



EUROPEAN
TELECOMMUNICATION
STANDARD

ETS 300 104

July 1991

Source: ETSI TC-SPS

Reference:

ICS: 33.080

Key words: ISDN, ISDN basic access, Layer 3 aspects

**Integrated Services Digital Network (ISDN);
Attachment requirements for terminal equipment to connect to
an ISDN using ISDN basic access
Layer 3 aspects**

**(The text of this ETS may be utilized, wholly or in part,
for the establishment of NET 3 Part 2**

ETSI

European Telecommunications Standards Institute

ETSI Secretariat

Postal address: F-06921 Sophia Antipolis CEDEX - FRANCE

Office address: 650 Route des Lucioles - Sophia Antipolis - Valbonne - FRANCE

X.400: c=fr, a=atlas, p=etsi, s=secretariat - **Internet:** secretariat@etsi.fr

Tel.: +33 92 94 42 00 - Fax: +33 93 65 47 16

Copyright Notification: No part may be reproduced except as authorized by written permission. The copyright and the foregoing restriction extend to reproduction in all media.

© European Telecommunications Standards Institute 1991. All rights reserved.

Contents

Foreword.....	5	
Scope.....		7
1 General.....	7	
1.1 Introduction.....	7	
1.2 Configurations at User Premises	7	
1.3 Relationship to other Attachment standards/NETs.....	7	
1.4 Testing and Approval Methodology.....	7	
1.5 Information to be provided by the Apparatus Supplier	8	
1.6 Test Environment	8	
2 Layer 3 Requirements	8	
2.1 General.....	8	
2.2 Static Attachment Requirements.....	9	
2.2.1 Functional Characteristics	9	
2.2.1.1 General	9	
2.2.1.2 Overview of Call Control.....	10	
2.2.1.3 Message Definition and Content.....	11	
2.2.1.4 Message Format and Information Element Coding	12	
2.2.1.5 Layer 3 System Parameters.....	13	
2.2.2 Interface Procedures.....	14	
2.2.2.1 Call Establishment	14	
2.2.2.2 Call Clearing.....	15	
2.2.2.3 Tones and Announcements.....	16	
2.2.2.4 Restart	16	
2.2.2.5 Call Re-arrangement.....	16	
2.2.2.6 User-to-user Signalling	17	
2.2.2.7 Handling of Error Conditions	17	
2.2.2.8 Packet Communications	17	
2.2.2.9 Supplementary Services.....	18	
2.2.2.10 SDLs	18	
3 Definitions and Abbreviations.....	18	
4 References.....	18	
Annex A: Test schedule for layer 3 conformance	21	
Annex B: Example of Information to be Provided by the Apparatus Supplier.....	185	
B.1 Introduction.....	185	
B.2 Information to be provided by the Apparatus Supplier.....	185	
B.2.1 Information with respect to a PICS	185	
B.2.2 Information with respect to a PIXIT	185	
Annex C: Test report format.....	186	
1 System test report for equipment tested against the requirements specified in ETS 300 104 (Candidate NET 3, Part 2)	186	
1.1 Test Laboratory	186	
1.2 Client Information	186	
1.3 Product	186	

1.4	System Conformance Test Report.....	186
2	Test Conditions	187
3	System Report Summary	187
3.1	Layer 3 Test Report Summary	187
4	Summary of Error Report.....	187
5	Summary of Particular Events.....	187
	History	189

Foreword

This European Telecommunication Standard (ETS) has been produced by the Signalling Protocols and Switching (SPS) Technical Committee of the European Telecommunications Standards Institute (ETSI) and was adopted, having passed through the ETSI standards approval procedure.

The text of this ETS may be utilized, wholly or in part, for the establishment of NET 3 part 2.

Blank page

Scope

In accordance with CCITT Recommendation I.420 [5] and ETS 300 102-1 [2] and ETS 300 102-2 [3], this standard specifies the layer 3 access control protocol to be offered by terminal equipment as defined in subclause 1.1.2 at the T reference point or coincident S and T reference point at an interface to a public telecommunications network presented at an ISDN basic access point.

The static attachment requirements and tests specified in this ETS are for TEs having the capability of both originating a circuit switched call and receiving an incoming circuit switched call. In addition, certain TEs of a specialised nature may employ supplementary services as part of their default operation characteristics. The requirements and tests for these specialised terminals are also not covered in this standard.

NOTE: No requirements or tests are included in this document concerning the procedures for packet communications, user-to-user signalling or supplementary services except for the case of the terminal portability supplementary service which can be considered as an essential feature of many ISDN terminals. However, TEs implementing packet facilities, user-to-user signalling or supplementary services may be subject to additional and/or alternative testing by those Administrations whose ISDNs provide the support of packet calls, user-to-user signalling and/or supplementary services.

1 General

1.1 Introduction

1.1.1 This standard specifies the basic requirements concerning the layer 3 basic call control protocol which Terminal Equipment (TE) has to meet for attachment to the public ISDN basic user-network interface at the T reference point or coincident S and T reference point. The requirements specified in this standard are in addition to those relating to the layer 1 and 2 aspects given in NET 3, Part 1. This standard does not cover all the requirements which a specific type of TE has to meet. However, standards/NETs which define attachment requirements relevant to a specific type of TE should refer to this standard for the attachment requirements within the scope of this standard.

1.1.2 Unless otherwise stated, the use of the term terminal equipment (TE) within this standard refers to customer's terminal apparatus which may be a TE1 (Terminal Equipment Type 1), a TA (Terminal Adaptor) or an NT2 (Network Termination Type 2) as defined in CCITT Recommendation I.411 [4].

1.1.3 Communication between adjacent layers (primitive procedures) is conceptual and allows the description of interactions between functions dedicated to different layers within a TE. These primitive procedures do not constrain implementation, are system internal and therefore cannot be tested in isolation. However, as seen from outside, the design of TE shall be such that the sequence of events across the user-network interface must be the same as if the primitives were implemented as described in ETS 300 102-1 [2] and ETS 300 102-2 [3].

1.2 Configurations at User Premises

The operational configurations specified in subclause 1.2 of NET 3, Part 1 [1] are applicable to this standard.

1.3 Relationship to other Attachment standards/NETs

Where a TE supports services specified in other NETs, additional requirements may apply and will be found in the specific terminal NET.

1.4 Testing and Approval Methodology

1.4.1 The tests specified in Annex A of this ETS shall verify the suitability of the TE for attachment to the public telecommunications network. Those functions and procedures which are optional as indicated in this ETS and for which there are tests in Annex A of this ETS shall be subject to an attachment test if they are implemented in the TE. The means of determining whether an optional function/procedure has been

implemented is by either Apparatus Supplier's declaration or as a result of testing the equipment for this function/procedure. Where no declaration is made by the Apparatus Supplier as to the implementation (or not) of an optional function/procedure, and the testing of this feature reveals that the option is incorrectly (or partially) implemented, the option shall be deemed to have been implemented and the apparatus shall be evaluated accordingly.

1.4.2 The user-network interface at the T reference point or coincident S and T reference point provides the only access for testing the terminal equipment. However, actions at the user side of the equipment under test (e.g. at the man-machine interface, execution of higher layer processes, at the interface at the R reference point in the case of terminal adaptors) shall be used to invoke actions at layer 3 of the D-channel protocol within the equipment under test.

1.4.3 Connection of Equipment Under Test to the Tester shall be carried out in accordance with subclause 1.4.3 of NET 3, Part 1 [1].

1.4.4 The attachment tests for each layer of the D-channel protocol are specified separately (layers 1 and 2 in NET 3, Part 1, Annex A, Parts 1 and 2 respectively and layer 3 in Annex A of this document) and the test configuration(s) to be used in testing each layer is specified in that part of the ETS relating to the attachment tests for that layer.

1.4.5 When carrying out a test, it may be necessary for the equipment under test to be maintained in the active state of a call. In such cases, it may be necessary for the tester to achieve this by procedural means related to functional entities outside the scope of this ETS (e.g. layer 4 and upwards). The procedural means may include:

- a) the tester sending a specified bit pattern within the B-channel subsequent to the CONNECT or CONNECT ACKNOWLEDGE message being sent in the D-channel; and/or
- b) if possible, disabling the TE timers associated with layer 4 and upwards or lower layers of the user plane (reference CCITT Recommendation I.320 [8]).

Any actions necessary to prevent the equipment under test from premature clearing shall be indicated by the supplier (see subclause 1.5).

1.5 Information to be provided by the Apparatus Supplier

The apparatus supplier shall provide two kinds of information:

- information with respect to the protocol: Protocol Implementation Conformance Statement (PICS);
- information with respect to the man-machine interface: Protocol Implementation eXtra Information for Testing (PIXIT).

The complete list of the information to be provided by the apparatus supplier is a matter between the apparatus supplier and the testing house but an example of the possible information (relating to layer 3 protocol aspects) to be supplied is given for information in Annex B to this ETS.

1.6 Test Environment

The conditions under which the tests specified in Annex A shall be carried out are specified in subclause 1.7 of NET 3, Part 1 [1].

2 Layer 3 Requirements

2.1 General

This section defines the requirements for TE operation relating to the D-channel Layer 3 protocol with reference to Basic Call Control.

A TE shall support the protocols associated with the user side in accordance with ETS 300 102-1 [2] and ETS 300 102-2 [3] and where applicable meet those functional requirements which are compulsory to provide the communication functionality specified in a ETS/NET concerned with a specific type of TE.

The layer 3 D-channel protocol implemented in the TE shall satisfy ETS 300 102-1 [2] and and ETS 300 102-2 [3] as indicated in the Tables 1 to 15 in section 2.2 of this ETS.

2.2 Static Attachment Requirements

The static attachment requirements (SAR) define features and functions which at minimum must be supported to ensure the operational integrity of an ISDN I-series terminal. For layer 3 the SAR is specified in Tables 1 to 15 below.

Within Tables 1 to 15, the following notation is used:-

- M = mandatory ie the TE implementation shall satisfy clauses in that section relating to the operation of the layer 3 protocol in the TE.
- O = optional ie it is optional whether the TE implements that function but if the function is implemented it shall satisfy the clauses in that section relating to the operation of the TE layer 3 protocol.
- N/A = not applicable ie either the requirements specified in the section on the TE shall not be applied for attachment approval or else the section relates solely to the operation of the network, or it relates to the operation at the man-machine interface.
- GID = the section provides General Information and Definitions.
- ETS = ETS 300 102-1 [2].
- SAR = Static Attachment Requirement (minimal acceptance).
- COMMENT = Available field for supportive comments/values. (The comments references apply to this document).

2.2.1 Functional Characteristics

2.2.1.1 General

Table 1: Layer 3 Functional Characteristics Requirements

FUNCTIONAL CHARACTERISTICS			
Function = General	ETS	SAR	COMMENTS
General	§1	GID	

2.2.1.2 Overview of Call Control

Table 2: Layer 3 Call States Requirements

FUNCTIONAL CHARACTERISTICS			
Function = Call States	ETS	SAR	COMMENTS
Overview of Call Control	§2	GID	Background Info.
Circuit Switched Calls	§2.1	GID	
Call states at the user side of the interface	§2.1.1	GID	
Null state (U0)	§2.1.1.1	M	
Call Initiated (U1)	§2.1.1.2	M	
Overlap sending (U2)	§2.1.1.3	O	
Outgoing call proceeding (U3)	§2.1.1.4	NOTE	
Call delivered (U4)	§2.1.1.5	NOTE	
Call present (U6)	§2.1.1.6	M	Transitory state
Call received (U7)	§2.1.1.7	O	M if alerting used
Connect request (U8)	§2.1.1.8	M	
Incoming call proceeding (U9)	§2.1.1.9	O	M if call proc.used
Active (U10)	§2.1.1.10	M	
Disconnect request (U11)	§2.1.1.11	M	
Disconnect indication (U12)	§2.1.1.12	M	
Suspend request (U15)	§2.1.1.13	O	M if call rearrangement used
Resume request (U17)	§2.1.1.14	O	M if call rearrangement used
Release request (U19)	§2.1.1.15	M	
Overlap receiving (U25)	§2.1.1.16	O	M if overlap receiving used
Call states at the network side of the interface	§2.1.2	N/A	
Packet mode access connections	§2.2	N/A	see NOTE in scope
Temporary signalling connections	§2.3	N/A	see NOTE in scope
States associated with the global call reference	§2.4	O)
Call states at the user side of the interface	§2.4.1	O)
Null (Rest 0)	§2.4.1.1	O) M if Restart
Restart request (Rest 1)	§2.4.1.2	O) procedure used.
Restart (Rest 2)	§2.4.1.3	O)
Call states at the network side of the interface	§2.4.2	N/A	

Note to table 2:

NOTE: A given TE may not need this call state, but to fulfil procedures specified in ETS 300 102-1 [2], clause 5 and all its subsections, all TEs must implement the call state.

2.2.1.3 Message Definition and Content

Table 3: Layer 3 Message Definition and Content Requirements

FUNCTIONAL CHARACTERISTICS			
Function = Message definition and content	ETS	SAR	COMMENTS
Message Functional Definitions and Content	§3	GID	NOTE 1
Messages for Circuit Mode Connections	§3.1	GID	Summary of message repertoire
ALERTING	§3.1.1	NOTE 2	
CALL PROCEEDING	§3.1.2	NOTE 2	
CONGESTION CONTROL	§3.1.3	N/A	see NOTE in Scope
CONNECT	§3.1.4	M	
CONNECT ACKNOWLEDGE	§3.1.5	NOTE 2	
DISCONNECT	§3.1.6	M	
FACILITY	§3.1.7	N/A	see NOTE in Scope
INFORMATION	§3.1.8	NOTE 2	
NOTIFY	§3.1.9	NOTE 2	
PROGRESS	§3.1.10	NOTE 2	
RELEASE	§3.1.11	M	
RELEASE COMPLETE	§3.1.12	M	
RESUME	§3.1.13	O	NOTE 4
RESUME ACKNOWLEDGE	§3.1.14	O	NOTE 4
RESUME REJECT	§3.1.15	O	NOTE 4
SETUP	§3.1.16	M	
SETUP ACKNOWLEDGE	§3.1.17	O	
STATUS	§3.1.18	M	
STATUS ENQUIRY	§3.1.19	O	
SUSPEND	§3.1.20	O	NOTE 4
SUSPEND ACKNOWLEDGE	§3.1.21	O	NOTE 4
SUSPEND REJECT	§3.1.22	O	NOTE 4
USER INFORMATION	§3.1.23	N/A	see NOTE in Scope
Messages for Packet Mode Connections	§3.2	N/A	see NOTE in Scope
Messages for user to user signalling not associated with circuit switched calls	§3.3	N/A	see NOTE in Scope
Messages used with the Global Call Reference	§3.4		
RESTART	§3.4.1	NOTE 3	
RESTART ACKNOWLEDGE	§3.4.2	NOTE 3	
STATUS	§3.4.3	O	

Notes to table 3:

- NOTE 1: Refer to ETS 300 102-1 [2], subclause 3.1.1 to subclause 3.1.23 for the content of each message.
- NOTE 2: It is optional whether a TE ever transmits this message but all TEs must be able to receive the message and handle it correctly as defined in the procedures specified in ETS 300 102-1 [2], clause 5 and all its subsections.
- NOTE 3: The implementation of both the RESTART and the RESTART ACKNOWLEDGE messages is optional. However, if the capability to transmit the RESTART message is implemented then it is mandatory to implement the capability to receive the RESTART ACKNOWLEDGE message. Similarly, if the capability to receive the RESTART message is implemented, it is mandatory to implement the capability to transmit the RESTART ACKNOWLEDGE message.
- NOTE 4: The support of the call re-arrangement procedure is optional. However, if call re-arrangement is implemented then all the messages RESUME, RESUME ACKNOWLEDGE, RESUME REJECT, SUSPEND, SUSPEND ACKNOWLEDGE, SUSPEND REJECT must be implemented.

2.2.1.4 Message Format and Information Element Coding

Table 4: Layer 3 Message Format and Coding Requirements

FUNCTIONAL CHARACTERISTICS			
Function = Message Format and Information Element Coding	ETS	SAR	COMMENTS
General Message Format and Information Element Coding	§4	NOTE 1	
Overview	§4.1	M	
Protocol Discriminator	§4.2	M	
Call Reference	§4.3	M	
Message Type	§4.4	M	
Other Information Elements	§4.5		
Coding Rules	§4.5.1	M	
Codeset 0	§4.5.1.1	M	
Codeset 5	§4.5.1.2	NOTE 6	
Extensions of Codesets	§4.5.2	M	
Locking Shift Procedure	§4.5.3	NOTE 2	
Non-locking Shift Procedure	§4.5.4	NOTE 2	
Bearer Capability	§4.5.5	M	
Call Identity	§4.5.6	O	NOTE 3
Call State	§4.5.7	M	
Called Party Number	§4.5.8	M	
Called Party Subaddress	§4.5.9	N/A	see NOTE in Scope
Calling Party Number	§4.5.10	N/A	see NOTE in Scope
Calling Party Subaddress	§4.5.11	N/A	see NOTE in Scope
Cause	§4.5.12	M	
Channel Identification	§4.5.13	NOTE 2	
Congestion Level	§4.5.14	N/A	see NOTE in Scope
Display	§4.5.15	NOTE 7	
High Layer Compatibility	§3.1.16	O	
Keypad Facility	§4.5.17	N/A	see NOTE in Scope
Low Layer Compatibility	§4.5.18	O	
More Data	§4.5.19	N/A	see NOTE in Scope
Network-specific Facilities	§4.5.20	N/A	see NOTE in Scope
Notification Indicator	§4.5.21	NOTE 2	
Progress Indicator	§4.5.22	NOTE 2	
Restart Indicator	§4.5.24	O	
Segmented Message	§4.5.25	N/A	
Sending Complete	§4.5.26	NOTE 4	
Signal	§4.5.27	N/A	see NOTE in Scope
Transit Network Selection	§4.5.28	O	
User to user	§4.5.29	N/A	see NOTE in Scope
Date/Time	§4.6.1	NOTE 5	
Facility	§4.6.2	N/A	see NOTE in Scope
Information Element			
Information Element for Packet Communications	§4.7	N/A	see NOTE in Scope

Notes to table 4:

NOTE 1: Refer to ETS 300 102-1 [2], subclause 4.2 to subclause 4.5.28 for the content of each information element.

NOTE 2: It is optional whether a TE ever transmits this information element but all TEs must be able to receive the information element and handle it correctly as defined in the procedures specified in ETS 300 102-2 [2], clause 5 and all its subsections.

NOTE 3: The support of the call re-arrangement procedure is optional. However ETSs/NETs relating to a specific terminal type may require the procedure to be mandatory for those specific types of terminals. Furthermore, even if the call re-arrangement procedure is used, the support of this information element is optional.

NOTE 4: It is optional for a TE to generate this information element, but TEs which implement the Overlap receiving procedure shall recognize the information element and handle it correctly as defined in the procedures specified in ETS 300 102-2 [2], clause 5 and all its subsections.

NOTE 5: It is mandatory that the TE recognises the Date/time information element meaning that no error handling procedures shall be initiated upon its reception. ETSS/NETs relating to a specific terminal type may require the use of the contents of the Date/time information element but otherwise it may be ignored.

NOTE 6: It is mandatory for the TE to handle correctly the shifting procedures between different codesets. It is optional whether the TE recognizes or generates any of the information elements in codeset 5.

NOTE 7: It is mandatory that the TE recognizes the Display Information Element meaning that no error handling procedures shall be initiated upon its reception but it is optional whether the contents of the information element are displayed.

2.2.1.5 Layer 3 System Parameters

Table 5: Layer 3 System Parameter Requirements

FUNCTIONAL CHARACTERISTICS			
Function = Layer 3 System Parameters	ETS	SAR	COMMENTS
List of System Parameters	§9		
Timers in the Network Side	§9.1	N/A	
Timers in the User Side	§9.2		
T301		N/A	
T302		NOTE	
T303		O	
T304		O	
T305		M	
T308		M	
T309		O	
T310		O	
T313		M	
T314		NOTE	
T316		NOTE	
T317		NOTE	
T318		NOTE	
T319			
T321		N/A	
T322		NOTE	

Note to table 5:

NOTE: Mandatory if the corresponding procedure is implemented, otherwise not applicable.

Table 6 (concluded): Layer 3 Call Establishment Requirements

INTERFACE PROCEDURES			
Examples of cause value and location for busy condition Message segmentation procedures Procedure = Call Establishment (continued)	Annex J	N/A	NOTE 3 COMMENTS
	Annex K	N/A	
	ETS	SAR	
Low Layer Information coding principles Low Layer Compatibility negotiation Procedures for Establishment of Bearer Connection prior to Call Acceptance Optional Procedures for bearer service change	Annex L	M	
	Annex M	O	
	Annex N	O	
	Annex O	N/A	

Notes to table 6:

- NOTE 1: This paragraph is mandatory except information related to supplementary services, inter ISPBX application and packet calls which is N/A and information related to the use of the segmentation procedure which is optional.
- NOTE 2: TEs which use the en-bloc sending procedures shall be able to receive the SETUP ACKNOWLEDGE message and handle it correctly as defined in subclause 5.1.3 of ETS 300 102-1 [2] unless the TE includes the Sending Complete information element in the SETUP message.
- NOTE 3: Currently there are no messages whose length would necessitate the use of the segmentation procedure.
- NOTE 4: The capacity to receive the SETUP message using the broadcast method is mandatory for all terminals. However, the capacity to receive the SETUP message using point-to-point data link connection is optional.

2.2.2.2 Call Clearing

Table 7: Layer 3 Call Clearing Requirements

INTERFACE PROCEDURES			
Procedure = Call Clearing	ETS	SAR	COMMENTS
Call Clearing Terminology	§5.3		
Exception Conditions	§5.3.1	GID	
Clearing initiated by the User	§5.3.2	M	
Clearing by the Network	§5.3.3	M	
Clearing when Tones/Announcements Provided	§5.3.4	M	
Clearing when Tones/Announcements not Provided	§5.3.4.1	M	
Completion of Clearing	§5.3.4.2	M	
Clear Collision	§5.3.4.3	M	
Usage of Cause Values	§5.3.5	M	
	Appendix I	NOTE	

Note to table 7:

- NOTE: Appendix I summarizes the usage of Cause Values in ETS 300 102-1 [2] and thus places no additional requirements on the TE other than those which have already been identified in subclause 2.2.2 of this document.

2.2.2.3 Tones and Announcements

Table 8: Layer 3 Tones and Announcements Requirements

INTERFACE PROCEDURES			
Procedure = Tones and Announcements	ETS	SAR	COMMENTS
In-band Tones and Announcements	§5.4	N/A	refer to network operations only

2.2.2.4 Restart

Table 9: Layer 3 Restart Requirements

INTERFACE PROCEDURES			
Procedure = Restart	ETS	SAR	COMMENTS
Restart Procedure	§5.5	O	
Sending RESTART	§5.5.1	O	
Receiving RESTART	§5.5.2	O	

2.2.2.5 Call Re-arrangement

Table 10: Layer 3 Call Re-arrangement Requirements

INTERFACE PROCEDURES			
Procedure = Call Re-arrangement	ETS	SAR	COMMENTS
Call Re-arrangements	§5.6	O	NOTE 1
Call Suspension	§5.6.1	O	NOTE 1
Call Suspended	§5.6.2	O	NOTE 1
Call Suspend Error	§5.6.3	O	NOTE 1
Call Re-establishment	§5.6.4	O	NOTE 1
Call Resume Error	§5.6.5	O	NOTE 1
Double Suspension	§5.6.6	O	NOTE 1
Call Re-arrangement Controlled by an NT2	§5.6.7	O	NOTE 1
User Notification Procedure	§5.9		
- Receipt of		M	NOTE 2
- Generation of		O	NOTE 2

Notes to table 10:

NOTE 1: The support of call re-arrangement procedure is optional. However ETSs/NETs relating to a specific terminal type may require the procedure to be mandatory for those specific types of terminals. If call re-arrangement procedure is implemented, then all of the procedures specified in ETS 300 102-1 [2], subclause 5.6 and its sub-sections shall be implemented.

NOTE 2: It is optional whether a TE ever transmits a NOTIFY message but all TEs must be able to receive and handle it correctly as defined in the procedures specified in clause 5 and its sub-sections of ETS 300 102-1 [2].

2.2.2.6 User-to-user Signalling

Table 11: User-to-user Signalling Requirements

INTERFACE PROCEDURES			
Procedure = User-to-user Signalling	ETS	SAR	COMMENTS
Procedures for User-to-User Signalling	§7	N/A	See NOTE in scope

2.2.2.7 Handling of Error Conditions

Table 12: Layer 3 Handling of Error Conditions Requirements

INTERFACE PROCEDURE			
Procedure = Error Conditions	ETS	SAR	COMMENTS
Handling of Error Conditions	§5.8	M	
Protocol Discriminator Error	§5.8.1	M	
Message too Short	§5.8.2	M	
Call Reference Errors	§5.8.3		
Invalid Call Reference Format	§5.8.3.1	M	
Call Reference Procedural Error	§5.8.3.2	M	
Message Type or Message Sequence Errors	§5.8.4	M	
General Information Element Errors	§5.8.5		
Information Element Out of Sequence	§5.8.5.1	M	
Duplicated Information Elements	§5.8.5.2	M	
Mandatory Information Element Errors	§5.8.6		
Mandatory Information Element Missing	§5.8.6.1	M	
Mandatory Information Element Content Error	§5.8.6.2	M	
Non-mandatory Information Element Error	§5.8.7		
Unrecognized Information Element	§5.8.7.1	M	
Non-mandatory Information Element Content Error	§5.8.7.2	M	
Data Link Reset	§5.8.8	M	
Data Link Failure	§5.8.9	M	
Status Enquiry Procedure	§5.8.10	O	
Receiving a STATUS message	§5.8.11	M	

2.2.2.8 Packet Communications

Table 13: Layer 3 Packet Communications Requirements

INTERFACE PROCEDURES			
Procedure = Packet Communication	ETS	SAR	COMMENTS
Procedures for Packet Communication	§6	N/A	see NOTE in scope

2.2.2.9 Supplementary Services

Table 14: Supplementary Service Requirements

INTERFACE PROCEDURES			
Procedure = Supplementary Services	ETS	SAR	COMMENTS
Application of Circuit-Switched Supplementary Services to Terminals using Stimulus Procedures.	§8	N/A	see NOTE in scope

2.2.2.10 SDLs

Table 15: User side and Network side SDL diagrams

INTERFACE PROCEDURES			
Procedure = Call Control	ETS	SAR	COMMENTS
User side and network side SDL diagrams	Annex A	NOTE	

Note to table 15:

NOTE: Annex A of ETS 300 102-1 [2] refers out to ETS 300 102-2 [3], the contents of which are a specification using SDL of the procedures specified in clause 5 of ETS 300 102-1 [2] and hence place no additional requirements on the TE other than those which have already been identified in subclause 2.2.2 of this document.

3 Definitions and Abbreviations

The definitions and abbreviations given in clause 6 of NET 3, Part 1 [1] are applicable. In addition, the following abbreviation applies:

ETSI European Telecommunications Standards Institute

4 References

- [1] NET 3, Part 1. First Edition (1988): "Norme Européenne de Télécommunication. Approval Requirements for Terminal Equipment to connect to integrated services digital network (ISDN) using ISDN basic access. Part 1: layers 1 and 2 aspects".
- [2] ETS 300 102-1 (1990): "Integrated Services Digital Network (ISDN); User-network interface layer 3 Specifications for basic call control".
- [3] ETS 300 102-2 (1990): "Integrated Services Digital Network (ISDN); User-network interface layer 3 Specification for basic call control Specification Description Language (SDL) diagrams".
- [4] CCITT Recommendation I.411 (1988): "ISDN User-network Interfaces - Reference Configurations".
- [5] CCITT Recommendation I.420 (1988): "Basic User-network Interface".
- [6] ISO/IEC JTC1/SC21 DIS 9646: "OSI Conformance Testing Methodology and Framework".

- [7] ETS 300 125 (1991): "Integrated Services Digital Network (ISDN); User-network interface data link layer specification Application of CCITT Recommendations Q.920/I.440 and Q.921/I.441".
- [8] CCITT Recommendation I.320 (1988): "ISDN Protocol Reference Model".

Blank page

Annex A: Test schedule for layer 3 conformance

Contents

Section 0:	Introduction	25
1	Object and Scope	25
2	Preliminary Notes (Normative text).....	25
Section 1:	General tests.....	31
1	Incoming call handling tests.....	31
1.1	Receipt of a valid SETUP message in the Null State	31
1.1.1	With a content which matches the capabilities of the TE	31
1.1.1.1	Without the Sending complete information element	31
1.1.1.2	With the Sending complete information element.....	32
1.1.1.3	With the Interworking indication.....	33
1.1.2	With a content which does not match the capabilities of the TE	34
1.1.2.1	With an Incompatibly coded Bearer capability value.....	34
1.1.2.2	With an incompatibly coded High layer compatibility value ..	36
1.2	Receipt of a repeated valid SETUP message	38
1.3	Receipt of an "erroneous" message.....	39
1.3.1	With a length which is too short	39
1.3.2	With an Incorrect Call reference flag.....	40
1.3.3	With a mandatory information element missing.....	41
1.3.4	With an unrecognised information element of the type "comprehension required".....	42
1.3.5	With an unrecognised information element of the type other than "comprehension required"	43
1.3.6	With a non-mandatory information element with unrecognised content	44
Section 2:	Called user terminal tests	45
2	Null state tests, state 0.....	45
2.1	Receipt of a RELEASE message	45
2.2	Receipt of a RELEASE COMPLETE message	46
2.3	Receipt of an "erroneous" message.....	47
2.3.1	Receipt of an inopportune message.....	47
2.3.2	Receipt of a syntactically invalid message (unrecognized message type)	47
2.4	Receipt of a STATUS message.....	48
2.4.1	Indicating the Null state.....	48
2.4.2	Indicating another call state.....	48
2.5	RESUME message from the terminal.....	49
3	Call present state tests, state 6.....	50
4	Overlap receiving state tests, state 25.....	50
4.1	Receipt of a DISCONNECT message	50
4.2	Receipt of a RELEASE message	51
4.3	Receipt of a RELEASE COMPLETE message	52
4.4	Receipt of an "erroneous" message.....	53
4.4.1	Receipt of an inopportune message.....	53
4.4.2	Receipt of a syntactically invalid message (unrecognized message type)	54
4.5	Receipt of an INFORMATION message.....	55

4.5.1	Receipt of an INFORMATION message without sufficient called number information.....	55
4.5.2	Receipt of an INFORMATION message with sufficient called number information.....	56
4.6	Receipt of a STATUS message.....	57
4.6.1	Indicating the Null state.....	57
4.6.2	Indicating a compatible call state.....	57
4.7	PROGRESS message from the terminal.....	58
5	Incoming call proceeding state tests, state 9.....	59
5.1	Receipt of a DISCONNECT message.....	59
5.2	Receipt of a RELEASE message.....	60
5.3	Receipt of a RELEASE COMPLETE message.....	61
5.4	Receipt of an "erroneous" message.....	62
5.4.1	Receipt of an inopportune message.....	62
5.4.2	Receipt of a syntactically invalid message (unrecognized message type)....	63
5.5	Receipt of an INFORMATION message.....	64
5.6	Receipt of a STATUS message.....	65
5.6.1	Indicating the Null state.....	65
5.6.2	Indicating a compatible call state.....	65
5.7	PROGRESS message from the terminal.....	66
6	Call received state tests, state 7.....	67
6.1	Receipt of a DISCONNECT message.....	67
6.2	Receipt of a RELEASE message.....	69
6.3	Receipt of a RELEASE COMPLETE message.....	70
6.4	Receipt of an "erroneous" message.....	71
6.4.1	Receipt of an inopportune message.....	71
6.4.2	Receipt of a syntactically invalid message (unrecognized message type)....	72
6.5	Receipt of an INFORMATION message.....	73
6.6	Receipt of a STATUS message.....	74
6.6.1	Indicating the Null state.....	74
6.6.2	Indicating a compatible call state.....	74
6.7	PROGRESS message from the terminal.....	75
7	Connect request state tests, state 8.....	76
7.1	Receipt of a DISCONNECT message.....	76
7.2	Receipt of a RELEASE message.....	77
7.3	Receipt of a RELEASE COMPLETE message.....	78
7.4	Receipt of an "erroneous" message.....	79
7.4.1	Receipt of an inopportune message.....	79
7.4.2	Receipt of a syntactically invalid message (unrecognized message type)....	80
7.5	Receipt of an INFORMATION message.....	81
7.6	Receipt of a STATUS message.....	82
7.6.1	Indicating the Null state.....	82
7.6.2	Indicating a compatible call state.....	82
7.7	Receipt of a CONNECT ACKNOWLEDGE message.....	83
8	Active state tests, state 10.....	84
8.1	Receipt of a DISCONNECT message.....	84
8.2	Receipt of a RELEASE message.....	85
8.3	Receipt of a RELEASE COMPLETE message.....	86
8.4	Receipt of an "erroneous" message.....	87
8.4.1	Receipt of an inopportune message.....	87
8.4.2	Receipt of a syntactically invalid message.....	88
8.4.2.1	Receipt of an unrecognized message type.....	88
8.4.2.2	Receipt of an invalid call reference format.....	89
8.5	Receipt of an INFORMATION message.....	90
8.6	Receipt of a STATUS message.....	91
8.6.1	Indicating the Null State.....	91

	8.6.2	Indicating a compatible call state	91
8.7		Receipt of a NOTIFY message	92
8.8		DISCONNECT message from the terminal	93
8.9		SUSPEND message from the terminal	94
8.10		NOTIFY message from the terminal	95
8.11		Call to a terminal already involved in a call.....	96
Section 3: Calling user terminal tests.....			97
9		Null state tests, state 0	97
9.1		SETUP Message from Terminal	97
10		Call initiated state tests, state 1	98
10.1		Receipt of a RELEASE message	98
10.2		Receipt of a RELEASE COMPLETE message	99
10.3		Receipt of an "erroneous" message.....	100
	10.3.1	Receipt of an inopportune message.....	100
	10.3.2	Receipt of a syntactically invalid message (unrecognized message type)..	101
10.4		Receipt of a STATUS message.....	102
	10.4.1	Indicating the Null state	102
	10.4.2	Indicating a compatible call state	102
10.5		Receipt of a CALL PROCEEDING message	103
10.6		Receipt of a SETUP ACKNOWLEDGE message.....	104
11		Overlap sending state tests, state 2	105
11.1		Receipt of a DISCONNECT message	105
11.2		Receipt of a RELEASE message	106
11.3		Receipt of a RELEASE COMPLETE message	107
11.4		Receipt of an "erroneous" message.....	108
	11.4.1	Receipt of an inopportune message.....	108
	11.4.2	Receipt of a syntactically invalid message (unrecognized message type)..	109
11.5		Receipt of an INFORMATION message.....	110
11.6		Receipt of a STATUS message.....	111
	11.6.1	Indicating the Null state	111
	11.6.2	Indicating a compatible call state	111
11.7		Receipt of a PROGRESS message.....	112
11.8		Receipt of a CALL PROCEEDING message	113
11.9		Receipt of an ALERTING message	114
11.10		Receipt of a CONNECT message.....	115
11.11		INFORMATION message from the terminal.....	116
11.12		DISCONNECT message from the terminal	117
12		Outgoing call proceeding state tests, state 3.....	118
12.1		Receipt of a DISCONNECT message	118
12.2		Receipt of a RELEASE message	119
12.3		Receipt of a RELEASE COMPLETE message	120
12.4		Receipt of an "erroneous" message.....	121
	12.4.1	Receipt of an inopportune message.....	121
	12.4.2	Receipt of a syntactically invalid message (unrecognized message type)..	122
12.5		Receipt of an INFORMATION message.....	123
12.6		Receipt of a STATUS message.....	124
	12.6.1	Indicating the Null state	124
	12.6.2	Indicating a compatible call state	124
12.7		Receipt of a PROGRESS message.....	125
12.8		Receipt of an ALERTING message	126
12.9		Receipt of a CONNECT message.....	127
12.10		DISCONNECT message from the terminal	128
13		Call delivered state tests, state 4	129
13.1		Receipt of a DISCONNECT message	129

13.2	Receipt of a RELEASE message.....	130
13.3	Receipt of a RELEASE COMPLETE message	131
13.4	Receipt of an "erroneous" message.....	132
13.4.1	Receipt of an inopportune message	132
13.4.2	Receipt of a syntactically invalid message (unrecognized message type) ..	133
13.5	Receipt of an INFORMATION message.....	134
13.6	Receipt of a STATUS message.....	135
13.6.1	Indicating the Null state	135
13.6.2	Indicating a compatible call state	135
13.7	Receipt of a PROGRESS message.....	136
13.8	Receipt of a CONNECT message.....	137
13.9	DISCONNECT message from the terminal	138
Section 4: Cleardown state tests		139
14	Disconnect request state tests, state 11	139
14.1	Receipt of a DISCONNECT message	139
14.2	Receipt of a RELEASE message.....	140
14.3	Receipt of a RELEASE COMPLETE message	141
14.4	Receipt of an "erroneous" message.....	142
14.4.1	Receipt of an inopportune message	142
14.4.2	Receipt of a syntactically invalid message (unrecognized message type) ..	143
14.5	Receipt of an INFORMATION message.....	144
14.6	Receipt of a STATUS message.....	145
14.6.1	Indicating the Null state	145
14.6.2	Indicating a compatible call state	145
14.7	Receipt of a NOTIFY message	146
15	Disconnect indication state tests, state 12.....	147
16	Release request state tests, state 19	147
16.1	Receipt of a RELEASE message.....	147
16.2	Receipt of a RELEASE COMPLETE message	148
16.3	Receipt of an "erroneous" message.....	149
16.3.1	Receipt of an inopportune message	149
16.3.2	Receipt of a syntactically invalid message (unrecognized message type) ..	150
16.4	Receipt of an INFORMATION message.....	151
16.5	Receipt of a STATUS message.....	152
16.5.1	Indicating the Null state	152
16.5.2	Indicating a compatible call state	153
Section 5: uspend/resume states tests		154
17	Suspend request state tests, state 15.....	154
17.1	Receipt of a DISCONNECT message	154
17.2	Receipt of a RELEASE message.....	155
17.3	Receipt of a RELEASE COMPLETE message	156
17.4	Receipt of an "erroneous" message.....	157
17.4.1	Receipt of an inopportune message	157
17.4.2	Receipt of a syntactically invalid message (unrecognized message type) ..	158
17.5	Receipt of an INFORMATION message.....	159
17.6	Receipt of a STATUS message.....	161
17.6.1	Indicating the Null state	161
17.6.2	Indicating a compatible call state	161
17.7	Receipt of a NOTIFY message	163
17.8	Receipt of a SUSPEND REJECT message.....	165
17.9	Receipt of a SUSPEND ACKNOWLEDGE message	166
18	Resume request state tests, state 17	167
18.1	Receipt of a DISCONNECT message	167

18.2	Receipt of a RELEASE message	168
18.3	Receipt of a RELEASE COMPLETE message	169
18.4	Receipt of an "erroneous" message.....	170
18.4.1	Receipt of an inopportune message.....	170
18.4.2	Receipt of a syntactically invalid message (unrecognized message type)..	171
18.5	Receipt of an INFORMATION message.....	172
18.6	Receipt of a STATUS message.....	173
18.6.1	Indicating the Null state	173
18.6.2	Indicating a compatible call state	173
18.7	Receipt of a RESUME REJECT message.....	174
18.8	Receipt of a RESUME ACKNOWLEDGE message.....	175
Section 6:	Layer 3 timers	176
19	Timer tests	176
19.1	Timer T302.....	176
19.2	Timer T303.....	177
19.3	Timer T305.....	178
19.4	Timer T308.....	179
19.5	Timer T313.....	180
19.6	Timer T318.....	181
19.7	Timer T319.....	182
19.7.1	Maximum Value.....	182
19.7.2	Minimum Value.....	183
19.8	Timer T322.....	184
Section 7:	Abbreviations.....	184

Section 0: Introduction

1 Object and Scope

The object of this document is to provide the means by which layer 3 of the TE may be tested to verify the testable parameters given in Reference 2.

The testing is performed using the test configuration as shown in Figure A1-3 in Annex A, Part 1 (Test Schedule for Layer 1 Conformance).

This schedule does not test for conformance or any maintenance functions.

The tests specified in the remainder of this Annex must be considered together with the relevant Preliminary Notes.

The TE under test shall satisfy the test schedule and the Remote Single-layer "RS" test method (ref 6, subclause 8.1.4) will be used.

2 Preliminary Notes (Normative text)

Each test is presented with the following framework:

- Purpose, to describe the scope of the test case;
- Precondition, to ensure that the Terminal (TE) is in the Null state;
- Test case sequence, to show the information flow between the Tester and the Terminal ;
- Test description, to explain the test case sequence ;
- Result checking, to verify the result of the test ;

- Postamble, to bring the Terminal (TE) to the Null state (e.g.using a RELEASE/ RELEASE COMPLETE sequence).
- 1: The messages sent by the Tester to the Terminal in the following test case sequences are either "valid" or "erroneous" (ie "inopportune" or "syntactically invalid").

A "valid" message is a message which contains at least all mandatory information elements (for the content of each information element see Preliminary Note 7). An optional information element may also be mandatory under some circumstances (see explanatory notes in clause 3 of ETS 300 102-1 [2]).

An "inopportune" (or unexpected) message is a message which is sent to the terminal to verify the correct operation of the implementation in the terminal of the error handling procedures (ETS 300 102-1 [2], subclause 5.8.4). The specific message to use as the "inopportune" message, shall be one from the list given in the Table A3 - 1 below. The same message shall not be used as the "inopportune" message in all tests.

A "syntactically invalid" message is, either:

- 1.1 a syntactically invalid message type, which (for the purpose of conformance testing) is defined as either,

1.1.1 a message which is 4 octets long with the message type coded to a value not yet identified (a spare value) in subclause 4.4 of ETS 300 102-1 [2]. (Some TEs may recognise certain message type values not identified in ETS 300 102-1 [2]. The apparatus supplier shall declare any message type values which are not identified in ETS 300 102-1 [2] but which the TE recognises, and these values shall not be used for "syntactically invalid" message type) or,

1.1.2 a message which contains a Call reference information element with an invalid Call reference format (ie with bits 5 to 8 not equal to "0000").

or,

- 1.2 for the tests which are only performed in SECTION 1 (GENERAL TESTS):

- a message which is too short (a message length less than 4 octets).
- a message which contains a Call reference information element with incorrect call reference flag.
- a message in which a mandatory information element is missing.

Table A3-1: Inopportune Messages

Test No.	Inopportune Messages
§2.3.1	DISCONNECT, ALERTING, CALL PROCEEDING, CONNECT, CONNECT ACKNOWLEDGE, SETUP ACKNOWLEDGE.
§4.4.1 §5.4.1 §6.4.1	As for §2.3.1 except DISCONNECT.
§7.4.1	As for §2.3.1 except DISCONNECT, CONNECT ACKNOWLEDGE
§8.4.1	ALERTING, CALL PROCEEDING, CONNECT, SETUP ACKNOWLEDGE
§10.3.1	CONNECT ACKNOWLEDGE.
§11.4.1	As for §10.3.1 + SETUP ACKNOWLEDGE.
§12.4.1	As for §11.4.1 + CALL PROCEEDING.
§13.4.1	As for §12.4.1 + ALERTING.
§14.4.1 §16.3.1	ALERTING, CALL PROCEEDING, CONNECT, CONNECT ACKNOWLEDGE, SETUP ACKNOWLEDGE.
§17.4.1 §18.4.1	ALERTING, CALL PROCEEDING, CONNECT, CONNECT ACKNOWLEDGE, SETUP ACKNOWLEDGE.

- 2: The message used by the Tester to check the result of the test case is called the Checking message. This message shall be either;
- a syntactically invalid message type (see 1.1.1), or
 - a STATUS ENQUIRY message.

If it is declared that the STATUS ENQUIRY procedures have been implemented in the TE, then the STATUS ENQUIRY message shall be used as the checking message.

If the TE is not in the Null state, it shall return a STATUS message.

The STATUS message shall include a binary representation of the TE call state allowing the Tester to ensure that it is correct. Should this value disagree with the expected one, a second checking message should be transmitted by the Tester and the value rechecked. If an incorrect value is still encountered then the TE has failed the test.

- 3: According to subclause 5.2 of ETS 300 102-1 [2], a TE may accept an incoming call by responding to the incoming SETUP message with any of the messages SETUP ACKNOWLEDGE (if the SETUP message received does not contain the Sending complete information element), CALL PROCEEDING, ALERTING or CONNECT. All TEs must be able to send the CONNECT message but the use of the other messages is optional. Depending on the type of TE, one of the following sequences shall be followed :
- * If the first response is the SETUP ACKNOWLEDGE message, either
 - CALL PROCEEDING, ALERTING, CONNECT, or
 - ALERTING, CONNECT, or,
 - CONNECT.
 - * If the first response is the CALL PROCEEDING message, either
 - ALERTING, CONNECT, or,

- CONNECT.

* If the first response is the ALERTING message,

- CONNECT.

* To return directly a CONNECT message.

Hence, in this Annex, the tests specified in tests clause 4 can only be carried out on those TEs which send the SETUP ACKNOWLEDGE message, the tests in tests clause 5 apply only to those terminals which send the CALL PROCEEDING message, and the tests in tests clause 6 can only be performed on those TEs which send the ALERTING message.

For TEs which systematically include the Sending complete information element in the SETUP message:

- tests indicated in subclause 10.6 and subclause 11.1 to subclause 11.12 shall not be performed;
- the tester receiving this indication in the SETUP message shall not return a SETUP ACKNOWLEDGE message (tests in subclause 14.1 to subclause 14.7) but shall send a CALL PROCEEDING message instead.

4: For those tests in which a SETUP message is sent to the TE simulating an incoming call, the SETUP message shall be sent via the broadcast data link and shall contain a valid call reference selected in accordance with the procedures specified in subclause 4.3 of ETS 300 102-1 [2] and those information elements required for compatibility checking (see Annex B of ETS 300 102-1 [2] coded in accordance with terminal NETs and the apparatus supplier's information provided so that the incoming call will be compatible with the TE's characteristics (see subclause 1.5 of this ETS regarding apparatus supplier's information).

In addition, for those terminals supporting the capacity to receive a SETUP message in the point-to-point configuration the test specified in section 1 (incoming call handling tests) shall be repeated using point-to-point data link connection.

The various information elements shall be mutually compatible, e.g. the Bearer capability, Low layer compatibility, High layer compatibility, Called party number and Called party sub-address information elements must be consistent with the characteristics of the TE under test.

For those tests in which the TE is expected to respond with a SETUP ACKNOWLEDGE, CALL PROCEEDING, ALERTING or CONNECT message, the TE shall not at the start of the test be in a condition which will cause the call to fail, e.g. called party busy, congestion.

In addition, these tests shall be repeated several times with the information elements involved in compatibility checking (e.g. Bearer Capability, High Layer Compatibility, etc) in the incoming SETUP message encoded so that the simulated incoming call is incompatible with the characteristics of the terminal under test as specified by the supplier. The TE shall be considered to have passed these tests if it rejects the incoming call in accordance with the procedures specified in ETS 300 102-1 [2], subclause 5.2.2.

The SETUP message shall contain sufficient called party number information and Sending complete information element for the TE to employ en-bloc receiving procedures, where this is a material part of the test.

5: Some tests require actions at the man-machine interface of the TE such as initiation of an outgoing call. In the tests defined below, these actions have been described in terms of the layer 3 message which should be generated by such action: e.g. invoke SETUP. For TEs where the generation of such messages is not by action at the man-machine interface (e.g. terminal adaptors, NT2s), the equivalent appropriate operation shall be performed at the appropriate access point in order to

generate these messages. This access point would be, for example, the interface at the R-reference point in the case of a terminal adaptor, the extension side of an NT2 or through the execution of high layer processes.

- 6: TEs may originate circuit switched calls using either en-bloc or overlap sending.
- 7: For all tests in this Annex, the tester shall check that the structure and coding of the information elements contained in all the messages received from the terminal are in accordance with ETS 300 102-1 [2], clause 4. A TE shall be considered to have failed the test if an information element is received which is either incorrectly structured or has a code value which is marked "RESERVED" in ETS 300 102-1 [2].

In particular, when performing the tests of Section 3 of this test schedule to check the TE's satisfaction of the layer 3 procedures for making outgoing calls, the TE shall be tested to see if it uses a valid call reference and that the codings of the Bearer Capability and (if used) optional information elements contained in the outgoing SETUP message are in accordance with the capabilities of the TE under test as declared by the supplier. This test should be repeated for each capability specified by the supplier for the TE under test.

NOTE: Terminal NETs may specify more detailed requirements for the coding of particular information elements e.g. Bearer Capability and High Layer Compatibility.

- 8: In the case where the tester is required to monitor for no response from the TE under test, the monitoring time shall be for 2 seconds after the sending of the stimulus from the tester.

Similarly, except for the tests in clause 6 of this test schedule (Layer 3 Timers), when the tester is expecting a response from the TE, it shall assume that the TE has made no response if no message has been received from the TE within 2 seconds of the sending of the stimulus from the tester. For the tests in clause 6, the period in which the tester should expect a response is specified in each test.

Under certain circumstances, e.g. human intervention, the response time of the TE under test may be longer than 2 seconds, but it shall never be longer than the time-out value specified for the supervision of the answer.

In order to get correct results, the tester must complete its check sequence during the running time of one or more of the ETS 300 102-1 user-side timers.

- 9: In each test, the call reference value used in the first message shall be used in all subsequent messages.
- 10: In tests where, in error situations, as specified in ETS 300 102-1 [2], subclause 5.8.3.2.a, a RELEASE message is expected from the terminal, the receipt of a RELEASE COMPLETE message is also acceptable as a valid alternative.
- 11: The equipment under test may generate a SETUP ACKNOWLEDGE message in response to an "en-bloc" SETUP message received without the Sending complete information element and such a response is valid provided that the terminal continues in accordance with the procedure specified in subclause 5.2.4 of ETS 300 102-1 [2]. In this case the tests in Section 4 shall be performed (in addition to the other tests in this test schedule).
- 12: When the Status enquiry procedure is implemented in the TE (as declared by the apparatus supplier), the Tester will be able to receive and to process correctly at any point in a test a STATUS ENQUIRY message.

If this occurs at a point in the test sequence where a STATUS message was expected from the Terminal, then the Tester shall transmit a STATUS ENQUIRY message in order to solicit a STATUS message from the Terminal.

- 13: Where the tester disconnects or clears a call, generally cause # 16 is to be used. However, other appropriate values may also be applied.
- 14: A TE shall be considered to have failed the attachment test if it uses the message segmentation procedure when the message length does not exceed the value of N201 parameter defined in ETS 300 125 [7].
- 15: In general, the messages sent towards the IUT shall not transfer information which may cause higher layers to release the call (except for those tests concentrating on release procedures).

The apparatus supplier shall declare what the implementation specific conditions are, e.g. which higher layer functions initiate release procedures due to certain information received from the network.

- 16: The Progress indicator information element shall not be included in messages sent from the tester to the IUT except in the case of the PROGRESS message.

Section 1: General tests

1 Incoming call handling tests

1.1 Receipt of a valid SETUP message in the Null State

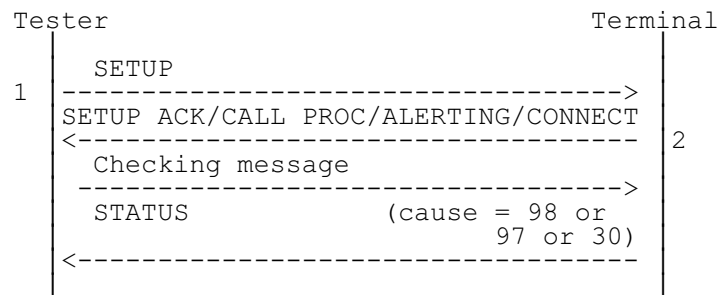
1.1.1 With a content which matches the capabilities of the TE

1.1.1.1 Without the Sending complete information element

Purpose: Ensures that on receipt of a valid SETUP message without the Sending complete information element the terminal responds with either a SETUP ACKNOWLEDGE, CALL PROCEEDING, ALERTING or CONNECT message and moves to the relevant state.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Transmit a valid SETUP message, (refer to preliminary notes)
- 2) Expect either a SETUP ACKNOWLEDGE, CALL PROCEEDING, ALERTING or CONNECT message.

Result Checking:

Transmit a Checking message.

Expect a STATUS message, cause = 98 (Message not compatible with state or message type non-existent or not implemented) or 97 (message type non-existent or not implemented) or 30 (response to STATUS ENQUIRY) ; ensure the correct state (given in octet 3 of the call state information element) appropriate to the message received in 2 has been entered (state 25, 9, 7 or 8 respectively).

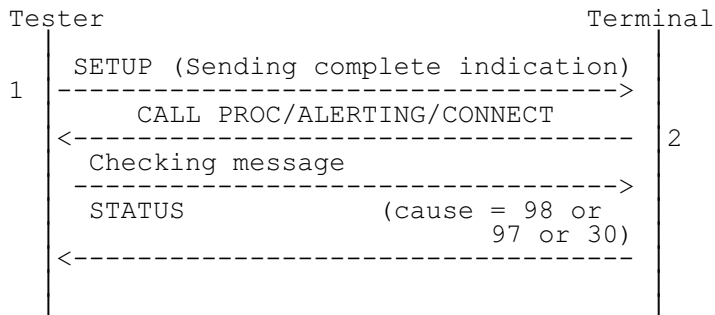
Postamble: Layer 3 should be cleared down to the Null state with a RELEASE/RELEASE COMPLETE sequence.

Refer to: ETS 300 102-1 [2], subclauses 5.2.1, 5.2.4 and 5.2.5.

1.1.1.2 With the Sending complete information element

Purpose: Ensures that on receipt of a valid SETUP message with the Sending complete information element the terminal responds with either a CALL PROCEEDING, ALERTING or CONNECT message and moves to the relevant state.

Precondition: Layer 3 should be in the Null state. Test case sequence:-



Test description:

- 1) Transmit a valid SETUP message, (refer to preliminary notes).
- 2) Expect either a CALL PROCEEDING, ALERTING or CONNECT message.

Result Checking:

Transmit a Checking message.

Expect a STATUS message, cause = 98 (Message not compatible with state or message type non-existent or not implemented) or 97 (message type non-existent or not implemented) or 30 (response to STATUS ENQUIRY) ; ensure the correct state (given in octet 3 of the call state information element) appropriate to the message received in 2 has been entered (state 9, 7 or 8 respectively).

Postamble: Layer 3 should be cleared down to the Null state with a RELEASE/RELEASE COMPLETE sequence.

Refer to: ETS 300 102-1 [2], subclauses 5.2.1, 5.2.4 and 5.2.5.

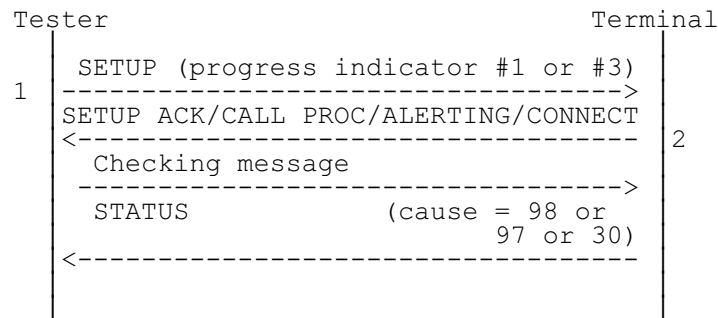
1.1.1.3 With the Interworking indication

Purpose: Ensures that on receipt of a valid SETUP message containing a Progress indicator information element with progress indicator #1 (Call is not end to end ISDN ; further Call progress information may be available in band) or #3 (origination address is not ISDN), the Terminal modifies its compatibility checking and accepts the Call on the basis of a compatible Bearer capability information element.

This test is only applicable if the TE normally expects one or more of HLC, LLC and/or sub-address thus ensuring that the TE accepts the call on the basis of compatible bearer information only.

Precondition: Layer 3 should be in the Null state.

Test case sequence:-



Test description:

- 1) Transmit a valid SETUP message (refer to preliminary notes) with interworking indication (Progress Indicator #1 or #3).
- 2) Expect either a SETUP ACKNOWLEDGE, CALL PROCEEDING, ALERTING or CONNECT message.

Result Checking:

Transmit a Checking message.

Expect a STATUS message, cause = 98 (Message not compatible with state or message type non-existent or not implemented) or 97 (message type non-existent or not implemented) or 30 (response to STATUS ENQUIRY) ; ensure the correct state (given in octet 3 of the call state information element) appropriate to the message received in 2 has been entered (state 25, 9, 7 or 8 respectively).

Postamble: Layer 3 should be cleared down to the Null state with a RELEASE/RELEASE COMPLETE sequence.

Refer to: ETS 300 102-1 [2], subclause 5.2.6 and Annex B.

1.1.2 With a content which does not match the capabilities of the TE

In these following tests (1.1.2.1 and 1.1.2.2) the Compatibility checking is not successful.

NOTE: Refer to Preliminary Note 4.

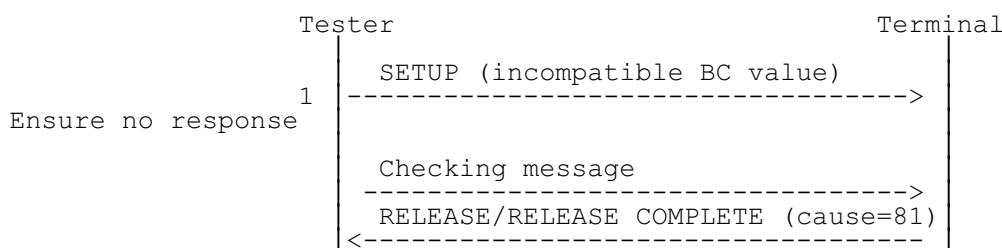
1.1.2.1 With an Incompatibly coded Bearer capability value

Purpose: Ensures that on receipt of a valid SETUP message containing an incompatibly coded bearer capability value in the Bearer capability information element the TE either ignores the incoming Call (OPTION A) or responds by sending a RELEASE COMPLETE message (OPTION B) and remains in the Null state.

OPTION A: the TE ignores the incoming Call.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Transmit a valid SETUP message (refer to preliminary notes) with an incompatible Bearer capability value.
- 2) Expect no response.

Result Checking:

Transmit a Checking message.

Expect a RELEASE or a RELEASE COMPLETE message, cause = 81 (invalid call reference value) indicating the terminal has remained in the Null state (see Preliminary Note 10).

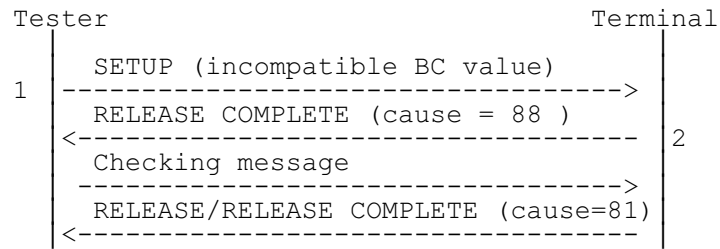
Postamble: If a RELEASE message has been received, transmit a RELEASE COMPLETE message.

Refer to: ETS 300 102-1 [2], subclause 5.2.2 and Annex B.

OPTION B: the TE returns a RELEASE COMPLETE to the Tester

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Transmit a valid SETUP message (refer to preliminary notes) with an incompatible Bearer capability value.
- 2) Expect a RELEASE COMPLETE message, cause = 88 (incompatible destination).

Result Checking:

Transmit a Checking message.

Expect a RELEASE or a RELEASE COMPLETE message, cause = 81 (invalid call reference value) indicating the terminal has remained in the Null state (see Preliminary Note 10).

Postamble: If a RELEASE message has been received, transmit a RELEASE COMPLETE message.

Refer to: ETS 300 102-1 [2], subclause 5.2.2 and Annex B.

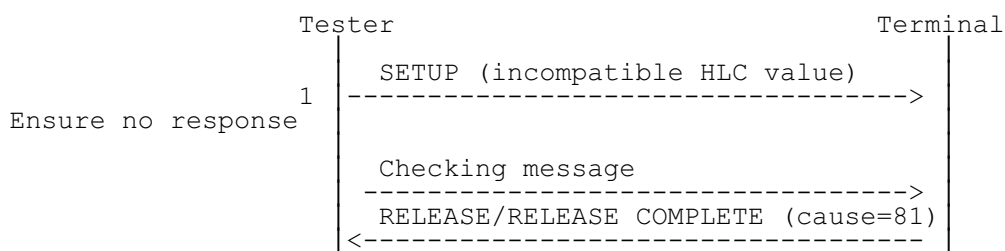
1.1.2.2 With an incompatibly coded High layer compatibility value

Purpose: This test is only applicable to TE's with an HLC capability. It ensures that on receipt of a valid set up message containing a compatible BC but incompatible High Layer compatibility information element the TE (which performs high layer compatibility checks) either ignores the incoming call (OPTION A) or responds by sending a RELEASE COMPLETE message (OPTION B) and remains in the Null state.

OPTION A: the TE ignores the incoming Call

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Transmit a valid SETUP message (refer to preliminary notes) with a compatibly coded BC but an incompatibly coded High layer compatibility value.
- 2) Expect no response.

Result Checking:

Transmit a Checking message.

Expect a RELEASE or a RELEASE COMPLETE message, cause = 81 (invalid call reference value) indicating the terminal has remained in the Null state (see Preliminary Note 10).

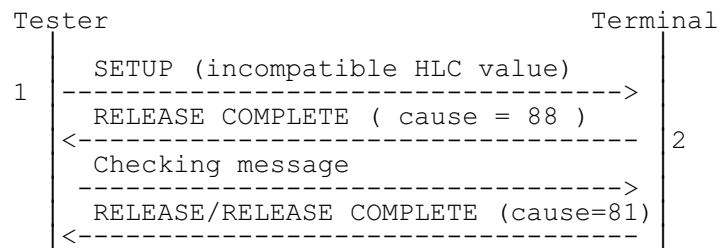
Postamble: If a RELEASE message has been received, transmit a RELEASE COMPLETE message.

Refer to: ETS 300 102-1 [2], subclause 5.2.2 and Annex B.

OPTION B: the TE returns a RELEASE COMPLETE to the Tester

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Transmit a valid SETUP message (refer to preliminary notes) with a compatibly coded BC but an incompatibly coded High layer compatibility value.
- 2) Expect a RELEASE COMPLETE message, cause = 88 (incompatible destination).

Result Checking:

Transmit a Checking message.

Expect a RELEASE or a RELEASE COMPLETE message, cause = 81 (invalid call reference value) indicating the terminal has remained in the Null state (see Preliminary Note 10).

Postamble: If a RELEASE message has been received, transmit a RELEASE COMPLETE message.

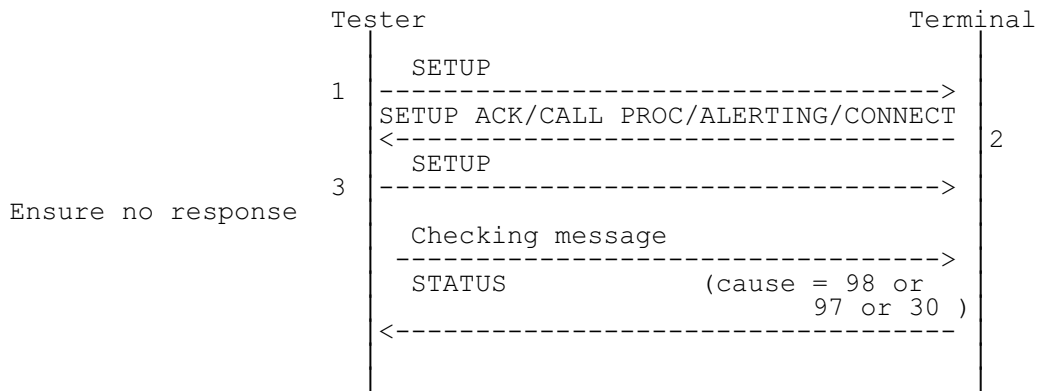
Refer to: ETS 300 102-1 [2], subclause 5.2.2.and Annex B.

1.2 Receipt of a repeated valid SETUP message

Purpose: Ensures that on receipt of a repeated valid SETUP message with the same call reference as the initial SETUP message, the terminal ignores the second SETUP message and remains in the same state.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Transmit a valid SETUP message, (refer to preliminary notes).
- 2) Expect either a SETUP ACKNOWLEDGE, CALL PROCEEDING, ALERTING or CONNECT message from the terminal.
- 3) Transmit a valid SETUP message with the same contents and call reference as in (1); ensure no response to this message.

Result Checking:

Transmit a Checking message.

Expect a STATUS message, cause = 98 (Message not compatible with call state or message type non-existent or not implemented) or 97 (message type non-existent or not implemented) or 30 (response to STATUS ENQUIRY); ensure the correct state (given in Octet 3 of the call state information element) has been entered for the message received in 2 (state 25, 9, 7 or 8 respectively).

Postamble: Layer 3 should be cleared down to the Null state with a RELEASE/RELEASE COMPLETE sequence.

Refer to: ETS 300 102-1 [2], subclauses 5.2.1 and 5.8.3.2e.

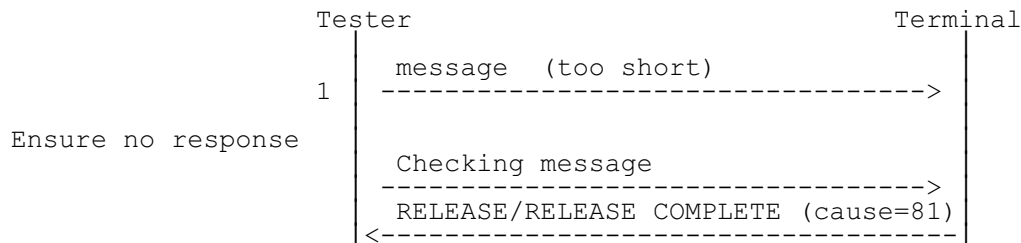
1.3 Receipt of an "erroneous" message

1.3.1 With a length which is too short

Purpose: Ensures that on receipt of a message which is too short (<4 octets), the terminal ignores the message and remains in the same state.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Transmit a message with a length < 4 octets but which has a valid Protocol Discriminator and valid call Reference information element; and ensure no response to this message.

Result Checking:

Transmit a Checking message.

Expect a RELEASE or a RELEASE COMPLETE message, cause = 81 (invalid call reference value) indicating the Terminal has remained in the Null state (see Preliminary Note 10).

Postamble: If a RELEASE message has been received transmit a RELEASE COMPLETE message.

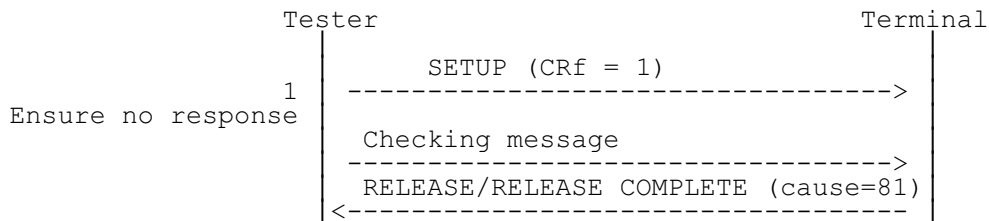
Refer to: ETS 300 102-1 [2], subclause 5.8.2.

1.3.2 With an Incorrect Call reference flag

Purpose: Ensures that the Terminal ignores a message when it contains the call reference flag incorrectly set to "1" and that the Terminal remains in the same state.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Transmit a SETUP message with a CR flag equal to "1" and a new Call reference value; ensure no response to this message.

Result Checking:

Transmit a Checking message.

Expect a RELEASE or a RELEASE COMPLETE message, cause = 81 (invalid call reference value) indicating the terminal has remained in the Null state (see Preliminary Note 10).

Postamble: If a RELEASE message has been received, transmit a RELEASE COMPLETE message.

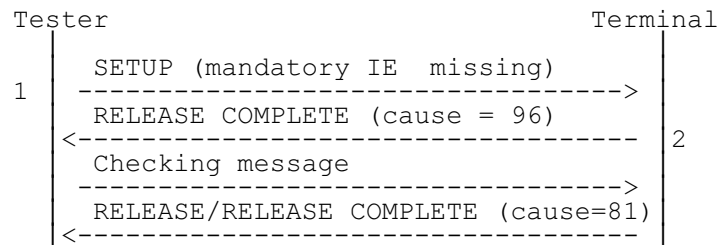
Refer to: ETS 300 102-1 [2], subclause 5.8.3.2d.

1.3.3 With a mandatory information element missing

Purpose: Ensures that on receipt of a SETUP message without a mandatory information element (e.g. the Bearer capability information element), the terminal responds with a RELEASE COMPLETE message and remains in the Null state.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Transmit a SETUP message without the Bearer capability information element.
- 2) Expect a RELEASE COMPLETE message, cause = 96 (mandatory information element is missing).

Result Checking:

Transmit a Checking message.

Expect a RELEASE or a RELEASE COMPLETE message, cause = 81 (invalid call reference value) indicating the terminal has remained in the Null state (see Preliminary Note 10).

Postamble: If a RELEASE message has been received, transmit a RELEASE COMPLETE message.

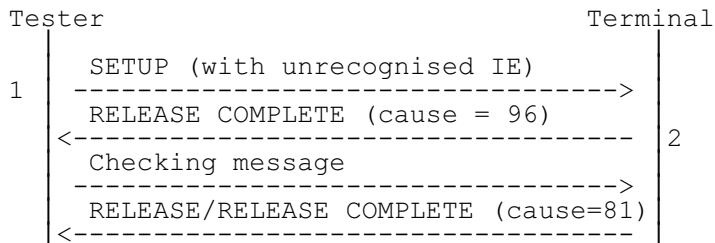
Refer to: ETS 300 102-1 [2], subclause 5.8.6.1.

1.3.4 With an unrecognised information element of the type "comprehension required"

Purpose: Ensures that on receipt of a SETUP message with an unrecognised (not yet defined) information element of the type "comprehension required" (i.e. bits 5 - 8 of the information element identifier coded "0 0 0 0 ") the terminal responds with a RELEASE COMPLETE message and remains in the Null state.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Transmit a SETUP message with a Variable length information element where the Information element identifier has a value marked as reserved in ETS 300 102-1 [2] but where bits 5 - 8 are coded "0 0 0 0".
- 2) Expect a RELEASE COMPLETE message, cause = 96 (mandatory information element is missing).

Result Checking:

Transmit a Checking message.

Expect a RELEASE or a RELEASE COMPLETE message, cause = 81 (invalid call reference value) indicating the terminal has remained in the Null state (see Preliminary Note 10).

Postamble: If a RELEASE message has been received, transmit a RELEASE COMPLETE message.

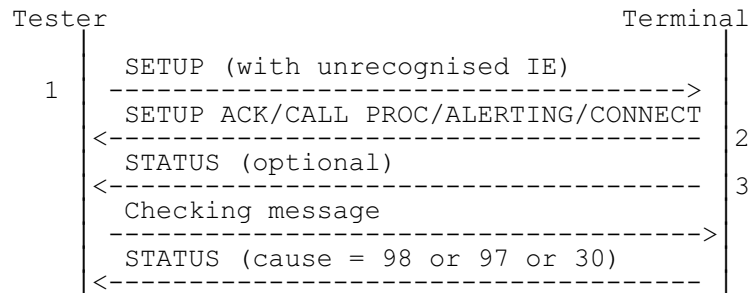
Refer to: ETS 300 102-1 [2], subclause 5.8.7.1.

1.3.5 With an unrecognised information element of the type other than "comprehension required"

Purpose: Ensures that on receipt of a SETUP message with an unrecognised (not yet defined) information element of the type other than "comprehension required" (i.e. bits 5 - 8 of the information element identifier coded other than "0 0 0 0 ") the terminal takes normal action on those information elements which are recognised and have valid content. Additionally the terminal may return a STATUS message.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Transmit a SETUP message with a Variable length information element where the Information element identifier has a value marked as reserved in ETS 300 102-1 [2] but where bits 5-8 are coded other than "0 0 0 0".
- 2) Expect either a SETUP ACKNOWLEDGE, CALL PROCEEDING, ALERTING or CONNECT message from the terminal.
- 3) The terminal may optionally respond with a STATUS message, cause = 99 (Information element non-existent or not implemented).

NOTE: The order of the events 2) and 3) may be vice versa.

Result Checking:

Transmit a Checking message.

Expect a STATUS message, cause = 98 (Message not compatible with call state or message type non-existent or not implemented) or 97 (message type non-existent or not implemented) or 30 (response to STATUS ENQUIRY); ensure the correct state (given in octet 3 of the call state information element) has been entered for the message received in 2 (state 25, 9, 7 or 8 respectively).

Postamble: Layer 3 should be cleared down to the Null state with a RELEASE/RELEASE COMPLETE sequence.

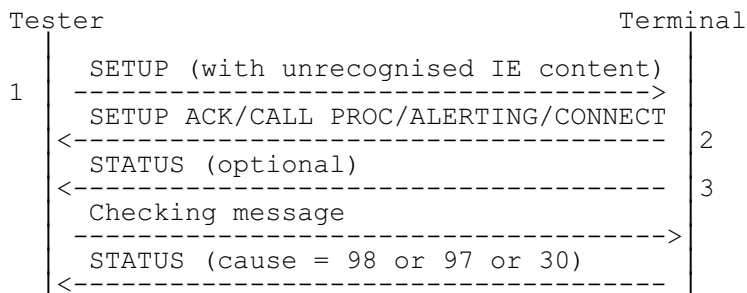
Refer to: ETS 300 102-1 [2], subclause 5.8.7.1.

1.3.6 With a non-mandatory information element with unrecognised content

Purpose: Ensures that on receipt of a SETUP message with a non-mandatory information element with invalid/unrecognised content the terminal takes normal action on those information elements which are recognised and have valid content. Additionally the terminal may return a STATUS message.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Transmit a SETUP message with a non-mandatory information element with invalid content (e.g. Calling party IE where the Numbering plan indicator is set to a reserved value according to ETS 300 102-1 [2]).
- 2) Expect either a SETUP ACKNOWLEDGE, CALL PROCEEDING, ALERTING or CONNECT message from the terminal.
- 3) The terminal may optionally respond with a STATUS message, cause = 100 (invalid information element contents)

NOTE: The order of the events 2) and 3) may be vice versa.

Result Checking:

Transmit a Checking message.

Expect a STATUS message, cause = 98 (Message not compatible with call state or message type non-existent or not implemented) or 97 (message type non-existent or not implemented) or 30 (response to STATUS ENQUIRY); ensure the correct state (given in octet 3 of the call state information element) has been entered for the message received in 2 (state 25, 9, 7 or 8 respectively).

Postamble: Layer 3 should be cleared down to the Null state with a RELEASE/RELEASE COMPLETE sequence.

Refer to: ETS 300 102-1 [2], subclause 5.8.7.2.

Section 2: Called user terminal tests

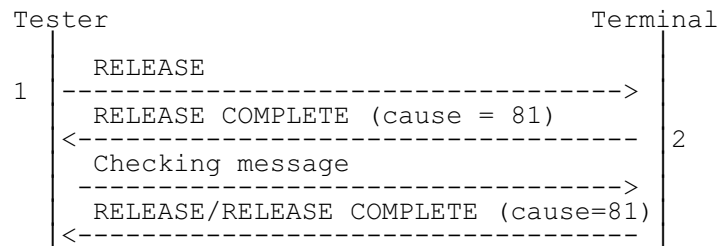
2 Null state tests, state 0

2.1 Receipt of a RELEASE message

Purpose: Ensures the terminal responds to a RELEASE message with a RELEASE COMPLETE message and that no change of state occurs.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Transmit a RELEASE message, cause = 16 (normal clearing).
- 2) Expect a RELEASE COMPLETE message, cause = 81 (invalid call reference value).

Result Checking:

Transmit a Checking message.

Expect a RELEASE or a RELEASE COMPLETE message, cause = 81 (invalid call reference value) indicating the terminal has remained in the Null state (see Preliminary Note 10).

Postamble: If a RELEASE message has been received, transmit a RELEASE COMPLETE message.

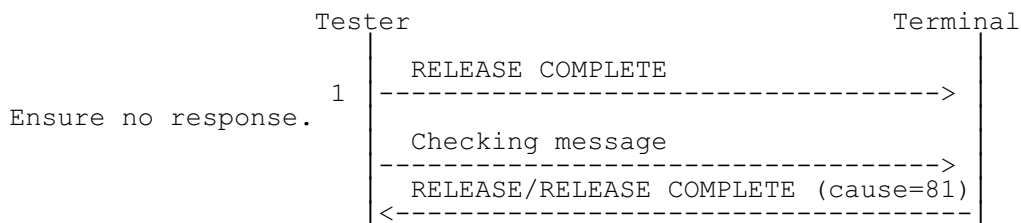
Refer to: ETS 300 102-1 [2], subclause 5.8.3.2b.

2.2 Receipt of a RELEASE COMPLETE message

Purpose: Ensures the terminal ignores a RELEASE COMPLETE message and that no change of state occurs.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Transmit a RELEASE COMPLETE message, cause = 16 (normal clearing); ensure no response to this message.

Result Checking:

Transmit a Checking message.

Expect a RELEASE or a RELEASE COMPLETE message, cause = 81 (invalid call reference value) indicating the Terminal has remained in the Null state (see Preliminary Note 10).

Postamble: If a RELEASE message has been received transmit a RELEASE COMPLETE message.

Refer to: ETS 300 102-1 [2], subclause 5.8.3.2c.

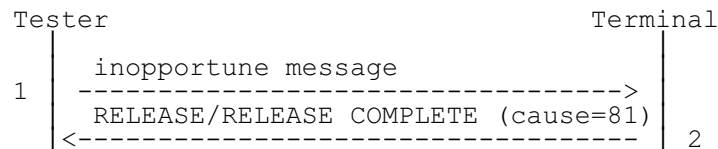
2.3 Receipt of an "erroneous" message

2.3.1 Receipt of an inopportune message

Purpose: Ensures the Terminal responds to an inopportune message with a RELEASE or a RELEASE COMPLETE message (see Preliminary Note 10).

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Transmit an inopportune message .
- 2) Expect a RELEASE or a RELEASE COMPLETE message, cause = 81 (invalid call reference value) (see Preliminary Note 10).

Postamble: If a RELEASE message has been received transmit a RELEASE COMPLETE message.

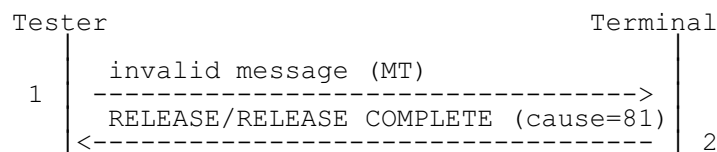
Refer to: ETS 300 102-1 [2], subclause 5.8.3.2a.

2.3.2 Receipt of a syntactically invalid message (unrecognized message type)

Purpose: Ensures the Terminal responds to a message having an invalid message type with a RELEASE or a RELEASE COMPLETE message (see Preliminary Note 10).

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Transmit a message having an invalid message type.
- 2) Expect a RELEASE or a RELEASE COMPLETE message, cause = 81 (invalid call reference value) (see Preliminary Note 10).

Postamble: If a RELEASE message has been received transmit a RELEASE COMPLETE message.

Refer to: ETS 300 102-1 [2], subclause 5.8.3.2a.

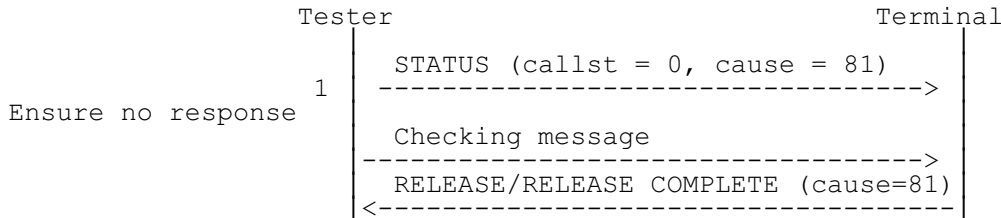
2.4 Receipt of a STATUS message

2.4.1 Indicating the Null state

Purpose: Ensures that on receipt of a STATUS message indicating the null state, the Terminal takes no action and remains in the Null state.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

1) Transmit a STATUS message, call state = 0, cause =81 (invalid call reference value).

Result Checking:

Transmit a Checking message.

Expect a RELEASE or a RELEASE COMPLETE message, cause = 81 (invalid call reference value) indicating the Terminal has remained in the Null state (see Preliminary Note 10).

Postamble: If a RELEASE message has been received transmit a RELEASE COMPLETE message.

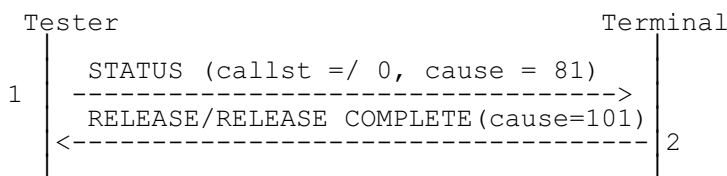
Refer to: ETS 300 102-1 [2], subclause 5.8.11c.

2.4.2 Indicating another call state

Purpose: Ensures that on receipt of a STATUS message indicating any call state except the Null state, the Terminal responds with either a RELEASE or a RELEASE COMPLETE message.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

1) Transmit a STATUS message, any call state except 0, cause =81 (invalid call reference value).

2) Expect a RELEASE or a RELEASE COMPLETE message, cause = 101 (message not compatible with call state).

Postamble: If a RELEASE message has been received, transmit a RELEASE COMPLETE message.

Refer to: ETS 300 102-1 [2], subclause 5.8.11a.

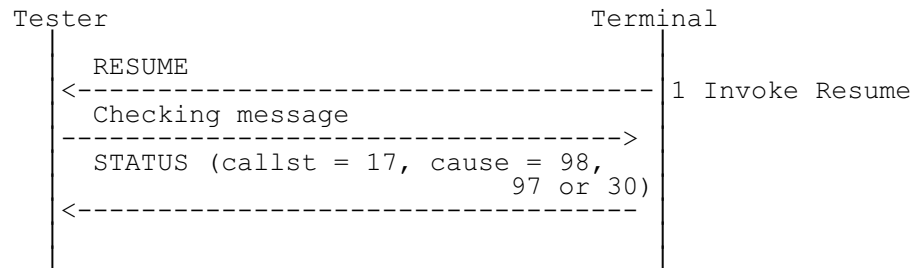
2.5 RESUME message from the terminal

Purpose: Ensures that on sending a RESUME message the Terminal enters the Resume Request state.

NOTE: This test shall only be performed if call re-arrangement procedure is implemented in the Terminal.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Invoke resumption at the Terminal, and expect a RESUME message at the tester, with (optionally) a call identity.

Result Checking:

Transmit a Checking message.

NOTE: this message must be received by the Terminal before user timer T318 expires.

Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 97 (message type non-existent or not implemented) or 30 (response to STATUS ENQUIRY); ensure the call state given (in octet 3 of the call state information element) is state 17 (Resume Request).

Postamble: Layer 3 should be cleared down to the Null state with a RELEASE/RELEASE COMPLETE sequence.

Refer to: ETS 300 102-1 [2], subclause 5.6.4.

3 Call present state tests, state 6

No tests are specified for the Call Present State since this state is a transitory state lasting only for the time taken by the Terminal to process the contents of the received SETUP message and transmit the appropriate response ie no human or higher layer process interaction is required. Hence the length of time spent in this state is likely to be very short and the state may not even exist in the implementations of simple terminals.

4 Overlap receiving state tests, state 25

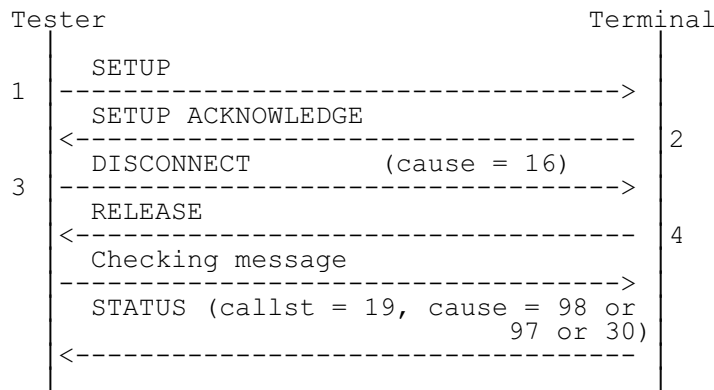
The implementation in the terminal of the overlap receiving procedure is optional. Hence, the tests in this section shall only be performed on those terminals which have been declared by the apparatus supplier to have the capability of responding to an incoming SETUP message (not containing the Sending complete information element) with a SETUP ACKNOWLEDGE message and entering the Overlap Receiving state.

4.1 Receipt of a DISCONNECT message

Purpose: Ensures the terminal responds to a DISCONNECT message with a RELEASE message and enters the Release Request state.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Transmit a valid SETUP message (refer to preliminary notes).
- 2) Expect a SETUP ACKNOWLEDGE message from the terminal.
- 3) Transmit a DISCONNECT message, cause = 16 (normal clearing).
- 4) Expect a RELEASE message.

Result Checking:

Transmit a Checking message.

Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 97 (message type non-existent or not implemented) or 30 (response to STATUS ENQUIRY); ensure the call state given (in octet 3 of the call state information element) is state 19 (Release Request).

Postamble: Layer 3 should be cleared down to the Null state with a RELEASE/RELEASE COMPLETE sequence.

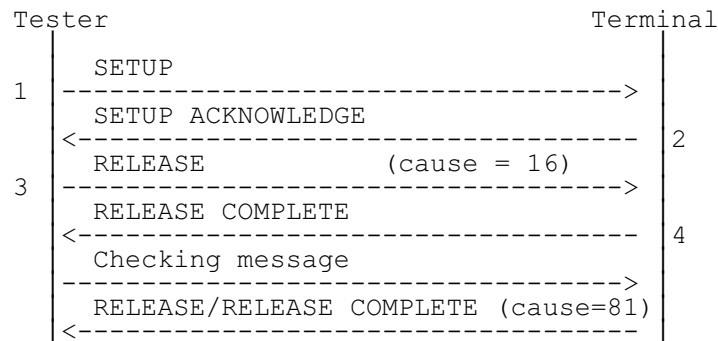
Refer to: ETS 300 102-1 [2], subclause 5.3.4.

4.2 Receipt of a RELEASE message

Purpose: Ensures that on receipt of a RELEASE message the terminal responds with RELEASE COMPLETE message and enters the Null state.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Transmit a valid SETUP message (refer to preliminary notes).
- 2) Expect a SETUP ACKNOWLEDGE message from the terminal.
- 3) Transmit a RELEASE message, cause = 16 (normal clearing).
- 4) Expect a RELEASE COMPLETE message.

Result Checking:

Transmit a Checking message.

Expect a RELEASE or a RELEASE COMPLETE message, cause = 81 (invalid call reference) indicating that the terminal has correctly returned to the Null state (see Preliminary Note 10).

Postamble: If a RELEASE message has been received, transmit a RELEASE COMPLETE message.

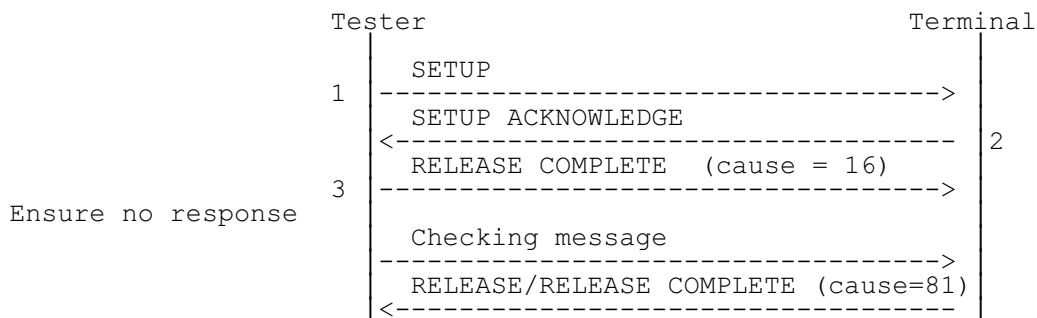
Refer to: ETS 300 102-1 [2], subclause 5.3.2.

4.3 Receipt of a RELEASE COMPLETE message

Purpose: Ensures that on receipt of a RELEASE COMPLETE message the terminal makes no response but returns to the Null state.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Transmit a valid SETUP message (refer to preliminary notes).
- 2) Expect a SETUP ACKNOWLEDGE message from the terminal.
- 3) Transmit a RELEASE COMPLETE message, cause = 16 (normal clearing); ensure no response to this message.

Result Checking:

Transmit a Checking message.

Expect a RELEASE or a RELEASE COMPLETE message, cause = 81 (invalid call reference) indicating that the terminal has correctly returned to the Null state (see preliminary note 10).

Postamble: If a RELEASE message has been received, transmit a RELEASE COMPLETE message.

Refer to: ETS 300 102-1 [2], subclause 5.8.4.

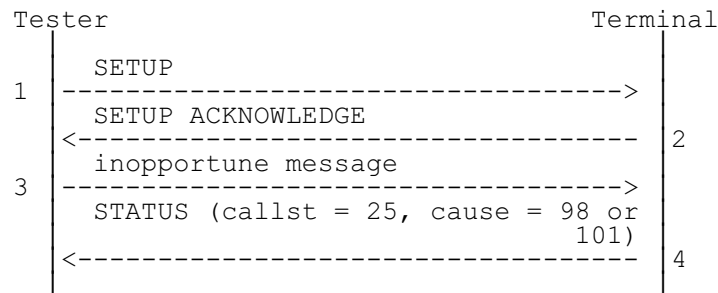
4.4 Receipt of an "erroneous" message

4.4.1 Receipt of an inopportune message

Purpose: Ensures the terminal responds to an inopportune message with a STATUS message and that no change of state occurs.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Transmit a valid SETUP message (refer to preliminary notes).
- 2) Expect a SETUP ACKNOWLEDGE message from the terminal.
- 3) Transmit an inopportune message (refer to Preliminary Note 1).
- 4) Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 101 (message not compatible with call state) ;ensure the call state given (in octet 3 of the call state information element) is state 25 (Overlap Sending).

Postamble: Layer 3 should be cleared down to the Null state with a RELEASE/RELEASE COMPLETE sequence.

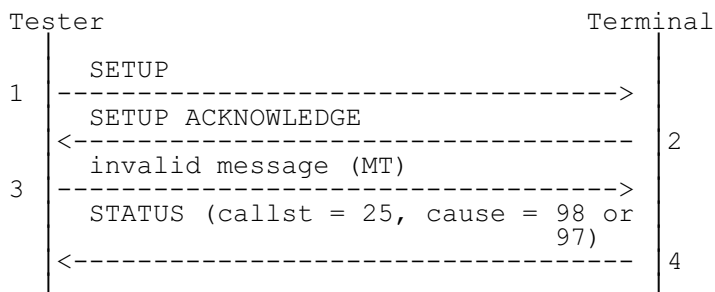
Refer to: ETS 300 102-1 [2], subclause 5.8.4.

4.4.2 Receipt of a syntactically invalid message (unrecognized message type)

Purpose: Ensures the terminal responds to a syntactically invalid message type with a STATUS message and that no change of state occurs.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Transmit a valid SETUP message (refer to preliminary notes).
- 2) Expect a SETUP ACKNOWLEDGE message from the terminal.
- 3) Transmit a Syntactically invalid message type.
- 4) Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 97 (message type non-existent or not implemented); ensure the call state given (in octet 3 of the call state information element) is state 25 (Overlap Receiving).

Postamble : Layer 3 should be cleared down to the Null state with a RELEASE/RELEASE COMPLETE sequence.

Refer to: ETS 300 102-1 [2], subclause 5.8.4.

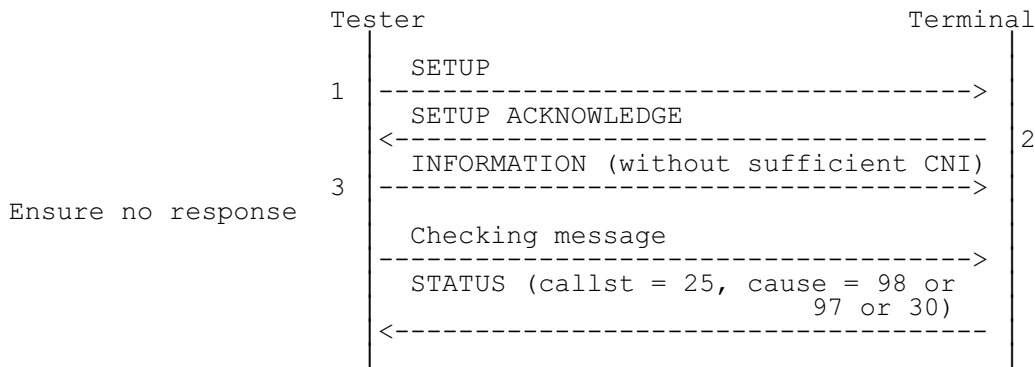
4.5 Receipt of an INFORMATION message

4.5.1 Receipt of an INFORMATION message without sufficient called number information

Purpose: Ensures that on receipt of an INFORMATION message without sufficient called number information the terminal makes no response and remains in the same state.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Transmit a valid SETUP message, (refer to preliminary notes).
- 2) Invoke a SETUP ACKNOWLEDGE message from the terminal.
- 3) Transmit a valid INFORMATION message without sufficient called number information (CNI). The CNI should be part of a number assigned to the IUT. There shall be no sending complete indication. Ensure no response to this message.

Result Checking:

Transmit a Checking message.

Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 97 (message type non-existent or not implemented) or 30 (response to STATUS ENQUIRY); ensure the call state given (in octet 3 of the call state information element) is state 25 (Overlap Receiving).

Postamble: Layer 3 should be cleared down to the Null state with a RELEASE/RELEASE COMPLETE sequence.

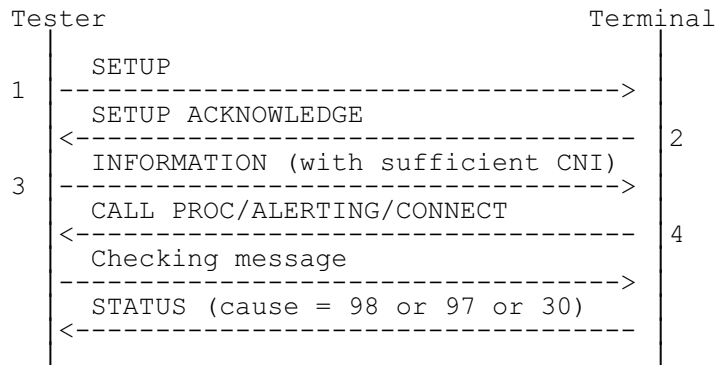
Refer to: ETS 300 102-1 [2], clause 5, subclause 5.2.4.

4.5.2 Receipt of an INFORMATION message with sufficient called number information

Purpose: Ensures that on receipt of an INFORMATION message containing sufficient called number information the terminal responds with either a CALL PROCEEDING, ALERTING or CONNECT message and moves to the relevant state.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Transmit a valid SETUP message (refer to preliminary notes).
- 2) Invoke a SETUP ACKNOWLEDGE message from the terminal.
- 3) Transmit a valid INFORMATION message containing sufficient called number information (CNI).
- 4) Expect either a CALL PROCEEDING, ALERTING or CONNECT message.

Result Checking:

Transmit a Checking message.

Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 97 (message type non-existent or not implemented) or 30 (response to STATUS ENQUIRY); ensure the correct state (given in octet 3 of the call state information element) has been entered for the message received in 4 (state 9, 7 or 8 respectively).

Postamble: Layer 3 should be cleared down to the Null state with a RELEASE/RELEASE COMPLETE sequence.

Refer to: ETS 300 102-1 [2], clause 5, subclause 5.2.4.

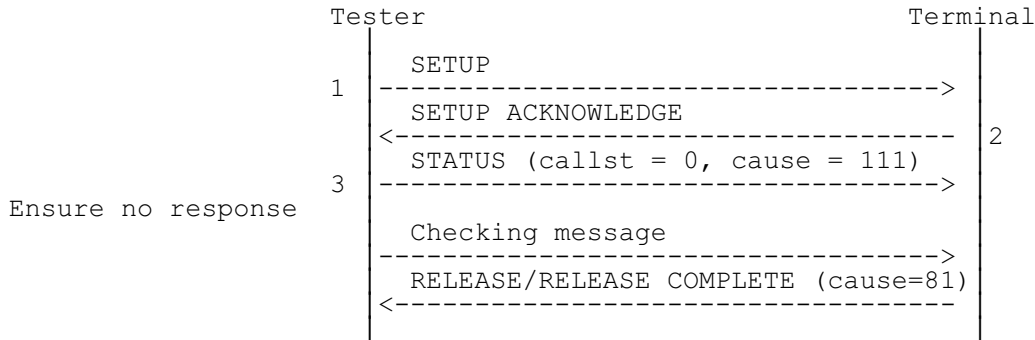
4.6 Receipt of a STATUS message

4.6.1 Indicating the Null state

Purpose: Ensures that on receipt of a STATUS message specifying the Null state, the terminal moves into the Null state.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Transmit a valid SETUP message, (refer to preliminary notes).
- 2) Invoke a SETUP ACKNOWLEDGE message from the terminal.
- 3) Transmit a STATUS message, call state = 0 (Null state), cause = 111 (protocol error, unspecified); ensure no response to this message.

Result Checking:

Transmit a Checking message.

Expect a RELEASE or a RELEASE COMPLETE message, cause = 81 (invalid call reference) indicating that the terminal has correctly returned to the Null state (see Preliminary Note 10).

Postamble: if a RELEASE message has been received, transmit a RELEASE COMPLETE.

Refer to: ETS 300 102-1 [2], subclause 5.8.11.

4.6.2 Indicating a compatible call state

NOTE: The actions to be taken on receipt of a STATUS message with compatible call state are implementation dependent. No test is specified in this ETS.

Refer to: ETS 300 102-1 [2], subclause 5.8.11.

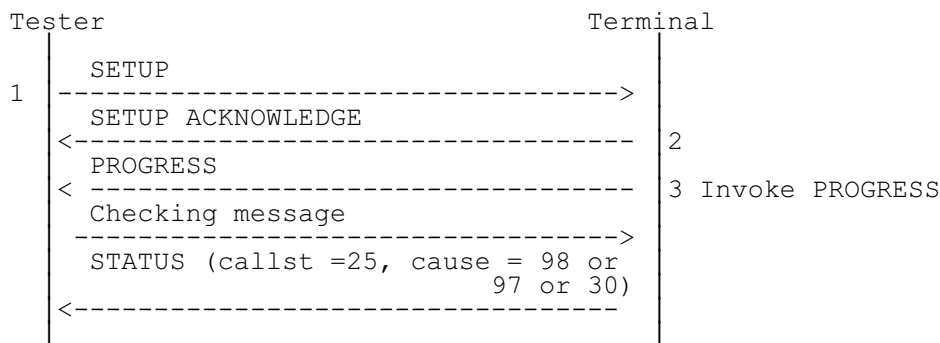
4.7 PROGRESS message from the terminal

Purpose: Ensures the terminal transmits a PROGRESS message when prompted and remains in the same state.

NOTE: This test can only be performed if the use of the PROGRESS message is implemented in the terminal, and the transmission of the PROGRESS message by the terminal can be invoked by action at an access point available to the tester (e.g. at the man-machine interface, at the interface on the user side of the terminal (in the case of an NT2 or TA), by running higher layer process). Some terminals may support the PROGRESS message only on reception and be unable to transmit the message.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Transmit a valid SETUP message, (refer to preliminary note).
- 2) Await a SETUP ACKNOWLEDGE message.
- 3) Invoke a PROGRESS message from the terminal (see NOTE above).

Result checking :

Transmit a Checking message.

Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 97 (message type non-existent or not implemented) or 30 (response to STATUS ENQUIRY); ensure the call state given (in octet 3 of the call state information element) is state 25 (Overlap Receiving).

Postamble: Layer 3 should be cleared down to the Null state with a RELEASE/RELEASE COMPLETE sequence.

Refer to: ETS 300 102-1 [2], subclause 5.2.6.

5 Incoming call proceeding state tests, state 9

The use of the CALL PROCEEDING message is optional and hence state 9 is optional in a terminal implementation. The tests in this section shall only be performed on terminals in which the apparatus supplier has declared that the CALL PROCEEDING state has been implemented and when the apparatus supplier has indicated that it is possible to maintain the terminal in this state (e.g. if the terminal is an NT2, by action at the interface on the extension side of the NT2).

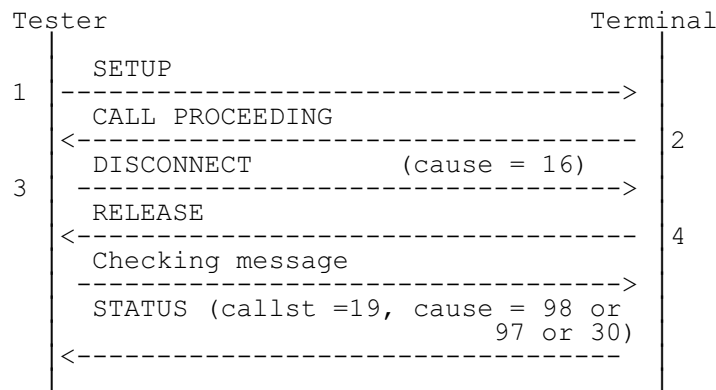
NOTE: To avoid the return of a SETUP ACKNOWLEDGE message by the terminal, the SETUP message sent by the tester shall contain the Sending complete information element.

5.1 Receipt of a DISCONNECT message

Purpose: Ensures the terminal responds to a DISCONNECT message with a RELEASE message and enters the Release Request state.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Transmit a valid SETUP message, (refer to preliminary notes).
- 2) Await a CALL PROCEEDING message from the terminal.
- 3) Transmit a DISCONNECT message, cause = 16 (normal clearing).
- 4) Expect a RELEASE message.

Result Checking:

Transmit a Checking message .

Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 97 (message type non-existent or not implemented) or 30 (response to STATUS ENQUIRY); ensure the call state given (in octet 3 of the call state information element) is state 19 (Release Request).

Postamble: Layer 3 should be cleared down to the Null state by sending a RELEASE COMPLETE message from the tester to the terminal.

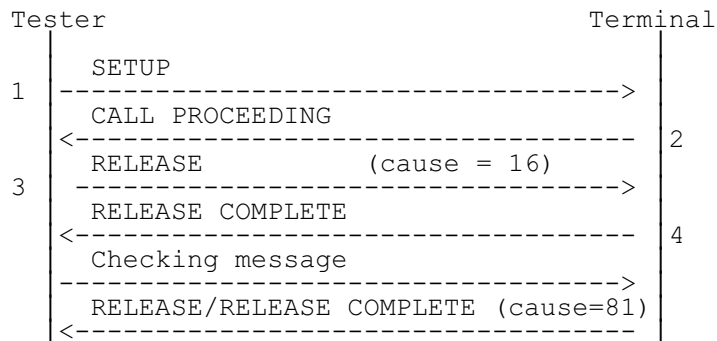
Refer to: ETS 300 102-1 [2], subclause 5.3.4.

5.2 Receipt of a RELEASE message

Purpose: Ensures the terminal responds to a RELEASE message with a RELEASE COMPLETE message and enters the Null state.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Transmit a valid SETUP message, (refer to preliminary notes).
- 2) Await a CALL PROCEEDING message from the terminal.
- 3) Transmit a RELEASE message, cause = 16 (normal clearing).
- 4) Expect a RELEASE COMPLETE message.

Result Checking:

Transmit a Checking message.

Expect a RELEASE or a RELEASE COMPLETE message, cause = 81 (invalid call reference) indicating that the terminal has correctly returned to the Null state (see Preliminary Note 10).

Postamble: If a RELEASE message has been received, transmit a RELEASE COMPLETE message.

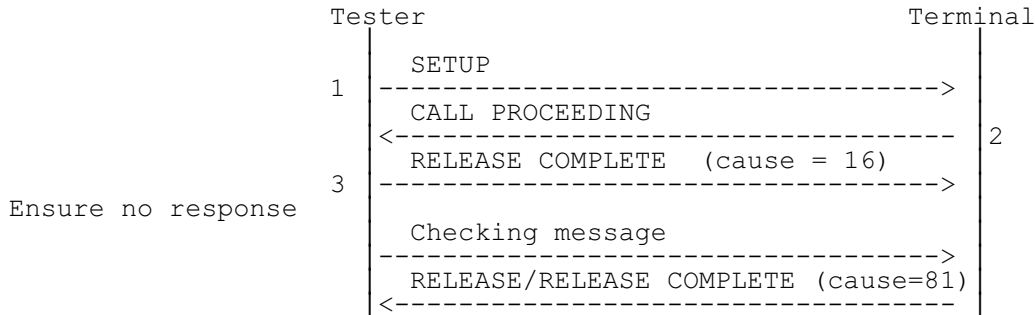
Refer to: ETS 300 102-1 [2], subclause 5.3.2.

5.3 Receipt of a RELEASE COMPLETE message

Purpose: Ensures that on receipt of a RELEASE COMPLETE message the terminal makes no response but returns to the Null state.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Transmit a valid SETUP message, (refer to preliminary notes).
- 2) Await a CALL PROCEEDING message.
- 3) Transmit a RELEASE COMPLETE message, cause = 16 (normal clearing); ensure no response to this message.

Result Checking:

Transmit a Checking message.

Expect a RELEASE or a RELEASE COMPLETE message, cause = 81 (invalid call reference) indicating that the terminal has correctly returned to the Null state (see Preliminary Note 10).

Postamble: If a RELEASE message has been received, transmit a RELEASE COMPLETE message.

Refer to: ETS 300 102-1 [2], subclause 5.8.4.

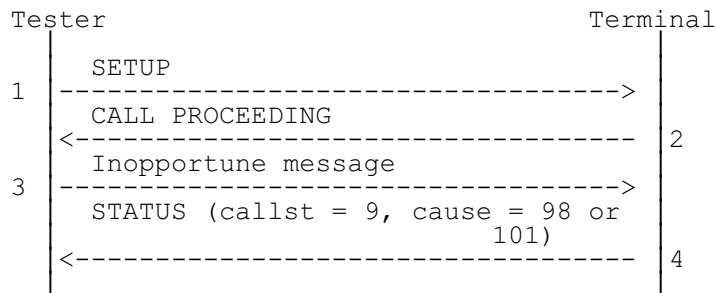
5.4 Receipt of an "erroneous" message

5.4.1 Receipt of an inopportune message

Purpose: Ensures the terminal responds to an inopportune message with a STATUS message and that no change of state occurs.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Transmit a valid SETUP message, (refer to preliminary notes).
- 2) Await a CALL PROCEEDING message from the terminal.
- 3) Transmit an inopportune message (refer to Preliminary Note 1).
- 4) Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 101 (message not compatible with call state) ;ensure the call state given (in octet 3 of the call state information element) is state 9 (Incoming call proceeding).

Postamble: Layer 3 should be cleared down to the Null state with a RELEASE/RELEASE COMPLETE sequence.

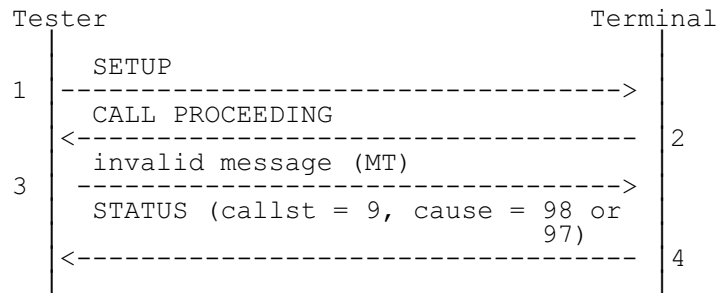
Refer to: ETS 300 102-1 [2], subclause 5.8.4.

5.4.2 Receipt of a syntactically invalid message (unrecognized message type)

Purpose: Ensures the terminal responds to a message having an invalid message type with a STATUS message and that no change of state occurs.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Transmit a valid SETUP message (refer to preliminary notes).
- 2) Await a CALL PROCEEDING message.
- 3) Transmit a message having an invalid message type.
- 4) Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 97 (message type non-existent or not implemented); ensure the call state given (in octet 3 of the call state information element) is state 9 (Incoming call proceeding).

Postamble: Layer 3 should be cleared down to the Null state with a RELEASE/RELEASE COMPLETE sequence.

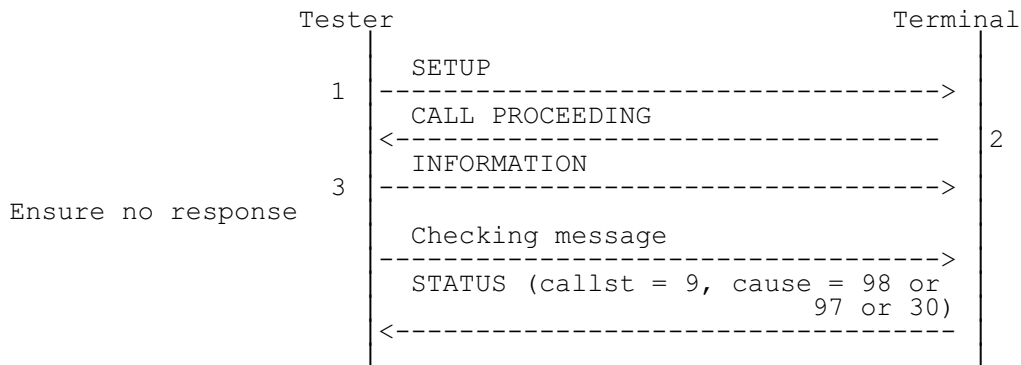
Refer to: ETS 300 102-1 [2], subclause 5.8.4.

5.5 Receipt of an INFORMATION message

Purpose: Ensures that on receipt of an INFORMATION message the terminal makes no response and remains in the same state.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Transmit a valid SETUP message, (refer to preliminary notes).
- 2) Await a CALL PROCEEDING message.
- 3) Transmit a valid INFORMATION message containing a display information element; ensure no response to this message.

Result Checking:

Transmit a Checking message.

Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 97 (message type non-existent or not implemented) or 30 (response to STATUS ENQUIRY); ensure the call state given (in octet 3 of the call state information element) is state 9 (Incoming Call proceeding).

Postamble: Layer 3 should be cleared down to the Null state with a RELEASE/RELEASE COMPLETE sequence.

Refer to: ETS 300 102-1 [2], clause 5 and subclause 5.2.4.

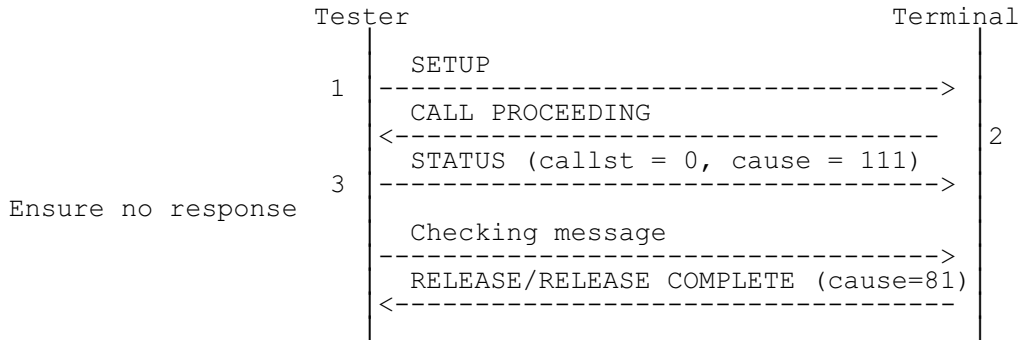
5.6 Receipt of a STATUS message

5.6.1 Indicating the Null state

Purpose: Ensures that on receipt of a STATUS message specifying the Null state, the terminal moves into the Null state.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Transmit a valid SETUP message, (refer to preliminary notes).
- 2) Await a CALL PROCEEDING message.
- 3) Transmit a STATUS message, call state = 0 (Null state), cause = 111 (protocol error, unspecified); ensure no response to this message.

Result Checking:

Transmit a Checking message.

Expect a RELEASE or a RELEASE COMPLETE message, cause = 81 (invalid call reference) indicating that the terminal has correctly returned to the Null state (see Preliminary Note 10).

Postamble: if a RELEASE message has been received, transmit a RELEASE COMPLETE.

Refer to: ETS 300 102-1 [2], subclause 5.8.11.

5.6.2 Indicating a compatible call state

NOTE: The actions to be taken on receipt of a STATUS message with a compatible call state are implementation dependent. No test is specified in this ETS.

Refer to: ETS 300 102-1 [2], subclause 5.8.11.

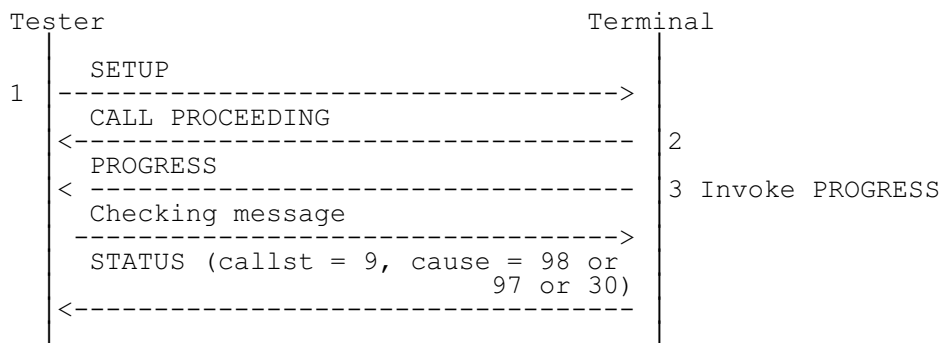
5.7 PROGRESS message from the terminal

Purpose: Ensures the terminal transmits a PROGRESS message when prompted and remains in the same state.

NOTE: This test can only be performed if the use of the PROGRESS message is implemented in the terminal, and the transmission of the PROGRESS message by the terminal can be invoked by action at an access point available to the tester (e.g. at the man-machine interface, at the interface on the user side of the terminal (in the case of an NT2 or TA), by running higher layer process). Some terminals may support the PROGRESS message only on reception and be unable to transmit the message.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Transmit a valid SETUP message, (refer to preliminary note).
- 2) Await a CALL PROCEEDING message.
- 3) Invoke a PROGRESS message from the terminal (see NOTE above).

Result checking:

Transmit a Checking message.

Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 97 (message type non-existent or not implemented) or 30 (response to STATUS ENQUIRY); ensure the call state given (in octet 3 of the call state information element) is state 9 (Incoming Call proceeding).

Postamble: Layer 3 should be cleared down to the Null state with a RELEASE/RELEASE COMPLETE sequence.

Refer to: ETS 300 102-1 [2], subclause 5.2.6.

6 Call received state tests, state 7

Use of the ALERTING message is optional and hence state 7 is optional in a terminal implementation. Hence, the tests in this following paragraph shall only be performed on terminals in which the apparatus supplier has declared that state 7 is implemented.

NOTE 1: should a CONNECT message be received without receiving an ALERTING message, then state 7 may not exist in the terminal manufacturer's implementation and hence the tests in this following paragraph shall be omitted.

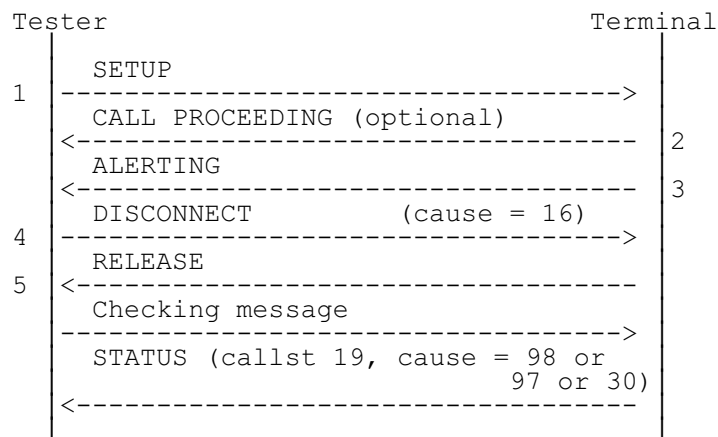
NOTE 2: to avoid the return of a SETUP ACKNOWLEDGE message by the terminal, the SETUP message shall contain the Sending complete information element.

6.1 Receipt of a DISCONNECT message

Purpose: Ensures the terminal responds to a DISCONNECT message with a RELEASE message and enters the Release Request state.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Transmit a valid SETUP message, (refer to preliminary notes).
- 2) Await a CALL PROCEEDING message (optional) from the terminal.
- 3) Await an ALERTING message, indicating that the terminal has entered the call received state (state 7).
- 4) Transmit a DISCONNECT message, cause = 16 (normal clearing).
- 5) Expect a RELEASE message.

Result Checking:

Transmit a Checking message.

Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 97 (message type non-existent or not implemented) or 30 (response to STATUS ENQUIRY); ensure the call state given (in octet 3 of the call state information element) is state 19 (Release Request).

Postamble: Layer 3 should be cleared down to the Null state by sending a RELEASE COMPLETE message from the tester to the terminal.

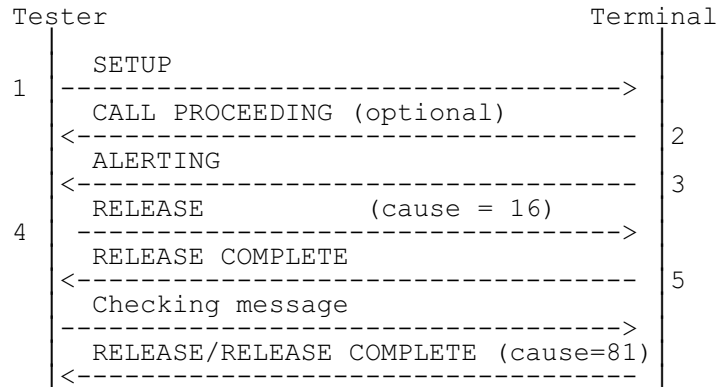
Refer to: ETS 300 102-1 [2], subclause 5.3.4.

6.2 Receipt of a RELEASE message

Purpose: Ensures the terminal responds to a RELEASE message with a RELEASE COMPLETE message and enters the Null state.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Transmit a valid SETUP message, (refer to preliminary notes).
- 2) Await a CALL PROCEEDING message (optional).
- 3) Await an ALERTING message indicating that the terminal has entered the call received state (state 7).
- 4) Transmit a RELEASE message, cause = 16 (normal clearing).
- 5) Expect a RELEASE COMPLETE message.

Result Checking:

Transmit a Checking message.

Expect a RELEASE or a RELEASE COMPLETE message, cause = 81 (invalid call reference) indicating that the terminal has correctly returned to the Null state (see Preliminary Note 10).

Postamble: If a RELEASE message has been received, transmit a RELEASE COMPLETE message.

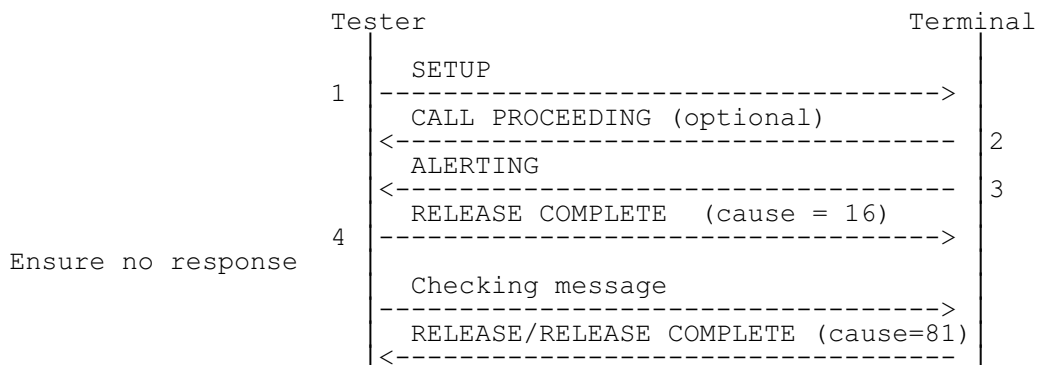
Refer to: ETS 300 102-1 [2], subclause 5.3.2.

6.3 Receipt of a RELEASE COMPLETE message

Purpose: Ensures that on receipt of a RELEASE COMPLETE message the terminal makes no response but returns to the Null state.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Transmit a valid SETUP message, (refer to preliminary notes).
- 2) Await a CALL PROCEEDING message (optional).
- 3) Await an ALERTING message.
- 4) Transmit a RELEASE COMPLETE message, cause = 16 (normal clearing); ensure no response to this message.

Result Checking:

Transmit a Checking message.

Expect a RELEASE or a RELEASE COMPLETE message, cause = 81 (invalid call reference) indicating that the terminal has correctly returned to the Null state (see Preliminary Note 10).

Postamble: If a RELEASE message has been received, transmit a RELEASE COMPLETE message.

Refer to: ETS 300 102-1 [2], subclause 5.8.4.

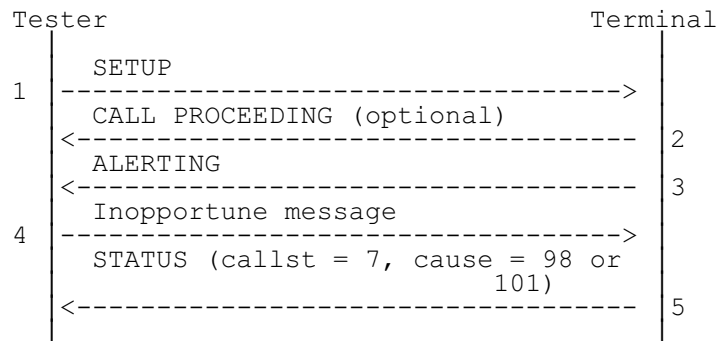
6.4 Receipt of an "erroneous" message

6.4.1 Receipt of an inopportune message

Purpose: Ensures the terminal responds to an inopportune message with a STATUS message and that no change of state occurs.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Transmit a valid SETUP message, (refer to preliminary notes).
- 2) Await a CALL PROCEEDING message (optional).
- 3) Await an ALERTING message indicating that the terminal has entered the call received state (state 7).
- 4) On receipt of an ALERTING message, immediately transmit an inopportune message (refer to Preliminary Note 1).
- 5) Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 101 (message not compatible with call state) ;ensure the call state given (in octet 3 of the call state information element) is state 7 (Call received).

Postamble: Layer 3 should be cleared down to the Null state with a RELEASE/RELEASE COMPLETE sequence.

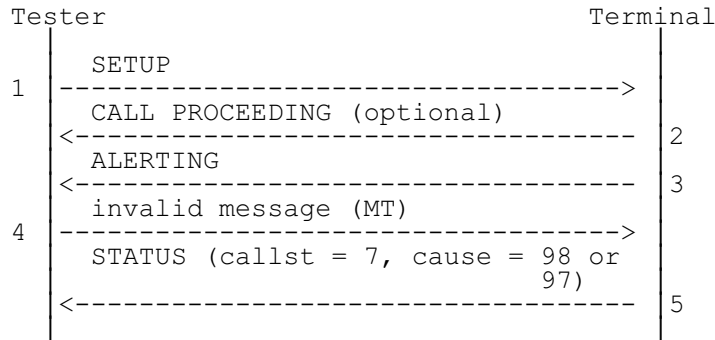
Refer to: ETS 300 102-1 [2], subclause 5.8.4.

6.4.2 Receipt of a syntactically invalid message (unrecognized message type)

Purpose: Ensures the terminal responds to a message having an invalid message type with a STATUS message and that no change of state occurs.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Transmit a valid SETUP message (refer to preliminary notes).
- 2) Await a CALL PROCEEDING message (optional).
- 3) Await an ALERTING message indicating that the terminal has entered the call received state.
- 4) Transmit a message having an invalid message type.
- 5) Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 97 (message type non-existent or not implemented); ensure the call state given (in octet 3 of the call state information element) is state 7 (Call received).

Postamble: Layer 3 should be cleared down to the Null state with a RELEASE/RELEASE COMPLETE sequence.

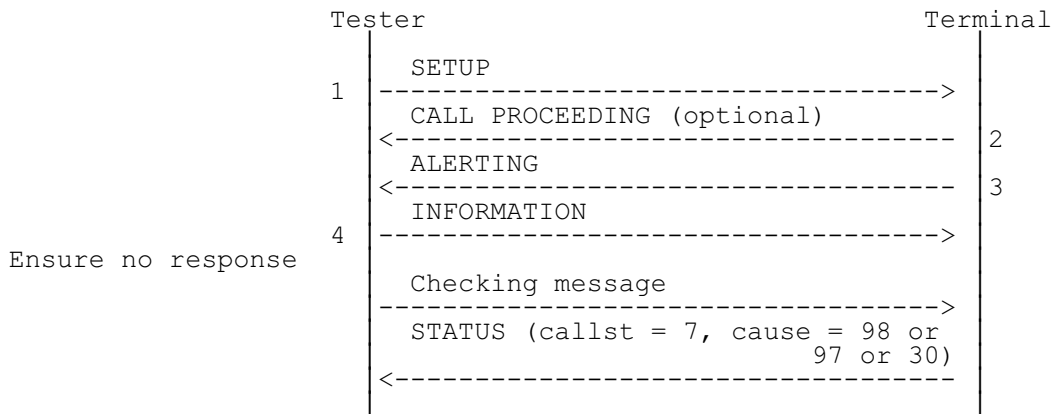
Refer to: ETS 300 102-1 [2], subclause 5.8.4.

6.5 Receipt of an INFORMATION message

Purpose: Ensures that on receipt of an INFORMATION message the terminal makes no response and remains in the same state.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Transmit a valid SETUP message, (refer to preliminary notes).
- 2) Await a CALL PROCEEDING message (optional).
- 3) Await an ALERTING message.
- 4) Transmit a valid INFORMATION message containing a Display information element; ensure no response to this message.

Result Checking:

Transmit a Checking message.

Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 97 (message type non-existent or not implemented) or 30 (response to STATUS ENQUIRY); ensure the call state given (in octet 3 of the call state information element) is state 7 (Call Received).

Postamble: Layer 3 should be cleared down to the Null state with a RELEASE/RELEASE COMPLETE sequence.

Refer to: ETS 300 102-1 [2], clause 5 and subclause 5.2.4.

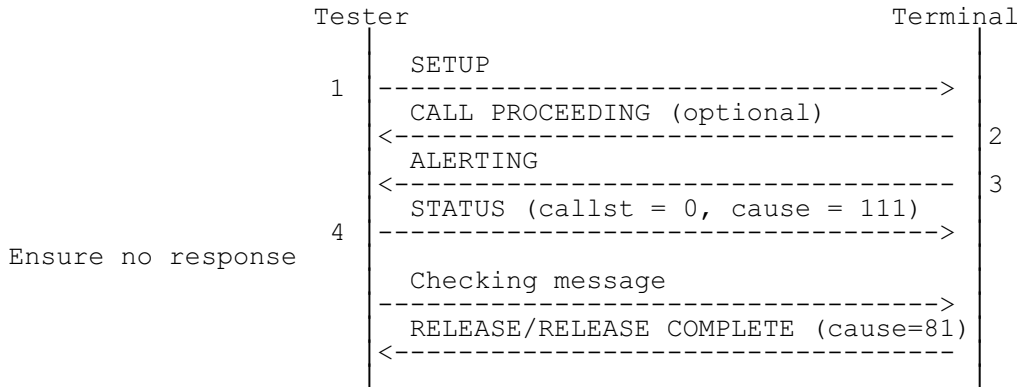
6.6 Receipt of a STATUS message

6.6.1 Indicating the Null state

Purpose: Ensures that on receipt of a STATUS message specifying the Null state, the terminal moves into the Null state.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Transmit a valid SETUP message, (refer to preliminary notes).
- 2) Await a CALL PROCEEDING message (optional).
- 3) Await an ALERTING message.
- 4) Transmit a STATUS message, call state = 0 (Null state), cause = 111 (protocol error, unspecified); ensure no response to this message.

Result Checking:

Transmit a Checking message.

Expect a RELEASE or a RELEASE COMPLETE message, cause = 81 (invalid call reference) indicating that the terminal has correctly returned to the Null state (see Preliminary Note 10).

Postamble: if a RELEASE message has been received, transmit a RELEASE COMPLETE.

Refer to: ETS 300 102-1 [2], subclause 5.8.11.

6.6.2 Indicating a compatible call state

NOTE: The actions to be taken on receipt of a STATUS message with a compatible call state are implementation dependent. No test is specified in this ETS.

Refer to: ETS 300 102-1 [2], subclause 5.8.11.

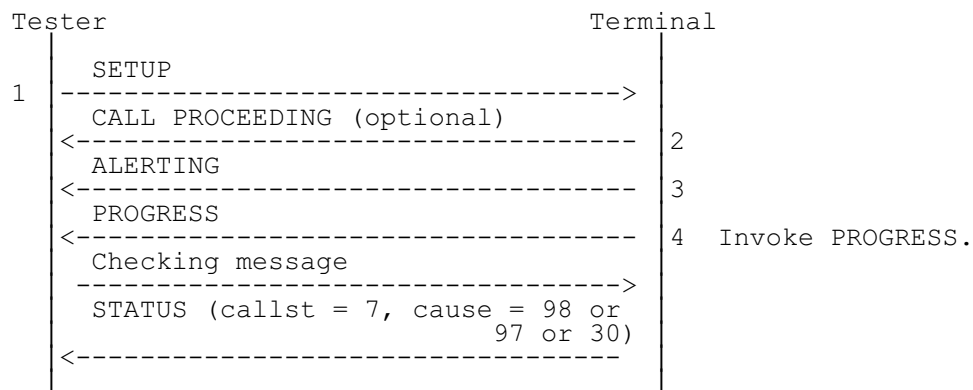
6.7 PROGRESS message from the terminal

Purpose: Ensures the terminal transmits a PROGRESS message when prompted and remains in the same state.

NOTE: This test can only be performed if the use of the PROGRESS message is implemented in the terminal, and the transmission of the PROGRESS message by the terminal can be invoked by action at an access point available to the tester (e.g. at the man-machine interface, at the interface on the user side of the terminal (in the case of an NT2 or TA), by running higher layer process). Some terminals may support the PROGRESS message only on reception and be unable to transmit the message.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Transmit a valid SETUP message, (refer to preliminary note).
- 2) Await a CALL PROCEEDING message (optional).
- 3) Await an ALERTING message.
- 4) Invoke a PROGRESS message from the terminal (see NOTE above).

Result checking :

Transmit a Checking message.

Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 97 (message type non-existent or not implemented) or 30 (response to STATUS ENQUIRY); ensure the call state given (in octet 3 of the call state information element) is state 7 (Call Received).

Postamble: Layer 3 should be cleared down to the Null state with a RELEASE/RELEASE COMPLETE sequence.

Refer to: ETS 300 102-1 [2], subclause 5.2.6.

7 Connect request state tests, state 8

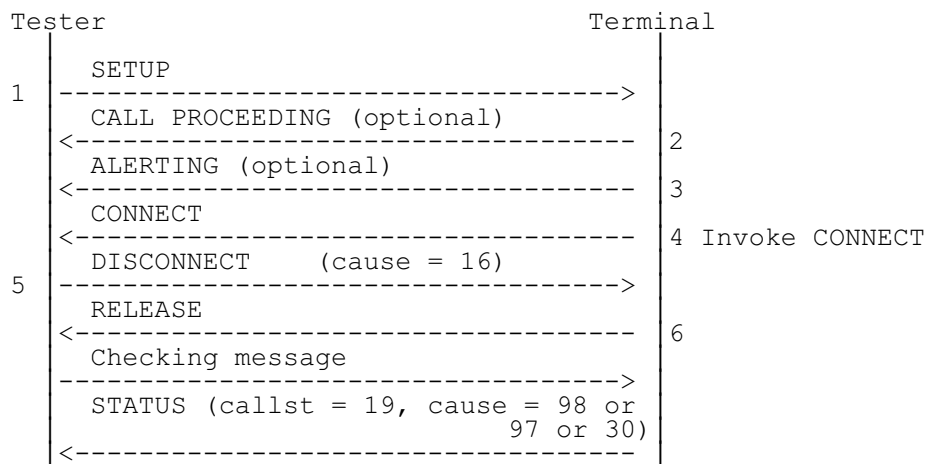
NOTE: To avoid the return of a SETUP ACKNOWLEDGE message by the terminal, the SETUP message shall contain the Sending complete information element.

7.1 Receipt of a DISCONNECT message

Purpose: Ensures the terminal responds to a DISCONNECT message with a RELEASE message and enters the Release Request state.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Transmit a valid SETUP message, (refer to preliminary notes).
- 2) Await a CALL PROCEEDING message (optional).
- 3) Await an ALERTING message (optional).
- 4) Invoke a CONNECT message from the terminal indicating that the terminal has entered the connect request state.
- 5) Transmit a DISCONNECT message, cause = 16 (normal clearing).
- 6) Expect a RELEASE message.

Result Checking:

Transmit a Checking message.

Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 97 (message type non-existent or not implemented) or 30 (response to STATUS ENQUIRY); ensure the call state given (in octet 3 of the call state information element) is state 19 (Release Request).

Postamble: Layer 3 should be cleared down to the Null state by sending a RELEASE COMPLETE message from the tester to the terminal

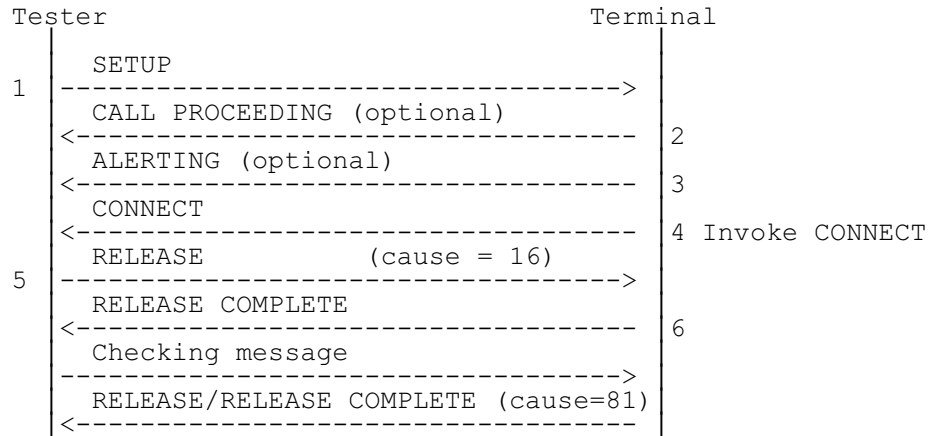
Refer to: ETS 300 102-1 [2], subclause 5.3.4.

7.2 Receipt of a RELEASE message

Purpose: Ensures the terminal responds to a RELEASE message with a RELEASE COMPLETE message and enters the Null state.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Transmit a valid SETUP message, (refer to preliminary notes).
- 2) Await a CALL PROCEEDING message (optional).
- 3) Await an ALERTING message (optional).
- 4) Invoke a CONNECT message from the terminal.
- 5) Transmit a RELEASE message, cause = 16 (normal clearing).
- 6) Expect a RELEASE COMPLETE message.

Result Checking:

Transmit a Checking message.

Expect a RELEASE or a RELEASE COMPLETE message, cause = 81 (invalid call reference) indicating that the terminal has cleared down to the Null state (see Preliminary Note 10).

Postamble: If a RELEASE message has been received, transmit a RELEASE COMPLETE message.

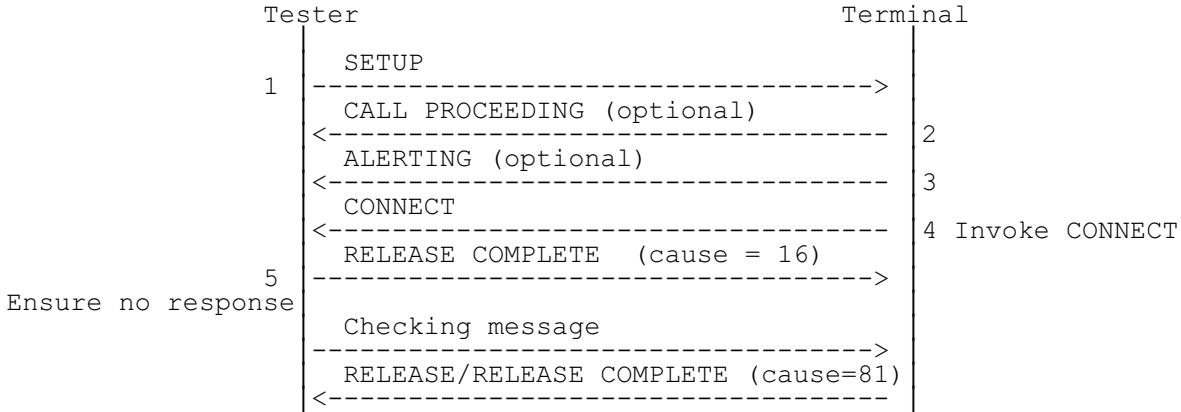
Refer to: ETS 300 102-1 [2], subclause 5.3.2.

7.3 Receipt of a RELEASE COMPLETE message

Purpose: Ensures that on receipt of a RELEASE COMPLETE message the terminal makes no response but returns to the Null state.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Transmit a valid SETUP message, (refer to preliminary notes).
- 2) Await a CALL PROCEEDING message (optional).
- 3) Await an ALERTING message (optional).
- 4) Invoke a CONNECT message from the terminal.
- 5) Transmit a RELEASE COMPLETE message, cause = 16 (normal clearing) ensure no response to this message.

Result Checking:

Transmit a Checking message.

Expect a RELEASE or a RELEASE COMPLETE message, cause = 81 (invalid call reference) indicating that the terminal has correctly returned to the Null state (see Preliminary Note 10).

Postamble: If a RELEASE message has been received, transmit a RELEASE COMPLETE message.

Refer to: ETS 300 102-1 [2], subclause 5.8.4.

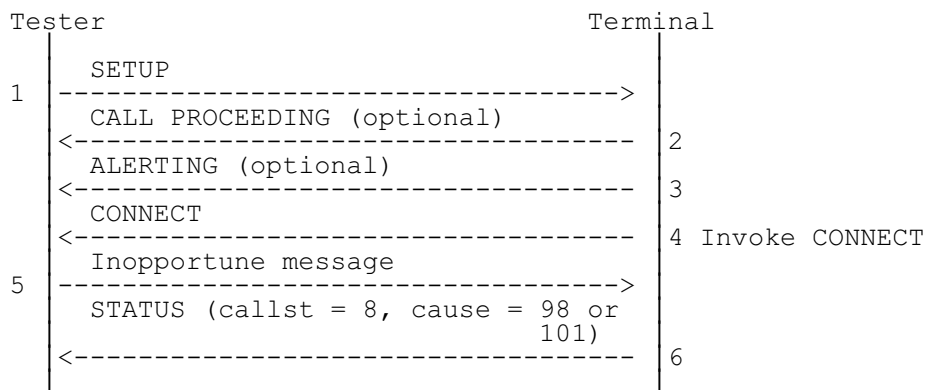
7.4 Receipt of an "erroneous" message

7.4.1 Receipt of an inopportune message

Purpose: Ensures the terminal responds to an inopportune message with a STATUS message and that no change of state occurs.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Transmit a valid SETUP message, (refer to preliminary notes).
- 2) Await a CALL PROCEEDING message (optional).
- 3) Await an ALERTING message (optional).
- 4) Invoke a CONNECT message from the terminal.
- 5) On receipt of a CONNECT message, immediately transmit an inopportune message (refer to Preliminary Note 1).
- 6) Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 101 (message not compatible with call state); ensure the call state given (in octet 3 of the call state information element) is state 8 (Connect Request).

Postamble: Layer 3 should be cleared down to the Null state with a RELEASE/RELEASE COMPLETE sequence.

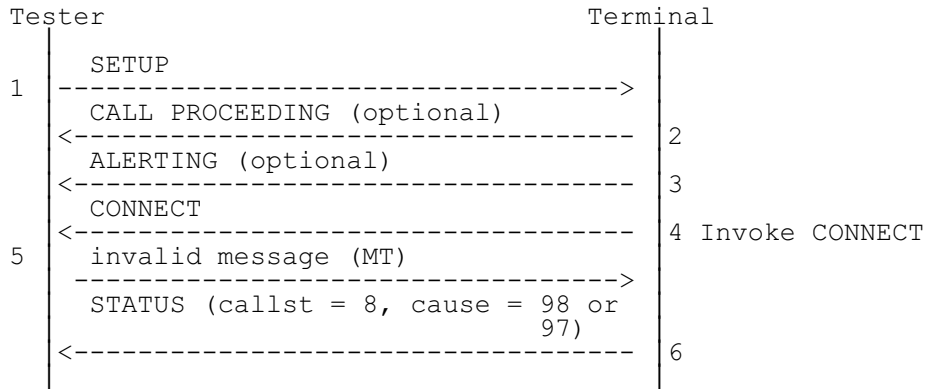
Refer to: ETS 300 102-1 [2], subclause 5.8.4.

7.4.2 Receipt of a syntactically invalid message (unrecognized message type)

Purpose: Ensures the terminal responds to a message having an invalid message type with a STATUS message and that no change of state occurs.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Transmit a valid SETUP message (refer to preliminary notes).
- 2) Await a CALL PROCEEDING message (optional).
- 3) Await an ALERTING message (optional).
- 4) Invoke CONNECT from the terminal.
- 5) Transmit a message having an invalid message type.
- 6) Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 97 (message type non-existent or not implemented); ensure the call state given (in octet 3 of the call state information element) is state 8 (Connect Request).

Postamble: Layer 3 should be cleared down to the Null state with a RELEASE/RELEASE COMPLETE sequence.

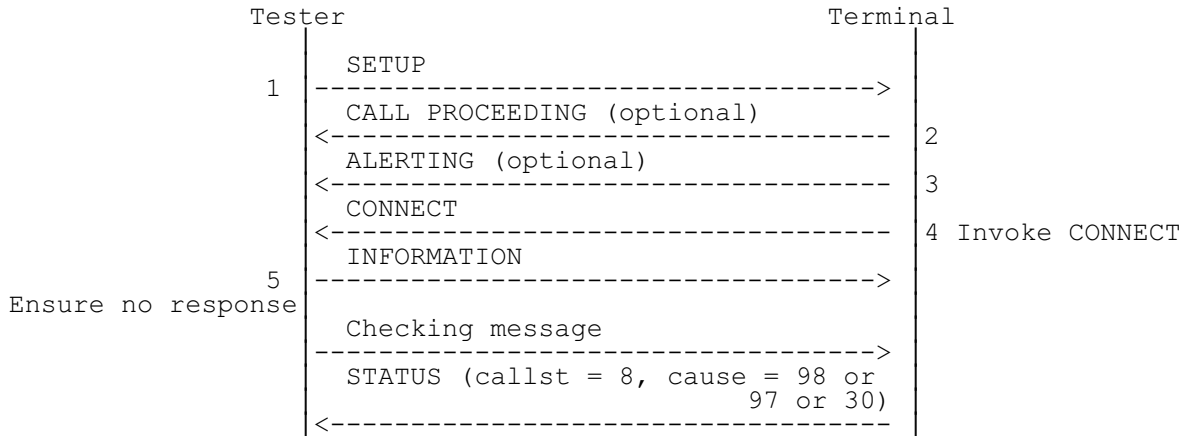
Refer to: ETS 300 102-1 [2], subclause 5.8.4.

7.5 Receipt of an INFORMATION message

Purpose: Ensures that on receipt of an INFORMATION message the terminal makes no response and remains in the same state.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Transmit a valid SETUP message, (refer to preliminary notes).
- 2) Await a CALL PROCEEDING message (optional).
- 3) Await an ALERTING message (optional).
- 4) Invoke a CONNECT message from the terminal.
- 5) Transmit a valid INFORMATION message containing a Display information element; ensure no response to this message.

Result Checking:

Transmit a Checking message.

NOTE: this message must be received by the terminal before user timer T313 expires.

Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 97 (message type non-existent or not implemented) or 30 (response to STATUS ENQUIRY); ensure the call state given (in octet 3 of the call state information element) is state 8 (Connect request).

Postamble : Layer 3 should be cleared down to the Null state with a RELEASE/RELEASE COMPLETE sequence.

Refer to: ETS 300 102-1 [2], subclause 5.2.4.

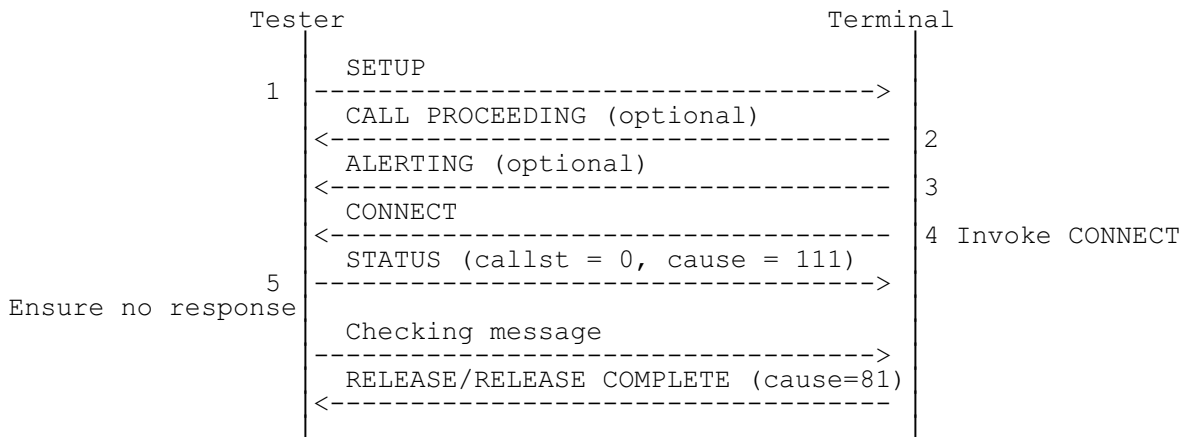
7.6 Receipt of a STATUS message

7.6.1 Indicating the Null state

Purpose: Ensures that on receipt of a STATUS message specifying the Null state, the terminal moves into the Null state.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Transmit a valid SETUP message, (refer to preliminary notes).
- 2) Await a CALL PROCEEDING message (optional).
- 3) Await an ALERTING message (optional).
- 4) Invoke a CONNECT message from the terminal.
- 5) Transmit a STATUS message, call state = 0 (Null state), cause = 111 (protocol error, unspecified); ensure no response to this message.

Result Checking:

Transmit a Checking message.

Expect a RELEASE or a RELEASE COMPLETE message, cause = 81 (invalid call reference) indicating that the terminal has correctly returned to the Null state (see Preliminary Note 10).

Postamble: if a RELEASE message has been received, transmit a RELEASE COMPLETE.

Refer to: ETS 300 102-1 [2], subclause 5.8.11.

7.6.2 Indicating a compatible call state

NOTE: The actions to be taken on the receipt of a STATUS message with a compatible call state are implementation dependent. No test is specified in this ETS.

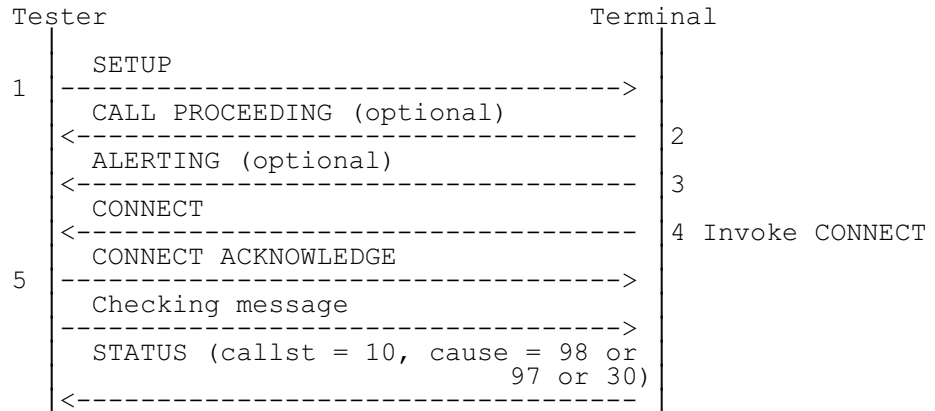
Refer to: ETS 300 102-1 [2], subclause 5.8.11.

7.7 Receipt of a CONNECT ACKNOWLEDGE message

Purpose: Ensures that the terminal will enter the Active state on receipt of a CONNECT ACKNOWLEDGE message.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Transmit a valid SETUP message, (refer to preliminary notes).
- 2) Await a CALL PROCEEDING message (optional).
- 3) Await an ALERTING message (optional).
- 4) Invoke CONNECT from the terminal.
- 5) Transmit a CONNECT ACKNOWLEDGE message.

Result Checking:

Transmit a Checking message.

Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 97 (message type non-existent or not implemented) or 30 (response to STATUS ENQUIRY); ensure the call state given (in octet 3 of the call state information element) is state 10 (Active).

Postamble: Layer 3 should be cleared down to the Null state with a RELEASE/RELEASE COMPLETE sequence.

Refer to: ETS 300 102-1 [2], subclause 5.2.7, subclause 5.2.8.

8 Active state tests, state 10

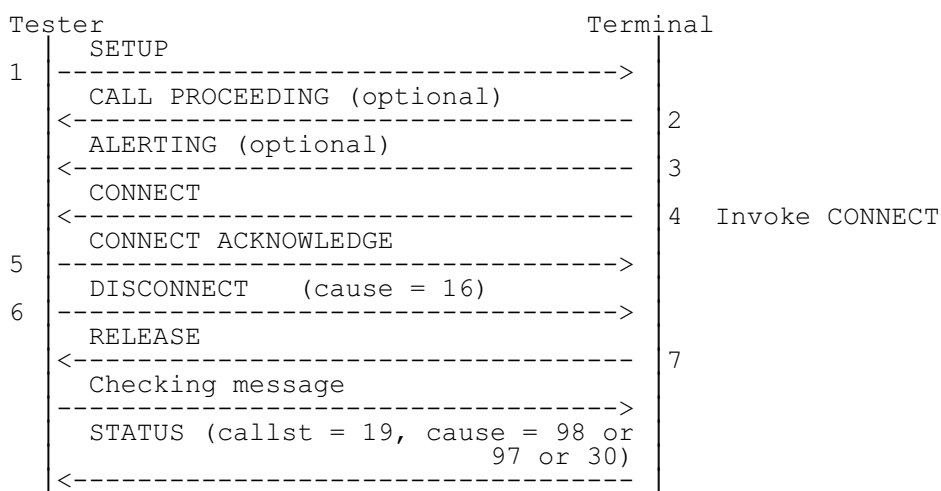
NOTE: To avoid the return of a SETUP ACKNOWLEDGE message by the terminal, the SETUP message shall contain the Sending complete information element in the following tests.

8.1 Receipt of a DISCONNECT message

Purpose: Ensures the terminal responds to a DISCONNECT message with a RELEASE message and enters the Release Request state.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Transmit a valid SETUP message, (refer to preliminary notes).
- 2) Await a CALL PROCEEDING message (optional).
- 3) Await an ALERTING message (optional).
- 4) Invoke a CONNECT message from the terminal.
- 5) Transmit a CONNECT ACKNOWLEDGE message.
- 6) Transmit a DISCONNECT message, cause = 16 (normal clearing).
- 7) Expect a RELEASE message.

Result Checking:

Transmit a Checking message.

Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 97 (message type non-existent or not implemented) or 30 (response to STATUS ENQUIRY); ensure the call state given (in octet 3 of the call state information element) is state 19 (Release Request).

Postamble: Layer 3 should be cleared down to the Null state by sending a RELEASE COMPLETE message from the tester to the terminal.

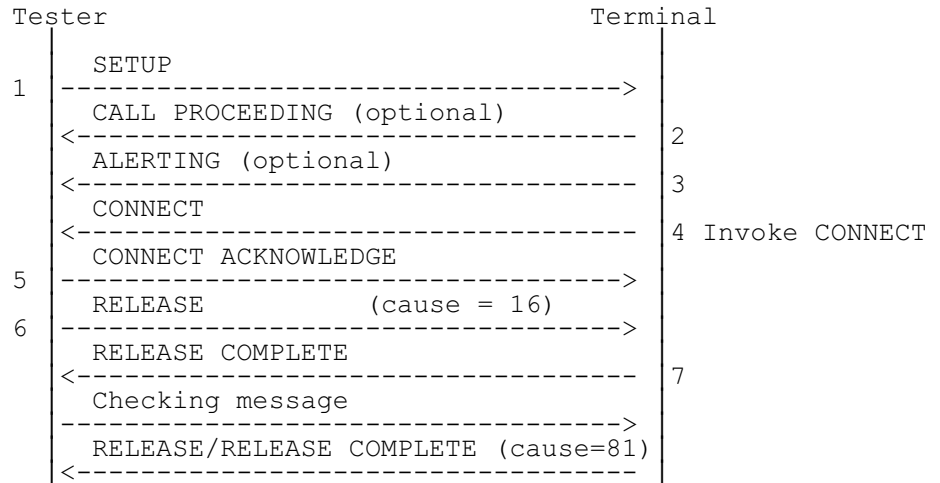
Refer to: ETS 300 102-1 [2], subclause 5.3.4.

8.2 Receipt of a RELEASE message

Purpose: Ensures the terminal responds to a RELEASE message with a RELEASE COMPLETE message and enters the Null state.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Transmit a valid SETUP message, (refer to preliminary notes).
- 2) Await a CALL PROCEEDING message (optional).
- 3) Await an ALERTING message (optional).
- 4) Invoke a CONNECT message from the terminal.
- 5) Transmit a CONNECT ACKNOWLEDGE message.
- 6) Transmit a RELEASE message, cause = 16 (normal clearing).
- 7) Expect a RELEASE COMPLETE message.

Result Checking:

Transmit a Checking message.

Expect a RELEASE or a RELEASE COMPLETE message, cause = 81 (invalid call reference) indicating that the terminal has cleared down to the Null state (see Preliminary Note 10).

Postamble: If a RELEASE message has been received, transmit a RELEASE COMPLETE message.

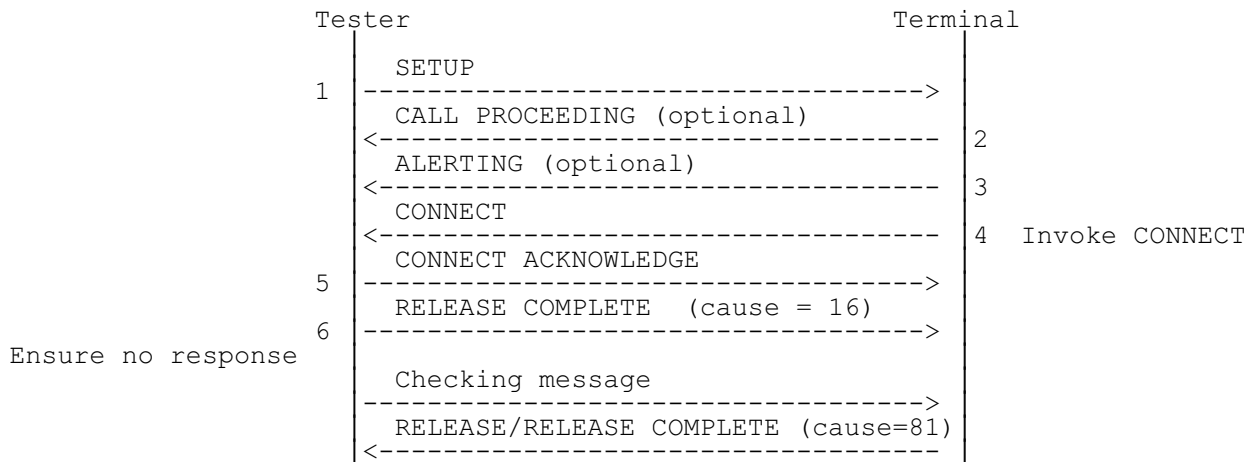
Refer to: ETS 300 102-1 [2], subclause 5.3.4, subclause 5.8.4.

8.3 Receipt of a RELEASE COMPLETE message

Purpose: Ensures that on receipt of a RELEASE COMPLETE message the terminal makes no response but returns to the Null state.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Transmit a valid SETUP message, (refer to preliminary notes).
- 2) Await a CALL PROCEEDING message (optional).
- 3) Await an ALERTING message (optional).
- 4) Invoke a CONNECT message from the terminal.
- 5) Transmit a CONNECT ACKNOWLEDGE message.
- 6) Transmit a RELEASE COMPLETE message, cause = 16 (normal clearing); ensure no response to this message.

Result Checking:

Transmit a Checking message.

Expect a RELEASE or a RELEASE COMPLETE message, cause = 81 (invalid call reference) indicating that the terminal has correctly returned to the Null state (see Preliminary Note 10).

Postamble: If a RELEASE message has been received, transmit a RELEASE COMPLETE message.

Refer to: ETS 300 102-1 [2], subclause 5.8.4.

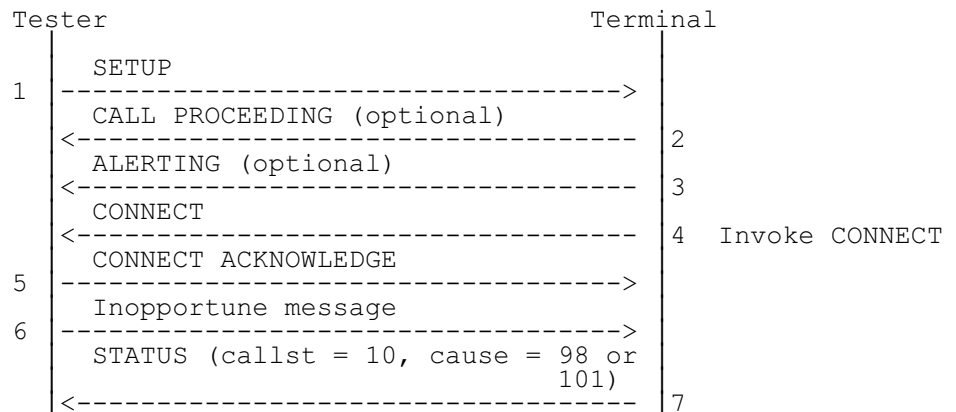
8.4 Receipt of an "erroneous" message

8.4.1 Receipt of an inopportune message

Purpose: Ensures the terminal responds to an inopportune message with a STATUS message and that no change of state occurs.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Transmit a valid SETUP message, (refer to preliminary notes).
- 2) Await a CALL PROCEEDING message (optional).
- 3) Await an ALERTING message (optional).
- 4) Invoke a CONNECT message from the terminal.
- 5) Transmit a CONNECT ACKNOWLEDGE message.
- 6) Transmit an inopportune message (refer to Preliminary Note 1).
- 7) Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 101 (message not compatible with call state); ensure the call state given (in octet 3 of the call state information element) is state 10 (Active).

Postamble: Layer 3 should be cleared down to the Null state with a RELEASE/RELEASE COMPLETE sequence.

Refer to: ETS 300 102-1 [2], subclause 5.8.4.

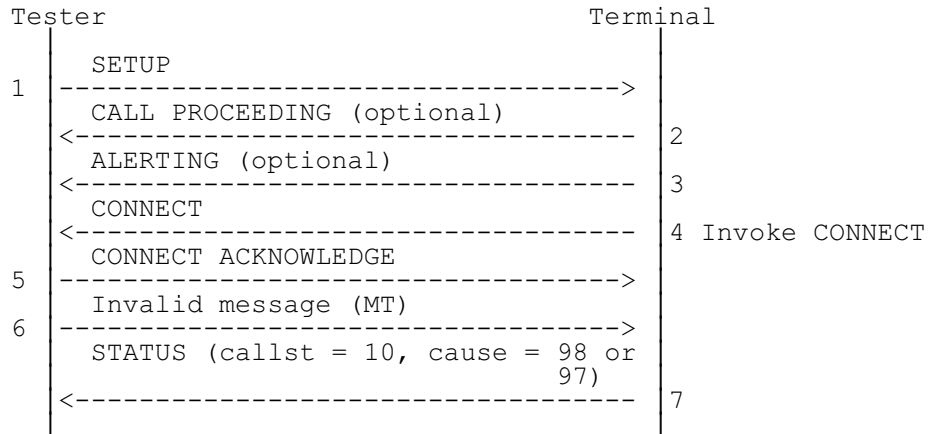
8.4.2 Receipt of a syntactically invalid message

8.4.2.1 Receipt of an unrecognized message type

Purpose: Ensures the terminal responds to a message having an invalid message type with a STATUS message and that no change of state occurs.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Transmit a valid SETUP message (refer to preliminary notes).
- 2) Await a CALL PROCEEDING message (optional).
- 3) Await an ALERTING message (optional).
- 4) Invoke CONNECT from the terminal.
- 5) Transmit a CONNECT ACKNOWLEDGE message.
- 6) Transmit a message having an invalid message type.
- 7) Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 97 (message type non-existent or not implemented); ensure the call state given (in octet 3 of the call state information element) is state 10 (Active).

Postamble: Layer 3 should be cleared down to the Null state with a RELEASE/RELEASE COMPLETE sequence.

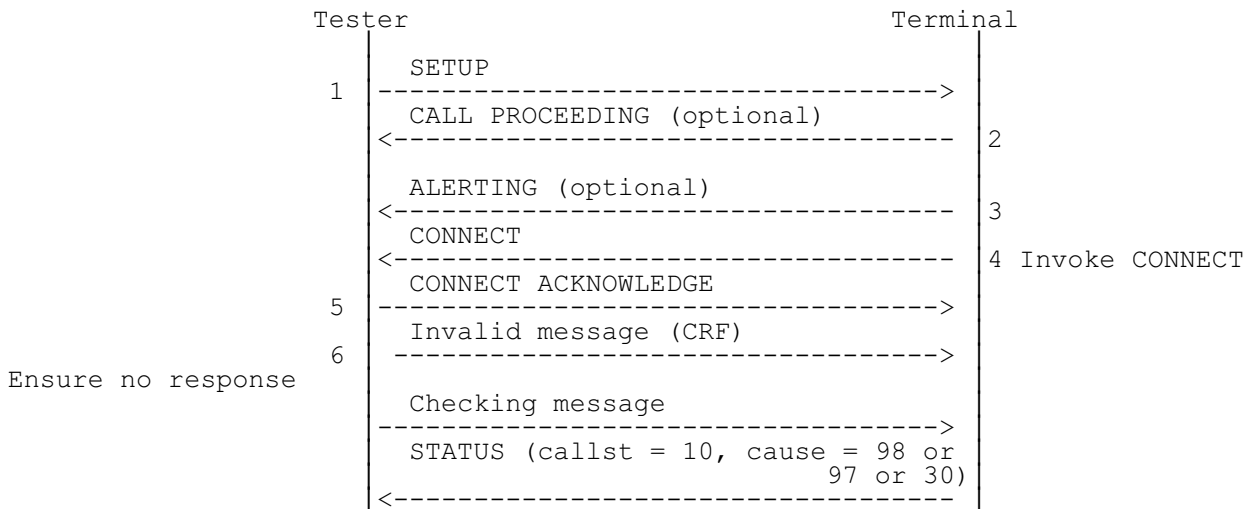
Refer to: ETS 300 102-1 [2], subclause 5.8.4.

8.4.2.2 Receipt of an invalid call reference format

Purpose: Ensures the terminal ignores a message received with an invalid call reference format and that no change of state occurs.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Transmit a valid SETUP message (refer to preliminary notes).
- 2) Await a CALL PROCEEDING message.
- 3) Await an ALERTING message (optional).
- 4) Invoke CONNECT from the terminal.
- 5) Transmit a CONNECT ACKNOWLEDGE message.
- 6) Transmit a message with invalid call reference format; ensure no response.

Result Checking:

Transmit a Checking message.

Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 97 (message type non-existent or not implemented) or 30 (response to STATUS ENQUIRY); ensure the call state given (in octet 3 of the call state information element) is state 10 (Active).

Postamble: Layer 3 should be cleared down to the Null state with a RELEASE/RELEASE COMPLETE sequence.

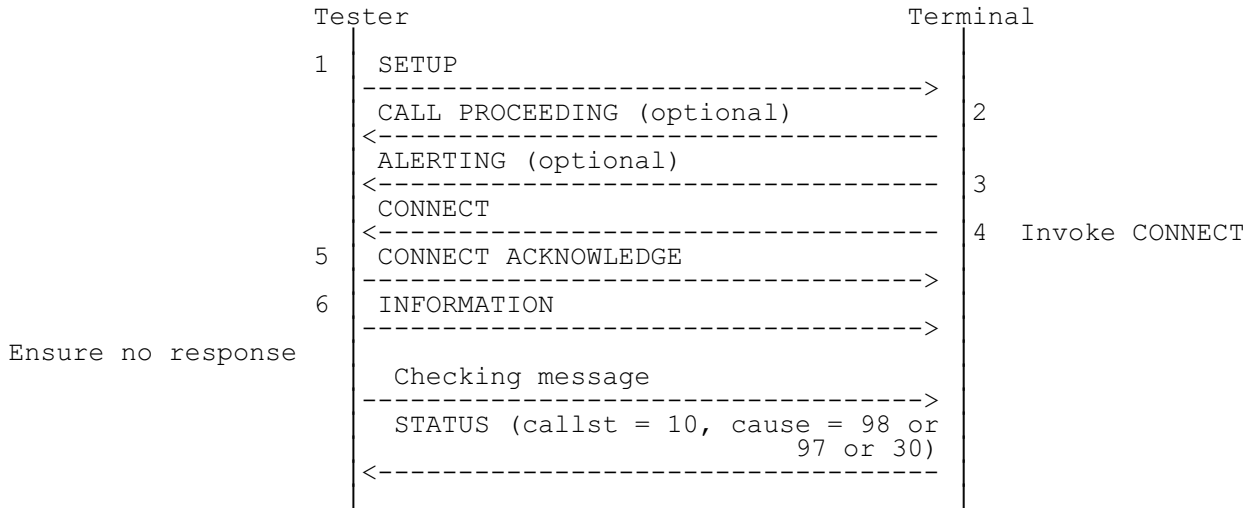
Refer to: ETS 300 102-1 [2], subclause 5.8.3.1.

8.5 Receipt of an INFORMATION message

Purpose: Ensures that on receipt of an INFORMATION message the terminal makes no response and remains in the same state.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Transmit a valid SETUP message, (refer to preliminary notes).
- 2) Await a CALL PROCEEDING message (optional).
- 3) Await an ALERTING message (optional).
- 4) Invoke a CONNECT message from the terminal.
- 5) Transmit a CONNECT ACKNOWLEDGE message.
- 6) Transmit a valid INFORMATION message containing a Display information element; ensure no response to this message.

Result Checking:

Transmit a Checking message.

Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 97 (message type non-existent or not implemented) or 30 (response to STATUS ENQUIRY); ensure the call state given (in octet 3 of the call state information element) is state 10 (Active).

Postamble: Layer 3 should be cleared down to the Null state with a RELEASE/RELEASE COMPLETE sequence.

Refer to: ETS 300 102-1 [2], subclause 5, subclause 5.2.4.

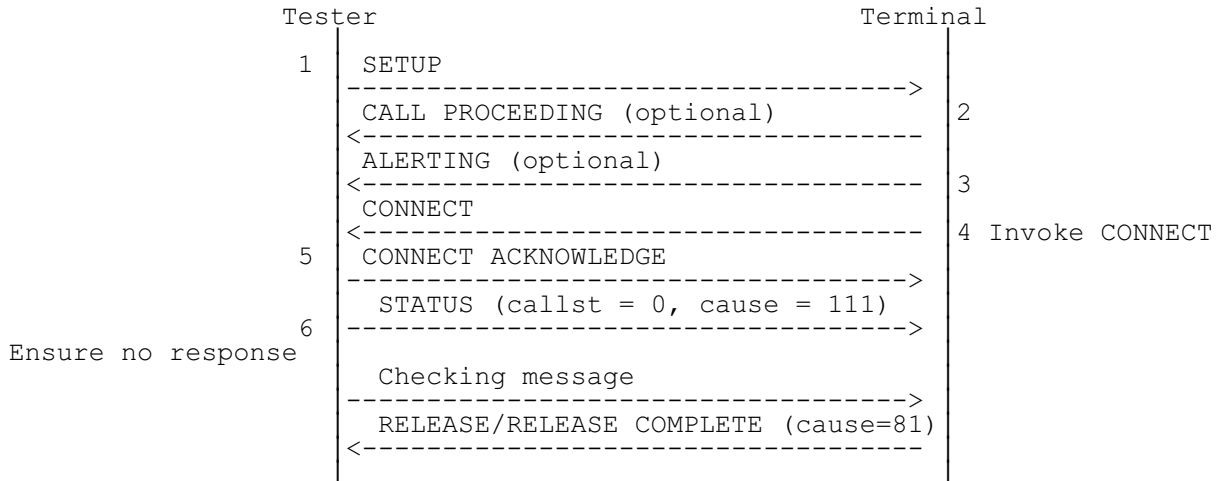
8.6 Receipt of a STATUS message

8.6.1 Indicating the Null State

Purpose: Ensures that on receipt of a STATUS message specifying the Null state, the terminal moves into the Null state.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Transmit a valid SETUP message, (refer to preliminary notes).
- 2) Await a CALL PROCEEDING message (optional).
- 3) Await an ALERTING message (optional).
- 4) Invoke a CONNECT message from the terminal.
- 5) Transmit a CONNECT ACKNOWLEDGE message.
- 6) Transmit a STATUS message, call state = 0 (Null state), cause = 111 protocol error, unspecified); ensure no response to this message.

Result Checking:

Transmit a Checking message.

Expect a RELEASE or a RELEASE COMPLETE message, cause = 81 (invalid call reference) indicating that the terminal has correctly returned to the Null state (see Preliminary Note 10).

Postamble: if a RELEASE message has been received, transmit a RELEASE COMPLETE.

Refer to: ETS 300 102-1 [2], subclause 5.8.11

8.6.2 Indicating a compatible call state

NOTE: The actions to be taken on receipt of a STATUS message with compatible call state are implementation dependent. No test is specified in this ETS.

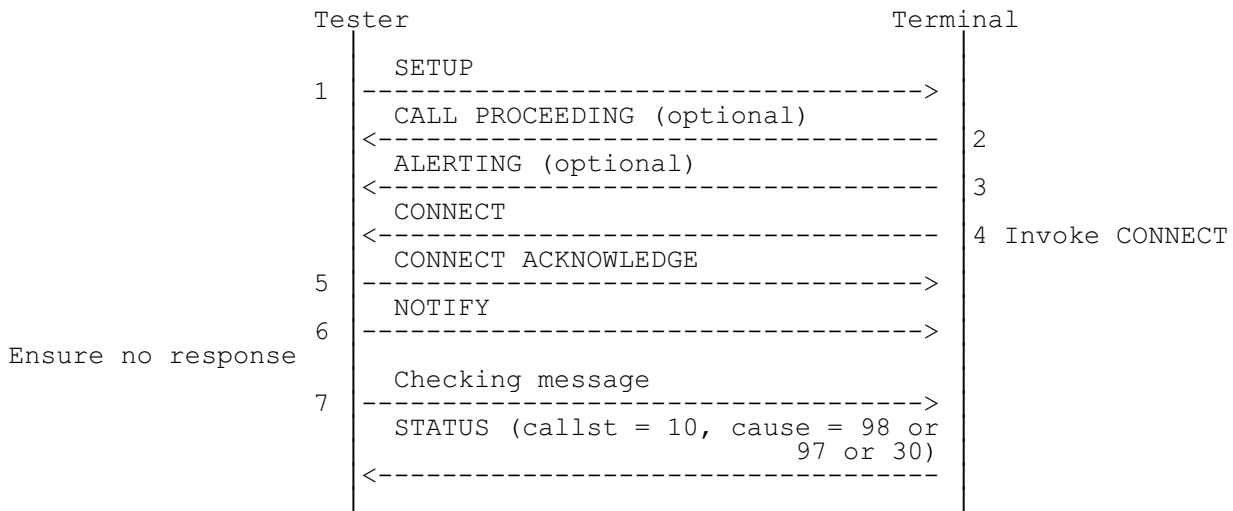
Refer to: ETS 300 102-1 [2], subclause 5.8.11.

8.7 Receipt of a NOTIFY message

Purpose: Ensures that on receipt of a NOTIFY message the terminal makes no response and remains in the same state.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Transmit a valid SETUP message, (refer to preliminary notes).
- 2) Await a CALL PROCEEDING message (optional).
- 3) Await an ALERTING message (optional).
- 4) Invoke a CONNECT message from the terminal.
- 5) Transmit a CONNECT ACKNOWLEDGE message.
- 6) Transmit a NOTIFY message; ensure no response to this message.

Result Checking:

Transmit a Checking message.

Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 97 (message type non-existent or not implemented) or 30 (response to STATUS ENQUIRY); ensure the call state given (in octet 3 of the call state information element) is state 10 (Active).

Postamble: Layer 3 should be cleared down to the Null state with a RELEASE/RELEASE COMPLETE sequence.

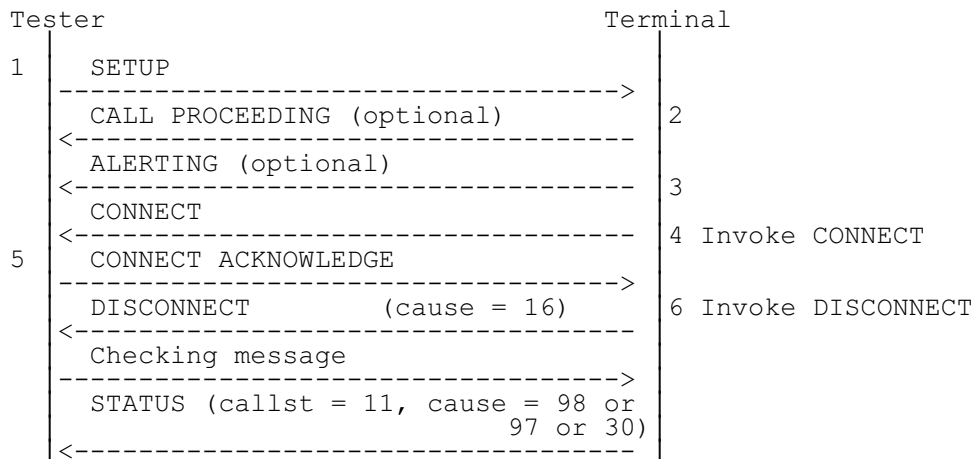
Refer to: ETS 300 102-1 [2], subclause 5.6.2, subclause 5.9.

8.8 DISCONNECT message from the terminal

Purpose: Ensures the terminal transmits a DISCONNECT message and enters the Disconnect Request state on invocation of clearing.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Transmit a valid SETUP message, (refer to preliminary notes).
- 2) Await a CALL PROCEEDING message (optional).
- 3) Await an ALERTING message (optional).
- 4) Invoke a CONNECT message from the terminal.
- 5) Transmit a CONNECT ACKNOWLEDGE message.
- 6) Invoke a DISCONNECT message from the terminal, cause = 16 (normal clearing).

Result Checking:

Transmit a Checking message.

Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 97 (message type non-existent or not implemented) or 30 (response to STATUS ENQUIRY); ensure the call state given (in octet 3 of the call state information element) is state 11 (Disconnect Request).

Postamble: Layer 3 should be cleared down to the Null state with a RELEASE/RELEASE COMPLETE sequence.

Refer to: ETS 300 102-1 [2], subclause 5.3.3.

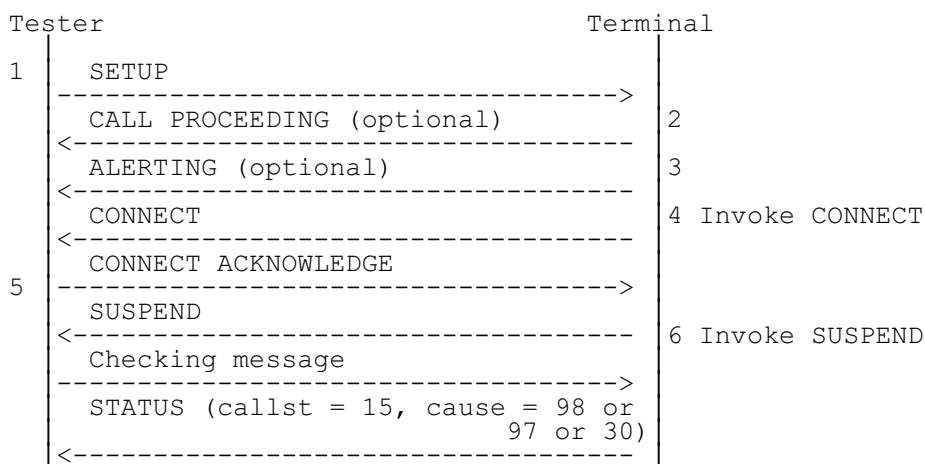
8.9 SUSPEND message from the terminal

Purpose: Ensures that on transmission of a SUSPEND message the terminal moves into the Suspend Request state.

NOTE: This test is only carried out on terminals in which (as declared by the apparatus supplier) the Suspend/Resume procedure has been implemented.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Transmit a valid SETUP message, (refer to preliminary notes).
- 2) Await a CALL PROCEEDING message (optional).
- 3) Await an ALERTING message (optional).
- 4) Invoke a CONNECT message from the terminal.
- 5) Transmit a CONNECT ACKNOWLEDGE message.
- 6) Invoke suspension at the terminal, expect a SUSPEND message at the tester, call identity (optional).

Result Checking:

Transmit a Checking message.

Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 97 (message type non-existent or not implemented) or 30 (response to STATUS ENQUIRY); ensure the call state given (in octet 3 of the call state information element) is state 15 (Suspend request).

Postamble: Layer 3 should be cleared down to the Null state with a RELEASE/RELEASE COMPLETE sequence.

Refer to: ETS 300 102-1 [2], subclause 5.6.1.

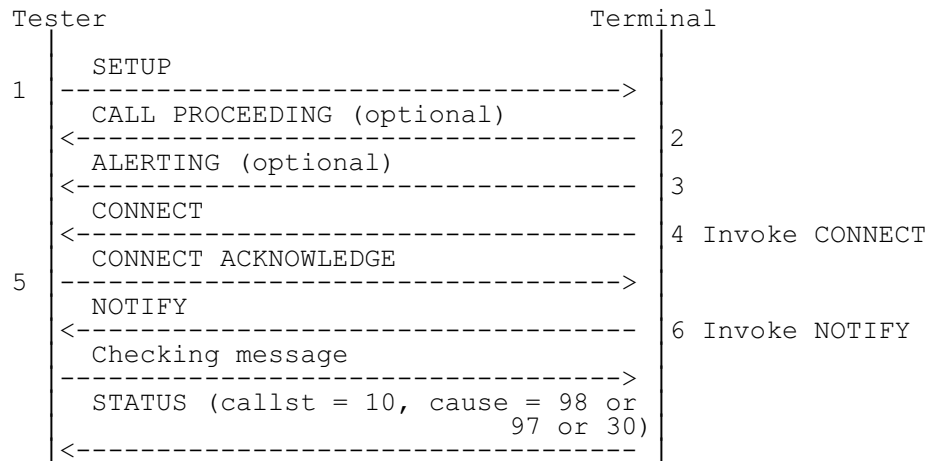
8.10 NOTIFY message from the terminal

Purpose: Ensures the terminal transmits a NOTIFY message when invoked and remains in the same state.

NOTE: This test shall only be performed on terminals in which (as declared by the apparatus supplier) the capability to transmit the NOTIFY message has been implemented.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Transmit a valid SETUP message, (refer to preliminary notes).
- 2) Await a CALL PROCEEDING message (optional).
- 3) Await an ALERTING message (optional).
- 4) Invoke a CONNECT message from the terminal.
- 5) Transmit a CONNECT ACKNOWLEDGE message.
- 6) Invoke a NOTIFY message from the terminal (see NOTE above).

Result Checking:

Transmit a Checking message.

Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 97 (message type non-existent or not implemented) or 30 (response to STATUS ENQUIRY); ensure the call state given (in octet 3 of the call state information element) is state 15 (Suspend request).

Postamble: Layer 3 should be cleared down to the Null state with a RELEASE/RELEASE COMPLETE sequence.

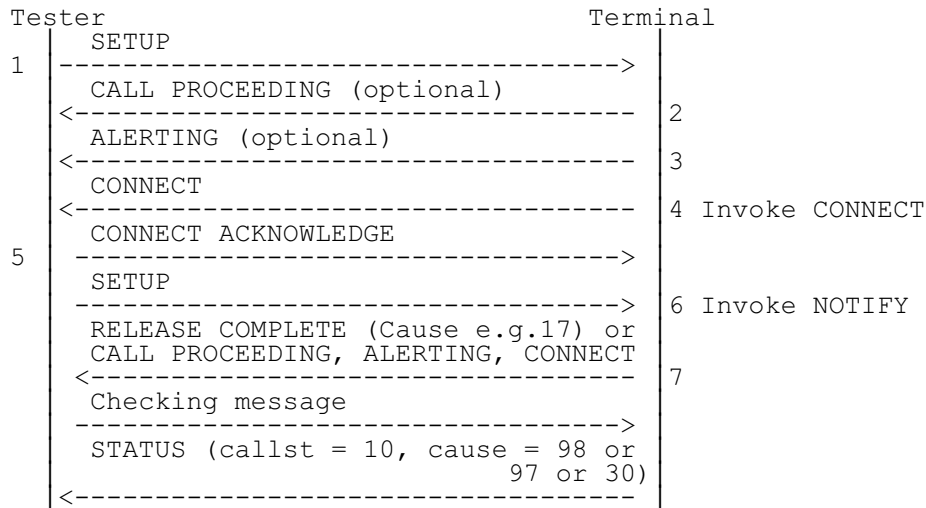
Refer to: ETS 300 102-1 [2], subclause 5.9.

8.11 Call to a terminal already involved in a call.

Purpose: Ensures that on arrival of a second call a compatible terminal responds with a RELEASE COMPLETE message, or - if the terminal is able to accept a second call - with either CALL PROCEEDING, ALERTING or CONNECT.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Transmit a valid SETUP message, (refer to preliminary notes).
- 2) Await a CALL PROCEEDING message (optional).
- 3) Await an ALERTING message (optional).
- 4) Invoke a CONNECT message from the terminal.
- 5) Transmit a CONNECT ACKNOWLEDGE message.
- 6) Transmit the same SETUP as in step 1) but with a different call reference and a different channel identification.
- 7) Expect a RELEASE COMPLETE message with the call reference value of the SETUP message of step 6, cause = 17 (user busy) or another appropriate cause value (e.g. 21), or - if the terminal is able to accept the second call - with either a CALL PROCEEDING, ALERTING or CONNECT message.

Result Checking:

Transmit a Checking message with the call reference of the SETUP message of step 1.

Expect a STATUS message, cause = 98, 97 or 30; ensure the call state given (in octet 3 of the call state information element) is state 10 (Active).

Postamble: Layer 3 of both connections should be cleared down to the Null state with a RELEASE/RELEASE COMPLETE sequence.

Refer to: ETS 300 102-1 [2], subclause 5.2.5.1.

Section 3: Calling user terminal tests

9 Null state tests, state 0

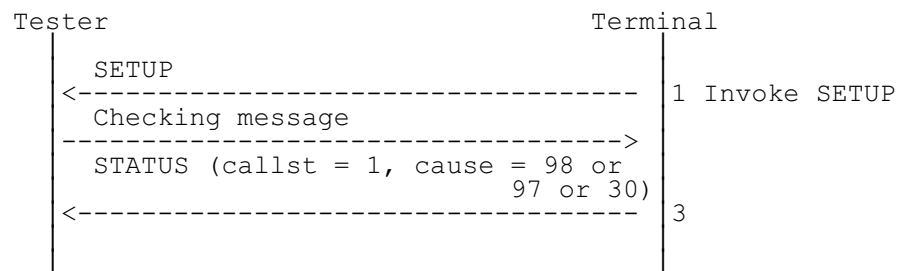
In addition to the test below, the tests of subclause 2.1 to subclause 2.5 are applicable.

9.1 SETUP Message from Terminal

Purpose: Ensures terminal transmits a valid SETUP message and enters the Call Initiated state (state 1).

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Invoke a SETUP message from the terminal, (refer to preliminary notes).

Result Checking:

Transmit a Checking message.

Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 97 (message type non-existent or not implemented) or 30 (response to STATUS ENQUIRY); ensure the call state given (in octet 3 of the call state information element) is state 1 (Call Initiated).

Postamble: Layer 3 should be cleared down to the Null state with a RELEASE/RELEASE COMPLETE sequence.

Refer to: ETS 300 102-1 [2], subclause 5.1.1, subclause 5.1.2, subclause 5.1.3.

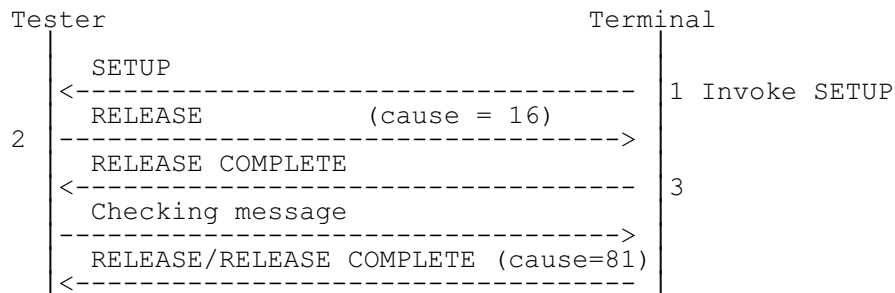
10 Call initiated state tests, state 1

10.1 Receipt of a RELEASE message

Purpose: Ensures on receipt of a RELEASE message the terminal responds with a RELEASE COMPLETE message and enters the Null state.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Invoke a SETUP message from terminal, (refer to preliminary notes).
- 2) Transmit a RELEASE message, cause = 16 (normal clearing).
- 3) Expect a RELEASE COMPLETE message.

Result Checking:

Transmit a Checking message.

Expect a RELEASE or a RELEASE COMPLETE message, cause = 81 (invalid call reference) indicating that the terminal has cleared down to the Null state (see Preliminary Note 10).

Postamble: If a RELEASE message has been received, transmit a RELEASE COMPLETE message.

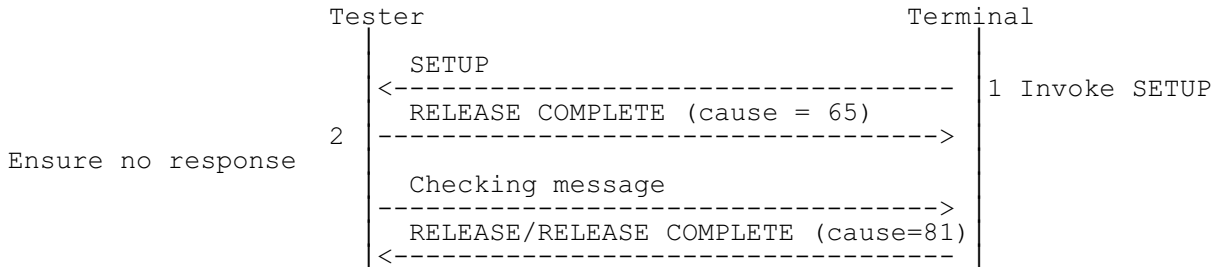
Refer to: ETS 300 102-1 [2], subclause 5.3.2.

10.2 Receipt of a RELEASE COMPLETE message

Purpose: Ensures on receipt of a RELEASE COMPLETE message the terminal makes no response but returns to the Null state.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Invoke a SETUP message from terminal, (refer to preliminary notes).
- 2) Transmit a RELEASE COMPLETE message, cause = 65 (bearer service not implemented), ensure no response.

Result Checking:

Transmit a Checking message.

Expect a RELEASE or a RELEASE COMPLETE message, cause = 81 (invalid call reference) indicating that the terminal has correctly returned to the Null state (see Preliminary Note 10).

Postamble: If a RELEASE message has been received, transmit a RELEASE COMPLETE message.

Refer to: ETS 300 102-1 [2], subclause 5.8.4.

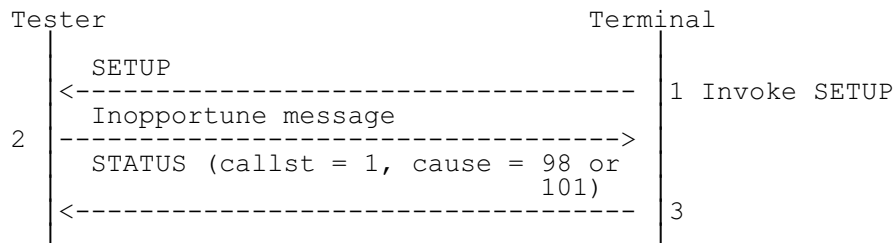
10.3 Receipt of an "erroneous" message

10.3.1 Receipt of an inopportune message

Purpose: Ensures the terminal responds to an inopportune message with a STATUS message and that no change of state occurs.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Invoke a SETUP message from terminal, (refer to preliminary notes).
- 2) Transmit an inopportune message (refer to Preliminary Note 1).
- 3) Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 101 (message not compatible with call state) ;ensure the call state given (in octet 3 of the call state information element) is state 1 (Call Initiated).

Postamble: Layer 3 should be cleared down to the Null state with a RELEASE/RELEASE COMPLETE sequence.

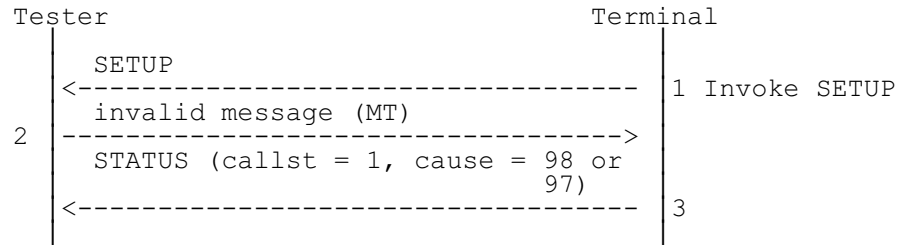
Refer to: ETS 300 102-1 [2], subclause 5.8.4.

10.3.2 Receipt of a syntactically invalid message (unrecognized message type)

Purpose: Ensures the terminal responds to a message having an invalid message type with a STATUS message and that no change of state occurs.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Invoke a SETUP message from terminal, (refer to preliminary notes).
- 2) Transmit a message having an invalid message type.
- 3) Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 97 (message type non-existent or not implemented) ;ensure the call state given (in octet 3 of the call state information element) is state 1 (Call Initiated).

Postamble: Layer 3 should be cleared down to the Null state with a RELEASE/RELEASE COMPLETE sequence.

Refer to: ETS 300 102-1 [2], subclause 5.8.4.

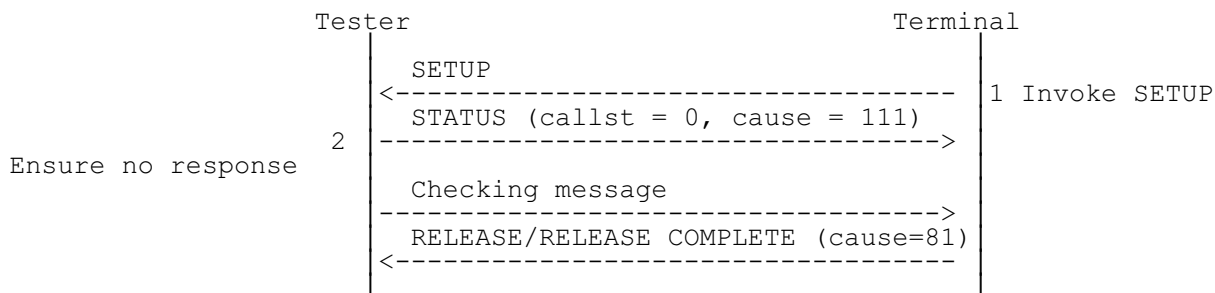
10.4 Receipt of a STATUS message

10.4.1 Indicating the Null state

Purpose: Ensures that on receipt of a STATUS message specifying the Null state, the terminal moves into the Null state.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Invoke a SETUP message from the terminal, (refer to preliminary notes).
- 2) Transmit a STATUS message, call state = 0 (Null state), cause = 111 (protocol error, unspecified); ensure no response to this message.

Result Checking:

Transmit a Checking message.

Expect a RELEASE or a RELEASE COMPLETE message, cause = 81 (invalid call reference) indicating that the terminal has correctly returned to the Null state (see Preliminary Note 10).

Postamble: if a RELEASE message has been received, transmit a RELEASE COMPLETE.

Refer to: ETS 300 102-1 [2], subclause 5.8.11.

10.4.2 Indicating a compatible call state

NOTE: The actions to be taken on receipt of a STATUS message with compatible call state are implementation dependent. No test is specified in this ETS.

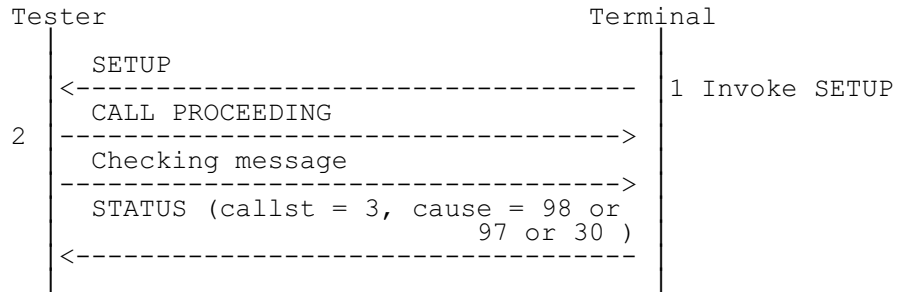
Refer to: ETS 300 102-1 [2], subclause 5.8.11.

10.5 Receipt of a CALL PROCEEDING message

Purpose: Ensures that on receipt of a CALL PROCEEDING message the terminal enters the Outgoing CALL PROCEEDING state.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Invoke a SETUP message from the terminal, (refer to preliminary notes).
- 2) Transmit a CALL PROCEEDING message.

Result Checking:

Transmit a Checking message.

Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 97 (message type non-existent or not implemented) or 30 (response to STATUS ENQUIRY); ensure the call state given (in octet 3 of the call state information element) is state 3 (Outgoing Call Proceeding).

Postamble: Layer 3 should be cleared down to the Null state with a RELEASE/RELEASE COMPLETE sequence.

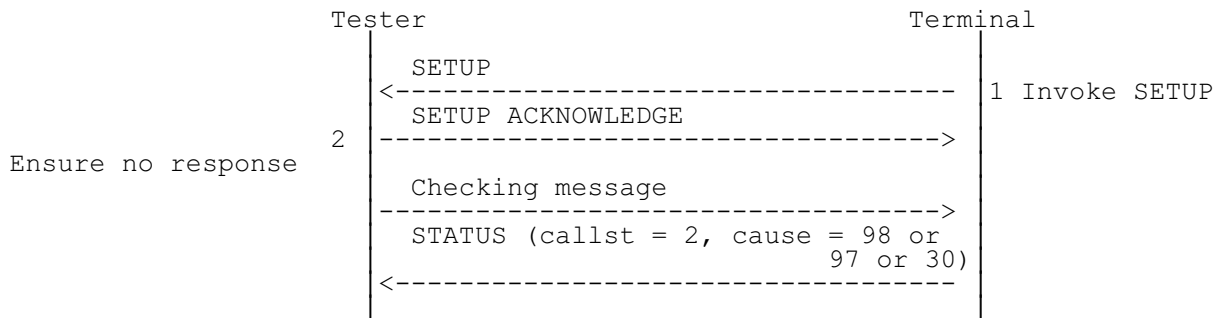
Refer to: ETS 300 102-1 [2], subclause 5.1.5.1, subclause 5.1.5.2.

10.6 Receipt of a SETUP ACKNOWLEDGE message

Purpose: Ensures on receipt of a SETUP ACKNOWLEDGE message the terminal enters the Overlap Sending state.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Invoke a SETUP message from the terminal, (refer to preliminary notes).
- 2) Transmit a SETUP ACKNOWLEDGE message, channel identification (B-channel specified which is acceptable to the terminal); ensure no response to this message.

Result Checking:

Transmit a Checking message.

Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 97 (message type non-existent or not implemented) or 30 (response to STATUS ENQUIRY); ensure the call state given (in octet 3 of the call state information element) is state 2 (Overlap sending).

Postamble: Layer 3 should be cleared down to the Null state with a RELEASE/RELEASE COMPLETE sequence.

Refer to: ETS 300 102-1 [2], subclause 5.1.1, subclause 5.1.2, subclause 5.1.3.

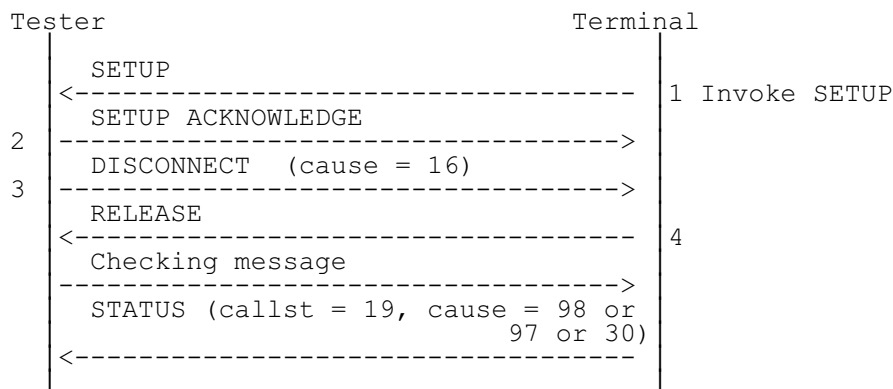
11 Overlap sending state tests, state 2

11.1 Receipt of a DISCONNECT message

Purpose: Ensures on receipt of a DISCONNECT message the terminal moves into the Disconnect Indication state.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Invoke a SETUP message from the terminal, (refer to preliminary notes).
- 2) Transmit a SETUP ACKNOWLEDGE message, channel identification (B-channel specified which is acceptable to the terminal).
- 3) Transmit a DISCONNECT message, cause = 16 (normal clearing).
- 4) Expect a RELEASE message.

Result Checking:

Transmit a Checking message.

Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 97 (message type non-existent or not implemented) or 30 (response to STATUS ENQUIRY); ensure the call state given (in octet 3 of the call state information element) is state 19 (Release Request).

Postamble: Layer 3 should be cleared down to the Null state by sending a RELEASE COMPLETE message from the tester to the terminal

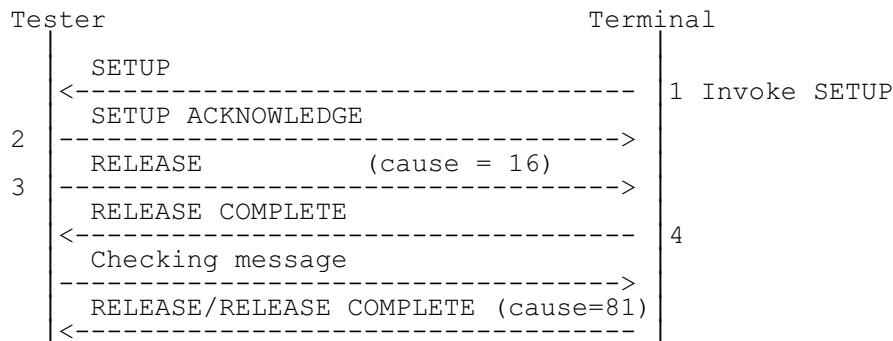
Refer to: ETS 300 102-1 [2], subclause 5.3.4.

11.2 Receipt of a RELEASE message

Purpose: Ensures on receipt of a RELEASE message the terminal responds with a RELEASE COMPLETE message and enters the Null state.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Invoke a SETUP message from the terminal, (refer to preliminary notes).
- 2) Transmit a SETUP ACKNOWLEDGE message, channel identification (B-channel specified which is acceptable to the terminal).
- 3) Transmit a RELEASE message, cause = 16 (normal clearing).
- 4) Expect a RELEASE COMPLETE message.

Result Checking:

Transmit a Checking message.

Expect a RELEASE or a RELEASE COMPLETE message, cause = 81 (invalid call reference) indicating that the terminal has cleared down to the Null state (see Preliminary Note 10).

Postamble: If a RELEASE message has been received, transmit a RELEASE COMPLETE message.

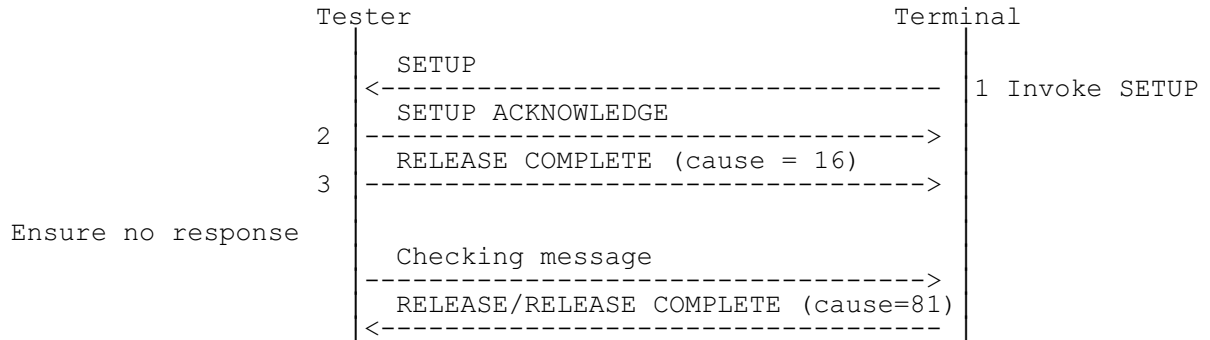
Refer to: ETS 300 102-1 [2], subclause 5.3.2.

11.3 Receipt of a RELEASE COMPLETE message

Purpose: Ensures that on receipt of a RELEASE COMPLETE message the terminal makes no response but returns to the Null state.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Invoke a SETUP message from the terminal, (refer to preliminary notes).
- 2) Transmit a SETUP ACKNOWLEDGE message, channel identification (B-channel specified which is acceptable to the terminal).
- 3) Transmit a RELEASE COMPLETE message, cause = 16 (normal clearing); ensure no response to this message.

Result Checking:

Transmit a Checking message.

Expect a RELEASE or a RELEASE COMPLETE message, cause = 81 (invalid call reference) indicating that the terminal has correctly returned to the Null state (see Preliminary Note 10).

Postamble: If a RELEASE message has been received, transmit a RELEASE COMPLETE message.

Refer to: ETS 300 102-1 [2], subclause 5.8.4.

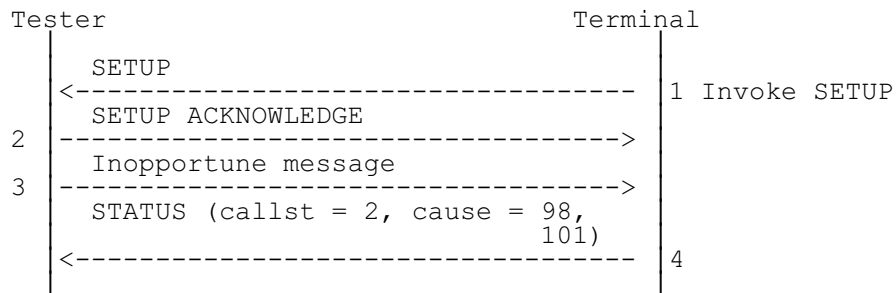
11.4 Receipt of an "erroneous" message

11.4.1 Receipt of an inopportune message

Purpose: Ensures the terminal responds to an inopportune message with a STATUS message and that no change of state occurs.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Invoke a SETUP message from the terminal, (refer to preliminary notes).
- 2) Transmit a SETUP ACKNOWLEDGE message, channel identification (B-channel specified which is acceptable to the terminal).
- 3) Transmit an inopportune message (refer to Preliminary Note 1).
- 4) Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 101 (message not compatible with call state) ;ensure the call state given (in octet 3 of the call state information element) is state 2 (Overlap Sending).

Postamble: Layer 3 should be cleared down to the Null state with a RELEASE/RELEASE COMPLETE sequence.

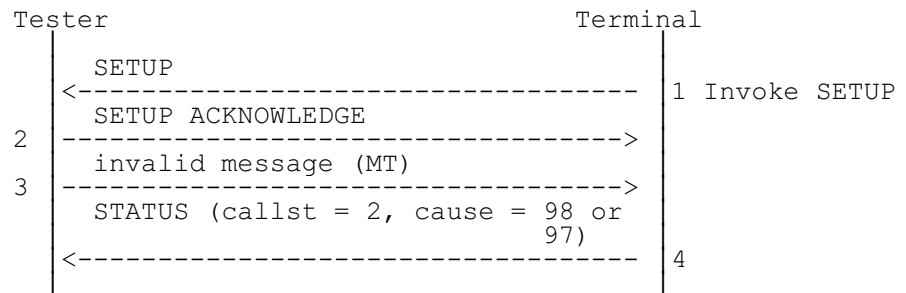
Refer to: ETS 300 102-1 [2], subclause 5.8.4.

11.4.2 Receipt of a syntactically invalid message (unrecognized message type)

Purpose: Ensures the terminal responds to a message having an invalid message type with a STATUS message and that no change of state occurs.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Invoke a SETUP message from terminal, (refer to preliminary notes).
- 2) Transmit a SETUP ACKNOWLEDGE message, channel identification (B-channel specified which is acceptable to the terminal).
- 3) Transmit a message having an invalid message type ;
- 4) Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 97 (message type non-existent or not implemented); ensure the call state given (in octet 3 of the call state information element) is state 2 (Overlap sending).

Postamble: Layer 3 should be cleared down to the Null state with a RELEASE/RELEASE COMPLETE sequence.

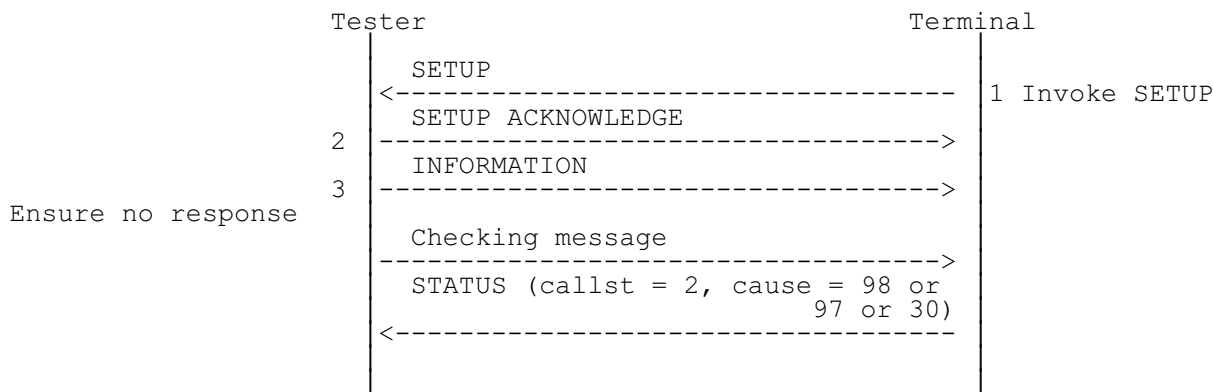
Refer to: ETS 300 102-1 [2], subclause 5.8.4.

11.5 Receipt of an INFORMATION message

Purpose: Ensures that on receipt of an INFORMATION message the terminal makes no response and remains in the same state.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Invoke a SETUP message from the terminal, (refer to preliminary notes).
- 2) Transmit a SETUP ACKNOWLEDGE message, channel identification (B-channel specified which is acceptable to the terminal).
- 6) Transmit a valid INFORMATION message containing a Display information element; ensure no response to this message.

Result Checking:

Transmit a Checking message.

Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 97 (message type non-existent or not implemented) or 30 (response to STATUS ENQUIRY); ensure the call state given (in octet 3 of the call state information element) is state 2 (Overlap Sending).

Postamble: Layer 3 should be cleared down to the Null state with a RELEASE/RELEASE COMPLETE sequence.

Refer to: ETS 300 102-1 [2], subclause 5, subclause 5.2.4.

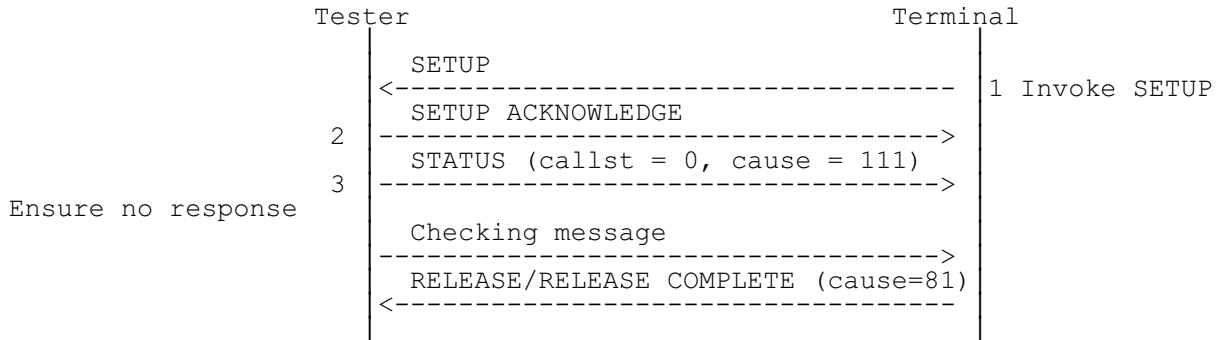
11.6 Receipt of a STATUS message

11.6.1 Indicating the Null state

Purpose: Ensures that on receipt of a STATUS message specifying the Null state, the terminal moves into the Null state.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Invoke a SETUP message from the terminal, (refer to preliminary notes).
- 2) Transmit a SETUP ACKNOWLEDGE message, channel identification (B-channel specified which is acceptable to the terminal).
- 3) Transmit a STATUS message, call state = 0 (Null state), cause = 111 (protocol error, unspecified); ensure no response to this message.

Result Checking:

Transmit a Checking message.

Expect a RELEASE or a RELEASE COMPLETE message, cause = 81 (invalid call reference) indicating that the terminal has correctly returned to the Null state (see Preliminary Note 10).

Postamble: if a RELEASE message has been received, transmit a RELEASE COMPLETE.

Refer to: ETS 300 102-1 [2], subclause 5.8.11.

11.6.2 Indicating a compatible call state

NOTE: The actions to be taken on receipt of a STATUS message with compatible call state are implementation dependent. No test is specified in this ETS.

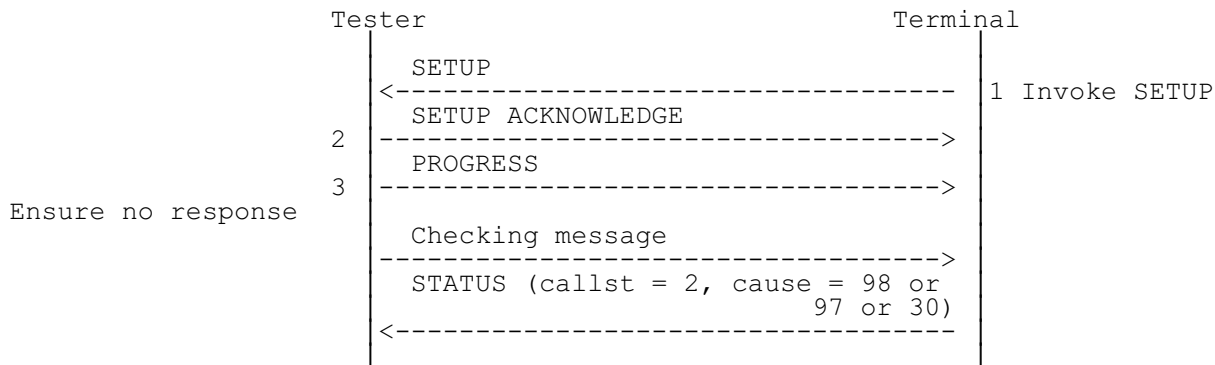
Refer to: ETS 300 102-1 [2], subclause 5.8.11.

11.7 Receipt of a PROGRESS message

Purpose: Ensures that on receipt of a PROGRESS message the terminal makes no response and remains in the same state.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Invoke a SETUP message from the terminal, (refer to preliminary notes).
- 2) Transmit a SETUP ACKNOWLEDGE message, channel identification (B-channel specified which is acceptable to the terminal).
- 3) Transmit a PROGRESS message, ensure no response to this message.

Result Checking:

Transmit a Checking message.

Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 97 (message type non-existent or not implemented) or 30 (response to STATUS ENQUIRY); ensure the call state given (in octet 3 of the call state information element) is state 2 (Overlap Sending).

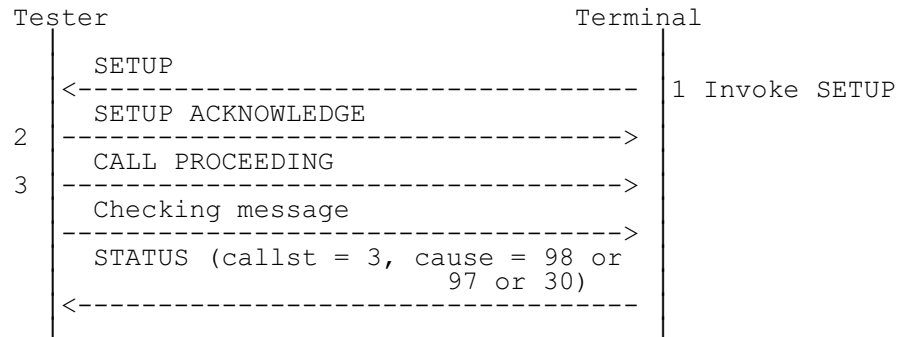
Postamble: Layer 3 should be cleared down to the Null state with a RELEASE/RELEASE COMPLETE sequence.

Refer to: ETS 300 102-1 [2], subclause 5.1.6.

11.8 Receipt of a CALL PROCEEDING message

Purpose: Ensures on receipt of a CALL PROCEEDING message the terminal enters the Outgoing CALL PROCEEDING state (state 3).

Test case sequence:



Test description:

- 1) Invoke a SETUP message from terminal, (refer to preliminary notes).
- 2) Transmit a SETUP ACKNOWLEDGE message, channel identification (B-channel specified which is acceptable to the terminal).
- 3) Transmit a CALL PROCEEDING message.

Result Checking:

Transmit a Checking message.

Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 97 (message type non-existent or not implemented) or 30 (response to STATUS ENQUIRY); ensure the call state given (in octet 3 of the call state information element) is state 3 (Outgoing call proceeding).

Postamble: Layer 3 should be cleared down to the Null state with a RELEASE/RELEASE COMPLETE sequence.

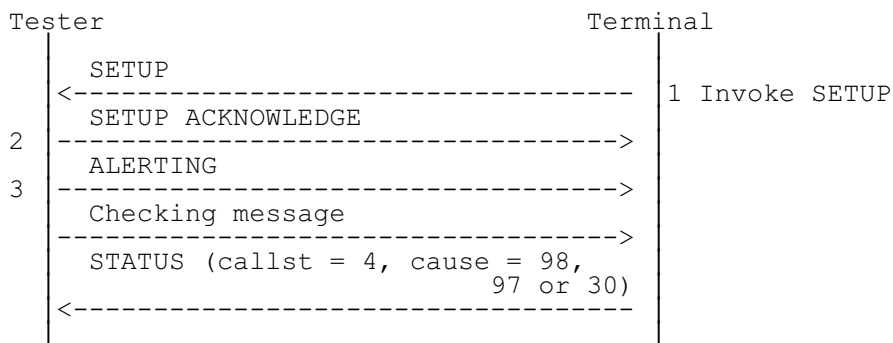
Refer to: ETS 300 102-1 [2], subclause 5.1.5.2.

11.9 Receipt of an ALERTING message

Purpose: Ensures on receipt of an ALERTING message the terminal enters the Call Delivered state.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Invoke a SETUP message from terminal, (refer to preliminary notes).
- 2) Transmit a SETUP ACKNOWLEDGE message, channel identification (B-channel specified which is acceptable to the terminal).
- 3) Transmit an ALERTING message.

Result Checking:

Transmit a Checking message.

Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 97 (message type non-existent or not implemented) or 30 (response to STATUS ENQUIRY); ensure the call state given (in octet 3 of the call state information element) is state 4 (Call Delivered).

Postamble: Layer 3 should be cleared down to the Null state with a RELEASE/RELEASE COMPLETE sequence.

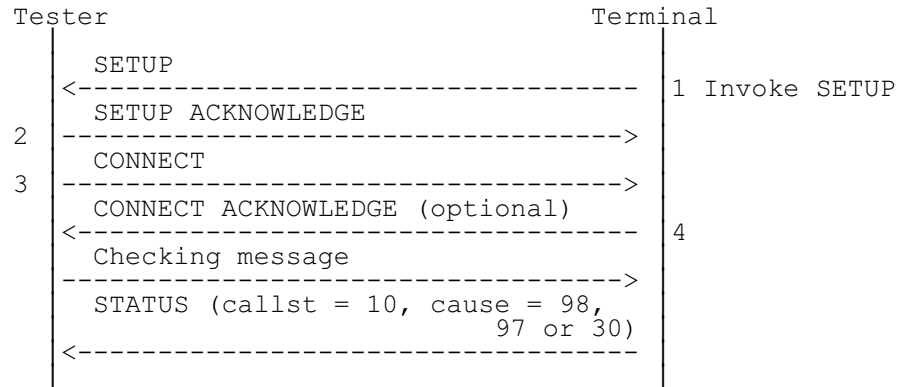
Refer to: ETS 300 102-1 [2], subclause 5.1.5.2, subclause 5.1.7.

11.10 Receipt of a CONNECT message

Purpose: Ensures on receipt of a CONNECT message the terminal enters the Active state (a CONNECT ACKNOWLEDGE response from the terminal is optional).

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Invoke a SETUP message from terminal, (refer to preliminary notes).
- 2) Transmit a SETUP ACKNOWLEDGE message, channel identification (B-channel specified which is acceptable to the terminal).
- 3) Transmit a CONNECT message.
- 4) The terminal may optionally respond with a CONNECT ACKNOWLEDGE message (the test should not be failed if this is not received). If sent, the CONNECT ACKNOWLEDGE message may be received by the Tester after the Checking message has been sent.

Result Checking:

Transmit a Checking message.

Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 97 (message type non-existent or not implemented) or 30 (response to STATUS ENQUIRY); ensure the call state given (in octet 3 of the call state information element) is state state 10 (Active).

Postamble: Layer 3 should be cleared down to the Null state with a RELEASE/RELEASE COMPLETE sequence.

Refer to: ETS 300 102-1 [2], subclause 5.1.8.

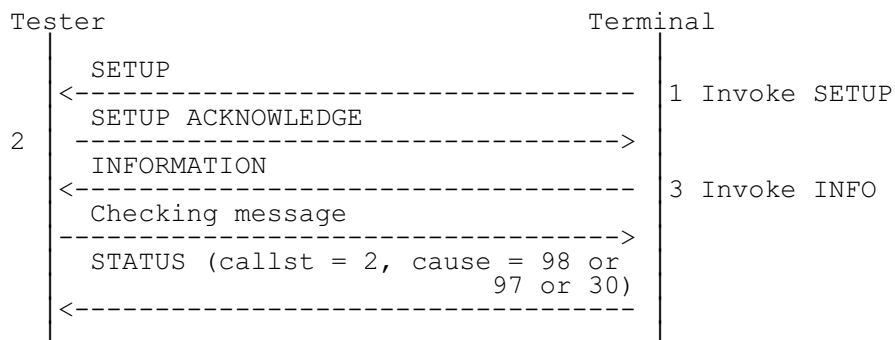
11.11 INFORMATION message from the terminal

Purpose: Ensures the terminal transmits an INFORMATION message when prompted and remains in the same state.

NOTE: The capability of transmitting an INFORMATION message is optional. Hence this test shall only be performed if (as declared by the apparatus supplier) the terminal has the capability to send INFORMATION messages.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Invoke a SETUP message from the terminal, (refer to preliminary notes).
- 2) Transmit a SETUP ACKNOWLEDGE message, channel identification (B-channel specified which is acceptable to the terminal).
- 3) Invoke an INFORMATION message from the terminal (see NOTE above).

Result Checking:

Transmit a Checking message.

Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 97 (message type non-existent or not implemented) or 30 (response to STATUS ENQUIRY); ensure the call state given (in octet 3 of the call state information element) is state 2 (Overlap Sending).

Postamble: Layer 3 should be cleared down to the Null state with a RELEASE/RELEASE COMPLETE sequence.

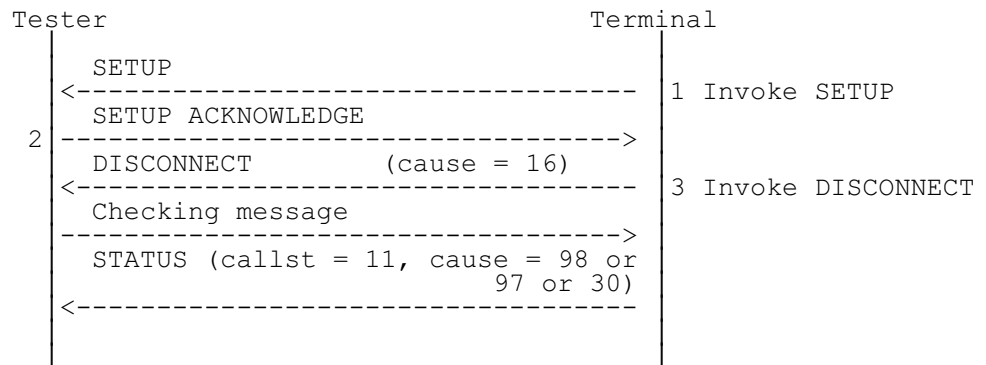
Refer to: ETS 300 102-1 [2], subclause 5, subclause 5.1.3.

11.12 DISCONNECT message from the terminal

Purpose: Ensures the terminal transmits a DISCONNECT message and enters the Disconnect request state on initiation of call clearing by the terminal.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Invoke a SETUP message from the terminal, (refer to preliminary notes).
- 2) Transmit a SETUP ACKNOWLEDGE message, channel identification (B-channel specified which is acceptable to the terminal).
- 3) Invoke a DISCONNECT message from the terminal, cause = 16 (normal clearing).

Result Checking:

Transmit a Checking message.

Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 97 (message type non-existent or not implemented) or 30 (response to STATUS ENQUIRY); ensure the call state given (in octet 3 of the call state information element) is state 11 (Disconnect Request).

Postamble: Layer 3 should be cleared down to the Null state with a RELEASE/RELEASE COMPLETE sequence.

Refer to: ETS 300 102-1 [2], subclause 5.3.3.

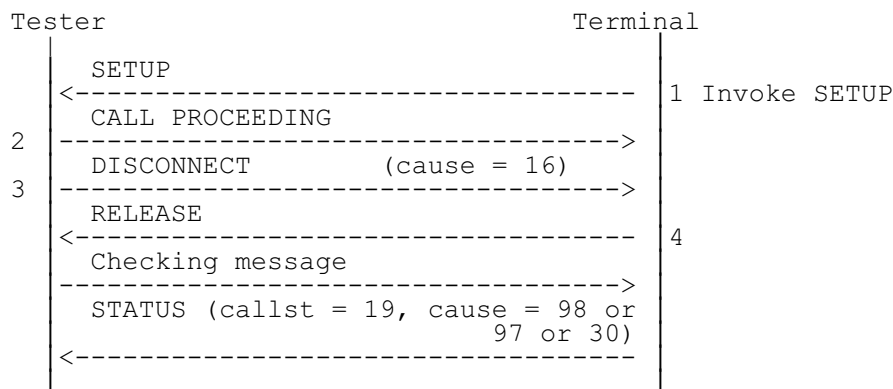
12 Outgoing call proceeding state tests, state 3

12.1 Receipt of a DISCONNECT message

Purpose: Ensures on receipt of a DISCONNECT message the terminal enters the Release Request state.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Invoke a SETUP message from terminal, (refer to preliminary notes).
- 2) Transmit a CALL PROCEEDING message with channel identification (B-Channel specified which is acceptable to the terminal).
- 3) Transmit a DISCONNECT message, cause = 16 (normal clearing).
- 4) Expect a RELEASE message from the terminal.

Result Checking:

Transmit a Checking message.

Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 97 (message type non-existent or not implemented) or 30 (response to STATUS ENQUIRY); ensure the call state given (in octet 3 of the call state information element) is state 19 (Release Request).

Postamble: Layer 3 should be cleared down to the Null state by sending a RELEASE COMPLETE message from the tester to the terminal.

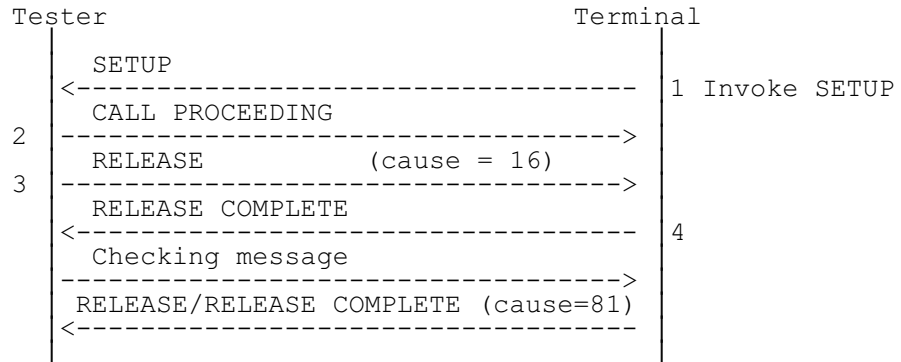
Refer to: ETS 300 102-1 [2], subclause 5.3.4.

12.2 Receipt of a RELEASE message

Purpose: Ensures on receipt of a RELEASE message the terminal responds with a RELEASE COMPLETE message and enters the Null state.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Invoke a SETUP message from terminal, (refer to preliminary notes).
- 2) Transmit a CALL PROCEEDING message with channel identification (B-Channel specified which is acceptable to the terminal).
- 3) Transmit a RELEASE message, cause = 16 (normal clearing).
- 4) Expect a RELEASE COMPLETE message from terminal.

Result Checking:

Transmit a Checking message.

Expect a RELEASE message, cause = 81 (invalid call reference value) indicating that the terminal has entered the Null state (see Preliminary Note 10).

Postamble: If a RELEASE message has been received, transmit a RELEASE COMPLETE message to the terminal.

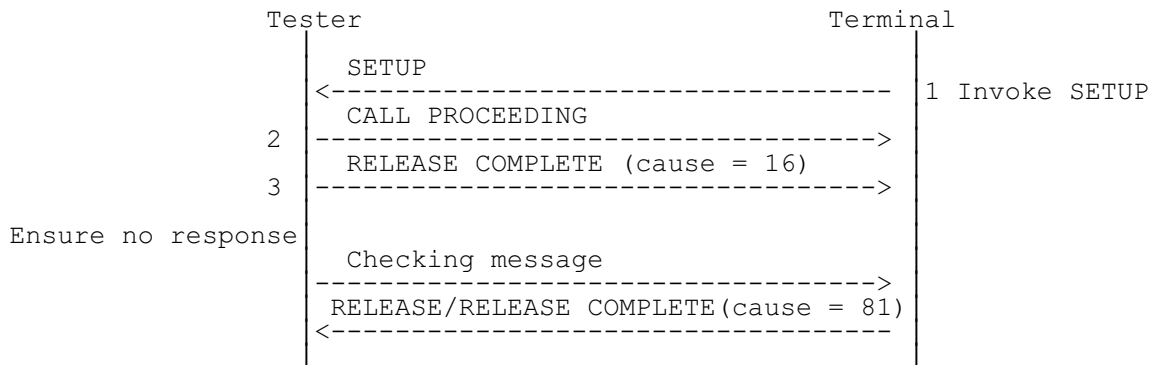
Refer to: ETS 300 102-1 [2], subclause 5.3.4.

12.3 Receipt of a RELEASE COMPLETE message

Purpose: Ensures on receipt of a RELEASE COMPLETE message the terminal makes no response but returns to the Null state.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Invoke a SETUP message from terminal, (refer to preliminary notes).
- 2) Transmit a CALL PROCEEDING message with channel identification (B-Channel specified which is acceptable to the terminal).
- 3) Transmit a RELEASE COMPLETE message, cause = 16 (normal clearing); ensure no response to this message.

Result Checking:

Transmit a Checking message.

Expect a RELEASE message, cause = 81 (invalid call reference value) indicating that the terminal has correctly cleared down to the Null state (see Preliminary Note 10).

Postamble: If a RELEASE message has been received, transmit a RELEASE COMPLETE message to the terminal.

Refer to: ETS 300 102-1 [2], subclause 5.8.4.

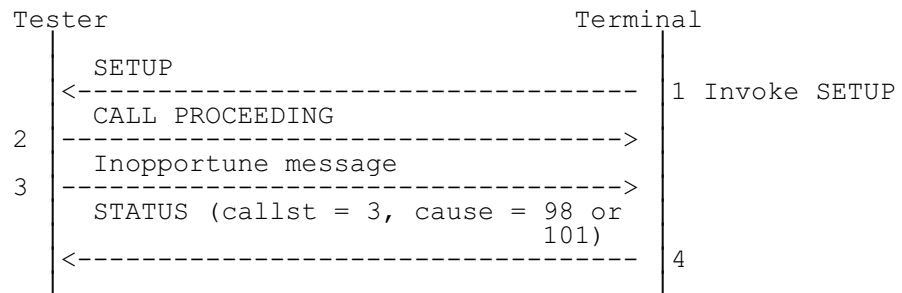
12.4 Receipt of an "erroneous" message

12.4.1 Receipt of an inopportune message

Purpose: Ensures the terminal responds to an inopportune message with a STATUS message and that no change of state occurs.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Invoke a SETUP message from terminal, (refer to preliminary notes).
- 2) Transmit a CALL PROCEEDING message with channel identification (B-Channel specified which is acceptable to the terminal).
- 3) Transmit an inopportune message (refer to Preliminary Note 1).
- 4) Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 101 (message not compatible with call state); ensure call state given (in octet 3 of the call state information element) is state 3 (Outgoing Call Proceeding).

Postamble: Layer 3 should be cleared down to the Null state with a RELEASE/RELEASE COMPLETE sequence.

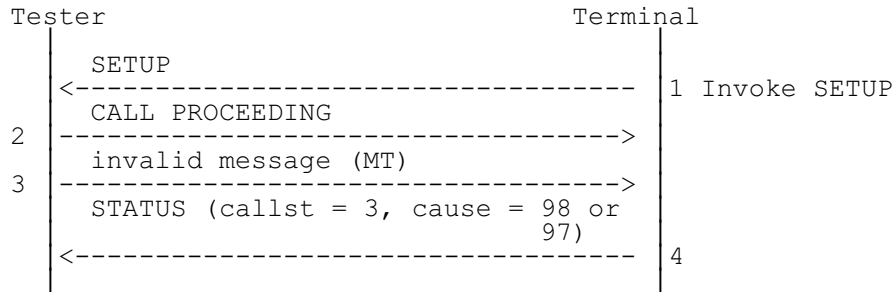
Refer to: ETS 300 102-1 [2], subclause 5.8.4.

12.4.2 Receipt of a syntactically invalid message (unrecognized message type)

Purpose: Ensures the terminal responds to a message having an invalid message type with a STATUS message and that no change of state occurs.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Invoke a SETUP message from terminal, (refer to preliminary notes).
- 2) Transmit a CALL PROCEEDING message with channel identification (B-Channel specified which is acceptable to the terminal).
- 3) Transmit a message having an invalid message type.
- 4) Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 97 (message type non-existent or not implemented); ensure terminal call state given (in octet 3 of the call state information element) is state 3 (Outgoing Call Proceeding).

Postamble: Layer 3 should be cleared down to the Null state with a RELEASE/RELEASE COMPLETE sequence.

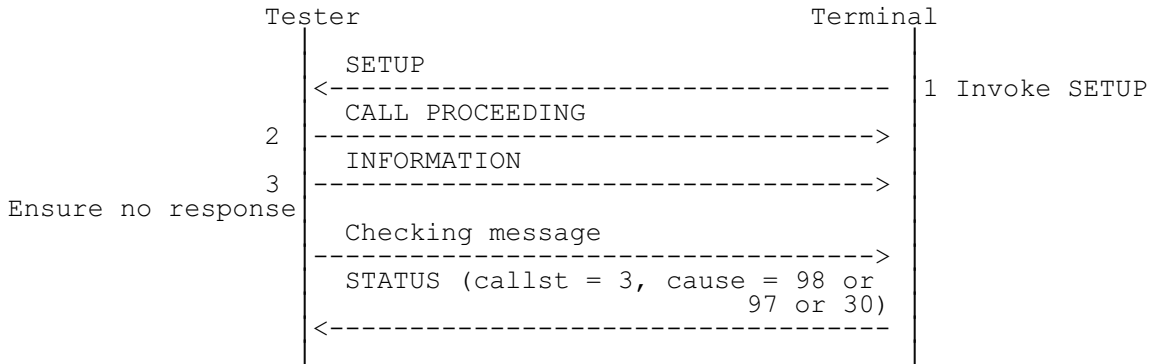
Refer to: ETS 300 102-1 [2], subclause 5.8.4.

12.5 Receipt of an INFORMATION message

Purpose: Ensures the terminal accepts an INFORMATION message and that no response is received or change of state occurs.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Invoke a SETUP message from terminal, (refer to preliminary notes).
- 2) Transmit a CALL PROCEEDING message with channel identification (B-Channel specified which is acceptable to the terminal).
- 3) Transmit a valid INFORMATION message containing a Display information element; ensure no response to this message.

Result Checking:

Transmit a Checking message.

Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 97 (message type non-existent or not implemented) or 30 (response to STATUS ENQUIRY); ensure the call state given (in octet 3 of the call state information element) is state 3 (Outgoing Call Proceeding).

Postamble: Layer 3 should be cleared down to the Null state with a RELEASE/RELEASE COMPLETE sequence.

Refer to: ETS 300 102-1 [2], subclause 5, subclause 5.2.4.

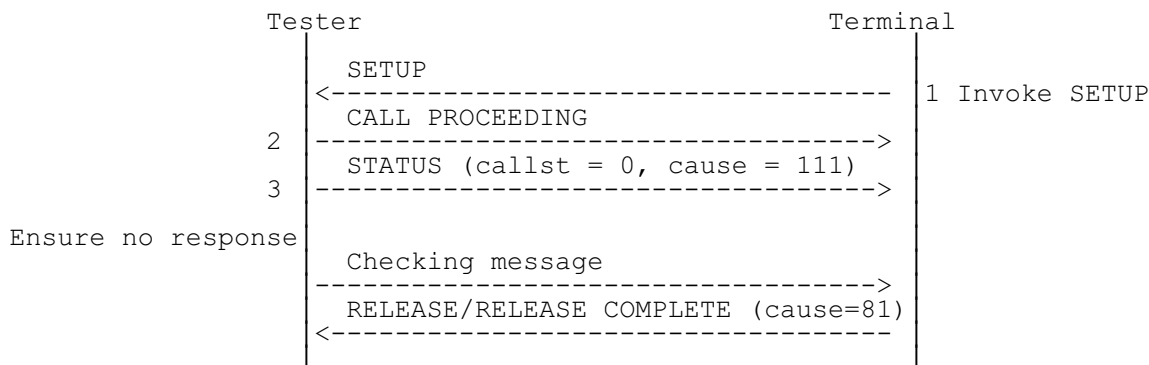
12.6 Receipt of a STATUS message

12.6.1 Indicating the Null state

Purpose: Ensures that on receipt of a STATUS message specifying the NULL state, the terminal moves into the Null state.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Invoke a SETUP message from terminal (refer to preliminary notes).
- 2) Transmit a CALL PROCEEDING message with channel identification (B-Channel specified which is acceptable to the terminal).
- 3) Transmit a STATUS message, call state = 0 (Null), cause = 111 (protocol error, unspecified); ensure no response.

Result Checking:

Transmit a Checking message.

Expect a RELEASE or a RELEASE COMPLETE message, cause = 81 (invalid call reference) indicating that the terminal has correctly returned to the Null state (see Preliminary Note 10).

Postamble: If a RELEASE message has been received, transmit a RELEASE COMPLETE message.

Refer to: ETS 300 102-1 [2], subclause 5.8.11.

12.6.2 Indicating a compatible call state

NOTE: The actions to be taken on receipt of a STATUS message with a compatible call state are implementation dependent. No test is specified in this ETS.

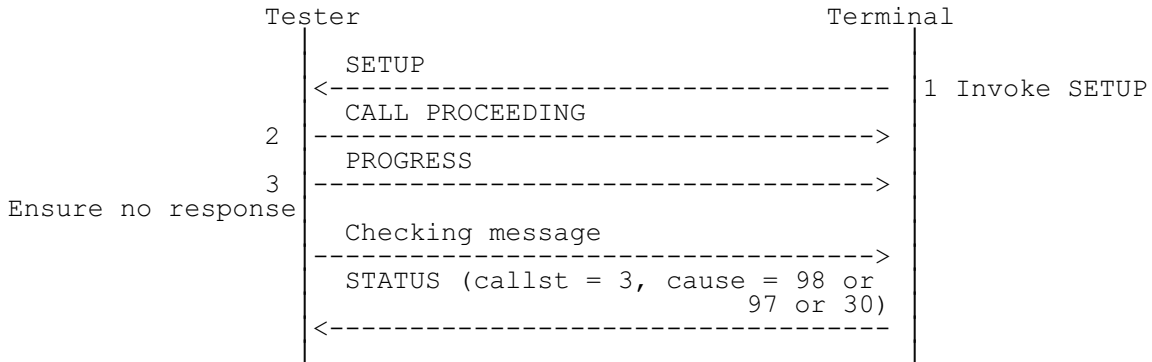
Refer to: ETS 300 102-1 [2], subclause 5.8.11.

12.7 Receipt of a PROGRESS message

Purpose: Ensures that on receipt of a PROGRESS message the terminal makes no response and remains in the same state.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Invoke a SETUP message from terminal (refer to preliminary notes).
- 2) Transmit a CALL PROCEEDING message with channel identification (B-Channel specified which is acceptable to the terminal).
- 3) Transmit a PROGRESS message; ensure no response to this message.

Result Checking:

Transmit a Checking message.

Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 97 (message type non-existent or not implemented) or 30 (response to STATUS ENQUIRY); ensure the call state given (in octet 3 of the call state information element) is state 3 (Outgoing Call Proceeding).

Postamble: Layer 3 should be cleared down to the Null state with a RELEASE/RELEASE COMPLETE sequence.

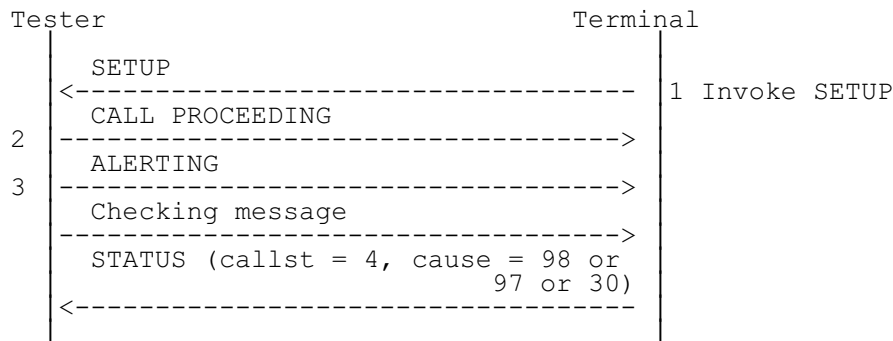
Refer to: ETS 300 102-1 [2], subclause 5.1.6.

12.8 Receipt of an ALERTING message

Purpose: Ensures on receipt of an ALERTING message the terminal enters the Call Delivered state.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:-

- 1) Invoke a SETUP message from terminal (refer to preliminary notes).
- 2) Transmit a CALL PROCEEDING message with channel identification (B channel specified which is acceptable to the terminal).
- 3) Transmit an ALERTING message.

Result Checking:

Transmit a Checking message.

Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 97 (message type non-existent or not implemented) or 30 (response to STATUS ENQUIRY); ensure the call state given (in octet 3 of the call state information element) is state 4 (Call delivered).

Postamble: Layer 3 should be cleared down to the Null state with a RELEASE/RELEASE COMPLETE sequence.

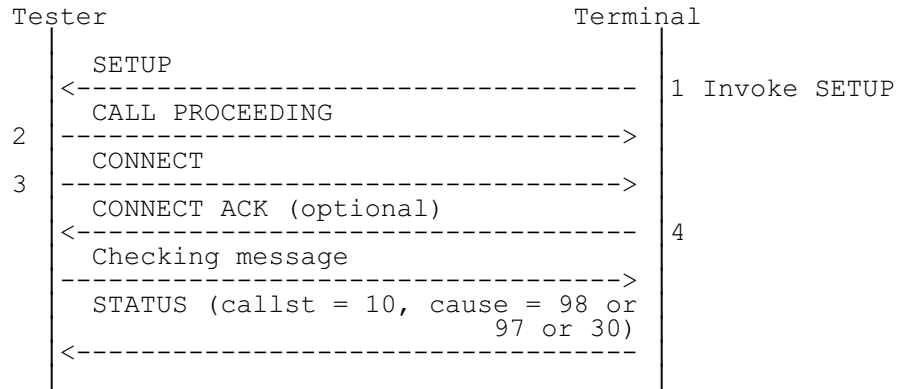
Refer to: ETS 300 102-1 [2], subclause 5.1.7.

12.9 Receipt of a CONNECT message

Purpose: Ensures on receipt of a CONNECT message the terminal enters the Active state (a CONNECT ACKNOWLEDGE response from the terminal is optional).

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Invoke a SETUP message from terminal (refer to preliminary notes).
- 2) Transmit a CALL PROCEEDING message with channel identification (B-Channel specified which is acceptable to the terminal).
- 3) Transmit a CONNECT message.
- 4) The terminal may optionally respond with a CONNECT ACKNOWLEDGE message (the test should not be failed if this is not received). If sent, the CONNECT ACKNOWLEDGE message may be received by the tester after the Checking message has been sent.

Result Checking:

Transmit a Checking message.

Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 97 (message type non-existent or not implemented) or 30 (response to STATUS ENQUIRY); ensure the call state given (in octet 3 of the call state information element) is state 10 (Active).

Postamble: Layer 3 should be cleared down to the Null state with a RELEASE/RELEASE COMPLETE sequence.

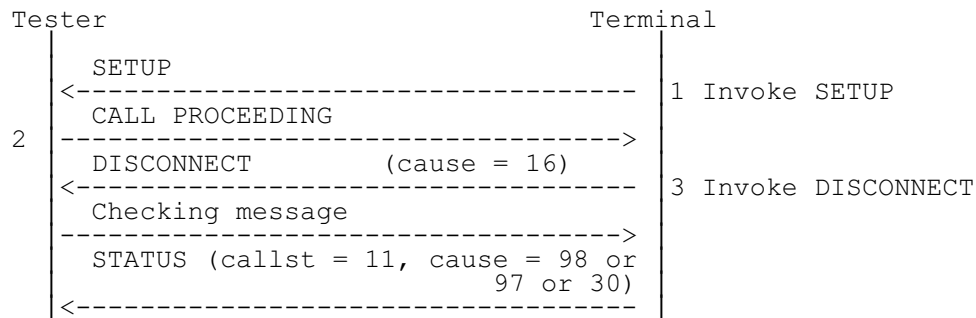
Refer to: ETS 300 102-1 [2], subclause 5.1.8.

12.10 DISCONNECT message from the terminal

Purpose: Ensures that when the terminal transmits a DISCONNECT message it enters the Disconnect Request state.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Invoke a SETUP message from terminal (refer to preliminary notes).
- 2) Transmit a CALL PROCEEDING message with channel identification (B-channel specified which is acceptable to the terminal).
- 3) Invoke a DISCONNECT message from the terminal with cause = 16 (normal clearing).

Result Checking:

Transmit a Checking message.

Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 97 (message type non-existent or not implemented) or 30 (response to STATUS ENQUIRY); ensure the call state given (in octet 3 of the call state information element) is state 11 (Disconnect Request).

Postamble: Layer 3 should be cleared down to the Null state with a RELEASE/RELEASE COMPLETE sequence.

Refer to: ETS 300 102-1 [2], subclause 5.3.3.

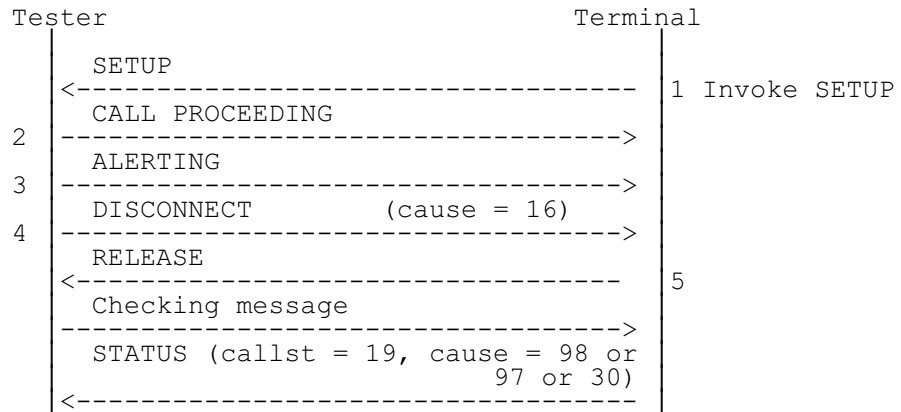
13 Call delivered state tests, state 4

13.1 Receipt of a DISCONNECT message

Purpose: Ensures on receipt of a DISCONNECT message the terminal responds with a RELEASE message and enters Release Request state.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Invoke a SETUP message from terminal (refer to preliminary notes).
- 2) Transmit a CALL PROCEEDING message with channel identification (B-channel specified which is acceptable to the terminal).
- 3) Transmit an ALERTING message.
- 4) Transmit a DISCONNECT message, cause = 16 (normal clearing).
- 5) Expect a RELEASE message.

Result Checking:

Transmit a Checking message.

Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 97 (message type non-existent or not implemented) or 30 (response to STATUS ENQUIRY); ensure the call state given (in octet 3 of the call state information element) is state 19 (Release Request).

Postamble: Layer 3 should be cleared down to the Null state by sending a RELEASE COMPLETE message from the tester to the terminal.

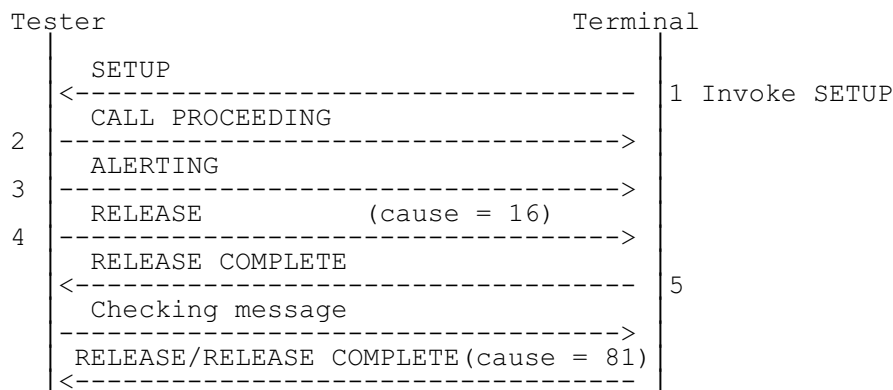
Refer to: ETS 300 102-1 [2], subclause 5.3.4.

13.2 Receipt of a RELEASE message

Purpose: Ensures on receipt of a RELEASE message the terminal responds with a RELEASE COMPLETE message and enters the Null state.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Invoke a SETUP message from terminal (refer to preliminary notes).
- 2) Transmit a CALL PROCEEDING message with channel identification (B-channel specified which is acceptable to the terminal).
- 3) Transmit an ALERTING message.
- 4) Transmit a RELEASE message, cause = 16 (normal clearing).
- 5) Expect a RELEASE COMPLETE message.

Result Checking:

Transmit a Checking message.

Expect a RELEASE message, cause = 81 (invalid call reference value) indicating that the terminal has correctly entered the Null state (see Preliminary Note 10).

Postamble: If a RELEASE message has been received, transmit a RELEASE COMPLETE message to the terminal.

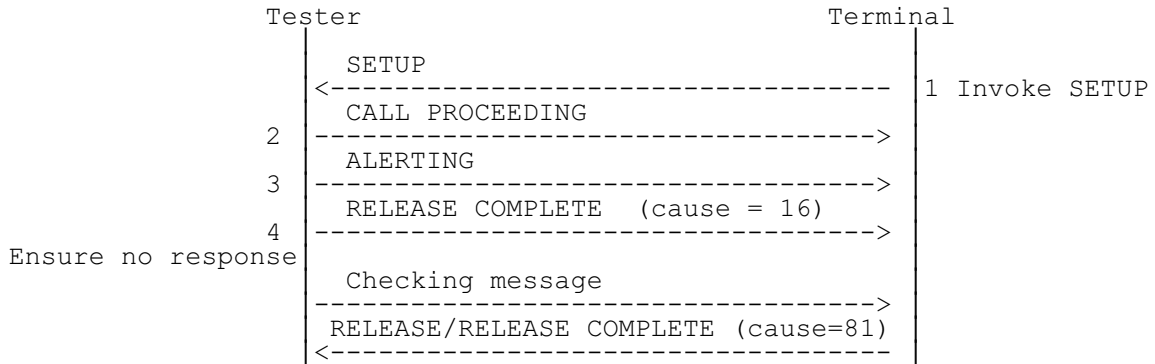
Refer to: ETS 300 102-1 [2], subclause 5.8.4.

13.3 Receipt of a RELEASE COMPLETE message

Purpose: Ensures that on receipt of a RELEASE COMPLETE message the terminal makes no response but returns to the Null state.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Invoke a SETUP message from terminal, (refer to preliminary notes).
- 2) Transmit a CALL PROCEEDING message with channel identification (B-channel specified which is acceptable to the terminal).
- 3) Transmit an ALERTING message.
- 4) Transmit a RELEASE COMPLETE message, cause = 16 (normal clearing).

Result Checking:

Transmit a Checking message.

Expect a RELEASE message, cause = 81 (invalid call reference value) indicating that the terminal has correctly returned to the Null state (see Preliminary Note 10).

Postamble: If a RELEASE message has been received, transmit a RELEASE COMPLETE message to the terminal.

Refer to: ETS 300 102-1 [2], subclause 5.8.4.

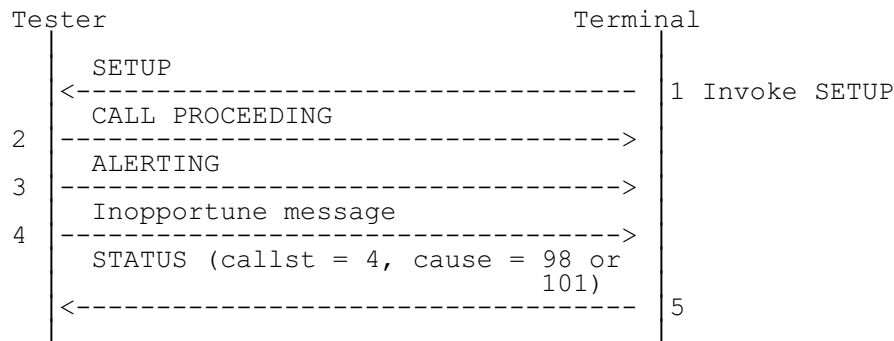
13.4 Receipt of an "erroneous" message

13.4.1 Receipt of an inopportune message

Purpose: Ensures the terminal responds to an inopportune message with a STATUS message and that no change of state occurs.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Invoke a SETUP message from terminal, (refer to preliminary notes).
- 2) Transmit a CALL PROCEEDING message with channel identification (B-channel specified which is acceptable to the terminal).
- 3) Transmit an ALERTING message.
- 4) Transmit an inopportune message (refer to Preliminary Note 1).
- 5) Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 101 (message not compatible with call state); ensure call state given (in octet 3 of the call state information element) is state 4 (Call Delivered).

Postamble: Layer 3 should be cleared down to the Null state with a RELEASE/RELEASE COMPLETE sequence.

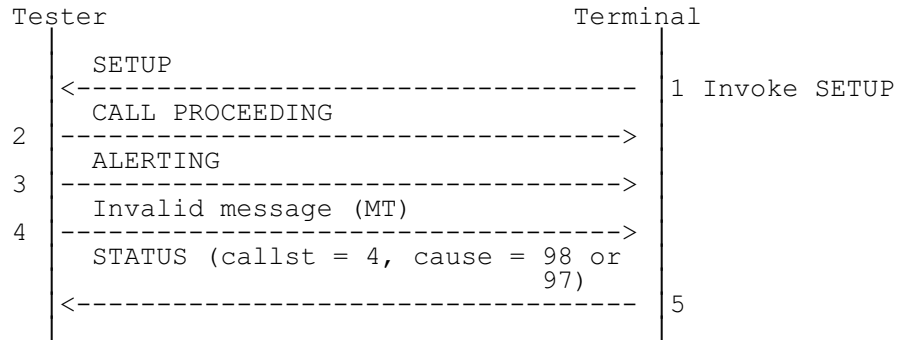
Refer to: ETS 300 102-1 [2], subclause 5.8.4.

13.4.2 Receipt of a syntactically invalid message (unrecognized message type)

Purpose: Ensures the terminal responds to a message having an invalid message type with STATUS message and that no change of state occurs.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Invoke a SETUP message from terminal, (refer to preliminary notes).
- 2) Transmit a CALL PROCEEDING message with channel identification (B-Channel specified which is acceptable to the terminal).
- 3) Transmit an ALERTING message.
- 4) Transmit a message having an invalid message type.
- 5) Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 97 (message type non-existent or not implemented); ensure terminal call state given (in octet 3 of the call state information element) is state 3 (Outgoing Call Proceeding).

Postamble: Layer 3 should be cleared down to the Null state with a RELEASE/RELEASE COMPLETE sequence.

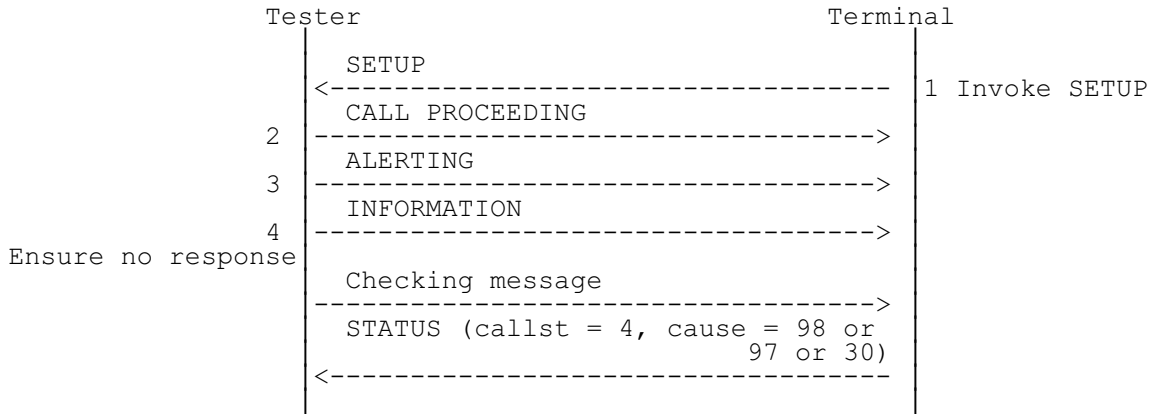
Refer to: ETS 300 102-1 [2], subclause 5.8.4.

13.5 Receipt of an INFORMATION message

Purpose: Ensures the terminal accepts an INFORMATION message and that no response is received or change of state occurs.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Invoke a SETUP message from terminal (refer to preliminary notes).
- 2) Transmit a CALL PROCEEDING message with channel identification (B-channel specified which is acceptable to the terminal).
- 3) Transmit an ALERTING message.
- 4) Transmit a valid INFORMATION message containing a Display information element; ensure no response to this message.

Result Checking:

Transmit a Checking message.

Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 97 (message type non-existent or not implemented) or 30 (response to STATUS ENQUIRY); ensure the call state given (in octet 3 of the call state information element) is state 4 (Call delivered).

Postamble: Layer 3 should be cleared down to the Null state with a RELEASE/RELEASE COMPLETE sequence.

Refer to: ETS 300 102-1 [2], subclause 5.

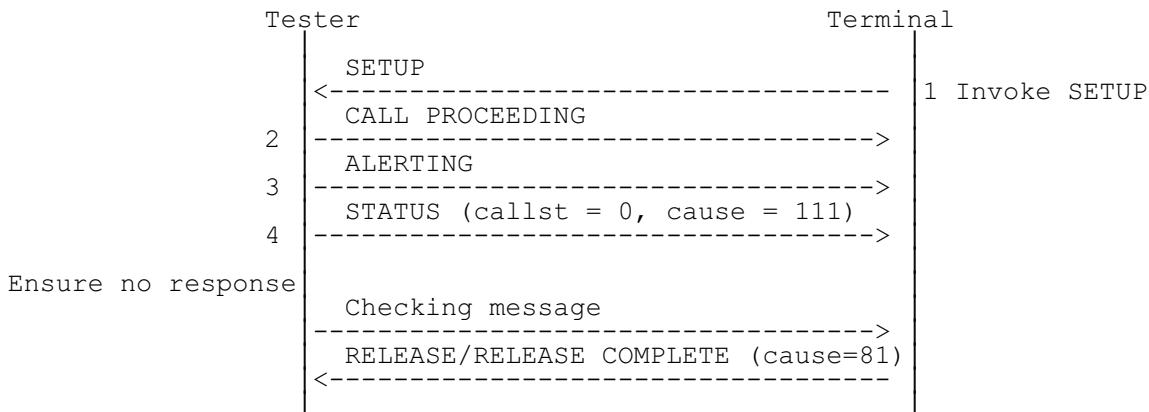
13.6 Receipt of a STATUS message

13.6.1 Indicating the Null state

Purpose: Ensures that on receipt of a STATUS message specifying the Null state, the terminal moves into the Null state.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Invoke a SETUP message from terminal (refer to preliminary notes).
- 2) Transmit a CALL PROCEEDING message with channel identification (B-Channel specified which is acceptable to the terminal).
- 3) Transmit an ALERTING message.
- 4) Transmit a STATUS message, call state = 0 (Null), cause = 111 (protocol error, unspecified); ensure no response.

Result Checking:

Transmit a Checking message.

Expect a RELEASE or a RELEASE COMPLETE message, cause = 81 (invalid call reference) indicating that the terminal has correctly returned to the Null state (see Preliminary Note 10).

Postamble: If a RELEASE message has been received, transmit a RELEASE COMPLETE message.

Refer to: ETS 300 102-1 [2], subclause 5.8.11.

13.6.2 Indicating a compatible call state

NOTE: The actions to be taken on receipt of a STATUS message with a compatible call state are implementation dependent. No test is specified in this ETS.

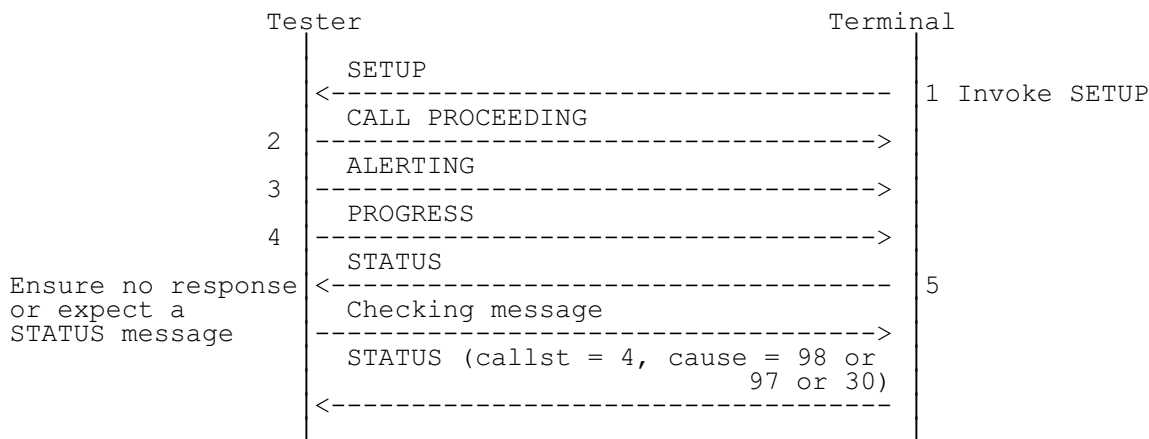
Refer to: ETS 300 102-1 [2], subclause 5.8.11.

13.7 Receipt of a PROGRESS message

Purpose: Ensures that on receipt of a PROGRESS message the terminal makes no response or sends a STATUS message and remains in the same state.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Invoke a SETUP message from terminal, (refer to preliminary notes).
- 2) Transmit a CALL PROCEEDING message with channel identification (B-channel specified which is acceptable to the terminal).
- 3) Transmit an ALERTING message.
- 4) Transmit a PROGRESS message, ensure no response to this message, or,
- 5) Expect a STATUS message.

Result Checking:

Transmit a Checking message.

Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 97 (message type non-existent or not implemented) or 30 (response to STATUS ENQUIRY); ensure the call state given (in octet 3 of the call state information element) is state 4 (Call delivered).

Postamble: Layer 3 should be cleared down to the Null state with a RELEASE/RELEASE COMPLETE sequence.

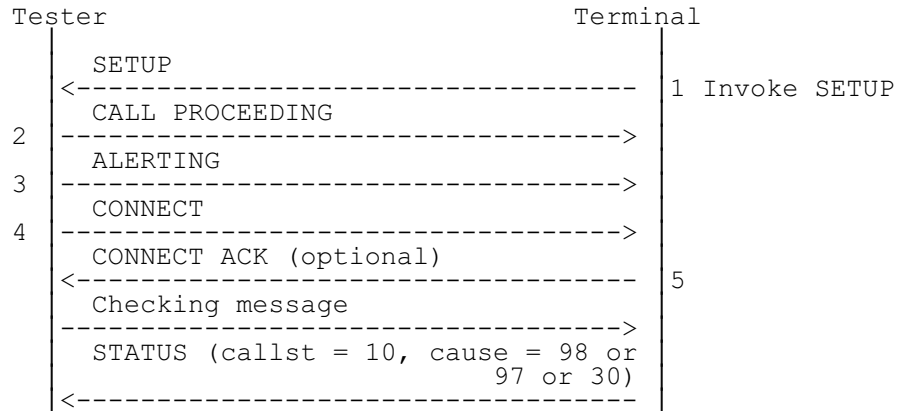
Refer to: ETS 300 102-1 [2], subclause 5.1.6.

13.8 Receipt of a CONNECT message

Purpose: Ensures on receipt of a CONNECT message the terminal enters the Active state (a CONNECT ACKNOWLEDGE response from the terminal is optional).

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Invoke a SETUP message from terminal, (refer to preliminary notes).
- 2) Transmit a CALL PROCEEDING message with channel identification (B-channel specified which is acceptable to the terminal).
- 3) Transmit an ALERTING message.
- 4) Transmit a CONNECT message.
- 5) The terminal may optionally respond with a CONNECT ACKNOWLEDGE message (the test should not be failed if this is not received). If sent, the CONNECT ACKNOWLEDGE message may be received by the tester after the Checking message has been sent.

Result Checking:

Transmit a Checking message.

Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 97 (message type non-existent or not implemented) or 30 (response to STATUS ENQUIRY); ensure the call state given (in octet 3 of the call state information element) is state 4 (Call delivered).

Postamble: Layer 3 should be cleared down to the Null state with a RELEASE/RELEASE COMPLETE sequence.

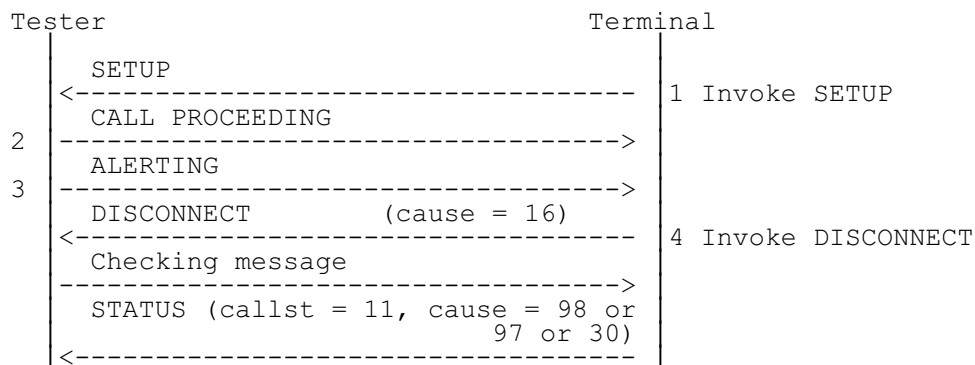
Refer to: ETS 300 102-1 [2], subclause 5.1.8.

13.9 DISCONNECT message from the terminal

Purpose: Ensures that when the terminal transmits a DISCONNECT message it enters the Disconnect Request state.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Invoke a SETUP message from terminal, (refer to preliminary notes).
- 2) Transmit a CALL PROCEEDING message with channel identification (B-channel specified which is acceptable to the terminal).
- 3) Transmit an ALERTING message.
- 4) Invoke a DISCONNECT message from the terminal with cause = 16 (normal clearing).

Result Checking:

Transmit a Checking message.

Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 97 (message type non-existent or not implemented) or 30 (response to STATUS ENQUIRY); ensure the call state given (in octet 3 of the call state information element) is state 11 (Disconnect request).

Postamble: Layer 3 should be cleared down to the Null state with a RELEASE/RELEASE COMPLETE sequence.

Refer to: ETS 300 102-1 [2], subclause 5.3.3.

Section 4: Cleardown state tests

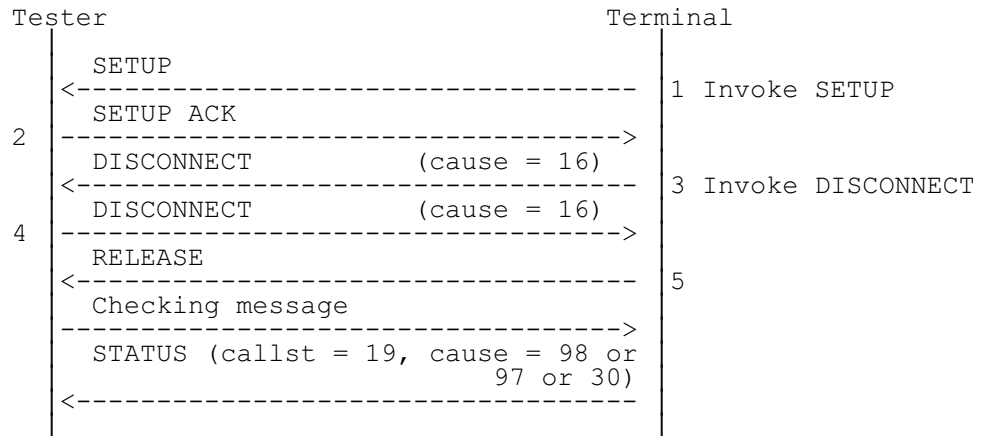
14 Disconnect request state tests, state 11

14.1 Receipt of a DISCONNECT message

Purpose: Ensures the terminal responds to a DISCONNECT message with a RELEASE message and enters the Release Request state.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Invoke a SETUP message from terminal, (refer to preliminary notes).
- 2) Transmit a SETUP ACKNOWLEDGE message with channel identification (B-channel specified which is acceptable to the terminal).
- 3) Invoke a DISCONNECT message from the terminal, cause = 16 (normal clearing); terminal should now have entered the Disconnect Request state.
- 4) Transmit a DISCONNECT message, cause = 16 (normal clearing).
- 5) Expect a RELEASE message.

Result Checking:

Transmit a Checking message.

Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 97 (message type non-existent or not implemented) or 30 (response to STATUS ENQUIRY); ensure the call state given (in octet 3 of the call state information element) is state 19 (Release Request).

Postamble: Layer 3 should be cleared down to the Null state with a RELEASE/RELEASE COMPLETE sequence.

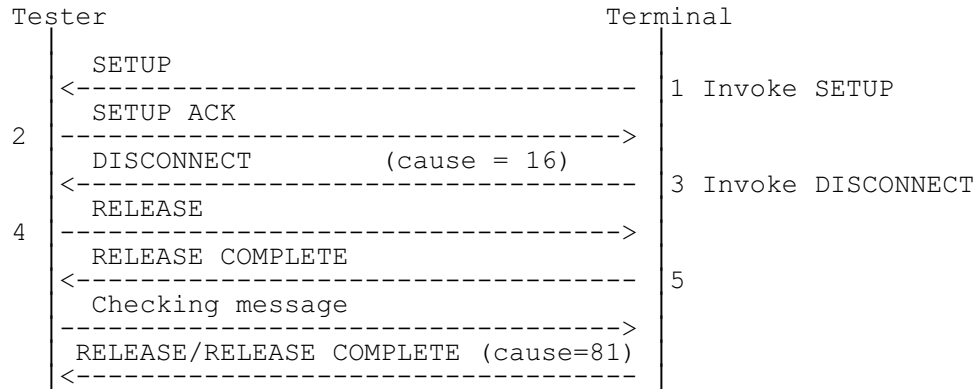
Refer to: ETS 300 102-1 [2], subclause 5.3.3, subclause 5.3.5.

14.2 Receipt of a RELEASE message

Purpose: Ensures the terminal responds to a RELEASE message with a RELEASE COMPLETE message and enters the Null state.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Invoke a SETUP message from terminal, (refer to preliminary notes).
- 2) Transmit a SETUP ACKNOWLEDGE with channel identification (B-channel specified which is acceptable to the terminal).
- 3) Invoke a DISCONNECT message from the terminal, cause = 16 (normal clearing).
- 4) Transmit a RELEASE message.
- 5) Expect a RELEASE COMPLETE message.

Result Checking:

Transmit a Checking message.

Expect a RELEASE message, cause = 81 (invalid call reference value) indicating that the terminal has entered the Null state (see Preliminary Note 10).

Postamble: If a RELEASE message has been received, transmit a RELEASE COMPLETE message to the terminal.

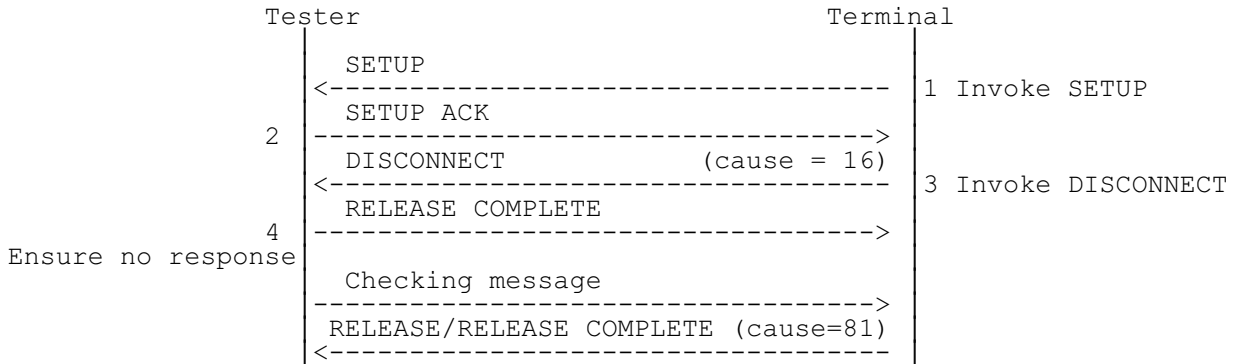
Refer to: ETS 300 102-1 [2], subclause 5.3.3, subclause 5.3.4.

14.3 Receipt of a RELEASE COMPLETE message

Purpose: Ensures that on receipt of a RELEASE COMPLETE message the terminal makes no response but returns to the Null state.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Invoke a SETUP message from terminal, (refer to preliminary notes).
- 2) Transmit a SETUP ACKNOWLEDGE message with channel identification (B-channel specified which is acceptable to the terminal).
- 3) Invoke a DISCONNECT message from the terminal, cause = 16 (normal clearing).
- 4) Transmit a RELEASE COMPLETE message; ensure no response to this message.

Result Checking:

Transmit a Checking message.

Expect a RELEASE message, cause = 81 (invalid call reference value) indicating that the terminal has correctly returned to the Null state (see Preliminary Note 10).

Postamble: If a RELEASE message has been received, transmit a RELEASE COMPLETE message to the terminal.

Refer to: ETS 300 102-1 [2], subclause 5.8.4.

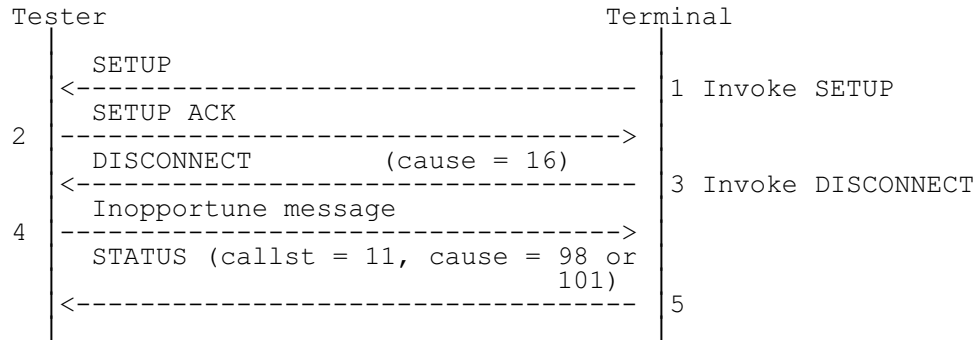
14.4 Receipt of an "erroneous" message

14.4.1 Receipt of an inopportune message

Purpose: Ensures the terminal responds to an inopportune message with a STATUS message and that no change of state occurs.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Invoke a SETUP message from terminal, (refer to preliminary notes).
- 2) Transmit a SETUP ACKNOWLEDGE message with channel identification (B-channel specified which is acceptable to the terminal).
- 3) Invoke a DISCONNECT message from the terminal with cause = 16 (normal clearing).
- 4) Transmit an inopportune message (refer to Preliminary Note 1).
- 5) Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 101 (message not compatible with call state); ensure call state given (in octet 3 of call information element) is state 11 (Disconnect Request).

Postamble: Layer 3 should be cleared down to the Null state with a RELEASE/RELEASE COMPLETE sequence.

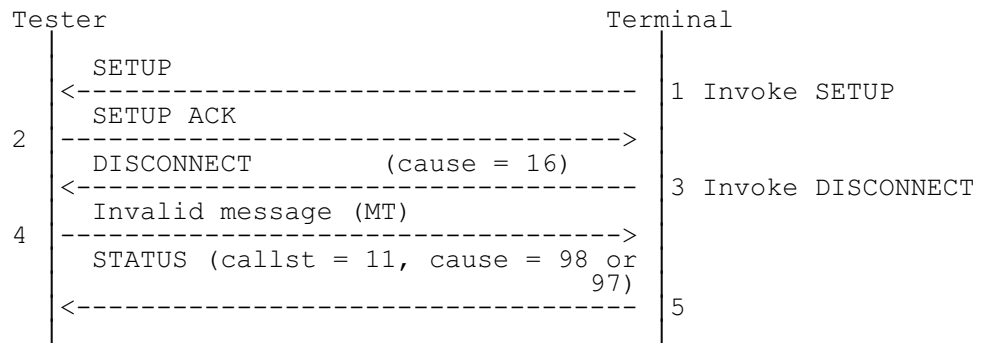
Refer to: ETS 300 102-1 [2], subclause 5.8.4.

14.4.2 Receipt of a syntactically invalid message (unrecognized message type)

Purpose: Ensures the terminal responds to a message having an invalid message type with a STATUS message and that no change of state occurs.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Invoke a SETUP message from terminal, (refer to preliminary notes).
- 2) Transmit a SETUP ACKNOWLEDGE message with channel identification (B-channel specified which is acceptable to the terminal).
- 3) Invoke a DISCONNECT message from the terminal with cause = 16 (normal clearing).
- 4) Transmit a message having an invalid message type.
- 5) Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 97 (message type non-existent or not implemented); ensure call state given (in octet 3 of call information element) is state 11 (Disconnect Request).

Postamble: Layer 3 should be cleared down to the Null state with a RELEASE/RELEASE COMPLETE sequence.

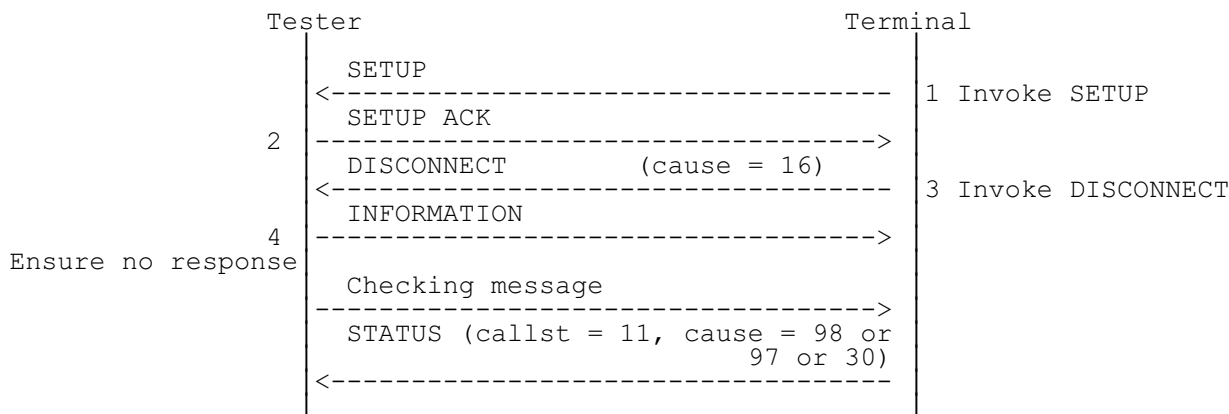
Refer to: ETS 300 102-1 [2], subclause 5.8.4.

14.5 Receipt of an INFORMATION message

Purpose: Ensures the terminal accepts an INFORMATION message and that no response is received or change of state occurs.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Invoke a SETUP message from terminal, (refer to preliminary notes).
- 2) Transmit a SETUP ACKNOWLEDGE message with channel identification (B-channel specified which is acceptable to the terminal).
- 3) Invoke a DISCONNECT message from the terminal with cause = 16 (normal clearing).
- 4) Transmit a valid INFORMATION message containing a Display information element; ensure no response to this message.

Result Checking:

Transmit a Checking message.

Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 97 (message type non-existent or not implemented) or 30 (response to STATUS ENQUIRY); ensure the call state given (in octet 3 of the call state information element) is state 11 (Disconnect Request).

Postamble: Layer 3 should be cleared down to the Null state with a RELEASE/RELEASE COMPLETE sequence.

Refer to: ETS 300 102-1 [2], subclause 5.

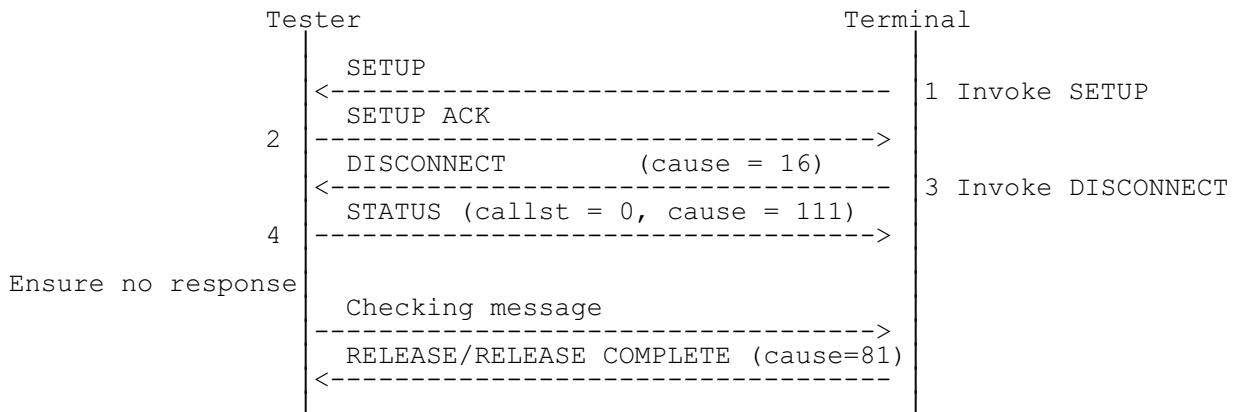
14.6 Receipt of a STATUS message

14.6.1 Indicating the Null state

Purpose: Ensures that on receipt of a STATUS message specifying the Null state, the terminal moves into the Null state.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Invoke a SETUP message from terminal (refer to preliminary notes).
- 2) Transmit a SETUP ACKNOWLEDGE message with channel identification (B-Channel specified which is acceptable to the terminal).
- 3) Invoke a DISCONNECT message from the terminal with cause = 16 (normal clearing).
- 4) Transmit a STATUS message, call state = 0 (Null), cause = 111 (protocol error, unspecified), ensure no response.

Result Checking:

Transmit a Checking message.

Expect a RELEASE or a RELEASE COMPLETE message, cause = 81 (invalid call reference) indicating that the terminal has correctly returned to the Null state (see Preliminary Note 10).

Postamble: If a RELEASE message has been received, transmit a RELEASE COMPLETE message.

Refer to: ETS 300 102-1 [2], subclause 5.8.11.

14.6.2 Indicating a compatible call state

NOTE: The actions to be taken on receipt of a STATUS message with a compatible call state are implementation dependent. No test is specified in this ETS.

Refer to: ETS 300 102-1 [2], subclause 5.8.11.

14.7 Receipt of a NOTIFY message

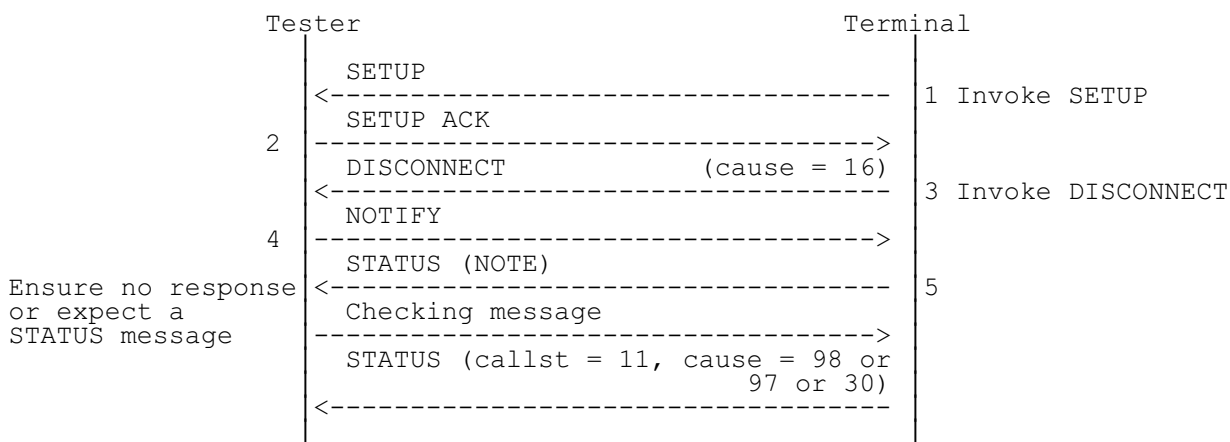
Purpose: Ensures that on receipt of a NOTIFY message the terminal makes no response or returns a STATUS message and remains in the same state.

NOTE: Two reactions by the terminal are permitted:

- return of a STATUS message, or
- no response.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Invoke a SETUP message from terminal, (refer to preliminary notes).
- 2) Transmit a SETUP ACKNOWLEDGE message with channel identification (B-channel specified which is acceptable to the terminal).
- 3) Invoke a DISCONNECT message from the terminal with cause = 16 (normal clearing).
- 4) Transmit a NOTIFY message; ensure no response to this message or,
- 5) Expect a STATUS message. If a STATUS message is sent then it may be received by the tester after a Checking message has been sent.

Result Checking:

Transmit a Checking message (this message must be received by the terminal before user timer T305 expires).

Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 97 (message type non-existent or not implemented) or 30 (response to STATUS ENQUIRY); ensure terminal call state given (in octet 3 of the Call state information element) is state 11 (Disconnect Request).

Postamble: Layer 3 should be cleared down to the Null state with a RELEASE/RELEASE COMPLETE sequence.

Refer to: ETS 300 102-1 [2], subclause 5.9.

15 Disconnect indication state tests, state 12

No tests are specified for the DISCONNECT Indication State since this state is a transitory state lasting only for the time taken by the terminal to process the received DISCONNECT message and transmit the appropriate response ie no human or higher layer process interaction is required. Hence the length of time spent in this state is likely to be very short and the state may not even be implemented in the terminal.

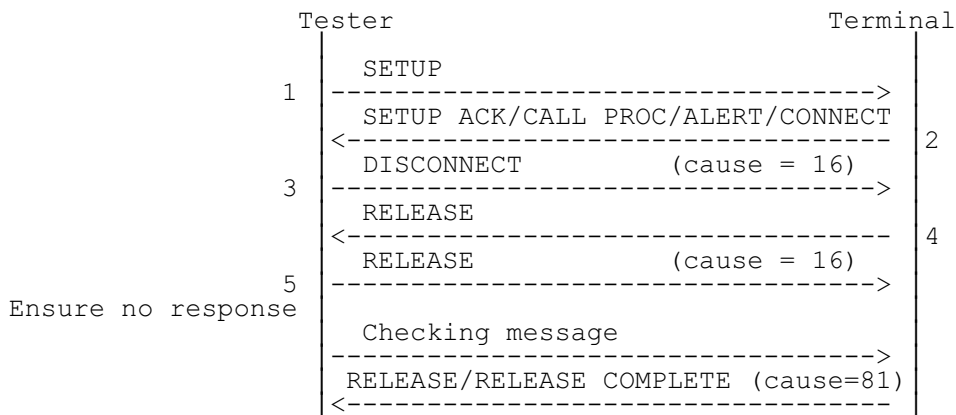
16 Release request state tests, state 19

16.1 Receipt of a RELEASE message

Purpose: Ensures that on receipt of a RELEASE message the terminal enters the Null state immediately. This is a test of RELEASE collision handling.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Transmit a valid SETUP message to the terminal, (refer to preliminary notes).
- 2) Expect a SETUP ACKNOWLEDGE, CALL PROCEEDING, ALERTING or CONNECT message.
- 3) Transmit a DISCONNECT message, cause = 16 (normal clearing).
- 4) Expect a RELEASE message.
- 5) Transmit a RELEASE message, cause = 16 (normal clearing); ensure no response to this message.

Result Checking:

Transmit a Checking message.

Expect a RELEASE message, cause = 81 (invalid call reference value) indicating that the terminal has correctly returned to the Null state (see Preliminary Note 10).

Postamble: If a RELEASE message has been received in response to the checking message, transmit a RELEASE COMPLETE message.

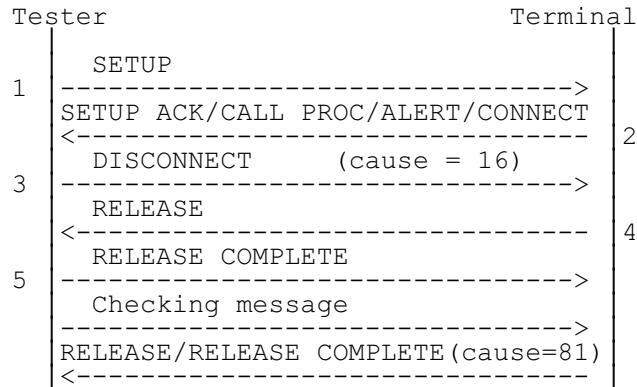
Refer to: ETS 300 102-1 [2], subclause 5.3.5.

16.2 Receipt of a RELEASE COMPLETE message

Purpose: Ensures the terminal on receipt of a RELEASE COMPLETE message clears down to the Null state.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Transmit a valid SETUP message to the terminal, (refer to preliminary notes).
- 2) Await either a SETUP ACKNOWLEDGE, CALL PROCEEDING, ALERTING or CONNECT message.
- 3) Transmit a DISCONNECT message, cause = 16 (normal clearing).
- 4) Expect a RELEASE message, indicating that the terminal has entered the RELEASE request state.
- 5) Transmit a RELEASE COMPLETE message.

Result Checking:

Transmit a Checking message.

Expect a RELEASE message, cause = 81 (invalid call reference value) indicating that the terminal has correctly returned to the Null state (see Preliminary Note 10).

Postamble: If a RELEASE message has been received in response to the checking message, transmit a RELEASE COMPLETE message.

Refer to: ETS 300 102-1 [2], subclause 5.3.4.

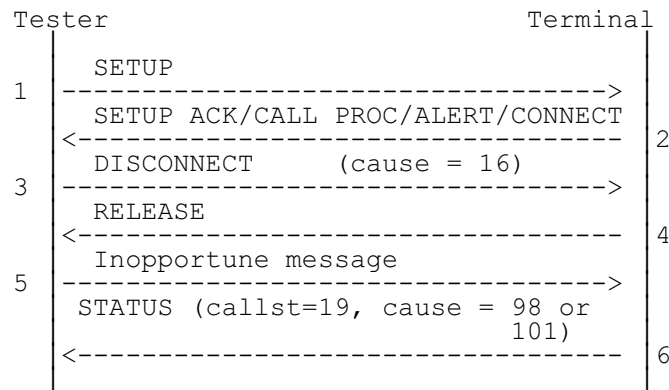
16.3 Receipt of an "erroneous" message

16.3.1 Receipt of an inopportune message

Purpose: Ensures the terminal responds to an inopportune message with a STATUS message and that no change of state occurs.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Transmit a valid SETUP message to the terminal, (refer to preliminary notes).
- 2) Await either a SETUP ACKNOWLEDGE, CALL PROCEEDING, ALERTING or CONNECT message.
- 3) Transmit a DISCONNECT message, cause = 16 (normal clearing).
- 4) Expect a RELEASE message.
- 5) Transmit an inopportune message (refer to Preliminary Note 1).
- 6) Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 101 (message not compatible with call state); ensure the call state given (in octet 3 of the call state information element) is state 19 (Release Request).

Postamble: Layer 3 should be cleared down to the Null state by sending a RELEASE COMPLETE message from the tester to the terminal.

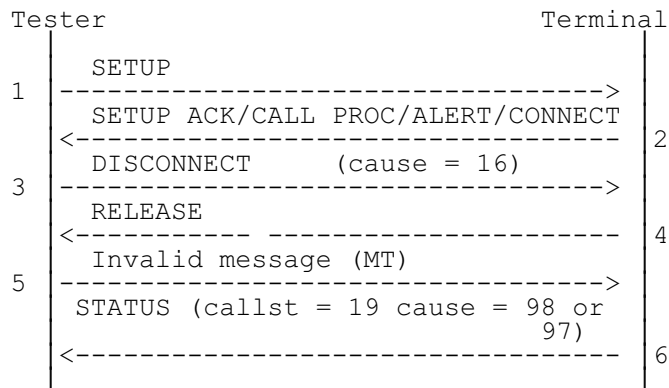
Refer to: ETS 300 102-1 [2], subclause 5.8.4.

16.3.2 Receipt of a syntactically invalid message (unrecognized message type)

Purpose: Ensures the terminal responds to a message having an invalid message type with a STATUS message and that no change of state occurs.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Transmit a valid SETUP message to the terminal, (refer to preliminary notes).
- 2) Await either a SETUP ACKNOWLEDGE, CALL PROCEEDING, ALERTING or CONNECT message.
- 3) Transmit a DISCONNECT message, cause = 16 (normal clearing).
- 4) Expect a RELEASE message.
- 5) Transmit a message having an invalid message type.
- 6) Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 97 (message type non-existent or not implemented); ensure the call state given (in octet 3 of the call state information element) is state 19 (Release Request).

Postamble: Layer 3 should be cleared down to the Null state by sending a RELEASE COMPLETE message from the tester to the terminal.

Refer to: ETS 300 102-1 [2], subclause 5.8.4.

16.4 Receipt of an INFORMATION message

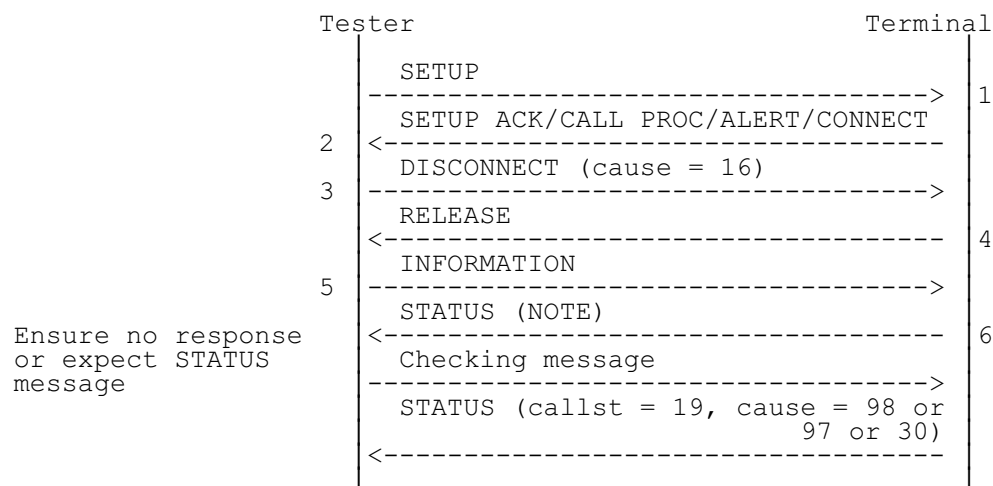
Purpose: Ensures that on receipt of an INFORMATION message no change of state occurs.

NOTE: Two alternative reactions by the terminal are possible:

- sending of a STATUS message, or
- no response.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Transmit a valid SETUP message to the terminal, (refer to preliminary notes).
- 2) Expect a SETUP ACKNOWLEDGE, CALL PROCEEDING, ALERTING or CONNECT message.
- 3) Transmit a DISCONNECT message, cause = 16 (normal clearing).
- 4) Expect a RELEASE message.
- 5) Transmit a valid INFORMATION message containing a Display information element; ensure no response to this message or,
- 6) Expect a STATUS message. If a STATUS message is sent then it may be received by the tester after a checking message has been sent.

Result Checking:

Transmit a Checking message.

Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 97 (message type non-existent or not implemented) or 30 (response to STATUS ENQUIRY); ensure the call state given (in octet 3 of the call state information element) is state 19 (Release request).

Postamble: Layer 3 should be cleared down to the Null state by sending RELEASE COMPLETE message from the tester to the terminal.

Refer to: ETS 300 102-1 [2], subclause 5.

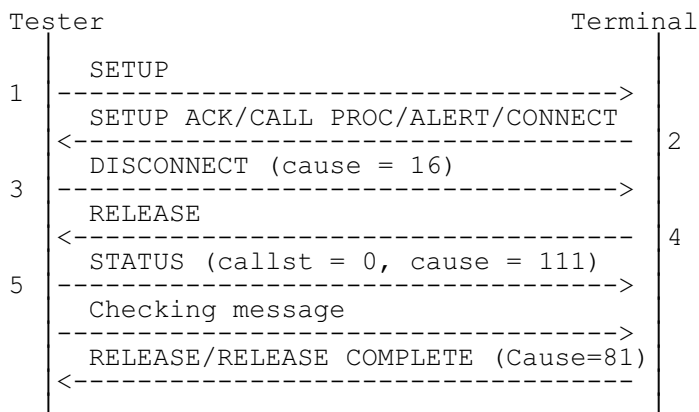
16.5 Receipt of a STATUS message

16.5.1 Indicating the Null state

Purpose: Ensures that on receipt of a STATUS message the terminal releases the resources and moves into the Null state.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Transmit a valid SETUP message to terminal (refer to preliminary notes).
- 2) Expect a SETUP ACKNOWLEDGE, CALL PROCEEDING, ALERTING or CONNECT message.
- 3) Transmit a DISCONNECT message, cause = 16 (normal clearing).
- 4) Expect a RELEASE message.
- 5) Transmit a STATUS message, call state = 0 (Null), cause = 111 (protocol error, unspecified); and ensure no response from the terminal.

Result Checking:

Transmit a Checking message (this message must be received by the terminal before user timer T308 expires).

Expect a RELEASE/RELEASE COMPLETE message, cause = 81 (invalid call reference value) indicating that the terminal has returned correctly to the Null state (see Preliminary Note 10).

Postamble: Layer 3 should be cleared down to the Null state by sending a RELEASE COMPLETE message from the tester to the terminal.

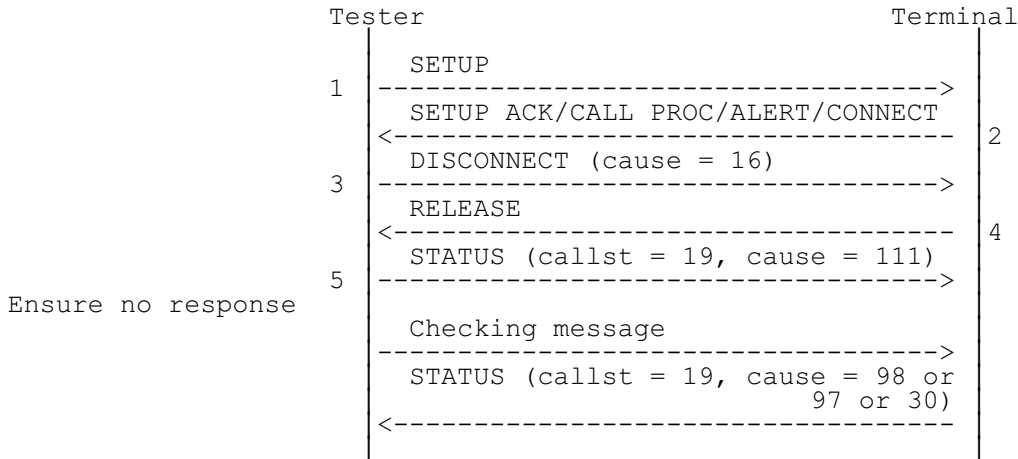
Refer to: ETS 300 102-1 [2], subclause 5.8.11.

16.5.2 Indicating a compatible call state

Purpose: In this case ensures that on receipt of a STATUS message the terminal makes no response and remains in the same state.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Transmit a valid SETUP message to terminal (refer to preliminary notes).
- 2) Expect a SETUP ACKNOWLEDGE, CALL PROCEEDING, ALERTING or CONNECT message.
- 3) Transmit a DISCONNECT message, cause = 16 (normal clearing).
- 4) Expect a RELEASE message.
- 5) Transmit a STATUS message, call state = 19 (Release Request), cause = 111 (protocol error, unspecified); ensure no response to this message.

Result Checking:

Transmit a Checking message (this message must be received by the terminal before user timer T308 expires).

Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 97 (message type non-existent or not implemented) or 30 (response to STATUS ENQUIRY); ensure terminal call state given (in octet 3 of the Call state information element) is state 19 (Release Request).

Postamble: Layer 3 should be cleared down to the Null state by sending a RELEASE COMPLETE message from the tester to the terminal.

Refer to: ETS 300 102-1 [2], subclause 5.8.11.

Section 5: Suspend/resume states tests

The implementation of the Suspend/Resume procedure is optional. Hence the tests in this part of the layer 3 test schedule (ie sections 17 and 18) shall only be performed on those terminals in which (as declared by the apparatus supplier) the Suspend/Resume procedures have been implemented.

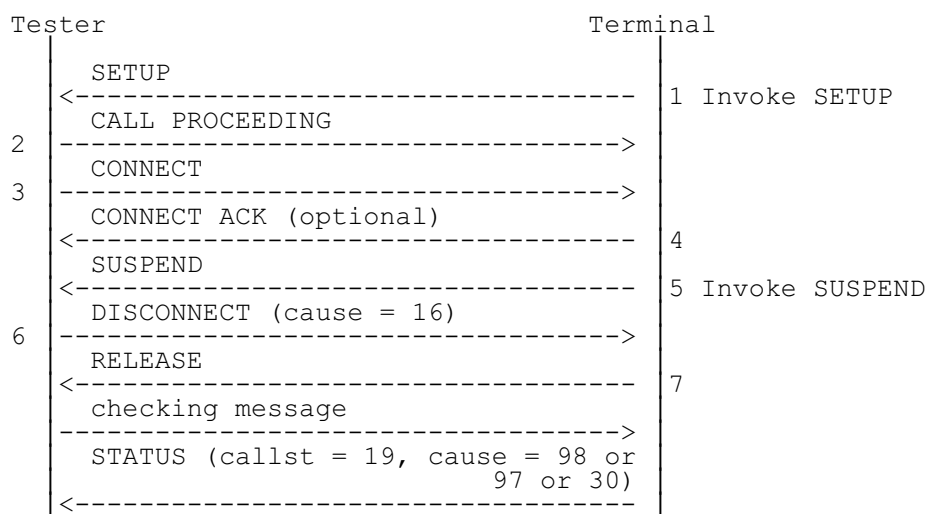
17 Suspend request state tests, state 15

17.1 Receipt of a DISCONNECT message

Purpose: Ensures the terminal responds to a DISCONNECT message with a RELEASE message and enters the Release Request state.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Invoke a SETUP message from the terminal, (refer to preliminary notes).
- 2) Transmit a CALL PROCEEDING message, channel identification (B-channel specified which is acceptable to the terminal).
- 3) Transmit a CONNECT message.
- 4) The terminal may optionally respond with a CONNECT ACKNOWLEDGE message.
- 5) Invoke a SUSPEND message (optional call identity) from the terminal.
- 6) Transmit a DISCONNECT message, cause = 16 (normal clearing).
- 7) Expect a RELEASE message.

Result checking:

Transmit a checking message.

NOTE: This message must be received by the terminal before user timer T319 expires.

Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 97 (message type non-existent or not implemented) or 30 (response to STATUS ENQUIRY); ensure the call state given (in octet 3 of the call state information element) is state 19 (Release Request).

Postamble: Layer 3 should be cleared down to the Null state with a RELEASE COMPLETE sequence.

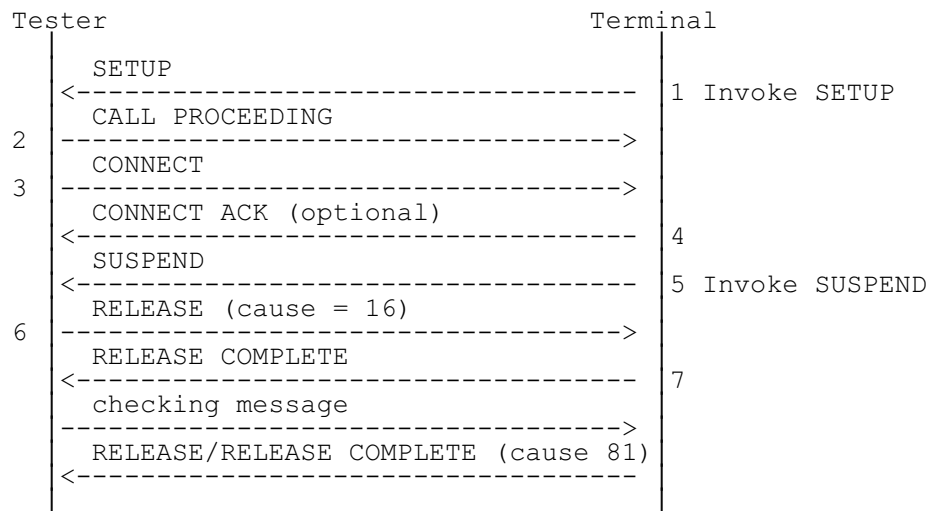
Refer to: ETS 300 102-1 [2], subclause 5.3.4.

17.2 Receipt of a RELEASE message

Purpose: Ensures the terminal responds to a RELEASE message with a RELEASE COMPLETE message and clears down to the Null state.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Invoke a SETUP message from the terminal, (refer to preliminary notes).
- 2) Transmit a CALL PROCEEDING message, channel identification (B-channel specified which is acceptable to the terminal).
- 3) Transmit a CONNECT message.
- 4) The terminal may optionally respond with a CONNECT ACKNOWLEDGE message.
- 5) Invoke a SUSPEND message (optional call identity) from the terminal.
- 6) Transmit a RELEASE message, cause = 16 (normal clearing).
- 7) Expect a RELEASE COMPLETE message.

Result checking:

Transmit a checking message.

Expect a RELEASE or a RELEASE COMPLETE message, cause = 81 (invalid call reference value) indicating that the terminal has cleared down to the Null state (see Preliminary Note 10).

Postamble: If a RELEASE message has been received, transmit a RELEASE COMPLETE message.

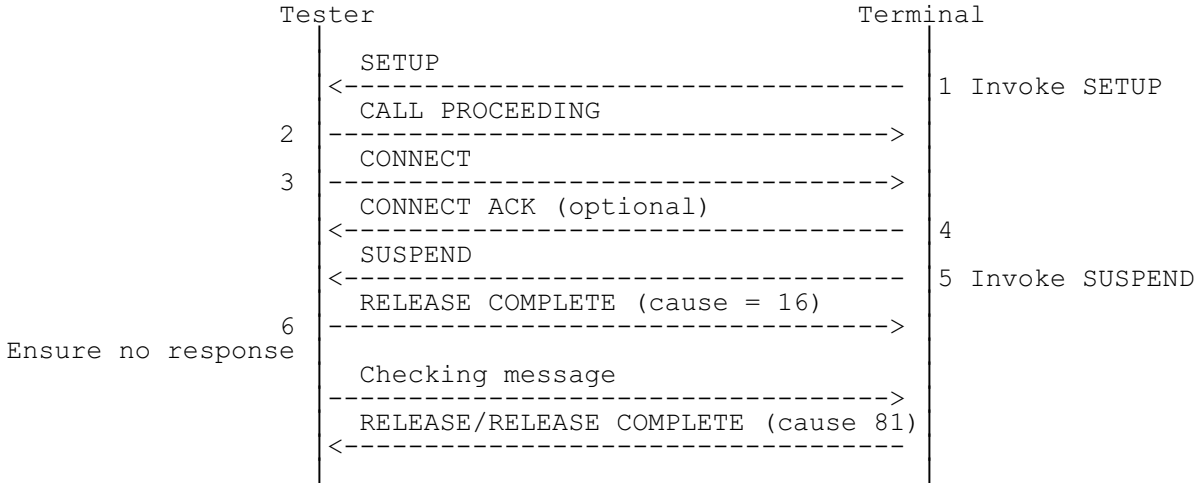
Refer to: ETS 300 102-1 [2], subclause 5.3.4, subclause 5.8.4.

17.3 Receipt of a RELEASE COMPLETE message

Purpose: Ensures that on receipt of a RELEASE COMPLETE message the terminal makes no response but returns to the Null state.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:-

- 1) Invoke a SETUP message from the terminal, (refer to preliminary notes).
- 2) Transmit a CALL PROCEEDING message, channel identification (B-channel specified which is acceptable to the terminal).
- 3) Transmit a CONNECT message.
- 4) The terminal may optionally respond with a CONNECT ACKNOWLEDGE message.
- 5) Invoke a SUSPEND message (optional call identity) from the terminal.
- 6) Transmit a RELEASE COMPLETE message, cause = 16 (normal clearing); ensure no response to this message.

Result checking:

Transmit a checking message.

Expect a RELEASE or a RELEASE COMPLETE message, cause = 81 (invalid call reference value) indicating that the terminal has cleared down to the Null state (see Preliminary Note 10).

Postamble: If a RELEASE message has been received, transmit a RELEASE COMPLETE message.

Refer to: ETS 300 102-1 [2], subclause 5.8.4.

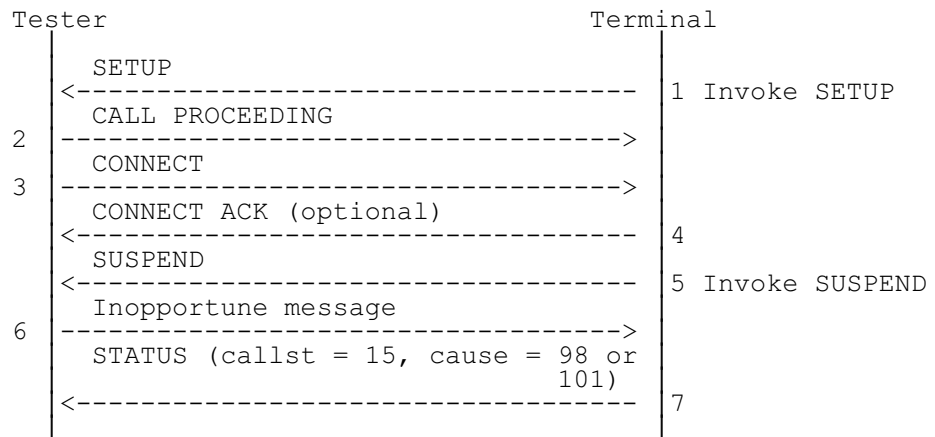
17.4 Receipt of an "erroneous" message

17.4.1 Receipt of an inopportune message

Purpose: Ensures the terminal responds to an inopportune message with a STATUS message and that no change of state occurs.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Invoke a SETUP message from the terminal, (refer to preliminary notes).
- 2) Transmit a CALL PROCEEDING message, channel identification (B-channel specified which is acceptable to the terminal).
- 3) Transmit a CONNECT message.
- 4) The terminal may optionally respond with a CONNECT ACKNOWLEDGE message.
- 5) Invoke a SUSPEND message (optional call identity) from the terminal.
- 6) Transmit an inopportune message (refer to Preliminary Note 1).
- 7) Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 101 (message not compatible with call state) ; ensure call state given (in octet 3 of the call state information element) is state 15 (Suspend Request).

Postamble: Layer 3 should be cleared down to the Null state with a RELEASE/RELEASE COMPLETE sequence.

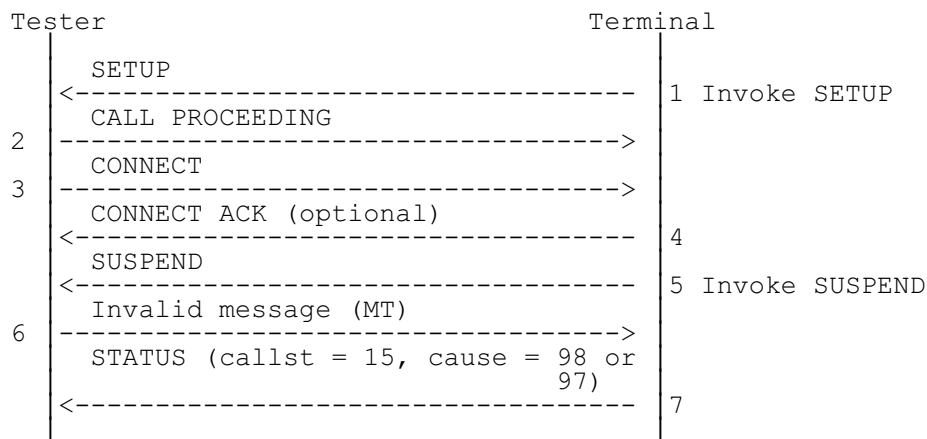
Refer to: ETS 300 102-1 [2], subclause 5.8.4.

17.4.2 Receipt of a syntactically invalid message (unrecognized message type)

Purpose: Ensures the terminal responds to a message having an invalid message type with a STATUS message and that no change of state occurs.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Invoke a SETUP message from the terminal, (refer to preliminary notes).
- 2) Transmit a CALL PROCEEDING message, channel identification (B-channel specified which is acceptable to the terminal).
- 3) Transmit a CONNECT message.
- 4) The terminal may optionally respond with a CONNECT ACKNOWLEDGE message.
- 5) Invoke a SUSPEND message (optional call identity) from the terminal.
- 6) Transmit a message having an invalid message type.
- 7) Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 97 (message type non-existent or not implemented) ; ensure call state given (in octet 3 of the call state information element) is state 15 (Suspend Request).

Postamble: Layer 3 should be cleared down to the Null state with a RELEASE/RELEASE COMPLETE sequence.

Refer to: ETS 300 102-1 [2], subclause 5.8.4.

17.5 Receipt of an INFORMATION message

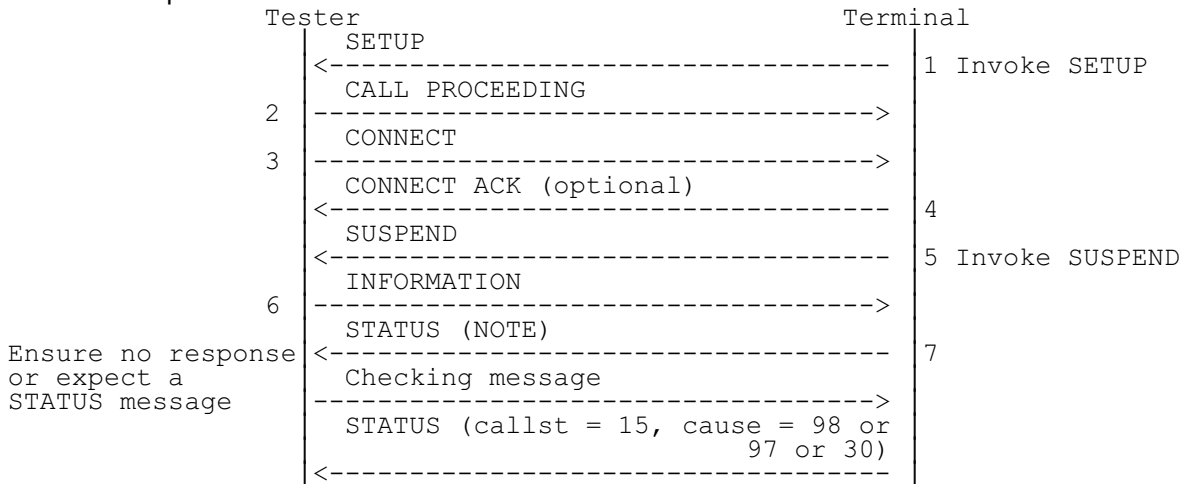
Purpose: Ensures that on receipt of an INFORMATION message the terminal makes no response or returns a STATUS message and remains in the same state.

NOTE: Two alternative reactions of the terminal are permitted:

- return a STATUS message, or
- make no response.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Invoke a SETUP message from the terminal, (refer to preliminary notes).
- 2) Transmit a CALL PROCEEDING message, channel identification (B-channel specified which is acceptable to the terminal).
- 3) Transmit a CONNECT message.
- 4) The terminal may optionally respond with a CONNECT ACKnowledge message.
- 5) Invoke a SUSPEND message (optional call identity) from the terminal.
- 6) Transmit a valid INFORMATION message containing a Display information element; ensure no response to this message or,
- 7) Expect a STATUS message. If the STATUS message is sent then it may be received by the tester after the checking message has been sent.

Result checking:

Transmit a Checking message.

NOTE: This message must be received by the terminal before user timer T319 expires.

Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 97 (message type non-existent or not implemented) or 30 (response to STATUS ENQUIRY); ensure call state given (in octet 3 of the call state information element) is state 15 (Suspend Request).

Postamble: Layer 3 should be cleared down to the Null state with a RELEASE/RELEASE COMPLETE sequence.

Refer to: ETS 300 102-1 [2], subclause 5.

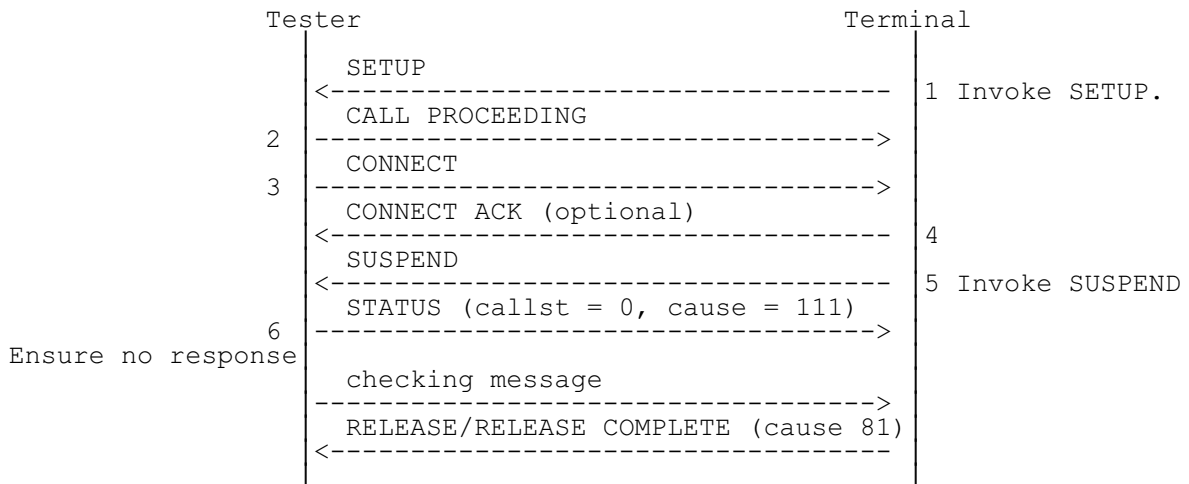
17.6 Receipt of a STATUS message

17.6.1 Indicating the Null state

Purpose: Ensures that on receipt of a STATUS message specifying the Null state, the terminal moves into the Null state.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Invoke a SETUP message from the terminal, (refer to preliminary notes).
- 2) Transmit a CALL PROCEEDING message, channel identification (B-channel specified which is acceptable to the terminal).
- 3) Transmit a CONNECT message.
- 4) The terminal may optionally respond with a CONNECT ACKNOWLEDGE message.
- 5) Invoke a SUSPEND message (optional call identity) from the terminal.
- 6) Transmit a STATUS message, call state = 0 (Null state), cause = 111 (protocol error, unspecified); ensure no response to this message.

Result checking:

Transmit a checking message.

Expect a RELEASE or a RELEASE COMPLETE message, cause = 81 (invalid call reference value) indicating that the terminal has cleared down to the Null state (see Preliminary Note 10).

Postamble: If a RELEASE message has been received, transmit a RELEASE COMPLETE message.

Refer to: ETS 300 102-1 [2], subclause 5.8.11.

17.6.2 Indicating a compatible call state

NOTE: The actions to be taken on receipt of a STATUS message with a compatible call state are implementation dependent. No test is specified in this ETS.

Refer to: ETS 300 102-1 [2], subclause 5.8.11.

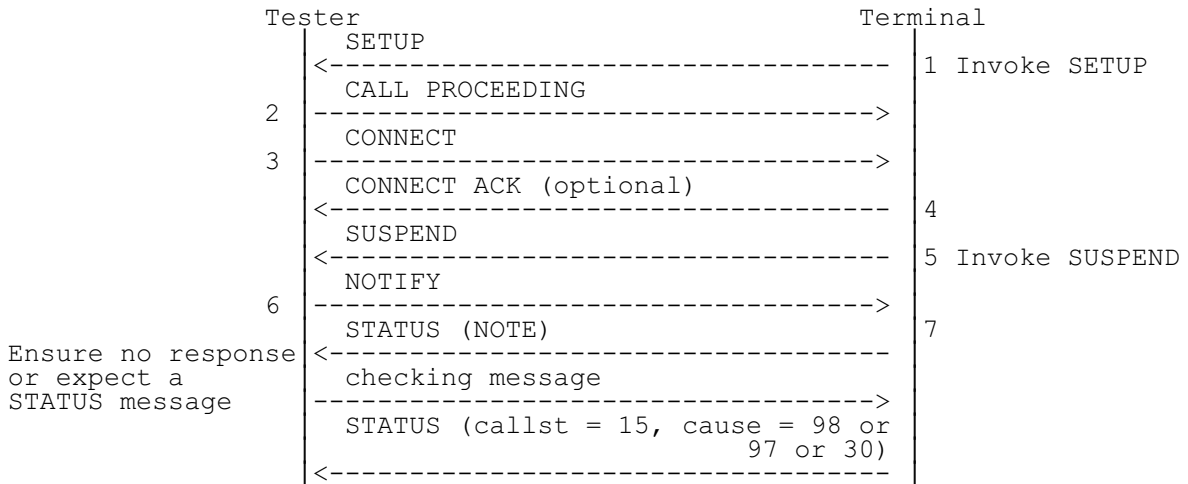
17.7 Receipt of a NOTIFY message

Purpose: Ensures that on receipt of a NOTIFY message the terminal makes no response or returns a STATUS message and remains in the same state.

NOTE: Two alternative reactions of the terminal are permitted:
- return a STATUS message, or
- make no response.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Invoke a SETUP message from the terminal, (refer to preliminary notes).
- 2) Transmit a CALL PROCEEDING message, channel identification (B-channel specified which is acceptable to the terminal).
- 3) Transmit a CONNECT message.
- 4) The terminal may optionally respond with a CONNECT ACKNOWLEDGE message.
- 5) Invoke a SUSPEND message (optional call identity) from the terminal.
- 6) Transmit a NOTIFY message; ensure no response to this message or
- 7) Expect a STATUS message. If the STATUS message is sent then it may be received by the tester after the checking message has been sent.

Result checking:

Transmit a checking message.

NOTE - this message must be received by the terminal before user timer T319 expires.

Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 97 (message type non-existent or not implemented) or 30 (response to STATUS ENQUIRY) ; ensure call state given (in octet 3 of the call state information element) is state 15 (Suspend Request).

Postamble: Layer 3 should be cleared down to the Null state with a RELEASE/RELEASE COMPLETE sequence.

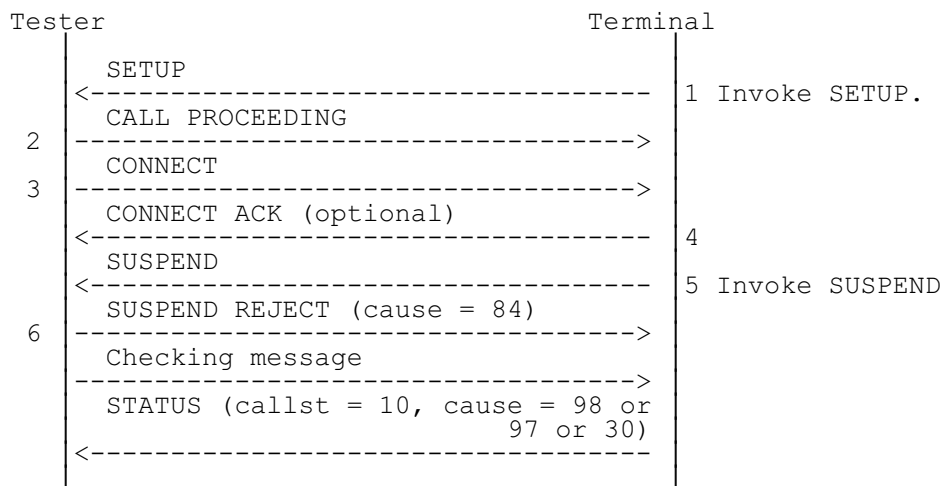
Refer to: ETS 300 102-1 [2], subclause 5.9.

17.8 Receipt of a SUSPEND REJECT message

Purpose: Ensures on receipt of a SUSPEND REJECT message the terminal returns to the Active state.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Invoke a SETUP message from the terminal, (refer to preliminary notes).
- 2) Transmit a CALL PROCEEDING message, channel identification (B-channel specified which is acceptable to the terminal).
- 3) Transmit a CONNECT message.
- 4) The terminal may optionally respond with a CONNECT ACKNOWLEDGE message.
- 5) Invoke a SUSPEND message (optional call identity) from the terminal.
- 6) Transmit a SUSPEND REJECT message, cause = 84 (call identity in use).

Result checking:

Transmit a checking message.

Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 97 (message type non-existent or not implemented) or 30 (response to STATUS ENQUIRY); ensure call state given (in octet 3 of the call state information element) is state 10 (Active).

Postamble: Layer 3 should be cleared down to the Null state with a RELEASE/RELEASE COMPLETE sequence.

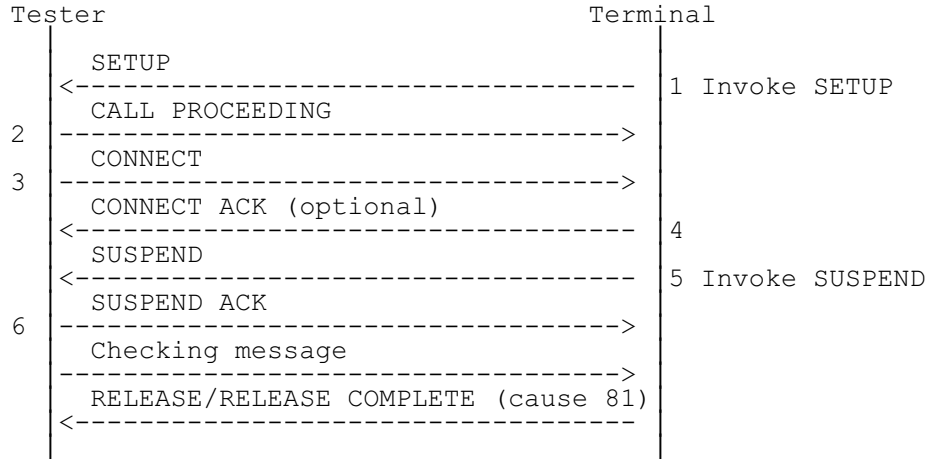
Refer to: ETS 300 102-1 [2], subclause 5.6.3.

17.9 Receipt of a SUSPEND ACKNOWLEDGE message

Purpose: Ensures on receipt of a SUSPEND ACKNOWLEDGE message the terminal moves into the Null state.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Invoke a SETUP message from the terminal, (refer to preliminary notes).
- 2) Transmit a CALL PROCEEDING message, channel identification (B-channel specified which is acceptable to the terminal).
- 3) Transmit a CONNECT message.
- 4) The terminal may optionally respond with a CONNECT ACKNOWLEDGE message.
- 5) Invoke a SUSPEND message (optional call identity) from the terminal.
- 6) Transmit a SUSPEND ACKNOWLEDGE message.

Result checking:

Transmit a checking message.

Expect a RELEASE or a RELEASE COMPLETE message, cause = 81 (invalid call reference value) indicating that the terminal has cleared down to the Null state (see Preliminary Note 10).

Postamble: If a RELEASE message has been received, transmit a RELEASE COMPLETE message.

Refer to: ETS 300 102-1 [2], subclause 5.6.2.

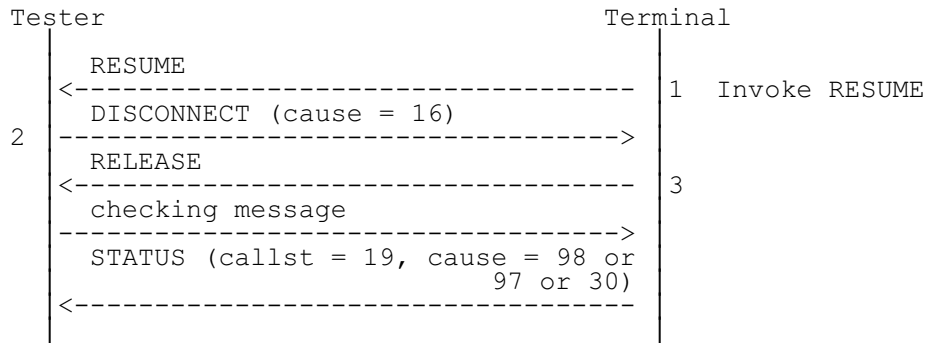
18 Resume request state tests, state 17

18.1 Receipt of a DISCONNECT message

Purpose: Ensures the terminal responds to a DISCONNECT message with a RELEASE message and enters the Release Request state.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Invoke a RESUME message (options call identify) from the terminal.
- 2) Transmit a DISCONNECT message, cause = 16 (normal clearing).
- 3) Expect a RELEASE message.

Result checking:

Transmit a checking message.

Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 97 (message type non-existent or not implemented) or 30 (response to STATUS ENQUIRY); ensure call state given (in octet 3 of the call state information element) is state 19 (Release Request).

Postamble: Layer 3 should be cleared down to the Null state with a RELEASE COMPLETE message.

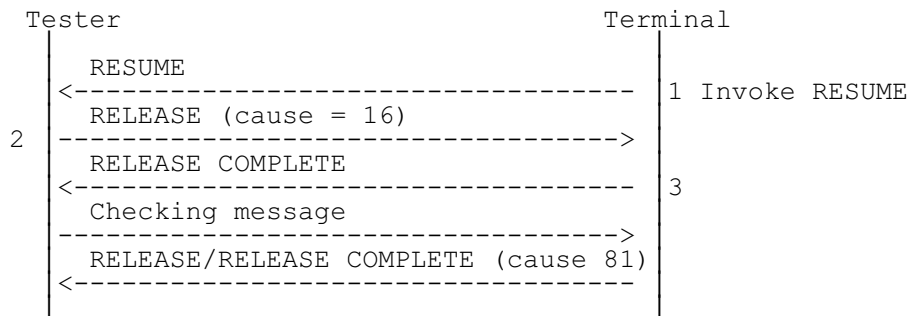
Refer to: ETS 300 102-1 [2], subclause 5.3.4.

18.2 Receipt of a RELEASE message

Purpose: Ensures the terminal responds to a RELEASE message with a RELEASE COMPLETE message and enters the Null state.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Invoke a RESUME message (optional call identity) from the terminal.
- 2) Transmit a RELEASE message, cause = 16 (normal clearing).
- 3) Expect a RELEASE COMPLETE message.

Result checking:

Transmit a checking message.

Expect a RELEASE or a RELEASE COMPLETE message, cause = 81 (invalid call reference value) indicating that the terminal has cleared down to the Null state (see Preliminary Note 10).

Postamble: If a RELEASE message has been received, transmit a RELEASE COMPLETE message.

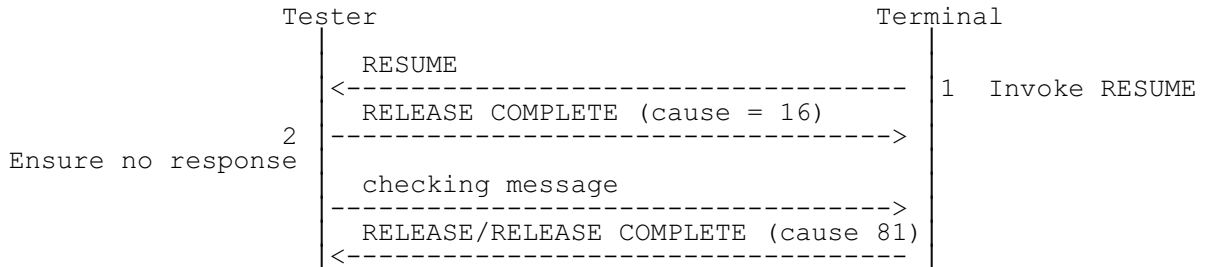
Refer to: ETS 300 102-1 [2], subclause 5.3.4.

18.3 Receipt of a RELEASE COMPLETE message

Purpose: Ensures that on receipt of a RELEASE COMPLETE message the terminal makes no response but returns to the Null state.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Invoke a RESUME message (optional call identity) from the terminal.
- 2) Transmit a RELEASE COMPLETE message, cause = 16 (normal clearing) ensure no response to this message.

Result checking:

Transmit a checking message.

Expect a RELEASE or a RELEASE COMPLETE message, cause = 81 (invalid call reference value) indicating that the terminal has cleared down to the Null state (see Preliminary Note 10).

Postamble: If a RELEASE message has been received, transmit a RELEASE COMPLETE message.

Refer to: ETS 300 102-1 [2], subclause 5.8.4.

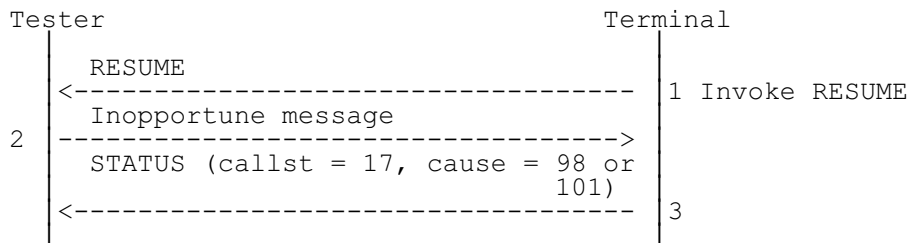
18.4 Receipt of an "erroneous" message

18.4.1 Receipt of an inopportune message

Purpose: Ensures the terminal responds to an inopportune message with a STATUS message and that no change of state occurs.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Invoke a RESUME message (optional call identity) from the terminal.
- 2) Transmit an inopportune message (refer to Preliminary Note 1).
- 3) Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 101 (message not compatible with call state); ensure call state given (in octet 3 of the call state information element) is state 17 (Resume Request).

Postamble: Layer 3 should be cleared down to the Null state with a RELEASE/RELEASE COMPLETE sequence or with a RESUME REJECT message.

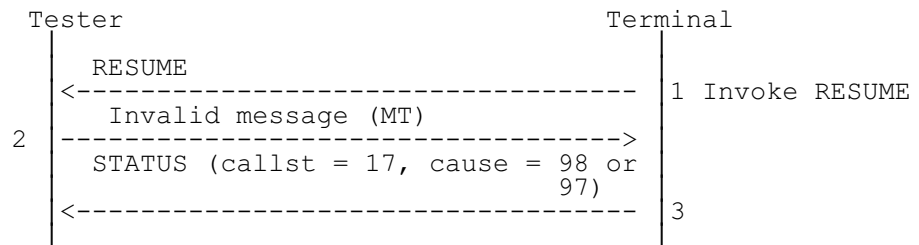
Refer to: ETS 300 102-1 [2], subclause 5.8.4.

18.4.2 Receipt of a syntactically invalid message (unrecognized message type)

Purpose: Ensures the terminal responds to a message having an invalid message type with a STATUS message and that no change of state occurs.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Invoke a RESUME message (optional call identity) from the terminal.
- 2) Transmit a message having an invalid message type.
- 3) Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 97 (message type non-existent or not implemented); ensure call state given (in octet 3 of the call state information element) is state 17 (Resume Request).

Postamble: Layer 3 should be cleared down to the Null state with a RELEASE/RELEASE COMPLETE sequence or with a RESUME REJECT message.

Refer to: ETS 300 102-1 [2], subclause 5.8.4.

18.5 Receipt of an INFORMATION message

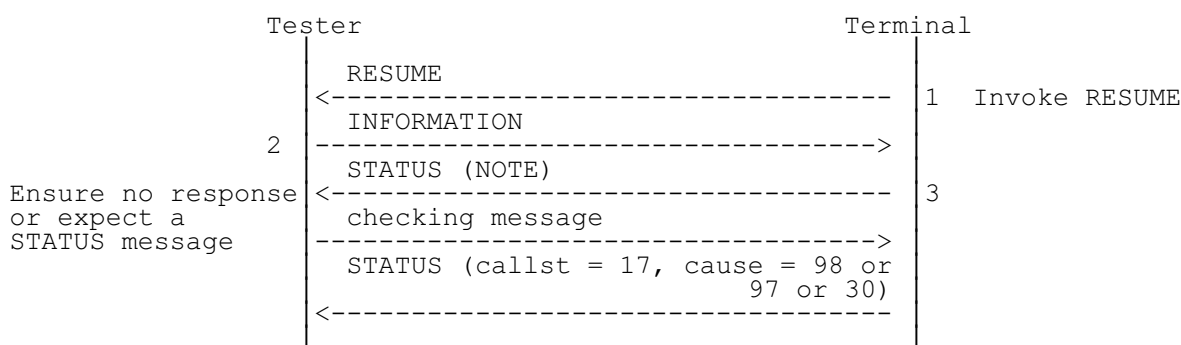
Purpose: Ensures that on receipt of an INFORMATION message the terminal makes no response or returns a STATUS message and remains in the same state.

NOTE: Two alternative reactions of the terminal are permitted:

- return a STATUS message, or
- make no response.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Invoke a RESUME message (optional call identity) from the terminal.
- 2) Transmit a valid INFORMATION message; ensure no response to this message or,
- 3) Expect a STATUS message. If the STATUS message is sent, then it may be received by the tester after the checking message has been sent.

Result checking:

Transmit a checking message.

Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 97 (message type non-existent or not implemented) or 30 (response to STATUS ENQUIRY) ; ensure call state given (in octet 3 of the call state information element) is state 17 (Resume request).

Postamble: Layer 3 should be cleared down to the Null state with a RELEASE/RELEASE COMPLETE sequence or with a RESUME REJECT message.

Refer to: ETS 300 102-1 [2], subclause 5.

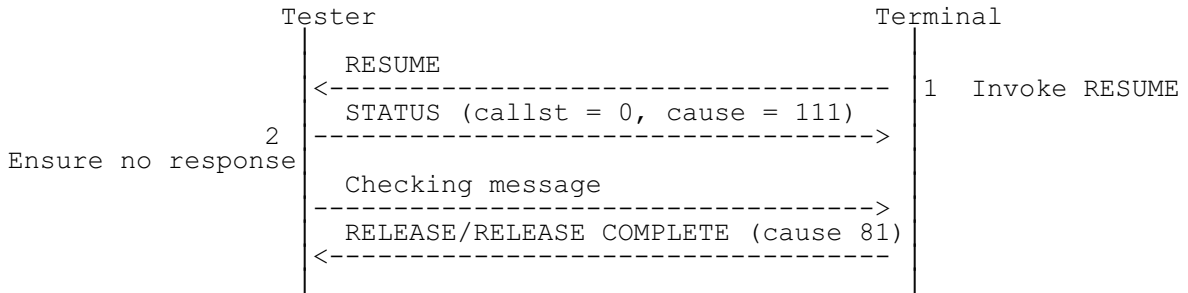
18.6 Receipt of a STATUS message

18.6.1 Indicating the Null state

Purpose: Ensures that on receipt of a STATUS message specifying the Null state, the terminal moves into the Null state.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Invoke a RESUME message (optional call identity) from the terminal.
- 2) Transmit a STATUS message, call state = 0 (Null state), cause = 111 (protocol error, unspecified); ensure no response to this message.

NOTE: This message must be received by the terminal before user timer T318 expires.

Result checking:

Transmit a checking message.

Expect a RELEASE or a RELEASE COMPLETE message, cause = 81 (invalid call reference value) indicating that the terminal has cleared down to the Null state (see Preliminary Note 10).

Postamble: If a RELEASE message has been received, transmit a RELEASE COMPLETE message.

Refer to: ETS 300 102-1 [2], subclause 5.8.11.

18.6.2 Indicating a compatible call state

NOTE: The actions to be taken on receipt of a STATUS message with a compatible call state are implementation dependent. No test is specified in this ETS.

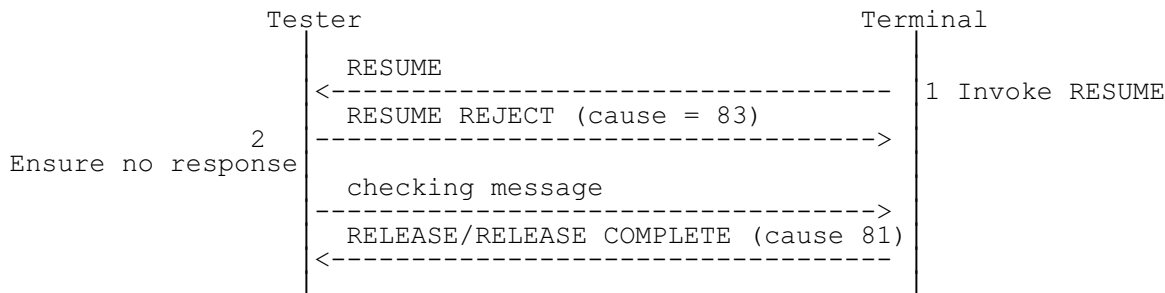
Refer to: ETS 300 102-1 [2], subclause 5.8.11.

18.7 Receipt of a RESUME REJECT message

Purpose: Ensures that on receipt of a RESUME REJECT message the terminal returns to the Null state.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Invoke a RESUME message (optional call identity) from the terminal.
- 2) Transmit a RESUME REJECT message, cause = 83 (call identity does not exist); ensure no response to this message.

Result checking:

Transmit a checking message.

Expect a RELEASE or a RELEASE COMPLETE message, cause = 81 (invalid call reference value) indicating that the terminal has cleared down to the Null state (see Preliminary Note 10).

Postamble: If a RELEASE message has been received, transmit a RELEASE COMPLETE message.

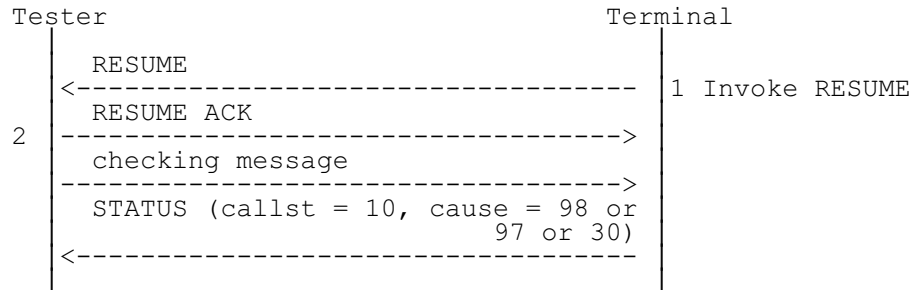
Refer to: ETS 300 102-1 [2], subclause 5.6.5.

18.8 Receipt of a RESUME ACKNOWLEDGE message

Purpose: Ensures that on receipt of a RESUME ACKNOWLEDGE message the terminal returns to the Active state.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Invoke a RESUME message (optional call identity) from the terminal.
- 2) Transmit a RESUME ACKNOWLEDGE message, channel identification (B-channel specified which is acceptable to the terminal).

Result checking:

Transmit a checking message.

Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 97 (message type non-existent or not implemented) or 30 (response to STATUS ENQUIRY); ensure call state given (in octet 3 of the call state information element) is state 10 (Active).

Postamble: Layer 3 should be cleared down to the Null state with a RELEASE/RELEASE COMPLETE sequence.

Refer to: ETS 300 102-1 [2], subclause 5.6.4.

Section 6: Layer 3 timers

19 Timer tests

No cause values are included in the clearing messages from the terminal to the Tester since the checking of cause values is not part of the tests in this section (NOTE - the checking of cause values is included in tests in the previous sections). Only the cause values in clearing messages from the Tester to the Terminal are specified.

The timer values identified hereafter are default time-out values according to the Table 9.2 of ETS 300 102-1 [2]; the use of different values shall be declared by the apparatus supplier and shall be in accordance with any relevant Terminal NET.

19.1 Timer T302

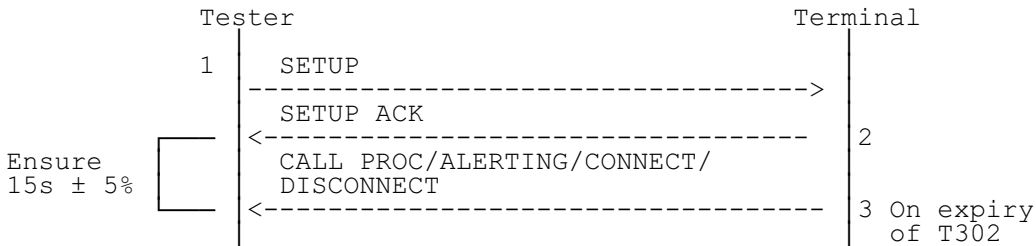
Purpose: Ensures timer T302 is 15s ± 5%

NOTE 1: The implementation of this timer in the terminal is mandatory if Overlap Receiving procedure is implemented, otherwise it is not used. Hence this test shall only be performed on those terminals in which (as declared by the apparatus supplier) the Overlap receiving procedure has been implemented.

NOTE 2: The SETUP message sent by the Tester contains either no or incomplete call number information.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Transmit a valid SETUP message (refer to preliminary notes).
- 2) Expect a SETUP ACKNOWLEDGE message from the terminal; on receipt of this message start the timer in the Tester.
- 3) Await either a CALL PROCEEDING, ALERTING, CONNECT or DISCONNECT message, stop timer in Tester; ensure that it is in the range 14.25 to 15.75 seconds.

Postamble: Layer 3 should be cleared down to the Null state with a RELEASE/RELEASE COMPLETE sequence.

Refer to: ETS 300 102-1 [2], subclause 5.2.4.

19.2 Timer T303

Purpose: Ensures timer T303 is $\geq 3.8s$.

NOTE: The implementation of this timer in the terminal is optional. Hence this test shall only be performed on those terminals in which (as declared by the apparatus supplier) the timer has been implemented.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Invoke a SETUP message from the terminal, (refer to preliminary notes); start timer in tester.
- 2) Await either a SETUP message or a RELEASE COMPLETE message, stop timer in tester; ensure that it is ≥ 3.8 seconds.

Postamble: Layer 3 should be cleared down to the Null state with a RELEASE/RELEASE COMPLETE sequence if SETUP has been received.

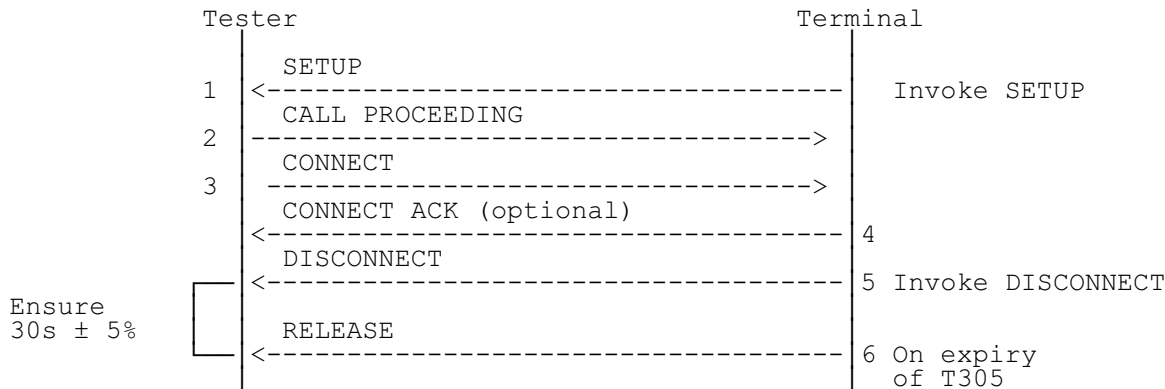
Refer to: ETS 300 102-1 [2], subclause 5.1.1.

19.3 Timer T305

Purpose: Ensures timer T305 = 30s ± 5%

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Invoke a SETUP message from the terminal, (refer to preliminary notes).
- 2) Transmit a CALL PROCEEDING message, channel identification (B-channel specified which is acceptable to the terminal).
- 3) Transmit a CONNECT message.
- 4) Await a CONNECT ACKNOWLEDGE message (optional).
- 5) Invoke a DISCONNECT message from the terminal; on receipt of the DISCONNECT message at the tester, start timer in tester.
- 6) Expect a RELEASE message; stop timer in tester on receipt of this message; ensure elapsed time is in the range 28.5 to 31.5 seconds.

Postamble: Transmit a RELEASE COMPLETE message.

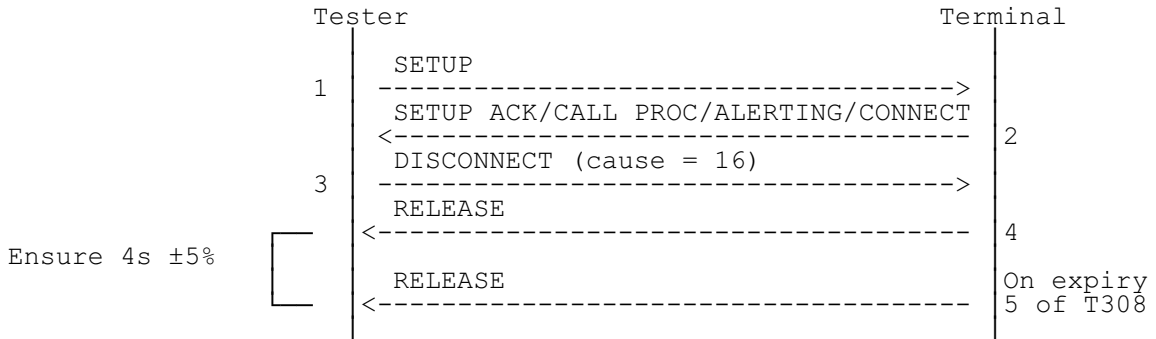
Refer to: ETS 300 102-1 [2], subclause 5.3.3.

19.4 Timer T308

Purpose: Ensures timer T308 is $4s \pm 5\%$

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Transmit a valid SETUP message to the terminal, (refer to preliminary notes).
- 2) Expect a SETUP ACKNOWLEDGE, CALL PROCEEDING, ALERTING or CONNECT message.
- 3) Transmit a DISCONNECT message, cause = 16 (normal clearing).
- 4) Expect a RELEASE message; start timer in tester on receipt of this message.
- 5) Await a second RELEASE message; on receipt of this message stop timer in tester, ensure elapsed time is in the range 3.8 to 4.2 seconds.

Postamble: Transmit a RELEASE COMPLETE message.

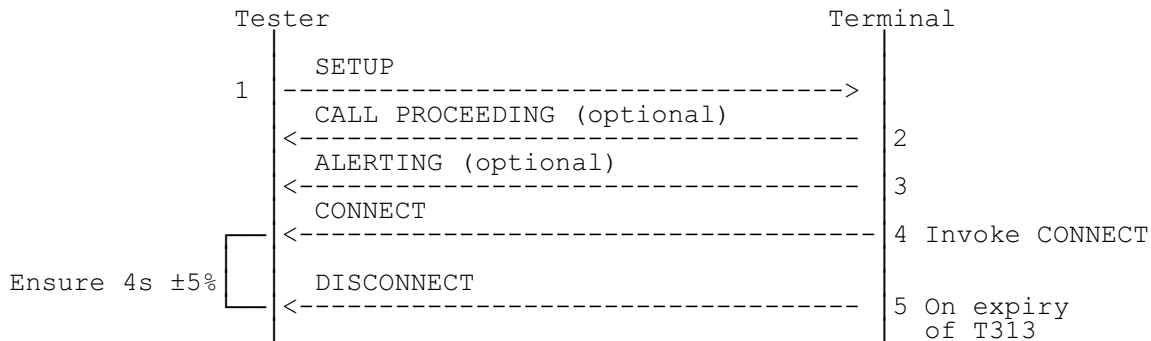
Refer to: ETS 300 102-1 [2], subclause 5.3.3.

19.5 Timer T313

Purpose: Ensures timer T313 is $4s \pm 5\%$

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Transmit a SETUP message to the terminal, (refer to preliminary notes).
- 2) Await a CALL PROCEEDING message (optional).
- 3) Await an ALERTING message (optional).
- 4) Invoke a CONNECT message from the terminal; on receipt of this message by the tester, start timer in the tester.
- 5) Await a DISCONNECT message; on receipt of this message, stop timer in tester; ensure elapsed time is in the range 3.8 to 4.2 seconds.

Postamble: Layer 3 should be cleared down to the Null state with a RELEASE/RELEASE COMPLETE sequence.

Refer to: ETS 300 102-1 [2], subclause 5.2.7, subclause 5.2.8.

19.6 Timer T318

Purpose: Ensures timer T318 is $4s \pm 5\%$

NOTE: The implementation of this timer in the terminal is mandatory when the call re-arrangement procedure is implemented, otherwise it is not used. Hence this test shall only be performed on those terminals in which (as declared by the apparatus supplier) the call re-arrangement procedure has been implemented.

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Invoke a RESUME message (optional call identity) from the terminal.
- 2) Await a RELEASE message; on receipt of this message, stop timer in tester; ensure elapsed time is in the range 3.8 to 4.2 seconds.

Postamble: Layer 3 should be cleared down to the Null state with a RELEASE COMPLETE message.

Refer to: ETS 300 102-1 [2], subclause 5.6.4, subclause 5.6.5.

19.7 Timer T319

Purpose: Ensures timer T319 is $4s \pm 5\%$

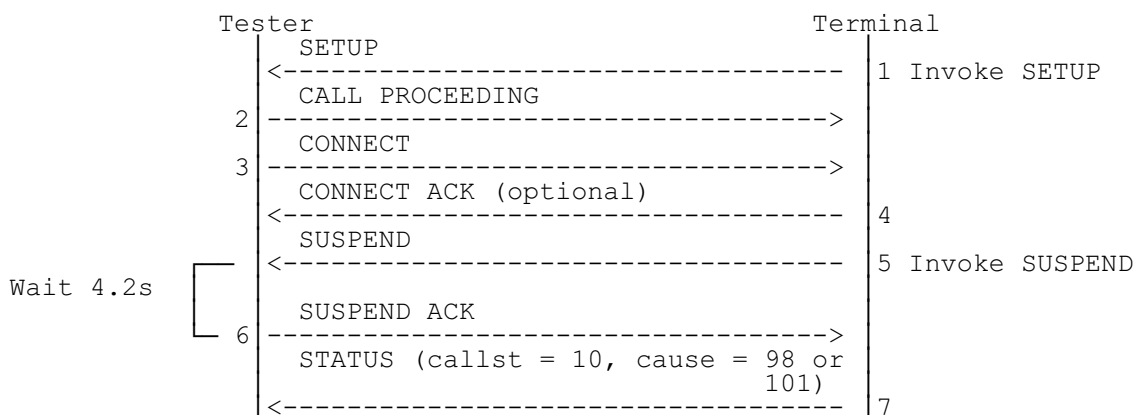
NOTE: The implementation of this timer in the terminal is mandatory when the call re-arrangement procedure is implemented, otherwise it is not used. Hence this test shall only be performed on those terminals in which (as declared by the apparatus supplier) the call re-arrangement procedure has been implemented.

19.7.1 Maximum Value

Purpose: Ensures timer T319 is $< 4.2s$

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Invoke a SETUP message from the terminal, (refer to preliminary notes).
- 2) Transmit a CALL PROCEEDING message, channel identification (B-channel specified which is acceptable to the terminal).
- 3) Transmit a CONNECT message.
- 4) The terminal may optionally respond with a CONNECT ACKNOWLEDGE message.
- 5) Invoke a SUSPEND message (optional call identity) from the terminal.
- 6) 4.2 seconds after the receipt of the SUSPEND message in (5), transmit a SUSPEND ACKNOWLEDGE message.
- 7) Expect a STATUS message, cause = 98 (message not compatible with call state or message type non-existent or not implemented) or 101 (message not compatible with call state); ensure the call state given (in octet 3 of the call state information element) is state 10 (Active).

Postamble: Layer 3 should be cleared down to the Null state with a RELEASE/RELEASE COMPLETE sequence.

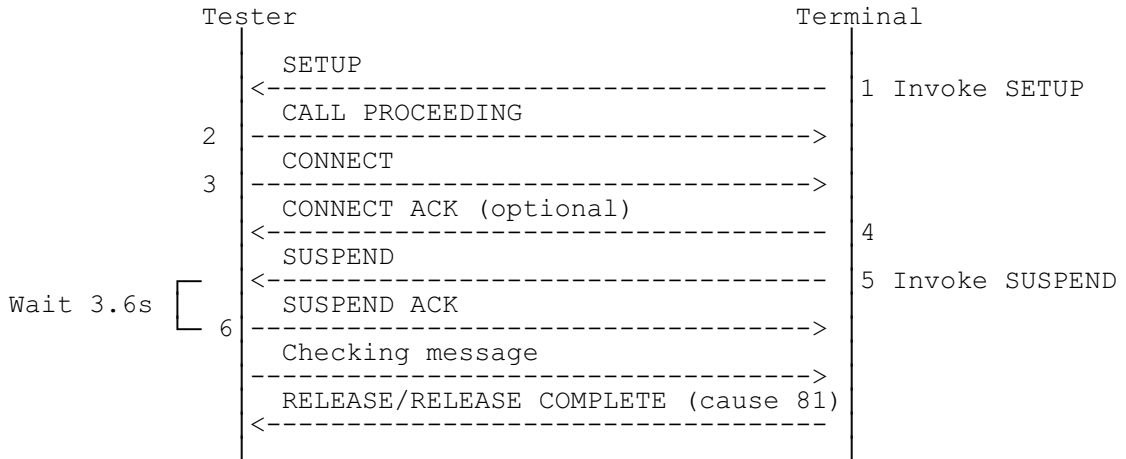
Refer to: ETS 300 102-1 [2], subclause 5.6.1, subclause 5.6.3.

19.7.2 Minimum Value

Purpose: Ensures timer T319 is >3.6s

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Invoke a SETUP message from the terminal, (refer to preliminary notes).
- 2) Transmit a CALL PROCEEDING message, channel identification (B-channel specified which is acceptable to the terminal).
- 3) Transmit a CONNECT message.
- 4) The terminal may optionally respond with a CONNECT ACKNOWLEDGE message.
- 5) Invoke a SUSPEND message (optional call identity) from the terminal.
- 6) 3.6 seconds after the receipt of the SUSPEND message in (5), transmit a SUSPEND ACKNOWLEDGE message.

Result checking:

Transmit a checking message.

Expect a RELEASE or a RELEASE COMPLETE message, cause = 81 (invalid call reference value) indicating that the terminal has cleared down to the Null state (see preliminary note 10).

Postamble: If a RELEASE message has been received, transmit a RELEASE COMPLETE message.

Refer to: ETS 300 102-1 [2], subclause 5.6.1, subclause 5.6.3.

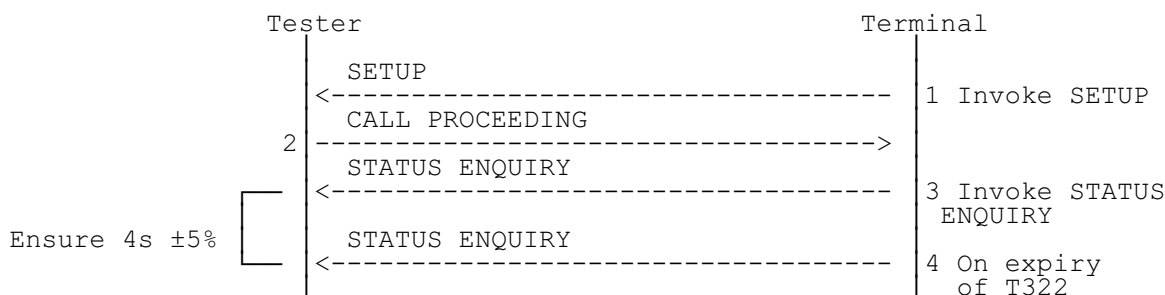
19.8 Timer T322

Purpose: Ensures timer T322 is $4s \pm 5\%$

NOTE: The implementation of this timer in the terminal is Mandatory when the Status enquiry procedure has been implemented, otherwise it is not used. Hence this test shall only be performed on those terminals in which (as declared by the apparatus supplier) the Status enquiry procedure has been implemented and the transmission of the STATUS ENQUIRY message by the terminal can be invoked by action at an access point available to the tester (e.g. at the man-machine interface, at the interface on the user side of the terminal (in the case of an NT2 or TA), by running higher layer process).

Precondition: Layer 3 should be in the Null state.

Test case sequence:



Test description:

- 1) Invoke a SETUP message from the terminal, (refer to preliminary notes).
- 2) Transmit a CALL PROCEEDING message.
- 3) Invoke a STATUS ENQUIRY message from the terminal; on receipt of this message start timer in tester.
- 4) Await a STATUS ENQUIRY message from the terminal; on receipt of this message stop timer in tester, ensure elapsed time is in the range 3.8 to 4.2 seconds.

Postamble: Layer 3 should be cleared down to the Null state with a RELEASE/RELEASE COMPLETE sequence.

Refer to: ETS 300 102-1 [2], subclause 5.8.10.

Section 7: Abbreviations

- BC: Bearer Capability information element
- CNI: Called Number Information
- CR: Call Reference information element
- CRf: Call Reference flag
- CRF: Call Reference Format
- IE: Information Element
- HLC: High Layer Compatibility information element
- MT: Message Type information element
- PD: Protocol Discriminator information element
- 4PI: Progress Indicator
- IUT: Implementation Under Test

Annex B: Example of Information to be Provided by the Apparatus Supplier

B.1 Introduction

This annex is provided for information only. The information to be provided by the apparatus supplier concerning the terminal equipment to be tested against the requirements specified in this ETS is a matter between the apparatus supplier and the testing house carrying out the tests. However, this annex give examples of the type of information relating to layer 3 protocol aspects which a testing house may require in order to carry out the tests specified in this ETS. Appendix 1 of NET 3, Part 1 gives examples of the type of information relating to layer 1 and 2 aspects which a testing house may require in order to carry out the tests relating to the layers 1 and 2 aspects specified in NET 3, Part 1.

B.2 Information to be provided by the Apparatus Supplier

Two kinds of information are required from the apparatus supplier:

- information with respect to the protocol: Protocol Implementation Conformance Statement (PICS);
- information with respect to the man-machine interface: Protocol Implementation eXtra Information for Testing (PIXIT).

B.2.1 Information with respect to a PICS

B.2.1.1 In order to carry out the layer 3 testing, the attributes (in terms of the bearer capability, high layer capability, etc) of an incoming call which would be accepted by the TE as compatible with its capabilities (ref Annex B of ETS 300 102-1 [2]).

B.2.1.2 Whether the terminal has Multiple Subscriber Number (MSN), Direct Dialling In (DDI) and/or Subaddressing (SUB) capability.

B.2.1.3 Whether the terminal supports the following optional procedures:

- Call rearrangements (suspend/resume)
- Status enquiry
- Overlap receiving

B.2.1.4 Any message types other than those specified in ETS 300 102-1 [2] which the terminal will handle as valid, implemented messages (see Annex A, subclause 2, Preliminary Note 1.1).

B.2.2 Information with respect to a PIXIT

B.2.2.1 A brief description concerning the actions to be taken to establish (incoming and outgoing) and clear a call, etc.

B.2.2.2 If any facility is implemented (e.g. MSN, DDI, Sub), a brief description concerning the disabling of this facility.

B.2.2.3 In order to carry out some tests, the equipment under test must be maintained in the active state of the call. The supplier shall indicate what action, if any, is required to maintain the equipment under test in the active state (e.g. by the tester sending a specific bit pattern in the B-channel).

Annex C: Test report format

This annex gives guidance on the format of the test report to be used by approved test laboratories when reporting on the results of testing equipment to the layer 3 requirements specified in this ETS. The format of the test report concerning the conformance of the layers 1 and 2 aspects of the Implementation Under Test is given in NET 3, Part 1. In the case where a testing laboratory performs the testing of all 3 layers, the testing laboratory may produce one test report whose format will be a compilation of that given in Appendix 2 of NET 3, Part 1 and that given in this Annex.

Text enclosed by [* and *] is comment, for guidance purposes only, and is not included in the real test report.

1 System test report for equipment tested against the requirements specified in ETS 300 104 (Candidate NET 3, Part 2)

1.1 Test Laboratory

Name
Address
.....
.....

Telephone No.
Telex No.
Facsimile No.

1.2 Client Information

Name
Address
.....
.....

Telephone No.
Telex No.
Facsimile No.

1.3 Product

Name
Version
Supplier's Name
Supplier's Address
.....
.....

Telephone No.
Telex No.
Facsimile No.

1.4 System Conformance Test Report

Number
Date
Test Laboratory Manager: [* Name *]
Signature : [* Signature *]

2 Test Conditions

The environmental conditions under which the equipment was tested were as follows:-

Temperature: [* value *] °C

Relative humidity: [* value *] %

Air Pressure: [* value *] kPa

[* any other environmental conditions including voltage and frequency of power supply, if equipment under test uses power supplied from a source within the laboratory (see subclause 1.7 of this ETS) *]

[* If the environmental conditions were changed during the execution of the tests, this section of the report should indicate the range of values for the various environmental parameters under which the tests were performed and the precise values under which a given test was performed should be specified in the detailed test report - see NOTE *]

3 System Report Summary

[* For layer 3 of the D-channel protocol, a summary of the tests (as specified in Annex A, of this ETS) and conformance status of the product is required. *]

3.1 Layer 3 Test Report Summary

Item Under Test Identifiers	[* Name and version number *]
Protocol Standard	[* Reference Number *]
PICS	[* Reference *]
PIXIT	[* Reference *]
Protocol Conformance Test Report:	[* reference - see Note *]
Date:	[* of Protocol Conformance Test Report *]
Test Method:	[* Abstract Test Method; a this should be the Remote Single Layer test method (see Annex A of this ETS) *]
Abstract Test Suite:	[* reference *]
Real Test System	[* Name, Version Number *]
Conformance status:	
Statically Conforming	[* Yes/No *]
Dynamically Conforming	[* Yes/No *]
Test Cases Run:	[* Number *]
Test Cases Passed	[* Number *]
Test Cases Failed	[* Number *]

4 Summary of Error Report

Detailed Error Report: [* reference - see NOTE *]

Date: [* of Error Report *]

[* A summary of the errors when the equipment was tested against the requirements specified in this ETS should be given here. If there were no errors then this should be explicitly stated in this part of the test report. *]

5 Summary of Particular Events

Detailed Report of Particular Events [* reference - see NOTE *]

Date: [* of Particular Events Report *]

[* A summary of any particular events which occurred during test execution should be given here. If there were no particular events then this should be explicitly stated in this part of the report *]

[* NOTE - Detailed Test reports for layer 3 protocol together with a detailed Error and Particular Event report should be prepared by the test laboratory. The purpose of the system test report is to provide sufficient information to indicate to the approval authority whether or not the equipment under test meets the requirements specified in this ETS. Hence the detailed test reports do not need to be part of the report but reference to the detailed report should be given so that they can be referred to and studied if required.

The detailed test report for layer 3 of the protocol should specify:

- Names of operators and persons involved in testing:
- Date(s) of test execution:
- Test System - Name and Version Number:
- Test environment:
- Tests Performed and result of each test:
- Any error report:
- Any particular event(s) that occur during testing: *]

History

Document history	
July 1991	First Edition
December 1995	Converted into Adobe Acrobat Portable Document Format (PDF)