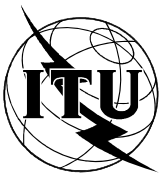

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SERIES T: TERMINAL EQUIPMENT AND PROTOCOLS FOR TELEMATIC SERVICES

COMMUNICATION APPLICATION PROFILE BT0 FOR DOCUMENT BULK TRANSFER BASED ON THE SESSION SERVICE

Reedition of CCITT Recommendation T.521 published in the Blue Book, Fascicle VII.7 (1988)

NOTES

1 CCITT Recommendation T.521 was published in Fascicle VII.7 of the *Blue Book*. This file is an extract from the *Blue Book*. While the presentation and layout of the text might be slightly different from the *Blue Book* version, the contents of the file are identical to the *Blue Book* version and copyright conditions remain unchanged (see below).

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

Recommendation T.521

COMMUNICATION APPLICATION PROFILE BT0 FOR DOCUMENT BULK TRANSFER BASED ON THE SESSION SERVICE

0 Introduction

T.400 Series of Recommendations define the open document architecture and interchange format (T.410 Series) and the DTAM Services and protocols (T.430 Series) for the purpose of the document transfer and manipulation. In order to apply T.400 Series to various telematic services it is necessary to specify the application profiles for each service that consists of a document application profile and a communication application profile.

According to this requirement, T.500 Series of Recommendations define the document application profiles and T.520 Series of Recommendations define the communication application profiles.

Recommendation T.521 is one of a set of T.520 Series of Recommendations to define the communication application profile for the document bulk transfer based on the session service according to the rules defined in Recommendation T.62 *bis*.

1 Scope and field application

This Recommendation defines the communication application profile for the document bulk transfer using the session service defined in Recommendation T.62 *bis* in terms of:

a) DTAM functional units used;

b) DTAM service primitives and parameters used;

c) lower layer X.215 session service mapping according to the rules of T.62 *bis*.

2 References

The following references are required in order to implement this communication profile defined in this Recommendation.

– Rec. T.431: Document transfer and manipulation (DTAM) – Services and protocols – Introduction and general principles

– Rec. T.432: Document transfer and manipulation (DTAM) – Service protocols – Service definition

– Rec. T.433: Document transfer and manipulation (DTAM) – Service protocols – Service specification

– Rec. T.62: Control procedures for teletex and Group 4 facsimile services

– Rec. T.62 *bis*: Control procedures for teletex and Group 4 facsimile services based on Recommendation X.215/X.225

– Rec. X.215: Session service definition for open systems interconnection of CCITT application

3 Definitions

The definitions of T.400 Series of Recommendations and Recommendation T.62 *bis* also apply to this Recommendation.

4 Abbreviations and conventions

The abbreviations and conventions defined in T.400 Series of Recommendations and Recommendation T.62 *bis* also apply to this Recommendation.

5 Definitions of communication application profile BT0

5.1 *Overview of BT0*

This Recommendation defines units and communication support function in accordance with Recommendation T.431.

5.2 *DTAM functional units*

The following functional units defined in Recommendation T.432 are used for BT0:

– association use control (kernel);
– capability;
– document bulk transfer;
– token control;
– exception report;
– reliable transfer mode 1.

5.3 *DTAM service primitives and lower layer mapping*

5.3.1 *DTAM service primitives and parameters*

General DTAM service definition and parameters are defined in Recommendation T.432. This section specifies the parameters of DTAM service of BT0.

5.3.1.1 *D-INITIATE service parameters*

The following parameters of this service are used as follows:

– transparent mode;
– telematic requirements;
– application capabilities;
– result.

Table 1-A/T.521 lists the D-INITIATE service parameters.

1) *Transparent mode*

This parameter should be specified in D-INITIATE request service primitive.

2) *Telematic requirements*

The following functional units defined in Recommendation T.432 are used for BT0 as mandatory functional units.

– association use control (kernel);
– capability;
– document bulk transfer;
– token control;
– exception report;
– reliable transfer mode 1.

3) *Application capabilities*

This "application capabilities" is defined in Recommendation T.432 and the following subparameters:

a) *document application profile*

The value of this parameter indicates the document application profile being used. Its value is specified in Recommendations that define terminal characteristics for particular telematic services.

b) *Document architecture class*

The value of this parameter indicates the document architecture class used in the entire association. The use of this parameter and its possible value is specified in the Recommendations that define terminal characteristics for particular telematic services.

4) *Result*

This field can take the values defined in Recommendation T.432.

TABLE 1-A/T.521

D-INITIATE service parameters

	D-INITIATE request	D-INITIATE indication	D-INITIATE response	D-INITIATE confirm
Transparent mode	M			
Telematic requirements	M	M(=)	M	M(=)
Application capabilities	M	M(=)	M	M(=)
Document application profile	M	M(=)	M	M(=)
Document architecture class	M	M(=)	M	M(=)
Result			U	C(=)

5.3.1.2 *D-TERMINATE service parameters*

This service has no parameter for BT0. Only the initiator can issue D-TERMINATE. In addition, the initiator can issue D-TERMINATE only if he has a data token.

5.3.1.3 *D-U-ABORT service parameters*

This service has the parameter of “user information”.

Table 1-B/T.521 lists the D-U-ABORT service parameters.

TABLE 1-B/T.521

D-U-ABORT service parameters

	D-U-ABORT request	D-U-ABORT indication
User information	U	C(=)

5.3.1.4 *D-CAPABILITIY service parameters*

This service has the parameter “application capabilities” which consists of sub-parameters as follows:

– document application profile;
– document architecture class;
– none-basic document characteristics.

Table 1-C/T.521 lists the D-CAPABILITY service parameters.

TABLE 1-C/T.521

D-CAPABILITY service parameters

	D-CAPABILITY request	D-CAPABILITY indication	D-CAPABILITY response	D-CAPABILITY confirm
Application capabilities				
Document application profile	M	M(=)	M	M(=)
Document architecture class	M	M(=)	M	M(=)
Non-basic document characteristics	U	C(=)	U	C(=)

1) Application capabilities
See § 5.3.1.1.

   a) Document application profile
   See § 5.3.1.1.

   b) Document architecture class
   See § 5.3.1.1.

   c) Non-basic document characteristics
   This is the “non-basic document characteristics” defined in Recommendation T.432.

5.3.1.5 *D-TRANSFER service parameters*

This service has the following parameters:

1) *Document information*

   This consists of the interchange data elements representing the document. The “Document characteristics” from the document profile are transferred using S-ACT-START (Note).

   Note – All interchange data elements, except the document profile descriptor, are transferred using S-DATA service. The document profile is reconstructed by the receiving DTAM PM, on the basis of the “document characteristics” transferred in the S-ACT-START.

2) *Document information type*

   This parameter always has the value “transfer of a document from its beginning” (see Recommendation T.432).

3) *Document reference information*

   The value of this parameter is to be provided by the DTAM user in accordance with the rules specified in Recommendation T.432.

4) *Result*

   This parameter has one of the values “document information transferred” and “document information not transferred”, as defined in Recommendation T.432.

5) *Checkpoint mechanism*

   Checkpoint mechanism 2 is applied. Value of this parameter is integer 2.

The following restriction is applied to the transfer syntax coding rules defined in X.209 for the interchange of the document application profile defined in Recommendation T.503:

– Length fields longer than three octets shall not be used. A length field of three octets allows for the representation of a length of up to 65 535; a data element with a length exceeding 65 535 shall have a length field of the indefinite form.

Table 1-D/T.521 lists the D-TRANSFER service parameter.

TABLE 1-D/T.521

D-TRANSFER service parameters

Parameter	D-TRANSFER request	D-TRANSFER indication	D-TRANSFER confirmation
Document information	M	M(=)	
Document information type	M	M(=)	M(=)
Document reference information	M	M(=)	M(=)
Result			M
Checkpoint mechanism	M		

Note – The document information is transferred using the type of normal document.

5.3.1.6 *D-CONTROL GIVE service parameters*

The D-CONTROL GIVE service surrenders all available tokens and has no parameter.

5.3.1.7 *D-TOKEN PLEASE service parameters*

The D-TOKEN PLEASE service is used to request the data token and has no parameter.

5.3.1.8 *D-U-EXCEPTION-REPORT service parameters*

This service has the parameter of “user information”.

Table 1-E/T.521 lists the D-U-EXCEPTION-REPORT service parameter.

– *User information*

This is the user information associated with the exception report of application association.

TABLE 1-E/T.521

D-U-EXCEPTION-REPORT service parameters

	D-U-EXCEPTION-REPORT request	D-U-EXCEPTION-REPORT indication
User information	U	C(=)

5.3.1.9 *D-P-EXCEPTION-REPORT service parameter*

This is used as defined in Recommendation T.432.

5.3.2 *Use of session service and parameter mapping*

5.3.2.1 *DTAM protocol mapping to Recommendation X.215 session service*

This mapping rule is defined in 7.2 of Recommendation T.433.

Note – D-TRANSFER conf is implicitly informed by receipt of S-ACT END conf, S-ACT INT conf and S-ACT DCAD conf.

5.3.2.2 *Parameters mapping to session parameters*

Tables 2-A/T.521 to 2-H/T.521 show the mapping rule between DTAM service parameters and basic and additional session parameters.

The category of parameters is defined as follows:

– 1: parameters are generated by DTAM user;

– 2: parameters are generated by DTAM provider;

– 3: parameters are generated by DTAM session provider.

Annex A illustrates the example of protocol sequences for BT0.

TABLE 2-A/T.521

D-INITIATE

DTAM service parameters	Basic and additional session parameters	Category
Telematic requirements	Session requirements	1
Application capabilities Document application profile Document architecture class	Session user data	
None	Session reference Non-basic session capabilities Service identifier Inactivity timer	2
None	Private use Non-standardized capabilities Session control functions Reason	3

TABLE 2-B/T.521

D-TERMINATE

DTAM service parameters	Basic and additional session parameters	Category
None	Session termination parameter	3

TABLE 2-C/T.521

D-U-ABORT

DTAM service parameters	Basic and additional session parameters	Category
User information (Note)	Session termination parameter (reason)	1
None	Session termination parameter (transport disconnect)	3

Note – This parameter is equal to reason of session termination parameter.

TABLE 2-D/T.521

D-U-CAPABILITY

DTAM service parameters	Basic and additional session parameters	Category
Application capabilities Document application profile Document architecture class Non-basic document characteristics	Session user data	1
None	Inactivity timer	2
None	Acceptance of CDCL parameters Private use Non-standardized capabilities	3

TABLE 2-E/T.521

D-TRANSFER

DTAM service parameters	Basic and additional session parameters	Category
Document information	Session user data	1
Document information type	None	1
Document reference information	Document reference number	
Result	None	

TABLE 2-F/T.521

D-CONTROL GIVE

DTAM service parameters	Basic and additional session parameters	Category
None	None	-

TABLE 2-G/T.521

D-TOKEN PLEASE

DTAM service parameters	Basic and additional session parameters	Category
None	Tokens	2

TABLE 2-H/T.521

D-U-EXCEPTION-REPORT

DTAM service parameters	Basic and additional session parameters	Category
User information	Reason	1

6 Document interchange data structures

The interchange representation of a document has to be defined in accordance with the Recommendation which specifies the relevant document application profile.

7 Document transfer

7.1 *Synchronization*

The document information is divided into segments, in accordance with 7.2.4 of Recommendation T.433, such that each segment contains one page descriptor and the associated content portion. A minor synchronization point is associated with each segment.

7.2 *Document transfer recovery*

For further study.

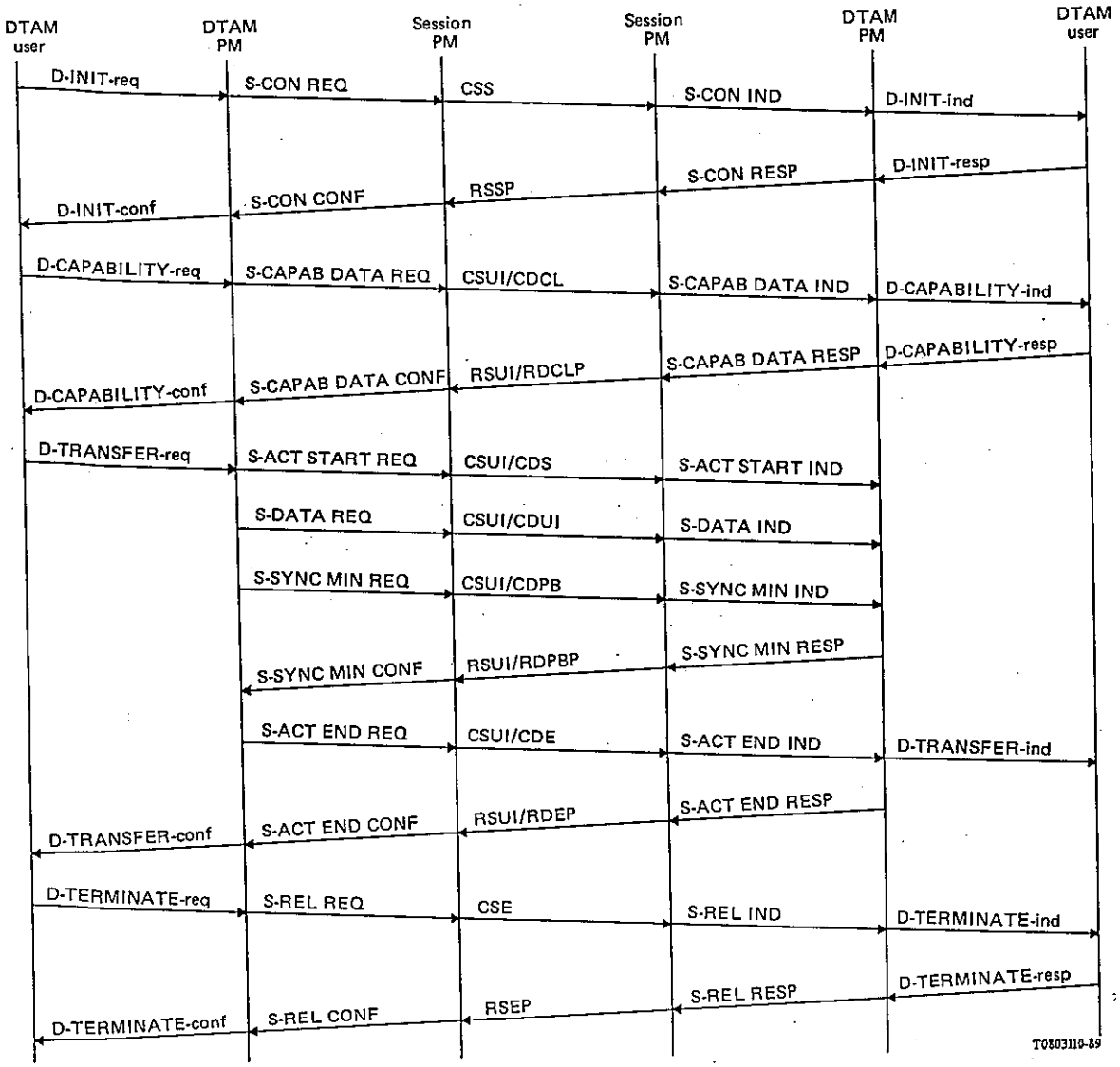
ANNEX A

(to Recommendation T.521)

Overall protocol sequence

This Annex illustrates the following procedures provided by BT0 (see Figures A-1/T.521 to A-4/T.521):

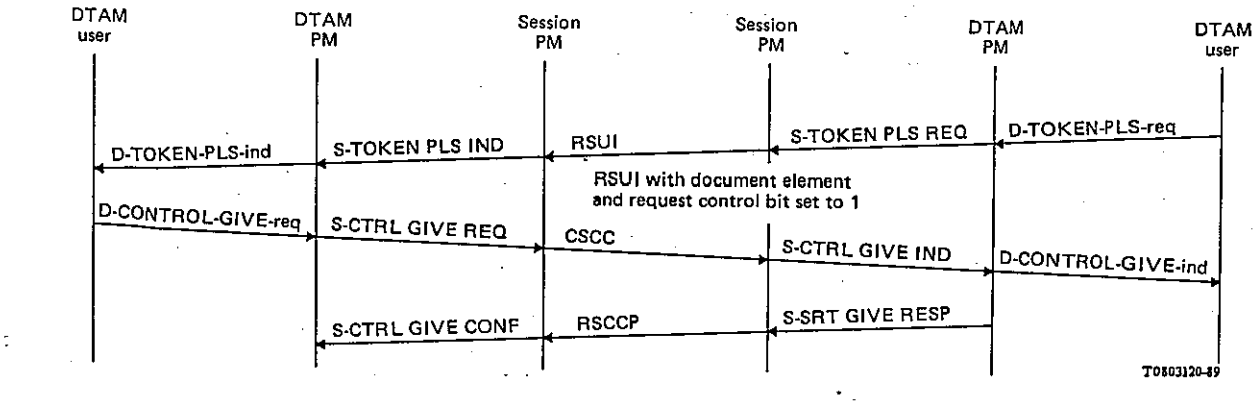
– normal procedure;
– token control procedure;
– abort procedure;
– exception report procedure.



CDCL	Command document capability list
CDE	Command document end
CDPB	Command document page boundary
CDS	Command document start
CDUI	Command document user information
CSE	Command session end
CSS	Command session start
CSUI	Command session user information
RDCLP	Response document capacity list positive
RDEP	Response document end positive
RDPBP	Response document page boundary positive
RSEP	Response session end positive
RSSP	Response session start positive
RSUI	Response session user information

FIGURE A-1/T.521

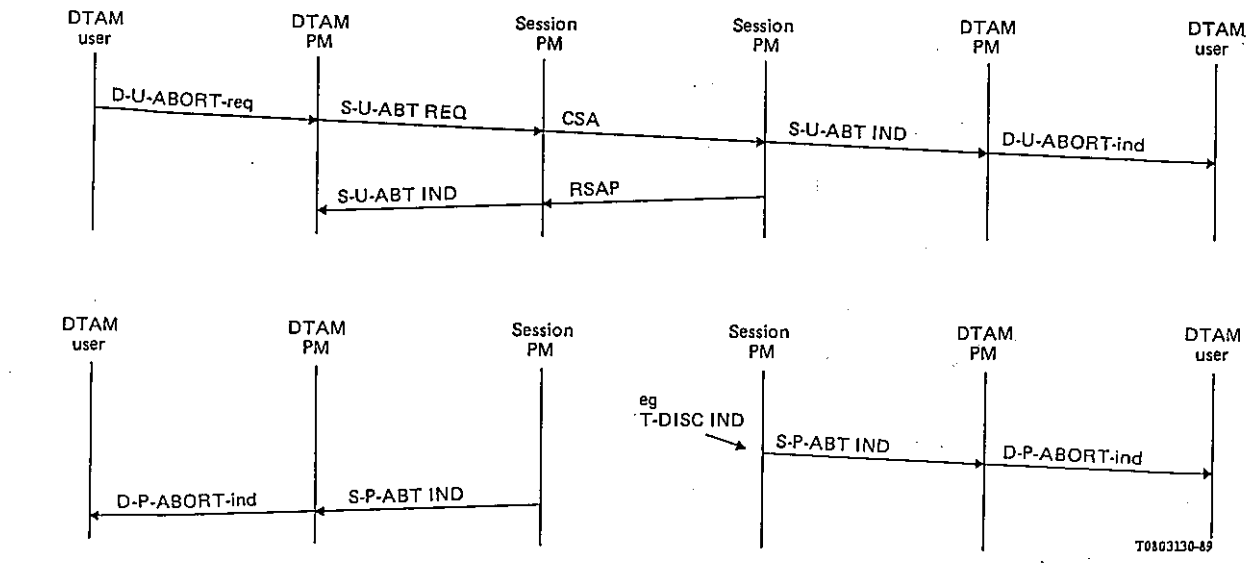
Normal procedure



CSCC Command session change control
RSCCP Response session change control positive
RSUI Response session user information

FIGURE A-2/T.521

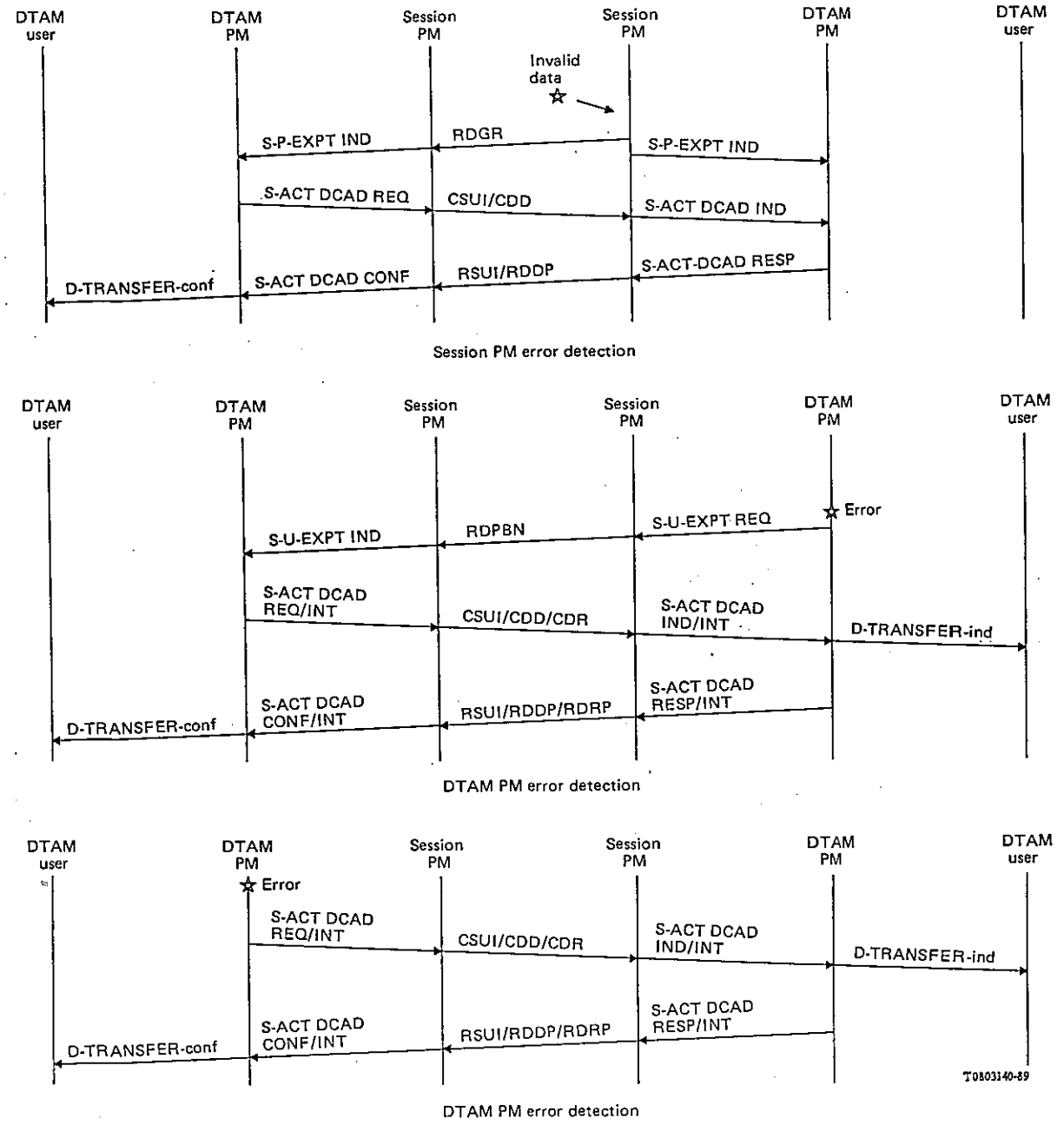
Token control procedure



CSA Command session abort
RSAP Response session abort positive

FIGURE A-3/T.521

Abort proccedure



CDD	Command document discard
CDR	Command document resynchronize
CSUI	Command session user information
RDDP	Response document discard positive
RDGR	Response document general reject
RDPBN	Response document page boundary negative
RDRP	Response document resynchronize positive
RSUI	Response session user information

FIGURE A-4/T.521

Exception report procedure

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