

The drawing contained in this Recommendation have been done in Autocad

TABLE 2/T.330

Relationship between abstract operation and TAPDU

mhs-doc-xfer Abstract operation

TAPDU

Direction of transfer

TLM TLMAU

Operation

TAPDU name

TLMAU status

MessageSend

(O) Send-TAPDU

(R) SendAck-TAPDU

(E) Exception-TAPDU

M

C

M

->

<-

<-

MessageProbe

- (O) Probe-TAPDU
- (R) ProbeAck-TAPDU
- (E) Exception-TAPDU

C
C
C

->
<-
<-

ExplicitReceive

- (O) ExplicitRN-TAPDU
- (R) ExplicitRNAck-TAPDU
- (E) Exception-TAPDU

C
C
C

->
<-
<-

MessageCancel

- (O) Cancel-TAPDU
- (R) -
- (E) Exception-TAPDU

C
-
C

->
<-

MessageDeliver

(O) Deliver-TAPDU

M

<-

ReceiptStatusNotice

(O) ReceiptStatusNotice-TAPDU

M

<-

DeliveryStatusNotice

(O) DeliveryStatusNotice-TAPDU

M

<-

Register

(O) Register-TAPDU

(R) RegisterAck-TAPDU

(E) Exception-TAPDU

C

C

C

->

<-

<-

DSList

- (O) DSQuery-TAPDU
- (R) DSReport-TAPDU
- (E) Exception-TAPDU

C
C
C

->

<-

DSDelete

- (O) MessageDelete-TAPDU
- (R) -
- (E) Exception-TAPDU

C
-
C

->

<-

<-

DSFetch

- (O) OutputRequest-TAPDU
- (R) OutputMessage-TAPDU
- (E) Exception-TAPDU

C (remarque 1)
C (remarque 1)
C (remarque 1)

->
<-
<-

MessageStatus

- (O) StatusQuery-TAPDU
- (R) StatusReport-TAPDU
- (E) Exception-TAPDU

C
C
C

->
<-
<-

O Argument R Result E Error

M Mandatory C Conditional

Note 1 – In cases where TLMAU provides DS, these TAPDU are mandatory.

Note 2 – A message may arrive at a TLM terminal as a result of either a Deliver–TAPDU or OutputMessage–TAPDU. The Deliver–TAPDU is applicable when delivery occurs directly to a TLM terminal. The OutputMessage–TAPDU is only applicable in the case that DS is subscribed.

10.1.1.1 Send–TAPDU

The Send–TAPDU comprises following elements:

Send–TAPDU

```
Send–TAPDU ::= SEQUENCE {
    [0] SEQUENCE {
        [0] SendTAPDUId,
        [1] SEQUENCE {
            quantityOfDocs      QuantityOfDocsElementId,
            number-of-docs      NumberOfAssociatedDocuments } OPTIONAL },
```

— See Note 1

```
Send [1] SET {
    [0] SEQUENCE {
        priority      PriorityElementId,
        priority-ind  PriorityValue DFAULT normal } OPTIONAL,
    [1] SEQUENCE {
        perMessageIndicators  PerMessageIndicatorsElementId,
                               SEQUENCE {
        deferred-delivery-time [0] DateandTime OPTIONAL,

    [1] SET {
        disclose-recipients
    [0] DiscloseRecipientsValue OPTIONAL,
        alternate-recipient-allowed [1] AlternateRecipientAllowedValue
OPTIONAL,
        recipient-reassignment-prohibited [2] ReassignmentValue OPTIONAL } } }
OPTIONAL,
    [2] SEQUENCE {
        conversion      ConversionElementId,
        conversion-info ConversionInfoValue } OPTIONAL,
    [3] SEQUENCE {
        contentinfo      ContentInfoElementId,
        content-return-request ContentReturnRequestValue } OPTIONAL,
```

[4] SEQUENCE {
 returnAddress ReturnAddressElementId,
 postal-address PostalAddressValue OPTIONAL,

[5] SEQUENCE {
 latestDelivery LatestDeliveryElementId,
 latest-delivery-time DateandTime } OPTIONAL },

[6] SEQUENCE {
 to ToElementId,
 SET OF SEQUENCE {
 primary-recipient [0] ORDescriptor,
 [1] RecOptions } } OPTIONAL,

— See Note 2

[7] SEQUENCE {
 cc CCElementId,
 SET OF SEQUENCE {
 copy-recipient [0] ORDescriptor,
 [1] RecOptions } } OPTIONAL,

— See Note 2

[8] SEQUENCE {
 bcc BCCElementId,
 SET OF SEQUENCE {
 blind-copy-recipient [0] ORDescriptor,
 [1] RecOptions } } OPTIONAL },

— See Note 2

Send-TAPDU (continued)

— Send-TAPDU Definition (continued)

[2] SET {
 [0] SEQUENCE {
 thisIPM ThisIPMElementId,
 this-ipm-id IPMIdentifier } OPTIONAL,

— See Note 3

[1] SEQUENCE {
 from FromElementId,
 originating-user ORDescriptor } OPTIONAL,
[2] SEQUENCE {

	authorizing	AuthorizingElementId,
	SET OF	
	authorizing-user	OrDescriptor } OPTIONAL,
[3]	SEQUENCE {	
	repliedToIPM	RepliedToIPMElementId,
	replied-to-ipm-id	IPMIdentifier } OPTIONAL,
[4]	SEQUENCE {	
	obsoletedIPMs	ObsoletedIPMsElementId,
	SEQUENCE OF	
	obsoleted-ipm-id	IPMIdentifier } OPTIONAL,
[5]	SEQUENCE {	
	relatedIPMs	
		RelatedIPMsElementId,
	SEQUENCE OF	
	related-ipm-id	IPMIdentifier } OPTIONAL,
[6]	SEQUENCE {	
	subject	SubjectElementId,
	subject-content	SubjectContent } OPTIONAL,
[7]	SEQUENCE {	
	contentIndicator	ContentIndicatorElementId,
	SEQUENCE {	


```

    expiry-time      [0] DateandTime OPTIONAL,
                    [1] SET {
    importance       [0] ImportanceValue DEFAULT normal,
    sensitivity      [1] SensitivityValue OPTIONAL } } } OPTIONAL,
[8] SEQUENCE {
    reply
        ReplyElementId,
        SEQUENCE {
    reply-time      [0] DateandTime,
                    [1] SET OF {
    reply-recipient ORDescriptor } } OPTIONAL,
[9] SEQUENCE {
    language        LanguageElementId,
    language-ind    LanguageInd } OPTIONAL,
MsgIncomplete [10] MsgIncompleteElementId OPTIONAL },
    — Body
[3] SET {
    [0] SEQUENCE {
        BodyType      BodyTypeElementId,
        SET OF {

```

Body-part BodyPartValue } OPTIONAL } }

Send-TAPDU (*end*)

— *Send-TAPDU Definition (continued)*

— *Definition of RecOptions*

RecOptions ::= SET {

user-report-request	[1] UserReportRequestValue OPTIONAL,
explicit-conversion	[2] ExplicitConversionValue OPTIONAL OPTIONA
rn-request	[3] RNRequestValue OPTIONAL,
nrn-request	[4] NRNRequestValue OPTIONAL,
return-request	[5] ReturnRequestValue OPTIONAL,
reply-request	[6] ReplyRequestValue DEFAULT noReply,
requested-delivery-method	[7] RequestedDelValue OPTIONAL,
terminal-type	[8] TerminalTypeValue OPTIONAL,
physical-forwarding-prohibited	[9] PhyForProhibValue OPTIONAL,

physical-forwarding-address-request	[10] PhyForAdrValue OPTIONAL,
physical-delivery-modes	[11] PhyDelModValue OPTIONAL,
registered-mail-type	[12] RegMailType Value OPTIONAL,
recipient-number-for-advice	[13] RecNumAdvValue OPTIONAL,
physical-delivery-report-request	[14] PhyDelRepValue OPTIONAL,
originator-requested-alternate-recipient	[15] OrgRecAltValue OPTIONAL,

Note 1 – This element must be present when ControlInfo is conveyed by a normal document and more than one TAPDU are conveyed in this session.

Note 2 – OR Descriptor must contain an ORAddress and at least one of these addresses must be present.

Note 3 – When this element is omitted, the TLMAU shall construct this component which consists of the following components: originator name, date and time, and if necessary, a sequence number.

10.1.1.2

SendAck-TAPDU

The SendAck-TAPDU comprises following elements:

SendAck-TAPDU

```

SendAck-TAPDU ::= SEQUENCE {
  [0] SEQUENCE {
    sendAck [0] SendAckTAPDUId,
    [1] SEQUENCE {
      correlationInfo          CorrelationInfoElementId,

```

```

        call-id          CallIdentification } },
— See Note
[1] SET {
    [0] SEQUENCE {
        submissionId      SubmissionIdElementId,
        submission-msg-id  MessageIdentifier },
    [1] SEQUENCE {
        submissionTime     SubmissionTimeElementId,
        submission-time    DateandTime } } }

```

Note – This element is a session connection information that identifies previous Send-TAPDU being reported on.

10.1.1.3

Exception–TAPDU

The Exception–TAPDU comprises following elements:

Exception–TAPDU

```
Exception–TAPDU ::= SEQUENCE {
  [0] SEQUENCE {
    exception [0] ExceptionTAPDUId,
    [1] SEQUENCE {
      correlationInfo          CorrelationInfoElementId,
      call–id                  CallIdentification },
  — See Note
  [2] SEQUENCE {
    errors                    ErrorsElementId,
    error–cause               ErrorCauseValue } } }
```

Note – This element is a session connection information that identifies associated TAPDU being reported on e.g. Send–TAPDU.

10.1.2 *MessageProbe*

A TLM terminal sends a Probe–TAPDU to invoke the MessageProbe abstract operation. The TLMAU returns a ProbeAck–TAPDU to report the result of that operation, or may return an Exception–TAPDU (§ 10.1.1.3) to report an abstract error.

10.1.2.1 *Probe–TAPDU*

The Probe-TAPDU comprises following elements:

Probe-TAPDU

```
Probe-TAPDU ::= SEQUENCE {
  [0] SEQUENCE {
    [0] ProbeTAPDUId,
    [1] SEQUENCE {
      quantityOfDocs
      QuantityOfDocsElementId,
      number-of-docs
      NumberOfAssociatedDocuments } OPTIONAL },
  [1] SET {
    — Continuation see send-TAPDU.
    — Note that only few elements of the send-TAPDU are relevant for a Probe-
TAPDU.
    — Not relevant elements will be ignored.
    — At least one recipient must be present.
```

10.1.2.2

ProbeAck-TAPDU

The ProbeAck-TAPDU comprises following elements:

ProbeAck-TAPDU

```
ProbeAck-TAPDU ::= SEQUENCE {
  [0] SEQUENCE {
    probeAck [0] ProbeAckTAPDUId,
    [1] SEQUENCE {
      correlationInfo      CorrelationInfoElementId,
      call-id              CallIdentification } },
  [1] SET {
    [0] SEQUENCE {
      probeId              ProbeElementId,
      probe-msg-id        MessageIdentifier },
    [1] SEQUENCE {
      submissionTime      SubmissionTimeElementId,
      submission-time     DateandTime } } }
```

10.1.3 *ExplicitReceive*

A TLM terminal sends an ExplicitRN–TAPDU to invoke the ExplicitReceive abstract operation. The TLMAU returns an ExplicitRNack–TAPDU to report the result of that operation, or may return an Exception–TAPDU (see § 10.1.1.3), to report an abstract error.

10.1.3.1

ExplicitRN–TAPDU

The ExplicitRN–TAPDU comprises following elements:

ExplicitRN–TAPDU

```

ExplicitRN–TAPDU ::= SEQUENCE {
  [0]
    explicitRN                ExplicitRNTAPDUId,
  [1] SET {
    [0] SEQUENCE {
      recipients                RecipientsElementId,
      recipient–name           ORName },
    [1] SEQUENCE {
      priority                   PriorityElementId,
      priority–ind              PriorityValue DEFAULT normal } OPTIONAL,
    [2] SEQUENCE {
      subjectIPM                 SubjectIPMElementId,
      subject–ipm–id           IPMIdentifier } OPTIONAL,
    [3] SEQUENCE {
      IPNOriginator              IPNOriginatorElementId,

```



```

        ipn-originating-user      ORDescriptor } OPTIONAL,
[4] SEQUENCE {
    timeOfReceipt      TimeOfReceiptElementId,
    receipt-time      DateandTime } OPTIONAL,
[5] SEQUENCE {
    convertedInfoTypes      ConvertedInfoTypesElementId,
    eIT      SET OF
        EITValue } OPTIONAL } }

```

Note – If receipt-time element defined in Receipt is omitted, TLMAU extracts one from the CES of the session in which this TAPDU was transferred. This may differ from the time of actual receipt of IPM.

10.1.3.2

ExplicitRNAck-TAPDU

The ExplicitRNAck-TAPDU comprises following elements:

ExplicitRNAck-TAPDU

```

ExplicitRN-TAPDU ::= SEQUENCE {
    [0] SEQUENCE {
        explicitRNAck [0] ExplicitRNTAPDUId,
        [1] SEQUENCE {
            correlationInfo      CorrelationInfoElementId,

```

```

[1] SET {
    call-id          CallIdentification } },
[0] SEQUENCE {
    submissionId     SubmissionElementId,
    submission-msg-id MessageIdentifier },
[1] SEQUENCE {
    submissionTime    SubmissionTimeElementId,
    submission-time   DateandTime } } }

```

10.1.4 MessageCancel

A TLM terminal sends a Cancel-TAPDU to invoke the MessageCancel abstract operation. The TLMAU returns no TAPDU to report the result of that operation, or may return an Exception-TAPDU (see § 10.1.1.3), to report an abstract error.

10.1.4.1

Cancel-TAPDU

The Cancel-TAPDU comprises following elements:

Cancel-TAPDU

```

Cancel-TAPDU ::= SEQUENCE {
    cancel [0] CancelTAPDUId,
    [1] SEQUENCE {
        submissionId
        SubmissionIdElementId,

```

submission-msg-id
MessageIdentifier } OPTIONAL,
[2] SEQUENCE {
 correlation-Info
 Correlation-InfoElementId,

call-id
CallIdentification } OPTIONAL }
— *one of these must be present.*

10.1.5 *MessageDeliver*

A TLMAU sends a Deliver-TAPDU to invoke the MessageDeliver abstract operation.

10.1.5.1

Deliver-TAPDU

The Deliver-TAPDU comprises following elements:

Deliver-TAPDU

```

Deliver-TAPDU ::= SEQUENCE {
  [0] SEQUENCE {
    deliver [0] DeliverTAPDUId,
    [1] SEQUENCE {
      quantityOfDocs          QuantityOfDocsElementId,
      number-of-docs          NumberOfAssociatedDocuments    }
  OPTIONAL },
  — MTS parameters
  [1] SET {
    [0] SEQUENCE {
      priority                PriorityElementId,
      priority-ind            PriorityValue  DEFAULT  normal  }
  OPTIONAL,
  [1] SEQUENCE {
    originator                OriginatorElementId,
    originator-name           ORName } OPTIONAL,
  [2] SEQUENCE {
    thisRecipient             ThisRecipientElementId,
    this-recipient-name       ORName },
  [3] SEQUENCE {

```

<p>orgIntendedRecipient org-intended-recipient-name [4] SEQUENCE { otherRecipients SET OF otherRecipient-name [5] SEQUENCE { redirectedfrom SEQUENCE OF redirected-from [6] SEQUENCE { submissionTime submission-time [7] SEQUENCE { deliveryId delivery-msg-id [8] SEQUENCE { conversionIndication SET { [0] SET OF eIT conversion-prohibited [1] ConversionProhibitedValue OPTIONAL,</p>	<p>OrgIntendedRecipientElementId, ORName } OPTIONAL, OtherRecipientsElementId, ORName } OPTIONAL, RedirectedFromElementId, ORName } OPTIONAL, SubmissionTimeElementId, DateandTime }, DeliveryElementId, MessageIdentifier } OPTIONAL, ConversionIndicationElementId, EITValue OPTIONAL } } ConversionProhibitedValue OPTIONAL } } ConvertedInfoTypesElementId, EITValue } } ,</p>
--	--

Deliver-TAPDU (continued)

— Deliver-TAPDU Definition (continued)

— IPMS parameters

```
[2] SET {  
  [0] SEQUENCE {  
    thisIPM          ThisIPMElementId,  
    this-ipm-id      IPMIdentifier },  
  [1] SEQUENCE {  
    from             FromElementId,  
    originating-user OrDescriptor } OPTIONAL,  
  [2] SEQUENCE {  
    authorizing      AuthorizingElementId,  
                    SET OF  
    authorizing-user ORDescriptor } OPTIONAL,  
  [3] SEQUENCE {  
    to               ToElementId,  
                    SET OF SEQUENCE {  
    primary-recipient [0] ORDescriptor,  
                    [1] NotificationSpecification } } OPTIONAL,
```

[4] SEQUENCE {
cc CCElementId,
SET OF SEQUENCE {
copy-recipient [0] ORDescriptor,
[1] NotificationSpecification } } OPTIONAL,

[5] SEQUENCE {
bcc BCCElementId,
SET OF SEQUENCE {
blind-copy-recipient [0] ORDescriptor,
[1] NotificationSpecification } } OPTIONAL,

[6] SEQUENCE {
repliedToIPM RepliedToIPMElementId,
replied-to-ipm-id IPMIdentifier } OPTIONAL,

[7] SEQUENCE {
obsoletedIPMs ObsoletedIPMsElementId,
SET OF
obsoleted-ipm-id IPMIdentifier } OPTIONAL,

[8] SEQUENCE {
relatedIPMs RelatedIPMsElementId,
SET OF
related-ipm-id IPMIdentifier } OPTIONAL,

[9] SEQUENCE {
subject SubjectElementId,
subject-content SubjectContent } OPTIONAL,

[10] SEQUENCE {
contentIndicator ContentIndicatorElementId,
SEQUENCE {
expiry-time [0] DateandTime OPTIONAL,
[1] SET {
importance [0] ImportanceValue DEFAULT normal,
sensitivity [1] SensitivityValue OPTIONAL,
auto-forwarded [2] AutoForwardedValue DEFAULT
notAutoForward } } } OPTIONAL,

Deliver-TAPDU (*end*)

— *Deliver-TAPDU Definition (continued)*

```
[11] SEQUENCE {
    reply
        ReplyElementId,
        SEQUENCE {
            reply-time [0] DateandTime,
            [1] SET OF
                reply-recipient ORDescriptor } } OPTIONAL,
[12] SEQUENCE {
    language LanguageElementId,
    language-ind LanguageInd } OPTIONAL,
MsgIncomplete [13] MsgIncompleteElementId OPTIONAL },
— Body
[3] SEQUENCE {
    [0] SEQUENCE {
        bodyType BodyTypeElementId,
        body-part BodyPartValue } OPTIONAL,
    [1] SEQUENCE {
```

```

forwardedInfo          ForwardedInfoElementId,
      SEQUENCE {
        forwarded-time [0] DateandTime,
          [1] DeliveryEnvelope } } OPTIONAL,
— Delivery Envelope contains same set of MTS parameters of Deliver-TAPDU } }
— Definition of Notification Specification
Notification Specification ::= SET {
      rn-request      [0] RNRequestValue OPTIONAL,
      nrn-request     [1] NRNRequestValue OPTIONAL,
      return-request  [2] ReturnRequestValue OPTIONAL,
      reply-request   [3] ReplyRequestValue DEFAULT
                    noReply }

```

10.1.6 *ReceiptStatusNotice*

A TLMAU terminal sends a ReceiptStatusNotice-TAPDU to invoke the ReceiptStatusNotice abstract operation.

10.1.6.1

ReceiptStatusNotice-TAPDU

The ReceiptStatuNotice-TAPDU comprises following elements:

ReceiptStatusNotice-TAPDU

```
ReceiptStatusNotice-TAPDU ::= SEQUENCE {
  [0] SEQUENCE {
    receiptStatusNotice [0] ReceiptStatusNoticeTAPDUId,
    [1] SEQUENCE {
      quantityOfDocs          QuantityOfDocsElementId,
      number-of-docs          NumberOfAssociatedDocuments } OPTIONAL },
  — MTS parameters
  [1] SET {
    [0] SEQUENCE {
      priority                PriorityElementId,
      priority-ind            PriorityValue },
    [1] SEQUENCE {
      deliveryId              DeliveryIdElementId,
      delivery-id             MessageIdentifier } OPTIONAL,
    [2] SEQUENCE {
      originator              OriginatorElementId,
      originator-name         ORName } OPTIONAL,
    [3] SEQUENCE {
```

thisRecipient	ThisRecipientElementId,
this-recipient-name	ORName },
[4] SEQUENCE {	
submissionTime	SubmissionTimeElementId,
submissionTime	DateandTime },
[5] SEQUENCE {	
timeOfDelivery	TimeOfDeliveryElementId,
delivery-time	DateandTime },
[6] SEQUENCE {	
conversionIndication	ConversionIndicationElementId,
SET {	
	[0] SET OF
eIT	EITValue } OPTIONAL } }
conversion-prohibited	[1] ConversionProhibitedValue OPTIONAL } }
OPTIONAL,	
[7] SEQUENCE {	
convertedInfoTypes	ConvertedInfoTypesElementId,
SET OF	
eIT	EITValue } } ,
— IPMS parameters	
[2] SET {	
[0] SEQUENCE {	
notificationType	NotificationTypeElementId,
report-type	ReportTypeValue },
[1] SEQUENCE {	
subjectIPM	SubjectIPMElementId,
subject-ipm-id	IPMIdentifier },
[2] SEQUENCE {	
IPNOriginator	IPNOriginatorElementId,
ipn-originating-user	ORDescriptor } OPTIONAL,
[3] SEQUENCE {	
preferredRecipient	PreferredRecipientElementId,
preferred-recipient	ORDescriptor } OPTIONAL,

ReceiptStatusNotice-TAPDU (*end*)

— ReceiptStatusNotice-TAPDU Definition (continued)

```
[4] SET {
    [0] SEQUENCE {
        timeOfReceipt          TimeOfReceiptElementId,
        receipt-time          DateandTime },
    [1] SEQUENCE {
        typeOfReceipt          TypeOfReceiptValue  DEFAULT  manual  }
OPTIONAL,
    [2] SEQUENCE {
        supplReceiptInfo      SupplReceiptInfoElementId,
        suppl-receipt-info    SupplementaryInformation } OPTIONAL }
OPTIONAL,
    [5] SET {
        [0] SEQUENCE {
            nonReceiptInfo      NonReceiptInfoElementId,
            SET {
                non-receipt-reason [0] NonReceiptReasonValue,
                discard-reason     [1] DiscardReasonValue OPTIONAL } } OPTIONAL,
        [1] SEQUENCE {
            comments            CommentElementId,
            comments            Comment },
        messageReturnedInd [2] MessageReturnedIndElementId OPTIONAL } } }
```

10.1.7 *DeliveryStatusNotice*

A TLMAU terminal sends a *DeliveryStatusNotice-TAPDU* to invoke the *DeliveryStatusNotice* abstract operation.

10.1.7.1

DeliveryStatusNotice-TAPDU

The *DeliveryStatusNotice-TAPDU* comprises following elements:

DeliveryStatusNotice-TAPDU

```

DeliveryStatusNotice-TAPDU ::= SEQUENCE {
  [0] SEQUENCE {
    deliveryStatusNotice [0] DeliveryStatusNoticeTAPDUId,
      [1] SEQUENCE {
        quantityOfDocs          QuantityOfDocsElementId,
        number-of-docs          NumberOfAssociatedDocuments
      }
    OPTIONAL },
      [2] SEQUENCE {
        correlationInfo          CorrelationInfoElementId,
        call-id                  CallIdentification } },
  [1] SET {
    [0] SEQUENCE {
      submissionId              SubmissionIdElementId,
      submission-msg-id         MessageIdentifier } OPTIONAL,
    [1] SEQUENCE {
      probeId                   ProbeIdElementId,
      submission-msg-id         MessageIdentifier } OPTIONAL,
    [2] SET OF {
      [0] SEQUENCE {
        reportedRecipient        ReportedRecipientElementId,
        reported-recipient-name  ORName },
      [1] SEQUENCE {
        notificationType         NotificationTypeElementId,
        report-type              ReportTypeValue },
      [2] SEQUENCE {
        intendedRecipient        IntendedRecipientElementId,
        intended-recipient-name  ORName },
      [3] SEQUENCE {
        convertedInfoTypes       ConvertedInfoTypesElementId,
        SET OF
        eIT                      EITValue },
      [4] SET {
        — In case of Delivery Notification,
        — this set of element shall be present.
      [0] SEQUENCE {
        timeOfDelivery           TimeOfDeliveryElementId,
        delivery-time            DateandTime },
      [1] SEQUENCE {
        typeOfUA                 TypeOfUAElementId,
        type-of-ua               TypeOfUA DEFAULT public } OPTIONAL,
      [2] SEQUENCE {
        supplInfo                SupplInfoElementId,
        suppl-info               SupplementaryInformation } OPTIONAL,
  }
}

```

```

[5] SET {
    — In case of Non Delivery Notification,
    — this set of element shall be present.
    [0] SEQUENCE {
        nonDeliveryReason NonDeliveryReasonElementId,
        SET {
            reason-code [0] ReasonCodeValue,
            diagnostic-code [1] DiagnosticCodeValue OPTIONAL } } }
OPTIONAL },
contentReturned [3] ContentReturnedElementId OPTIONAL } }

```

10.1.8 Register

A TLM terminal sends a Register-TAPDU to invoke the register abstract operation. The TLMAU returns a RegisterAck-TAPDU, if necessary, to report the result of that operation, or may return an Exception-TAPDU (see § 10.1.1.3) to report an abstract error.

10.1.8.1

Register-TAPDU

The Register-TAPDU comprises following elements:

Register-TAPDU

```

Register-TAPDU ::= SEQUENCE {
    [0]
        register TAPDUIdValue,
    [1] SET {
        [0] SET {
            [0] SEQUENCE {
                expiredDiscardElementId,
                discard-ipm DiscardValue DEFAULT discard } OPTIONAL,
            [1] SEQUENCE {
                obsoleteDiscardElementId,
                discard-ipm DiscardValue DEFAULT discard }
        OPTIONAL },
        [1] SET {
            [0] SEQUENCE {
                autoFWDIPMsElementId,
                auto-fwd-ipms AutoFWDIPMsValue DEFAULT not-auto-
forward }
        OPTIONAL,
    }

```


[1] SEQUENCE {
 autoFWDRecipients AutoFWDRecipientsElementId,
 SET OF {
 auto-fwd-recipient-name ORName } } OPTIONAL,
 [2] SEQUENCE {
 autoFWDHeading AutoFWDHeadingElementId,
 auto-fwd-heading AutoFWDHeading } OPTIONAL,
 — *For further study*
 [3] SEQUENCE {
 autoFWDComment AutoFWDCommentElementId,
 auto-fwd-comment AutoFWDComment } OPTIONAL },
 [2] SET {
 [0] SEQUENCE {
 dsMode DSModeElementId,
 ds-mode DSModeValue } OPTIONAL,
 [1] SEQUENCE {
 tLMAUOperation TLMAUOperationElementId,
 SET {
 error-recovery-mode [0] ErrorRecoveryModeValue OPTIONAL,
 auto-acknowledgment [1] AutoAcknowledgment DEFAULT manual } }
 OPTIONAL,
 [2] SEQUENCE {
 supplRecipientInfo SupplRecipientInfoElementId,
 suppl-recipient-info SupplementaryInformation } OPTIONAL,
 [3] SEQUENCE {
 autoOutput AutoOutputElementId,
 SET {
 frequency [0] Frequency OPTIONAL,
 output-time [1] DateandTime OPTIONAL } } OPTIONAL,
 [4] SEQUENCE {
 messageDeleteMode MessageDeleteModeElementId,
 message-delete-mode MessageDeleteModeValue DEFAULT
 auto-delete } OPTIONAL } } }

10.1.8.2

RegisterAck-TAPDU

The RegisterAck-TAPDU comprises following elements:

RegisterAck-TAPDU

```
RegisterAck-TAPDU ::=
    registerAck
    RegisterAckTAPDUId
```

10.1.9 DSList

A TLM terminal sends a DSQuery-TAPDU to invoke the DSList abstract operation. The TLMAU returns a DSReport-TAPDU to report the result of that operation, or may return an Exception-TAPDU (see § 10.1.1.3) to report an abstract error.

10.1.9.1

DSQuery-TAPDU

The DSQuery-TAPDU comprises following elements:

DSQuery-TAPDU

```
DSQuery-TAPDU ::=
    dsQuery
    DSQueryTAPDUId
```

10.1.9.2

DSReport-TAPDU

The DSReport-TAPDU comprises following elements:

DSReport-TAPDU

```
DSReport-TAPDU ::= SEQUENCE {
    [0]
        dsReport                DSReportTAPDUId,
    [1] SET OF {
        [0] SEQUENCE {
            retrievalId          RetrievalIdElementId,
            retrieval-id         RetrievalIdentifier },
        [1] SEQUENCE {
            messageType          MessageTypeElementId,
            message-type         MessageTypeValue },
```

	[2] SEQUENCE {						
	originator		OriginatorElementId,				
	originator-name		ORName } OPTIONAL,				
	[3] SEQUENCE {						
	priority		PriorityElementId,				
	priority-ind		PriorityValue	DEFAULT	normal		}
OPTIONAL,							
	[4] SEQUENCE {						
	messageLength		MessageLengthElementId,				
	message-length		MessageLength } OPTIONAL } }				

10.1.10

DSDelete

A TLM terminal sends a MessageDelete-TAPDU to invoke the DSDelete abstract operation. The TLMAU returns no TAPDU to report the result of that operation, or may return an Exception-TAPDU (see § 10.1.1.3) to report an abstract error.

10.1.10.1

MessageDelete-TAPDU

The MessageDelete-TAPDU comprises following elements:

MessageDelete-TAPDU

```
MessageDelete-TAPDU ::= SEQUENCE {  
    messageDelete [0] MessageDeleteTAPDUId,  
  
    [1] SEQUENCE {  
        messageSelector  
        MessageSelectorElementId,  
    SET OF {  
        retrieval-id  
        RetrievalIdentifier } } }
```

10.1.11

DSFetch

A TLM terminal sends an *OutputRequest-TAPDU* to invoke the *DSFetch* abstract operation. The TLMAU returns an *OutputMessage-TAPDU* to report the result of that operation, or may return an *Exception-TAPDU* (see § 10.1.1.3) to report an abstract error.

The *OutputMessage-TAPDU* is sent by TLMAU to be output the message from DS. This TAPDU is triggered by one of the following events:

- 1) some rule (not defined in this Recommendation) which causes TLMAU to establish a connection to the TLM terminal and to send a message at a specific time, for example, the TLM terminal has registered its times of availability with TLMAU;
- 2) the TLM terminal establishes a connection to TLMAU and initiates a CSCC which is taken as an implicit request for output by TLMAU;
- 3) receipt of an *OutputRequest-TAPDU*.

10.1.11.1

OutputRequest-TAPDU

The *OutputRequest-TAPDU* comprises following elements:

OutputRequest–TAPDU

```
OutputRequest–TAPDU ::= SEQUENCE {  
  [0]  
    outputRequest      OutputRequestTAPDUId,  
  [1] SET OF SEQUENCE {  
    [0] SEQUENCE {  
      retrievalId      RetrievalIdElementId,  
      retrieval–id     RetrievalIdentifier },  
    [1] SEQUENCE {  
      deleteAfterOutput DeleteAfterOutputElementId,  
      delete–after–output DeleteAfterOutputValue } OPTIONAL } }
```

10.1.11.2

OutputMessage–TAPDU

The OutputMessage–TAPDU comprises following elements:

OutputMessage-TAPDU

```
OutputMessage-TAPDU ::= SEQUENCE {
  [0] SEQUENCE {
    outputMessage      [0] OutputMessageTAPDUId,
                      [1] SEQUENCE {
    quantityOfDocs      QuantityOfDocsElementId,
    number-of-docs      NumberOfAssociatedDocuments } OPTIONAL },
  [1] SET OF SEQUENCE {
    [0] SEQUENCE {
      retrievalId      RetrievalIdElementId,
      retrieval-id      RetrievalIdentifier },
    [1] SEQUENCE {
      messageType      MessageTypeElementId,
      message-type      MessageTypeValue },
    [2] SEQUENCE {
      timeOfDelivery    TimeOfDeliveryElementId,
      delivery-time     DateandTime }
  — The remaining Components of this TAPDU are identical to the components in the
    Deliver, DeliveryStatusNotice and ReceiptStatusNotice-TAPDU. The actual components
    to be used depend upon the MessageType parameter value specified in the MessageType
    component. } }
```

Note – The RetrievalIdentifier is an identifier which identifies a message in DS.

10.1.12

MessageState

A TLM terminal sends a StatusQuery-TAPDU to invoke the MessageState abstract operation. The TLMAU returns a StatusReport-TAPDU to report the result of that operation, or returns an Exception-TAPDU to report an abstract error.

10.1.12.1

StatusQuery-TAPDU

The StatusQuery-TAPDU comprises following elements:

StatusQuery-TAPDU

StatusQuery-TAPDU ::= SEQUENCE {
 [0] statusQuery StatusQueryTAPDUId,
 [1] SET {
 [0] SEQUENCE {
 submissionId SubmissionIdElementId,
 submission-msg-id MessageIdentifier } OPTIONAL,
 — See Note
 [1] SEQUENCE {
 correlationInfo CorrelationInfoElementId,
 call-id CallIdentification } OPTIONAL } }

Note – If none of these are present all outstanding (in operation), operations will be reported.

10.1.12.2

StatusReport-TAPDU

The StatusReport-TAPDU comprises following elements:

StatusReport-TAPDU

```

StatusReport-TAPDU ::= SEQUENCE {
  [0] SEQUENCE {
    statusReport [0] StatusReportTAPDUId
    [1] SEQUENCE {
      correlationInfo      CorrelationInfoElementId,
      call-id              CallIdentification } },
  [1] SET {
    [0] SEQUENCE {
      timeOfReport        TimeOfReportElementId,
      report-time         DateandTime },
    [1] SEQUENCE {
      reportedMessageId   ReportedMessageIdElementId,
      reported-message-id MessageTypeIdValue }
    [2] SET OF SEQUENCE {
      [0] SEQUENCE {
        actualRecipient    ActualRecipientElementId,
        actual-recipient-name ORName },
      [1] SEQUENCE {
        messageStatus      [1] MessageStatusElementId,
        status              StatusValue },
        [2] SET {
          — In case of DN, this set
          — of element shall be present.
          [0] SEQUENCE {
            timeOfDelivery  TimeOfDeliveryElementId,
            delivery-time   DateandTime },
          [1] SEQUENCE {
            typeOfUA        TypeOfUAElementId,
            type-of-ua      TypeOfUA DEFAULT public } OPTIONAL }
    OPTIONAL },
    [3] SEQUENCE {
      — In case of DN, this set
      — of element shall be present.
      nonDeliveryReason    NonDeliveryReasonElementId,
      SET {
        reason-code        [0] ReasonCodeValue,
        diagnostic-code     [1] DiagnosticCodeValue } OPTIONAL } } OPTIONAL } },

```


