



A MITEL
PRODUCT
GUIDE

OpenScape Voice V11

Interface Manual Volume 7 QSIG Interface

Interface Manual: Volume 7, QSIG Interface

Description

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History of Changes

Issue	Date	Changes
1	10/2019	Initial release for V11

1 Introduction

QSIG is for Private Integrated Services Network Exchange (PINX) signaling at the ISO Q reference point. It is based on the ISDN ITU-T Q.931 standard. Using OpenScope Voice, QSIG signaling is sent in a SIP QSIG MIME body over the IP network. Media gateway(s) convert TDM into voice packets carried via media stream (RTP or SRTP) to another gateway (GW) or end user.

This QSIG Interface Specification describes the OpenScope Voice support of QSIG

- Basic Call
- Generic Functions
- Supplementary Services (SS)
- PICS (detail answers provided)

1.1 References

- [1] ECMA/ETSI references
refer to [Chapter 2, “Standards Compliance Overview”](#).
- [2] ITU-T X.680/690, ASN.1
- [3] ITU-T Q.931, ISDN
- [4] ISO/IEC DIS 11571, 8348 and ECMA 155 Private Network Addressing
- [5] ISO/IEC 11572:2000 Information technology - Telecommunications and information exchange between systems - Private Integrated Services Network - Circuit mode bearer services - Inter-exchange signaling procedures and protocol

For CALEA/LI, the following references apply:

- [6] ANSI T1.678-2004
Lawfully Authorized Electronic Surveillance (LAES) for Voice over Packet Technologies in Wireline Telecommunications Networks to the level of compliance currently supported by hiQ for carrier environment.
- [7] ETSI TR 101 943 v2.1.1 (10/2004)
Lawful Interception (LI); Concepts of Interception in a Generic Network Architecture
- [8] ETSI ES 201 331 v1.1.1 (8/2001)
Telecommunications security; Lawful Interception (LI); Requirements of Law Enforcement Agencies
- [9] ETSI ES 201 158 v1.2.1 (4/2002)
Telecommunications Security; Lawful Interception (LI); Requirements for Network Functions
- [10] ETSI ES 201 671 v2.1.1 (9/2001)
Telecommunications Security; Lawful Interception (LI); Handover Interface for the Lawful Interception of Telecommunications Traffic

1.2 Overview

The QSIG support may differ slightly depending on which of the following gateways is used with the QSIG-compliant PINX:

- RG 8700 (stand-alone GW with OpenScape Voice survivability capability)
- HG35xx with HiPath 4000 (integrated GW)
- HG1550 with HiPath 3000 (integrated GW)

Subtle differences are described herein. For the most part, the GW acts as a tandem node transparently transmitting the QSIG messages between OpenScape Voice and the QSIG-compliant PINX.

GW functionality is outside the scope of this document, but is considered herein where it may impact QSIG protocol and support of features (for example, survivability mode).

When OpenScape Voice and its gateways are used as an IP tandem connection between two QSIG-compliant PINXs, transparent transport of QSIG messages and Application Protocol Data Units (APDU) allow proprietary PINX features to fully interwork between end users.

The focus of this interface specification is the QSIG protocol that is transported end-to-end between OpenScape Voice and the QSIG-compliant PINX.

OpenScape Voice **QSIG** protocol is compliant with the operational requirements described in the ISO/IEC and ECMA standards and technical reports listed in the Standards Compliance section of this specification. It is also compliant with ECMA standards for transporting QSIG over SIP, called “SIPQ” in this document.

SIPQ is a trunking interface which encapsulates and transports QSIG in SIP methods in accordance with ECMA 355. It seamlessly interworks features between OpenScape Voice SIP subscribers/clients and a GW with a QSIG-compliant PINX behind it by

- decoding an incoming (tunneled) QSIG MIME body in a SIP request and response and interworking and mapping the QSIG message and its IEs and Operation(s) content for internal processing
- encoding an outgoing SIP request and response with a (tunneled) QSIG MIME body by interworking and mapping internal messages and information to QSIG messages, Q.931 IEs and Operations

Therefore, OpenScape Voice acts as a QSIG originating and/or terminating entity on behalf of its subscribers. It can also act as a transit signaling GW by transparently tandeming QSIG protocol routed through it.

QSIG protocol is preserved across the IP network. This is achieved by tunnelling QSIG messages in a SIP MIME body within SIP requests and responses in the context of a SIP dialog.

Figure 1 illustrates an example of a simple IP and TDM topology with the relevant external interfaces for calls originating or terminating at OpenScape Voice. OpenScape Voice softswitch (signaling only¹) is connected to an RG 8700 GW via SIPQ (that is, SIP with QSIG tunneled). The RG 8700 interconnects over an ISDN (TDM) trunk with a QSIG-compliant PINX/PISN (that is, via QSIG protocol) and provides the signaling and media conversion. A Media Server (MS) provides tones and announcements to calls in a connection as instructed by OpenScape Voice. Direct media connection between a SIP device (or MS) and the GW (that is, over IP), and the GW and PINX and its device (that is, TDM) occurs.

The dashed line depicts the media path. The signaling path (not shown) includes the OpenScape Voice.

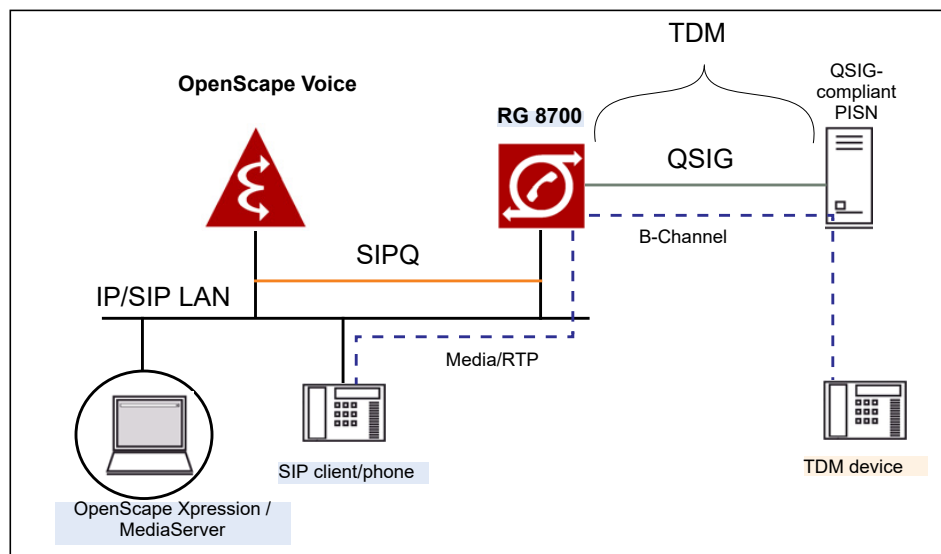


Figure 1 Example Simple IP and TDM Topology

An example of OpenScape Voice as a tandem IP node follows.

1. OpenScape Voice does not send and receive media streams, therefore, does not use RTP/RTCP protocol. OpenScape Voice does recognize payload type information carried in the SDP.

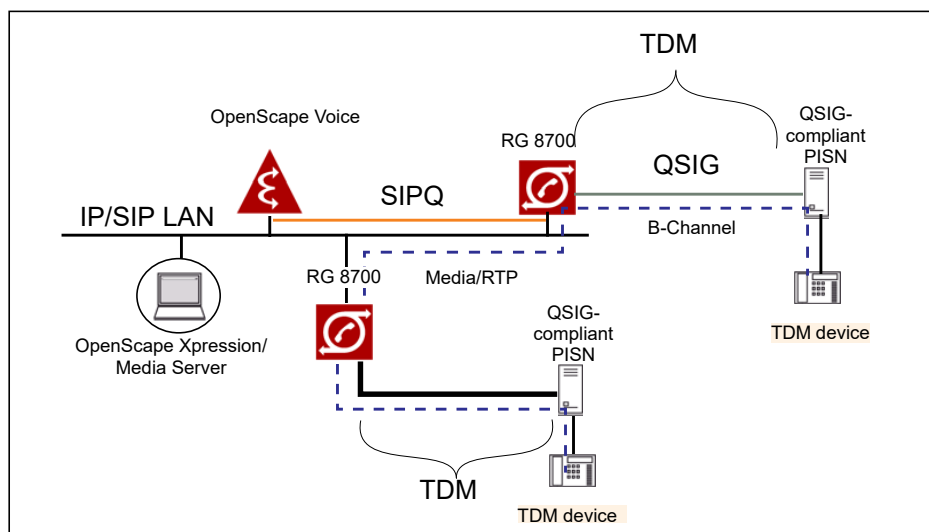


Figure 2 Example OpenScape Voice as Transit/Tandem

The call flow below illustrates a simplified basic call where SIP user A is calling the QSIG-compliant PINX user B. The SIP subscriber interface² only shows the INVITE and BYE SIP messages (although there are many more messages signaled), the SIPQ interface resembles how QSIG messages are generated and encapsulated in SIP messages and sent to and from the GW. The GW transparently encapsulates and de-encapsulates the QSIG messages in SIP messages for transmission to and from the QSIG-compliant PINX over ISDN trunks. SIPQ must be configured for TCP or TLS, but not UDP.

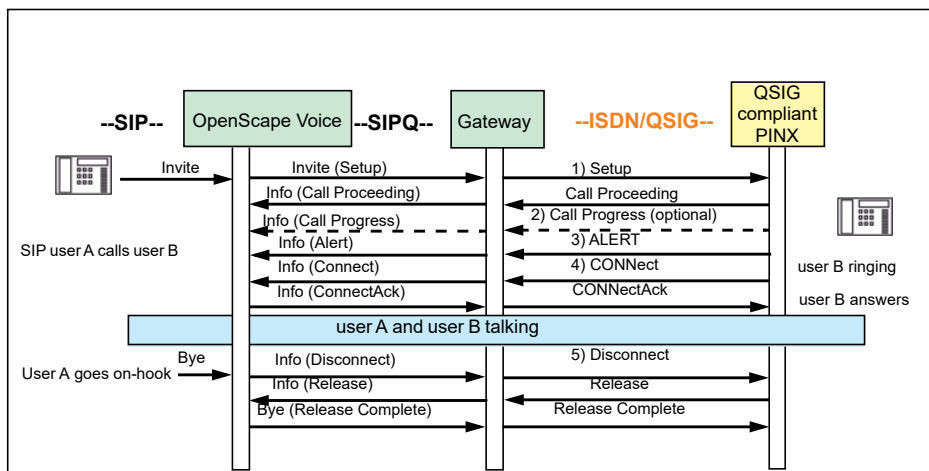


Figure 3 Basic Call: OpenScape Voice - QSIG PINX

The table below provides information on the contents of each significant message shown in Figure 3.

2. These interface are out-of-scope of this document.

Message	IE/operation	Value	Notes
1) SETUP	Called Number IE	User B's private#	for example, 933-1000 NPI=private TON=Nat (L1)
	Calling Party Number IE	User A's private#	for example, 955-1000 NPI=private TON=Nat (L1) Presentation allowed
	<i>CallingName</i>	User A's name	for example, "Minnie Mouse" presentation allowed
2) Call Progress	Progress Indicator	8	for example, Inband tones and announcements; if PI=8 or 1 is received, ring back tone is expected from the far-end (else not); when received by OpenScape Voice, early media is provided to its subscriber
3) Alert ¹	<i>CalledName</i>	User B's name	for example, "Mickey Mouse" presentation allowed
4) Connect	Connected Number IE	User B's private#	for example, 923-1000 NPI=private TON=Nat (L1) could also be a Picking-up user's number
	<i>ConnectedName</i>	User B's name	for example, "Mickey Mouse" presentation allowed could also be a Picking-up user's name
5) Disconnect	Cause Code	16 normal call clearing	In the case of user busy, a Disconnect (or Progress message when received) with cause value #17 user busy, Connected Party Number and <i>BusyName</i> operation are included.

Table 1 Message Details for Figure 3

¹ OpenScape Voice will return a PI=2 in an ALERT message and expects the originating source to provide the user with ringback tone.

1.3 Mandatory Requirements

This section highlights protocol nuances that can greatly impact connectivity and interoperability success between OpenScape Voice and the QSIG-compliant PINX. The QSIG-compliant PINX should be aware of and anticipate any complications their QSIG implementation may have with that of OpenScape Voice or its GWs.

When the PINX receives a QSIG **Alert message** with no PI=1 or PI=8 included from OpenScape Voice, it is required to provide ring back tone to its calling party. Some SIP phones do not provide ringback tone to the calling party.

Call Reference (CR): Sending and receiving two-byte CR values are supported. A dummy CR value, for example, used with connection-less transport, is not supported. Global CR value, for example, used with a STATUS message, is supported.

Bearer Capability (BC): User information layer-1 protocol (octet 5) G.711 *MU-law*³ *only* is sent but may be changed by a GW. Either *mu-law* or A-law is supported on receipt.

Facility IE: Protocol Profile (octet 3) must be encoded “**Networking Extensions**” value 11111. Other values (for example, 10001 for *ROSE*) are not acceptable. Interpretation APDU (IADPU) should be supported. Only *ROSE* APDUs are supported.

OpenScape Voice sends **private extensions and operations** in accordance with QSIG standard extensibility convention. This includes extensions to QSIG arguments as well as private operations. A QSIG-compliant PINX will receive the extensions and shall follow the Interpretation APDU which typically results in discarding or rejecting the operation. Private extensions received by OpenScape Voice from a QSIG-compliant PINX shall be responded to according to the IAPDU.

Numbering Plans: Disparate numbering plans spanning OpenScape Voice and QSIG-compliant PINXs must be normalized so each user in the network is uniquely addressable. Refer to Numbering Plans section in this document for further information.

3. Likewise, when BC/LLC is specified in a QSIG operation, MU-law is encoded; GWs typically will not convert this to A-Law since they do not parse individual QSIG operations.

2 Standards Compliance Overview

This subsection lists QSIG basic call and services that have been standardized by ECMA, ETSI and/or ISO/IEC and the level of support by OpenScape Voice.

Where the contents of an information element (IE) field and QSIG operation are described in the standard using ASN.1 notation, the encoding shall be in accordance with the Basic Encoding Rules (BER) defined in ITU-T X.690.

OpenScape Voice QSIG standards compliance is represented in [Table 2](#).

QSIG Service	ECMA	ETSI	ISO/IEC	OpenScape Voice Compliance C=compliant PC=partially compliant NC=non-compliant X=not supported
Basic call	ECMA-142/143	ETS300171/172 3rd edition	ISO 11572 2002	C
Segmentation			ISO 11572	NA w/TCP X
Generic functional procedures GF	ECMA-165	ETS300 239 V1.3.1 June 2003	ISO 11582 2002	PC
Transport of Manufacturer Specific Information	ECMA-165		ISO 11582 2002	C
Attendant Interception			ISO 15054	X
Call completion on no reply CCNR	ECMA-185/186	ETS300365/366 2nd edition	ISO 13870 2003	C
Call completion to busy subscriber CCBS	ECMA-185/186	ETS300 365/366 2nd edition	ISO 13870 2002	C
Call forwarding on busy CFB	ECMA-173/174	ETS300 256/257 2nd edition	ISO 13873 2003	C
Call forwarding on no reply CFNR	ECMA-173/174	ETS300 256/257 2nd edition	ISO 13873 2003	C
Call forwarding unconditional CFU	ECMA-173/174	ETS300 256/257 2nd edition	ISO 13873 2003	C
Call Intrusion			ISO 14846	X
Call transfer CT	ECMA-177/178	ETS300 260/261 2nd edition	ISO 13869 2003	C
Call offer CO	ECMA-191/192	ETS300 361/362 2nd edition	ISO 14843	X
Call Waiting			ISO 11582	X
Calling/connected line identification presentation CLIP	ECMA-148	ETS300 173 2nd edition	ISO 14136 2002	C

Table 2 QSIG Standards Compliance (Sheet 1 of 2)

QSIG Service	ECMA	ETSI	ISO/IEC	OpenScape Voice Compliance C=compliant PC=partially compliant NC=non-compliant X=not supported
Calling/connected line identification restriction CLIR	ECMA-148	ETS300 173 2nd edition	ISO 14136 2002	C
Common Information			ISO 15772	X
Do Not Disturb			ISO 14844	X
Hold/Inquiry/Alternating	ECMA-165		ISO 11582 2002	PC
Message Waiting Indication	ECMA-242		ISO 15506 2003	PC
Name identification - calling - connected - calling/connected name restriction	ECMA-163/164	ETS300 237/238 2nd edition	ISO 13868 2003	C
Path replacement PR	ECMA-176	ETS300 259 2nd edition	ISO 13874 2003	C
Recall			ISO 15052	X
Terminal Portability			ISO 13582	X
Advice of charge AOC - start of call - during call - end of call	ECMA-211/212 Dec 1994	ETS 300 181	ISO 15050	X
Conference	-	ETS 183 and 185	ISO 11574 basic service	X

Table 2 QSIG Standards Compliance (Sheet 2 of 2)

3 QSIG Call Control and Supplementary Services

OpenScape Voice QSIG support includes QSIG basic call, generic functions and several supplementary services. It transports proprietary operations and extensions in accordance with QSIG standard extension mechanisms.

3.1 Protocol Structure

The coding of messages and information elements (IE) is in accordance with QSIG standards (for example, ISO/IEC 11572).

Layer-3 QSIG D-channel signaling is relevant to OpenScape Voice, but not layers 1 and 2 which are handled by the gateway (GW).

3.1.1 Messages

The following messages are supported by OpenScape Voice. Messages not included are not supported⁴.

Call Establishment:

- Alerting
- Call Proceeding
- Connect
- Connect Acknowledge
- Progress
- Setup

Call Clearing:

- Disconnect
- Release
- Release Complete

Other:

- Facility
- Notify

4. For example, Restart would not be applicable to OpenScape Voice. The GW must support this however.

QSIG messages that are additionally supported by RG 8700 (unless otherwise stated) include:

- Status
- Status Enquiry (received and processed, but not sent)
- Information
- Setup Acknowledge
- Restart
- Restart Acknowledge
- Segment

3.1.2 IEs

Coding rules follow ITU-T Q.931 for codeset 0 IEs. No other codesets are supported and will be ignored if received.

The following codeset 0 IEs are **not** sent by OpenScape Voice and will be ignored when received:

- Low layer Compatibility (LLC)
- High layer Compatibility (HLC)
- Restart indicator

3.1.3 Message and IE Support Table

This table indicates the OpenScape Voice supported Q.931 IEs sent in messages. The table does not include the following supported IEs which are supported:

- Protocol discriminator
- Call Reference
- Message type
- Sending Complete (sent in SETUP message only)
- Call State (sent in Status message only)

IEs	Messages										
	Alert	Call Proc	Conn	Conn Ack	Disc	FAC	Prog	Rel	Rel Comp	Setup	Status
BC/LLC										X	
Cause					X		X	X	X		X
Connected Number			X								
Channel ID	X	X								X	
Facility	X		X		X	X	X			X	
Progress Indicator	X		X				X			X	
Notification Indicator						X					
Calling Party Number										X	
Called Party Number										X	

Table 3 Message and IE Support

3.2 Basic Call

Basic call IEs are compliant with ITU-T Q.931. This section indicates supported values and options.

Called and Calling party number:

NPI= Unknown, ISDN E.164, and Private

TON= Unknown, International (regional level 2), national (regional level 1) and subscriber number (regional level 0)

Bearer capability:

- Transfer mode (octet 4) for “call independent signaling connection” supported
- Information transfer rate (octet 4, bits 5 to 1) for “call independent signaling connection” supported

User information layer-1 protocol (octet 5) G.711 MU-law⁵ only is sent

Sending Complete: IE is sent and received in a SETUP message for signaling the end of en bloc digits. Overlap receiving of digits is supported at the GW and converted to en bloc before sending to OpenScape Voice. GWs do not send overlap digits, only en bloc (as received from OpenScape Voice).

Name operations are sent during call establishment. Refer to [Section 3.3, “Generic Functions”](#) section in this document for more information.

5. When BC/LLC is specified in a QSIG operation, MU-law is encoded; GWs typically will not convert this to A-Law.

3.3 Generic Functions

Signaling for Connection oriented call services with (QSIG bearer channel) and without (call independent and D-channel signaling only) media are supported.

Connection-less transport service is not supported.

Notification services are supported.

Facility IEs are sent in messages that have end-to-end network significance in accordance with QSIG standards. Unrecognized Facility IEs follow the Interpretation APDU.

3.3.1 Call Independent Signaling Connections

OpenScape Voice supports call independent signaling connections (also called non-call related signaling) according to QSIG standards for Message Waiting Indication and Call Completion services. Refer to Channel ID IE in the Basic Call section for encoding rules.

3.3.2 Notification Indicator IE

OpenScape Voice usage of this IE is very limited, that is, it is used to indicate call hold and call resumption (retrieve). The IE is a length of 1. Notification Description in octet 3 is coded for notification of “**remote hold**” (that is, b1111001/0x79) and “**remote retrieval**” (that is, b1111010/0x7A). QSIG-compliant PINXs need not interpret this IE. Music on hold (MOH) is provided optionally from the holding user’s OpenScape Voice.

3.3.3 Manufacturer Specific Information

OpenScape Voice accepts but ignores the MSI.

3.4 Supplementary Services (SS)

The QSIG supplementary services according to ISO and ECMAv2 standards that are supported by OpenScape Voice V11 are described in this section.

Supplementary services that are not included in this document are not sent by OpenScape Voice V11 (for example, Common Information) and when received shall be treated according to the received Interpretation APDU.

3.4.1 Call Completion (CCBS/NR)

The Call Completion to Busy Subscriber (CCBS) and Call Completion on No Reply (CCNR) features allow a calling subscriber to be automatically connected to a busy or no reply called subscriber when that subscriber becomes available.

Operations supported:

- *ccbsRequest*
- *ccnrRequest*
- *ccCancel*
- *ccExecPossible*
- *ccRingout*
- *ccSuspend*
- *ccResume*
- *ccPathReserve* (receiving only)

OpenScape Voice supports the retain-sig-connection option, that is, connection retention.

Service retention is supported.

If multiple duplicate CC requests are received for a user from the same caller, only one callback is serviced.

3.4.2 Identification Services

Identification Services are fully supported by OpenScape Voice V11 according to ECMAv2 and ISO/IEC standards.

- CLIP (Calling Line Identification Presentation) provides the called party with the identity of the calling party. The identity consists of an optional name and telephone number of the calling party.
- CLIR (Calling Line Identification Restriction) prevents the called party from receiving the identity of the calling party.
- COLP (Connected Line Identification Presentation) feature provides the calling party with the identity of the connected party. To enable the feature, an identity of the called party consisting of a name (optional) and number are delivered by the called party SSNE when the call is answered.
- COLR (Connected Line Identification Restriction) prevents the called party from divulging identity information to the calling party.

3.4.3 Message Waiting Indication

Message Waiting Indication (MWI) is an indication that is rendered on the phone, to inform the user that a message is waiting. This indication involves typically a display indication, an acoustic indication or a lamp on the phone.

A call independent signaling connection is used to send the following two supported operations:

- *MWIActivate*
- *MWIDeactivate*

MWIInterrogate operation is not supported.

3.4.4 Name Identification Services

Operations supported:

- *CallingName*
- *CalledName*
- *ConnectedName*
- *BusyName*

Note: Support for multiple character set encoding for Names includes (integer value in parenthesis):

- ISO 8859-1 (1)
 - ISO 8859-2 (3)
 - ISO 8859-3 (4)
 - ISO 8859-4 (5)
 - ISO 8859-5 (6)
 - ISO 8859-7 (7)
 - ISO 10646-BmpString (8)
 - UTF-8 (9)
-

3.4.5 Call Diversion/Forwarding

An OpenScape Voice subscriber that is forwarded either to another subscriber in the same OpenScape Voice or to the PSTN will perform *forward-switching* on behalf of the calling party. A Facility message is sent to the calling party to notify the user the call is being forwarded and indicate the forwarded-to party number.

An OpenScape Voice subscriber that is forwarded to another user located at another OpenScape Voice or QSIG-compliant PINX will perform *rerouting* where the calling user's system is requested to perform the forwarding to the forwarded-to party. If the rerouting request is rejected, OpenScape Voice shall perform forward-switching on behalf of the calling party.

Note: An OpenScape Voice may be provisioned to always perform forward-switching as an alternative.

Regardless of the reason for call forwarding (for example, CFU, CFB), the forwarding will either be via forward-switching or rerouting.

Call diversion activation, deactivation, interrogation and restriction checking is a local OpenScape Voice function and is not supported over QSIG.

The following Call Diversion operations are supported:

- *CallRerouting*
- *DivertingLegInformation1*
- *DivertingLegInformation2*
- *DivertingLegInformation3*

All other Call Diversion operations are not supported.

3.4.5.1 Forward Switching

A Facility message is sent to the caller with the *divertingLegInformation1* operation which indicates the forwarded-to user number and diversion reason. In a subsequent message (for example, ALERT) the *divertingLegInformation3* operation is sent to the forwarded caller and indicates the forwarded-to user info.

The *divertingLegInformation2* operation is normally not transmitted because forward-switching is either local and intra-nodal or to the PSTN, that is, non-QSIG. However, if a rerouting operation had been sent previously and was rejected, then OpenScape Voice performs forward-switching on behalf of the caller. In this case, when the diverted-to user is in the QSIG network, the SETUP message to that user shall contain the *divertingLegInformation2* operation.

3.4.5.2 Call Rerouting

When the forwarded-to user does not reside in the same OpenScape Voice as the forwarding user, a Facility message with the *callRerouting* operation is returned to the calling user. If the return result is rejected, OpenScape Voice will attempt to forward-switch the call on behalf of the calling party.

When OpenScape Voice receives a rerouting operation, a *DivertingLegInfo2* operation is sent in the SETUP message to the forwarded-to user.

3.4.6 Hold/Toggle/consultation

Putting a user on hold can be accomplished by sending a NOTIFY or a Facility message and Notification indicator. OpenScape Voice sends and receives a Notification Description coding (octet 3) for:

1111001 remote hold

1111010 remote retrieval

QSIG-compliant PINXs may not understand this encoding. In this case, the hold service has only local significance, its operation is not affected by the nature of the far end of the connection.

Hold-on-hold, also called **simultaneous hold**, is permitted by OpenScape Voice.

3.4.7 Call transfer

OpenScape Voice performs transfers via “join”. Therefore, the signaling connection after transfer, tandems via OpenScape Voice even when the transferred or transferred-to users are not subscribers in OpenScape Voice. Path replacement is used to optimize signaling and media paths in the network.

Three variants of transfer are supported and described in the following subsections.

3.4.7.1 Blind

Blind transfer occurs when the transferring user transfers a user to another user and goes on-hook without listening for ringback tone from the transferred-to user. This is accomplished via a one-step procedure, for example, where a single key depression plus the dialed digits are entered and then the transferring user disconnects.

The signaling for blind transfer is the same as Semi-attended transfer in the next subsection.

The transferred user sees the transferred-to user’s number info followed by the answering user’s name and number info when transfer is successful.

3.4.7.2 Semi-attended

Semi-attended transfer, also called transfer into ringing, occurs when the transferring user puts the user to be transferred on hold, dials another user, and upon hearing ringing, transfers the call and disconnects.

The following transfer operations are supported:

- *CallTransferComplete*
- *CallTransferActive*

During the alerting phase, the transferred user will receive a Facility message with Facility IE, *CallTransferComplete* and the *callStatus* of “alerting” with the transferred-to user’s number. A second Facility message with a Notification indicator of “remote retrieve” (refer to sec. 4.3.2) is sent as well.

The transferred-to user will receive a Facility IE with *CallTransferComplete* and the *callStatus* of “answered” with the transferred user’s name and number info.

When the transferred-to user answers, a Facility message and Facility IE with *CallTransferActive* is sent to the transferred party with the answering user’s name and number info. At this point, OpenScape Voice transitions to tandem and transit mode.

Displays are updated at the transferred and transferred-to users based on the redirection number and *redirectionName* provided in the *CallTransferComplete* operations and the connected Number and *connectedName* in the *CallTransferActive* operation.

3.4.7.3 Attended

Attended transfer, also called consultation transfer, occurs when the transferring user puts the user to be transferred on hold, dials another user, is connected and then transfers the first user to the second user.

The following transfer operations are supported:

- *CallTransferComplete*

When the transferring user transfers the user on hold to the active user, a *CallTransferComplete* and the *callStatus* of “answered” and name and number info is sent to both users.

3.4.8 Path Replacement

OpenScape Voice supports Path Replacement (PR) only following successful transfer when the transferred and transferred-to users are connected.

The following PR operations are supported:

- *PathReplacePropose*
- *PathReplaceSETUP*

No other PR operations are supported.

The *reroutingNumber* must be a routable number known in the dial plan and translation table. A fully qualified private number is recommended.

OpenScape Voice expects the primary PINX, that is, the transferred party, to send the FACility message and FAC IE with *PathReplacePropose*. When OpenScape Voice sends the *PathReplacePropose*, it waits up to 30 seconds for the associated SETUP message to arrive. If this timer expires before receiving the associated SETUP message, the original path is maintained and if the SETUP message is received, it will be cleared. This timer expiry can occur due to network delay, for example, when many signaling hops occur in the IP and TDM networks.

Path replacement (PR) is very useful in optimizing trombone links through gateways and through the IP network.

3.4.9 Call Intrusion

Attention: support of Call Intrusion Supplementary Service interworked over SIPQ is QSIG non-standard. It is based on proprietary CorNet-N and CorNet-NQ protocol, and shall not interwork with ISO/IEC or ECMA standard implementations.

Call Intrusion is implemented as a proprietary CorNet-N voice service, supported between OpenScape Voice V11 and the HiPath 4000 only, with the HiPath 4000 invoking intrusion to a busy OpenScape Voice V11 subscriber.

OpenScape Voice distinguishes call intrusion further to the following two proprietary types:

- **Emergency Intrusion:** a high priority audio message is delivered to the called party.
- **Executive Intrusion:** a manager desires to intrude on a busy party for an urgent matter.

For call intrusion to operate properly and to avoid redirection, OpenScape Voice V11 overrides, when indicated, the following services (i.e. proprietary implementation):

- Call Pickup
- Call Forwarding

- Do-Not-Disturb

3.4.10 Impact Level Indication (ILI)

Attention: Impact Level Indication interworked over SIPQ is QSIG non-standard. It is based on proprietary CorNet-NQ protocol, and shall not interwork with ISO/IEC or ECMA standard implementations.

In CorNet-NQ terminology, an Impact Level is:

1. A (static) property assigned to an endpoint, indicating the degree of trust available when communicating with that endpoint.
2. A (dynamic) property of a point-to-point or multipoint call, equal to the lowest impact level of the participating parties.

The ANF-ILI operation allows for the exchange and comparison of impact levels between PINXs. If the calling party of an incoming call request has a lower impact level than the called party the called party receives a corresponding indication. Similarly, if the called party has a lower level then an indication is returned to the calling party in a response message. The impact level of a conference is that of the participant with the lowest impact level.

Since call features such as call diversion, call transfer, or conferencing may change the applicable impact level of ongoing calls the indications initially provided can be updated at any time during a call. This means that an endpoint may be informed during an ongoing call about a lower impact level now applying, rather than when the call started; on the other hand the endpoint may also receive information during a call that a lower impact level condition has now ended.

OpenScape Voice V11 support sending and receiving the ANF-ILI operation in following QSIG messages:

- SETUP
- ALERTING
- CONNECT
- FACILITY
- PROGRESS

Within ANF-ILI operation the argument 'call-level' contains the impact level of the other party in a two-party call or the minimum impact level of all the other parties in case of a multi-party call. The argument 'local-level' is not used by OpenScape Voice V11.

3.5 Tandem and Transit Operation

One application of OpenScape Voice is to route calls between multiple QSIG-compliant PINXs. OpenScape Voice transparently tandems the QSIG MIME body and updates appropriate IEs, such as Call Reference value and transit counter, over the IP network.

If a Transit counter IE is present and the transit count field has a value that is greater than or equal to the maximum limit of Transit PINX's through which the call may be routed, the call shall be stopped from further routing. The CorNet-N tunnel shall include a Cause Code Value (1) Loop/satellite Counter exceeded. The caller shall be connected to a Media Server for a call rejected announcement. OpenScape Voice V11 shall clear the call after the announcement ends, unless the caller clears first.

3.6 Exception Conditions

One possible aspect of interworking mixed TDM and IP environments that the reader should be aware of is performance considerations. Because of VoIP technology, speech clipping, QOS, and delay can be noticeable at times to the user.

3.7 Gateway Considerations and Survivability

Typically, the RG 8700 is used as a GW for QSIG-compliant PINXs. HiPath integrated GW for HiPath 3000 and HiPath 4000 can serve as a GW as well.

3.7.1 HG 1550 and HiPath 3000

For OpenScape Voice, the HG1500 and HiPath 3000 are primarily supported as PSTN Gateways.

3.7.2 HG 35xx and HiPath 4000

HiPath 4000 has a robust implementation of several variants of QSIG and can be used to convert a legacy protocol (for example, DPNSS1) of a QSIG-compliant PINX to standard QSIG and interface with OpenScape Voice.

3.7.3 RG 8700

3.7.3.1 Normal Mode

The term Normal mode is use to specify when connectivity to OpenScape Voice is available and OpenScape Voice provides all feature functions. The RG 8700 in this mode only tunnels QSIG and Cornet-NQ messages. In addition, in this mode the RG 8700 provides conversion between TDM and IP technology. QSIG and Cornet-NQ protocol is tunneled via SIP in a QSIG MIME body on the IP side and sent and received on the D-channel of an ISDN trunk. When the RG 8700 is functioning in Normal mode RG 8700 passes all parameters transparently except for the following cases:

- B-Channel is selected and stored in the RG 8700 only.
- IE: Channel Identification, has only local significance.
- IE: Bearer capability for the ISDN link is modified to reflect the type of facility (E1/T1).

3.7.3.2 QSIG Survivability Mode

The term Survivability mode is use to specify when connectivity to OpenScape Voice is unavailable and the RG 8700 provides all feature functions.

[Table 4](#) lists the features supported by the RG 8700 in survivability mode. It should be noted, that even though certain features are not supported per QSIG signaling specifications, the service may still function, due to the capability of the PINX. An example of such a feature is Call Forwarding. RG 8700 does not support ECMA173/174, and hence when the PINX request the invocation, of call forwarding, the RG 8700 would reject the invocation. However it is expected that the PINX will setup a separate call and do a loop around within the PINX.

Candidates for such features are:

- Call forwarding on busy
- Call forwarding unconditional CFU
- Call Hold (since it is a local feature)
- Call transfer CT

The above features should be tested with each PINX to determine if they function.

QSIG Call Control and Supplementary Services
Gateway Considerations and Survivability

QSIG Service	ECMA	ETSI	ISO/IEC	RG 8700 Compliance C=compliant PC=partially compliant NC=non-compliant X=not supported
Basic call	ECMA-142/143	ETS300171/172 3rd edition	ISO 11572	C
Segmentation			ISO 11572	C
Generic functional procedures GF	ECMA-165	ETS300 239 2 nd edition	ISO 11582	PC
Transport of Manufacturer Specific Information			ISO 11582	C
Attendant Interception			ISO 15054	X
Call completion on no reply CCNR	ECMA-185/186	ETS300365/366 2nd edition	ISO 13870	X
Call completion to busy subscriber CCBS	ECMA-185/186	ETS300 365/366 2nd edition	ISO 13870	X
Call forwarding on busy CFB	ECMA-173/174	ETS300 256/257 2nd edition	ISO 13873	X
Call forwarding on no reply CFNR	ECMA-173/174	ETS300 256/257 2nd edition	ISO 13873	X
Call forwarding unconditional CFU	ECMA-173/174	ETS300 256/257 2nd edition	ISO 13873	X
Call Intrusion			ISO 14846	X
Call transfer CT	ECMA-177/178	ETS300 260/261 2nd edition	ISO 13869	X
Call offer CO	ECMA-191/192	ETS300 361/362 2nd edition	ISO 14843	X
Call Waiting			ISO 11582	X
Calling/connected line identification presentation CLIP	ECMA-148	ETS300 173 2nd edition	ISO 14136	C
Calling/connected line identification restriction CLIR	ECMA-148	ETS300 173 2nd edition	ISO 14136	C
Common Information			ISO 15772	X
Do Not Disturb			ISO 14844	X
Hold/Inquiry/Alternating			ISO 11582	X
Message Waiting Indication			ISO 15506	X

Table 4 RG 8700 QSIG Standards Compliance - Survivability Mode (Sheet 1 of 2)

QSIG Service	ECMA	ETSI	ISO/IEC	RG 8700 Compliance C=compliant PC=partially compliant NC=non-compliant X=not supported
Name identification: calling connected calling/connected name restriction	ECMA-163/164	ETS300 237/238 2nd edition	ISO 13868	C
Path replacement PR	ECMA-176	ETS300 259 2nd edition	ISO 13874	X
Recall			ISO 15052	X
Terminal Portability			ISO 13582	X
Advice of charge AOC start of call during call end of call	ECMA-211/212 Dec 1994	ISO 15050 (No ETSI standard yet)	ISO 15050	X
Conference	-	ETS 183 and 185	ISO 11574 basic service	X

Table 4 RG 8700 QSIG Standards Compliance - Survivability Mode (Sheet 2 of 2)

3.8 Numbering Plans

Public and private numbering plans co-exist on OpenScape Voice. A subscriber may have only a private number, or only a public number, or both types of numbers. Coordinating a OpenScape Voice numbering plan with QSIG-compliant PINX(s) numbering plan is required so that each user can be addressed uniquely network-wide.

Fully qualified numbers, that is, the entire private number (or public number if no private number is assigned) should be sent and received in each Q.931 number IE as well as in operations (for example, *PartyNumber* in *CallRerouting* operation).

Valid **Numbering Plan Identifier (NPI)** values⁶:

- NPI= "E.164/ISDN" as defined by ITU-T E.164 (beginning with Rec. E.160)

6. "unknown" NPI value is very much discouraged to configure for a subscriber number. NPI=unknown is only valid to send from a tandem node when the NPI is truly not known for example, call arrived over an analog tie trunk.

- NPI= Private numbering plan identifier as defined by ISO/IEC DIS 11571 and 8348 (ECMA 155 is consistent here as well)

Valid **Types Of Number (TON)** for the two NPIs include (only these combinations should be configured):

NPI	E.164	Private
TON values	International	L2
	National	L1
	Local ¹	L0
	unknown ²	Unknown (extension #s only)

Table 5 NPI/TON Values Supported

- 1 E.164/local is not valid in many public NWs and should be avoided. This TON value assignment should be avoided. International TON is recommended.
- 2 E.164/unknown is not guaranteed to work with OpenScape Voice features and will be rejected in most public NWs. Prefixes and Access codes are acceptable. This TON value assignment should be avoided. International TON is recommended.

Therefore, when interworking with an ISDN or QSIG (public or private) network, the numbers are encoded as explicit because the NPI and TON are identified. Prefixes and access codes should not be included in the digit string.

Open and closed numbering plans may be configured and are allowed for dialing a called party. Other Q.931 numbers are always sent as fully qualified numbers.

3.9 CALEA/LI

Refer to references [6-10] in [Section 1.1, “References”, on page 4](#). When Lawful Intercept (LI) is active, LI data can be sent and received (that is, tandem mode) in a SETUP message. OpenScape Voice encapsulates the encoded call correlation data (LI data) into QSIG complying with the ETSI and Q.931 Standard, and sends the data to the SIPQ GW.

The LI data may be encoded as UUS1 in a Facility IE, or, in the Called Party Sub address and Calling Party Sub address IEs.

3.10 Emergency Services

Subscribers on OpenScape Voice dialing an emergency number can be routed to the proper GW for egress to the local PSTN. An ELIN/LIN and calling party number may be administered and transmitted to the GW and sent to a PSAP. For egress from the QSIG-compliant PINX trunks, the ELIN can be administered in OpenScape Voice to be transmitted in the Calling Party Number IE.

3.11 Security Considerations

QSIG/ISDN (TDM land line) calls are considered secure from other individuals tapping or listening in, corrupting, misrouting, and so on, into a connection. Therefore, connections to the ISDN and QSIG NW are considered *trusted NW entities*. This is especially true when the ISDN trunks are private dedicated trunks. The same is not true in an internet/intranet environment.

End-to-end (E2E) security in an IP network can be very important to an enterprise network (EN). For this reason, OpenScape Voice and its GWs offer both signaling and media security management. IP security is outside the scope of this document, but should not be overlooked when planning your mixed vendor and homogeneous OpenScape Voice network.

4 OpenScape Voice PICS

The filled-out PICS in this section use the ECMA PICS form and should be identical with ISO/IEC PICS. Each section refers to an appendix.

4.1 ECMA 143: Basic Call

Refer to [Appendix A, “OpenScape Voice: Basic Call”](#).

4.2 ECMA 165: Generic Functions

Refer to [Appendix B, “OpenScape Voice: Generic Functions”](#).

4.3 ECMA 164: CLIP/CLIR and COLP/COLR

Refer to [Appendix C, “OpenScape Voice: CLIP/CLIR and COLP/COLR”](#).

4.4 ECMA 173: Call Diversion

[Appendix D, “OpenScape Voice: Call Diversion”](#).

4.5 ECMA 186: CCBS/NR

[Appendix E, “OpenScape Voice: CCBS/NR”](#).

4.6 ECMA 178: Call Transfer

[Appendix F, “OpenScape Voice: Call Transfer”](#).

4.7 ECMA 176: Path Replacement

[Appendix G, “OpenScape Voice: Path Replacement”](#).

A OpenScape Voice: Basic Call

This appendix contains the details of the OpenScape Voice's basic call compliance with the Protocol Implementation Conformance Statement (PICS) for ECMA-143, Annex A (normative).

The PICS are the ECMA and/or ISO/IEC standardized template for a vendor to fill out and answer as applies to their product implementation. The filled-out PICS represents a product implementation's compliance with the particular standard the PICS addresses. The reader should refer to [Section A.2, "Instructions For Completing the PICS Proforma"](#), on page 31 for directions for understanding the filled-out PICS.

A.1 Introduction

The supplier of a protocol implementation which is claimed to conform to Standard ECMA-143 shall complete the following Protocol Implementation Conformance Statement (PICS) proforma.

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 the 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 Standards 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: While interworking can never be guaranteed, failure to interwork can often be predicted from incompatible PICS's.

- by a protocol tester, as the basis for selecting appropriate tests against which to assess 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 sub-clauses 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” column (N/A).

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 requirement. 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 ECMA-143.

Note: 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 Features Supported

A.3.1 Implementation Identification

Item	Implementation Identification	
1	Supplier ¹ (footnote 1)	Unify
2	Contact point for queries about the PICS ¹ (footnote 1)	Yu.Bao@unify.com
3	Implementation Name(s) and Version(s) ^{1,2} (see footnotes 1 and 2)	OpenScape Voice V11 V11
4	Other information necessary for full identification - for example, name(s) and version(s) for machines and/or operating systems; System name(s)	

Table 6 Implementation Identification

- 1 Only the first three items are required for all implementations; other information may be completed as appropriate in meeting the requirement for full identification.
- 2 The terms Name and Version should be interpreted appropriately to correspond with a suppliers terminology (for example, Type, Series, Model).

A.3.2 Protocol Summary, ECMA-143

Protocol version	4th edition (December 2001)
Addenda Implemented (if applicable)	
Amendments Implemented	
Have any exception items been required ?	No[] Yes[] (The answer Yes means that the implementation does not conform to ECMA-143)
Date of Statement	August 2007

Table 7 Protocol Summary, ECMA-143

A.3.3 Bearers Supported

Item	Question/feature	Reference	Status	N/A	Support
Z1	Support of the 64kbit/s Unrestricted Bearer	14.5.5	o.1	Note ¹	Yes[] No[]
Z2	Support of the 64kbit/s Bearer with Speech Transfer Capability	14.5.5	o.1		Yes[] No[]
Z3	Support of the 64kbit/s Bearer with 3.1kHz/Audio Transfer Capability	14.5.5	o.1		Yes[] No[]
Z4	Support of the Multi-rate Unrestricted Bearer	14.5.5	o.1		Yes[] No[]
Z5	Support of A-law User Information layer 1 protocol	14.5.5	(Z2 OR Z3):o.3		Yes[] No[]
Z6	Support of μ -law User Information layer 1 protocol	14.5.5	(Z2 OR Z3):o.3		Yes[] No[]
Z7	Support of the unrestricted digital information with tones / announcements bearer	14.5.5	o		Yes[] No[]

Table 8 Bearers Supported

¹ OpenScape Voice supports all the above signaling codepoints, but does not support a physical bearer channel

A.3.4 General Procedures

A.3.4.1 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	X	Yes[]

Table 9 Signaling Carriage Mechanism

A.3.4.2 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	x	Yes[]
A12	signaling Carriage Mechanism failure	9.2.9	m	x	Yes[]

Table 10 Handling of Protocol Error Conditions

A.3.4.3 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[] No[x]
A15	Receipt of a solicited STATUS message	9.3.2	c.1		Yes[] No[x]

Table 11 Status and Status Enquiry Protocol Procedures (Sheet 1 of 2)

Item	Question/feature	Reference	Status	N/A	Support
A16	Receipt of an Unsolicited STATUS message	9.3.2	m		Yes[x]
<i>c STATUS Conditions:</i> c.1: If A14, then mandatory else optional					

Table 11

Status and Status Enquiry Protocol Procedures (Sheet 2 of 2)

A.3.5 Circuit Switched Call Control

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[]
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[x] No[]
B8	Information channel selection	10.1.2	m	[]	Yes[x]
B9	Overlap Receiving procedures	10.1.3	c.4 (note ¹)	[x]	Yes[] (note ¹)
B10	Overlap Sending procedures	10.1.3	c.5	[x]	Yes[]
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	[x]	Yes[]

Table 12

Circuit Switched Call Control (Sheet 1 of 2)

Item	Question/feature	Reference	Status	N/A	Support
B13	Sending of Call Proceeding – Overlap Receiving	10.1.4/ 10.1.4.2	B9:m	[x]	Yes[]
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 (note ²)	[]	Yes[x] (note ²)
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]
<i>c STATUS Conditions:</i>		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			

Table 12 *Circuit Switched Call Control (Sheet 2 of 2)*

- 1 If enbloc signaling only is used between two adjacent PINXs, overlap receiving procedures need not be tested.
- 2 If by mutual agreement between adjacent PINXs T313 is not implemented, then the sending of CONNECT ACKNOWLEDGE message is optional.

A.3.6 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]
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]

Table 13 *Call Control At A Transit PINX*

A.3.7 Call Control at a 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]

Table 14 Call Control at a Originating PINX

A.3.8 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]

Table 15 Call Control At A Terminating PINX

A.3.9 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]

Table 16 Call Control at an Incoming Gateway PINX

A.3.10 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]

Table 17 Call Control at an Outgoing Gateway PINX

A.3.11 Procedures for Layer Management

Item	Question/feature	Reference	Status	N/A	Support
H1	Initiation of Restart procedures - All channels	11.1.1	o	x	Yes[] No[]
H2	Initiation of Restart procedures - Multiple channels	11.1.1	Z4:o	x	Yes[] No[]
H3	Initiation of Restart procedures - Single channels	11.1.1	o	x	Yes[] No[]
H4	Receipt of RESTART - All channels	11.1.2	m	(note ¹)	Yes[]
H5	Receipt of RESTART - Single channels	11.1.2	m	x	Yes[]
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	x	Yes[]

Table 18 Procedures for Layer Management

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

A.3.12 Timers

Item	Question/feature	Reference	Status	N/A	Support
I1	Implementation of T301	12	c.7	[]	Yes[x] No[] Value []
I2	Implementation of T302	12	c.8	[x]	Yes[]
I3	Implementation of T303	12	c.9	[]	Yes[x]
I4	Implementation of T304	12	B10:m	[x]	Yes[]
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 []
I8	Implementation of T310	12	c.10	[]	m:Yes[x-] o:Yes[] No[] Value []
I9	Implementation of T313	12	c.11	[]	Yes[x] No[]
I10	Implementation of T316	12/11.1.1	c.12	[x]	Yes[]

Table 19 Timers (Sheet 1 of 2)

Item	Question/feature	Reference	Status	N/A	Support
I11	Implementation of T322	12/9.3.1	A14:m	[x]	Yes[]
<i>Status Conditions:</i> 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					

Table 19

Timers (Sheet 2 of 2)

A.3.13 Messages and Information Elements For General Procedures

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]

Table 20

Message and Information Elements for General Procedures (Sheet 1 of 4)

Item	Question/feature	Reference	Status	N/A	Support
J4	Sending of a Sending Complete information element in an INFORMATION message when overlap sending is complete	13.2.6	o	x	Yes[] No[x]
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[] No[x]
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[x] No[x]
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 Sub-address information element in a CONNECT message (except when relaying at a Transit PINX in accordance with C4)	13.2.3	o		Yes[] No[x]
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[x] No[]
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[]

Table 20 Message and Information Elements for General Procedures (Sheet 2 of 4)

Item	Question/feature	Reference	Status	N/A	Support
J12	Sending of a Sending Complete information element in a SETUP message when enbloc sending	13.2.10	o		Yes[x] No[]
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 Sub-address information element in a SETUP message (except when relaying at a Transit PINX in accordance with C4)	13.2.11	o		Yes[] No[x]
J16	Sending of a Called Party Sub-address information element in a SETUP message (except when relaying at a Transit PINX in accordance with C4)	13.2.11	o		Yes[] No[x]
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	[x]	Yes []

Table 20 Message and Information Elements for General Procedures (Sheet 3 of 4)

Item	Question/feature	Reference	Status	N/A	Support
J20	Sending of a Channel Identification information element in a RESTART ACKNOWLEDGE message	13.3.2	o		Yes[] No[x]
J21	Support of channel map	14.5.12	o		Yes[] No[x]
J22	Type of number supported for ISDN/Telephony Numbering Plan: Unknown International number National number Subscriber number	14.5.7	o		Yes[x] No[] Yes[x] No[] Yes[x] No[] Yes[x] No[]
J23	Type of number supported for Private Numbering Plan: Unknown Level 2 regional number Level 1 regional number PISN specific number Level 0 regional number Abbreviated number	14.5.7	o		Yes[x] No[] Yes[x] No[] Yes[x] No[] Yes[] No[x] Yes[x] No[] Yes[] No[x]
J24	Type of number supported for Unknown Numbering Plan: Unknown	14.5.7	o	note ¹	Yes[x] No[]
J25	Message formats and codings for messages and information elements supported	14	m	x	Yes[]

Table 20 Message and Information Elements for General Procedures (Sheet 4 of 4)

¹ QSIG supplementary service support is not guaranteed

A.3.14 Message Segmentation / Re-Assembly Procedures

Item	Question/feature	Reference	Status	N/A	Support
K1	Maximum message size generated	ZA.3	m	note ¹	Size []
K2	Maximum message size received	ZA.3	m		Size []
K3	Is length of signaling carriage mechanism information field < max. generated message size	ZA.3	o		Yes[] No[]
K4	Is length of signaling carriage mechanism information field < max. received message size	ZA.3	o		Yes[] No[]
K5	Procedures for messages segmentation	ZA.3.1	c.12		Yes[]
K6	Procedures for messages re-assembly	ZA.3.2	c.13		Yes[]
K7	Message formats and codings for segmented messages and information elements supported	ZA.4, ZA.5	c.14		Yes[]
K8	Implementation of T314	ZA.6	c.13		Yes[]
<i>Status Conditions:</i> 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					

Table 21 Message Segmentation / Re-Assembly Procedures

1 A Gateway must provide these procedures; N/A to OpenScape Voice

A.3.15 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]

Table 22 Additional Progress Descriptions

B OpenScape Voice: Generic Functions

This appendix contains the details of the OpenScape Voice's Generic Functions compliance with the Protocol Implementation Conformance Statement (PICS) for ECMA-165, Annex A (normative).

The PICS are the ECMA and/or ISO/IEC standardized template for a vendor to fill out and answer as applies to their product implementation. The filled-out PICS represents a product implementation's compliance with the particular standard the PICS addresses. The reader should refer to [Section B.2, "Instructions for completing the PICS proforma", on page 45](#) for directions for understanding the filled-out PICS.

B.1 Introduction

The supplier of a protocol implementation which is claimed to conform to ECMA-165 shall complete the following Protocol Implementation Conformance Statement (PICS) proforma.

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 the 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 standards 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: While interworking can never be guaranteed, failure to interwork can often be predicted from incompatible PICS's.

- by a protocol tester, as the basis for selecting appropriate tests against which to assess the claim for conformance of the implementation.

B.2 Instructions for completing the PICS proforma

B.2.1 General structure of the PICS proforma

The PICS proforma is a fixed format questionnaire divided into sub-clauses 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” column (N/A).

B.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.

B.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 requirement. 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 ECMA-165.

Note: 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.

B.3 Features Supported

B.3.1 Implementation Identification

Item	Implementation Identification	
1	Supplier ¹ (footnote 1)	Unify
2	Contact point for queries about the PICS ¹ (footnote 1)	Yu.Bao@unify.com
3	Implementation Name(s) and Version(s) ^{1,2} (see footnotes 1 and 2)	OpenScape Voice V11 V11
4	Other information necessary for full identification - for example, name(s) and version(s) for machines and/or operating systems; System name(s)	

Table 23 Implementation Identification

- 1 Only the first three items are required for all implementations; other information may be completed as appropriate in meeting the requirement for full identification.
- 2 The terms Name and Version should be interpreted appropriately to correspond with a suppliers terminology (for example, Type, Series, Model).

B.3.2 Protocol Summary, ECMA-165

Protocol version	2.0
Addenda Implemented (if applicable)	
Amendments Implemented	
Have any exception items been required?	No[] Yes[] (The answer Yes means that the implementation does not conform to ECMA-165)
Date of Statement	August 2007

Table 24

Protocol Summary—ECMA-165

B.3.3 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[x] No []
A13	Sending notification information	7.4.2.1	A12:m	[]	Yes [x]

Table 25

Call Related Protocol Control and GFT-Control Requirements (Sheet 1 of 2)

Item	Question/feature	Reference	Status	N/A	Support
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	[]	Yes [x]
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]

Table 25 Call Related Protocol Control and GFT-Control Requirements (Sheet 2 of 2)

B.3.4 Connection-less APDU Transport Mechanism

Item	Question/feature	Reference	Status	N/A	Support
B1	Does the PINX support Connection-less APDU transport?	7.2	o		Yes [] No [x]
B2	Requirements for sending a Connection-less message	7.2.1.1	B1:m	[x]	Yes []
B3	Requirements for receiving a Connection-less 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 []

Table 26 Connection-less APDU Transport Mechanism

B.3.5 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 []

Table 27 Connection Oriented APDU Transport Mechanism (Sheet 1 of 2)

Item	Question/feature	Reference	Status	N/A	Support
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]
<i>c STATUS Conditions: c.1: If (A10 AND C1) then m, else N/A</i>					

Table 27 Connection Oriented APDU Transport Mechanism (Sheet 2 of 2)

B.3.6 Coordination 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]

Table 28 Coordination Function Requirements

B.3.7 ROSE Requirements

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

Table 29 ROSE Requirements

B.3.8 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 []

Table 30 ACSE Requirements

B.3.9 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	<i>T_Originating_Dialogue</i>	8.4.4	F2:m	[x]	Yes [] value [s]
F6	Error procedures relating to dialogue control	8.4.5	F1:m	[x]	Yes []

Table 31 DSE Requirements

B.3.10 Manufacturer Specific Information

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

Table 32 Manufacturer Specific Information

B.3.11 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]

Table 33 Messages and Information Elements (Sheet 1 of 2)

Item	Question/feature	Reference	Status	N/A	Support
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]

Table 33 Messages and Information Elements (Sheet 2 of 2)

B.3.12 Implemented Parameters in ECMA-165 Messages

Note: In the following clauses, the headings ‘Orig’ and ‘Rx’ should be interpreted as follows:

‘Orig’: The capability to originate the element specified - that is, 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.

B.3.12.1 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	[]	Yes [x] No []
J4	Notification indicator information element – Rx	10.1, 11.3.4	m		Yes [x]

Table 34 ALERTING Message

B.3.12.2 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	[]	Yes [x] No []
K4	Notification indicator information element – Rx	10.3, 11.3.4	m		Yes [x]
<i>c STATUS Conditions:</i> c.2: If (A1 OR C2) then o.3, else N/A					

Table 35 CONNECT Message

B.3.12.3 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	[]	Yes [] No [x]
L4	Notification indicator information element – Rx	10.4, 11.3.4	m	x	Yes []

Table 36 SETUP Message

B.3.12.4 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	[]	Yes [] No [x]
M4	Notification indicator information element – Rx	10.5, 11.3.4	m	x	Yes []

Table 37 DISCONNECT Message

B.3.12.5 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]

Table 38 RELEASE Message

B.3.12.6 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]

Table 39 RELEASE COMPLETE Message

B.3.12.7 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]
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	[x]	Yes [x]

Table 40 FACILITY Message (Sheet 1 of 2)

Item	Question/feature	Reference	Status	N/A	Support
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	[]	Yes [x] No []
P15	Notification indicator information element – Rx	10.8, 11.3.4	m		Yes [x]
<i>c STATUS Conditions:</i> 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					

Table 40

FACILITY Message (Sheet 2 of 2)

B.3.12.8 NOTIFY Message

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

Table 41

NOTIFY Message

B.3.12.9 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	[]	Yes [x] No []
R4	Notification indicator information element – Rx	10.10, 11.3.4	m		Yes [x]

Table 42

PROGRESS Message

C OpenScape Voice: CLIP/CLIR and COLP/COLR

This appendix contains the details of the OpenScape Voice's CLIP/CLIR and COLP/COLR compliance with the Protocol Implementation Conformance Statement (PICS) proforma for ECMA-165, Annex A (normative).

The PICS are the ECMA and/or ISO/IEC standardized template for a vendor to fill out and answer as applies to their product implementation. The filled-out PICS represents a product implementation's compliance with the particular standard the PICS addresses. The reader should refer to [Section C.2, "Instructions for completing the PICS proforma"](#), on page 56 for directions for understanding the filled-out PICS.

C.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 user (or potential user) of the implementation, as a basis for initially checking the possibility of interworking with another implementation (note that, while interworking cannot 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 assess the claim for conformance of the implementation.

C.2 Instructions for completing the PICS proforma

C.2.1 General structure of the PICS proforma

The PICS proforma is a fixed format questionnaire divided into sub-clauses 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" column (N/A).

C.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.

C.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.

C.3 Features Supported

C.3.1 Implementation Identification

Item	Implementation Identification	
1	Supplier ¹ (footnote 1)	Unify
2	Contact point for queries about the PICS ¹ (footnote 1)	Yu.Bao@unify.com
3	Implementation Name(s) and Version(s) ^{1,2} (see footnotes 1 and 2)	OpenScape Voice V11 V11
4	Other information necessary for full identification - for example, name(s) and version(s) for machines and/or operating systems; System name(s)	

Table 43 Implementation Identification

- 1 Only the first three items are required for all implementations; other information may be completed as appropriate in meeting the requirement for full identification.
- 2 The terms Name and Version should be interpreted appropriately to correspond with a suppliers terminology (for example, Type, Series, Model).

C.3.2 Protocol Summary

Protocol Version	1.0
Addenda Implemented (if applicable)	

Table 44 Protocol Summary (Sheet 1 of 2)

Protocol Version	1.0
Amendments implemented	
Have any exception items been required (see Section C.2.3, "Exception Information", on page 57)?	No ☐ Yes ☐ (The answer Yes means that the implementation does not conform to this Standard.)
Date of Statement	July 2010

Table 44 Protocol Summary (Sheet 2 of 2)

C.3.3 Supplementary Services

Item	Name of Item	Reference	Status	N/A	Support
A1	Support of SS-CNIP	7	o.1		Yes ☒ No ☐
A2	Support of SS-CONP	8	o.1		Yes ☒ No ☐

Table 45 Supplementary Services

C.3.4 Procedures For SS-CNIP

Item	Name of Item	Reference	Status	N/A	Support
B1	Procedures at the Originating PINX	7.4.1	A1:o.2		Yes ☒ No ☐
B2	Procedures at the Terminating PINX	7.4.2	A1:o.2		Yes ☒ No ☐
B3	Procedures at the Incoming Gateway PINX	7.5.1	A1:o.2		Yes ☒ No ☐
B4	Procedures at the Outgoing Gateway PINX	7.5.2	A1:o.2		Yes ☒ No ☐
B5	Encoding of the <i>callingName</i> APDU	6	A1:m		Yes ☒
B6	Sending of the <i>callingName</i> APDU in SETUP	6, 7.4.1	c.1	☐	Yes ☒
B7	Receipt of <i>callingName</i> APDU in SETUP	6, 7.4.2	c.2	☐	Yes ☒
B8	Sending of character set number	6.1	c.3	☐	Yes ☒ No ☐
B9	Sending of <i>callingName</i> APDU in FACILITY	7.5.1	B3: o	☐	Yes ☒ No ☐
B10	Receipt of <i>callingName</i> APDU in FACILITY	7.4.2	B2: o	☐	Yes ☒ No ☐

Table 46 Procedures For SS-CNIP (Sheet 1 of 2)

Item	Name of Item	Reference	Status	N/A	Support
<i>c STATUS Conditions:</i> 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					

Table 46

Procedures For SS-CNIP (Sheet 2 of 2)

C.3.5 Procedures for SS-CONP

Item	Name of Item	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 [x] No []
C4	Procedures at the Incoming Gateway PINX	8.5.2	A2:o.3		Yes [x] No []
C5	Encoding of <i>connectedName</i> APDU	6	A2:m		Yes [x]
C6	Encoding of <i>busyName</i> APDU	6	A2:o		Yes [x] No []
C7	Encoding of <i>calledName</i> APDU	6	A2:o		Yes [x] No []
C8	Sending of <i>connectedName</i> APDU in CONNECT	6, 8.4.1	c.1	[]	Yes [x]
C9	Receipt of <i>connectedName</i> APDU in CONNECT	6, 8.4.2	c.2	[]	Yes [x]
C10	Sending of <i>busyName</i> APDU in DISCONNECT	6, 8.4.1	c.3	[]	Yes [x] No []
C11	Receipt of <i>busyName</i> APDU in DISCONNECT	6, 8.4.2	c.4	[]	Yes [x] No []
C12	Sending of <i>calledName</i> APDU in ALERTING	6, 8.4.1	c.3	[]	Yes [x] No []
C13	Receipt of <i>calledName</i> APDU in ALERTING	6, 8.4.3	c.4	[]	Yes [x] No []
C14	Sending of character set number	6.1	c.3	[]	Yes [x] No []
<i>c STATUS Conditions:</i> 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					

Table 47

Procedures for SS- CONP

D OpenScape Voice: Call Diversion

This appendix contains the details of the OpenScape Voice's Call Diversion compliance with the Protocol Implementation Conformance Statement (PICS) proforma for ECMA-173, Annex A (normative).

The PICS are the ECMA and/or ISO/IEC standardized template for a vendor to fill out and answer as applies to their product implementation. The filled-out PICS represents a product implementation's compliance with the particular standard the PICS addresses. The reader should refer to [Section D.2, "Instructions for completing the PICS proforma"](#), on page 61 for directions for understanding the filled-out PICS.

D.1 Introduction

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

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 - while interworking can never 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 assess the claim for conformance of the implementation.

D.2 Instructions for completing the PICS proforma

D.2.1 General structure of the PICS proforma

The PICS proforma is a fixed format questionnaire divided into sub-clauses 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" column (N/A).

D.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.

D.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.

D.3 Features Supported

D.3.1 Implementation Identification

Item	Implementation Identification	
1	Supplier ¹ (footnote 1)	Unify
2	Contact point for queries about the PICS ¹ (footnote 1)	Yu.Bao@unify.com
3	Implementation Name(s) and Version(s) ^{1,2} (see footnotes 1 and 2)	OpenScape Voice V11 V11
4	Other information necessary for full identification - for example, name(s) and version(s) for machines and/or operating systems; System name(s)	

Table 48 Implementation Identification

- 1 Only the first three items are required for all implementations; other information may be completed as appropriate in meeting the requirement for full identification.
- 2 The terms Name and Version should be interpreted appropriately to correspond with a suppliers terminology (for example, Type, Series, Model).

D.3.2 Protocol Summary

Protocol version	1.0
Addenda implemented (if applicable)	
Amendments implemented	
Have any exception items been required (see Section D.2.3, "Exception Information", on page 62)?	No ☐ Yes ☐ (The answer "yes" means that the implementation does not conform to this Standard)

Table 49 Protocol Summary

Date of Statement	August 2010
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Table 50 Statement Date

D.3.3 General

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

Table 51 General

¹ Yes, as applies to the signaling channel only

D.3.4 Procedures

Item	Name of Item	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 []
B4	Procedures at the Served User PINX activation	6.5.3.1.1 6.5.3.2.1	A7:o	[]	o: Yes [] No [x]
B5	Procedures at the Served User PINX deactivation	6.5.3.1.2 6.5.3.2.2	A7:o	[]	o: Yes [] No [x]
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 [] No [x]
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 [] No [x]
B11	Procedures at the Activating PINX	6.5.6	o		Yes [] No [x]
B12	Procedures at the Deactivating PINX	6.5.7	o		Yes [] No [x]
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 []

Table 52 Procedures (Sheet 1 of 2)

Item	Name of Item	Reference	Status	N/A	Support
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 []
<i>c STATUS Conditions:</i> c.1: if A6 or A9 then mandatory else if A7 then optional else N/A					

Table 52 Procedures (Sheet 2 of 2)

D.3.5 Coding

Item	Name of Item	Reference	Status	N/A	Support
C1	Sending of <i>redirectionName</i> element in <i>divertingLegInformation3</i> APDU	6.3.1	B9:o	[]	o: Yes [x] No []
C2	Receipt of <i>redirectionName</i> element in <i>divertingLegInformation3</i> APDU	6.3.1	B1:o	[]	o: Yes [x] No []
C3	Sending of <i>redirectingName</i> element in <i>callRerouteing</i> and <i>divertingLegInformation2</i> APDUs	6.3.1	c.1	[]	o: Yes [x] No []
C4	Receipt of <i>redirectingName</i> element in <i>callRerouteing</i> and <i>divertingLegInformation2</i> APDUs	6.3.1	c.2	[]	o: Yes [x] No []
C5	Sending of <i>originalCalledName</i> element in <i>callRerouteing</i> and <i>divertingLegInformation2</i> APDUs	6.3.1	c.1	[]	o: Yes [] No [x]

Table 53 Coding (Sheet 1 of 3)

Item	Name of Item	Reference	Status	N/A	Support
C6	Receipt of <i>originalCalledName</i> element in <i>callRerouteing</i> and <i>divertingLegInformation2</i> APDUs	6.3.1	c.2	[]	o: Yes [] No [x]
C7	Sending of <i>activateDiversionQ</i> invoke APDU and receipt of return result and return error APDUs	6.3.1	B11:m	[x]	m: Yes []
C8	Receipt of <i>activateDiversionQ</i> invoke APDU and sending of return result and return error APDUs	6.3.1	B4:m	[x]	m: Yes []
C9	Sending of <i>deactivateDiversionQ</i> invoke APDU and receipt of return result and return error APDUs	6.3.1	B12:m	[x]	m: Yes []
C10	Receipt of <i>deactivateDiversionQ</i> invoke APDU and sending of return result and return error APDUs	6.3.1	B5:m	[x]	m: Yes []
C11	Sending of <i>interrogateDiversionQ</i> invoke APDU and receipt of return result and return error APDUs	6.3.1	B13:m	[x]	m: Yes []
C12	Receipt of <i>interrogateDiversionQ</i> invoke APDU and sending of return result and return error APDUs	6.3.1	B6:m	[x]	m: Yes []
C13	Sending of <i>checkRestriction</i> invoke APDU and receipt of return result and return error APDUs	6.3.1	B7:m	[x]	m: Yes []
C14	Receipt of <i>checkRestriction</i> invoke APDU and sending of return result and return error APDUs	6.3.1	B10:m	[x]	m: Yes []
C15	Sending of <i>callRerouteing</i> invoke APDU and receipt of return result and return error APDUs	6.3.1	B8:m	[]	m: Yes [x]
C16	Receipt of <i>callRerouteing</i> invoke APDU and sending of return result and return error APDUs	6.3.1	B3:m	[]	m: Yes [x]
C17	Sending of <i>divertingLegInformation1</i> invoke APDU	6.3.1	B3:m	[]	m: Yes [x]
C18	Receipt of <i>divertingLegInformation1</i> invoke APDU	6.3.1	B1:m	[]	m: Yes [x]

Table 53

Coding (Sheet 2 of 3)

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

Table 53 Coding (Sheet 3 of 3)

D.3.6 Timers

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

Table 54 Timers

D.3.7 Interactions between SS-CFU/SS-CDI and SS-CCBS

Item	Question/feature	Reference	Status	N/A	Support
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 STATUS Conditions: c.1: if E1 and (A1 or A4) and A6 then optional, else N/A					

Table 55 Interactions between SS-CFU/SS-CDI and SS-CCBS

D.3.8 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 STATUS Conditions: c.1: if F1 and (A1 or A4) and A6 then optional, else N/A					

Table 56 Interactions between SS-CFU/SS-CDI and SS-CCNR

D.3.9 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 [x] No []
c STATUS Conditions: c.1: if G1 and A2 and A6 then optional, else N/A					

Table 57 Interactions between SS-CFB and SS-CCBS

D.3.10 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 []
<i>c STATUS Conditions:</i>		c.1: if H1 and A2 and A6 then optional, else N/A			

Table 58

Interactions between SS-CFB and SS-CCNR

D.3.11 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 [x] No []
<i>c STATUS Conditions:</i>		c.1: if I1 and (A3 or A5) and A6 then optional, else N/A			

Table 59

Interactions between SS-CFNR/SS-CDA and SS-CCNR

D.3.12 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 [] No [x]
J3	Support of SS-CFNR or SS-CDA by forward switching at a Served User PINX		B8:o	[]	Yes [x] No []
J4	Actions at a Transferring PINX for rerouting and SS-CFNR/SS-CDA Originating PINX	6.8.3.5.1	c.1	[x]	m: Yes []

Table 60

Interactions between SS-CFNR and SS-CT (Sheet 1 of 2)

Item	Question/feature	Reference	Status	N/A	Support
J5	Actions at a Transferring PINX for join or rerouting and SS-CFNR/SS-CDA Originating PINX	6.8.3.5.2	c.2	[]	m: Yes [x]
J6	Actions at a Secondary PINX for rerouting and SS-CFNR/SS-CDA Served User PINX	6.8.3.5.3	c.3	[x]	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	[x]	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	[]	m: Yes [x]
J9	Actions at a Transferring PINX for join	6.8.3.5.6	c.6	[]	m: Yes [x]
J10	Actions at a Primary PINX for join	6.8.3.5.7	c.6	[]	m: Yes [x]
<i>c STATUS Conditions:</i>		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			

Table 60 Interactions between SS-CFNR and SS-CT (Sheet 2 of 2)

D.3.13 Interactions between SS-CFU/SS-CDI and SS-CT

Item	Question/feature	Reference	Status	N/A	Support
K1	Support of SS-CT (transfer by join)		o		Yes [x] No []
K2	Support of SS-CT (transfer by rerouting)		o		Yes [] No [x]
K3	Actions at a Transferring PINX for join	6.8.1.5.1	c.1	[]	m: Yes [x]
<i>c STATUS Conditions:</i>		c.1: if K1 and A2 then mandatory, else N/A			

Table 61 Interactions between SS-CFU/SS-CDI and SS-CT

D.3.14 Interactions Between SS-CFB and SS-CT

Item	Question/feature	Reference	Status	N/A	Support
L1	Support of SS-CT (transfer by join)		o		Yes [x] No []
L2	Support of SS-CT (transfer by rerouting)		o		Yes [] No [x]
L3	Actions at a Transferring PINX for join	6.8.2.5.1	c.1	[]	m: Yes [x]
<i>c STATUS Conditions:</i> c.1: if L1 and A2 then mandatory, else N/A					

Table 62

Interactions Between SS-CFB and SS-CT

E OpenScape Voice: CCBS/NR

This appendix contains the details of the OpenScape Voice's CCBS/NR compliance with the Protocol Implementation Conformance Statement (PICS) for ECMA-186, Annex A (normative).

The PICS are the ECMA and/or ISO/IEC standardized template for a vendor to fill out and answer as applies to their product implementation. The filled-out PICS represents a product implementation's compliance with the particular standard the PICS addresses. The reader should refer to [Section E.2, "Instructions for completing the PICS proforma"](#), on page 73 for directions for understanding the filled-out PICS.

E.1 Introduction

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

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 the 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's PICS proforma;
- by the user or potential user of the implementation, as a basis for initially checking the possibility of interworking with another implementation - while interworking can never be guaranteed, failure to interwork can often be predicted from incompatible PICS's.
- by a protocol tester, as the basis for selecting appropriate tests against which to assess the claim for conformance of the implementation.

E.2 Instructions for completing the PICS proforma

E.2.1 General structure of the PICS proforma

The PICS proforma is a fixed format questionnaire divided into sub-clauses 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) specifying 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" column (N/A).

E.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.

E.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 requirement. 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.

E.3 Features Supported

E.3.1 Implementation Identification

Item	Implementation Identification	
1	Supplier ¹ (footnote 1)	Unify
2	Contact point for queries about the PICS ¹ (footnote 1)	Yu.Bao@unify.com
3	Implementation Name(s) and Version(s) ^{1,2} (see footnotes 1 and 2)	OpenScape Voice V11 V11
4	Other information necessary for full identification - for example, name(s) and version(s) for machines and/or operating systems; System name(s)	

Table 63 Implementation Identification

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

2 The terms Name and Version should be interpreted appropriately to correspond with a suppliers terminology (for example, Type, Series, Model).

E.3.2 Protocol Summary

Protocol Version	1.0
Addenda Implemented (if applicable)	
Amendments Implemented	
Have any exception items been required (see Section E.2.3, "Exception Information" , on page 74)?	No [] Yes [] (The answer YES means that the implementation does not conform to this Standard)

Table 64 Protocol Summary

Date of Statement	August 2010
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Table 65 Statement Date

E.3.3 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	Note 1	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		o	Note2	Yes [x] No []
A9	Support of Service Retention option		o		Yes [x] No []
A10	Support of relevant procedures of ECMA-143 and ECMA-165	6.2	m		Yes [x]

Table 66 General

Note 2: Receive only, OpenScape Voice does not invoke path reservation.

E.3.4 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	o		Yes [] No [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	o	[]	o: Yes [] No [x]
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	B7:m	[x]	m:Yes []
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	[]	m:Yes [x]
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	Note 2	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 [x] No []
B15	Failure of Path Reservation due to “ <i>unrecognisedOperation</i> ” or “ <i>failedDueToInterworking</i> ”: CC Call without Path Reservation	6.5.2.2.5	o.3		Yes [] No [x]

Table 67 Procedures at the Originating PINX (Sheet 1 of 2)

Item	Question / feature	Reference	Status	N/A	Support
B16	Failure of Path Reservation due to " <i>unrecognisedOperation</i> " or " <i>failedDueToInterworking</i> ": retry Path Reservation on another route	6.5.2.2.5	o.3		Yes [] No [x]
B17	Failure of Path Reservation due to " <i>unrecognisedOperation</i> " or " <i>failedDueToInterworking</i> ": cancel the CC Request	6.5.2.2.5	o.3		Yes [] No [x]
B18	Failure of Path Reservation due to network congestion: retry to establish a path	6.5.2.2.5	o.2		Yes [] No [x]
B19	Failure of the Path Reservation due to network congestion: cancel the CC Request	6.5.2.2.5	o.2		Yes [] No [x]
B20	Support of the suspend option before Path Reservation when user A is busy	6.5.2.1.8	A8:o	[]	o: Yes [x] No []

Table 67 Procedures at the Originating PINX (Sheet 2 of 2)

E.3.5 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	c.1		m:Yes [] o: Yes [x] No []
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]

Table 68 Procedures at the Terminating PINX (Sheet 1 of 2)

Item	Question / feature	Reference	Status	N/A	Support
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	[]	m:Yes [x]
C12	Procedure without service retention if User B is busy again on CC Call presentation	6.5.3.2.4	m		Yes [x]
C13	Force the use of non-reservation method	6.5.3.1.3 or 6.6.2 or 6.7.2	o		Yes [] No [x]
<i>c STATUS Conditions:</i> c.1: if C13 then o else m					

Table 68 Procedures at the Terminating PINX (Sheet 2 of 2)

E.3.6 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	Note ¹	o: Yes [x] No []
D2	Interworking if CCBS/CCNR Request comes from a non-ISDN	6.7.1	A5:o.1		o: Yes [x] No []
D3	Interworking if CCBS Request goes to a public ISDN	6.6.2	A6:o.2		o: Yes [x] No []
D4	Interworking if CCBS/CCNR Request goes to a non-ISDN	6.7.2	A6:o.2		o: Yes [x] No []

Table 69 Procedures at a Gateway PINX

¹ Function of the Gateway

E.3.7 Coding

Item	Question / feature	Reference	Status	N/A	Support
E1	Sending and receipt of <i>ccbsRequest</i> invoke APDUs	6.3.1	A3:m	[]	m:Yes [x]
E2	Sending and receipt of <i>ccnrRequest</i> invoke APDUs	6.3.1	A4:m	[]	m:Yes [x]

Table 70 Coding (Sheet 1 of 2)

Item	Question / feature	Reference	Status	N/A	Support
E3	Sending and receipt of <i>ccCancel</i> invoke APDU	6.3.1	m		Yes [x]
E4	Sending of <i>ccExecPossible</i> invoke APDU	6.3.1	c.1	[]	m:Yes [x]
E5	Receipt of <i>ccExecPossible</i> invoke APDU	6.3.1	c.2	[]	m:Yes [x]
E6	Sending of <i>ccPathReserve</i> invoke and receipt of return result and return error APDUs	6.3.1	c.3	[]	m:Yes [] o: Yes [] No [x]
E7	Receipt of <i>ccPathReserve</i> invoke and sending of return result or return error APDUs	6.3.1	c.4	[]	m:Yes [] o: Yes [x] No []
E8	Sending of <i>ccRingout</i> invoke and receipt of return error APDU	6.3.1	c.2	[]	m:Yes [x]
E9	Receipt of <i>ccRingout</i> invoke and sending of return error APDU	6.3.1	c.1	[]	m:Yes [x]
E10	Sending of <i>ccSuspend</i> invoke APDU	6.3.1	c.2	[]	m:Yes [x]
E11	Receipt of <i>ccSuspend</i> invoke APDU	6.3.1	c.1	[]	m:Yes [x]
E12	Sending of <i>ccResume</i> invoke APDU	6.3.1	c.2	[]	m:Yes [x]
E13	Receipt of <i>ccResume</i> invoke APDU	6.3.1	c.1	[]	m:Yes [x]
<i>c STATUS Conditions:</i> 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 B7) then m else if D2 then o else N/A c.4: if (A2 and A8) then m else if D4 then o else N/A					

Table 70

Coding (Sheet 2 of 2)

E.3.8 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 []
<i>c STATUS Conditions:</i> c.1: if F1 and A1 and A3 then optional, else N/A					

Table 71

Interactions between SS-CCBS and SS-CFU/SS-CDI

E.3.9 Interactions between SS-CCBS and SS-CFB

Item	Question/feature	Reference	Status	N/A	Support
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 [x] No []
<i>c STATUS Conditions:</i> c.1: if G1 and A1 and A3 then optional, else N/A					

Table 72 Interactions between SS-CCBS and SS-CFB

E.3.10 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 []
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 []
<i>c STATUS Conditions:</i> c.1: if H1 and A1 and A4 then optional, else N/A					

Table 73 Interactions between SS-CCNR and SS-CFU/SS-CD

E.3.11 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 []
<i>c STATUS Conditions:</i> c.1: if I1 and A1 and A4 then optional, else N/A					

Table 74 Interactions between SS-CCNR and SS-CFB

E.3.12 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 [xx] No []
<i>c STATUS Conditions:</i> c.1: if J1 and A1 and A4 then optional, else N/A					

Table 75

Interactions between SS-CCNR and SS-CFNR/SS-CDA

E.3.13 A.3.13Timers

Item	Question / feature	References	Status	N/A	Support
K1	Support of timer T1	6.10.1	A1:m	x Note ¹	m:Yes [] Value:
K2	Support of timer T2	6.10.1	A1:m		m:Yes [x] Value:
K3	Support of timer T3	6.10.1	A1:m		m:Yes [x] Value:
K4	Support of timer T4	6.10.1	c.1	[x]	m:Yes [] Value:
<i>c STATUS Conditions:</i> c.1: if (A1 and B7) then m else N/A					

Table 76

Timers

¹ All are configurable timers

F OpenScape Voice: Call Transfer

This appendix contains the details of the OpenScape Voice's Call Transfer compliance with the Protocol Implementation Conformance Statement (PICS) for ECMA-165, Annex A (normative).

The PICS are the ECMA and/or ISO/IEC standardized template for a vendor to fill out and answer as applies to their product implementation. The filled-out PICS represents a product implementation's compliance with the particular standard the PICS addresses. The reader should refer to [Section F.2, "Instructions for completing the PICS proforma"](#), on page 83 for directions for understanding the filled-out PICS.

F.1 Introduction

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

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 the 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's PICS proforma;
- by the user or potential user of an implementation, as a basis for initially checking the possibility of interworking with another implementation. While interworking can never 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 assess the claim for conformance of the implementation.

F.2 Instructions for completing the PICS proforma

F.2.1 General Structure of the PICS Proforma

The PICS proforma is a fixed format questionnaire divided into sub-clauses 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 restricted choice (Yes) or (No), or in the "Not Applicable" column (N/A).

F.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 that a large quantity will be supplied, and a PICS can be considered complete without 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.

F.2.3 Exceptional 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 requirement. 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.

F.3 Features Supported

F.3.1 Implementation identification

Item	Implementation Identification	
1	Supplier ¹ (footnote 1)	Unify
2	Contact point for queries about the PICS ¹ (footnote 1)	Yu.Bao@unify.com
3	Implementation Name(s) and Version(s) ^{1,2} (see footnotes 1 and 2)	OpenScape Voice V11 V11
4	Other information necessary for full identification - for example, name(s) and version(s) for machines and/or operating systems; System name(s)	

Table 77 Implementation Identification

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

2 The terms Name and Version should be interpreted appropriately to correspond with a suppliers terminology (for example, Type, Series, Model).

F.3.2 Protocol summary

Protocol version	1.0
Addenda implemented (if applicable)	
Amendments implemented	
Have any exception items been required (see Section F.2.3, "Exceptional information" , on page 84)?	No [] Yes [] (The answer Yes means that the implementation does not conform to this Standard)

Table 78 Protocol Summary

Date of statement	August 2010
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Table 79 Statement Date

F.3.3 General

Item	Question/feature	References	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]

Table 80 General

F.3.4 Procedures for SS-CT-Join

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	Note ¹	Yes []
B3	signaling procedures at a Transferring PINX for interworking with a non-ISDN	6.7.2	m		Yes []
B4	signaling procedures at a Primary PINX	6.5.2.1, 6.5.2.2, 6.5.5	m		Yes [x]

Table 81 Procedures for SS-CT-Join (Sheet 1 of 2)

Item	Question/feature	Reference	Status	N/A	Support
B5	signaling procedures at a Secondary PINX	6.5.3.1, 6.5.3.2, 6.5.5	m		Yes [x]
B6	Behavior 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	Note ¹ - - -	Yes [] No [x]
B7	Behavior 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	Behavior 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	Behavior 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]

Table 81 Procedures for SS-CT-Join (Sheet 2 of 2)

1 Gateway performs this function

F.3.5 Additional Procedures For SS-CT-Rerouting

Item	Name of Item	Reference	Status	N/A	Support
C1	Signaling procedures at a Transferring PINX	6.5.1.3, 6.5.1.4	A2:m	[]	m: Yes [x]
C2	Signaling procedures at a Primary PINX	6.5.2.3, 6.5.2.4, 6.5.5	A2:m	[]	m: Yes [x]
C3	Signaling procedures at a Secondary PINX	6.5.3.3, 6.5.3.4, 6.5.5	A2:m	[]	m: Yes [x]

Table 82 Additional Procedures for SS-CT-Rerouting (Sheet 1 of 2)

Item	Name of Item	Reference	Status	N/A	Support
C4	Behavior 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	Note ¹ - -	Yes [] No [x]
C5	Behavior 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	Behavior 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]

Table 82 Additional Procedures for SS-CT-Rerouting (Sheet 2 of 2)

1 Gateway performs this function

F.3.6 Coding

Item	Name of Item	Reference	Status	N/A	Support
D1	Sending of <i>callTransferComplete</i> invoke APDU	6.3	m		Yes [x]
D2	Sending of <i>callTransferActive</i> invoke APDU	6.3	m		Yes [x]
D3	Receipt of <i>callTransferComplete</i> invoke APDU	6.3	m		Yes [x]
D4	Receipt of <i>callTransferActive</i> invoke APDU	6.3	m		Yes [x]
D5	Sending of <i>callTransferUpdate</i> invoke APDU	6.3	o		Yes [] No [x]
D6	Receipt of <i>callTransferUpdate</i> invoke APDU	6.3	m		Yes [x]
D7	Sending of <i>subaddressTransfer</i> invoke APDU	6.3	o		Yes [] No [x]
D8	Receipt of <i>subaddressTransfer</i> invoke APDU	6.3	m		Yes [x]
D9	Sending of <i>callTransferIdentify</i> invoke APDU and receipt of return result and return error APDUs	6.3	A2:m	[x]	m: Yes []
D10	Sending of <i>callTransferInitiate</i> invoke APDU and receipt of return result and return error APDUs	6.3	A2:m	[x]	m: Yes []

Table 83 Coding (Sheet 1 of 2)

Item	Name of Item	Reference	Status	N/A	Support
D11	Sending of <i>callTransferSetup</i> invoke APDU and receipt of return result and return error APDUs	6.3	A2:m	[x]	m: Yes []
D12	Receipt of <i>callTransferIdentify</i> invoke APDU and sending of return result and return error APDUs	6.3	A2:m	[x]	m: Yes []
D13	Receipt of <i>callTransferInitiate</i> invoke APDU and sending of return result and return error APDUs	6.3	A2:m	[x]	m: Yes []
D14	Receipt of <i>callTransferSetup</i> invoke APDU and sending of return result and return error APDUs	6.3	A2:m	[x]	m: Yes []
D15	Sending of <i>callTransferAbandon</i> invoke APDU	6.3	A2:m	[x]	m: Yes []
D16	Receipt of <i>callTransferAbandon</i> invoke APDU	6.3	A2:m	[x]	m: Yes []

Table 83 Coding (Sheet 2 of 2)

F.3.7 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	[x]	m: Yes []
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 []

Table 84 Interactions between SS-CT and SS-CFNR/SS-CD (Sheet 1 of 2)

Item	Question/feature	Reference	Status	N/A	Support
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	[x]	m: Yes []
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]
<i>c STATUS Conditions:</i> 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					

Table 84 Interactions between SS-CT and SS-CFNR/SS-CD (Sheet 2 of 2)

F.3.8 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 [x] No []
F2	Support of ANF-PR at a Cooperating PINX		o		Yes [x] No []
F3	Interactions between SS-CT and ANF-PR at an ANF-PR Requesting PINX	6.8.9.1	F1:m	[]	m: Yes [x]
F4	Interactions between SS-CT and ANF-PR at an ANF-PR Cooperating PINX	6.8.9.2	F2:m	[]	m: Yes [x]

Table 85 Interactions between SS-CT and ANF-PR

F.3.9 Timers

Item	Name of Item	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 []

Table 86 Timers

F.3.10 Interactions between SS-CT 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 []
H2	Actions at a Transferring PINX for join	6.8.5.1	H1:m	[]	m: Yes [x]

Table 87 Interactions between SS-CT and SS-CFU/SS-CDI

F.3.11 Interactions between SS-CT and SS-CFB

Item	Question/feature	Reference	Status	N/A	Support
I1	Support of SS-CFB		o		Yes [x] No []
I2	Actions at a Transferring PINX for join	6.8.6.1	I1:m	[]	m: Yes [x]

Table 88 Interactions between SS-CT and SS-CFB

G OpenScape Voice: Path Replacement

This appendix contains the details of the OpenScape Voice's Path Replacement compliance with the Protocol Implementation Conformance Statement (PICS) proforma for ECMA-176, Annex A (normative).

The PICS are the ECMA and/or ISO/IEC standardized template for a vendor to fill out and answer as applies to their product implementation. The filled-out PICS represents a product implementation's compliance with the particular standard the PICS addresses. The reader should refer to [Section G.2, "Instructions for completing the PICS proforma"](#), on page 92 for directions for understanding the filled-out PICS.

G.1 Introduction

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

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 the 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's PICS proforma;
- by the user or potential user of the implementation, as a basis for initially checking the possibility of interworking with another implementation - while interworking can never 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 assess the claim for conformance of the implementation.

G.2 Instructions for completing the PICS proforma

G.2.1 General structure of the PICS proforma

The PICS proforma is a fixed format questionnaire divided into sub-clauses 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" column (N/A).

G.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.

G.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 requirement. 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.

G.3 Features Supported

G.3.1 Implementation Identification

Item	Implementation Identification	
1	Supplier ¹ (footnote 1)	Unify
2	Contact point for queries about the PICS ¹ (footnote 1)	Yu.Bao@unify.com
3	Implementation Name(s) and Version(s) ^{1,2} (see footnotes 1 and 2)	OpenScape Voice V11 V11
4	Other information necessary for full identification - for example, name(s) and version(s) for machines and/or operating systems; System name(s)	

Table 89 Implementation Identification

- 1 Only the first three items are required for all implementations; other information may be completed as appropriate in meeting the requirement for full identification.
- 2 The terms Name and Version should be interpreted appropriately to correspond with a suppliers terminology (for example, Type, Series, Model).

G.3.2 Protocol Summary

Protocol version	1.0
Addenda Implemented (if applicable)	
Amendments Implemented	
Have any exception items been required (see Section G.2.3, "Exception information", on page 93)?	No ☐ Yes ☐ (The answer Yes means that the implementation does not conform to this Standard)

Table 90

Date of statement	August 2010
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Table 91 Date Statement

G.3.3 General

Item	Question/feature	References in ECMA-176	Status	N/A	Support
A1	Behavior as Cooperating PINX for ANF-PR		o.1		Yes ☐ No ☐
A2	Behavior as Requesting PINX for ANF-PR		o.1	Note ¹	Yes ☐ No ☐ Conditions for invoking ANF-PR should be given as Additional Information
A3	Behavior as Transit PINX for ANF-PR		o.1		Yes ☐ No ☐
A4	Behavior as gateway PINX to another network which provides Cooperating PINX functionality	6.8	o.1		Yes ☐ No ☐
A5	Behavior as gateway PINX to another network which provides Requesting PINX functionality	6.8	o.1		Yes ☐ No ☐
A6	Procedures for retaining part or all of the old connection		o		Yes ☐ No ☐

Table 92 General (Sheet 1 of 2)

Item	Question/feature	References in ECMA-176	Status	N/A	Support
A7	Behavior as Inviting PINX for ANF-PR	6.5.5	o		Yes [] No [x]
A8	Are methods of avoiding "loss of user information" (as described in annex B of ECMA-175) supported at the Requesting PINX?		o	x	Yes [] No [] Please provide information regarding which methods are supported and for which basic services these methods are applicable.
A9	Are methods of avoiding "loss of user information" (as described in annex B of ECMA-175) supported at the Cooperating/Branching PINX?		o	x	Yes [] No [] Please provide information regarding which methods are supported and for which basic services these methods are applicable.

Table 92 General (Sheet 2 of 2)

1 PR following transfer in active state

G.3.4 Procedures

Item	Question/feature	References in ECMA-176	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]

Table 93 Procedure (Sheet 1 of 2)

Item	Question/feature	References in ECMA-176	Status	N/A	Support
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	[x]	m: Yes[]
B12	Additional procedure for support of request from an Inviting PINX	6.5.1.2	A2:o	[x]	o: Yes[], No []
B13	Additional signaling procedure at Inviting PINX on retained part of the old connection	6.6.5	A7:m	[x]	m: Yes[]
<i>c STATUS Conditions:</i> 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					

Table 93 Procedure (Sheet 2 of 2)

G.3.5 Coding

Item	Question/feature	References in ECMA-176	Status	N/A	Support
C1	Sending of <i>pathReplacePropose</i> invoke APDU and receipt of return error APDU	6.3.1, 6.3.2.1	c.1	[]	m: Yes[x]
C2	Sending of <i>pathReplaceSetup</i> invoke APDU and receipt of return result and return error APDUs	6.3.1, 6.3.2.1	c.2	[]	m: Yes[x]
C3	Sending of <i>pathReplaceRetain</i> invoke APDU and receipt of return result and return error APDUs	6.3.1, 6.3.2.1	c.3	[x]	m: Yes[]

Table 94 Coding (Sheet 1 of 2)

Item	Question/feature	References in ECMA-176	Status	N/A	Support
C4	Receipt of <i>pathReplacePropose</i> invoke APDU and sending of return error APDU	6.3.1, 6.3.2.1	c.2	[]	m: Yes[x]
C5	Receipt of <i>pathReplaceSetup</i> 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 <i>pathReplaceRetain</i> 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 <i>pathReplaceInvite</i> invoke APDU	6.3.1, 6.3.2.1	A2:o	[]	o: Yes[x], No []
C8	Sending of <i>pathReplaceInvite</i> return error	6.3.1, 6.3.2.1	C7:o	[]	o: Yes[x], No []
C9	Sending of <i>pathReplaceInvite</i> invoke APDU and receipt of errors	6.3.1, 6.3.2.1	A7:m	[]	m: Yes[x]
<i>c STATUS Conditions:</i> 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					

Table 94 Coding (Sheet 2 of 2)

G.3.6 Timers

Item	Question/feature	References in ECMA-176	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[]
<i>c STATUS Conditions:</i> 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					

Table 95 Timers

G.3.7 Protocol interactions with SS-CT

Item	Question/feature	References in ECMA-176	Status	N/A	Support
E1	Support of SS-CT		o		Yes [x] No []

Table 96 Protocol interactions with SS-CT (Sheet 1 of 2)

Item	Question/feature	References in ECMA-176	Status	N/A	Support
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]
<i>c STATUS Conditions:</i> c.1: if E1 and A2 then m, else N/A c.2: if E1 and A1 then m, else N/A					

Table 96

Protocol interactions with SS-CT (Sheet 2 of 2)

List of Abbreviations

Abbreviation	Definition
ANF	Additional Network Features
APDU	Application Protocol Data Unit
ASN.1	Abstract Syntax Notation One
B2BUA	Back-to-Back User Agent
BC	Bearer Capability
CALEA	Communications Assistance for Law Enforcement Act
CR	Call Reference
ELIN	Emergency Location Identification Number
GW	Gateway (refers to a gateway with SIPQ (IP) on one side and QSIG (TDM) on the other side)
ID	Identifier
IE	Information Element
IETF	Internet Engineering Task Force
ILI	Impact Level Indication
HG35xx	Enterprise Gateway
HG15xx	Enterprise Gateway
IP	Internet Protocol
ISDN	Integrated Services Digital Network
LI	Lawful Intercept
LIN	Location Identification Number
MIME	Multi-Purpose Internet Mail Extensions
NPI	Network Plan Identification
NW	Network
PICS	Protocol Implementation Conformance Statements
PISN	Private Integrated Services Network
PINX	Private Integrated services Network eXchange
PSAP	Public Safety Answering Point
QoS	Quality of Service
QSIG	Signaling at the Q reference point (point of demarcation between two PINXs)
RFC	Request For Comment (document series)
RG 8700	Enterprise Gateway
RTP	Real-Time Transport Protocol
SDP	Session Description Protocol; IETF standard RFC-2327

List of Abbreviations

Abbreviation	Definition
SIP	Session Initiation Protocol; IETF standard RFC-3261
SIPQ	SIP as transport for QSIG MIME
SRTP	Secure Real-Time Transport Protocol
SS	Supplementary Services
TCP	Transmission Control Protocol
TDM	Time Division Multiplex
TLS	Transport Layer Security
TON	Type of Number
UA	User Agent
VOIP	Voice over IP
XLA	8k translation

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