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## DATA COMMUNICATION NETWORKS

# CONNECTIONLESS PROTOCOL SPECIFICATION FOR THE ASSOCIATION CONTROL SERVICE ELEMENT

**Recommendation X.237**

## FOREWORD

The CCITT (the International Telegraph and Telephone Consultative Committee) is a permanent organ of the International Telecommunication Union (ITU). CCITT is responsible for studying technical, operating and tariff questions and issuing Recommendations on them with a view to standardizing telecommunications on a worldwide basis.

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CCITT NOTES

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

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## Introduction

This Protocol Specification is one of a set of Recommendations and International Standards produced to facilitate the interconnection of information processing systems. It is related to other Recommendations and International Standards in the set as defined by the Reference Model for Open Systems Interconnection (CCITT Rec. X.200 | ISO 7498). The reference model subdivides the areas of standardization for interconnection into a series of layers of specification, each of manageable size.

The goal of Open Systems Interconnection is to allow, with a minimum of technical agreement outside the interconnection Recommendations and International Standards, the interconnection of information processing systems:

- from different manufacturers;
- under different managements;
- of different levels of complexity; and
- of different technologies.

This Protocol Specification specifies the protocol for the A-UNIT-DATA service for the Association Control Service Element (ACSE). The A-UNIT-DATA service provides for information transfer between application-entities utilizing the connectionless presentation service. This service is intended to be applicable to a wide range of application process communication requirements.

This Protocol Specification includes an annex that describes the protocol machine of ACSE in terms of a state table. This protocol machine is referred to as the Association Control Protocol Machine (ACPM).

The protocol defined in this Protocol Specification uses the connectionless presentation-service (CCITT Rec. X.216 | ISO/IEC 8822/AD1).

**Recommendation X.237**

# CONNECTIONLESS PROTOCOL SPECIFICATION FOR THE ASSOCIATION CONTROL SERVICE ELEMENT[1)]

*(1992)*

## 1 Scope

The ACSE supports two modes of communication: connection-oriented and connectionless. The ACSE Service Definition (CCITT Rec. X.217 | ISO/IEC 8649) includes both modes of communication. This Recommendation provides the protocol specification for the connectionless mode of communication. The protocol specification for the connection-oriented mode of communication is contained in CCITT Rec. X.227 | ISO/IEC 8650.

This Protocol Specification specifies:

a) procedures for the transfer of information, between application-entities; and

b) the abstract syntax for the representation of the A-UNIT-DATA ACSE APDU.

The A-UNIT-DATA procedure is defined in terms of:

a) The interactions between peer ACSE protocol machines by the use of connectionless presentation-service; and

b) the interaction between an ACSE protocol machine and its service-user.

These procedures are applicable to instances of communication between systems which wish to communicate in an open systems interconnection environment in a connectionless mode.

This Protocol Specification also specifies conformance requirements for systems implementing this procedure. It does not contain tests which can be used to demonstrate conformance.

## 2 Normative references

The following CCITT Recommendations and International Standards contain provisions which, through reference in this text, constitute provisions of this Recommendation and International Standard. At the time of publication, the editions indicated were valid. All Recommendations and Standards are subject to revision, and parties to agreements based on this Recommendation are encouraged to investigate the possibility of applying the most recent editions of the Recommendations and Standards listed below. Members of IEC and ISO maintain registers of currently valid International Standards. The CCITT Secretariat maintains a list of currently valid CCITT Recommendations.

2.1 *Paired Recommendations | International Standards equivalent in technical content*

– CCITT Recommendation X.200 (1988), *Reference Model of Open Systems Interconnection for CCITT applications*.

  ISO 7498:1984, *Information processing systems – Open Systems Interconnection – Basic Reference Model*.

– CCITT Recommendation X.208 (1988), *Specification of Abstract Syntax Notation One (ASN.1)*.

  ISO/IEC 8824:1990, *Information technology – Open Systems Interconnection – Specification of Abstract Syntax Notation One (ASN.1)*.

– CCITT Recommendation X.209 (1988), *Specification of basic encoding rules for Abstract Syntax Notation One (ASN.1)*.

  ISO/IEC 8825:1990, *Information technology – Open Systems Interconnection – Specification of Basic Encoding Rules for Abstract Syntax Notation One (ASN.1)*.

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1) Recommendation X.237 and ISO/IEC 10035 (Information Technology – Open Systems Interconnection – Connectionless Protocol Specification for the Association Control Service Element) are technically equivalent.

– CCITT Recommendation X.210 (1988), *Open Systems Interconnection layer service definition conventions*.

  ISO/TR 8509:1987, *Information processing systems – Open Systems Interconnection – Service conventions*.

– CCITT Recommendation X.215 (1988), *Session service definition for Open Systems Interconnection for CCITT applications*.

  ISO 8326:1987, *Information processing systems – Open Systems Interconnection – Basic connection oriented session service definition*.

– CCITT Recommendation X.216 (1988), *Presentation service definition for Open Systems Interconnection for CCITT applications*.

  ISO/IEC 8822:1988, *Information processing systems – Open Systems Interconnection – Connection oriented presentation service definition*.

– CCITT Recommendation X.217 (1992), *Service definition for the Association Control Service Element*.

  ISO/IEC 8649:1993, *Information technology – Open Systems Interconnection – Service definition for the Association Control Service Element*.

– CCITT Recommendation X.227 (1992), *Connection-oriented protocol specification for the Association Control Service Element*.

  ISO/IEC 8650:1993, *Information technology – Open Systems Interconnection – Protocol specification for the Association Control Service Element*.

– CCITT Recommendation X.650 (1992), *Open Systems Interconnection (OSI) – Reference Model for naming and addressing*.

  ISO/IEC 7498-3:1989, *Information processing systems – Open Systems Interconnection – Basic Reference Model – Part 3: Naming and addressing*.

2.2 *Additional references*

– ISO/IEC 9545:1989, *Information technology – Open Systems Interconnection – Application Layer structure*.

– ISO 7498/Add.1:1987, *Information processing systems – Open Systems Interconnection – Basic Reference Model – Addendum 1: Connectionless-mode transmission*.

– ISO 8326/Add.3:. . . [2)], *Information processing systems – Open Systems Interconnection – Basic connection oriented session service definition – Addendum 3: Connectionless-mode session service*.

– ISO 8649/Amd.2:. . . [2)], *Information processing systems – Open Systems Interconnection – Service definition for the Association Control Service Element – Amendment 2: Connectionless-mode ACSE service*.

– ISO 8822/Amd.1:. . . [2)], *Information processing systems – Open Systems Interconnection – Connection oriented presentation service definition – Amendment 1: Connectionless-mode presentation service*.

## 3 Definitions

For the purposes of this Protocol Specification, the following definitions apply.

3.1 *Reference model definitions*

This Protocol Specification is based on the concepts developed in CCITT Rec. X.200 | ISO 7498 and ISO 7498/AD1, and makes use of the following terms defined in them:

a) Application Layer;

b) application-process;

---

2) Presently at the stage of draft.

c) application-entity;

d) application-service-element;

e) application-protocol-data-unit;

f) connectionless-mode presentation-service;

g) connectionless-mode session-service; and

h) (N)-connectionless-mode transmission.

3.2 *Naming and addressing definitions*

This Protocol Specification makes use of the following terms defined in CCITT Rec. X.650 | ISO/IEC 7498-3:

a) application-entity qualifier;

b) application-entity invocation-identifier;

c) application-process title;

d) application-process invocation-identifier; and

e) presentation address.

3.3 *Service conventions definitions*

This Protocol Specification makes use of the following terms defined in CCITT Rec. X.210 | ISO/TR 8509:

a) service-provider:

b) service-user;

c) non-confirmed service;

d) primitive;

e) request (primitive); and

f) indication (primitive).

3.4 *Presentation service definitions*

This Protocol Specification makes use of the following terms defined in CCITT Rec. X.216 | ISO/IEC 8822:

a) presentation data value;

b) abstract syntax; and

c) abstract syntax name.

3.5 *ACSE service definitions*

This Protocol Specification makes use of the following terms defined in CCITT Rec. X.217 | ISO/IEC 8649 and ISO/IEC 8649/Amd.2:

a) application-association;

b) application context;

c) Association Control Service Element;

d) ACSE service-user;

e) ACSE service-provider;

f) requestor; and

g) acceptor.

3.6 *Application Layer Structure definitions*

This Protocol Specification makes use of the following term defined in ISO/IEC 9545.

application-entity invocation.

## 4 Abbreviations

4.1 *Data units*

APDU application-protocol-data unit

4.2 *Types of application-protocol-data-units*

The following abbreviation has been given to the application-protocol-data-unit defined in this Protocol Specification:

AUDT A-UNIT-DATA APDU

4.3 *Other abbreviations*

The following abbreviations are used in this Protocol Specification.

ACPM Association Control Protocol Machine

ACSE Association Control Service Element

AE application-entity

AEI application-entity invocation

AP application-process

APCI application-protocol-control-information

ASE application-service-element

ASN.1 Abstract Syntax Notation One

OSI Open Systems Interconnection

## 5 Conventions

5.1 This Protocol Specification employs a tabular presentation of its APDU fields. In § 7, a table is presented for the AUDT APDU. Each field is summarized using the following notation:

M presence is mandatory

O presence is ACPM option

U presence is an ACSE service-user option

req source is related request primitive

ind sink is related indication primitive

sp source or sink is the ACPM

5.2 The structure of the AUDT APDU is specified in § 9 using the abstract syntax notation ASN.1 (CCITT Rec. X.208 | ISO/IEC 8824).

## 6 Overview of the protocol

6.1 *Service provision*

The protocol specified in this Protocol Specification provides the A-UNIT-DATA service defined in CCITT Rec. X.217 | ISO/IEC 8649/Amd.2.

6.2 *Use of the presentation-service*

6.2.1 The ACSE protocol specified in this Protocol Specification uses the P-UNIT-DATA connectionless presentation-service (CCITT Rec. X.216 | ISO/IEC 8822/Amd.1) to pass information in the form of an AUDT APDU, between peer application-entity invocations (AEIs).

6.3 *Model*

6.3.1 The A-UNIT-DATA protocol machine communicates with its service user by means of primitives defined in CCITT Rec. X.217 | ISO/IEC 8649/Amd.2 for A-UNIT-DATA service.

6.3.2 The A-UNIT-DATA protocol machine is driven by the use of the A-UNIT-DATA request primitive and by the presentation P-UNIT-DATA indication primitive.

6.3.3 During an instance of communication, the existence of both the sending and receiving AEI is presumed. How these AEIs are created is outside the scope of this Protocol Specification.

## 7 Elements of procedure

The A-UNIT-DATA protocol consists of the A-UNIT-DATA transfer procedure.

7.1 *A-UNIT-DATA transfer*

7.1.1 *Purpose*

The A-UNIT-DATA transfer procedure is used to transmit a unit of information from one AEI to another AEI. It supports the A-UNIT-DATA service.

7.1.2 *APDUs used*

The A-UNIT-DATA transfer procedure uses the A-UNIT-DATA (AUDT) APDU. The fields of the AUDT APDU are listed in Table 1/X.237.

7.1.3 *A-UNIT-DATA transfer procedure*

This procedure is driven by the following events:

a) an A-UNIT-DATA request primitive from the requestor;

b) an AUDT APDU as user data on a P-UNIT-DATA indication primitive.

7.1.3.1 *A-UNIT-DATA request primitive*

7.1.3.1.1 The sending ACPM forms an AUDT APDU using parameter values from the A-UNIT-DATA request primitive and its own stored data (the Protocol Version field and Implementation Information field). It issues a P-UNIT-DATA request primitive using information from the A-UNIT-DATA request primitive. The User Data parameter of the P-UNIT-DATA request primitive contains the AUDT APDU.

7.1.3.2 *AUDT APDU*

7.1.3.2.1 The receiving ACPM receives the AUDT APDU as user data on a P-UNIT-DATA indication primitive. If any of the parameters of the P-UNIT-DATA indication primitive or the fields of the AUDT APDU are unacceptable to this ACPM, it discards the AUDT APDU.

7.1.4 *Use of the AUDT APDU fields*

The AUDT APDU fields are used as shown in Table 1/X.237.

TABLE 1/X.237

**AUDT APDU fields**

| Field Name | Presence | Source | Sink |
|---|---|---|---|
| Protocol Version | O | sp | sp |
| Application Context Name | M | req | ind |
| Calling AP Title | U | req | ind |
| Calling AE Qualifier | U | req | ind |
| Calling AP Invocation-identifier | U | req | ind |
| Calling AE Invocation-identifier | U | req | ind |
| Called AP Title | U | req | ind |
| Called AE Qualifier | U | req | ind |
| Called AP Invocation-Identifier | U | req | ind |
| Called AE Invocation-identifier | U | req | ind |
| Implementation Information | O | sp | sp |
| User Information | M | req | ind |

7.1.4.1 *Protocol Version*

For the sending ACPM: The value assigned to this field is determined within the implementation of the ACPM. It is a variable length bit string where a bit set to one, indicates the version of ACSE protocol that this ACPM supports. Bit 0 represents version 1; bit 1 represents version 2; etc. Only one bit can be set by the sending ACPM indicating support of a specific version. No trailing bits higher than the highest version of this Protocol Specification that the sending ACPM supports are included. That is, only one bit which is the last bit of the string is set to one.

For the receiving ACPM: The receiving ACPM will discard the received AUDT APDU if its version is not supported.

7.1.4.2 *Application Context Name*

For the sending ACPM: This value is determined by the value of the Application Context Name parameter of the A-UNIT-DATA request primitive.

For the receiving ACPM: This value is used to determine the value of the Application Context Name parameter of the A-UNIT-DATA indication primitive, if issued.

7.1.4.3 *Calling AP Title*

For the sending ACPM: This value is determined by the value of the Calling AP Title parameter of the A-UNIT-DATA request primitive.

For the receiving ACPM: This value is used to determine the value of the Calling AP Title parameter of the A-UNIT-DATA indication primitive, if issued.

7.1.4.4 *Calling AE Qualifier*

For the sending ACPM: This value is determined by the value of the Calling AE Qualifier parameter of the A-UNIT-DATA request primitive.

For the receiving ACPM: This value is used to determine the value of the Calling AE Qualifier parameter of the A-UNIT-DATA indication primitive, if issued.

7.1.4.5 *Calling AP Invocation-identifier*

For the sending ACPM: This value is determined by the value of the Calling AP Invocation-identifier parameter of the A-UNIT-DATA request primitive.

For the receiving ACPM: This value is used to determine the value of the Calling AP Invocation-identifier parameter of the A-UNIT-DATA indication primitive, if issued.

7.1.4.6 *Calling AE Invocation-identifier*

For the sending ACPM: This value is determined by the value of the Calling AE Invocation-identifier parameter of the A-UNIT-DATA request primitive.

For the receiving ACPM: This value is used to determine the value of the Calling AE Invocation-identifier parameter of the A-UNIT-DATA indication primitive, if issued.

7.4.1.7 *Called AP Title*

For the sending ACPM: This value is determined by the value of the Called AP Title parameter of the A-UNIT-DATA request primitive.

For the receiving ACPM: This value is used to determine the value of the Called AP Title parameter of the A-UNIT-DATA indication primitive, if issued.

7.1.4.8 *Called AE Qualifier*

For the sending ACPM: This value is determined by the value of the Called AE Qualifier parameter of the A-UNIT-DATA request primitive.

For the receiving ACPM: This value is used to determine the value of the Called AE Qualifier parameter of the A-UNIT-DATA indication primitive, if issued.

7.1.4.9 *Called AP Invocation-identifier*

For the sending ACPM: This value is determined by the value of the Called AP Invocation-identifier parameter of the A-UNIT-DATA request primitive.

For the receiving ACPM: This value is used to determine the value of the Called AP Invocation-identifier parameter of the A-UNIT-DATA indication primitive, if issued.

7.1.4.10 *Called AE Invocation-identifier*

For the sending ACPM: This value is determined by the value of the Called AE Invocation-identifier parameter of the A-UNIT-DATA request primitive.

For the receiving ACPM: This value is used to determine the value of the Called AE Invocation-identifier parameter of the A-UNIT-DATA indication primitive, if issued.

7.1.4.11 *Implementation Information*

For the sending ACPM: The value assigned to this field is determined within the implementation of the ACPM. It contains information specific to the individual implementation of that ACPM.

For the receiving ACPM: This field does not affect the operation of the ACPM. Any use depends on a common understanding between sending and receiving ACPMs.

7.1.4.12 *User Information*

For the sending ACPM: The value is determined by the value of the User Information parameter of the A-UNIT-DATA request primitive.

For the receiving ACPM: This value is used to determine the value of the User Information parameter of the A-UNIT-DATA indication primitive, if issued.

7.1.5 *Collisions and interactions*

Overlapping attempts by two requestors to send AUDTs result in the communication of both units of information.

7.2 *Rules for extensibility*

When processing an incoming AUDT, the receiving ACPM shall

a) ignore all tagged values that are not defined in the abstract syntax definition of this Protocol Specification; and

b) ignore all unknown bit name assignments within a bit string.

## 8 Mapping to the connectionless presentation-service

This clause defines how the connectionless presentation-service primitives are used by the ACPM. Table 2/X.237 defines the mapping of ACSE service primitives and its APDU to presentation-service primitives.

TABLE 2/X.237

**Mapping overview**

| ACSE-primitive | APDU | Presentation-primitive |
|---|---|---|
| A-UNIT-DATA request/indication | AUDT | P-UNIT-DATA request/indication |

8.1 *A-UNIT-DATA transfer*

A-UNIT-DATA transfer utilizes the underlying connectionless presentation-service.

8.1.1 *Directly mapped parameters*

The following parameters of the A-UNIT-DATA primitives are mapped directly onto the corresponding parameters of the P-UNIT-DATA primitives:

a) Calling Presentation Address;

b) Called Presentation Address;

c) Quality of Service; and

d) Presentation Context Definition List.

8.1.2 *Use of other P-UNIT-DATA request and indication parameters*

The User Data parameter of the P-UNIT-DATA request and indication primitives is referenced by the ACPM. It is used to carry the AUDT APDU as specified below.

a) The abstract syntax for the AUDT APDU is defined in § 9 of this Protocol Specification. This abstract syntax must be included as the value of a presentation context definition parameter specified by the requestor on the A-UNIT-DATA request primitive.

*Note* – The sending and receiving ACPMs are aware of the presentation context that contains their abstract syntax by a local mechanism.

b) User Information from the A-UNIT-DATA request primitive is included in the AUDT APDU and is expressed using one or more presentation contexts specified by the requestor on the A-UNIT-DATA request primitive.

## 9 Abstract Syntax Definition of APDUs

9.1 The abstract syntax of each of the ACSE APDUs is specified in this clause using ASN.1 (CCITT Rec. X.208 | ISO/IEC 8824).

```
Connectionless-ACSE-1
{ joint-iso-ccitt association-control(2) module(2)
  clacse1(2) version(1)
}
DEFINITIONS ::=
BEGIN
-- Connectionless-ACSE-1 refers to CCITT Rec. X.237 | ISO/IEC 10035 Version 1

IMPORTS
        AP-title, AE-qualifier, AE-title
        FROM ACSE-1
                { joint-iso-ccitt association-control(2) module(2)
                  acse1(1) version(1)
                }
-- The data types AP-title and AE-qualifier are imported from CCITT Rec. X.227 | ISO/IEC 8650.

AUDT-apdu  ::=     [APPLICATION 0]          IMPLICIT SEQUENCE
{ protocol-version                  [0]     IMPLICIT BIT STRING,
                                            { version1 (0) }            DEFAULT {version1},
  application-context-name          [1]     Application-context-name,
  called-AP-title                   [2]     AP-title                    OPTIONAL,
  called-AE-qualifier               [3]     AE-qualifier                OPTIONAL,
  called-AP-invocation-id           [4]     AP-invocation-id            OPTIONAL,
  called-AE-invocation-id           [5]     AE-invocation-id            OPTIONAL,
  calling-AP-title                  [6]     AP-title                    OPTIONAL,
  calling-AE-qualifier              [7]     AE-qualifier                OPTIONAL,
  calling-AP-invocation-id          [8]     AP-invocation-id            OPTIONAL,
  calling-AE-invocation-id          [9]     AE-invocation-id            OPTIONAL,
  implementation-information        [29]    IMPLICIT GraphicString      OPTIONAL,
  user-information                  [30]    IMPLICIT SEQUENCE OF EXTERNAL
}

Application-context-name  ::=  OBJECT IDENTIFIER
-- As defined in CCITT Rec. X.650 | ISO/IEC 7498-3, an application-entity title is composed of an application-
-- process title and an application-entity qualifier. The ACSE protocol provides for the transfer of an application-
-- entity title value by the transfer of its component values.

AE-invocation-id  ::=  INTEGER
AP-invocation-id  ::=  INTEGER
END
```

9.2 The following name, that has the ASN.1 type of OBJECT IDENTIFIER, applies to the connectionless ACSE abstract syntax definition specified in this clause:

```
{ joint-iso-ccitt association-control(2) abstract-syntax(1)
  clapdu(1) version(1)
}
```

9.3 The set of encoding rules named

**{ joint-iso-ccitt asn1(1) basic-encoding(1) }**

and specified in CCITT Rec. X.209 | ISO/IEC 8825 is applicable to the connectionless ACSE abstract syntax definition.

## 10 Conformance

A system claiming to implement the procedures specified in this Protocol Specification shall comply with the requirements in § 10.1 through § 10.3.

10.1 *Statement requirements*

The following shall be stated by the implementor:

a) whether the system is capable of acting in the role of A-UNIT-DATA requestor or acceptor, or both;

b) that the system supports this protocol.

*Note* – A PICS (Protocol Implementation Conformance Statement) for this Protocol Specification is for further study.

10.2 *Static requirements*

The system shall

a) act in the role of a requestor (by sending an AUDT APDU) or acceptor (by receiving an AUDT APDU), or both;

b) support (as a minimum) that encoding which results from applying the basic ASN.1 encoding rules to the ASN.1 specified in § 9 for the purpose of communicating ACSE APCI.

10.3 *Dynamic requirements*

The system shall

a) follow all the procedures specified in clause 7 (including the rules for extensibility) and Annex A; and

b) support the mapping onto the connectionless presentation service defined in § 8.

## 11 Precedence

Any person encountering an inaccuracy or ambiguity in this Protocol Specification is requested to notify the CCITT Secretariat without delay in order that the matter may be investigated and appropriate action taken.

ANNEX A

## State table

(This annex forms an integral part of this Recommendation)

A.1 *General*

A.1.1 This annex defines the state table for the A-UNIT-DATA protocol.

A.1.2 The ACPM state table does not constitute a formal definition of the ACPM. It is included to provide a more precise specification of the elements of procedure defined in § 7.

A.1.3 This annex contains the following tables.

a) Table A-1/X.237 specifies the abbreviated name, source, and name/description of each incoming event. The sources are:

1) ACSE service-user (AC-user); and

2) peer ACPM (AC-peer).

b) Table A-2/X.237 specifies the abbreviated name, target, and name/description of each outgoing event. The targets are:

1) ACSE service-user (AC-user); and

2) peer ACPM (AC-peer).

c) Table A-3/X.237 specifies the ACPM state table using the abbreviations of the above tables.

A.2 *Conventions*

A.2.1 The intersection of an incoming event (row) and a state (column) forms a cell.

A.2.2 A non-blank cell represents an incoming event and state that is defined. Such a cell contains one or more action lists. An action list may be either mandatory or conditional. If a cell contains a mandatory action list, it is the only action list in the cell.

A.2.3 An action list contains:

a) an outgoing event; and

b) a resultant state.

A.3 *Actions to be taken by the ACPM*

The ACPM state table defines the action to be taken by the ACPM in terms of an outgoing event and the resultant state of the ACPM.

A.4 *Relationship to Presentation and other ASEs*

The ACPM state table (see Table A-3/X.237) only defines the interactions of the ACPM, its ACSE service-user and the presentation-services used by the ACPM.

*Note* – The occurrence of other events from the presentation-service or other application-service-elements is not included in the ACPM state table because they do not affect the ACPM.

TABLE A-1/X.237

**Incoming event list**

| Abbreviated name | Source | Name and description |
|---|---|---|
| A-UNIT-DATAreq | AC-user | A-UNIT-DATA request primitive |
| AUDT | AC-peer | A-UNIT-DATA APDU<br>The AUDT is user data on a P-UNIT-DATA indication |

TABLE A-2/X.237

**Outgoing event list**

| Abbreviated name | Target | Name and description |
|---|---|---|
| A-UNIT-DATAind | AC-user | A-UNIT-DATA indication primitive |
| AUDT | AC-peer | A-UNIT-DATA APDU<br>The AUDT is sent as user data on a P-UNIT-DATA request primitive |

TABLE A-3/X.237

**State table**

| | STA0<br>IDLE |
|---|---|
| A-UNIT-DATAreq | AUDT<br>STA0 |
| AUDT | A-UNIT-DATAind<br>STA0 |

ANNEX B

## Summary of Assigned Object Identifier Values

(This annex does not form an integral part of this Recommendation)

This annex summarises the OBJECT IDENTIFIER values assigned in this Protocol Specification.

```
{ joint-iso-ccitt association-control(2)
  module(2)
  clacse1(2)
  version(1)
}
-- May be used to reference the ASN.1 module defined in § 9.1 of this Protocol Specification

{ joint-iso-ccitt association-control(2)
  abstract-syntax(1)
  clapdu(1)
  version(1)
}
-- May be used to reference the abstract syntax for A-UNIT-DATA defined in § 9.1 of this Protocol Specification
```

Additionally § 9.3 of this Protocol Specification makes reference to the OBJECT IDENTIFIER value assigned in CCITT Rec. X.209 | ISO/IEC 8825 for the basic encoding rules for ASN.1 as a means of specifying a transfer syntax for the abstract syntax defined in this Protocol Specification.