



INTERNATIONAL TELECOMMUNICATION UNION

ITU-T

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

Q.2931

Amendment 2
(03/99)

SERIES Q: SWITCHING AND SIGNALLING

Broadband ISDN – B-ISDN application protocols for
access signalling

Digital subscriber signalling system No. 2 –
User-network interface (UNI) layer 3 specification
for basic call/connection control

Amendment 2

ITU-T Recommendation Q.2931 – Amendment 2

(Previously CCITT Recommendation)

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ITU-T RECOMMENDATION Q.2931

DIGITAL SUBSCRIBER SIGNALLING SYSTEM No. 2 – USER-NETWORK INTERFACE (UNI) LAYER 3 SPECIFICATION FOR BASIC CALL/CONNECTION CONTROL

AMENDMENT 2

Summary

Recommendation Q.2931 provides basic call and connection control for point-to-point connections in a B-ISDN. Amendment 2 to Recommendation Q.2931 has been prepared to allow signalling of AAL parameters associated with ATM Adaptation Layers specified in the I-series Recommendations since the original publication of Recommendation Q.2931 and is designed to be compatible with implementations conforming to the first edition of Recommendation Q.2931 (1995).

The changes from Recommendation Q.2931 (1995) specify B-ISDN call control to support advances made in the I-series Recommendations concerned with ATM Adaptation Layer protocols that have been introduced since the original publication of Q.2931 (1995). Specifically, this amendment includes support for the following Recommendations:

- ITU-T Recommendation I.363.1 (1996), *B-ISDN ATM Adaptation Layer specification: Type 1 AAL*.
- ITU-T Recommendation I.363.2 (1997), *B-ISDN ATM Adaptation Layer specification: Type 2 AAL*.
- ITU-T Recommendation I.363.3 (1996), *B-ISDN ATM Adaptation Layer specification: Type 3/4 AAL*.
- ITU-T Recommendation I.363.5 (1996), *B-ISDN ATM Adaptation Layer specification: Type 5 AAL*.
- ITU-T Recommendation I.365.1 (1993), *B-ISDN ATM adaptation layer sublayers: Frame relaying service specific convergence sublayer (FR-SSCS)*.
- ITU-T Recommendation I.365.2 (1995), *B-ISDN ATM adaptation layer sublayers: Service specific coordination function to provide the connection-oriented network service*.
- ITU-T Recommendation I.365.3 (1995), *B-ISDN ATM adaptation layer sublayers: Service specific coordination function to provide the connection-oriented transport service*.
- ITU-T Recommendation I.366.1 (1998), *Segmentation and Reassembly Service Specific Convergence Sublayer for the AAL Type 2*.
- ITU-T Recommendation I.366.2 (1999), *AAL Type 2 SCS for trunking*.
- ITU-T Recommendation Q.2110 (1994), *B-ISDN ATM adaptation layer – Service specific connection oriented protocol (SSCOP)*.

Source

Amendment 2 to ITU-T Recommendation Q.2931 was prepared by ITU-T Study Group 11 (1997-2000) and was approved under the WTSC Resolution No. 1 procedure on 15 March 1999.

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

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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.

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Introduction

This amendment to Recommendation Q.2931 has been prepared to allow compatibility with implementations conforming to the first edition of Recommendation Q.2931 (1995).

The changes from Recommendation Q.2931 (1995) specify B-ISDN call control to support advances made in the I-series Recommendations concerned with ATM Adaptation Layer protocols that have been introduced since the original publication of Q.2931 (1995). Specifically, this amendment includes support for the following Recommendations:

- ITU-T Recommendation I.363.1 (1996), *B-ISDN ATM Adaptation Layer: Type 1 AAL specification.*
- ITU-T Recommendation I.363.2 (1997), *B-ISDN ATM Adaptation Layer: Type 2 AAL specification.*
- ITU-T Recommendation I.363.3 (1996), *B-ISDN ATM Adaptation Layer: Type 3/4 AAL specification.*
- ITU-T Recommendation I.363.5 (1996), *B-ISDN ATM Adaptation Layer: Type 5 AAL specification.*
- ITU-T Recommendation I.365.1 (1993), *B-ISDN ATM adaptation layer sublayers: Frame relaying service specific convergence sublayer (FR-SSCS).*
- ITU-T Recommendation I.365.2 (1995), *B-ISDN ATM adaptation layer sublayers: Service specific coordination function to provide the connection-oriented network service.*
- ITU-T Recommendation I.365.3 (1995), *B-ISDN ATM adaptation layer sublayers: Service specific coordination function to provide the connection-oriented transport service.*
- ITU-T Recommendation I.366.1 (1998), *Segmentation and Reassembly Service Specific Convergence Sublayer for the AAL Type 2.*
- ITU-T Recommendation I.366.2 (1999), *AAL Type 2 SSCS for trunking.*
- ITU-T Recommendation Q.2110 (1994), *B-ISDN ATM adaptation layer – Service specific connection oriented protocol (SSCOP).*

NOTE – This amendment to Recommendation Q.2931 does not include an explicit modification of the reference list in Annex J/Q.2931. It is expected that a future amendment or revision of Recommendation Q.2931 will include the following additions to the list of references:

- ITU-T Recommendation I.363.1 (1996), *B-ISDN ATM Adaptation Layer: Type 1 AAL specification.*
- ITU-T Recommendation I.363.2 (1997), *B-ISDN ATM Adaptation Layer: Type 2 AAL specification.*
- ITU-T Recommendation I.363.3 (1996), *B-ISDN ATM Adaptation Layer: Type 3/4 AAL specification.*
- ITU-T Recommendation I.363.5 (1996), *B-ISDN ATM Adaptation Layer: Type 5 AAL specification.*
- ITU-T Recommendation I.365.1 (1993), *B-ISDN ATM adaptation layer sublayers: Frame relaying service specific convergence sublayer (FR-SSCS).*
- ITU-T Recommendation I.365.2 (1995), *B-ISDN ATM adaptation layer sublayers: Service specific coordination function to provide the connection-oriented network service.*
- ITU-T Recommendation I.365.3 (1995), *B-ISDN ATM adaptation layer sublayers: Service specific coordination function to provide the connection-oriented transport service.*

- ITU-T Recommendation I.366.1 (1998), *Segmentation and Reassembly Service Specific Convergence Sublayer for the AAL Type 2*.
- ITU-T Recommendation I.366.2 (1999), *AAL Type 2 SSCS for trunking*.
- CCITT Recommendation Q.320 (1988), *(Signalling System R1) Signal code for register signalling*.
- CCITT Recommendation Q.322 (1988), *(Signalling System R1) Multifrequency signal sender*.
- CCITT Recommendation Q.323 (1988), *(Signalling System R1) Multifrequency signal receiving equipment*.
- CCITT Recommendation Q.441 (1988), *(Signalling System R2 – Interregister signalling) Signalling code*.
- IEEE Standard 802-1990, *IEEE Standards for Local and Metropolitan Area Networks: Overview and Architecture*.

Recommendation Q.2931

**DIGITAL SUBSCRIBER SIGNALLING SYSTEM NO. 2 – USER-NETWORK INTERFACE
(UNI) LAYER 3 SPECIFICATION FOR BASIC CALL/CONNECTION CONTROL**

AMENDMENT 2

(Geneva, 1999)

Replace 4.5.5 (AAL parameters parameter) and Annex F (ATM adaptation parameters indication and negotiation) with the text presented in this amendment.

1) Subclause 4.5.5

Replace subclause 4.5.5 with the following text:

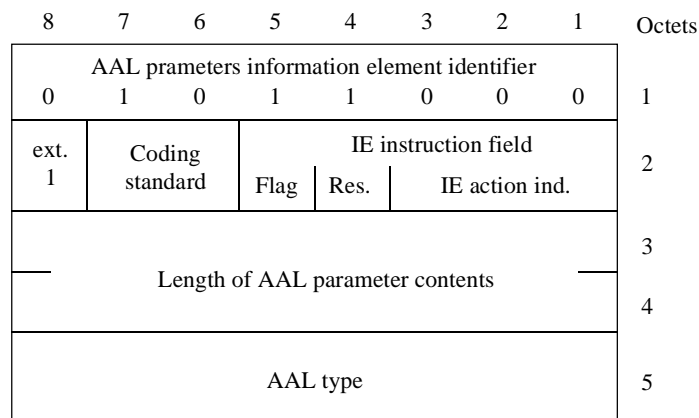
4.5.5 ATM adaptation layer parameters

The purpose of the ATM adaptation layer (AAL) parameters information element is to indicate the requested AAL parameter values (end-to-end significance) for the ATM adaptation layer elements of procedures to be used for the call. It contains the parameters selectable by the user for all AAL sublayers.

The contents of this information element is transparent for the network, except for the case of interworking.

The maximum length of this information element is 24 octets.

The AAL parameters information element is coded as shown in Figure 4-12 and Table 4-6.



Further contents depending on AAL type
(see below) T1162660-94

Figure 4-12/Q.2931 – AAL parameters information element (part 1 of 8)

(further contents for AAL type 1)

8	7	6	5	4	3	2	1	Octets
Subtype identifier								
1	0	0	0	0	1	0	1	6
Subtype								6.1
CBR rate identifier								
1	0	0	0	0	1	1	0	7
CBR rate								7.1
Multiplier identifier								
1	0	0	0	0	1	1	1	8* (Note)
Multiplier								8.1* (Note) 8.2* (Note)
Source clock frequency recovery method identifier								
1	0	0	0	1	0	0	0	9*
Source clock frequency recovery method								9.1*
Error correction method identifier								
1	0	0	0	1	0	0	1	10*
Error correction method								10.1*
Structured data transfer block size identifier								
1	0	0	0	1	0	1	0	11*
Structured data transfer block size								11.1* 11.2*
Partially filled cells method identifier								
1	0	0	0	1	0	1	1	12*
Partially filled cells method								12.1*

T1162670-94

NOTE – These octets are only present if octet 7.1 indicates " $n \times 64$ kbit/s or $n \times 8$ kbit/s".

Figure 4-12/Q.2931 – AAL parameters information element (part 2 of 8)

(further contents for AAL type 3/4)

8	7	6	5	4	3	2	1	Octets
Forward maximum CPCS-SDU size identifier								
1	0	0	0	1	1	0	0	6*
Forward maximum CPCS-SDU size								6.1*
Backward maximum CPCS-SDU size identifier								
1	0	0	0	0	0	0	1	7*
Backward maximum CPCS-SDU size								7.1*
MID range identifier								
1	0	0	0	0	0	1	0	8*
MID range (lowest MID value)								8.1*
MID range (highest MID value)								8.2*
SSCS-type identifier								
1	0	0	0	0	1	0	0	8.3*
SSCS-type								8.4*
SSCS-type								9*
SSCS-type								9.1*

T1162680-94

NOTE – The indication of values for octet groups 6-8 for use in the CONNECT message is specified in Annex F.

Figure 4-12/Q.2931 – AAL parameters information element (part 3 of 8)

(further contents for AAL type 5)

8	7	6	5	4	3	2	1	Octets
Forward maximum CPCS-SDU size identifier								
1	0	0	0	1	1	0	0	6*
Forward maximum CPCS-SDU size								6.1*
								6.2*
Backward maximum CPCS-SDU size identifier								
1	0	0	0	0	0	0	1	7*
Backward maximum CPCS-SDU size								7.1*
								7.2*
SSCS-type identifier								
1	0	0	0	0	1	0	0	8*
SSCS-type								8.1*

T1162690-94

NOTE – The indication of values for octet groups 6-7 for use in the CONNECT message is specified in Annex F.

Figure 4-12/Q.2931 – AAL parameters information element (part 4 of 8)

(further contents for User-defined AAL)

8	7	6	5	4	3	2	1	Octets
User defined AAL information								5.1*
User defined AAL information								5.2*
User defined AAL information								5.3*
User defined AAL information								5.4*

T1162700-94

Figure 4-12/Q.2931 – AAL parameters information element (part 5 of 8)

(further contents for AAL type 2)

8	7	6	5	4	3	2	1	Octets
Maximum CPS-SDU size identifier								
1	0	1	0	0	0	0	1	6*
Maximum CPS-SDU size								6.1*
Maximum number of multiplexed channels identifier								
1	0	1	0	0	0	1	0	7*
Maximum number of multiplexed channels								7.1*
SSCS type identifier								
1	0	0	0	0	1	0	0	8*
SSCS type								8.1*

Further contents depending on SSCS type (see below)

Figure 4-12/Q.2931 – AAL parameters information element (part 6 of 8)

(further contents for SSCS type = SAR, defined in Recommendation I.366.1)

8	7	6	5	4	3	2	1	Octets
SSCS type for SAR parameters identifier								
1	0	1	0	0	1	0	1	9*
Assured data	Error detect	Reserved						9.1*
Forward maximum SSSAR-SDU size identifier								
1	0	1	0	1	0	0	0	10*
Forward maximum SSSAR-SDU size								10.1*
_____								10.2*
_____								10.3*
Backward maximum SSSAR-SDU size identifier								
1	0	1	0	1	0	0	1	11*
Backward maximum SSSAR-SDU size								11.1*
_____								11.2*
_____								11.3*

Figure 4-12/Q.2931 – AAL parameters information element (part 7 of 8)

(further contents for SSCS for trunking, defined in Recommendation I.366.2)

8	7	6	5	4	3	2	1	Octets
SSCS type for trunking parameters identifier								
1	0	1	0	0	1	1	0	9*
Service category				CMD	FMD	Reserved		9.1*
Reserved		Fax	CAS	DTMF	MF-R1	MF-R2	PCM encoding	9.2*
Reserved			Multiplier					9.3*
Maximum length of frame mode data unit identifier								
1	0	1	0	1	0	1	0	10*
Maximum length of frame mode data unit								10.1*
Profile identification identifier								10.2*
1	0	1	0	1	0	1	1	11*
Profile source		Reserved						11.1*
Predefined profile								11.2*
IEEE Organizationally Unique Identifier (OUI)								11.3*
								11.4*
								11.5*

Figure 4-12/Q.2931 – AAL parameters information element (part 8 of 8)

Table 4-6/Q.2931 – AAL parameters information element

<i>AAL type (octet 5)</i>	
Bits	
8 7 6 5 4 3 2 1	
0 0 0 0 0 0 0 0	AAL for voice (Notes 1 and 2)
0 0 0 0 0 0 0 1	AAL type 1
0 0 0 0 0 0 1 0	AAL type 2
0 0 0 0 0 0 1 1	AAL type 3/4
0 0 0 0 0 1 0 1	AAL type 5
0 0 0 1 0 0 0 0	User defined AAL
All other values are reserved.	
<i>Subtype (octet 6.1 for AAL type 1)</i>	
Bits	
8 7 6 5 4 3 2 1	
0 0 0 0 0 0 0 0	Null
0 0 0 0 0 0 0 1	Voiceband signal transport based on 64 kbit/s (see Recommendation G.711/G.722) (see ITU-T Recommendation I.363.1)
0 0 0 0 0 0 1 0	Circuit transport (see ITU-T Recommendation I.363.1)
0 0 0 0 0 1 0 0	High-quality audio signal transport (see ITU-T Recommendation I.363.1)
0 0 0 0 0 1 0 1	Video signal transport (see ITU-T Recommendation I.363.1)
All other values are reserved.	

Table 4-6/Q.2931 – AAL parameters information element (continued)

<i>CBR rate (octet 7.1 for AAL type 1)</i>	
Bits	
<u>8 7 6 5 4 3 2 1</u>	
0 0 0 0 0 0 0 1	64 kbit/s
0 0 0 0 0 1 0 0	1 544 kbit/s
0 0 0 0 0 1 0 1	6 312 kbit/s
0 0 0 0 0 1 1 0	32 064 kbit/s
0 0 0 0 0 1 1 1	44 736 kbit/s
0 0 0 0 1 0 0 0	97 728 kbit/s
0 0 0 1 0 0 0 0	2 048 kbit/s
0 0 0 1 0 0 0 1	8 448 kbit/s
0 0 0 1 0 0 1 0	34 368 kbit/s
0 0 0 1 0 0 1 1	139 264 kbit/s
0 1 0 0 0 0 0 0	$n \times 64$ kbit/s
0 1 0 0 0 0 0 1	$n \times 8$ kbit/s
All other values are reserved.	
<i>Multiplier (octets 8.1 and 8.2 for AAL type 1 and $n \times 64$ kbit/s or $n \times 8$ kbit/s indication in octet 7.1 for AAL type 1) (octet 10b, bits 5-1, when octet 8.1 = 00010001 and octet 9.3, bits 5-1 = 00011 for AAL type 2)</i>	
Integer representation of multiplier values between 2 and $2^{16} - 1$ for $n \times 64$ kbit/s in AAL type 1 channels.	
Integer representation of multiplier values between 1 and 7 for $n \times 8$ kbit/s in AAL type 1 channels.	
Integer representation of multiplier values between 1 and 31 for $n \times 64$ kbit/s in AAL type 2 channels.	
<i>Source clock frequency recovery method (octet 9.1 for AAL type 1)</i>	
Bits	
<u>8 7 6 5 4 3 2 1</u>	
0 0 0 0 0 0 0 0	Null (synchronous circuit transport)
0 0 0 0 0 0 0 1	Synchronous Residual Time Stamp (SRTS) method (asynchronous circuit transport) (see ITU-T Recommendation I.363.1)
0 0 0 0 0 0 1 0	Adaptive clock method (see ITU-T Recommendation I.363.1)
All other values are reserved.	
<i>Error correction method (octet 10.1 for AAL type 1)</i>	
Bits	
<u>8 7 6 5 4 3 2 1</u>	
0 0 0 0 0 0 0 0	Null (no error correction is provided)
0 0 0 0 0 0 0 1	A forward error correction method for loss sensitive signal transport (see ITU-T Recommendation I.363.1)
0 0 0 0 0 0 1 0	A forward error correction method for delay sensitive signal transport (see ITU-T Recommendation I.363.1)
All other values are reserved.	
<i>Structured data transfer block size (octet 11.1 and 11.2 for AAL type 1)</i>	
16-bit integer representation of values between 1 and 65 535, i.e. $2^{16} - 1$. This parameter represents the block size of SDT CBR service. (Note 3)	

Table 4-6/Q.2931 – AAL parameters information element (continued)

<i>Partially filled cells method (octet 12.1 for AAL type 1)</i>	
Bits	
<u>8 7 6 5 4 3 2 1</u>	
0 0 0 0 0 0 0 0	Partially filled cells method is not used, i.e. cells are filled completely; the indication of this codepoint is equivalent to the absence of the subfield for partially filled cells method.
0 0 0 0 0 0 0 1	Integer representation of the number of leading octets of SAR-PDU payload in use (values between 1 and 47) (see ITU-T Recommendation I.363.1).
0 0 1 0 1 1 1 1	
<i>Forward maximum CPCS-SDU size (octets 6.1 and 6.2 for AAL types 3/4 and 5)</i>	
16-bit integer representation of the values between 0 and 65 535, i.e. $2^{16} - 1$. This parameter refers to the forward direction (calling user to called user, see definition in Annex J).	
<i>Backward maximum CPCS-SDU size (octets 7.1 and 7.2 for AAL types 3/4 and 5)</i>	
16-bit integer representation of the values between 0 and 65 535, i.e. $2^{16} - 1$. This parameter refers to the backward direction (called user to calling user, see definition in Annex J).	
<i>MID range (octets 8.1, 8.2, 8.3 and 8.4 for AAL type 3/4)</i>	
Integer representation of the lowest MID value (octets 8.1 and 8.2) and of the highest MID value (octets 8.3 and 8.4) of the MID range, only values between 0 and 1023.	
<i>User defined AAL information (octets 5.1 to 5.4 for user defined AAL)</i>	
Bits	
<u>8 7 6 5 4 3 2 1</u>	
The contents of this field are user-specified.	
<i>Maximum CPS-SDU size (octet 6.1 for AAL type 2)</i>	
8-bit integer representation of the value 45 or 64.	
NOTE – some applications may limit the CPS-SDU size assignment to 45 octets.	
<i>Maximum number of multiplexed channels (octet 7.1 for AAL type 2)</i>	
The value ranges from 1 through 255.	
<i>SSCS type (octet 9.1 for AAL type 3/4; octet 8.1 for AAL types 2 and 5)</i>	
Bits	
<u>8 7 6 5 4 3 2 1</u>	
0 0 0 0 0 0 0 0	Null
0 0 0 0 0 0 0 1	ITU-T Recommendation Q.2110 (SSCOP assured operation) with unspecified SSCS
0 0 0 0 0 0 1 0	ITU-T Recommendation Q.2110 (SSCOP non-assured operation) with unspecified SSCS
0 0 0 0 0 1 0 0	ITU-T Recommendation I.365.1 (SSCS to provide frame relay services)
0 0 0 0 1 0 0 0	ITU-T Recommendation I.365.2 [SSCF to provide CONS and Q.2110 (SSCOP)] (only for AAL types 2, 3/4 and 5)
0 0 0 0 1 0 0 1	ITU-T Recommendation I.365.3 [SSCF to provide COTS and Q.2110 (SSCOP)] (only for AAL types 2, 3/4 and 5)
0 0 0 1 0 0 0 0	ITU-T Recommendation I.366.1 (SSCS to provide segmentation and re-assembly) (only for AAL type 2)
0 0 0 1 0 0 0 1	ITU-T Recommendation I.366.2 (SSCS to provide trunking) (only for AAL type 2)
All other values are reserved.	

Table 4-6/Q.2931 – AAL parameters information element (continued)

<i>Assured data (octet 9.1, bit 8, when octet 8.1 = 00010000 for AAL type 2)</i>	
Bit	
<u>8</u>	
0	Assured data transfer mechanism not used
1	Assured data transfer mechanism is used (Notes 4 and 5)
<i>Error detect (octet 9.1, bit 7, when octet 8.1 = 0001000 for AAL type 2)</i>	
Bit	
<u>7</u>	
0	Transmission error detection mechanism is not selected
1	Transmission error detection mechanism is selected
<i>Forward Maximum SSSAR-SDU (octets 10.1, 10.2 and 10.3, when octet 8.1 = 00010000 for AAL type 2)</i>	
This field contains the binary coded value for the maximum length of an SSSAR-SDU that may be transmitted in the forward direction. (The value 00000000 is reserved.)	
<i>Backward maximum SSSAR-SDU size (octets 11.1, 11.2 and 11.3, when octet 8.1 = 00010000 for AAL type 2)</i>	
This field contains the binary coded value for the maximum length of an SSSAR-SDU that may be transmitted in the backward direction. (The value 00000000 is reserved.)	
<i>Service category (octet 9.1, bits 8-5, when octet 8.1 = 00010001 for AAL type 2)</i>	
Bits	
<u>8 7 6 5</u>	
0 0 0 0	Audio service
0 0 0 1	Multirate service
All other values are reserved.	
<i>CMD (octet 9.1, bit 4, when octet 8.1 = 00010001 and octet 9.1, bits 8-5 = 0000 or 0001 for AAL type 2)</i>	
Bit	
<u>4</u>	
0	Transport of circuit mode data disabled (Note 6)
1	Transport of circuit mode data enabled (Note 7)
<i>FMD (octet 9.1, bit 3, when octet 8.1 = 00010001 and octet 9.1, bits 8-5 = 0000 or 0001 for AAL type 2)</i>	
Bit	
<u>3</u>	
0	Transport of frame mode data disabled
1	Transport of frame mode data enabled
<i>FAX (octet 9.2, bit 6, when octet 8.1 = 00010001 and octet 9.1, bits 8-5 = 0000 for AAL type 2)</i>	
Bit	
<u>6</u>	
0	Transport of demodulated facsimile data disabled (Note 6)
1	Transport of demodulated facsimile data enabled
<i>CAS (octet 9.2, bit 5, when octet 8.1 = 00010001 and octet 9.1, bits 8-5 = 0000 for AAL type 2)</i>	
Bit	
<u>5</u>	
0	Transport of channel associated signalling bits disabled
1	Transport of channel associated signalling bits enabled

Table 4-6/Q.2931 – AAL parameters information element (continued)

DTMF (octet 9.2, bit 4, when octet 8.1 = 00010001 and octet 9.1, bits 8-5 = 0000 for AAL type 2)

Bit

4

- 0 Transport of DTMF dialled digits disabled
- 1 Transport of DTMF dialled digits enabled

MF-R1 (octet 9.2, bit 3, when octet 8.1 = 00010001 and octet 9.1, bits 8-5 = 0000 for AAL type 2)

Bit

3

- 0 Transport of R1 dialled digits disabled
- 1 Transport of R1 dialled digits enabled (see ITU-T Recommendations Q.320, Q.322, and Q.323)

MF-R2 (octet 9.2, bit 2, when octet 8.1 = 00010001 and octet 9.1, bits 8-5 = 0000 for AAL type 2)

Bit

2

- 0 Transport of R2 dialled digits disabled
- 1 Transport of R2 dialled digits enabled (see ITU-T Recommendation Q.441)

PCM Encoding (octet 9.2, bit 1, when octet 8.1 = 00010001 and octet 9.1 bits 8-5 = 0000)

Bit

1

- 0 A-law
- 1 μ -law

Maximum length of a frame mode data unit (octets 10.1 & 10.2, when octet 8.1 = 00010001 and octet 9.1, bit 3 = 1 for AAL type 2)

This field contains the binary coded value for the maximum length of a frame mode data unit that may be transmitted. (The value 00000000 is reserved.)

Profile Source (octet 11.1, bits 8-7 when octet 8.1 = 00010001 for AAL type 2)

Bits

8 7

- 0 0 ITU-T predefined profile used (See Annex P/I.366.2.)
- 0 0 Other predefined profile used

All other values reserved.

Predefined profile (octet 11.2, when octet 8.1 = 00010001 and octet 9.1, bits 8-5 = 0000 for AAL type 2)

This field contains the binary coded value for the profile identifier of the profile which is administered by the organization identified by the OUI in the following octets (if octet 11.1, bits 8-7 = 01) or which is administered by the ITU-T in ITU-T Recommendation I.366.2 (if octet 11.1, bits 8-7 = 00).

IEEE Organizationally Unique Identifier (OUI) (octets 11.3, 11.4 and 11.5, when octet 8.1 = 00010001; octet 9, bits 8-5 = 0000 and octet 11.1, bits 8-7 = 01)

When the "other predefined profile " is used, octets 11.3, 11.4, and 11.5 contain a globally administered Organizationally Unique Identifier (OUI) (as specified in IEEE Standard 802-1990, section 5.1); octet 0 of the OUI is mapped to octet 11.3 of the AAL parameters information element, and so on; the LSB of the OUI is mapped to bit 8 of the AAL parameters information element, the MSB of the OUI is mapped to bit 1 of the AAL parameters information element.

Table 4-6/Q.2931 – AAL parameters information element (end)

NOTE 1 – The default AAL for voice is the AAL specified in Recommendation I.363.1 for voiceband signal transport based on 64 kbit/s (see Recommendation G.711/G.722).

NOTE 2 – For AAL for voice, no further parameters are specified beyond the ones given in part 1 of 8 of Figure 4-12.

NOTE 3 – When provisioning ATM connections that support AAL type 1 SDT service, the SDT protocol may distinguish between SDT block sizes with a value of "1" and SDT block sizes ranging from 2 to $2^{16} - 1$. The special case using a block size of "1" is under study; see Recommendation I.363.1.

NOTE 4 – I.366.1 indicates that the parameters for the assured data transfer mechanism are specified in Q.2110.

NOTE 5 – The assured data transfer mechanism can only be selected if the transmission error detection mechanism is also detected.

NOTE 6 – If the value of this parameter is disabled, the user shall not change to Circuit Mode Data or Facsimile Demodulation operation.

NOTE 7 – If octet 9, bits 8-5 = 0001 (Multirate service), transport of Circuit Mode Data must be enabled.

NOTE 8 – In case of the absence of AAL parameter subfields, the following default values will apply:

- Subtype: no default (must be signalled for AAL type 1).
- CBR Rate: no default (must be signalled for AAL type 1).
- Multiplier: no default (must be signalled for CBR Rate $n = 64$ kbit/s and $n = 8$ kbit/s).
- Clock Frequency Recovery: default = null.
- Error Correction: default = null.
- SDT Block Size: default = no SDT is used.
- Partially Filled Cells: default = partially filled cells method is not used, i.e. cells are filled completely.
- Forward max. CPCS-SDU size: default = 65 535 octets.
- Backward max. CPCS-SDU size: default = 65 535 octets.
- MID range: default = 0-0 (no multiplexing via MID field).
- SSCS-Type: default = null.
- Maximum CPS-SDU size: default = 45.
- Maximum number of multiplexed channels: default = 255.
- Assured data: default = mechanism not used.
- Error detect: default = not selected.
- Forward maximum SSSAR-SDU size: default = 65 535 octets.
- Backward maximum SSSAR-SDU size: default = 65 535 octets.
- Service category: default = audio service.
- PCM encoding: default = A-law.
- Profile source: default = ITU-T and predefined profile = 1.
- Fax, CAS, DTMF, MF-R1, MF-R2, CMD, FMD: default = disabled.
- Maximum length of a frame mode data unit (for AAL type 2) = 65 535 octets.

2) Annex F

Replace Annex F with the following text:

ANNEX F

ATM adaptation layer parameters indication and negotiation

This annex describes procedures for the use of the ATM adaptation layer parameters information element by endpoint equipment.

F.1 General

The purpose of the ATM adaptation layer parameters information element is to provide a means which may be used for conveying information related to the ATM adaptation layer between endpoints. The ATM adaptation layer parameters information element is transferred transparently between ATM endpoints by the network.

F.2 ATM adaptation layer parameter indication in the SETUP message

When the calling endpoint wishes to indicate to the called endpoint the AAL common part parameters and service specific part to be used during the call, the calling endpoint shall include an ATM adaptation layer parameters information element in the SETUP message. This information element is conveyed by the network and delivered to the called user.

The ATM adaptation layer parameters information element may include the following parameters for different AAL connection types:

- a) *For AAL connection type 1*
 - Subtype;
 - CBR rate;
 - Source clock frequency recovery method;
 - Error correction;
 - Structured data transfer blocksize;
 - Partially filled cells indicator.
- b) *For AAL connection type 2*
 - Maximum CPS-SDU size;
 - SSCS type and related parameters.
- c) *For AAL connection type 3/4*
 - Forward maximum CPCS-SDU size;
 - Backward maximum CPCS-SDU size;
 - MID range;
 - SSCS type and related parameters.
- d) *For AAL connection type 5*
 - Forward maximum CPCS-SDU size;
 - Backward maximum CPCS-SDU size;
 - SSCS type and related parameters.

NOTE – For AAL connection types 3/4 and 5, the Forward maximum CPCS-SDU size and Backward maximum CPCS-SDU size parameters shall either both be present or both be absent in the ATM adaptation layer parameters information element. For unidirectional ATM virtual connections, the Backward maximum CPCS-SDU size shall be set to "0".

If the called endpoint receives an ATM adaptation layer parameters information element in the SETUP message which contains the forward or backward maximum CPCS-SDU size but not both, the called endpoint should clear the call with cause No. 100, "invalid information element contents".

F.3 Maximum CPCS-SDU size negotiation

When the called user has received an ATM adaptation layer parameters information element in a SETUP message and the AAL type is either AAL 3/4 or AAL 5, the ATM adaptation layer parameters information element shall be included in the CONNECT message. The ATM adaptation layer parameters information element shall include the forward maximum CPCS-SDU size, indicating the size of the largest CPCS-SDU that the called user is able to receive, and the backward maximum CPCS-SDU size, indicating the size of the largest CPCS-SDU that it will transmit. The values for the forward and backward maximum CPCS-SDU size indicated in the CONNECT message shall not be greater than the values indicated by the calling user in the SETUP message. The ATM adaptation layer parameters information element will be conveyed to the calling user.

NOTE – For unidirectional ATM virtual connections, the backward maximum CPCS-SDU size shall be set to "0".

If the called user does not include the CPCS-SDU size in the CONNECT message, the calling user shall assume that the called user accepts the values of the forward and backward maximum CPCS-SDU size indicated by the calling user in the SETUP message.

If the calling party cannot use the forward or backward maximum CPCS-SDU size indicated in the CONNECT message (i.e. because the value negotiated by the called party is unacceptably small), then the call shall be cleared with cause No. 93, "AAL parameters cannot be supported".

If the calling endpoint receives an ATM adaptation layer parameters information element in the CONNECT message which:

- a) contains octet groups other than the forward and backward maximum CPCS-SDU size and/or MID range;
- b) contains a maximum CPCS-SDU size which is greater than the maximum CPCS-SDU size which was sent in the SETUP message; or
- c) is missing the forward or backward maximum CPCS-SDU size;

the calling endpoint should clear the call with cause No. 100, "invalid information element contents".

F.4 MID range negotiation

When the called user receives the ATM adaptation layer parameters information element in the SETUP message which indicates AAL type 3/4, the called user shall check the MID range value. If the called user cannot support the indicated MID range but it can support a smaller range, the called user includes an ATM adaptation layer parameters information element in the CONNECT message containing the MID range that it can support.

The calling user will either accept the MID range contained in the CONNECT message or will clear the call with cause No. 93, "AAL parameters cannot be supported".

If the called user does not include the MID range in the CONNECT message, the calling user shall assume that the called user accepts the MID range indicated by the calling user in the SETUP message.

If the calling endpoint receives an ATM adaptation layer parameters information element in the CONNECT message which:

- a) contains octet groups other than the forward and backward maximum CPCS-SDU size and/or MID range; or
- b) contains a MID range which is greater than the MID range which was sent in the SETUP message;

the calling endpoint should clear the call with cause No. 100, "invalid information element contents".

F.5 Use of forward and backward maximum CPCS-SDU size by the AAL 3/4 or 5 entity in the user plane

The values of forward and backward maximum CPCS-SDU size resulting from AAL parameters negotiation shall be used by the AAL entities in the user plane. The AAL entity in the calling user equipment shall not send a CPCS-SDU size larger than the indicated value specified in the forward maximum CPCS-SDU size parameter, and may allocate its internal resources based on the value indicated in the backward maximum CPCS-SDU size parameter. Similarly, the AAL entity in the called user equipment shall not send a CPCS-SDU size larger than the indicated value specified in the backward maximum CPCS-SDU size parameter, and may allocate its internal resources based on the value indicated in the forward maximum CPCS-SDU size parameter.

F.6 Use of maximum CPS-SDU size by the AAL 2 entity in the user plane

The value for the maximum CPS-SDU size is either 45 octets (the default) or 64 octets and is not negotiated.

If the called user does not include the CPS-SDU size in the CONNECT message, the calling user shall assume that the called user accepts the default value of 45 octets for both the forward and backward maximum CPS-SDU size indicated by the calling user in the SETUP message.

If the calling party cannot use the forward or backward maximum CPS-SDU size indicated in the CONNECT message (i.e. because the value in the calling user SETUP message indicated 64 octets), then the call shall be cleared with cause No. 93, "AAL parameters cannot be supported".

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