(to Recommendation T.523)

Abstract syntax definition of videotex specific information

A.1Encoding of user information associated with D-INITIATE services

The following syntax is carried by the user information of the D-INITIATE REQ and the D-INITIATE RESP DPUs as octet string:

```
ViInitInformation::=SEQUENCE {

   protocolVersion[0]IMPLICIT INTEGER
                          {viProtocolVersionl (1)},
   inactivityTimeOut[1]IMPLICIT INTEGER OPTIONAL,
   dataEntryMode[2]IMPLICIT INTEGER OPTIONAL
                          {halfDuplexDataEntryMode (1)
                          duplexDataEntryMode (2)
                          halfDuplex/duplexDataEntryMode (3)
                          -- the EH may not use this parameter}
   bilateralManagement[3]IMPLICIT OCTET STRING OPTIONAL

}
```

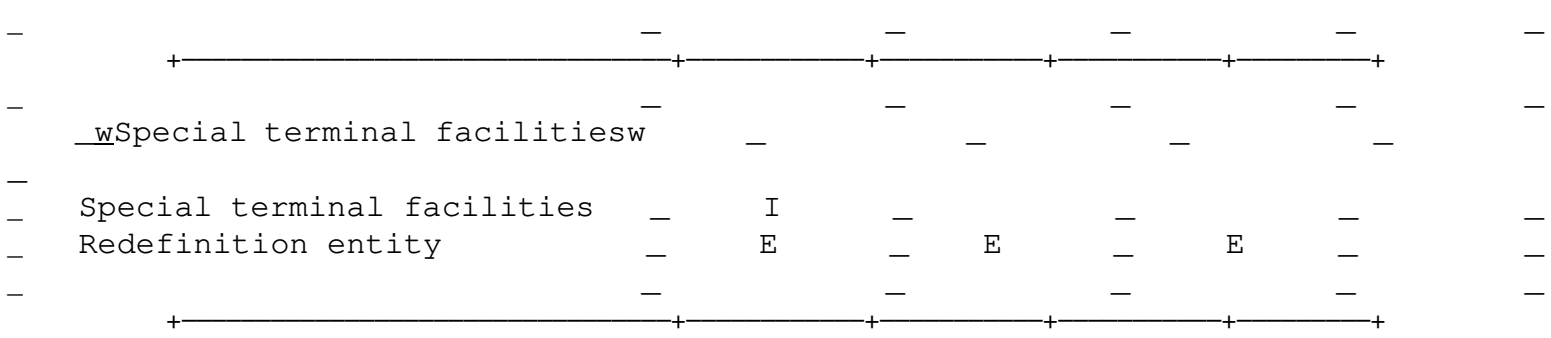
A.2Encoding of user information associated with D-ABORT services

The following syntax is carried by the user information of the D-ABORT REQ PDU as octet string:

```
ViAbortInformation::=CHOICE {

   errorReport[0]IMPLICIT INTEGER
                          -- used for Error-Report-to-LH and Error-Report-to-EH;
                          -- Note:
                          -- the total length of this PDU must not be greater
than                      -- 4 octets to be compatible with the requirements for
the                       -- ACSE ABRTpdu

}
```



10Object identifier

The value of object identifier for communication application profile DM1 defined in this Recommendation is 0 1 8 16 1.

DTAM manipulation VIA	D-CREATE	D-MODIFY	D-DELETE	D-CALL
wDocument profilew	I	E		
wDisplayw				
Document layout root	I	E		
Page	E	E	E	
Block	E	E	E	
Content portion	E	E	E	
wOperational profilew				
[For further study]				
wData entryw				
Data entry	I / E	E	S	
Field	E	E	E	
Field-content portion	E	L / E		
Data-entry program	E	E	E	
Data-entry sub-program	E	E	E	
Rules	E	E	E	
Prompt	E	E	E	
Prompt-content portion	E	E		
Result	I	L		
Result-content portion	I	L		
wApplication control memoryw				
Application control	I / E		E	
Memory record	E	E	E	E
wAdministrativew				
Administrative information	I			
Local host information	I	L		
External host information	I	E		

step (i.e. deletion and recreation of Page-SE is assumed to trigger redisplay of the full screen, whereas modification of a Block-SE or Field-SE is assumed to trigger display of the new block or field content on the existing screen picture);

3) Deletion of a Block-SE or Field-SE has no effect on the screen;

4) This may result in different behaviour of the local repeat functions.

In addition to providing the videotex frame, the EH controls the videotex dialogue by defining a data entry program to be executed by the LH. This is provided by the manipulation of the data entry structure of the VIA through DTAM manipulations. The EH may leave the data entry structure unchanged, implying reuse of the data entry program for the next dialogue step.

If a data entry program is of the "data entry type 2: data collection", it refers to a form made up of the fields where the user enters data. If the data entry program is of the "data entry type 1: information retrieval", it refers to an implicit field, defined by the national videotex service of the LH, where the user enters videotex commands.

The data entry program contains the description of the form, and it contains the reaction, called rules to userw's input the LH has to follow. Moreover, one or two guidance messages (prompts) may be associated with each field. This message will be displayed by the LH each time user enters the field.

9.2LH action

9.2.1Report to the EH

The user input form (if any), which may consist of one or more data input fields, is reported to the EH after execution of a data entry program together with the status of the data entry program.

Each field of the form respectively the implicit field used for command entry is associated with a single data entry sub-program, which is executed when data is to be entered into the field.

The data entry program is terminated implicitly by the termination of the last data entry program or explicitly by some user action.

The report to the EH consists of:

a) the termination status of the data entry program;
b) the text contents of the fields and the number of the last sub-program executed;
c) the text contents associated with a command.

The report is performed by the manipulation of the display structure and the data entry structure, updating field text content attributes and attributes belonging to the RESULT-SE and RESULT-Content-Portion.

9.2.2Local actions

When a data entry program is active, some local actions may be directly supported by the LH to allow for correction of mistyping, cancel of an entry and local frame repeat for instance. Such local actions as well as the local management of user errors (e.g. entry of characters not allowed in the data entry program) are treated in the LH and not reported to the EH.

9.3List of permissible actions on VIA structure elements in both hosts

The following Table 1/T.523 lists up the permissible actions on VIA structure elements for both hosts. The structure elements marked by I are automatically generated at the association establishment phase. On the other hand, the structure elements marked by E and L are generated by the EH and the LH respectively and are transmitted by the DTAM manipulation services which are indicated at the top of the row on the Table 1/T.523.

8.4.3.1General

Typed data transmission is used independent of the data token and is issued from both hosts (DTAM users) when required. This procedure may be used for the transmission of warning message indicating the warning from the EH and for the transmission of the user entered data in data entry type 4 from the LH.

8.4.3.2Service primitives used

The following D-TYPED-DATA service primitives, defined in Recommendation T.432, are used:
-D-TYPED-DATA request;
-D-TYPED-DATA indication.

8.4.3.3D-TYPED-DATA service parameters

This is the octet string information which represents the following ViTypedData:

```
ViTypedData::=CHOICE {
asyncMessage[0]IMPLICIT INTEGER
                    {       warnTimeout             (0),
                            serviceClose1Minute     (1),
                            serviceClose5Minutes(2) },
                    -- Other values are for further study

entryResponse[1]IMPLICIT EntryResponse }
entryResponse::=SEQUENCE {
                    [0]     IMPLICIT Termination-Reason,
                            -- identical with the coding of termination reason in RESULT-SE
                    [1]     IMPLICIT Operational-Content-Type OPTIONAL,
                            -- identical with the coding of operational content-type of RESULT-SE
                    [2]     IMPLICIT OCTET STRING OPTIONAL
                            -- identical with operational-element-content}
```

8.4.4Order of the VIA-DTAM manipulation

The order of the VIA operations via DTAM manipulation (VIA-DTAM manipulation for short) is basically followed by the interchange data format defined in Recommendations T.504 and T.541. That is, in principle, VIA should be manipulated from the higher order of structure element, however, the order of display information represented by ODA and the other videotex specific information represented by operational structure is dependent of the local rule and is not defined in this Recommendation.

The following exceptional order of the VIA-DTAM manipulation is defined:

a) VIA-DATM manipulation concerning data entry SE appears before the the other all VIA-DTAM manipulations;

b) All VIA-DTAM manipulations concerning REDEFINITION-ENTITY-SEs appear before all VIA-DTAM manipulations concerning BLOCK SEs;

c) All VIA-DTAM manipulations concerning BLOCK SEs appear before all VIA-DTAM manipulations concerning FIELD SEs.

9 Actions of the EH and the LH

9.1EH action

The EH provides the videotex frame to be displayed on the user's terminal by manipulating the display structure of the VIA through DTAM manipulations.

Note - Although the action of displaying information on a videotex terminal is outside the scope of this Recommendation, it is assumed in the Recommendation that:

1) The display of Redefinition-Entity-SEs, Block-SEs and Field-SEs is in natural order, whereby Redefinition-Entity-SEs precede Block-SEs and Field-SEs;

GIVE service primitives:

-D-TOKEN-PLEASE request;
-D-TOKEN-PLEASE indication;

-D-TOKEN-GIVE request;
-D-TOKEN-GIVE indication.

8.4.1.3Service parameters for document manipulation

8.4.1.3.1D-CREATE service parameters

-Create information

This parameter consists of a sequence of objects as defined in Recommendations T.504 and T.541.

8.4.1.3.2D-DELETE service parameters

-Delete information

This parameter consists of a sequence of object or class identifiers, content portion identifiers and operation elements identifiers and defined in Recommendations T.504 and T.541.

8.4.1.3.3D-MODIFY service parameters

-Modify information

This parameter a sequence of objects as defined in Recommendations T.504 and T.541.

8.4.1.3.4D-CALL service parameters

-Call information

This parameter a sequence of choices of current object identifiers which are defined in Recommendation T.541. The CALL information consists of the designation of a RECORD-SE in the application control memory structure element as defined in Recommendation T.564. This record contains the VIA operations.

8.4.2Data token control procedure

8.4.2.1General

Document manipulation services are invoked under the data token control provided by the DTAM token control function, and the owner of the data token has the right to manipulate the VIA.

8.4.2.2Dialogue rules

The dialogue between the LH and the EH is bound by the following rules:

1)The initial data token is set to the EH at the videotex application-association establishment;

2)The data token may be given by the EH to the LH at the end of a sequence of VIA manipulations in order to enable the LH to send the entered data in the data entry types 1, 2 or 3;

3)In the data entry types 1, 2 or 3 the LH gives the data token to the EH after having sent the sequence of VIA manipulations corresponding to the entered data;

4)If the data token is not owned by the LH or EH, that host may issue the D-TOKEN PLEASE to request the data token. The host which receives the D-TOKEN PLEASE may or may not react on the D-TOKEN PLEASE;

5)In the data entry type 4, the EH may send the token to the LH in order to switch to data entry types 1, 2 or 3 (see § 7.4.3.3).

8.4.2.3D-TOKEN GIVE service parameters

D-TOKEN GIVE service has no parameters.

8.4.2.4D-TOKEN PLEASE service parameters

-Tokens priority

This parameter defines the priority of the action, governed by the data token, that the requestor of the D-TOKEN PLEASE service wishes to carry out. This parameter has to be supplied by the requestor of the D-TOKEN PLEASE service.

The following service parameter is used as defined in the Recommendation T.432.

1)Vi-Abort-Information
This parameter is the user information associated with the abort of application association and contains the following sub-parameter:

-Error-code
This parameter indicates the reason of the abort.
a)Error-Report-To-Local-Host attributes (issued by the EH)
-Inactivity time-out
-Unrecoverable errors
b)Error-Report-To-External-Host attributes (issued by the LH)
-Unrecoverable errors
The Vi-abort-information described by ASN.1 is defined in Annex A of this Recommendation. 8.4Data transmission

The data transmission procedure is realized by DTAM document manipulation service and typed data service. Document manipulation service should be invoked under the token control by using DTAM token document manipulation, data token control and typed data services for videotex gateway application.
8.4.1Document manipulation procedure

8.4.1.1General

VIA operations, defined in Recommendation T. 564, should be directly mapped into the relevant DTAM document manipulation services, D-CREATE, D-MODIFY, D-DELETE, D-CALL services defined in Recommendation T.432. These services provide the following communication functions:

-manipulation of display structure information;
-manipulation of date entry structure information;
-manipulation of application control memory information;
-manipulation of special terminal facilities information;
-manipulation of administrative information (for further study);
-exchange of over limit information (for further study).
Note - The use of D-REBUILD service is for further study.

8.4.1.2Service primitives used

The following D-CREATE, D-DELETE, D-MODIFY and D-CALL service primitives defined in Recommendation T.432, are used:

-D-CREATE request;
-D-CREATE indication;

-D-DELETE request;
-D-DELETE indication;

-D-MODIFY request;
-D-MODIFY indication;

-D-CALL request;
-D-CALL indication.

Note - The use of these service primitives bounds to the rule defined in § 9.

The presentation context definition list comprises a presentation-context-definition for each abstract-syntax included in the application-context, i.e. one each for the videotex interworking, the DTAM and the ACSE. A presentation-context-definition comprises a presentation-context-identifier and an abstract-syntax-name for the ASE.

8.1.4DTAM-PM parameters

DTAM-PM parameters are set by the DATM-PM to D-INITIATE REQ and D-INITIATE RESP PDUs indicating the characteristics of DTAM-PM as follows. These parameters are not issued by the LH and the EH, but are generated by the protocol machines when required.

1)DTAM protocol version

DTAM protocol version parameter identifies the version of DTAM protocol being used. The value is represented by bit string (0) which means version-1.

2)Storage capacity

The storage capacity parameter identifies the memory size which is available to the DTAM-PM. This parameter is exchanged independently from both directions in order to indicate the own memory size.

8.1.5Initial VIA

The following VIA structure elements (SEs) are implicitly created in both hosts at the videotex application-association establishment. The videotex communication starts with the initial VIA to manipulate for the videotex dialogue between the LH and the EH:

-DOCUMENT-SE

-DATA-ENTRY-SE

-APPLICATION-CONTROL-MEMORY-SE

-ADMINISTRATIVE-INFORMATION-SE

-SPECIAL-TERMINAL-FACILITIES-SE

8.2Application-association termination

8.2.1General

Either the LH or the EH requests a normal termination of current videotex application- association in accordance with the D-TERMINATE service described in Recommendation T.432.

8.2.2Service primitives used

The following D-TERMINATE service primitives, defined in Recommendation T.432, are used:

-D-TERMINATE request;

-D-TERMINATE indication;

-D-TERMINATE response;

-D-TERMINATE confirm.

8.2.3D-TERMINATE service parameters

The D-TERMINATE service parameters are for further study.

8.3Application-association abort

8.3.1General

The LH or the EH requests an abrupt termination of the ongoing videotex application- association in accordance with the D-ABORT service described in Recommendation T.432.

8.3.2Service primitive used

The following D-ABORT service primitives, defined in Recommendation T.432, are used:

-D-ABORT request;

-D-ABORT indication.

The use of the account parameter depends on the ongoing work of CCITT Study Group I on this topic.

4)Result

The field can take one of the following symbolic values:

-accepted;

-rejected by responder (reason-not-specified);

-rejected by responder (applicationCapabilities-not-supported);

-rejected by responder (protocolVersion-not-supported);

-rejected by responder (application-context-name-not-supported);

-rejected by responding DTAM-PM.

5)Vi-Initiate-Information (Vi-Init-Information)

This is the user information associated with the initiation of application association. This contains the following parameters:

a)Videotex interworking protocol version

This parameter identifies the version of videotex interworking protocol being used. The value is represented by bit string.

b)Inactivity timer

This parameter identifies the time for inactive period to terminate the videotex application-association because of its inactivity. The value of this parameter is subject to the agreement between both hosts. If the values which are exchanged are different each other, the value which is indicated by the EH is in effect for that association.

c)Data entry mode

This parameter identifies the capabilities of the data entry modes to indicate to the peer host. Normally, this parameter is issued by the LH, and may not be used by the EH. The value is represented by integers 1, 2 and 3 which means half-duplex data entry mode, duplex data entry mode and half-duplex/duplex data entry modes respectively.

d)Bilateral management

This attribute is reserved for information which is exchanged between the two gateways and can be based on bilateral agreement.

The Vi-Init-information described by the ASN.1 is defined in Annex A of this Recommendation.

6)Called application entity title

This parameter, which is composed of a called application-process title and a called application-entity qualifier, is used as defined in Recommendation X.217. This identifies the external-host-identifier or the local-host-identifier.

7)Calling application entity title

This parameter, which is composed of a calling application-process title and a calling application-entity qualifier, is used as defined in Recommendation X.217. This identifies the local-host-identifier or the external-host-identifier.

8)Application context name

This parameter is used as defined in Recommendation X.217. The initiator of the applica- tion-association shall propose one of the application-contexts for the videotex interworking (Recommendation T.101) in the D-INITIATE request primitive. The responder shall either accept the application-context proposed by the initiator and return the same value of this parameter in the D-INITIATE response primitive, or shall return a result parameter with the value 'rejected (permanent)' and a diagnostic parameter with the value 'application context name not supported'.

The exchanging over limit information is for further study.

7.4.8Transmission of asynchronous message

The EH transmits the asynchronous message indicting the warnings (e.g. "close host within 5 minutes") to the LH. The transmission of this message is not dependent of the data token and the message is conveyed by the DTAM TYPED-DATA service.

8Elements of procedure

8.1Application-association establishment

8.1.1General

Either the LH or the EH establishes an application-association in accordance with the D-INITIATE service described in Recommendation T.432. The purpose of the application-association establishment is:
-to identify the remote peer videotex hosts;

-to exchange the videotex application capabilities such as document application profile;
-to implicitly set the initial VIA between peer videotex hosts.
8.1.2Service primitives used
The following D-INITIATE service primitives, defined in Recommendation T.432, are used:
-D-INITIATE request;
-D-INITIATE indication;
-D-INITIATE response;
-D-INITIATE confirm.
8.1.3D-INITIATE service parameters
The service parameters defined in Table 2/T.432 are basically used. The semantics of these parameters are given below. The use

of the parameters which are not defined in this Recommendation but listed in Table 2/T.432 is bound to the Recommendations

X.217 or X.216.

1)Telematic requirements
The following functional units defined in Recommendation T.432 are used:
-kernel (association control);
-typed data transfer;
-document unconfirmed manipulation;
-token management.
If the telematic requirements proposed by the LH are not acceptable to the EH, the videotex application-association establishment fails by responding with a "reject" result parameter.
2)Application capabilities

This parameter contains the following sub-parameters:
a)Document application profile
The value of this parameter is an object identifier which indicates the document application profile being used. Its value is 0 1 8 16

0 (object identifier).

b)Operational application profile
The value of this parameter is an object identifier which indicates the operational application profile being used. Its value is 0 1 8 16
2 (object identifier).

The EH manipulates the application control memory information which is represented in accordance with the application control memory SE and its subordinates SEs defined in Recommendation T.564 via the DTAM document manipulation services in order to record the sequence of VIA operations to be repeatedly invoked. This transmission should be done under the token control.

7.4.5Manipulation of special terminal facilities information

The EH manipulates the special terminal facilities information which is represented in accordance with the application special terminal facilities SE and its subordinates SEs defined in Recommendation T.564 via the DTAM document manipulation services in order to set the special terminal facilities such as characters of DRCS. This transmission should be done under the token control.

7.4.6Manipulation of administrative information

The EH manipulates administrative information which is represented in accordance with the administrative SE and its subordinates SEs defined in Recommendation T.564 via the DTAM document manipulation services in order to manage the accounting and the identification aspects. This transmission should be done under the token control.

Note - Administrative information is for further study in the Recommendation T.564.