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ITU-T

TELECOMMUNICATION
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OF ITU

X.236

Amendment 1
(06/99)

SERIES X: DATA NETWORKS AND OPEN SYSTEM
COMMUNICATIONS

Open Systems Interconnection – Connectionless-mode
protocol specifications

Information technology – Open Systems
Interconnection – Connectionless Presentation
protocol: Protocol specification

Amendment 1: Efficiency enhancements

ITU-T Recommendation X.236 – Amendment 1

(Previously CCITT Recommendation)

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INTERNATIONAL STANDARD 9576-1

ITU-T RECOMMENDATION X.236

INFORMATION TECHNOLOGY – OPEN SYSTEMS INTERCONNECTION – CONNECTIONLESS PRESENTATION PROTOCOL: PROTOCOL SPECIFICATION

AMENDMENT 1 Efficiency enhancements

Summary

Amendment 1 to ITU-T Rec. X.236 | ISO/IEC 9576-1 provides connectionless presentation protocol efficiency enhancements.

Source

The ITU-T Recommendation X.236, Amendment 1, was approved on the 18th of June 1999. The identical text is also published as ISO/IEC International Standard 9576-1.

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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INTERNATIONAL STANDARD

ITU-T RECOMMENDATION

INFORMATION TECHNOLOGY – OPEN SYSTEMS INTERCONNECTION –
CONNECTIONLESS PRESENTATION PROTOCOL: PROTOCOL SPECIFICATIONAMENDMENT 1
Efficiency enhancement

1) Subclause 2.1

Add the following references by numerical order:

- ITU-T Recommendation X.215 (1995)/Amd.1 (1997) | ISO/IEC 8326:1996/Amd.1:1998, *Information technology – Open Systems Interconnection – Session Service Definition – Amendment 1: Efficiency enhancements.*
- ITU-T Recommendation X.216 (1994)/Amd.1 (1997) | ISO/IEC 8822:1994/Amd.1:1998, *Information technology – Open Systems Interconnection – Presentation service definition – Amendment 1: Efficiency enhancements.*
- ITU-T Recommendation X.217 (1995)/Amd.2 (1997) | ISO/IEC 8649:1996/Amd.2:1998, *Information technology – Open Systems Interconnection – Service definition for the Association Control Service Element (ACSE) – Amendment 2: Fast-associate mechanism.*
- ITU-T Recommendation X.227 (1995)/Amd.2 (1997) | ISO/IEC 8650-1:1996/Amd.2:1997, *Information technology – Open Systems Interconnection – Connection-oriented protocol for the Association Control Service Element (ACSE): Protocol specification – Amendment 2: Fast-associate mechanism.*
- ITU-T Recommendation X.691 (1997) | ISO/IEC 8825-2:1995, *Information technology – ASN.1 encoding rules: Specification of Packed Encoding Rules (PER).*

2) New subclause 3.5

Add the following new subclause after 3.4:

3.5 Presentation protocol definitions

This Recommendation | International Standard makes use of the following term defined in ITU-T Rec. X.226 | ISO/IEC 8823-1:

- 3.5.1 Short-encoding protocol option:** An option of the presentation protocol that uses efficient encoding of a PPDU containing a single presentation data value.

3) Subclause 4.2

Add the following PPDU at the end of the list:

SHORT-UD PPDU Short Unit Data PPDU

4) Subclause 4.3

Add the following abbreviations by alphabetical order:

BER	Basic Encoding Rules
PER	Packed Encoding Rules

5) New subclause 5.5

Add the following new subclause after 5.4:

5.5 Protocol options

5.5.1 Short encoding protocol option

This protocol option allows use of the Short-encoding form of User-data for any PPDU for which it is defined if the User-data contains only one presentation data value.

This protocol option does not affect the Presentation service. It requires support of the Special User-data parameter of the Session primitive whose User-data is the PPDU.

The use of the short encoding protocol restricts support of the Presentation service and is only available if one of the conditions a), b) or c) is applicable and condition d) applies:

- a) The presentation context definition list contains precisely one item in which the abstract syntax name is known to the responding PPM by bilateral agreement.
- b) The presentation context definition list is empty and the default context is known by bilateral agreement.
- c) The presentation context definition list is empty and the abstract syntax of the default context is specified in ASN.1 and is known to the responding PPM by bilateral agreement.
- d) The calling and called presentation selectors are null.

6) Subclause 6.1.1

a) *Replace the second sentence with:*

For the connectionless-mode protocol, two types of protocol data unit, namely Unit Data PPDU (UD PPDU) and Short Unit Data PPDU (SUD PPDU), are defined.

b) *Add the following two new paragraphs at the end of 6.1.1:*

If the **short-connect** option is not selected, the PPDU transfer procedure uses the UD PPDU.

If the **short-connect** option is selected, the PPDU transfer procedure uses the SUD PPDU.

7) New subclause 6.1.3

Add the following new subclause after 6.1.2:

6.1.3 SUD PPDU associated parameters

6.1.3.1 Encoding choice.

This shall indicate the transfer syntax to be used for the (single) presentation context (which may be the default context) as follows:

- a) transparent encoding (understood by bilateral agreement);
- b) Basic Encoding Rules;
- c) Packed Encoding Rules (unaligned variant);
- d) Packed Encoding Rules (aligned variant).

The transfer syntaxes b), c) or d) apply only if the abstract syntax is specified using ASN.1.

6.1.3.2 User-data

This shall be the User-data parameter for the P-UNIT-DATA request service primitive.

8) Subclause 6.2

Add the following text immediately after the subclause 6.2 heading:

If the short-encoding option is not selected, the PPDU transfer procedure is described in 6.2.1 and 6.2.2.

9) Subclause 6.2.1

In the second paragraph of 6.2.1, take out the calling-session-address and the called-session-address from the list of parameters of the UD PPDU

10) New subclauses 6.2.3 and 6.2.4

Add the following two new subclauses after 6.2.2:

6.2.3 Sending a SUD PPDU

When a P-UNIT-DATA request service primitive is received by a PPM (the initiator), and the short-encoding option is to be proposed (thus, one of the conditions a), b), or c) in 5.5.1 applies and condition d) of 5.5.1 applies), the PPM may choose to transfer the user data by sending the SHORT-UNIT-DATA PPDU containing the encoding option selection parameter and user data.

The calling and called address parameters of the P-UNIT-DATA request service primitive are used to determine the calling-session-address and the called-session-address.

When a P-UNIT-DATA request service primitive is received by a PPM, it shall send a SUD PPDU containing the presentation data value.

A S-UNIT-DATA request service primitive is issued with the calling and called session-address parameter, the Quality of Service parameter requested and the SS-user-data containing the SUD PPDU.

6.2.4 Receiving a SUD PPDU

The SUD PPDU arrives in the SS-user-data field of a S-UNIT-DATA indication. The calling-session-address from the S-UNIT-DATA indication and the NIL presentation-selector will be used to determine the calling-presentation-address parameter for the P-UNIT-DATA indication. The called-session-address from the S-UNIT-DATA indication and the NIL presentation-selector will be used to determine the called-presentation-address parameter for the P-UNIT-DATA indication.

If the receiving PPM does not support the short-encoding protocol option and the SHORT-UNIT-DATA PPDU is received as user data on a S-UNIT-DATA indication primitive, it shall discard the PPDU without any notification.

The responding PPM may refuse the proposed data transfer (if, for example, the encoding choice offered on the SHORT-UNIT-DATA PPDU is unacceptable), in which case it shall discard the PPDU without any notification. Alternatively, if not refusing, it shall issue a P-UNIT-DATA indication service primitive.

If the data transfer is accepted, the transfer syntax of the User data belonging to the (single) presentation context (which may be the default context) is set according to the encoding-choice parameter value of the SHORT-UNIT-DATA PPDU.

11) Clause 7

a) In first line of clause 7, insert subclause number and change title to:

7.1 Unit data transfer (long form PPDU)

b) Replace S-CONNECT by S-UNIT-DATA in item b) of 7.1.

12) New subclause 7.2

Add the following new subclause after 7.1:

7.2 Unit data transfer (short form PPDU)

- a) SUD PPDU – The SHORT-UNIT-DATA PPDU shall be conveyed from the initiating PPM to the responding PPM in the S-UNIT-DATA request and indication session-service primitives.
- b) SUD PPDU associated parameters – Table 4 defines the mapping of the SUD PPDU associated parameters onto S-UNIT-DATA parameters.

Table 4 – Mapping of SUD PPDU associated parameters onto S-UNIT-DATA parameters

SUD PPDU associated parameter	S-UNIT-DATA parameter	m/nm
Encoding-choice User data	SS-User-data SS-User-data	m nm
m Mandatory nm Non-mandatory		

13) Clause 8

Change title of clause 8 to:

8 Structure and encoding of PPDUs**14) Subclause 8.1.2**

- a) Replace the first sentence in 8.1.2 with:

The structure of SS-user data parameter values except for those in the SHORT-UNIT-DATA PPDU is specified using:

- b) Add at the end of 8.1.2:
- c) the specification of the short-encoding PPDUs in 8.1.4.

The structure of the SHORT-UNIT-DATA PPDU is specified in 8.1.4.

15) New subclause 8.1.4

Add the following new subclause after 8.1.3:

8.1.4 SHORT-UNIT-DATA PPDU

The protocol control information of the SHORT-UNIT-DATA PPDU shall be one octet, with the two trailing bits consisting of the encoding-choice parameter. This PCI is followed by the User-data parameter (encoded as per the encoding-choice parameter).

The encoding of the SHORT-UNIT-DATA is as shown in the following bit pattern:

0000 00zz

where zz identifies the encoding-choice as follows:

- 00: bilateral agreement;
- 01: BER;
- 10: unaligned PER;
- 11: aligned PER.

16) Subclause 8.2

Modify subclause 8.2 as follows:

- a) *Add to UD-type, just before user-data:*

extensions **[5] SEQUENCE { ... } OPTIONAL,**
 -- to allow for future extensions

- b) *In the definition of Context-list, change SEQUENCE OF to:*

SEQUENCE SIZE (0..7,...,8..MAX) OF

- c) *Change the definition of Presentation-context-identifier to:*

Presentation-context-identifier ::= INTEGER (1..127, ..., 128..MAX)

- d) *Add extensibility markers, " , ... " at the end of Protocol-version*

- e) *Change the definition of Presentation-selector to:*

Presentation-selector ::= OCTET STRING SIZE (1..4,...,0,5..MAX)

- f) *In the definition of Fully-encoded-data, change SEQUENCE OF to:*

SEQUENCE SIZE (1,...,2..MAX) OF

17) Subclause 8.3.1

Replace subclause 8.3.1 with the following:

- 8.3.1** Except for type User-data, ASN.1 datatypes specified in 8.2 shall be encoded according to either:

- a) the Basic Encoding Rules for ASN.1 (ITU-T Rec. X.690 | ISO/IEC 8825-1); or
- b) the Packed Encoding Rules for ASN.1 (ITU-T Rec. X.691 | ISO/IEC 8825-2). If the responder does not support PER, the PER-encoded UD will appear to be a protocol error and the UD PPDU will be discarded without any notification.

18) Subclause 8.3.3

Replace S-CONNECT by S-UNIT-DATA.

19) Subclause 8.4.1.3

Replace item b) with the following:

- b) Whenever User-data appears as an element of some other ASN.1 type in 8.2, the encoding of the User-data value shall be:
 - i) if the basic encoding rules have been used to encode the other ASN.1 type, according to the Basic Encoding Rules for ASN.1 (ITU-T Rec. X.690 | ISO/IEC 8825-1); or
 - ii) if the packed encoding rules have been used to encode the other ASN.1 type, according to the Packed Encoding Rules for ASN.1 (ITU-T Rec. X.691 | ISO/IEC 8825-2).

20) New subclauses 8.4.2.7 and 8.4.2.8

Add the following two new subclauses after 8.4.2.6:

8.4.2.7 When the packed encoding rules are selected for the encoding of the UD PPDU, Full encoding shall be the application of the Packed Encoding Rules for ASN.1 (ITU-T Rec. X.691 | ISO/IEC 8825-2) to the Fully-encoded-data value. The structure and contents of the presentation-data-values component of a PDV-list value shall be as specified in 8.4.2.8.

8.4.2.8 When the packed encoding rules are selected for the encoding of the UD PPDU, the presentation data values component of a PDV-list value shall be encoded according to the Packed Encoding Rules for ASN.1 (ITU-T Rec. X.691 | ISO/IEC 8825-2). The various options for the presentation-data-values component of the PDV-list value shall be as specified in 8.4.2.4 a), b) and c).

NOTE – The use of the single ASN.1 type applies only to a value encoded according to the Basic Encoding Rules, even if the Presentation PCI is encoded according to the Packed Encoding Rules.

21) Annex A

- a) *In Table A.1, change the description of the UD incoming event and add a row for the SUD incoming event as follows:*

UD SUD	Long-form PPDU short-form PPDU	Long-form Presentation Unit Data Short-form Presentation Unit Data
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- b) *In Table A.2, change the description of the UD outgoing event and add a row for the SUD outgoing event as follows:*

UD SUD	Long-form PPDU short-form PPDU	Long-form Presentation Unit Data SPDU; sent as user data on a S-UNIT-DATA request primitive Short-form Presentation Unit Data SPDU; sent as user data on a S-UNIT-DATA request primitive
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- c) *In Table A.3, change the description of P-UNIT-DATAreq event and add a row for the SUD event as follows:*

Event \ State	IDLE
P-UNIT-DATAreq	<u>p1</u> <u>SUD</u> <u>IDLE</u> <u>¬p1</u> UD IDLE
SUD	S-UNIT-DATAind IDLE
p1: local choice and SHORT-UNIT-DATA PPDU can be sent in User-data of S-UNIT-DATA request.	

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