

UK BICC for use between PLMNs

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Foreword

This NICC Document (ND) has been produced by NICC {NICC WG |NICC Project|<other>}

Introduction

This document specifies the use of BICC between UK PLMNs. Items for which no table row has been included are required with the exception of items in ITU-T recommendations marked as “national use”, “national option” or “network option”, which are not required.

1 Scope

The present document specifies the use of UK BICC between UK PLMNs. The use of BICC between non mobile networks is outside the scope of this document.

2 References

For the particular version of a document applicable to this release see ND1610 [1].

2.1 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For non-specific references, the latest edition of the referenced document (including any amendments) applies.

- [1] ND1610 Next Generation Networks, Release Definition
- [2] ND1007 ISDN User Part (ISUP)
- [3] ND1639 BICC/IP Connectivity for PLMN Services between NGNs
- [4] ND1640 Architecture for SS7 Signalling Transport Service between PLMNs
- [5] ITU-T Q.1902.1 BICC Protocol (CS2) Functional Description
- [6] ITU-T Q.1902.2 BICC Protocol (CS2) and Signalling System No 7 ISUP General Functions of Messages and Parameters
- [7] ITU-T Q.1902.3 BICC Protocol (CS2) and Signalling System No 7 ISUP Formats and Codes
- [8] ITU-T Q.1902.4 BICC Basic Call Procedures
- [9] ITU-T Q.1902.5 Exceptions to the APM in the Context of BICC Amendment to ITU-T Q.765.5 for BICC CS2
- [10] ITU-T Q.1902.6 Generic Signalling Procedures and Support of the ISDN User Part Supplementary Services with the Bearer Independent Call Control Protocol
- [11] ITU-T Q.1912.1 ISUP-BICC Interworking
- [12] ITU-T Q.1950 Bearer independent call bearer control protocol
- [13] ITU-T Q.2150.1 Signalling transport converter on MTP3 and MTP3b
- [14] ITU-T Q765.5 Application Transport Mechanism – BICC 2000
- [15] ITU-T Q765.5 ATM – BICC amendment 1
- [16] ITU-T Q115.1 Logic for the control of echo control devices

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in ND1007 [2] apply.

3.2 Abbreviations

For the purposes of the present document, the following abbreviations apply:

BICC	Bearer Independent Call Control
ISUP	ISDN User Part
PLMN	Public Land Mobile Network

4 Protocols

The protocols used for interconnect employing BICC between PLMNs in the UK shall conform to the specifications listed below as changed by the information specified in the annexes of this document.

4.1 Call Control Protocol

This call control protocol applies to the iC1 interface in [3]. The interface shall conform to the protocols listed below except for the variations defined in Annex A.

Q.1902.1	BICC PROTOCOL (CS2) FUNCTIONAL DESCRIPTION [5]
Q.1902.2	BICC PROTOCOL (CS2) AND SIGNALLING SYSTEM NO 7 ISUP GENERAL FUNCTIONS OF MESSAGES AND PARAMETERS [6]
Q.1902.3	BICC PROTOCOL (CS2) AND SIGNALLING SYSTEM NO 7 ISUP FORMATS AND CODES [7]
Q.1902.4	BICC BASIC CALL PROCEDURES [8]
Q.1902.5	EXCEPTIONS TO THE APM IN THE CONTEXT OF BICC AMENDMENT TO Q.765.5 FOR BICC CS2 [9]
Q.1902.6	GENERIC SIGNALLING PROCEDURES AND SUPPORT OF THE ISDN USER PART SUPPLEMENTARY SERVICES WITH THE BEARER INDEPENDENT CALL CONTROL PROTOCOL [10]

4.2 Interworking with other protocols

Q.1912.1	ISUP-BICC INTERWORKING[11]
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When interworking from UK BICC to UK SIP-I (ND1017) a concatenated model is used, mapping from UK BICC to UK-ISUP (ND1007) and then to UK SIP-I (ND1017).

[Note: Interworking between UK BICC and 3GPP based UK SIP-I is for further study]

Annex A (normative): Exceptions to Q.1902 Specifications

A.1 Q1902.1 BICC Protocol (CS2) Functional Description

Q.1902.1 [5] applies as modified by this document.

A1.1 Exceptions to Q1902.1

Q.1902.1 Paragraph	Title	Comment
1	Scope	The Call Bearer Control protocol (Q.1950 [12]) is not applicable. See ND1640 [4] which describes the transport of BICC over IP bearers
8	Capabilities supported	Replace Table1 and 2 in Q.1902.1 by table A.1 in the present document
9.1	Version compatibility	Insert the following before the last paragraph "Network operators shall include compatibility information for network specific messages and parameters."
Appendix I	Guidelines for use of instruction indicators	Appendix I has the status of an informative annex

Capabilities for basic call

Table A.1

Basic call			
Function/service	National use according to ITU-T	International use according to ITU-T	UK
Speech/3,1 kHz audio	+	+	+
64 kbit/s unrestricted	+	+	+
Multirate connection types (Note 1)	+	+	-
Nx64 kbit/s connection types	+	+	-
En-bloc address signalling	+	+	+
Overlap address signalling	+	+	+
Transit network selection	+	-	-
Continuity indication	+	+	+
Forward transfer	-	+	-
Signalling procedures for connection type allowing fallback capability	+	+	+
Compatibility procedure (BICC and BAT APM user application)	+	+	+
Simple segmentation	+	+	+
Tones and announcements	+	+	+
Propagation delay determination procedure	+	+	-
Simplified echo control signalling procedures	+	+	+
Automatic repeat attempt	+	+	+
Blocking and unblocking	+	+	+
CIC group query	+	-	-
Dual seizure	+	+	+
Reset	+	+	+
Receipt of unreasonable signalling information	+	+	+
Access delivery information	+	+	+
Transportation of user teleservice information	+	+	+
Suspend and resume	+	+	+
ISDN user part signalling congestion control	Note 2	Note 2	Note 2
Automatic congestion control	+	+	+
Interaction with INAP	+	+	+
Unequipped CIC	+	-	-
ISDN user part availability control	Note 3	Note 3	Note 3
MTP pause and resume	Note 2	Note 2	Note 2
Overlength messages	+	+	+
Temporary alternative routing (TAR)	+	+	+
Hop counter procedure	+	+	+
Collect call request procedure	+	+	-
Hard-to Reach	+	+	-
Calling Geodetic location procedure	+	+	+
Carrier Selection Information	+	-	-
Inter-nodal traffic group identification	+	+	-
Codec negotiation and modification procedures	+	+	+
Joint BIWF support	+	+	+
Global Call Reference procedure	+	+	+
Out of band transport of DTMF tones and information	+	+	+
Key: + required - not required			
Note 1: Multirate connection types are 2 × 64, 384, 1 536 and 1 920 kbit/s.			
Note 2: If BICC is deployed on an MTP3 or MTP3b signalling transport service, these functions are provided by the STC sublayer as described in Recommendation Q.2150.1 [13]			
Note 3: If BICC is deployed on an MTP3 or MTP3b signalling transport service, an equivalent procedure is provided by the STC sublayer as described in Recommendation Q.2150.1 [13]			

Generic signalling procedures, services and functions			
Function/service	National use according to ITU-T	International use according to ITU-T	UK
Generic signalling procedures			
Generic number transfer	+	+	+
Generic digit transfer	+	-	-
Generic notification procedure	+	+	+
Service activation	+	+	+
Remote operations service (ROSE) capability	+	-	-
Network specific facilities	+	-	-
Pre-release Information transport	+	+	+
Application transport Mechanism (APM)	+	+	+
Redirection	+	-	-
Pivot Routeing	+	+	-
Bearer Redirection	+	+	-
Supplementary services			
DDI	+	+	+
MSN	+	+	+
CLIP/CLIR	+	+	+
COLP/COLR	+	+	+
MCID	+	+	+
SUB	+	+	+
TP	+	+	+
CFU, CFB, CFNR	+	+	+
CD	+	+	+
CW	+	+	+
HOLD	+	+	+
CONF	+	+	+
3PTY	+	+	+
CUG	+	+	+
MLPP	Note 1	Note 1	-
UUS, service 1 (implicit)	+	+	+
UUS, service 1 (explicit)	+	+	+
UUS, service 2	+	+	+
UUS, service 3	+	+	+
ECT	+	+	+
CCBS	+	+	+
CCNR	+	+	+
MWI	-	-	-
ITCC	+	+	-
GVNS	+	+	-
REV	+	-	-
ACR	-	-	+
Additional function/services			
VPN	+	+	+
NP	+	-	-
Support of GAT protocol	+	+	-
Key: + required - not required			
NOTE 1: Only transiting of MLPP information is supported.			

Additional Capabilities & Services of the UK BICC

Function/service	National use according to ITU-T	International use according to ITU-T	UK
UK basic call features			
Partial Calling Line Identity (PCLI)	-	-	+
Basic Service and Facility Marks	-	-	+
UK supplementary services			
Call forward on subscriber not reachable (CFNRc)	-	-	+
UK Number Portability	-	-	+
UK CLIP (including PN & CBI)	-	-	+
UK Diversion Services (including LDLI)	-	-	+
Key: + required - not required			

A.2 Q1902.2 General Functions of Messages and Parameters

Q.1902.2 [6] applies as modified by this document.

A.2.1 Exceptions to Q.1902.2

Q.1902.2 Paragraph	Title	Comment
5.36	Release message	Delete the sentence "Where the call is to be redirected the message will also carry the redirection number."
7.2	Address Presentation Restricted Indicator	Add the following to the last sentence "It may also be used to indicate that the address cannot be ascertained, and in the case of the Calling Party Number only, to indicate that the <u>number may not be presented to a user for reasons other than invocation of the CLIR service ("Presentation Restricted by network")."</u>

A.2.2 Additions to Q.1902.2

The additional definitions as specified in ND1007 §2.2 apply except for the following paragraphs.

2.2.2.11 National Forward Call Indicators(link by link), as well as associated parameter information:

2.2.3.40 Routing Control Indicator

2.2.3.45 Interconnect Specific Information

A.3 Q1902.3 Formats and Codes

Q.1902.3 [7] applies as modified by this document.

A.3.1 Exceptions to Q.1902.3

Q.1902.3 Paragraph	Title	Comment
5.1	General	Insert after the first sentence: “ From a BICC peer-to-peer protocol point of view, it is not necessary to check the parameter values of the parameters that are not under control of the BICC peer-to-peer protocol (e.g. User service information, User service information prime, User teleservice information).”
5.3.1	Call Instance Code (BICC only)	Add the following paragraph: The default scheme for CIC provisioning is to allocate a contiguous block of CICs, starting with CIC=1. (Other schemes may be used by bilateral agreement.)
5.4 Table 1	Message type codes	The following message types are not required:- - Forward transfer - Network resource management Delete “(national use)” for the following messages:- - Information - Information request
5.14	National message types and parameters	Replace paragraph to read National message type codes are divided as follows:- 1111 1111 - 1111 0000 reserved for interconnect use 1110 0000 - 1110 1111 reserved for operator use National parameter name codes are divided as follows:- 1111 1111 - 1110 0000 reserved for interconnect use 1100 0010 - 1101 1111 reserved for operator use NOTE: The interconnect codes are used from the highest available code down and the operator codes are used from the lowest available code up.
5.16	Meaning of “Spare” codes and “reserved” codes	In this specification no UK-specific codespace or codepoint is shown as “spare”. All unallocated UK-specific codespace and codepoints are defined as “reserved”. The UK meaning of “spare” as applied to ITU-T codespace and codepoints is the same as the ITU-T meaning.
5.17	Number Lengths	Add a new clause as follows “Number lengths in the UK shall conform to those given in ND1007.”

6.1 Table 2	Parameter names	<p>Modify table 2/Q.1902.3 as shown</p> <table border="1" data-bbox="758 257 1428 750"> <thead> <tr> <th>Parameter name</th> <th>Code</th> </tr> </thead> <tbody> <tr><td>:</td><td>:</td></tr> <tr><td>Backward GVNS <u>(not required)</u></td><td>0100 1101</td></tr> <tr><td>Forward GVNS <u>(not required)</u></td><td>0100 1100</td></tr> <tr><td>MLPP precedence <u>(not required)</u></td><td>0011 1010</td></tr> <tr><td>:</td><td>:</td></tr> <tr><td>Pivot capability <u>(not required)</u></td><td>0111 1011</td></tr> <tr><td>Pivot routing indicators <u>(not required)</u></td><td>0111 1100</td></tr> <tr><td>:</td><td>:</td></tr> <tr><td>HTR information <u>(not required)</u></td><td>1000 0010</td></tr> <tr><td>:</td><td>:</td></tr> <tr><td>Pivot counter <u>(not required)</u></td><td>1000 0111</td></tr> <tr><td>Pivot routing forward information <u>(not required)</u></td><td>1000 1000</td></tr> <tr><td>Pivot routing backward information <u>(not required)</u></td><td>1000 1001</td></tr> <tr><td>:</td><td>:</td></tr> <tr><td><u>Reserved for national use</u></td><td>0100 0001</td></tr> </tbody> </table> <p>The following parameters are not required:</p> <ul style="list-style-type: none"> - Collect call request - Inter-Nodal Traffic Group Identifier - Origination ISC point code - Propagation Delay Counter - Call History Information - echo control <p>Delete (national use) for the:-</p> <ul style="list-style-type: none"> - Information indicators - Information request indicators <p>Add the following parameters:</p> <table border="1" data-bbox="758 1164 1428 1478"> <thead> <tr> <th>Parameter name</th> <th>Code</th> </tr> </thead> <tbody> <tr><td>National Forward Call Indicators</td><td>1111 1110</td></tr> <tr><td>Presentation Number</td><td>1111 1101</td></tr> <tr><td>Last Diverting Line Identity</td><td>1111 1100</td></tr> <tr><td>Partial CLI</td><td>1111 1011</td></tr> <tr><td>Called Subscribers Basic Service Marks</td><td>1111 1010</td></tr> <tr><td>Calling Subscribers Basic Service Marks</td><td>1111 1001</td></tr> <tr><td>Calling Subscribers Originating Facility Marks</td><td>1111 1000</td></tr> <tr><td>Called Subscribers Terminating Facility Marks</td><td>1111 0111</td></tr> <tr><td>National Information Request Indicators</td><td>1111 0110</td></tr> <tr><td>National Information Indicators</td><td>1111 0101</td></tr> </tbody> </table>	Parameter name	Code	:	:	Backward GVNS <u>(not required)</u>	0100 1101	Forward GVNS <u>(not required)</u>	0100 1100	MLPP precedence <u>(not required)</u>	0011 1010	:	:	Pivot capability <u>(not required)</u>	0111 1011	Pivot routing indicators <u>(not required)</u>	0111 1100	:	:	HTR information <u>(not required)</u>	1000 0010	:	:	Pivot counter <u>(not required)</u>	1000 0111	Pivot routing forward information <u>(not required)</u>	1000 1000	Pivot routing backward information <u>(not required)</u>	1000 1001	:	:	<u>Reserved for national use</u>	0100 0001	Parameter name	Code	National Forward Call Indicators	1111 1110	Presentation Number	1111 1101	Last Diverting Line Identity	1111 1100	Partial CLI	1111 1011	Called Subscribers Basic Service Marks	1111 1010	Calling Subscribers Basic Service Marks	1111 1001	Calling Subscribers Originating Facility Marks	1111 1000	Called Subscribers Terminating Facility Marks	1111 0111	National Information Request Indicators	1111 0110	National Information Indicators	1111 0101
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6.6	Backward call indicators	<p>The following codepoints are not required and if received shall be treated at a receiving node as the default value:-</p> <p>bits DC: Called party status indicator Value 10 Connect when free (national use) Default 00 no indication</p> <p>Delete the national use for the following indicators:-</p> <p>bit L: Holding indicator</p>																																																						
6.7	Backward GVNS	Parameter not required.																																																						
6.10	Call History Information	Parameter not required																																																						
6.17	Called party number Item b) Nature of address indicator	<p>Add the following codepoint: 111 1110 UK Specific Address</p> <p>Add the following note “Note: Under current UK numbering arrangements, the Called Party Number parameter may contain up to 20 digits. This is under review, and further information may be found in Ofel document “The UK National Numbering Scheme”.”</p>																																																						

6.20	<p>Calling party number Item e) – Address presentation restricted indicator</p> <p>Item b) - Nature of address indicator</p> <p>item g) - Address signal</p>	<p>Modify the code definition of Address Presentation Restricted Indicator as follows: 11 Reserved for restriction by the network <u>Presentation restricted by network</u></p> <p>Delete (national use) for the national (significant) number</p> <p>Codes 11 and 12 are not used</p>
6.21	Calling party's category	<p>Amend text as follows 0000 0000 calling party unknown at this time.</p>
6.32	Collect call request	Parameter not required
6.39	Echo control information	Parameter not required
6.44	Forward GVNS	Parameter not Required
6.47	<p>Generic Number</p> <p>Item a) Number qualifier indicator</p> <p>Item g) Screening indicator</p>	<p>Add the following codepoints: 1111 1110 UK specific number (for intra-network use only)</p> <p>Amend text to read “Only used if the number qualifier indicator is coded 0000 0101 (additional connected number), 0000 0110 (additional calling party number). This indicator is coded as follows: 00 user provided, not verified 01 user provided, verified and passed 10 user provided, verified and failed 11 network provided</p> <p>Note – For each supplementary service the relevant codes and possible default settings are described in the supplementary service Recommendations (Recommendation Q.73x and ND1007 Sections 5 - 27).”</p>
6.50	HTR information	Parameter not required
6.51	Information indicators (national use)	<p>Delete (national use)</p> <p>All indicators defaulted to 0 at the sending node and ignored by all other nodes.</p>
6.52	Information request indicators (national use)	<p>Delete (national use)</p> <p>All indicators defaulted to 0 at the sending node and ignored by all other nodes.</p>
6.54	Inter-nodal Traffic Group Identifier	Parameter not required
6.60	MLPP precedence	Parameter not required
6.66	<p>Optional backward call indicators bit D - MLPP user indicator</p>	Add “(Not Required)” to the value 1 (MLPP user) of the “MLPP user indicator”.
6.69	<p>Original called number Item b) Nature of Address indicator</p>	Delete (national use) for the national (significant) number
6.70	Origination ISC point code	Parameter not required
6.72	Pivot capability	Parameter not required
6.73	Pivot Counter	Parameter not required
6.74	Pivot routing backward information	Parameter not required
6.75	Pivot routing forward information	Parameter not required
6.76	Pivot routing indicators	Parameter not required

6.78	Propagation Delay Counter	Parameter not required														
6.97	Transmission medium requirement	<p>Amend text to read</p> <p>'The following codes are used in the transmission medium requirement parameter field:</p> <table data-bbox="746 367 1493 613"> <tr> <td>0000 0000</td> <td>speech</td> </tr> <tr> <td>0000 0001</td> <td>spare</td> </tr> <tr> <td>0000 0010</td> <td>64 kbit/s unrestricted</td> </tr> <tr> <td>0000 0011</td> <td>3,1 kHz audio</td> </tr> <tr> <td>0000 0100</td> <td>reserved for alternate speech (service 2)/64 kbit/s unrestricted (service 1)</td> </tr> <tr> <td>0000 0101</td> <td>reserved for alternate 64 kbit/s unrestricted (service 1)/speech (service 2)</td> </tr> <tr> <td>0000 0110</td> <td>64 kbit/s preferred</td> </tr> </table>	0000 0000	speech	0000 0001	spare	0000 0010	64 kbit/s unrestricted	0000 0011	3,1 kHz audio	0000 0100	reserved for alternate speech (service 2)/64 kbit/s unrestricted (service 1)	0000 0101	reserved for alternate 64 kbit/s unrestricted (service 1)/speech (service 2)	0000 0110	64 kbit/s preferred
0000 0000	speech															
0000 0001	spare															
0000 0010	64 kbit/s unrestricted															
0000 0011	3,1 kHz audio															
0000 0100	reserved for alternate speech (service 2)/64 kbit/s unrestricted (service 1)															
0000 0101	reserved for alternate 64 kbit/s unrestricted (service 1)/speech (service 2)															
0000 0110	64 kbit/s preferred															

Q.1902.3 Paragraph	Title	Comment
Table 18	Address complete	<p>The following parameters are not required</p> <ul style="list-style-type: none"> - echo control information - pivot routing - HTR information <p>Add the following parameters:</p> <ul style="list-style-type: none"> - Called Subscriber's Basic Service Marks
Table 19	Answer	<p>The following parameters are not required:-</p> <ul style="list-style-type: none"> - Redirection number - Call History Information - echo control information - pivot routing backward information - Backward GVNS <p>Add the following parameters:-</p> <ul style="list-style-type: none"> - Called Subscriber's Basic Service Marks
Table 22	Call Progress	<p>The following parameters are not required:-</p> <ul style="list-style-type: none"> - Call History Information - echo control information - pivot routing backward information - Backward GVNS <p>Add the following parameters:</p> <ul style="list-style-type: none"> - Called Subscriber's Basic Service Marks
Table 28	Connect	<p>The following parameters are not required:-</p> <ul style="list-style-type: none"> - Call History Information - Backward GVNS - Echo control information - HTR information <p>Add the following parameters:</p> <ul style="list-style-type: none"> - Called Subscriber's Basic Service Marks
Table 30	Facility	<p>The following parameters are not required</p> <ul style="list-style-type: none"> - Pivot routing indicators - Pivot counter - Pivot routing backward information
Table 33	Forward transfer	Message type not required
Table 36	Information	<p>Delete "(national use)" from message</p> <p>The following parameters are not required:-</p> <ul style="list-style-type: none"> - Connection request - Calling Party's category - Calling Party number <p>Add the following parameters:</p> <ul style="list-style-type: none"> - National Information Indicators - Calling Subscriber's Basic Service Marks - Called Subscriber's Basic Service Marks - Calling Subscriber's Originating Facility Marks - Called Subscriber's Terminating Facility Marks

Table 37	Information request	Delete "(national use)" from message The following parameters are not required:- - Call reference Add the following parameters: - National Information Request Indicators
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Q.1902.3 Paragraph	Title	Comment
Table 38	Initial address	<p>The following parameters are not required:-</p> <ul style="list-style-type: none"> - Collect call request - Origination ISC point code - Propagation Delay Counter - Inter-Nodal Traffic Group Identifier - echo control - pivot routing - carrier selection information - forward GVNS - MLPP precedence <p>Add the following parameters</p> <ul style="list-style-type: none"> - National forward call indicators - Presentation number - Last diverting line identity - Partial Calling line identity
Table 40	Network resource management	Message type not required
Table 43	Release	HTR information not required.
Annex A	Tables for handling of unrecognized parameter values	Annex A has the status of a normative annex
Annex B	General description of component encoding rules	Annex B has the status of an informative annex

A.3.2 Q.1902.3 Additions

The additional formats and codes as specified in ND1007 §3.2 and §3.3 apply except for the following paragraphs.

3.2.2 National Forward Call Indicators(link by link).

3.2.13 UK Additional Routeing information.

3.3.1 Operator services.

3.3.2 DPNSS to support RBWF.

A.4 Q1902.4 Basic Call Procedures

Q.1902.4 [8] applies as modified by this document.

A.4.1 Exceptions to Q.1902.4

Q.1902.4 Paragraph	Title	Comment														
7.1	Introduction	Add the following sentence to the beginning of subclause 7.1: "The number of digits supported for a call shall be independent of whether enbloc or overlap operation is used."														
7.2.1.1	Outgoing Selection	Modify as follows: The connection types allowed are: <table data-bbox="762 719 1492 965"> <tr> <td>0000 0000</td> <td>speech</td> </tr> <tr> <td>0000 0001</td> <td>spare</td> </tr> <tr> <td>0000 0010</td> <td>64 kbit/s unrestricted</td> </tr> <tr> <td>0000 0011</td> <td>3,1 kHz audio</td> </tr> <tr> <td>0000 0100</td> <td>reserved for alternate speech (service 2)/64 kbit/s unrestricted (service 1)</td> </tr> <tr> <td>0000 0101</td> <td>reserved for alternate 64 kbit/s unrestricted (service 1)/speech (service 2)</td> </tr> <tr> <td>0000 0110</td> <td>64 kbit/s preferred</td> </tr> </table>	0000 0000	speech	0000 0001	spare	0000 0010	64 kbit/s unrestricted	0000 0011	3,1 kHz audio	0000 0100	reserved for alternate speech (service 2)/64 kbit/s unrestricted (service 1)	0000 0101	reserved for alternate 64 kbit/s unrestricted (service 1)/speech (service 2)	0000 0110	64 kbit/s preferred
0000 0000	speech															
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0000 0101	reserved for alternate 64 kbit/s unrestricted (service 1)/speech (service 2)															
0000 0110	64 kbit/s preferred															

Q.1902.4 Paragraph	Title	Comment																			
7.2.1.2.1(b)	Called Party Number parameter	<p>Delete 1st sentence of para 1: “The sending sequence of address information on international... number.”</p> <p>Amend 2nd sentence of para 1; “On national connections, the address information may be the <u>subscriber number or the a national (significant) number, an international number, or a UK specific address</u> as required...”</p> <p>Delete last sentence of para 1: “For calls to international...Q.107.”</p> <p>Add the following paragraph: “The originating network shall code the Called Party Number parameter indicator fields as set out below:</p> <table border="1" data-bbox="746 696 1481 1111"> <thead> <tr> <th rowspan="2">Type of Number</th> <th colspan="3">Called Party Number parameter</th> </tr> <tr> <th>Nature of Address Ind.</th> <th>Numbering Plan Ind.</th> <th>Address Signals</th> </tr> </thead> <tbody> <tr> <td>National Number e.g. 0113 496 0001</td> <td>3 National</td> <td>1 E164</td> <td>113 496 0001</td> </tr> <tr> <td>International Number e.g. 00 44 113 496 0001</td> <td>4 International</td> <td>1 E164</td> <td>44 113 496 0001</td> </tr> <tr> <td>Neither National nor International Number e.g. Service Code “999”</td> <td>126 UK Specific Address</td> <td>1 E164</td> <td>9xxx 999</td> </tr> </tbody> </table> <p>NOTE: The digits shown in the Address Signals column are for illustrative purposes only.”</p>	Type of Number	Called Party Number parameter			Nature of Address Ind.	Numbering Plan Ind.	Address Signals	National Number e.g. 0113 496 0001	3 National	1 E164	113 496 0001	International Number e.g. 00 44 113 496 0001	4 International	1 E164	44 113 496 0001	Neither National nor International Number e.g. Service Code “999”	126 UK Specific Address	1 E164	9xxx 999
Type of Number	Called Party Number parameter																				
	Nature of Address Ind.	Numbering Plan Ind.	Address Signals																		
National Number e.g. 0113 496 0001	3 National	1 E164	113 496 0001																		
International Number e.g. 00 44 113 496 0001	4 International	1 E164	44 113 496 0001																		
Neither National nor International Number e.g. Service Code “999”	126 UK Specific Address	1 E164	9xxx 999																		
7.2.1.2.1	Initial Address Message	<p>Add:</p> <p>h) The IAM shall contain the National Forward Call Indicators parameter.</p> <p>i) The IAM shall include the Calling Party Number parameter, if calling party number information is available. If no calling party number information is available the Partial Calling Line Identity parameter shall be included.</p>																			
7.2.2.3	Actions required at an intermediate international SN	Not required																			
7.2.3.3	Actions required at an intermediate international CMN	Not required																			
7.2.4.3	Actions required at an outgoing international gateway SN	Not required																			
7.2.5.3	Actions required at an outgoing international gateway CMN	Not required																			
7.2.6.3	Actions required at an incoming international gateway SN	Not required																			
7.2.7.3	Actions required at an incoming international gateway CMN	Not required																			
7.2.9	Called party number for operator calls	Not required																			
7.2.10	Called number for calls to testing and measuring devices	Not required																			

Q.1902.4 Paragraph	Title	Comment
7.3.2.2	Actions required at an intermediate international SN/CMN and at an incoming gateway SN/CMN	Not required
7.3.2.3	Actions required at an outgoing international SN/CMN	Not required
7.7.2.3	Actions required at an intermediate international SN/CMN	Not required
7.8.2.3	Actions required at an intermediate international SN/CMN	Not required
8.3.1	SN initiating codec negotiation	Note: see § B.1 for the setting of the Compatibility Information.
8.3.6.3	Abnormal cases	Amend paragraph as follows Whenever a CSF transiting codec negotiation for a call, as described in 8.3.2, receives a BAT Compatibility Report information element in a BICC_Data indication primitive from the succeeding node indicating that the codec negotiation parameters have been discarded and the call is proceeding without such parameters, the procedures are for further study then the CSF shall terminate its internal codec negotiation procedures and transit the BAT Compatibility Report to the preceding node.
8.5	Propagation delay determination procedure	Not required
8.10	Charging	Amend 1st Paragraph; "Charging indicators are basically defined for national <u>network operator</u> use. Therefore, unless there is bilateral agreement, the decision to charge a call or not, or to start interconnect international accounting will not be decided upon reception of these indicators."
8.12.1	Requesting information (national use)	Delete "national use" from title Replace 1st para with: "After sending an IAM, an Information Request message may be sent to any CSF in the forward call establishment direction between the receipt of an ACM/CON and up to the point of call release, i.e. in the post Address Complete, Connect and/or Answer call states, but prior to the sending or receipt of a REL by an originating or destination SN (subject to the limitation included in the note in subclause 8.12.2 ii below). After receiving an IAM, an Information Request message may be sent to any CSF in the backward call establishment direction at any time during the call, up to the point of call release, i.e. in the pre and post Address Complete, Connect and/or Answer call states, but prior to the sending or receipt of a REL by an originating or destination SN (subject to the limitation in the note in sub-section 8.12.2 ii below)."

Q.1902.4 Paragraph	Title	Comment
8.12.2	Sending solicited information (national use)	<p>Delete "national use" from title</p> <p>Amend para 1 as follows:</p> <p><u>"On sending an information request message a timer (T33) is started. If a second INR message is received in the same direction before the response to the first INR message has been sent, the second request shall be ignored by the responding CSF and the call shall continue. No second information request message may be sent in the same direction until a response information message is received. If the timer (T33) expires before the response message is received, see section 13.7.5. The value of this timer (T33) is 12-15 seconds to allow for a cascade of information request messages, as described in item ii). The response information message may be sent as follows:"</u></p> <p>Amend i):</p> <p><u>"if all the information requested is available locally at the receiving CSF..."</u></p> <p>Replace ii) with:</p> <p>"if the information requested is not available at the receiving CSF then the Information Request message shall be sent to the preceding or succeeding CSF to obtain the information requested. On receipt of the response Information message it shall be passed transparently to the succeeding or preceding CSF.</p> <p>NOTE: An intermediate CSF is allowed to request information if required. To avoid the cascading and possible delay of information requests, an intermediate CSF shall only initiate such backward requests prior to sending forward the outgoing IAM"</p> <p>Replace iii) with:</p> <p>"If the information requested is not available at the receiving or the remote CSF (originating, destination or gateway SN/CMN), then an Information message shall be returned containing an indication that the information is not available by setting the appropriate National Information Indicator(s) to '0'."</p> <p>Add the following to the end of the subsection:-</p> <p>"If an Information Request message is received with no National Information Request Indicators parameter included, it shall be discarded and an Information message shall be sent immediately by the responding CSF, with the National Information Indicators parameter included and all the indicators (A-P) set to value '0'. This shall occur regardless of any information requests received in error in the Information Request Indicators parameter, the contents of which shall always be ignored.</p> <p>If an Information Request message is received with more than one of the National Information Request Indicators A-F set to '1', it shall be discarded and an Information message shall be sent immediately by the responding CSF, with the National Information Indicators parameter included with the appropriate indicators set to '0'."</p>
8.12.3	Receiving a solicited information message (national use)	<p>Delete "national use" from title</p> <p>Add to the end of para 1, 1st sentence:</p> <p>"at the exchange which initiated the information request."</p> <p>Add a new paragraph to the end of the section:</p> <p>"The setting of the National Information Indicators is considered as redundant information and the parameters included in the INF message take precedence. Thus, the parameters included in the INF message shall be acted upon, irrespective of the settings of, or the absence of, the National Information Indicators parameter."</p>
8.13	Call collect request procedures	Not required
8.14(a)	International network	Not required

Q.1902.4 Paragraph	Title	Comment
8.14(b)	National networks	Delete and replace with "The calling party number shall (when available) be included in the IAM. If no calling party number information is available the Partial Calling Line Identity parameter shall be included in the IAM."
8.16	Inter-nodal traffic group identification	Not required
8.19	Bearer Control Unit Identifier (BCU-ID)	Not required Note: If used by a UK network see § B.1 for the setting of the Compaibility Information.
10.2	Suspend, resume	See Subsection A.4.2.2.1 for the UK modifications.
10.3	Forward transfer message	Not required
10.4	Codec modification/mid-call codec negotiation procedures	Not required Note: If used by a UK network see § B.1 for the setting of the Compaibility Information.
11.8	Charging (national use)	Delete "national use" from title
12.7	Support for Hard To Reach Network Management functions	Not supported
12.8	Automatic congestion Control	See Subsection A.4.2.2.2 for the UK modifications
12.9	Signalling Transport out-of-service and in-service indications	Add at the end of b): "CICs towards the associated signalling relation shall remain blocked for new calls and a non-call control message requiring a response shall be sent to the distant BICC. On receipt of the response message (or any other signalling message) from the distant BICC the CICs are made available for new calls. Normal call release procedures that may have started during the period of signalling isolation continue and as such will ensure that affected calls are returned to the idle state."
13.4	Receipt of unreasonable signalling information messages	Delete the paragraph "The degree of applicability (...) is for further study."
13.4.1	Handling of message format errors	Amend text as follows Note — A format error can only be detected when the message is recognised.
Annex A	Timers	Annex A has the status of a normative annex. except The following timers are not required: T28 and T38. The value of T33 is 5-15s.
Annex B	Procedures for the reuse of idle bearers (network option)	Annex B has the status of an informative annex
Annex C	Test calls	Annex C has the status of an informative annex
Annex D	Start up procedures	Annex D has the status of a normative annex.
Annex E	Procedures for the use of Structured AAL1 bearers (network option)	ATM bearers are not supported
Appendix I	Message flow examples	Appendix I has the status of an informative annex
Appendix II	Generic BCF functions	Appendix II has the status of an informative annex

A.4.2 Q.1902.4 Additions

A.4.2.1 ETSI Additions

The ETSI additions specified in ND1007 §4.2.1 apply.

A.4.2.2 UK Modifications

A.4.2.2.1 Suspend and Resume.

Replace section 10.2 with section 4.2.2.1 of ND 1007 [2]

Note: References to “exchanges” in ND1007 should be read as referring to “Serving nodes” in this specification.

A.4.2.2.2 Automatic congestion control

Replace section 12.8 with section 4.2.2.2 of ND1007 [2]

Note: References to “exchange” in ND1007 should be read as referring to “Call service function” in this specification.

A.5 Q.1902.5 Bearer independent call control protocol (Capability set 2): Exceptions to the application transport mechanism in the context of BICC.

Q.1902.5 [9] applies without modification.

A.6 Q.1902.6 Generic Signalling Procedures and Support of the ISUP Supplementary Services with the BICC Protocol

A.6.1 Exceptions to Q.1902.6

Supplementary Services as specified in ND1007 [2] sections 7 to 27 apply.

Q.1902.6 [10] is written as a delta to the Q.73X series of recommendations.

Q.1902.6 [10] with by UK modifications is applicable, however it should be noted that the Q.73X deltas in ND1007 [2] sections 5, 7, 8, 11, 12, 14 to 17, 19 and 26 also apply and take precedence in case of conflict.

A.6.1.1 UK Modifications

Q.1902.6 Paragraph	Title	Comment
6	Bearer Redirection	Not required

Annex B (normative): Modifications to Other ITU-T Q.Series Specifications

B.1 APM-BICC (Q.765.5 + Amendment 1)

Q.765.5 [14] together with its Amendment 1 [15] applies with the following UK modifications.

B.1.1 UK Modifications

B.1.1.1 UK Modifications to Q.765.5

Q.765.5 Paragraph	Title	Comment
11.1.1	Compatibility information	<p>The instruction indicators for those information elements shown as "UK: Not required" shall be coded as shown below if sent in UK BICC</p> <p>Instruction indicators</p> <p>Bits 2 1 Instruction indicator for general action 0 1 Discard information element</p> <p>Bit 3 Send notification indicator for general action 1 Send notification</p> <p>Bit 4 Reserved</p> <p>Bits 6 5 Instruction indicator for pass-on not possible 0 1 Discard information element</p> <p>Bit 7 Send notification indicator for pass-on not possible 1 Send notification</p> <p>Bit 8 Extension indicator 1 Last octet</p>

B.1.1.2 UK modifications to Q.765.5 Amendment 1

Q.765.5 Amend't 1 Paragraph	Title	Comment
8.3 Table 2	Primitive contents	The following parameters are not required Bearer Control Unit Identifier Signal Bearer Redirection Capability Bearer Redirection Indicators Signal Type Duration
11.1.2 Table 12	List of Identifiers	The following values are not required 0000 1010 Bearer Control Unit Identifier 0000 1011 Signal 0000 1100 Bearer Redirection Capability 0000 1101 Bearer Redirection Indicators 0000 1110 Signal Type 0000 1111 Duration
11.1.3	Action Indicator	The following values are not required 0001 0001 start signal, notify 0001 0010 start signal, no notify 0001 0011 stop signal, notify 0001 0100 stop signal, no notify 0001 0101 start signal acknowledge 0001 0110 start signal reject 0001 0111 stop signal acknowledge 0001 1000 bearer redirect

Q.765.5 Amend't 1 Paragraph	Title	Comment
11.1.6	Codec List	The associated compatibility information shall be coded as shown in 11.1.1 above to ensure predictable call handling.
11.1.7	Single Codec	If used then the associated compatibility information shall be coded as shown in 11.1.1 above to ensure predictable call handling.
11.1.12	Bearer Control Unit Identifier	Not required. If used by a UK network then the associated compatibility information shall be coded as shown in 11.1.1 above to ensure predictable call handling.
11.1.13	Signal	Not required. If used by a UK network then the associated compatibility information shall be coded as shown in 11.1.1 above to ensure predictable call handling.
11.1.14	Bearer Redirection Capability	Not required. If used by a UK network then the associated compatibility information shall be coded as shown in 11.1.1 above to ensure predictable call handling.
11.1.15	Bearer Redirection Indicators	Not required. If used by a UK network then the associated compatibility information shall be coded as shown in 11.1.1 above to ensure predictable call handling.
11.1.16	Signal Type	Not required. If used by a UK network then the associated compatibility information shall be coded as shown in 11.1.1 above to ensure predictable call handling.
11.1.17	Duration	Not required. If used by a UK network then the associated compatibility information shall be coded as shown in 11.1.1 above to ensure predictable call handling.

B.2 Usage of Cause and Location (Q.850)

The usage of Cause and Location, as specified in ND1007 [2] applies.

Annex C (normative): Interworking Between BICC and ISUP

C.1 Exceptions to Q1912.1 BICC – ISUP interworking

The specification Q1912.1 [11] shall be followed except for the variation specified below.

Q.1912.1 Paragraph	Title	Comment
1	Scope	Replace reference to "ITU-T Q1902.1" with "this document ND1027" and replace the reference to "ITU-T Q761" with "ND1007". Also references to "Scope of this recommendation" should be replaced by "Scope of this Annex".
6.1	General	The reference to Q761 shall be changed to ND1007 [2] in the UK.. The reference to Q764 shall be changed to ND1007 [2] in the UK. The reference to Q1902.1 shall be superseded by this document ND1027 The reference to Q1902.4 shall be superseded by this document ND1027
6.2.1.1	Forward Address Signalling	Incoming ISUP and outgoing BICC procedures apply with the following exception: When sending the IAM the Continuity indicator in the Nature of Connection Indicators parameter shall be set to "no COT to be expected".
6.2.1.2	Continuity message	Not applicable.
6.2.1.3	Through connection of the bearer path	The bearer path shall be connected in both directions when the following condition is satisfied: <ul style="list-style-type: none"> the BICC Outgoing bearer set-up procedure, (as defined in this document) is successfully completed. <p>In addition, if BICC is performing the "Per-call bearer set-up in the forward direction" Outgoing bearer set-up procedure and the Connect Type is "notification not required", the bearer path shall be connected in both directions when the Bearer Set-Up request is sent</p>
6.3.1.1	Forward Address Signalling	Incoming BICC and outgoing ISUP procedures apply, with the following clarifications and exceptions with regards to when ISUP IAM and Continuity messages are to be sent: The sending of the ISUP IAM is delayed until both of the following conditions are satisfied: <ol style="list-style-type: none"> If the incoming IAM indicated "COT to be expected", a Continuity message, with the Continuity Indicators parameter set to "continuity" shall be received. One of the following events, which indicate successful completion of bearer set-up, shall be received by the Incoming bearer set-up procedure. <ol style="list-style-type: none"> Bearer Set-up indication – for the forward bearer set-up case where the incoming Connect Type is "notification not required". BICC_Data indication primitive with Action indicator set to "Connected" – for the forward bearer set-up cases (with, or without bearer control tunnelling) where the incoming Connect Type is "notification required", and for the fast set-up (backward) case. Bearer Set-up Connect indication – for the backward bearer set-up case. BNC set-up success indication for cases using bearer control tunnelling, except as identified in item 2.2 above.

Q.1912.1 Paragraph	Title	Comment
6.3.1.2	Through connection of the bearer path	The bearer path shall be connected in both directions when the following condition is satisfied: <ul style="list-style-type: none"> the Incoming bearer set-up procedure is successfully completed.
6.3.1.3	Connection type allowing fallback	Fallback is not supported.
6.3.2	Call release	<p>On receipt of a REL from the preceding CSF, the CSF invokes the BICC Release reception procedure and sends an ISUP REL to the succeeding exchange. Timers T1 and T5 are started to ensure that a RLC is received from the succeeding exchange (expiration of timers T1 and T5 is described in ND1007</p> <p>On receipt of an ISUP REL from the succeeding exchange, the CSF immediately requests the disconnection of the internal bearer path and invokes the BICC Release sending procedure towards the preceding CSF. When the ISUP circuit is re-selectable, an ISUP RLC is returned to the succeeding exchange.</p>

Annex D (normative): Default Interoperability Configuration for UK BICC Interconnect

D.1 Introduction

If a UK BICC interconnect is offered then as a minimum the following default configuration shall be supported to ensure interoperability between UK networks.

D.2 Default Configuration

D.2.1 Defaults for UK BICC Section 4 (Basic Call Procedures)

Q.1902.4	Title	Comment
7.1	Successful basic call set-up Introduction	The following shall apply. "A bearer connection is set-up and released for each call set-up and release. The bearer set-up is initiated in the forward direction."
7.4	Outgoing bearer set-up procedure	<p>The following shall apply.</p> <p>ATM shall not be supported.</p> <p>7.4.3 As amended below shall apply as the default for interconnect using IP bearers:</p> <p>"7.4.3 Per-call bearer set-up using bearer control tunnelling - fast set-up</p> <p>In this procedure the bearer is set up from the SN that sends the IAM. Information concerning the bearer set-up is carried transparently between BCFs via bearer control tunnelling (see 6.4). Initial bearer set-up information is available when the IAM is sent.</p> <p>1) In the response to the BNC Information request primitive the BCF returns the BNC characteristics and a bearer control PDU, and may include the BNC-ID and BIWF Address. The response also indicates that bearer control tunnelling is being used.</p> <p>NOTE - The BNC Characteristics value indicated by the BCF may be dictated by the CSF if a BNC Characteristics was provided in the BNC Information request primitive.</p> <p>1.1) An IAM is sent including in the BICC_Data request primitive:</p> <ul style="list-style-type: none"> • Action indicator set to "Connect forward" or "Connect backward" depending on whether the CSF chose forward or backward bearer set-up. • Bearer Control Tunnelling, set to "tunnelling to be used". • BNC characteristics. • Bearer Control Information, containing the bearer control PDU. • BNC-ID, if received from the BCF. • BIWF Address, if received from the BCF. <p>2) Subsequently a BICC_Data indication primitive (corresponding to an APM message) should be received.</p> <p>2.1) If the IAM indicated "Connect forward": If an Action indicator is received set to "Connect forward, plus notification" the Connect Type is set to "notification required", else it is set to "notification not required".</p>

Q.1902.4	Title	Comment
7.4	Outgoing bearer set-up procedure (continued)	<p>2.2) If the IAM indicated "Connect backward": the Connect Type is set to "notification required".</p> <p>This primitive should include the Bearer Control Information information element. This information element, and any subsequently received Bearer Control Information information element(s) are handled according to the bearer control tunnelling procedure (6.4).</p> <p>3) Receipt of a primitive from the BCF, indicating "BNC set-up success" indicates successful completion of the outgoing set-up procedure.</p> <p>3.1) If the Connect Type is "notification required" a BICC_Data request primitive (corresponding to an APM message) is sent containing:</p> <ul style="list-style-type: none"> • Action indicator set to "Connected".
7.5	Incoming bearer set-up procedure	<p>ATM bearers shall not be supported.</p> <p>7.5.3 as amended below for interconnect using IP bearers: "7.5.3 Per-call bearer set-up using bearer control tunnelling – fast set-up</p> <p>This procedure is invoked if the received Action indicator is set to "Connect forward" or "Connect backward", the Bearer Control Tunnelling information element indicating "tunnelling to be used" is present, and the Bearer Control Information information element is received. <u>If a request to "Connect backwards" is received and it is not supported then it shall be handled as an error as described 13.4.8.4.</u></p> <p>In this procedure the bearer is set up from the SN that sends the IAM. Information concerning the bearer set-up is carried transparently between BCFs via bearer control tunnelling (see 6.4).</p> <p>1) If Codec negotiation (8.3) is applicable the following steps are delayed until indicated by that procedure.</p> <p>2) A BNC Information request primitive is sent to the selected BCF. This request includes:</p> <ul style="list-style-type: none"> • BNC Characteristics (as received via BICC_Data indication primitive associated with the IAM). • Bearer Characteristics, i.e. Transmission Medium Requirements (as received in the IAM) and User Service Information (if received in the IAM). • Bearer control PDU (as received in the Bearer Control Information information element in the BICC_Data indication primitive). • BIWF-Address, if received in the BICC_Data indication primitive. • BNC-ID, if received in the BICC_Data indication primitive. <p>The response primitive returns a bearer control PDU.</p>

Q.1902.4	Title	Comment
7.5	Incoming bearer set-up procedure (continued)	<p>2.1) If the Action indicator in the IAM was "Connect forward" the Connect Type is set to "Notification not required".</p> <p>NOTE - The Connect Type "Notification required" may be set in networks that use bearer protocols that do not provide backward through connection of the bearer path at bearer set-up request time, for telephony service.</p> <p>If the Action indicator in the IAM was "Connect backward" the Connect Type is set to "Notification required".</p> <p>2.2) A BICC_Data request primitive is issued (corresponding to an APM message) containing:</p> <ul style="list-style-type: none"> • If the Action indicator in the IAM was "Connect forward": Action indicator set to: "Connect forward, plus notification" if the Connect Type is "Notification required", else it is set to "Connect forward, no notification". • If the Action indicator in the IAM was "Connect backward": no Action indicator is sent. • Bearer Control Information, containing the bearer control PDU. <p>3) Bearer control tunnelling (6.4) may then be used to exchange further bearer set-up information between BCFs.</p> <p>4) If the Connect Type is "notification not required" receipt of a primitive from the BCF, indicating "BNC set-up success" indicates successful completion of the incoming set-up procedure.</p> <p>5) If the Connect Type is "notification required" the incoming set-up procedure awaits a BICC_Data indication primitive (corresponding to an APM message) containing Action indicator set to "Connected". The incoming set-up procedure is now successfully completed."</p> <p>7.5.4 Insert the following before the first sentence. <u>"If the procedures described in 7.5.4 are not supported and if an IAM is received and it does not contain a "Bearer Control Information" information element then the call shall be failed by sending a Release message with cause # 79 "service or option not implemented, unspecified" (as in 9.1)."</u></p> <p>7.5.5 Insert the following before the first sentence. <u>"If a request for this bearer set-up procedure is received and it is not supported then it shall be handled as an error as described in 13.4.8.4."</u></p>

D.2.2 Other Defaults for UK BICC

D.2.2.1 Codec Negotiation

Codec negotiation is specified as "required" in UK BICC. The G711 codec shall be included in the offered codec set and shall be supported. Other 3GPP codecs may be supported.

D.2.2.2 Echo Control requirements between the outgoing and incoming BICC networks

For call types where echo control is required (speech , 3.1kHz audio and 64 kbit/s preferred), if the outgoing BICC network indicates in the Nature of Connection indicators parameter in the IAM "outgoing echo control device included", then the subsequent network where BICC is terminated shall either:

- a) ensure that the incoming echo control device has been provided in a network nearer the destination (e.g. using ISUP echo control signalling procedures); or
- b) provide the incoming echo control device itself.

In the outgoing BICC network, if a SN which provides an outgoing echo control device for a call receives an ACM indicating "incoming echo control device not included" it shall not invoke the option in ITU-T Recommendation Q.115.1(12/02) [16] paragraph 10 which allows the call attempt to be failed.

D.2.2.3 Bearer Control for ATM Bearers

ATM shall not be supported.

History

Document history		
V1.1.1	February	CA approved for publication