirements. No pre-printed answer will be found in the Support column for this. Instead, the supplier is required to write into the Support column an x.<i> reference to an item of Exception information, and to provide the appropriate rationale in the Exception item itself.

An implementation for which an Exception item is required in this way does not conform to this Standard. A possible reason for the situation described above is that a defect in the Standard has been reported, a correction for which is expected to change the requirement not met by the implementation.

A.3 PICS proforma for ECMA-204

A.3.1 Implementation identification

Supplier	
Contact point for queries about the PICS	
Implementation Name(s) and Version(s)	
Other information necessary for full identification, e.g. name(s) and version(s) for machines and/or operating systems; system name(s)	

Only the first three items are required for all implementations; other information may be completed as appropriate in meeting the requirement for full identification.

The terms Name and Version should be interpreted appropriately to correspond with a supplier's terminology (e.g. Type, Series, Model).

A.3.2 Protocol summary

Protocol version	1.0
Addenda Implemented (if applicable)	
Amendments Implemented	
Have any exception items been required (see A.2.3)?	No [ ] Yes [ ] (The answer Yes means that the implementation does not conform to this Standard)

Date of Statement	

A.3.3 Interactions between SS-CFU and SS-CCBS

Item	Question/feature	Reference	Status	N/A	Support
1	Support of SS-CCBS (Originating PTNX)		o		Yes [ ] No [ ]
2	Support of SS-CFU (Originating PTNX)		o		Yes [ ] No [ ]
3	Support of SS-CFU (Served User PTNX)		o		Yes [ ] No [ ]
4	Originating PTNX procedures for invoking CCBS at a CFU diverted-to user	8.3.5.1	c.1	[ ]	Yes [ ] No [ ]
5	Interactions at Originating PTNX if CFU is activated by User A	8.3.5.2	c.2	[ ]	m: Yes [ ]

c.1: if 1 and 2 then optional, else N/A

c.2: if 1 and 3 then mandatory, else N/A

A.3.4 Interactions between SS-CFU and SS-CCNR

Item	Question/feature	Reference	Status	N/A	Support
1	Support of SS-CCNR (Originating PTNX)		o		Yes [ ] No [ ]
2	Support of SS-CFU (Originating PTNX)		o		Yes [ ] No [ ]
3	Support of SS-CFU (Served User PTNX)		o		Yes [ ] No [ ]
4	Originating PTNX procedures for invoking CCNR at a CFU diverted-to user	8.3.6.1	c.1	[ ]	Yes [ ] No [ ]
5	Interactions at Originating PTNX if CFU is activated by User A	8.3.6.2	c.2	[ ]	m: Yes [ ]

c.1: if 1 and 2 then optional, else N/A

c.2: if 1 and 3 then mandatory, else N/A

A.3.5 Interactions between SS-CFU and SS-CO

Item	Question/feature	Reference	Status	N/A	Support
1	Support of SS-CO		o		Yes [ ] No [ ]
2	Support of SS-CO (Originating PTNX)		o		Yes [ ] No [ ]
3	Support of SS-CFU (Rerouteing PTNX)		o		Yes [ ] No [ ]
4	Support of SS-CFU (Originating PTNX)		o		Yes [ ] No [ ]
5	Interactions at Rerouteing PTNX	8.3.7.1	c.1	[ ]	m: Yes [ ]
6	Interactions at Originating PTNX	8.3.7.2	c.2	[ ]	m: Yes [ ]

c.1: if 1 and 3 then mandatory, else N/A

c.2: if 2 and 4 then mandatory, else N/A

A.3.6 Interactions between SS-CFU and SS-DNDO

Item	Question/feature	Reference	Status	N/A	Support
1	Support of SS-DNDO		o		Yes [ ] No [ ]
2	Support of SS-DNDO (Originating PTNX)		o		Yes [ ] No [ ]
3	Support of SS-CFU (Rerouteing PTNX)		o		Yes [ ] No [ ]
4	Support of SS-CFU (Originating PTNX)		o		Yes [ ] No [ ]
5	Interactions at Rerouteing PTNX	8.3.9.1	c.1	[ ]	m: Yes [ ]
6	Interactions at Originating PTNX	8.3.9.2	c.2	[ ]	m: Yes [ ]

c.1: if 1 and 3 then mandatory, else N/A

c.2: if 2 and 4 then mandatory, else N/A

A.3.7 Interactions between SS-CFU and SS-CI

Item	Question/feature	Reference	Status	N/A	Support
1	Support of SS-CI		o		Yes [ ] No [ ]
2	Support of SS-CI (Originating PTNX)		o		Yes [ ] No [ ]
3	Support of SS-CFU (Rerouteing PTNX)		o		Yes [ ] No [ ]
4	Support of SS-CFU (Originating PTNX)		o		Yes [ ] No [ ]
5	Interactions at Rerouteing PTNX	8.3.10.1	c.1	[ ]	m: Yes [ ]
6	Interactions at Originating PTNX	8.3.10.2	c.2	[ ]	m: Yes [ ]

c.1: if 1 and 3 then mandatory, else N/A

c.2: if 2 and 4 then mandatory, else N/A

A.3.8 Interactions between SS-CFB and SS-CCBS

Item	Question/feature	Reference	Status	N/A	Support
1	Support of SS-CCBS (Originating PTNX)		o		Yes [ ] No [ ]
2	Support of SS-CFB (Originating PTNX)		o		Yes [ ] No [ ]
3	Originating PTNX procedures for invoking CCBS at a CFB diverted-to user	8.4.4.1	c.1	[ ]	Yes [ ] No [ ]

c.1: if 1 and 2 then optional, else N/A

A.3.9 Interactions between SS-CFB and SS-CCNR

Item	Question/feature	Reference	Status	N/A	Support
1	Support of SS-CCNR (Originating PTNX)		o		Yes [ ] No [ ]
2	Support of SS-CFB (Originating PTNX)		o		Yes [ ] No [ ]
3	Originating PTNX procedures for invoking CCNR at a CFB diverted-to user	8.4.5.1	c.1	[ ]	Yes [ ] No [ ]

c.1: if 1 and 2 then optional, else N/A

A.3.10 Interactions between SS-CFB and SS-CO

Item	Question/feature	Reference	Status	N/A	Support
1	Support of SS-CO (Originating PTNX)		o		Yes [ ] No [ ]
2	Support of SS-CO (Terminating PTNX)		o		Yes [ ] No [ ]
3	Support of SS-CFB (Originating PTNX)		o		Yes [ ] No [ ]
4	Support of SS-CFB (Rerouteing PTNX)		o		Yes [ ] No [ ]
5	Support of SS-CFB (Served User PTNX)		o		Yes [ ] No [ ]
6	Interactions at Rerouteing PTNX	8.4.6.1	c.1	[ ]	m: Yes [ ]
7	Interactions at Originating PTNX	8.4.6.2	c.2	[ ]	m: Yes [ ]
8	Interactions at Served User PTNX	8.4.6.3	c.3	[ ]	m: Yes [ ]

c.1: if (1 or 2) and 4 then mandatory, else N/A

c.2: if 1 and 3 then mandatory, else N/A

c.3: if 2 and 5 then mandatory, else N/A

A.3.11 Interactions between SS-CFB and SS-DNDO

Item	Question/feature	Reference	Status	N/A	Support
1	Support of SS-DNDO (Originating PTNX)		o		Yes [ ] No [ ]
2	Support of SS-DNDO (Terminating PTNX)		o		Yes [ ] No [ ]
3	Support of SS-CFB (Originating PTNX)		o		Yes [ ] No [ ]
4	Support of SS-CFB (Rerouteing PTNX)		o		Yes [ ] No [ ]
5	Interactions at Rerouteing PTNX	8.4.8.1	c.1	[ ]	m: Yes [ ]
6	Interactions at Originating PTNX	8.4.8.2	c.2	[ ]	m: Yes [ ]

c.1: if (1 or 2) and 4 then mandatory, else N/A

c.2: if 1 and 3 then mandatory, else N/A

A.3.12 Interactions between SS-CFB and SS-CI

Item	Question/feature	Reference	Status	N/A	Support
1	Support of SS-CI (Originating PTNX)		o		Yes [ ] No [ ]
2	Support of SS-CI (Terminating PTNX)		o		Yes [ ] No [ ]
3	Support of SS-CFB (Originating PTNX)		o		Yes [ ] No [ ]
4	Support of SS-CFB (Rerouteing PTNX)		o		Yes [ ] No [ ]
5	Support of SS-CFB (Served User PTNX)		o		Yes [ ] No [ ]
6	Interactions at Rerouteing PTNX	8.4.9.1	c.1	[ ]	m: Yes [ ]
7	Interactions at Originating PTNX	8.4.9.2	c.2	[ ]	m: Yes [ ]
8	Interactions at Served User PTNX	8.4.9.3	c.3	[ ]	m: Yes [ ]

c.1: if (1 or 2) and 4 then mandatory, else N/A

c.2: if 1 and 3 then mandatory, else N/A

c.3: if 2 and 5 then mandatory, else N/A

A.3.13 Interactions between SS-CFNR and SS-CT

Item	Question/feature	Reference	Status	N/A	Support
1	Support of SS-CT (transfer by join)		o		Yes [ ] No [ ]
2	Support of SS-CT (transfer by rerouteing)		o		Yes [ ] No [ ]
3	Support of SS-CFNR (Originating PTNX)		o		Yes [ ] No [ ]
4	Support of SS-CFNR (Served User PTNX)		o		Yes [ ] No [ ]
5	Support of SS-CFNR (Rerouteing PTNX)		o		Yes [ ] No [ ]
6	Actions at a Transferring PTNX for rerouteing and SS-CFNR Originating PTNX	8.5.1.1	c.1	[ ]	m: Yes [ ]
7	Actions at a Transferring PTNX for join or rerouteing and SS-CFNR Originating PTNX	8.5.1.2	c.2	[ ]	m: Yes [ ]
8	Actions at a Secondary PTNX for rerouteing and SS-CFNR Served User PTNX	8.5.1.3	c.3	[ ]	m: Yes [ ]
9	Actions at a Secondary PTNX for rerouteing and SS-CFNR Served User / Rerouteing PTNX	8.5.1.4	c.4	[ ]	m: Yes [ ]
10	Actions at a Secondary PTNX for join and SS-CFNR Served User / Rerouteing PTNX	8.5.1.5	c.5	[ ]	m: Yes [ ]
11	Actions at a Transferring PTNX for join	8.5.1.6	c.6	[ ]	m: Yes [ ]
12	Actions at a Primary PTNX for join	8.5.1.7	c.7	[ ]	m: Yes [ ]

c.1: if 2 and 3 then mandatory, else N/A

c.2: if (1 or 2) and 3 then mandatory, else N/A

c.3: if 2 and 4 then mandatory, else N/A

c.4: if 2 and 4 and 5 then mandatory, else N/A

c.5: if 1 and 4 and 5 then mandatory, else N/A

c.6: if 1 and 5 then mandatory, else N/A

c.7: if 1 and 3 then mandatory, else N/A

A.3.14 Interactions between SS-CFNR and SS-CCNR

Item	Question/feature	Reference	Status	N/A	Support
1	Support of SS-CCNR (Originating PTNX)		o		Yes [ ] No [ ]
2	Support of SS-CFNR (Originating PTNX)		o		Yes [ ] No [ ]
3	Originating PTNX procedures for invoking CCNR at a CFNR diverted-to user	8.5.4.1	c.1	[ ]	Yes [ ] No [ ]

c.1: if 1 and 2 then optional, else N/A

A.3.15 Interactions between SS-CT and ANF-PR

Item	Question/feature	Reference	Status	N/A	Support
1	Support of SS-CT		o		Yes [ ] No [ ]
2	Support of ANF-PR at a Requesting PTNX		o		Yes [ ] No [ ]
3	Support of ANF-PR at a Cooperating PTNX		o		Yes [ ] No [ ]
4	Interactions between SS-CT and ANF-PR at an ANF-PR Requesting PTNX	8.6.1.1	c.1	[ ]	m: Yes [ ]
5	Interactions between SS-CT and ANF-PR at an ANF-PR Cooperating PTNX	8.6.1.2	c.2	[ ]	m: Yes [ ]

c.1: if 1 and 2 then mandatory, else N/A

c.2: if 1 and 3 then mandatory, else N/A

A.3.16 Interactions between SS-CT and SS-CO

Item	Question/feature	Reference	Status	N/A	Support
1	Support of SS-CO (Originating PTNX)		o		Yes [ ] No [ ]
2	Support of SS-CO (Terminating PTNX)		o		Yes [ ] No [ ]
3	Support of SS-CT (transfer by join)		o		Yes [ ] No [ ]
4	Support of SS-CT (transfer by rerouteing)		o		Yes [ ] No [ ]
5	Interactions at Initiation of SS-CT during SS-CO at Transferring PTNX	8.6.4.1.1	c.1	[ ]	m: Yes [ ]
6	Interactions at Initiation of SS-CT during SS-CO at Secondary PTNX	8.6.4.1.2	c.2	[ ]	m: Yes [ ]
7	Interactions between SS-CT by join and SS-CO for notifications at Secondary PTNX	8.6.4.2.1	c.3	[ ]	m: Yes [ ]
8	Interactions between SS-CT by rerouteing and SS-CO for notifications at Secondary PTNX	8.6.4.2.2	c.4	[ ]	m: Yes [ ]

c.1: if (1 and 3) or (1 and 4) then mandatory, else N/A

c.2: if (2 and 3) or (2 and 4) then mandatory, else N/A

c.3: if 2 and 3 then mandatory, else N/A

c.4: if 2 and 4 then mandatory, else N/A

A.3.17 Interactions between SS-CT and SS-CI

Item	Question/feature	Reference	Status	N/A	Support
1	Support of SS-CI (Originating PTNX)		o		Yes [ ] No [ ]
2	Support of SS-CI (Terminating PTNX)		o		Yes [ ] No [ ]
3	Support of SS-CT (transfer by join)		o		Yes [ ] No [ ]
4	Support of SS-CT (transfer by rerouteing)		o		Yes [ ] No [ ]
5	Interactions between SS-CT by join and SS-CI for notifications at Transferring PTNX	8.6.7.1.1	c.1	[ ]	m: Yes [ ]
6	Interactions between SS-CT by join and SS-CI for notifications at Secondary PTNX	8.6.7.1.2	c.2	[ ]	m: Yes [ ]
7	Interactions between SS-CT by rerouteing and SS-CI for notifications at Secondary PTNX	8.6.7.1.3	c.3	[ ]	m: Yes [ ]

c.1: if 1 and 3 then mandatory, else N/A

c.2: if 2 and 3 then mandatory, else N/A

c.3: if 2 and 4 then mandatory, else N/A

A.3.18 Interactions between ANF-PR and SS-CI

Item	Question/feature	Reference	Status	N/A	Support
1	Support of SS-CI (Terminating PTNX)		o		Yes [ ] No [ ]
2	Support of SS-CI (Unwanted User's PTNX)		o		Yes [ ] No [ ]
3	Support of ANF-PR (Requesting PTNX)		o		Yes [ ] No [ ]
4	Support of ANF-PR (Cooperating PTNX)		o		Yes [ ] No [ ]
5	Sending of callIntrusionGetCIPL invoke (actions at ANF-PR Requesting PTNX)	8.7.6.1.1	c.1	[ ]	m: Yes [ ]
6	Receipt of callIntrusionGetCIPL invoke (actions at ANF-PR Requesting PTNX)	8.7.6.1.2	c.2	[ ]	m: Yes [ ]
7	Sending of Notification to the Unwanted User (actions at ANF-PR Requesting PTNX)	8.7.6.1.3	c.1	[ ]	m: Yes [ ]
8	Sending of callIntrusionGetCIPL invoke (actions at ANF-PR Cooperating PTNX)	8.7.6.2.1	c.3	[ ]	m: Yes [ ]
9	Receipt of callIntrusionGetCIPL invoke (actions at ANF-PR Cooperating PTNX)	8.7.6.2.2	c.4	[ ]	m: Yes [ ]
10	Sending of Notification to the Unwanted User (actions at ANF-PR Cooperating PTNX)	8.7.6.2.3	c.3	[ ]	m: Yes [ ]

c.1: if 1 and 3 then mandatory, else N/A

c.2: if 2 and 3 then mandatory, else N/A

c.3: if 1 and 4 then mandatory, else N/A

c.4: if 2 and 4 then mandatory, else N/A

A.3.19 Interactions between SS-CCBS and SS-DND

Item	Question/feature	Reference	Status	N/A	Support
1	Support of SS-DND (Terminating PTNX)		o		Yes [ ] No [ ]
2	Support of SS-CCBS (Terminating PTNX)		o		Yes [ ] No [ ]
3	Interactions at the Terminating PTNX	8.8.3.1	c.1	[ ]	m: Yes [ ]

c.1: if 1 and 2 then mandatory, else N/A

A.3.20 Interactions between SS-CCNR and SS-DND

Item	Question/feature	Reference	Status	N/A	Support
1	Support of SS-DND (Terminating PTNX)		o		Yes [ ] No [ ]
2	Support of SS-CCNR (Terminating PTNX)		o		Yes [ ] No [ ]
3	Interactions at the Terminating PTNX	8.9.2.1	c.1	[ ]	m: Yes [ ]

c.1: if 1 and 2 then mandatory, else N/A

A.3.21 Interactions between SS-CO and SS-DNDO

Item	Question/feature	Reference	Status	N/A	Support
1	Support of SS-DNDO (Originating PTNX)		o		Yes [ ] No [ ]
2	Support of SS-DNDO (Terminating PTNX)		o		Yes [ ] No [ ]
3	Support of SS-CO (Originating PTNX)		o		Yes [ ] No [ ]
4	Support of SS-CO (Terminating PTNX)		o		Yes [ ] No [ ]
5	Interactions at the Originating PTNX	8.10.2.1	c.1	[ ]	m: Yes [ ]
6	Interactions at the Terminating PTNX	8.10.2.2	c.2	[ ]	m: Yes [ ]

c.1: if 1 and 3 then mandatory, else N/A

c.2: if 2 and 4 then mandatory, else N/A

A.3.22 Interactions between SS-CO and SS-CI

Item	Question/feature	Reference	Status	N/A	Support
1	Support of SS-CI (Originating PTNX)		o		Yes [ ] No [ ]
2	Support of SS-CI (Terminating PTNX)		o		Yes [ ] No [ ]
3	Support of SS-CO (Originating PTNX)		o		Yes [ ] No [ ]
4	Support of SS-CO (Terminating PTNX)		o		Yes [ ] No [ ]
5	Interactions at the Originating PTNX	8.10.3.1	c.1	[ ]	Yes [ ] No [ ]
6	Interactions at the Terminating PTNX	8.10.3.2	c.2	[ ]	Yes [ ] No [ ]

c.1: if 1 and 3 then optional, else N/A

c.2: if 2 and 4 then optional, else N/A

A.3.23 Interactions between SS-DNDO and SS-CI

Item	Question/feature	Reference	Status	N/A	Support
1	Support of SS-CI (Originating PTNX)		o		Yes [ ] No [ ]
2	Support of SS-CI (Terminating PTNX)		o		Yes [ ] No [ ]
3	Support of SS-DNDO (Originating PTNX)		o		Yes [ ] No [ ]
4	Support of SS-DNDO (Terminating PTNX)		o		Yes [ ] No [ ]
5	Interactions at the Originating PTNX	8.12.1.1	c.1	[ ]	m: Yes [ ]
6	Interactions at the Terminating PTNX	8.12.1.2	c.2	[ ]	m: Yes [ ]

c.1: if 1 and 3 then mandatory, else N/A

c.2: if 2 and 4 then mandatory, else N/A