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SERIES Q: SWITCHING AND SIGNALLING

Broadband ISDN – B-ISDN application protocols for the network signalling

Extensions to the B-ISDN User Part – Support of ATM transfer capability in the broadband bearer capability parameter

ITU-T Recommendation Q.2723.2

(Previously CCITT Recommendation)

Superseded by a more recent version

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ITU-T RECOMMENDATION Q.2723.2

EXTENSIONS TO THE B-ISDN USER PART – SUPPORT OF ATM TRANSFER CAPABILITY IN THE BROADBAND BEARER CAPABILITY PARAMETER

Summary

This Recommendation belongs to the set of Q.2723-Series of Recommendations that cover the support of additional traffic parameters through the broadband integrated services digital network user part.

This Recommendation describes the broadband ISDN user part support of broadband bearer capability information element revised coding as described in Recommendation Q.2961.2 [1] in order to enable the explicit indication of ATM transfer capabilities as defined in Recommendation I.371 [4] and to promote backward compatibility with nodes compliant to former editions.

FOREWORD

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The World Telecommunication Standardization Conference (WTSC), which meets every four years, establishes the topics for study by the ITU-T Study Groups which, in their turn, produce Recommendations on these topics.

The approval of Recommendations by the Members of the ITU-T is covered by the procedure laid down in WTSC Resolution No. 1.

In some areas of information technology which fall within ITU-T's purview, the necessary standards are prepared on a collaborative basis with ISO and IEC.

NOTE

In this Recommendation, the expression "Administration" is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

INTELLECTUAL PROPERTY RIGHTS

The ITU draws attention to the possibility that the practice or implementation of this Recommendation may involve the use of a claimed Intellectual Property Right. The ITU takes no position concerning the evidence, validity or applicability of claimed Intellectual Property Rights, whether asserted by ITU members or others outside of the Recommendation development process.

As of the date of approval of this Recommendation, the ITU had not received notice of intellectual property, protected by patents, which may be required to implement this Recommendation. However, implementors are cautioned that this may not represent the latest information and are therefore strongly urged to consult the TSB patent database.

Superseded by a more recent version

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Recommendation Q.2723.2

EXTENSIONS TO THE B-ISDN USER PART – SUPPORT OF ATM TRANSFER CAPABILITY IN THE BROADBAND BEARER CAPABILITY PARAMETER

(Geneva, 1997)

1 General

1.1 Scope

This Recommendation specifies extensions to broadband ISDN user part protocol to support the new requirements for the ATM transfer capabilities as defined in Recommendations I.371 [4] and I.356 [5].

This Recommendation specifies the additional procedures beyond those specified in Recommendations Q.2761 to Q.2764 for the B-ISDN basic call at the NNI and Recommendation Q.2723.1 [7] for the B-ISUP support of additional traffic parameters for SCR and QOS.

1.2 References

The following ITU-T Recommendations and other references contain provisions which, through reference in this text, constitute provisions of this Recommendation. At the time of publication the editions indicated were valid. All Recommendations and other references are subject to revision; all users of this Recommendation are therefore encouraged to investigate the possibility of applying the most recent edition of the Recommendations and other references listed below. A list of the currently valid ITU-T Recommendations is regularly published.

[1]   ITU-T Recommendation Q.2961.2 (1997), *Digital subscriber Signalling System No. 2 – Additional traffic parameters: Support of ATM transfer capability in the broadband bearer capability information element*.

[2]   ITU-T Recommendation Q.2931 (1995), *Digital subscriber Signalling System No. 2 – User-Network Interface (UNI) layer 3 specification for basic call/connection control*.

[3]   ITU-T Recommendation Q.2961.1 (1995), *Digital subscriber Signalling System No. 2 – Additional traffic parameters: Additional signalling capabilities to support traffic parameters for the tagging option and the sustainable cell rate parameter set*.

[4]   ITU-T Recommendation I.371 (1996), *Traffic control and congestion control in B-ISDN*.

[5]   ITU-T Recommendation I.356 (1996), *B-ISDN ATM layer cell transfer performance*.

[6]   ITU-T Recommendation Q.2763 (1995), *Signalling System No. 7 B-ISDN User Part (B-ISUP) – Formats and codes*.

[7]   ITU-T Recommendation Q.2723.1 (1996), *B-ISDN User Part – Support of additional traffic parameters for sustainable cell rate and quality of service*.

[8]   ITU-T Recommendation Q.2764 (1995), *Signalling System No. 7 B-ISDN User Part (B-ISUP) Basic call procedures*.

1.3 Definitions

This Recommendation uses the following terms as defined in Recommendations I.371 [4] and I.356 [5]:

– ATM block transfer;

– ATM transfer capability;

– available bit rate;

– deterministic bit rate;

– quality of service class;

– SBR configuration 1;

– SBR configuration 2;

– SBR configuration 3;

– statistical bit rate;

– traffic parameter.

1.4 Abbreviations

This Recommendation uses the following abbreviations.

ABR   Available Bit Rate

ABT-DT   ATM Block Transfer-Delayed Transmission

ABT-IT   ATM Block Transfer-Immediate Transmission

ASE   Application Service Element

ATC   ATM Transfer Capability

B-BC   Broadband Bearer Capability

BTC   Broadband Transfer Capability

DBR   Deterministic Bit Rate ATM transfer capability

DSS 2   Digital Subscriber Signalling System No. 2

IAM   Initial Address Message

N-ISUP   Narrow-band ISDN User Part

QOS   Quality of Service

SBR   Statistical Bit Rate ATM transfer capability

SBR1   SBR configuration 1 ATM transfer capability

SBR2   SBR configuration 2 ATM transfer capability

SBR3   SBR configuration 3 ATM transfer capability

2 B-ISDN user part parameters and messages

2.1 Parameters and parameter subfields

This subclause specifies the coding requirements to support:

– the revised broadband bearer capability information element coding as specified by Recommendation Q.2961.2 [1] to enable the indication of ATM transfer capabilities as specified in (see Recommendation I.371 [4]).

2.1.1 Extended structure of B-BC parameter

The B-BC information element defined in 4.5.7/Q.2931 [2] has been extended as indicated in Recommendation Q.2961.2 [1].

Accordingly, the B-BC parameter defined in 7.9/Q.2763 [6] is changed to enable the explicit indication of ATM transfer capabilities.
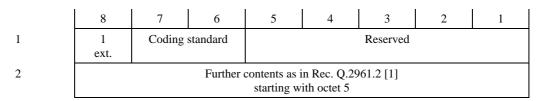
	8	7	6	5	4	3	2	1
1	1 ext.	Coding standard		Reserved				
2	Further contents as in Rec. Q.2961.2 [1] starting with octet 5							

Figure 1/Q.2723.2 – Broadband bearer capability parameter

2.2 Messages

Table 1 shows the impact of modified parameters on message coding.

2.2.1 IAM

Table 1/Q.2723.2 – Parameter impacted in IAM

IAM
B-BC

3 Application process procedures

In addition to the procedures specified in Recommendation Q.2764 [8] and Recommendation Q.2723.1 [7], the following is applied.

3.1 QOS and extended B-BC parameters

The QOS classes as defined in Recommendation I.356 [5] and the ATC as defined in Recommendation I.371 [4] are used to route the call in addition to the parameters already specified in Recommendations Q.2764 [8] and Q.2723.1 [7].

4 Application service elements and primitives

The following subclause identifies impacts on the B-ISUP application service elements and the primitives exchanged between ASEs as shown in Recommendation Q.2764 [8].

4.1 Primitives between SACF and application process

4.1.1 Set_Up request/indication primitive

Table 2 shows the parameters as modified by this Recommendation that are included in the Set_Up request/indication primitive.

Table 2/Q.2723.2 – Parameter for Set_Up request/indication primitive

Set_Up request/indication	B-ISDN	N-ISDN
B-BC	M	M

4.2 Primitives between BCC ASE and SACF

4.2.1 Link Set_Up request/indication primitive

Table 3 shows a new parameter that must be added to the Link Set_Up request/indication primitive.

Table 3/Q.2723.2 – Parameter for Link_Set_Up request/indication primitive

Link_Set_Up request/indication
B-BC

4.3 ASE descriptions

No changes are required to the ASE descriptions for BCC or CC ASEs.

5 Interworking with N-ISUP

Parameters are generated with contents according to DSS 2 to support the emulation of 64 kbit/s based ISDN circuit mode services.

6 Interworking with DSS 2

The impacted B-ISUP parameters map to DSS 2 information elements as follows:

Table 4/Q.2723.2 – Mapping of impacted B-ISUP parameters with DSS 2 information elements

SETUP	IAM	SETUP
B-BC	B-BC	B-BC

The bearer class, broadband transfer capability as indicated in the B-BC information element, and the ATM traffic descriptor parameters as indicated in the ATM traffic descriptor information element received in the SETUP message shall be consistent between each other. Table A.1/Q.2961.2 [1] indicates those valid combinations.

As there is not a one-to-one correspondence between the codepoints of the BTC field and the ATCs as defined in Recommendation I.371 [4], nor a Recommendation I.356 [5] equivalent QOS class when the value 0 is used, networks conforming to Recommendations I.371 [4] and I.356 [5] may not support some combinations, or may support them through the use of ATCs and QOS classes according to Table A.1/Q.2961.2 [1].

7 Interworking with nodes which do not support procedures described in this Recommendation

As the B-BC parameter is relevant to routing, for an exchange not supporting a service described in this Recommendation,a call/connection using an ATC that it does not support shall not be routed to it, unless an error in routing has occurred. In this case, the following text applies.

Nodes not supporting that service do not support the corresponding parameter values defined in this Recommendation and the procedures shall apply as for the receipt of unrecognized signalling information. The instruction indicators for these parameters shall be set so as to release the connection.

NOTE – Instruction indicators for the B-BC parameter should be set as shown in Appendix II/Q.2764 [8] in order to support the correct behaviour.

As there is not a one-to-one correspondence between the codepoints of the BTC subfield and the ATCs defined in Recommendation I.371 [4], nor with Recommendation I.356 [5] equivalent QOS class when the value 0 is used in the QOS parameter, networks conforming to Recommendations I.371 [4] and I.356 [5] receiving an IAM message coded according to Table A.1/Q.2961.2 [1] may not support some combinations of bearer class, broadband transfer capability as indicated in the B-BC parameter, and the ATM traffic parameters as indicated in the ATM cell rate and/or additional ATM cell rate parameters, or may have to derive ATCs and QOS classes as indicated in Recommendation Q.2961.2 [1].

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