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Part 2-1: Test suites structure and test purposes**

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## Foreword

This draft European Telecommunication Standard (ETS) has been produced by the Radio Equipment and Systems (RES) Technical Committee of the European Telecommunications Standards Institute (ETSI), and is now submitted for the Public Enquiry phase of the ETSI standards approval procedure.

Every ETS prepared by ETSI is a voluntary standard. This ETS contains text concerning conformance testing of the equipment to which it relates. This text should be considered only as guidance and does not make this ETS mandatory.

This ETS will consist of three parts:

Part 1: "Radio";

**Part 2: "Protocol testing specification Voice plus Data (V+D)";**

Part 3: "Protocol testing specification (PDO)", (DE/RES-06009-3).

<b>Proposed transposition dates</b>	
Date of latest announcement of this ETS (doa):	3 months after ETSI publication
Date of latest publication of new National Standard or endorsement of this ETS (dop/e):	6 months after doa
Date of withdrawal of any conflicting National Standard (dow):	6 months after doa

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## 1 Scope

This European Telecommunication Standard (ETS) contains the Test Suite Structure (TSS) and Test Purposes (TPs) to test the TETRA Voice plus Data (V+D) protocols.

The conformance testing of Connection Oriented Network Protocol (CONP) is outside the scope of this ETS. Instead, existing test specifications for that protocol should be applied.

The testing of supplementary services is outside the scope of this ETS.

The TPs presented in this ETS are applicable to TETRA MSs supporting optional security as specified in ETS 300 392-7 [3], taking into account the restrictions described in more detail further on in this ETS. However, the actual testing of security features is outside the scope of this ETS.

The objective of this test specification is to provide a basis for approval tests for TETRA equipment giving a high probability of air interface inter-operability between different manufacturer's TETRA equipment.

The ISO standard for the methodology of conformance testing, ISO/IEC 9646-1 [4] and ISO/IEC 9646-2 [5], as well as the ETSI methodology for conformance testing, ETS 300 406 [6], are used as the basis for the test methodology.

## 2 Normative references

This ETS incorporates by dated and undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this ETS only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

- [1] ETS 300 392-1: "Radio Equipment and Systems (RES); Trans-European Trunked Radio (TETRA) system; Voice plus Data (V+D); Part 1: General Network Design".
- [2] ETS 300 392-2: "Radio Equipment and Systems (RES); Trans-European Trunked Radio (TETRA) system; Voice plus Data (V+D); Part 2: Air Interface".
- [3] ETS 300 392-7: "Radio Equipment and Systems (RES); Trans-European Trunked Radio (TETRA) system; Voice plus Data (V+D); Part 7: Security".
- [4] ISO/IEC 9646-1 (1991): "Information technology - Open Systems Interconnection - Conformance Testing Methodology and Framework - Part 1: General Concepts". (See also CCITT Recommendation X.290 (1991)).
- [5] ISO/IEC 9646-2 (1991): "Information technology - Open Systems Interconnection - Conformance Testing Methodology and Framework - Part 2: Abstract Test Suite Specification". (See also CCITT Recommendation X.291 (1991)).
- [6] ETS 300 406 (1995): "Methods for Testing and Specification (MTS); Protocol and profile conformance testing specifications; Standardization methodology".

## 3 Definitions and abbreviations

### 3.1 TETRA definitions

For the purposes of this ETS, the definitions given in ETS 300 392-2 [2] apply.

### 3.2 TETRA abbreviations

For the purposes of this ETS, the following TETRA abbreviations apply:

CMCE	Circuit Mode Control Entity
CONP	Connection Oriented Network Protocol
FCS	Frame Check Sequence
ITSI	Individual TETRA Subscriber Identity
LACC	Location Area Country Code
LANC	Location Area Network Code
LLC	Logical Link Control
MAC	Medium Access Control
MCC	Mobile Country Code
MLE	Mobile Link Entity
MM	Mobility Management
MNC	Mobile Network Code
MS	Mobile Station
NWK	Network Layer 3 of the TETRA protocol stack
SCLNP	Specific Connectionless Network Protocol
SDS	Short Data Services sub entity within CMCE
SDU	Service Data Unit
SwMI	Switching and Management Infrastructure

### 3.3 ISO 9646 definitions

For the purposes of this ETS, the following ISO 9646-1 [4] definitions apply:

Implementation Conformance Statement (ICS)  
Implementation Under Test (IUT)  
Implementation eXtra Information for Testing (IXIT)  
Protocol Implementation Conformance Statement (PICS)  
Protocol Implementation eXtra Information for Testing (PIXIT)

### 3.4 ISO 9646 abbreviations

For the purposes of this ETS, the following ISO 9646-1 [4] abbreviations apply:

IUT	Implementation Under Test
PDU	Protocol Data Unit
PICS	Protocol Implementation Conformance Statement
PIXIT	Protocol Implementation eXtra Information for Testing
TP	Test Purpose
TSS	Test Suite Structure



## 4 Test Suite Structure (TSS)

### 4.1 Network (NWK) layer

#### 4.1.1 NWK layer TSS overview

The NWK layer test suite, as illustrated in figure 1, is structured as a tree with a first level defined as NWK representing the whole test suite for TETRA V+D network layer protocols.

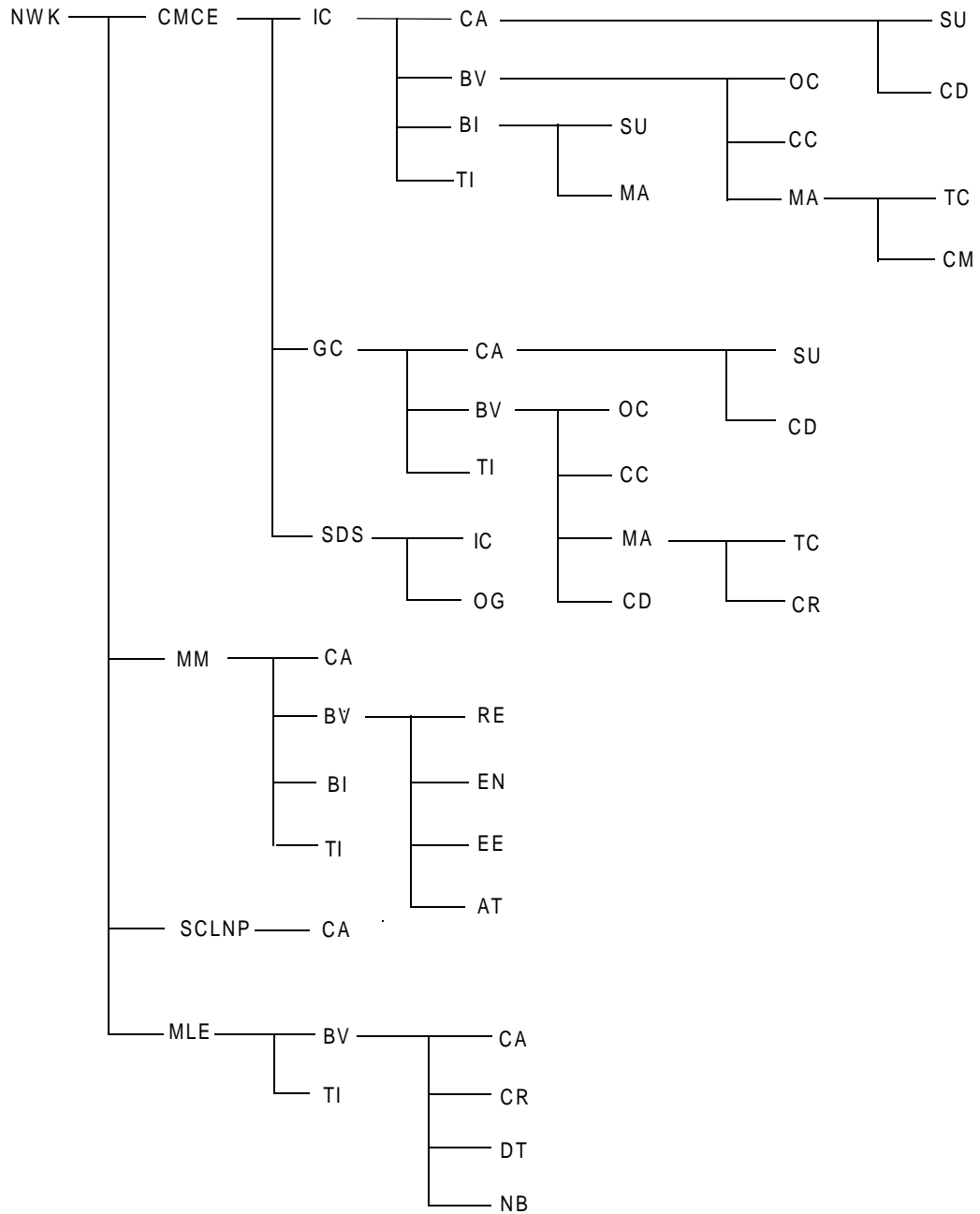


Figure 1: NWK layer TSS

#### 4.1.2 NWK layer test groups

The test groups are organized in several levels. The first level separates the NWK layer in different protocols. The second level generally separates protocol test in four functional test groups according to the type of testing: Capability test (CA), Valid Behaviour (BV), Invalid Behaviour (BI), and Timer tests (TI). The purpose of these test groups is explained in subclause 4.4. Exceptionally, the second level of the CMCE protocol creates functional modules which are then further on divided into these four functional test groups, i.e. CA, BV, BI, and TI. Further levels of the test subgroups are used to form more detailed division of protocol requirements, generally protocol procedures are used for naming the subgroups.

The following list defines the NWK layer test group names and identifiers used for those:

Circuit Mode Control Entity (CMCE):

Individual Call (IC):

Capability tests (CA):

Call Setup (SU);  
Call Disconnection (CD);

Valid Behaviour tests (BV):

Outgoing Call (OC);  
Colliding Calls (CC);  
Call Maintenance (MA):  
Transmission Control (TC);  
Call Modification (CM);

Invalid Behaviour tests (BI):

Call Setup (SU);  
Call Maintenance (MA);  
Call Disconnection (CD);

Timer Tests (TI);

Group Call (GC):

Capability tests (CA):

Call Setup (SU);  
Call Disconnection (CD);

Valid Behaviour tests (BV):

Outgoing Call (OC);  
Colliding Calls (CC);  
Call Maintenance (MA):  
Transmission Control (TC);  
Call Restoration (CR);

Call Disconnection (CD);

Timer Tests (TI);

Short Data Service (SDS):

Incoming messages (IC);  
Outgoing messages (OG);

Mobility Management (MM):

Capability tests (CA);

Valid Behaviour tests (BV):

Registration (RE);  
Enable/disable (EN);  
Energy Economy Mode (EE);  
Attachment/detachment of group identities (AT);

Invalid Behaviour tests (BI);

Timer tests (TI);

Specific Connectionless Network Protocol (SCLNP):

Capability tests (CA);

Mobile Link Entity (MLE):

Valid Behaviour tests (BV):

Cell Reselection (CR);  
Data Transfer (DT);  
Network Broadcast (NB);

Timer tests (TI).

## 4.2 Logical Link Control (LLC) layer

### 4.2.1 LLC layer TSS overview

The LLC layer TSS is illustrated in figure 2.

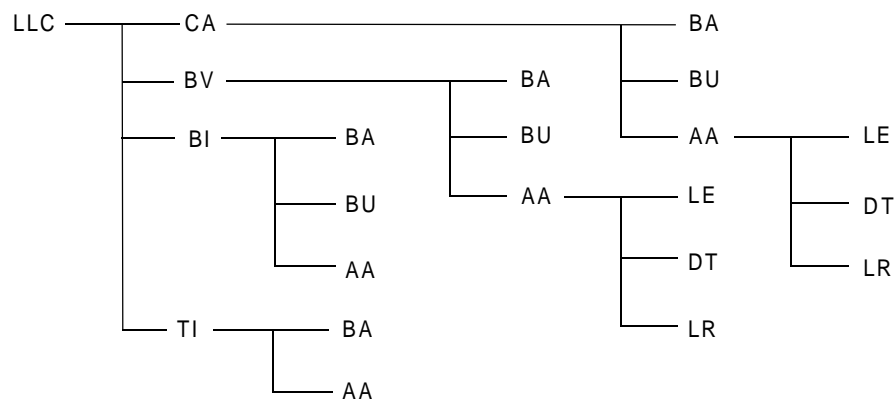


Figure 2: LLC layer TSS

### 4.2.2 LLC layer test groups

The first level of the LLC test groups separates the LLC test suite in four functional test groups: CA, BV, BI, and TI. The second level splits the test suite into different LLC services. Further levels of the test subgroups are used to form more detailed division of protocol requirements.

The following list defines the LLC layer test group names and identifiers:

Capability tests (CA):

Basic link, Acknowledged service (BA);

Basic link, Unacknowledged service (BU);

Advanced link, Acknowledged service (AA):  
Link Establishment (LE);  
Data Transfer (DT);  
Link Release (LR);

Valid Behaviour tests (BV):

Basic link, Acknowledged service (BA):

Basic link, Unacknowledged service (BU);

Advanced link, Acknowledged service (AA):  
Link Establishment (LE);  
Data Transfer (DT);  
Link Release (LR);

Invalid Behaviour tests (BI):

Basic link, Acknowledged service (BA)

Basic link, Unacknowledged service (BU)

Advanced link, Acknowledged service (AA)

Timer tests (TI):

Basic link, Acknowledged service (BA)

Advanced link, Acknowledged service (AA)

### 4.3 Medium Access Control (MAC) layer

#### 4.3.1 MAC layer TSS overview

The MAC layer TSS is illustrated in figure 3.

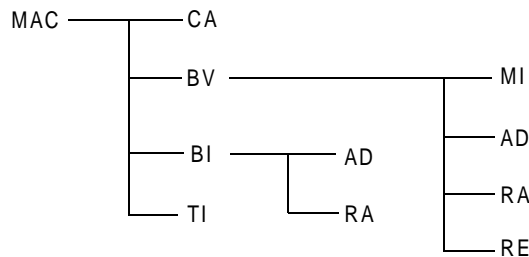


Figure 3: MAC layer TSS

#### 4.3.2 MAC layer test groups

The first level of the MAC test groups separates the MAC test suite in four functional test groups: CA, BV, BI, and TI. The second level of the test subgroups is used to form a division of protocol requirements.

The following list defines the MAC layer test group names and identifiers:

Capability tests (CA);

Valid behaviour tests (BV):

Minimum mode (MI);

Addressing (AD);

Random access (RA);  
 Reserved access (RE);  
 Invalid behaviour tests (BI):  
     Addressing (AD);  
     Random access (RA);  
 Timer tests (TI).

#### 4.4 Test group description

Capability (CA) tests provide limited testing that the observable capabilities of the IUT are in accordance with the static conformance requirements and the additional capabilities claimed in the PICS/PIXIT. In particular, this test group can be regarded as a set of spot checks for all the capabilities of the IUT stated in the PICS/PIXIT. Scope of the test group is the observable capabilities of the IUT with respect to NWK layer connection, call control, and the mobility management.

The Valid Behaviour (BV) group tests an IUT in response to valid behaviour of the test system. "Valid" means that a test event is syntactically and contextually correct. All test cases in the valid behaviour group are intended to verify as thoroughly as possible the various functions of the protocol.

The Invalid Behaviour (BI) group is intended to verify that the IUT is able to react properly in case an invalid protocol data unit (message) occurring. Invalid PDU here means syntactically or semantically invalid test events generated by the test system. A syntactically or semantically invalid test event regardless of the current state is not allowed. Inopportune test cases are also included in this test group. These are intended to verify that the IUT is able to react properly in case an inopportune test event occurring. Such an event is syntactically correct, but occurs when it is not allowed.

Different timers and counters are defined to supervise the various state transitions. The Timer (TI) test group is intended to verify that the IUT is reacting properly to an expiry of one of the timers or to a counter mismatch.

## 5 Introduction to Test Purposes (TPs)

The test purposes for each test suite are defined in this ETS in clauses 6, 7, and 8 for NWK layer, LLC layer and MAC layer respectively.

### 5.1 Test purpose definition conventions

The test purposes are defined following particular rules as shown in the table 1.

**Table 1: Test purpose definition rules**

TP Id	Reference Condition Initial state Stimulus Expected behaviour
TP Id:	The TP Id is a unique identifier it shall be specified according to the TP naming conventions defined in the subclause below.
Reference:	The reference should contain the references of the subject to be validated by the actual TP (specification reference, clause, paragraph).
Condition:	The conditions applying to selecting the test purpose
Initial State:	Defines in which initial state the IUT has to be, in order to apply the TP.
Stimulus:	The stimulus defines the test event to which the TP is related.
Expected behaviour:	Definition of the events that are expected from the IUT to conform to the base specification.

## 5.2 Test purpose naming conventions

The identifier of the test purpose is built according to table 2:

**Table 2: Test purpose naming convention**

TP/<ts>/<fm>/<x>/<s>/<nn>		
<ts>	= test suite	NWK LLC MAC
		Network layer Logical Link Control layer Medium Access Control layer
<fm>	= functional module or subentity (NWK layer only)	For NWK layer: CMCE/IC CMCE/GC CMCE/SDS MM SCLNP MLE
		Circuit Mode Control Entity/Individual Call Circuit Mode Control Entity/Group Call Circuit Mode Control Entity/Short Data Srv. Mobility Management Specific Connectionless Network Protocol Mobile Link Entity
x	= Type of testing	CA BV BI TI
		Capability Tests Valid Behaviour Tests Invalid Behaviour Tests Timer expiry and counter mismatch tests
s	= test subgroup (as many subgroups as required)	
		as defined in the test suite structure
<nn>	= sequential number	(01-99)
		Test Purpose Number

## 6 NWK layer test purposes

### 6.1 Circuit Mode Control Entity (CMCE)

Test group objective:

- to test the behaviour of the CMCE module of the IUT.

Condition:

- IUT implements the CMCE.

#### 6.1.1 Individual call

Test group objective:

- to test the behaviour of the CMCE module of the IUT, when operating in individual call mode.

Condition:

- IUT supports individual call.

##### 6.1.1.1 Capability tests

Test group objective:

- to test the basic capabilities of the CMCE module of the IUT, when operating in individual call mode.

### 6.1.1.1.1 Call setup

Test group objective:

- to test the basic capabilities of the CMCE module of the IUT during call setup, when operating in individual call mode.

TP/NWK/CMCE/IC/CA/SU-01	<p>Reference: ETS 300 392-2 [2], subclauses 14.4.2, 14.5.1.1, 14.5.1.1.1          Condition: IUT supports incoming call with on hook/off hook signalling          Initial state: Call Control in state IDLE and IUT registered          Stimulus: Incoming call in IDLE state</p> <p>Verify that, when the IUT receives a D-SETUP PDU indicating on hook/off hook signalling, it enters the MT-CALL-SETUP state and sends a U-ALERT PDU.</p>
TP/NWK/CMCE/IC/CA/SU-02	<p>Reference: ETS 300 392-2 [2], subclauses 14.4.2, 14.5.1.1, 14.5.1.1.1          Condition: IUT supports incoming call with on hook/off hook signalling          Initial state: MT-CALL SETUP          Stimulus: Incoming call answered</p> <p>Verify that, having received an incoming call and issued a U-ALERT PDU, when the called user application has answered, the IUT sends a U-CONNECT PDU and accepts a D-CONNECT-ACKNOWLEDGE PDU in return, entering the CALL-ACTIVE state.</p>
TP/NWK/CMCE/IC/CA/SU-03	<p>Reference: ETS 300 392-2 [2], subclauses 14.4.2, 14.5.1.1, 14.5.1.1.1          Condition: IUT supports incoming call with direct setup signalling          Initial state: Call Control in state IDLE and IUT registered          Stimulus: Incoming call in IDLE state</p> <p>Verify that, when the IUT receives a D-SETUP PDU indicating direct setup signalling, it sends a U-CONNECT PDU and accepts a D-CONNECT-ACKNOWLEDGE PDU in return, entering the CALL-ACTIVE state.</p>
TP/NWK/CMCE/IC/CA/SU-04	<p>Reference: ETS 300 392-2 [2], subclauses 14.4.2, 14.5.1.1, 14.5.1.1.2          Condition: IUT supports outgoing call requesting on hook/off hook signalling          Initial state: Call Control in state IDLE and IUT registered          Stimulus: Outgoing call from IDLE state</p> <p>Verify that, when the IUT initiates an outgoing call indicating on hook/off hook signalling, it sends a U-SETUP PDU, enters MO-CALL-SETUP state and accepts in response a D-ALERT PDU followed by a D-CONNECT PDU, entering the CALL-ACTIVE state.</p>
TP/NWK/CMCE/IC/CA/SU-05	<p>Reference: ETS 300 392-2 [2], subclauses 14.4.2, 14.5.1.1, 14.5.1.1.2          Condition: IUT supports outgoing call requesting direct setup signalling          Initial state: Call Control in state IDLE and IUT registered          Stimulus: Outgoing call from IDLE state</p> <p>Verify that, when the IUT initiates an outgoing call indicating direct setup signalling, it sends a U-SETUP PDU, enters MO-CALL-SETUP state and accepts in response a D-CONNECT PDU, entering the CALL-ACTIVE state.</p>

**6.1.1.1.2 Call disconnection**

Test group objective:

- to test the basic capabilities of the CMCE module of the IUT during call disconnection, when operating in individual call mode.

TP/NWK/CMCE/IC/CA/CD-01	Reference: ETS 300 392-2 [2], subclauses 14.4.2, 14.5.1.3, 14.5.1.3.1 Condition: IUT supports user initiated disconnection Initial state: CALL-ACTIVE Stimulus: User application initiates release  Verify that, when the IUT disconnects a call, it sends a U-DISCONNECT PDU, enters state CALL-DISCONNECT, accepts a D-RELEASE PDU, entering the IDLE state, in which it accepts a call with the same call identifier.
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TP/NWK/CMCE/IC/CA/CD-02	Reference: ETS 300 392-2 [2], subclauses 14.4.2, 14.5.1.3, 14.5.1.3.2 Condition: IUT supports release request reception Initial state: CALL-ACTIVE Stimulus: Release request received  Verify that, when the IUT has an Individual call established and a D-RELEASE PDU is received, it enters the IDLE state in which it accepts a call with the same call identifier.
-------------------------	--

TP/NWK/CMCE/IC/CA/CD-03	Reference: ETS 300 392-2 [2], subclauses 14.4.2, 14.5.1.3, 14.5.1.3.3 Condition: IUT supports disconnection request reception Initial state: CALL-ACTIVE Stimulus: Disconnection request received  Verify that, when the IUT has a Call established and when a D-DISCONNECT PDU is received, it sends a U-RELEASE PDU, entering the IDLE state.
-------------------------	--

**6.1.1.2 Valid behaviour tests**

Test group objective:

- to test the valid behaviour of the CMCE module of the IUT, when operating in individual call mode.

**6.1.1.2.1 Outgoing call**

Test group objective:

- to test the valid behaviour of the CMCE module of the IUT during outgoing call, when operating in individual call mode.

TP/NWK/CMCE/IC/BV/OC-01	Reference: ETS 300 392-2 [2], subclauses 14.4.2, 14.5.1.1, 14.5.1.1.2 Condition: IUT supports outgoing call requesting on hook/off hook signalling and D-CALL-PROCEEDING PDU Initial state: Call Control in state IDLE and IUT registered Stimulus: Outgoing call from IDLE state  Verify that, when the IUT initiates an outgoing call indicating on hook/off hook signalling, it sends a U-SETUP PDU, enters MO-CALL-SETUP state and accepts in response a D-CALL-PROCEEDING PDU followed by a D-ALERT PDU followed by a D-CONNECT PDU, entering the CALL-ACTIVE state.
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TP/NWK/CMCE/IC/BV/OC-02	<p>Reference: ETS 300 392-2 [2], subclauses 14.4.2, 14.5.1.1, 14.5.1.1.2</p> <p>Condition: IUT supports outgoing call requesting on hook/off hook signalling</p> <p>Initial state: Call Control in state IDLE and IUT registered</p> <p>Stimulus: Outgoing call from IDLE state</p> <p>Verify that, when the IUT initiates an outgoing call indicating on hook/off hook signalling, it sends a U-SETUP PDU, enters MO-CALL-SETUP state and accepts in response a D-CONNECT PDU, entering the CALL-ACTIVE state.</p>
TP/NWK/CMCE/IC/BV/OC-03	<p>Reference: ETS 300 392-2 [2], subclauses 14.4.2, 14.5.1.1, 14.5.1.1.2</p> <p>Condition: IUT supports outgoing call requesting direct setup signalling and D-CALL-PROCEEDING PDU</p> <p>Initial state: Call Control in state IDLE and IUT registered</p> <p>Stimulus: Outgoing call from IDLE state</p> <p>Verify that, when the IUT initiates an outgoing call indicating direct setup signalling, it sends a U-SETUP PDU, enters MO-CALL-SETUP state and accepts in response a D-CALL-PROCEEDING PDU followed by a D-CONNECT PDU, entering the CALL-ACTIVE state.</p>

### 6.1.1.2.2 Colliding calls

Test group objective:

- to test the valid behaviour of the CMCE module of the IUT during Colliding calls, when operating in individual call mode.

TP/NWK/CMCE/IC/BV/CC-01	<p>Reference: ETS 300 392-2 [2], subclauses 14.4.2, 14.5.1.1.3</p> <p>Condition: IUT supports call requesting on hook/off hook signalling</p> <p>Initial state: Set-up (N-1) calls, Where N is the maximum supported instances of Call Control</p> <p>Stimulus: Outgoing call and Incoming call in IDLE state</p> <p>Verify that, when the IUT initiates an outgoing call indicating on hook/off hook signalling, and receives an incoming call indicating on hook/off hook signalling, it will release one of the two calls and keep the other, by sending a U-DISCONNECT with the relevant call identifier.</p>
TP/NWK/CMCE/IC/BV/CC-02	<p>Reference: ETS 300 392-2 [2], subclauses 14.4.2, 14.5.1.1.3,</p> <p>Condition: IUT supports call with direct setup signalling</p> <p>Initial state: Set-up (N-1) calls, Where N is the maximum supported instances of Call Control</p> <p>Stimulus: Outgoing call and Incoming call in IDLE state</p> <p>Verify that, when the IUT initiates an outgoing call indicating direct setup signalling, and receives an incoming call indicating direct setup signalling, it will release one of the two calls and keep the other, by sending a U-DISCONNECT with the relevant call identifier.</p>

### 6.1.1.2.3 Call maintenance

Test group objective:

- to test the valid behaviour of the CMCE module of the IUT during call maintenance, when operating in individual call mode.

## 6.1.1.2.3.1 Transmission control

Test group objective:

- to test the valid behaviour of the CMCE module of the IUT during transmission control, when operating in individual call mode.

TP/NWK/CMCE/IC/BV/MA/TC-01	<p>Reference: ETS 300 392-2 [2], subclauses 14.4.2, 14.5.1.2.1  Condition: IUT supports outgoing call with direct setup signalling and Transmission granted  Initial state: Call Control in state IDLE and IUT registered  Stimulus: Outgoing call from IDLE state</p> <p>Verify that, when the IUT initiates an outgoing call indicating direct setup signalling sending a U-SETUP PDU, when it enters MO-CALL-SETUP state and accepts in response a D-CONNECT PDU with TX-Granted, the IUT starts transmitting.</p>
TP/NWK/CMCE/IC/BV/MA/TC-02	<p>Reference: ETS 300 392-2 [2], subclauses 14.4.2, 14.5.1.2.1  Condition: IUT supports end of transmission  Initial state: Call Control in state CALL-ACTIVE-TX  Stimulus: Request to cease transmitting granted</p> <p>Verify that, when the IUT initiates a request for cease transmitting, it sends a U-TX-CEASED PDU, accepts in response a D-TX-CEASED PDU, and stops transmitting.</p>
TP/NWK/CMCE/IC/BV/MA/TC-03	<p>Reference: ETS 300 392-2 [2], subclauses 14.4.2, 14.5.1.2.1  Condition: IUT supports transmission granted  Initial state: Call Control in state CALL-ACTIVE  Stimulus: Incoming TX grant indicating TX grant to another user</p> <p>Verify that, the IUT accepts a D-TX-GRANTED PDU indicating TX granted to another user, and does not transmit.</p>
TP/NWK/CMCE/IC/BV/MA/TC-04	<p>Reference: ETS 300 392-2 [2], subclauses 14.4.2, 14.5.1.2.1  Condition: IUT supports request to transmit  Initial state: Call Control in state CALL-ACTIVE-RX  Stimulus: Outgoing TX request and incoming TX request granted</p> <p>Verify that, when the IUT initiates a TX request, it sends a U-TX-DEMAND PDU, enters CALL-ACTIVE-TX-REQ state, accepts in response a D-TX-GRANTED PDU with TX-Granted, enters CALL-ACTIVE-TX state and starts transmitting.</p>
TP/NWK/CMCE/IC/BV/MA/TC-05	<p>Reference: ETS 300 392-2 [2], subclauses 14.4.2, 14.5.1.2.1  Condition: IUT supports transmission not granted  Initial state: Call Control in state CALL-ACTIVE-RX  Stimulus: Outgoing TX request and incoming TX request not granted</p> <p>Verify that, when the IUT initiates a TX request, it sends a U-TX-DEMAND PDU, enters CALL-ACTIVE-TX-REQ state, accepts in response a D-TX-GRANTED PDU with TX-Not-Granted, enters CALL-ACTIVE-RX state, and does not transmit.</p>

TP/NWK/CMCE/IC/BV/MA/TC-06	<p>Reference: ETS 300 392-2 [2], subclauses 14.4.2, 14.5.1.2.1  Condition: IUT supports call requesting with On/Off Hook signalling  Initial state: Call Control in state IDLE and IUT registered  Stimulus: Outgoing call from IDLE state</p> <p>Verify that, when the IUT initiates an outgoing call indicating On/Off Hook setup signalling, it sends a U-SETUP PDU, enters MO-CALL-SETUP state and accepts in response a D-ALERT PDU followed by a D-CONNECT PDU with TX-Granted to another user, the IUT enters CALL-ACTIVE-RX with U-Plane on.</p>
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#### 6.1.1.2.3.2 Call modification

Test group objective:

- to test the valid behaviour of the CMCE module of the IUT during call modification, when operating in individual call mode.

TP/NWK/CMCE/IC/BV/MA/CM-01	<p>Reference: ETS 300 392-2 [2], subclause 14.5.1.2.3  Condition: IUT supports SwMI initiated call modification  Initial state: Call Control in state CALL-ACTIVE  Stimulus: Incoming request to modify the call</p> <p>Verify that, when the IUT receives a D-INFO PDU with a new "Basic Service Element" indicating a change from individual to group call, it accepts the change without clearing the call, or clears the call and sends a U-DISCONNECT PDU indicating "requested service not available"</p>
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#### 6.1.1.3 Invalid behaviour tests

Test group objective:

- to test the invalid behaviour of the CMCE module of the IUT, when operating in individual call mode.

##### 6.1.1.3.1 Call setup

Test group objective:

- to test the invalid behaviour of the CMCE module of the IUT during call setup, when operating in individual call mode.

TP/NWK/CMCE/IC/BI/SU-01	<p>Reference: ETS 300 392-2 [2], subclauses 14.4.2, 14.5.1.1, 14.5.1.1.1, 14.5.6.5.2  Condition: IUT supports incoming call with on hook/off hook signalling  Initial state: MT-CALL SETUP  Stimulus: Incoming call answered</p> <p>Verify that, having received an incoming call and issued a U-ALERT PDU, when the called user application has answered, the IUT sends a U-CONNECT PDU and having received a D-CONNECT-ACKNOWLEDGE PDU with wrong Call Identifier in return, the IUT responds with a U-DISCONNECT PDU.</p>
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TP/NWK/CMCE/IC/BI/SU-02	<p>Reference: ETS 300 392-2 [2], subclauses 14.4.2, 14.5.1.1, 14.5.1.1.1, 14.5.6.5.2</p> <p>Condition: IUT supports incoming call with direct setup signalling</p> <p>Initial state: Call Control in state IDLE and IUT registered</p> <p>Stimulus: Incoming call in IDLE state</p> <p>Verify that, when the IUT receives a D-SETUP PDU indicating direct setup signalling, it sends a U-CONNECT PDU having received a D-CONNECT-ACKNOWLEDGE PDU with wrong Call Identifier in return, the IUT responds with a U-DISCONNECT PDU.</p>
TP/NWK/CMCE/IC/BI/SU-03	<p>Reference: ETS 300 392-2 [2], subclauses 14.4.2, 14.5.1.1, 4.5.1.1.2, 14.5.6.5.2</p> <p>Condition: IUT supports outgoing call requesting on hook/off hook signalling</p> <p>Initial state: Call Control in state IDLE and IUT registered</p> <p>Stimulus: Outgoing call from IDLE state</p> <p>Verify that, when the IUT initiates an outgoing call indicating on hook/off hook signalling, it sends a U-SETUP PDU, enters MO-CALL-SETUP state and accepts in response a D-ALERT PDU followed by a D-CONNECT PDU with wrong Call Identifier, the IUT responds with a U-DISCONNECT PDU.</p>

### 6.1.1.3.2 Call maintenance

Test group objective:

- to test the invalid behaviour of the CMCE module of the IUT during call maintenance, when operating in individual call mode.

TP/NWK/CMCE/IC/BI/MA-01	<p>Reference: ETS 300 392-2 [2], subclauses 14.4.2, 14.5.1.2.1, 14.5.6.5.2</p> <p>Condition: IUT supports request to transmit</p> <p>Initial state: Call Control in state CALL-ACTIVE-RX</p> <p>Stimulus: Outgoing TX request and incoming TX request granted</p> <p>Verify that, when the IUT initiates a TX request, it sends a U-TX-DEMAND PDU, enters CALL-ACTIVE-TX-REQ state and accepts in response a D-TX-GRANTED PDU with wrong Call Identifier, the IUT responds with a U-DISCONNECT PDU with the received invalid Call Identifier and a cause value "Invalid Call Identifier", and retains the active call.</p>
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### 6.1.1.3.3 Call disconnection

Test group objective:

- to test the invalid behaviour of the CMCE module of the IUT during disconnection, when operating in individual call mode.

TP/NWK/CMCE/IC/BI/CD-01	<p>Reference: ETS 300 392-2 [2], subclauses 14.4.2, 14.5.1.3, 14.5.1.3.2, 14.5.6.5.2</p> <p>Condition: IUT supports release request reception</p> <p>Initial state: CALL-ACTIVE</p> <p>Stimulus: Release request received with wrong Call ID</p> <p>Verify that, when the IUT has an Individual Call established and a D-RELEASE PDU is received with wrong Call Identifier, it stays in the call.</p>
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TP/NWK/CMCE/IC/BI/CD-02	<p>Reference: ETS 300 392-2 [2], subclauses 14.4.2, 14.5.1.3, 14.5.1.3.3, 14.5.6.5.2</p> <p>Condition: IUT supports disconnection request reception</p> <p>Initial state: CALL-ACTIVE</p> <p>Stimulus: Disconnection request received wrong Call ID</p> <p>Verify that, when the IUT has a call established and when a D-DISCONNECT PDU is received with wrong Call Identifier, it sends a U-DISCONNECT PDU and stays in the call.</p>
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#### 6.1.1.4 Timer tests

Test group objective:

- to test the timers of the CMCE module of the IUT, when operating in individual call mode.

TP/NWK/CMCE/IC/TI-01	<p>Reference: ETS 300 392-2 [2], subclauses 14.4.2, 14.5.1.1, 14.5.1.3.4</p> <p>Condition: IUT supports incoming call with on hook/off hook signalling</p> <p>Initial state: MT-CALL SETUP</p> <p>Stimulus: Incoming call answered</p> <p>Verify that, having received an incoming call and issued a U-ALERT PDU, the called user application having answered, having sent a U-CONNECT PDU and started timer T301, when timer T301 expires without receiving a D-CONNECT-ACKNOWLEDGE, the IUT sends a U-DISCONNECT PDU with value "expiry of timer".</p>
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TP/NWK/CMCE/IC/TI-02	<p>Reference: ETS 300 392-2 [2], subclauses 14.4.2, 14.5.1.1, 14.5.1.3.4</p> <p>Condition: IUT supports incoming call with on hook/off hook signalling</p> <p>Initial state: MT-CALL SETUP</p> <p>Stimulus: Incoming call answered</p> <p>Verify that, having received an incoming call and issued a U-ALERT PDU, the called user application having answered, having sent a U-CONNECT PDU and accepted a D-CONNECT-ACKNOWLEDGE PDU in return, having entered the CALL-ACTIVE state and started timer T310, when timer T310 expires the IUT sends a U-DISCONNECT PDU with value "expiry of timer".</p>
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TP/NWK/CMCE/IC/TI-03	<p>Reference: ETS 300 392-2 [2], subclauses 14.4.2, 14.5.1.1, 14.5.1.3.4</p> <p>Condition: IUT supports incoming call with direct setup signalling</p> <p>Initial state: MT-CALL SETUP</p> <p>Stimulus: Incoming call answered</p> <p>Verify that, having received an incoming call and the called user application having answered, having sent a U-CONNECT PDU and started timer T301, when timer T301 expires without receiving a D-CONNECT-ACKNOWLEDGE the IUT sends a U-DISCONNECT PDU with value "expiry of timer".</p>
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TP/NWK/CMCE/IC/TI-04	<p>Reference: ETS 300 392-2 [2], subclauses 14.4.2, 14.5.1.1, 14.5.1.3.4</p> <p>Condition: IUT supports incoming call with direct setup signalling</p> <p>Initial state: MT-CALL SETUP</p> <p>Stimulus: Incoming call answered</p> <p>Verify that, having received an incoming call and the called user application having answered, having sent a U-CONNECT PDU and accepted a D-CONNECT-ACKNOWLEDGE PDU in return, having entered the CALL-ACTIVE state and started timer T310, when timer T310 expires the IUT sends a U-DISCONNECT PDU with value "expiry of timer".</p>
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TP/NWK/CMCE/IC/TI-05	<p>Reference: ETS 300 392-2 [2], subclauses 14.4.2, 14.5.1.1, 14.5.1.3.4  Condition: IUT supports outgoing call requesting on hook/off hook signalling  Initial state: Call Control in state IDLE and IUT registered  Stimulus: Outgoing call from IDLE state</p> <p>Verify that, having initiated an outgoing call indicating on hook/off hook signalling, sending a U-SETUP PDU, having entered MO-CALL-SETUP state and started timer T303, when timer T303 expires without receiving a D-ALERT, D-CALL PROCEEDING or D-CONNECT, the IUT sends a U-DISCONNECT PDU with value "expiry of timer".</p>
TP/NWK/CMCE/IC/TI-06	<p>Reference: ETS 300 392-2 [2], subclauses 14.4.2, 14.5.1.1, 14.5.1.3.4  Condition: IUT supports outgoing call requesting on hook/off hook signalling  Initial state: Call Control in state IDLE and IUT registered  Stimulus: Outgoing call from IDLE state</p> <p>Verify that, having initiated an outgoing call indicating on hook/off hook signalling, sending a U-SETUP PDU, having entered MO-CALL-SETUP state, accepted in response a D-ALERT PDU and started timer T302, when timer T302 expires without receiving a D-CONNECT, the IUT sends a U-DISCONNECT PDU with value "expiry of timer".</p>
TP/NWK/CMCE/IC/TI-07	<p>Reference: ETS 300 392-2 [2], subclauses 14.4.2, 14.5.1.1, 14.5.1.1.2  Condition: IUT supports outgoing call requesting direct setup signalling  Initial state: Call Control in state IDLE and IUT registered  Stimulus: Outgoing call from IDLE state</p> <p>Verify that, having initiated an outgoing call indicating direct setup signalling, sending a U-SETUP PDU, having entered MO-CALL-SETUP state and started timer T303, when timer T303 expires without receiving D-CALL PROCEEDING or D-CONNECT, the IUT sends a U-DISCONNECT PDU with value "expiry of timer".</p>
TP/NWK/CMCE/IC/TI-08	<p>Reference: ETS 300 392-2 [2], subclauses 14.4.2, 14.5.1.1, 14.5.1.1.2  Condition: IUT supports outgoing call requesting direct setup signalling  Initial state: Call Control in state IDLE and IUT registered  Stimulus: Outgoing call from IDLE state</p> <p>Verify that, having initiated an outgoing call indicating direct setup signalling, sending a U-SETUP PDU, having entered MO-CALL-SETUP state, accepted in response a D-CALL-PROCEEDING PDU and started timer T302, when timer T302 expires without receiving D-CONNECT, the IUT sends a U-DISCONNECT PDU with value "expiry of timer".</p>
TP/NWK/CMCE/IC/TI-09	<p>Reference: ETS 300 392-2 [2], subclauses 14.4.2, 14.5.1.1, 14.5.1.3.4  Condition: IUT supports Call status information  Initial state: MT-CALL SETUP  Stimulus: Incoming call status information</p> <p>Verify that, when in state MT-CALL SETUP, having sent a U-CONNECT PDU, having received a D-INFO PDU indicating "Call in Queue" and "call time-out set up phase", having restarted timer T301, when T301 expires without receiving D-CONNECT-ACKNOWLEDGE, the IUT sends a U-DISCONNECT PDU with value "expiry of timer".</p>

TP/NWK/CMCE/IC/TI-10	<p>Reference: ETS 300 392-2 [2], subclauses 14.4.2, 14.5.1.1, 14.5.1.3.4  Condition: IUT supports Call status information  Initial state: MO-CALL-SETUP  Stimulus: Incoming call status information</p> <p>Verify that, when in state MO-CALL SETUP, having received a D-ALERT PDU and a D-INFO PDU indicating "Call in Queue" and "call time-out set up phase", having restarted timer T302, when timer T302 expires without receiving a D-CONNECT PDU, the IUT sends a U-DISCONNECT PDU with value "expiry of timer".</p>
TP/NWK/CMCE/IC/TI-11	<p>Reference: ETS 300 392-2 [2], subclause 14.5.1.2.3  Condition: IUT supports Call restoration  Initial state: Call Control in state CALL-ACTIVE  Stimulus: Change to a new Cell</p> <p>Verify that, when the IUT has changed to a new cell while a call is in progress, sending a U-CALL-RESTORE PDU and starting timer T306, when timer T306 expires without receiving a response from the test system the IUT returns to state IDLE.</p>
TP/NWK/CMCE/IC/TI-12	<p>Reference: ETS 300 392-2 [2], subclauses 14.5.1.3.1, 14.5.1.2.3  Condition: IUT supports user initiated disconnection  Initial state: CALL-ACTIVE  Stimulus: User application initiates call release</p> <p>Verify that, when the IUT has a call established and when a user application initiates disconnection, with the IUT sending a U-DISCONNECT PDU, entering state CALL-DISCONNECT and starting timer T308, when timer T308 expires without receiving a D-RELEASE, the IUT returns to state IDLE.</p>
TP/NWK/CMCE/IC/TI-13	<p>Reference: ETS 300 392-2 [2], subclauses 14.4.2, 14.5.1.1, 14.5.1.3.4  Condition: IUT supports incoming call  Initial state: CALL-ACTIVE  Stimulus: D-INFO received</p> <p>Verify that, having received an incoming call and the called user application having answered, having sent a U-CONNECT PDU and accepted a D-CONNECT-ACKNOWLEDGE PDU in return, having entered the CALL-ACTIVE state and started timer T310, having restarted timer T310 when a D-INFO PDU was received with the element "reset call time-out timer", when timer T310 expires the IUT sends a U-DISCONNECT PDU with value "expiry of timer".</p>

## 6.1.2 Group call

Test group objective:

- to test the behaviour of the CMCE module of the IUT, when operating in group call mode.

Condition:

- IUT supports group call.

### 6.1.2.1 Capability tests

Test group objective:

- to test the basic capabilities of the CMCE module of the IUT, when operating in group call mode.

**6.1.2.1.1 Call setup**

Test group objective:

- to test the basic capabilities of the CMCE module of the IUT during call setup, when operating in group call mode.

TP/NWK/CMCE/GC/CA/SU-01	Reference: ETS 300 392-2 [2], subclauses 14.4.2, 14.5.2.1, 14.5.2.1.2 Condition: IUT supports outgoing call requesting Point To Multipoint call Initial state: Call Control in state IDLE and IUT registered Stimulus: Outgoing call from IDLE state  Verify that, when the IUT initiates an outgoing call Point To Multipoint call, it sends a U-SETUP PDU, enters MO-CALL-SETUP state and accepts in response a D-CALL-PROCEEDING PDU followed by a D-CONNECT PDU, entering the CALL-ACTIVE state.
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**6.1.2.1.2 Call disconnection**

Test group objective:

- to test the basic capabilities of the CMCE module of the IUT during call disconnection, when operating in group call mode.

TP/NWK/CMCE/GC/CA/CD-01	Reference: ETS 300 392-2 [2], subclauses 14.4.2, 14.5.2.3, 14.5.2.3.2 Initial state: Group Call CALL-ACTIVE Stimulus: Disconnection request received  Verify that, when the IUT has a Group Call established and when a D-RELEASE PDU is received, it enters the IDLE state. The IDLE state is verified by initiating a transmission request from the IUT. If U-TX DEMAND PDU is received by the test system it indicates that the call is still active and the test has failed..
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**6.1.2.2 Valid behaviour tests**

Test group objective:

- to test the valid behaviour of the CMCE module of the IUT, when operating in group call mode.

**6.1.2.2.1 Outgoing call**

Test group objective:

- to test the valid behaviour of the CMCE module of the IUT during outgoing call, when operating in group call mode.

TP/NWK/CMCE/GC/BV/OC-01	Reference: ETS 300 392-2 [2], subclauses 14.4.2, 14.5.2.1, 14.5.2.1.2 Condition: IUT supports outgoing call requesting Point To Multipoint call Initial state: Call Control in state IDLE and IUT registered Stimulus: Outgoing call from IDLE state  Verify that, when the IUT initiates an outgoing call Point To Multipoint call, it sends a U-SETUP PDU, enters MO-CALL-SETUP state and accepts in response a D-CONNECT PDU, entering the CALL-ACTIVE state.
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**6.1.2.2.2 Colliding calls**

Test group objective:

- to test the valid behaviour of the CMCE module of the IUT during colliding calls, when operating in group call mode.

TP/NWK/CMCE/GC/BV/CC-01	<p>Reference: ETS 300 392-2 [2], subclauses 14.4.2, 14.5.2.1.3</p> <p>Condition: IUT supports call requesting Point To Multipoint call</p> <p>Initial state: Set-up (N-1) calls, Where N is the maximum supported concurrent calls</p> <p>Stimulus: Outgoing call in IDLE state and Incoming call in MO-CALL-SETUP state before Call-ID is received, calls not in same group</p> <p>Verify that, when the IUT initiates an outgoing call requesting Point To Multipoint call by sending U-SETUP PDU, and receives an incoming call in form of D-SETUP PDU indicating requesting Point To Multipoint call, it releases one of the two calls and keeps the other.</p>
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**6.1.2.2.3 Call maintenance**

Test group objective:

- to test the valid behaviour of the CMCE module of the IUT during call maintenance, when operating in group call mode.

**6.1.2.2.3.1 Transmission control**

Test group objective:

- to test the valid behaviour of the CMCE module of the IUT during transmission control, when operating in group call mode.

TP/NWK/CMCE/GC/BV/MA/TC-01	<p>Reference: ETS 300 392-2 [2], subclauses 14.4.2, 14.5.2.2.1</p> <p>Condition: IUT supports Call requesting Point To Multipoint call and Transmission granted</p> <p>Initial state: Call Control in state IDLE and IUT registered</p> <p>Stimulus: Outgoing call from IDLE state</p> <p>Verify that, when the IUT initiates an outgoing call, it sends a U-SETUP PDU, enters MO-CALL-SETUP state and accepts in response a D-CONNECT PDU with TX-Granted, the IUT starts transmitting.</p>
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TP/NWK/CMCE/GC/BV/MA/TC-02	<p>Reference: ETS 300 392-2 [2], subclauses 14.4.2, 14.5.2.2.1</p> <p>Condition: IUT supports call requesting Point To Multipoint call and end of transmission</p> <p>Initial state: Call Control in state CALL-ACTIVE-TX</p> <p>Stimulus: Request to cease transmitting granted</p> <p>Verify that, when the IUT initiates a request for cease transmitting, it sends a U-TX-CEASED PDU, accepts in response a D-TX-CEASED PDU, and stops transmitting.</p>
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TP/NWK/CMCE/GC/BV/MA/TC-03	<p>Reference: ETS 300 392-2 [2], subclauses 14.4.2, 14.5.2.2.1</p> <p>Condition: IUT supports call requesting with Point To Multipoint call and transmission granted</p> <p>Initial state: Call Control in state CALL-ACTIVE</p> <p>Stimulus: Incoming TX grant indicating TX grant to another user</p> <p>Verify that, the IUT accepts a D-TX-GRANTED PDU indicating TX granted to another user, and does not transmit.</p>
TP/NWK/CMCE/GC/BV/MA/TC-04	<p>Reference: ETS 300 392-2 [2], subclauses 14.4.2, 14.5.2.2.1</p> <p>Condition: IUT supports call requesting with Point To Multipoint call and request to transmit</p> <p>Initial state: Call Control in state CALL-ACTIVE-RX</p> <p>Stimulus: Outgoing TX request and incoming TX request granted</p> <p>Verify that, when the IUT initiates a TX request, it sends a U-TX-DEMAND PDU, enters CALL-ACTIVE-TX-REQ state, accepts in response a D-TX-GRANTED PDU with TX-Granted, enters CALL-ACTIVE-TX state and starts transmitting.</p>
TP/NWK/CMCE/GC/BV/MA/TC-05	<p>Reference: ETS 300 392-2 [2], subclauses 14.4.2, 14.5.2.2.1</p> <p>Condition: IUT supports call requesting with Point To Multipoint Ack call and transmission not granted</p> <p>Initial state: Call Control in state CALL-ACTIVE-RX</p> <p>Stimulus: Outgoing TX request and incoming TX request not granted</p> <p>Verify that, when the IUT initiates a TX request, it sends a U-TX-DEMAND PDU, enters CALL-ACTIVE-TX-REQ state, accepts in response a D-TX-GRANTED PDU with TX-Not-Granted, enters CALL-ACTIVE-RX state, and does not transmit.</p>
TP/NWK/CMCE/GC/BV/MA/TC-06	<p>Reference: ETS 300 392-2 [2], subclauses 14.4.2, 14.5.2.2.1</p> <p>Condition: IUT supports call requesting with Point To Multipoint call and transmission granted</p> <p>Initial state: Call Control in state CALL-ACTIVE-TX</p> <p>Stimulus: Incoming TX-INTERRUPT and incoming TX grant to another user</p> <p>Verify that, when the IUT has been granted TX permission, when it receives a D-TX-INTERRUPT where transmission is granted to another user and that PDU is addressed to the IUT using individual addressing, it ceases transmission and switches to U-plane reception.</p>
TP/NWK/CMCE/GC/BV/MA/TC-07	<p>Reference: ETS 300 392-2 [2], subclauses 14.4.2, 14.4.2.6, 14.5.2.2.1</p> <p>Condition: IUT supports call requesting with Point To Multipoint call and transmission granted</p> <p>Initial state: Call Control in state CALL-ACTIVE-TX</p> <p>Stimulus: Incoming TX WAIT</p> <p>Verify that, when the IUT has been granted TX permission, when it receives a D-TX WAIT addressed to it as a group message, it ceases transmission.</p>

**6.1.2.3.2 Call restoration**

Test group objective:

- to test the valid behaviour of the CMCE module of the IUT during call restoration, when operating in group call mode.

TP/NWK/CMCE/GC/BV/MA/CR-01	<p>Reference: ETS 300 392-2 [2], subclause 14.5.2.2.3  Condition: IUT supports Call restoration  Initial state: Call Control in state CALL-ACTIVE  Stimulus: Change to a new Cell</p> <p>Verify that, when the IUT has changed to a new cell, it sends a U-CALL-RESTORE PDU with the "called party address", and accepts in response a D-CALL-RESTORE PDU.</p>
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**6.1.2.2.4 Call disconnection**

Test group objective:

- to test the valid behaviour of the CMCE module of the IUT during call disconnection, when operating in group call mode.

TP/NWK/CMCE/GC/BV/CD-01	<p>Reference: ETS 300 392-2 [2], subclauses 14.4.2, 14.5.2.3.3  Condition: IUT supports Point To Multipoint call  Initial state: Call Control in state CALL-ACTIVE-TX  Stimulus: Disconnection received from tester</p> <p>Verify that, when the IUT is active in a Point to Multipoint Group call, when it receives a D-RELEASE PDU from the tester, it clears the call.</p>
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**6.1.2.3 Timer tests**

Test group objective:

- to test the timers of the CMCE module of the IUT, when operating in group call mode.

TP/NWK/CMCE/GC/TI-01	<p>Reference: ETS 300 392-2 [2], subclauses 14.4.2, 14.5.2.1, 14.5.2.3.5  Condition: IUT supports incoming Point To Multipoint call  Initial state: MT-CALL SETUP  Stimulus: Incoming call answered</p> <p>Verify that, having accepted an incoming Point To Multipoint call, and started timer T310, when timer T310 expires it returns to state IDLE.</p>
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TP/NWK/CMCE/GC/TI-02	<p>Reference: ETS 300 392-2 [2], subclauses 14.4.2, 14.5.2.1, 14.5.2.3.5  Condition: IUT supports outgoing call requesting Point To Multipoint call  Initial state: Call Control in state IDLE and IUT registered  Stimulus: Outgoing call from IDLE state</p> <p>Verify that, when the IUT initiates an outgoing Point To Multipoint call, when it sends a U-SETUP PDU, enters MO-CALL-SETUP state and starts timer T303, when timer T303 expires without receiving a D-CALL-PROCEEDING or a D-CONNECT, it sends a U-DISCONNECT PDU with value "expiry of timer".</p>
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TP/NWK/CMCE/GC/TI-03	<p>Reference: ETS 300 392-2 [2], subclauses 14.4.2, 14.5.2.1, 14.5.2.3.5  Condition: IUT supports outgoing call requesting Point To Multipoint call  Initial state: Call Control in state IDLE and IUT registered  Stimulus: Outgoing call from IDLE state</p> <p>Verify that, when the IUT initiates an outgoing Point To Multipoint call, when it sends a U-SETUP PDU, enters MO-CALL-SETUP state, accepts in response a D-CALL-PROCEEDING PDU and starts timer T302, when timer T302 expires without receiving a D-CONNECT, it sends a U-DISCONNECT PDU with value "expiry of timer".</p>
TP/NWK/CMCE/GC/TI-04	<p>Reference: ETS 300 392-2 [2], subclauses 14.4.2, 14.5.2.1.2, 14.5.2.3.5  Condition: IUT supports outgoing call requesting Point To Multipoint call  Initial state: Call Control in state IDLE and IUT registered  Stimulus: Outgoing call from IDLE state</p> <p>Verify that, when the IUT initiates an outgoing Point To Multipoint call, it sends a U-SETUP PDU, enters MO-CALL-SETUP state and accepts in response a D-CONNECT PDU, entering the CALL-ACTIVE state and starts timer T310, when timer T310 expires it enters state IDLE.</p>
TP/NWK/CMCE/GC/TI-05	<p>Reference: ETS 300 392-2 [2], subclauses 14.4.2, 14.5.2.2.1, 14.5.2.3.5  Condition: IUT supports incoming or outgoing call  Initial state: CALL-ACTIVE  Stimulus: D-INFO received</p> <p>Verify that, when the IUT is in state CALL-ACTIVE with timer T310 running, when a D-INFO PDU is received with the element "reset call time-out timer" and timer T310 is restarted, when timer T310 expires the IUT enters the state IDLE.</p>
TP/NWK/CMCE/GC/TI-06	<p>Reference: ETS 300 392-2 [2], subclauses 14.4.2, 14.5.2.2.4, 14.5.2.3.5  Condition: IUT supports Call restoration  Initial state: Call Control in state CALL-ACTIVE  Stimulus: Change to a new Cell</p> <p>Verify that, when the IUT has changed to a new cell while a call is in progress, sending a U-CALL-RESTORE PDU and starting timer T307, when timer T307 expires without receiving a D-CALL-RESTORE the IUT returns to state IDLE.</p>
TP/NWK/CMCE/GC/TI-07	<p>Reference: ETS 300 392-2 [2], subclauses 14.4.2, 14.4.2.6, 14.5.2.2.1  Condition: IUT supports call requesting with Point To Multipoint call  Initial state: Call Control in state WAIT  Stimulus: Incoming D-TX GRANTED</p> <p>Verify that, when the IUT has not been granted TX permission, when it receives a D-TX GRANTED addressed to it indicating that TX permission has been granted, it switches the U-plane on and starts the timer T311. After expiration of the T311 IUT shall remain in state ACTIVE and send U-TX CEASED PDU.</p>

### 6.1.3 Short Data Service (SDS)

Test group objective:

- to test the basic capabilities of the CMCE SDS module of the IUT.

### 6.1.3.1 Incoming messages

Test group objective:

- to test the incoming messages to the CMCE SDS module of the IUT.

TP/NWK/CMCE/SDS/IC-01	Reference: ETS 300 392-2 [2], subclauses 14.4.4, 14.5.5.1 Condition: IUT supports incoming user defined short data message Initial state: IUT registered Stimulus: Incoming user defined short data message  Verify that, the IUT accepts a D-SDS-DATA PDU.
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TP/NWK/CMCE/SDS/IC-02	Reference: ETS 300 392-2 [2], subclauses 14.4.4, 14.5.5.1 Condition: IUT supports incoming predefined short data message Initial state: IUT registered Stimulus: Incoming predefined short data message  Verify that, the IUT accepts a D-STATUS PDU.
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### 6.1.3.2 Outgoing messages

Test group objective:

- to test the outgoing messages from the CMCE SDS module of the IUT.

TP/NWK/CMCE/SDS/OG-01	Reference: ETS 300 392-2 [2], subclauses 14.4.4, 14.5.5.2 Condition: IUT supports outgoing user defined short data message Initial state: The IUT SDS in state IDLE and IUT registered Stimulus: Outgoing user defined short data message request  Verify that, when the IUT initiates an outgoing user defined short data message it sends a U-SDS-DATA PDU.
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TP/NWK/CMCE/SDS/OG-02	Reference: ETS 300 392-2 [2], subclauses 14.4.4, 14.5.5.2 Condition: IUT supports incoming predefined short data message Initial state: The IUT SDS in state IDLE and IUT registered Stimulus: Outgoing predefined short data message request  Verify that, when the IUT initiates an outgoing predefined short data message it sends a U-STATUS PDU.
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## 6.2 Mobility Management (MM)

Test group objective:

- to test the behaviour of the MM module of the IUT.

Test purposes specified in this subclause may be applied to an MS supporting optional security as specified in ETS 300 392-7 [3], under the following conditions:

- the security features of the IUT can be disabled for testing, i.e. the MS does not start authentication;
- no other unexpected PDU exchange dedicated to the support of the security occurs in addition to the behaviour specified in the test purposes.

The enable/disable test purposes specified in subclause 6.2.2.2 of this ETS are applicable to an MS supporting the functionality as specified in ETS 300 392-2 [2], subclause 16.5, and may not be applicable to an IUT supporting security.

### 6.2.1 Capability tests

Test group objective:

- to test the basic capabilities of the MM module of the IUT.

TP/NWK/MM/CA-01	Reference: ETS 300 392-2 [2], subclause 16.3.1.1 Initial state: IUT is powered off and is not registered Stimulus: IUT is powered on  Verify that, when IUT is powered on and no registration is required by the infrastructure, the IUT does not start registration procedures and responds to an incoming individual call using on/off hook signalling with a U-ALERT PDU.
TP/NWK/MM/CA-02	Reference: ETS 300 392-2 [2], subclauses 16.3.1.1, 16.4.1, 16.4.1.1 b) Initial state: IUT is powered off and is not registered Stimulus: IUT is powered on  Verify that, when registration is required by the infrastructure and the IUT initiates registration for the first time following power on, the MM entity sends a U-LOCATION UPDATE DEMAND PDU.
TP/NWK/MM/CA-03	Reference: ETS 300 392-2 [2], subclause 16.4.2 Condition: User application is able to request initiation of registration and IUT supports incoming individual call Initial state: IUT is camped on a cell Stimulus: Registration is accepted  Verify that when user application has initiated registration and sent U-LOCATION UPDATE DEMAND PDU to which a D-LOCATION UPDATE ACCEPT PDU is sent as a response and a network initiated individual call is initiated IUT responds back with a U-ALERT PDU.

### 6.2.2 Valid behaviour tests

Test group objective:

- to test the valid behaviour of the MM module of the IUT.

### 6.2.2.1 Registration

Test group objective:

- to test the valid registration behaviour of the MM module of the IUT.

TP/NWK/MM/BV/RE-01	<p>Reference: ETS 300 392-2 [2], subclause 16.4.2 b), ETS 300 392-1 [1], clause 7</p> <p>Condition: User application is able to request initiation of registration</p> <p>Initial state: IUT is camped on a cell</p> <p>Stimulus: User application initiates registration in home network with new ITSI attached</p> <p>Verify that when user application has initiated registration to home network with new ITSI attached the MM will send U-LOCATION UPDATE DEMAND PDU in which "location update type" element is set to "ITSI attach". "Class of mobile" and "energy economy mode information" elements are included.</p> <p>NOTE: No IUT support of energy economy mode is needed, but the "energy economy mode information" element shall be present in the U-LOCATION-UPDATE-DEMAND PDU.</p>
TP/NWK/MM/BV/RE-02	<p>Reference: ETS 300 392-2 [2], subclause 16.4.1.1 a)</p> <p>Condition: Cell re-selection into a different registration area is possible</p> <p>Initial state: IUT is camped on a cell, no active circuit mode calls</p> <p>Stimulus: MLE initiates normal registration with MNI equal to the currently active registration area</p> <p>Verify that, when cell re-selection into a different registration area (MNI equal to currently active registration area) is notified by MLE, the IUT sends U-LOCATION UPDATE DEMAND PDU in which the "location update type" element is set to "roaming location updating".</p>
TP/NWK/MM/BV/RE-03	<p>Reference: ETS 300 392-2 [2], subclause 16.4.1.1 a)</p> <p>Condition: Cell re-selection into a different registration area is possible</p> <p>Initial state: IUT is camped on a cell, one active circuit mode call</p> <p>Stimulus: MLE initiates normal registration with MNI equal to the currently active registration area</p> <p>Verify that, when cell re-selection into a different registration area (MNI equal to currently active registration area) is notified by MLE, the IUT sends U-LOCATION UPDATE DEMAND PDU in which the "location update type" element is set to "call restoration roaming location updating".</p>
TP/NWK/MM/BV/RE-04	<p>Reference: ETS 300 392-2 [2], subclause 16.4.1.1 b)</p> <p>Condition: Cell re-selection into a different registration area is possible and IUT supports migration</p> <p>Initial state: IUT is camped on a cell, no active circuit mode calls</p> <p>Stimulus: MLE initiates normal registration with MNI different from the currently active registration area</p> <p>Verify that, when cell re-selection into a different registration area (MNI is different from currently active registration area and not equal to IUT home network MNI) is notified by MLE, the IUT sends U-LOCATION UPDATE DEMAND PDU in which the "location update type" element is set to "migrating location updating".</p>

TP/NWK/MM/BV/RE-05	<p>Reference: ETS 300 392-2 [2], subclause 16.4.1.1 b)  Condition: Cell re-selection into a different registration area is possible and IUT supports migration  Initial state: IUT is camped on a cell, one active circuit mode call  Stimulus: MLE initiates normal registration with MNI different to the currently active registration area</p> <p>Verify that, when cell re-selection into a different registration area (MNI is different to currently active registration area and not equal to IUT home network MNI) is notified by MLE, the IUT sends U-LOCATION UPDATE DEMAND PDU in which the "location update type" element is set to "call restoration migrating location updating".</p>
TP/NWK/MM/BV/RE-06	<p>Reference: ETS 300 392-2 [2], subclause 16.4.2 c), ETS 300 392-1 [1], clause 7  Condition: User application is able to request initiation of registration and IUT supports migration  Initial state: IUT is camped on a cell  Stimulus: User application initiates registration in a visited network with new unexchanged ITSI attached</p> <p>Verify that, when the user application has initiated registration in a visited network with new unexchanged ITSI attached, the IUT sends a U-LOCATION UPDATE DEMAND PDU in which "location update type" element is set to "ITSI attach". After IUT has received a D-LOCATION UPDATE PROCEEDING PDU it is verified that IUT responds with a U-LOCATION UPDATE DEMAND PDU in which "location update type" element is set to "demand location updating".</p>
TP/NWK/MM/BV/RE-07	<p>Reference: ETS 300 392-2 [2], subclause 16.4.3  Initial state: IUT is enabled and camped on a cell  Stimulus: D-LOCATION UPDATE COMMAND is received</p> <p>Verify that, when IUT receives D-LOCATION UPDATE COMMAND PDU, the IUT sends a U-LOCATION UPDATE DEMAND PDU in which the "location update type" element is set to "demand location updating".</p>
TP/NWK/MM/BV/RE-08	<p>Reference: ETS 300 392-2 [2], subclause 16.6  Condition: IUT supports user initiated de-registration and de-registration is required in the current cell  Initial state: IUT is registered  Stimulus: De-registration is initiated</p> <p>Verify that, when IUT has initiated de-registration it sends U-ITSI DETACH PDU, to which the tester responds with a D-STATUS PDU.</p>



### 6.2.2.2 Enable/disable

Test group objective:

- to test the valid enable/disable behaviour of the MM module of the IUT.

TP/NWK/MM/BV/EN-01	<p>Reference: ETS 300 392-2 [2], subclause 16.5  Initial state: IUT is registered and enabled  Stimulus: IUT is temporarily disabled using D-DISABLE</p> <p>Verify that, when the IUT receives a D-DISABLE PDU which is addressed to it and in which the "Disabling type" element is set to "Temporary", it is temporarily disabled, and responds to a D-LOCATION UPDATE COMMAND PDU with a U-LOCATION UPDATE DEMAND PDU in which the "location update type" element is set to "disabled MS updating". After that, when IUT receives a network initiated individual call using on/off hook signalling, the IUT shall not respond it.</p>
TP/NWK/MM/BV/EN-02	<p>Reference: ETS 300 392-2 [2], subclause 16.5  Initial state: IUT is registered and temporarily disabled  Stimulus: IUT is enabled using D-ENABLE</p> <p>Verify that, when the IUT receives a D-ENABLE PDU which is addressed to it, it responds to a D-LOCATION UPDATE COMMAND PDU with a U-LOCATION UPDATE DEMAND PDU in which the "location update type" element is set to "demand location updating". After that when IUT receives a network initiated individual call using on/off hook signalling it shall respond to it with a U-ALERT PDU.</p>
TP/NWK/MM/BV/EN-03	<p>Reference: ETS 300 392-2 [2], subclause 16.5  Initial state: IUT is registered and enabled  Stimulus: IUT is temporarily disabled using D-DISABLE and powered down</p> <p>Verify that, when the IUT receives a D-DISABLE PDU which is addressed to it and in which the "Disabling type" element is set to "Temporary", it is temporarily disabled, and following power down and power up again, when the IUT has completed registration using any value for the "location update type", it responds to a D-LOCATION UPDATE COMMAND PDU with a U-LOCATION UPDATE DEMAND PDU in which the "location update type" element is set to "disabled MS updating".</p>
TP/NWK/MM/BV/EN-04	<p>Reference: ETS 300 392-2 [2], subclauses 16.3.1.1, 16.5  Initial state: IUT is temporarily disabled and powered down  Stimulus: IUT is powered up and network initiated call is made to it</p> <p>Verify that, when the IUT is powered up and no registration is requested by the infrastructure it does not respond to network initiated individual call using on/off hook signalling.</p>
TP/NWK/MM/BV/EN-05	<p>Reference: ETS 300 392-2 [2], subclause 16.5  Initial state: IUT is temporarily disabled and powered down  Stimulus: IUT is powered up again and re-enabled</p> <p>Verify that, when the IUT is powered up again and has completed registration using any value for the "location update type", when it receives a D-ENABLE PDU which is addressed to it, it responds to a D-LOCATION UPDATE COMMAND PDU with a U-LOCATION UPDATE DEMAND PDU in which the "location update type" element is set to "demand location updating".</p>

TP/NWK/MM/BV/EN-06	<p>Reference: ETS 300 392-2 [2], subclauses 15.3.5.5, 16.5  Initial state: IUT is registered and enabled  Stimulus: IUT is permanently disabled using D-DISABLE</p> <p>Verify that, when the IUT receives a D-DISABLE PDU in which the "Disabling type" element is set to "Permanent", it is permanently disabled, and does not respond to a D-LOCATION UPDATE COMMAND PDU sent from the tester.</p>
TP/NWK/MM/BV/EN-07	<p>Reference: ETS 300 392-2 [2], subclauses 15.3.5.5, 16.5  Initial state: IUT is powered down and permanently disabled  Stimulus: IUT is powered up again</p> <p>Verify that, when the IUT is permanently disabled and is powered down, when it is powered up again, it does not initiate registration when powered up.</p>

### 6.2.2.3 Energy economy mode

Test group objective:

- to test the valid energy economy mode behaviour of the MM module of the IUT.

TP/NWK/MM/BV/EE-01	<p>Reference: ETS 300 392-2 [2], subclauses 16.7, 16.10.9, 23.7.6  Condition: IUT supports energy economy mode  Stimulus: User application initiates change of energy economy group</p> <p>Verify that, when user application has requested to change the Energy Economy Mode, the MM entity sends U-STATUS PDU in which the "Status" element is set to "Change of energy saving mode request". In response a D-ENERGY SAVING PDU is sent by the tester.</p>
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### 6.2.2.4 Attachment/detachment of group identities

Test group objective:

- to test the valid attachment/detachment of group identities behaviour of the MM module of the IUT.

TP/NWK/MM/BV/AT-01	<p>Reference: ETS 300 392-2 [2], subclauses 16.8, 16.8.1  Initial state: IUT is registered  Stimulus: IUT receives attachment of group identities request from infrastructure</p> <p>Verify that, after the IUT has received a D-ATTACH/DETACH GROUP ID PDU in which amendment of group ids and acknowledgement with group id report is requested, the IUT responds by sending a U-ATTACH/DETACH GROUP ID ACK PDU in which at least the attached group ids can be found.</p>
TP/NWK/MM/BV/AT-02	<p>Reference: ETS 300 392-2 [2], subclauses 16.8, 16.8.1  Initial state: IUT is registered  Stimulus: IUT receives detachment of group identities request from infrastructure</p> <p>Verify that, after the IUT has received a D-ATTACH/DETACH GROUP ID PDU in which detachment of group ids and acknowledgement with group id report is requested, the IUT responds by sending a U-ATTACH/DETACH GROUP ID ACK PDU in which there are none of the detached group ids.</p>

TP/NWK/MM/BV/AT-03	<p>Reference: ETS 300 392-2 [2], subclauses 16.8, 16.8.2</p> <p>Initial state: IUT is registered and supports user initiated attachment of group ids</p> <p>Stimulus: User initiates attachment of group identities</p> <p>Verify that, when the user has initiated an attachment of group ids, the IUT sends a U-ATTACH/DETACH GROUP ID PDU in which amendment of group ids is requested. After that, the IUT is replied with D-ATTACH/DETACH GROUP ID ACK PDU.</p>
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TP/NWK/MM/BV/AT-04	<p>Reference: ETS 300 392-2 [2], subclauses 16.8, 16.8.2</p> <p>Initial state: IUT is registered and supports user initiated detachment of group ids</p> <p>Stimulus: User initiates detachment of group identities</p> <p>Verify that, the user has initiated a detachment of group ids, the IUT sends a U-ATTACH/DETACH GROUP ID PDU in which detachment of group ids is requested. After that, the IUT is replied with D-ATTACH/DETACH GROUP ID ACK PDU.</p>
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### 6.2.3 Invalid behaviour tests

Test group objective:

- to test the behaviour of the MM module of the IUT in response to invalid behaviour of tester.

TP/NWK/MM/BI-01	<p>Reference: ETS 300 392-2 [2], subclause 16.5</p> <p>Initial state: IUT is registered and enabled</p> <p>Stimulus: D-DISABLE PDU addressed to another MS</p> <p>Verify that, when the IUT receives a D-DISABLE PDU which is not addressed to it, it is not disabled, and responds to a D-LOCATION UPDATE COMMAND PDU with a U-LOCATION UPDATE DEMAND PDU in which the "location update type" element is set to "demand location updating".</p>
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TP/NWK/MM/BI-02	<p>Reference: ETS 300 392-2 [2], subclause 16.5</p> <p>Initial state: IUT is registered and temporarily disabled</p> <p>Stimulus: D-ENABLE PDU addressed to another MS</p> <p>Verify that, when the IUT receives a D-ENABLE PDU which is not addressed to it, it responds to a D-LOCATION UPDATE COMMAND PDU with a U-LOCATION UPDATE DEMAND PDU in which the "location update type" element is set to "disabled MS updating".</p>
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TP/NWK/MM/BI-03	<p>Reference: ETS 300 392-2 [2], subclause 16.5</p> <p>Initial state: IUT is enabled</p> <p>Stimulus: Infrastructure initiates registration</p> <p>Verify that, when IUT receives an infrastructure initiated registration in the form of a D-LOCATION UPDATE COMMAND, and it responds by sending a U-LOCATION UPDATE DEMAND PDU, and when a D-LOCATION UPDATE REJECT PDU is received in which the reject reason is "Message consistency error", the IUT stops registration, or it makes one retry by sending a U-LOCATION UPDATE DEMAND PDU, in response to which another D-LOCATION UPDATE REJECT PDU is received and then the IUT stops registration.</p>
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TP/NWK/MM/BI-04	<p>Reference: ETS 300 392-2 [2], subclauses 16.4.4, 16.4.3  Condition: IUT supports colliding registrations  Initial state: IUT is not registered  Stimulus: D-LOCATION UPDATE COMMAND</p> <p>Verify that, when IUT has initiated registration by sending U-LOCATION UPDATE DEMAND PDU, and before registration is completed it has received infrastructure initiated registration (D-LOCATION UPDATE COMMAND PDU), the IUT shall continue registration as if it was initiated by infrastructure.</p>
TP/NWK/MM/BI-05	<p>Reference: ETS 300 392-2 [2], subclause 16.4.1.1 b), ETS 300 392-1 [1], clause 7  Condition: Cell re-selection into a different registration area is possible  Initial state: IUT is camped on a cell, one active circuit mode call  Stimulus: MLE initiates normal registration with MNI different from the currently active registration area</p> <p>Verify that, when cell re-selection into a different registration area (MNI is different from currently active registration area) is notified by MLE, the IUT sends U-LOCATION UPDATE DEMAND PDU in which the "location update type" element is set to "call restoration migrating location updating". After the IUT has received D-LOCATION UPDATE PROCEEDING PDU in which the MCC and MNC do not correspond to those held in MS, IUT shall respond with another U-LOCATION UPDATE DEMAND PDU containing the full ITSI and "location update type" element is set to "demand location updating".</p>

#### 6.2.4 Timer tests

Test group objective:

- to test the timers of the MM module of the IUT.

TP/NWK/MM/TI-01	<p>Reference: ETS 300 392-2 [2], subclauses 16.4.3, 16.4.5, 16.11.1.1  Condition: IUT supports de-registration  Initial state: -  Stimulus: Infrastructure initiates registration</p> <p>Verify that, when IUT has received D-LOCATION UPDATE COMMAND PDU, when it has responded by sending U-LOCATION UPDATE DEMAND PDU and started timer T351, when timer T351 expires before a D-LOCATION-UPDATE-ACCEPT PDU is received, the IUT starts de-registration by sending U-ITSI DETACH PDU.</p>
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#### 6.3 Specific Connectionless Network Protocol (SCLNP)

Test group objective:

- to test the behaviour of the SCLNP module of the IUT.

### 6.3.1 Capability tests

Test group objective:

- to test the basic capabilities of the SCLNP module of the IUT.

TP/NWK/SCLNP/CA-01	<p>Reference: ETS 300 392-2 [2], subclauses 26, 27          Condition: IUT supports sending of S1-DT PDU          Initial state: IDLE          Stimulus: User application sends connectionless data</p> <p>Verify that, when user initiates sending of a connectionless data packet, IUT sends S1-DT PDU.</p>
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### 6.4 Mobile Link Entity (MLE)

Test group objective:

- to test the behaviour of the MLE module of the IUT.

#### 6.4.1 Capability tests

Test group objective:

- to test the basic capabilities of the MLE of the IUT.

##### 6.4.1.1 Cell reselection

Test group objective:

- to test the basic capabilities of the MLE of the IUT when performing cell selection or cell reselection.

TP/NWK/MLE/CA/CR-01	<p>Reference: ETS 300 392-2 [2], subclause 18.3.4.6          Initial state: The IUT is powered on          Stimulus: The IUT selects a cell and camps on to that cell</p> <p>Verify that when powered on the IUT performs initial cell selection by camping on to the cell defined by the tester. Verify that when the tester broadcasts D-MLE-SYSINFO on the cell, the IUT sends a U-LOCATION UPDATE DEMAND from the MM to the tester indicating that the IUT attempts to register and hence is attached to the cell. The signal level of the tester shall be sufficient to permit the IUT to select the cell. The BS service details parameter in the D-MLE-SYSINFO from the tester shall contain information to cause the IUT to attempt registration.</p>
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TP/NWK/MLE/CA/CR-02	<p>Reference: ETS 300 392-2 [2], subclause 18.3.4.7.2          Initial state: Attached to a cell, no call active          Stimulus: IUT moves to a neighbouring cell within the same location area</p> <p>Verify that, when the signal level of the cell to which the IUT is attached is decreased, and when the signal level of a neighbouring cell is increased at the same time, the IUT performs undeclared cell reselection and if registration is required on the new cell, the IUT sends a U-LOCATION UPDATE DEMAND from the MM entity.</p>
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TP/NWK/MLE/CA/CR-03	<p>Reference: ETS 300 392-2 [2], subclause 18.3.4.7.3  Initial state: Attached to a cell, CMCE call active  Stimulus: Radio link failure during a call, and selection of a new cell outside the current location area</p> <p>Verify that, when the signal of the cell to which the IUT is attached is cut and when a neighbouring cell is present, when the IUT has a call active, the IUT performs unannounced cell reselection, sending a U-LOCATION UPDATE DEMAND from the MM entity.</p>
TP/NWK/MLE/CA/CR-04	<p>Reference: ETS 300 392-2 [2], subclause 18.3.4.7.4  Initial state: Attached to a cell, CMCE individual call active  Stimulus: IUT moves to a neighbouring cell outside the current location area</p> <p>Verify that, when the signal level of the cell to which the IUT is attached is decreased, and when the signal level of a neighbouring cell is increased at the same time, when the tester only supports announced cell reselection type 3, and has an individual call active, and if the IUT performs announced cell reselection type 3 by sending a U-PREPARE, and when it receives a D-NEW-CELL from the tester, it sends a U-LOCATION UPDATE DEMAND from the MM entity.</p>

#### 6.4.2 Valid behaviour tests

Test group objective:

- to test the valid behaviour of the MLE of the IUT.

##### 6.4.2.1 Cell reselection

Test group objective:

- to test the MLE of the IUT during cell reselection.

TP/NWK/MLE/BV/CR-01	<p>Reference: ETS 300 392-2 [2], subclause 18.3.4.7.3  Condition: IUT performs CMCE call restoration following unannounced cell reselection  Initial state: Attached to a cell, CMCE call active  Stimulus: IUT moves to a neighbouring cell outside the current location area</p> <p>Verify that, when the signal of the cell to which the IUT is attached is cut (radio link failure) and when a neighbouring cell is present, when the IUT performs unannounced cell reselection, sending a U-LOCATION UPDATE DEMAND from the MM entity, when this is answered with a D-LOCATION UPDATE ACCEPT, the IUT attempts call restoration, sending a U-CALL-RESTORE from the CMCE.</p>
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TP/NWK/MLE/BV/CR-02	<p>Reference: ETS 300 392-2 [2], subclause 18.3.4.7.3</p> <p>Condition: IUT performs CMCE call restoration following unannounced cell reselection</p> <p>Initial state: Attached to a cell, CMCE group call active, no transmit permission has been granted</p> <p>Stimulus: IUT moves to a neighbouring cell outside the current location area</p> <p>Verify that, when the signal of the cell to which the IUT is attached is decreased, and when the signal level of a neighbouring cell is increased at the same time, IUT performs unannounced cell reselection, sending a U-LOCATION UPDATE DEMAND from the MM entity to register on the new cell, and when this is answered with a D-LOCATION UPDATE ACCEPT, the IUT attempts call restoration, sending a U-CALL-RESTORE from CMCE.</p>
TP/NWK/MLE/BV/CR-03	<p>Reference: ETS 300 392-2 [2], subclause 18.3.4.7.4</p> <p>Condition: IUT performs CMCE call restoration following announced type 3 cell reselection</p> <p>Initial state: Attached to a cell, CMCE individual call active or IUT transmitting in active CMCE group call</p> <p>Stimulus: IUT moves to a neighbouring cell outside the current location area</p> <p>Verify that, when the signal level of the cell to which the IUT is attached is decreased, and when the signal level of a neighbouring cell is increased at the same time, when the tester only supports announced cell reselection type 3, and if the IUT performs announced cell reselection type 3 by sending a U-PREPARE not carrying a preferred neighbour cell identifier and no MM PDU, and when it receives a D-NEW-CELL carrying the parameter value "change channel immediately" from the tester and has sent a U-LOCATION UPDATE DEMAND from the MM entity and the MM entity of the tester has responded with a U-LOCATION UPDATE ACCEPT, the IUT attempts call restoration, sending a U-CALL-RESTORE from the CMCE.</p>
TP/NWK/MLE/BV/CR-04	<p>Reference: ETS 300 392-2 [2], subclause 18.3.4.7.5</p> <p>Condition: IUT supports cell reselection type 2</p> <p>Initial state: Attached to a cell, CMCE individual call active or IUT transmitting in active CMCE group call</p> <p>Stimulus: IUT moves to a neighbouring cell outside the current location area</p> <p>Verify that, when the tester supports announced cell reselection type 2, but not type 1, when the signal level of the cell to which the IUT is attached is decreased, and when the signal level of a neighbouring cell is increased at the same time but when information broadcast by the neighbouring cell is stopped before the change in signal levels, and if the IUT performs announced cell reselection type 2 by sending a U-PREPARE carrying a preferred neighbour cell identifier but no MM PDU, and when it receives a D-NEW-CELL carrying Channel command valid parameter "Change channel immediately" from the tester, the IUT sends a U-LOCATION UPDATE DEMAND from the MM entity.</p> <p>NOTE: The neighbouring cell shall have a signal level sufficient for the IUT to successfully receive broadcast information for approx. 1 and a half minute before the change in signal levels. The change in signal levels should be started immediately the broadcast information is stopped. Broadcast information should be restored immediately the U-LOCATION UPDATE DEMAND is received from the IUT.</p>

TP/NWK/MLE/BV/CR-05	<p>Reference: ETS 300 392-2 [2], subclause 18.3.4.7.6</p> <p>Condition: IUT supports cell reselection type 1</p> <p>Initial state: Attached to a cell, CMCE individual call active or IUT transmitting in active CMCE group call</p> <p>Stimulus: IUT moves to a neighbouring cell outside the current location area</p> <p>Verify that, when the tester supports announced cell reselection type 1, when the signal level of the cell to which the IUT is attached is decreased, and when the signal level of a neighbouring cell is increased at the same time, and if the IUT performs announced cell reselection type 1 by sending a U-LOCATION UPDATE DEMAND PDU from the MM entity in a U-PREPARE PDU from the MLE, and when it receives a D-NEW-CELL from the tester with Channel command set to "Follow MAC channel allocation", it continues the CMCE call on the new cell with no call restoration.</p>
TP/NWK/MLE/BV/CR-06	<p>Reference: ETS 300 392-2 [2], subclause 18.3.4.7.6</p> <p>Condition: IUT supports cell reselection type 1 and type 2</p> <p>Initial state: Attached to a cell, CMCE individual call active or IUT transmitting in active CMCE group call</p> <p>Stimulus: IUT moves to a neighbouring cell outside the current location area using announced type 1 cell reselection but with fall-back to type 2 cell reselection controlled by the tester</p> <p>Verify that, if the IUT performs announced cell reselection type 1 and falls back to type 2, when during announced cell reselection type 1, the tester responds to a U-PREPARE PDU from the IUT by sending a D-NEW-CELL with Channel command set to "Change channel immediately", and the IUT proceeds with type 2 cell reselection attempting call restoration, sending a U-CALL-RESTORE from the CMCE.</p>
TP/NWK/MLE/BV/CR-07	<p>Reference: ETS 300 392-2 [2], subclauses 18.3.4.7.5 and 18.3.4.7.6</p> <p>Condition: IUT supports cell reselection type 1 and cell reselection type 2</p> <p>Initial state: Attached to a cell, CMCE individual call active or IUT transmitting in active CMCE group call</p> <p>Stimulus: IUT moves to a neighbouring cell outside the current location area using announced type 2 cell selection with a tester controlled change to type 1 cell selection</p> <p>Verify that, if the IUT initiates announced cell reselection type 2 and changes to the cell change procedure for type 1 cell reselection, when during type 2 cell reselection the tester responds to a U-PREPARE from the IUT by sending a D-NEW-CELL carrying Channel command valid parameter "Follow MAC channel change", and the IUT continues with type 1 cell change procedure by continuing the call on the new channel with no call restoration procedure.</p>



### 6.4.2.2 Network broadcast

Test group objective:

- to test the MLE neighbour cell enquiry procedure.

TP/NWK/MLE/BV/NB-01	<p>Reference: ETS 300 392-2 [2], subclause 18.3.6.5  Condition: IUT supports neighbour cell inquiry  Initial state: Attached to a cell, no neighbour cell information available in D-NWRK-BROADCAST from the tester, and has call active  Stimulus: IUT moves to neighbouring cell</p> <p>Verify that, when the IUT needs neighbour cell information, when the tester indicates in the D-MLE-SYNC that neighbour cell inquiry is supported by the tester, when the IUT is moving to a neighbouring cell but has received no neighbouring cell information, it sends a U-PREPARE to the tester with cell identifier set equal to 0.</p>
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TP/NWK/MLE/BV/NB-02	<p>Reference: ETS 300 392-2 [2], subclause 18.3.6.5  Condition: IUT supports neighbour cell inquiry  Initial state: Attached to a cell, no neighbour cell information available in D-NWRK-BROADCAST from the tester, and has call active  Stimulus: IUT moves to neighbouring cell</p> <p>Verify that, when the IUT needs neighbour cell information, when the tester indicates in the D-MLE-SYNC that neighbour cell inquiry is not supported by the tester, when the IUT is moving to a neighbouring cell but has received no neighbouring cell information, it does not send a U-PREPARE to the tester with cell identifier set equal to 0, but eventually initiates announced cell reselection type 3.</p>
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### 6.4.2.3 Call restoration

Test group objective:

- to test the MLE call restoration initiated by CMCE after cell reselection.

TP/NWK/MLE/BV/RE-01	<p>Reference: ETS 300 392-2 [2], subclause 18.3.4.7.3  Condition: IUT supports CMCE call restoration  Initial state: Attached to a cell, CMCE call active  Stimulus: IUT moves to neighbouring cell, within the same location area, network and country</p> <p>Verify that, when the IUT performs unannounced cell reselection to a neighbouring cell in the same location area, network and country, when the IUT attempts call restoration sending a U-RESTORE PDU to the tester, the U-RESTORE PDU shall contain none of the elements mobile country code, mobile network code, and location area.</p>
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TP/NWK/MLE/BV/RE-02	<p>Reference: ETS 300 392-2 [2], subclause 18.3.4.7.3  Condition: IUT supports CMCE call restoration  Initial state: Attached to a cell, CMCE call active  Stimulus: IUT moves to neighbouring cell, outside the current location area, and within a new network and country</p> <p>Verify that, when the IUT performs unannounced cell reselection to a neighbouring cell, the IUT attempts call restoration sending a U-RESTORE PDU to the tester, and in this U-RESTORE PDU the location area, mobile country code and/or mobile network code shall be present if the corresponding element in the new cell differs from the old cell. The location area, mobile country code mobile network code shall carry old cell values.</p>
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TP/NWK/MLE/BV/RE-03	<p>Reference: ETS 300 392-2 [2], subclause 18.3.4.7.3  Condition: IUT supports CMCE call restoration  Initial state: Attached to a cell, individual CMCE call active  Stimulus: IUT moves to neighbouring cell</p> <p>Verify that, when the IUT performs unannounced cell reselection to a neighbouring cell, when the IUT attempts call restoration sending a U-RESTORE PDU to the tester, and when the tester responds with a D-RESTORE FAIL PDU, the IUT does not continue this CMCE call on the new cell. The release of the active CMCE call is checked by the CMCE entity being in state IDLE when call restoration has failed.</p>
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#### 6.4.3 Timer tests

Test group objective:

- to test the protocol behaviour related to timers of the MLE entity of the IUT.

TP/NWK/MLE/TI-01	<p>Reference: ETS 300 392-2 [2], subclause 18.3.4.7.4  Condition: IUT supports CMCE call restoration  Initial state: Attached to a cell, CMCE call active  Stimulus: IUT moves to a neighbouring cell outside the current location area</p> <p>Verify that, if announced cell reselection type 3 is selected, when the IUT has sent a U-PREPARE and the tester does not reply to this, the IUT will continue the type 3 cell reselection when timer T.370 has expired, sending a U-LOCATION UPDATE DEMAND.</p>
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TP/NWK/MLE/TI-02	<p>Reference: ETS 300 392-2 [2], subclause 18.3.4.7.4  Initial state: Attached to a cell, CMCE individual call active  Stimulus: The IUT performs announced type 3 cell reselection during a time controlled by the tester and moves to a neighbouring cell outside the current location area</p> <p>Verify that if announced type 3 cell reselection is selected, when the tester responds with D-NEW-CELL carrying Channel command valid parameter "No channel change", the IUT restarts timer T.370 and waits for a new D-NEW-CELL. Verify that, following the end of the initial period of T.370, when the tester sends a second D-NEW-CELL carrying Channel command valid parameter "Change channel immediately" the IUT continues the cell change procedure sending a U-LOCATION UPDATE DEMAND.</p>
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TP/NWK/MLE/TI-03	<p>Reference: ETS 300 392-2 [2], subclause 18.3.4.7.5  Condition: IUT supports cell reselection type 2  Initial state: Attached to a cell, CMCE call active  Stimulus: IUT moves to a neighbouring cell outside the current location area</p> <p>Verify that if announced cell reselection type 2 is selected, when the IUT has sent a U-PREPARE PDU, when timer T.370 times out before a response has been sent by the tester, the IUT continues type 2 cell reselection, sending a U-LOCATION UPDATE DEMAND.</p>
TP/NWK/MLE/TI-04	<p>Reference: ETS 300 392-2 [2], subclause 18.3.4.7.5  Condition: IUT supports cell reselection type 2  Initial state: Attached to a cell, CMCE call active  Stimulus: The IUT performs announced type 2 cell reselection during a time controlled by the tester and moves to a neighbouring cell outside the current location area</p> <p>Verify that if announced type 2 cell reselection is selected, when the tester responds with D-NEW-CELL carrying Channel command valid parameter "No channel change", the IUT restarts timer T.370 and waits for a new D-NEW-CELL. Verify that, following the end of the initial period of T.370, when the tester sends a second D-NEW-CELL carrying Channel command valid parameter "Change channel immediately" the IUT continues the cell change procedure sending a U-LOCATION UPDATE DEMAND.</p>

## 7 LLC layer test purposes

Test group objective:

- to test the behaviour of the LLC entity of the IUT.

Condition:

- IUT implements the LLC entity.

### 7.1 Capability tests

Test group objective:

- to test the basic capabilities of the LLC entity of the IUT.

#### 7.1.1 Basic link, acknowledged service

Test group objective:

- to test the basic capabilities of the LLC entity of the IUT, when operating in basic link, acknowledged data transfer mode.

TP/LLC/CA/BA-01	<p>Reference: ETS 300 392-2 [2], subclause 22.3.2.1  Condition: IUT supports basic link acknowledged data transmission  Initial state: IUT activated and camped to a cell  Stimulus: IUT initiates a basic link acknowledged service data transfer</p> <p>Verify that, when the IUT initiates basic link acknowledged data transfer for the first time after the power up, it uses BL-DATA or BL-ADATA PDU with SDU number set to 0.</p>
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TP/LLC/CA/BA-02	<p>Reference: ETS 300 392-2 [2], subclauses 22.2.1.1, 22.3.2.3  Condition: IUT supports sending BL-DATA PDUs  Initial state: IUT activated and camped to a cell  Stimulus: IUT performs an acknowledged basic link data transmission</p> <p>Verify that, when the IUT sends data using the acknowledged data transfer mode, with no received data to be acknowledged, it sends a BL-DATA PDU.</p>
TP/LLC/CA/BA-03	<p>Reference: ETS 300 392-2 [2], subclauses 22.2.1.1, 22.3.2.3  Condition: IUT supports basic link acknowledged data transmission  Initial state: IUT activated and camped to a cell  Stimulus: IUT performs an acknowledged basic link data transmission</p> <p>Verify that, when the IUT has sent a BL-DATA PDU, it accepts a BL-ACK PDU without data as an acknowledgement.</p>
TP/LLC/CA/BA-04	<p>Reference: ETS 300 392-2 [2], subclauses 22.2.1.1, 22.3.2.3  Condition: IUT supports basic link acknowledged data transmission  Initial state: IUT activated and camped to a cell  Stimulus: IUT performs an acknowledged basic link data transmission</p> <p>Verify that, when the IUT has sent a BL-DATA PDU, it accepts a BL-ACK PDU with data as an acknowledgement.</p>
TP/LLC/CA/BA-05	<p>Reference: ETS 300 392-2 [2], subclauses 22.2.1.1, 22.3.2.3  Condition: IUT supports basic link acknowledged data transmission  Initial state: IUT activated and camped to a cell  Stimulus: IUT performs an acknowledged basic link data transmission</p> <p>Verify that, when the IUT has sent a BL-DATA PDU, it accepts a BL-ADATA PDU as an acknowledgement.</p>
TP/LLC/CA/BA-06	<p>Reference: ETS 300 392-2 [2], subclauses 22.3.2.3, 22.3.1.5, annex C  Condition: IUT supports basic link acknowledged data transmission with FCS  Initial state: IUT is attached to a cell  Stimulus: IUT performs a basic link acknowledged service data transfer sending BL-DATA or BL-ADATA PDU with FCS</p> <p>Verify that, if the IUT performs the basic link acknowledged data transfer sending a BL-DATA or BL-ADATA PDU with FCS, the FCS value is calculated correctly.</p> <p>NOTE: This test purpose should be combined in the executable test suite in a way that makes it possible to verify the correctness of the FCS, whenever the IUT sends these PDUs.</p>
TP/LLC/CA/BA-07	<p>Reference: ETS 300 392-2 [2], subclauses 22.2.1.1, 22.3.2.3  Condition: IUT supports basic link acknowledged data reception  Initial state: IUT activated and camped to a cell  Stimulus: IUT receives a BL-DATA PDU</p> <p>Verify that, when the IUT has received a BL-DATA PDU with no FCS, it sends a BL-ACK PDU, with or without data, or a BL-ADATA PDU containing data, acknowledging the received PDU.</p>

TP/LLC/CA/BA-08	<p>Reference: ETS 300 392-2 [2], subclauses 22.2.1.1, 22.3.2.3</p> <p>Condition: IUT supports basic link acknowledged data reception</p> <p>Initial state: IUT activated and camped to a cell</p> <p>Stimulus: IUT receives a BL-DATA PDU</p> <p>Verify that, when the IUT has received a BL-DATA PDU with a correct FCS, it sends a BL-ACK PDU, with or without data, or a BL-ADATA PDU containing data, acknowledging the received PDU.</p>
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TP/LLC/CA/BA-09	<p>Reference: ETS 300 392-2 [2], subclauses 22.2.1.1, 22.3.2.3</p> <p>Condition: IUT supports basic link acknowledged data reception</p> <p>Initial state: IUT activated and camped to a cell</p> <p>Stimulus: IUT receives a BL-ADATA PDU</p> <p>Verify that, when the IUT has received a BL-ADATA PDU, it sends a BL-ACK PDU, with or without data, or a BL-ADATA PDU containing data, acknowledging the received PDU.</p>
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### 7.1.2 Basic link, unacknowledged service

Test group objective:

- to test the basic capabilities of the LLC entity of the IUT, when operating in basic link, unacknowledged data transfer mode.

TP/LLC/CA/BU-01	<p>Reference: ETS 300 392-2 [2], subclauses 22.2.1.2, 22.3.2.4.1</p> <p>Condition: IUT supports sending BL-UDATA PDUs</p> <p>Initial state: IUT activated and camped to a cell</p> <p>Stimulus: IUT performs an unacknowledged basic link data transmission</p> <p>Verify that, when the IUT sends data using the unacknowledged data transfer mode, it sends a BL-UDATA PDU at least once.</p>
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TP/LLC/CA/BU-02	<p>Reference: ETS 300 392-2 [2], subclauses 22.3.2.4.1, 22.3.1.5, annex C</p> <p>Condition: IUT supports basic link unacknowledged data transmission with FCS</p> <p>Initial state: IUT is attached to a cell</p> <p>Stimulus: IUT performs a basic link unacknowledged service data transfer sending BL-UDATA PDU with FCS</p> <p>Verify that, if the IUT performs basic link unacknowledged data transfer sending BL-UDATA PDU with FCS, the FCS value is calculated correctly.</p> <p>NOTE: This test purpose should be combined in the executable test suite in a way that makes it possible to verify the correctness of the FCS, whenever the IUT sends these PDUs.</p>
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TP/LLC/CA/BU-03	<p>Reference: ETS 300 392-2 [2], subclauses 22.2.1.2, 22.3.2.4.2</p> <p>Condition: IUT supports receiving BL-UDATA PDUs</p> <p>Initial state: IUT activated and camped to a cell</p> <p>Stimulus: IUT receives BL-UDATA PDU</p> <p>Verify that the IUT accepts a BL-UDATA PDU with no FCS field.</p>
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TP/LLC/CA/BU-04	Reference: ETS 300 392-2 [2], subclauses 22.2.1.2, 22.3.2.4.2 Condition: IUT supports receiving BL-UDATA PDUs Initial state: IUT activated and camped to a cell Stimulus: IUT receives BL-UDATA PDU  Verify that the IUT accepts a BL-UDATA PDU with a correct FCS field.
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### 7.1.3 Advanced link, acknowledged service

Test group objective:

- to test the basic capabilities of the LLC entity of the IUT, when using the advanced link, acknowledged service.

Condition:

- IUT supports advanced link acknowledged service.

#### 7.1.3.1 Link establishment

Test group objective:

- to test the basic capabilities of the advanced link acknowledged service connection setup procedure.

Condition:

- IUT supports acknowledged advanced link connection setup.

TP/LLC/CA/AA/LE-01	Reference: ETS 300 392-2 [2], subclauses 22.2.2.1, 22.3.3.1.1 Condition: IUT supports sending AL-SETUP PDUs Initial state: IUT is attached to a cell Stimulus: IUT initiates an advanced link acknowledged service connection setup  Verify that, when the IUT initiates an advanced link acknowledged service connection, it sends an AL-SETUP PDU with Advanced link service set to "Acknowledged service".
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TP/LLC/CA/AA/LE-02	Reference: ETS 300 392-2 [2], subclauses 22.2.2.1, 22.3.3.1.1 Initial state: IUT is attached to a cell Stimulus: IUT initiates an advanced link acknowledged service connection setup  Verify that, when the IUT has initiated the connection set-up sending an AL-SETUP PDU, it accepts an AL-SETUP PDU with agreeable QoS value set as a response and sets the connection ready for data transfer.
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TP/LLC/CA/AA/LE-03	Reference: ETS 300 392-2 [2], subclauses 22.2.2.1, 22.3.3.1.1 Initial state: IUT is attached to a cell Stimulus: IUT initiates an advanced link acknowledged service connection setup  Verify that, when the IUT has initiated the connection set-up sending an AL-SETUP PDU, it accepts an AL-DISC PDU as a response and does not establish the connection for data transfer.
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TP/LLC/CA/AA/LE-04	<p>Reference: ETS 300 392-2 [2], subclauses 22.2.2.1, 22.3.3.1.2</p> <p>Initial state: IUT is attached to a cell</p> <p>Stimulus: IUT receives an AL-SETUP PDU</p> <p>Verify that, when the IUT receives an AL-SETUP PDU with Advanced link service set to "Acknowledged service" and with agreeable QoS value set, it sends an AL-SETUP PDU as a response and sets the connection ready for data transfer.</p>
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TP/LLC/CA/AA/LE-05	<p>Reference: ETS 300 392-2 [2], subclauses 22.2.2.1, 22.3.3.1.2</p> <p>Initial state: IUT is attached to a cell and has the maximum number of concurrent acknowledged advanced links established</p> <p>Stimulus: IUT receives an AL-SETUP PDU</p> <p>Verify that, when the IUT receives an AL-SETUP PDU with Advanced link service set to "Acknowledged service" and when the IUT has the maximum number of advanced links established and ready for data transfer, it sends an AL-DISC PDU as a response and does not establish the connection for data transfer.</p>
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### 7.1.3.2 Data transfer

Test group objective:

- to test the basic data transfer capabilities of the advanced link acknowledged service.

TP/LLC/CA/AA/DT-01	<p>Reference: ETS 300 392-2 [2], subclauses 22.2.2.3, 22.3.3.2.1</p> <p>Condition: IUT supports sending AL-FINAL or AL-FINAL-AR PDUs</p> <p>Initial state: IUT has an advanced link acknowledged service connection established and ready for data transfer</p> <p>Stimulus: IUT sends an unsegmented SDU using advanced link acknowledged service</p> <p>Verify that, when the IUT sends an unsegmented SDU using the advanced link acknowledged data transfer, it sends an AL-FINAL or AL-FINAL-AR PDU.</p>
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TP/LLC/CA/AA/DT-02	<p>Reference: ETS 300 392-2 [2], subclauses 22.2.2.3, 22.3.3.2.1</p> <p>Condition: IUT supports sending AL-DATA or AL-DATA-AR PDUs</p> <p>Initial state: IUT has an advanced link acknowledged service connection established and ready for data transfer</p> <p>Stimulus: IUT sends a segmented SDU using advanced link acknowledged service</p> <p>Verify that, when the IUT sends a segmented SDU, it uses an AL-DATA or AL-DATA-AR PDU for all but the last segment and AL-FINAL or AL-FINAL-AR for the last segment of that SDU.</p>
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TP/LLC/CA/AA/DT-03	<p>Reference: ETS 300 392-2 [2], subclauses 22.2.2.3, 22.3.3.2.3</p> <p>Condition: IUT supports acknowledged advanced link data transmission</p> <p>Initial state: IUT has an advanced link acknowledged service connection established and ready for data transfer</p> <p>Stimulus: IUT sends an SDU using advanced link acknowledged service</p> <p>Verify that, when the IUT has sent an unsegmented or segmented SDU using AL-DATA or AL-DATA-AR PDUs for the first segments and AL-FINAL or AL-FINAL-AR PDU for the last segment, it accepts an AL-ACK as a response.</p>
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TP/LLC/CA/AA/DT-04	<p>Reference: ETS 300 392-2 [2], subclauses 22.2.2.3, 22.2.2.7, 22.3.3.2.3</p> <p>Condition: IUT supports acknowledged advanced link data transmission</p> <p>Initial state: IUT has an advanced link acknowledged service connection established and ready for data transfer</p> <p>Stimulus: IUT sends an SDU using advanced link acknowledged service</p> <p>Verify that, when the IUT has sent an unsegmented or segmented SDU using AL-DATA or AL-DATA-AR PDUs for the first segments and AL-FINAL or AL-FINAL-AR PDU for the last segment, it accepts an AL-RNR PDU as a response.</p>
TP/LLC/CA/AA/DT-05	<p>Reference: ETS 300 392-2 [2], subclauses 22.3.3.2, 22.3.1.5, annex C</p> <p>Condition: IUT supports advanced link acknowledged service data transmission</p> <p>Initial state: IUT has an advanced link acknowledged service connection established and ready for data transfer</p> <p>Stimulus: IUT sends an SDU using advanced link acknowledged service</p> <p>Verify that, when the IUT performs an advanced link acknowledged data transmission of a segmented or unsegmented SDU sending the AL-DATA, AL-DATA-AR, AL-FINAL, or AL-FINAL-AR PDUs as appropriate, the FCS is included in the reconstructed SDU and it is correctly calculated.</p>
TP/LLC/CA/AA/DT-06	<p>Reference: ETS 300 392-2 [2], subclauses 22.2.2.3, 22.2.2.7, 22.3.3.2.3</p> <p>Condition: IUT supports acknowledged advanced link data reception</p> <p>Initial state: IUT has an advanced link acknowledged service connection established and ready for data transfer</p> <p>Stimulus: IUT receives an AL-FINAL-AR PDU</p> <p>Verify that, when the IUT receives an AL-FINAL-AR PDU containing an unsegmented SDU, it sends an AL-ACK or AL-RNR as a response, acknowledging the received SDU.</p>
TP/LLC/CA/AA/DT-07	<p>Reference: ETS 300 392-2 [2], subclauses 22.2.2.3, 22.2.2.7, 22.3.3.2.3</p> <p>Condition: IUT supports acknowledged advanced link data reception</p> <p>Initial state: IUT has an advanced link acknowledged service connection established and ready for data transfer</p> <p>Stimulus: IUT receives an AL-DATA-AR PDU</p> <p>Verify that, when the IUT receives an AL-DATA-AR PDU containing a segment of an SDU, it sends an AL-ACK or AL-RNR as a response, acknowledging the received PDU.</p>



### 7.1.3.3 Link release

Test group objective:

- to test the basic capabilities of the disconnection procedures of the advanced link acknowledged service.

Condition:

- IUT supports acknowledged advanced link disconnection.

TP/LLC/CA/AA/LR-01	<p>Reference: ETS 300 392-2 [2], subclauses 22.2.2.9, 22.3.3.3.1</p> <p>Condition: IUT supports sending AL-DISC PDUs</p> <p>Initial state: IUT has an advanced link acknowledged service connection established and ready for data transfer</p> <p>Stimulus: IUT initiates an advanced link acknowledged service disconnection</p> <p>Verify that, when the IUT initiates an advanced link disconnection it sends an AL-DISC PDU with Advanced link service set to "Acknowledged service".</p>
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TP/LLC/CA/AA/LR-02	<p>Reference: ETS 300 392-2 [2], subclauses 22.2.2.9, 22.3.3.3.2</p> <p>Initial state: IUT has an advanced link acknowledged service connection established and ready for data transfer</p> <p>Stimulus: IUT initiates an advanced link acknowledged service disconnection</p> <p>Verify that, when the IUT has initiated an advanced link disconnection sending an AL-DISC PDU, it accepts an AL-DISC PDU as a response and closes the connection.</p>
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TP/LLC/CA/AA/LR-03	<p>Reference: ETS 300 392-2 [2], subclauses 22.2.2.9, 22.3.3.3.2</p> <p>Initial state: IUT has an advanced link acknowledged service connection established and ready for data transfer</p> <p>Stimulus: IUT receives an AL-DISC PDU</p> <p>Verify that, when the IUT receives an AL-DISC PDU with Advanced link service set to "Acknowledged service", it sends an AL-DISC as a response and closes the connection.</p>
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## 7.2 Valid behaviour tests

Test group objective:

- to test the valid behaviour of the LLC entity of the IUT.

### 7.2.1 Basic link, acknowledged service

Test group objective:

- to test the valid behaviour of the LLC entity of the IUT, when using the basic link, acknowledged data transfer.

TP/LLC/BV/BA-01	<p>Reference: ETS 300 392-2 [2], subclause 22.3.2.3</p> <p>Condition: IUT supports basic link acknowledged data transmission</p> <p>Initial state: IUT is attached to a cell</p> <p>Stimulus: IUT performs a basic link acknowledged service data transfer</p> <p>Verify that, when the IUT performs a basic link acknowledged data transfer sending BL-DATA or BL-ADATA PDUs, the SDU number in those is incremented correctly and the IUT accepts the corresponding acknowledgements.</p>
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TP/LLC/BV/BA-02	<p>Reference: ETS 300 392-2 [2], subclause 22.3.2.3, annex A.2  Condition: IUT supports parameter N.252  Initial state: IUT is attached to a cell  Stimulus: IUT performs a basic link acknowledged service data transfer</p> <p>Verify that, when the IUT performs a basic link acknowledged data transfer sending a BL-DATA PDU and does not receive a BL-ACK PDU as a response, it repeats the same BL-DATA PDU at least up to the minimum value of N.252 times.</p>
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TP/LLC/BV/BA-03	<p>Reference: ETS 300 392-2 [2], subclause 22.3.2.3  Condition: IUT supports basic link acknowledged data reception  Initial state: IUT is attached to a cell  Stimulus: IUT receives an SDU in BL-DATA</p> <p>Verify that, each time the IUT receives an SDU in a BL-DATA PDU with a certain SDU number, it acknowledges it sending a BL-ACK PDU with the correct SDU number, for each possible SDU number in the range.</p>
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### 7.2.2 Basic link, unacknowledged service

Test group objective:

- to test the valid behaviour of the LLC entity of the IUT, when using the basic link, unacknowledged data transfer.

Condition:

- IUT supports basic link unacknowledged data transfer.

TP/LLC/BV/BU-01	<p>Reference: ETS 300 392-2 [2], subclause 22.3.2.4.1, annex A.2  Condition: IUT supports parameter N.253  Initial state: IUT is attached to a cell  Stimulus: IUT performs an unacknowledged basic link data transmission</p> <p>Verify that, when the IUT performs basic link unacknowledged data transmission sending BL-UDATA PDUs, it repeats sending the PDU according to the value of parameter N.253.</p>
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### 7.2.3 Advanced link, acknowledged service

Test group objective:

- to test the valid behaviour of the LLC entity of the IUT, when using the advanced link, acknowledged service.

Condition:

- IUT supports advanced link acknowledged service.

### 7.2.3.1 Link establishment

Test group objective:

- to test the valid behaviour of the LLC entity of the IUT, when using the link establishment of the advanced link, acknowledged service.

Condition:

- IUT supports advanced link acknowledged service connection setup.

TP/LLC/BV/AA/LE-01	<p>Reference: ETS 300 392-2 [2], subclause 22.3.3.1  Initial state: IUT is attached to a cell  Stimulus: IUT initiates an advanced link acknowledged service connection setup</p> <p>Verify that, when the IUT initiates an advanced link acknowledged service connection sending an AL-SETUP PDU and when the IUT receives an AL-SETUP PDU with report "Service change" as a response to the that, the IUT accepts the QoS negotiation attempt and responds with an AL-SETUP PDU with report set either to "Success" or "Service change" or with an AL-DISC PDU with report "Reject".</p>
TP/LLC/BV/AA/LE-02	<p>Reference: ETS 300 392-2 [2], subclause 22.3.3.1  Initial state: IUT is attached to a cell  Stimulus: IUT initiates an advanced link acknowledged service connection setup</p> <p>Verify that, when the IUT initiates an advanced link acknowledged service connection sending an AL-SETUP PDU and when the IUT receives an AL-SETUP PDU with report "Service definition" in collision with that, the IUT responds with an AL-SETUP PDU with report set either to "Success" or "Service change" or with an AL-DISC PDU with report "Reject".</p>
TP/LLC/BV/AA/LE-03	<p>Reference: ETS 300 392-2 [2], subclause 22.3.3.1.1, annex A.2  Condition: IUT supports parameter N.262  Initial state: IUT is attached to a cell  Stimulus: IUT initiates an advanced link acknowledged connection setup</p> <p>Verify that the when the IUT initiates an advanced link acknowledged connection sending AL-SETUP PDU and does not receive an AL-SETUP PDU as a response, it repeats the same AL-SETUP PDU N.262 times.</p>
TP/LLC/BV/AA/LE-04	<p>Reference: ETS 300 392-2 [2], subclause 22.3.3.1  Initial state: IUT is attached to a cell  Stimulus: IUT receives an incoming advanced link acknowledged service connection setup</p> <p>Verify that, when the IUT receives an AL-SETUP PDU with report set to "Service definition" and with an unacceptable QoS value set, it responds with an AL-SETUP PDU with report set to "Service change" or with an AL-DISC PDU with report "Reject".</p>

## 7.2.3.2 Data transfer

Test group objective:

- to test the valid behaviour of the LLC entity of the IUT, when using the data transfer of the advanced link, acknowledged service.

Condition:

- IUT supports advanced link acknowledged service data transfer.

TP/LLC/BV/AA/DT-01	<p>Reference: ETS 300 392-2 [2], subclause 22.3.3.2</p> <p>Condition: IUT supports advanced link acknowledged service data transmission</p> <p>Initial state: IUT has an advanced link acknowledged service connection established and ready for data transfer</p> <p>Stimulus: IUT performs an advanced link acknowledged service data transfer</p> <p>Verify that, when the IUT performs an advanced link acknowledged data transfer sending the AL-DATA, AL-DATA-AR, AL-FINAL, or AL-FINAL-AR PDUs as appropriate, it increments the SDU numbers in the PDUs correctly.</p>
TP/LLC/BV/AA/DT-02	<p>Reference: ETS 300 392-2 [2], subclause 22.3.3.2</p> <p>Condition: IUT supports advanced link acknowledged service data transmission</p> <p>Initial state: IUT has an advanced link acknowledged service connection established and ready for data transfer</p> <p>Stimulus: IUT performs an advanced link acknowledged service data transfer</p> <p>Verify that, when the IUT performs an advanced link acknowledged data transfer of a segmented SDU sending the AL-DATA, AL-DATA-AR, AL-FINAL, or AL-FINAL-AR PDUs as appropriate, it increments the segment numbers in the PDUs correctly.</p>
TP/LLC/BV/AA/DT-03	<p>Reference: ETS 300 392-2 [2], subclause 22.3.3.2</p> <p>Condition: IUT supports advanced link acknowledged service data transmission</p> <p>Initial state: IUT has an advanced link acknowledged service connection established and ready for data transfer</p> <p>Stimulus: IUT performs an advanced link acknowledged service data transfer</p> <p>Verify that, when the IUT performs an advanced link acknowledged data transfer of a segmented SDU sending the AL-DATA, AL-DATA-AR, AL-FINAL, or AL-FINAL-AR PDUs as appropriate and it receives an AL-ACK PDU as a response acknowledging all but the first segment of that SDU, the IUT retransmits the unmodified first segment of that SDU using AL-DATA or AL-DATA-AR PDU.</p>

TP/LLC/BV/AA/DT-04	<p>Reference: ETS 300 392-2 [2], subclause 22.3.3.2</p> <p>Condition: IUT supports advanced link acknowledged service data transmission</p> <p>Initial state: IUT has an advanced link acknowledged service connection established and ready for data transfer</p> <p>Stimulus: IUT performs an advanced link acknowledged service data transfer</p> <p>Verify that, when the IUT performs an advanced link acknowledged data transfer of a segmented or unsegmented SDU sending the AL-DATA, AL-DATA-AR, AL-FINAL, or AL-FINAL-AR PDUs as appropriate and it receives an AL-ACK PDU as a response indicating the FCS failure and requiring retransmission of that SDU, IUT retransmits the whole SDU using the mentioned PDUs as appropriate and with the same SDU number as initially.</p>
TP/LLC/BV/AA/DT-05	<p>Reference: ETS 300 392-2 [2], subclause 22.3.3.2</p> <p>Condition: IUT supports advanced link acknowledged service data reception</p> <p>Initial state: IUT has an advanced link acknowledged service connection established and ready for data transfer</p> <p>Stimulus: IUT receives unsegmented SDUs</p> <p>Verify that, when the IUT is sent unsegmented SDUs in AL-FINAL or AL-FINAL-AR PDUs as appropriate with ascending SDU numbering, it responds with an AL-ACK or AL-RNR PDU acknowledging the received SDUs, for each possible SDU number in the range.</p>
TP/LLC/BV/AA/DT-06	<p>Reference: ETS 300 392-2 [2], subclause 22.3.3.2</p> <p>Condition: IUT supports advanced link acknowledged service data reception</p> <p>Initial state: IUT has an advanced link acknowledged service connection established and ready for data transfer</p> <p>Stimulus: IUT receives a segmented SDU</p> <p>Verify that, when the IUT is sent a segmented SDU in AL-DATA and AL-FINAL-AR PDUs with ascending segment numbering, it responds with AL-ACK or AL-RNR PDUs acknowledging the received SDU.</p>
TP/LLC/BV/AA/DT-07	<p>Reference: ETS 300 392-2 [2], subclause 22.3.3.2, annex A.2</p> <p>Condition: IUT supports advanced link acknowledged service data reception with window size, N.272, of more than one</p> <p>Initial state: IUT has an advanced link acknowledged service connection established and ready for data transfer</p> <p>Stimulus: IUT receives unsegmented SDUs</p> <p>Verify that, when the IUT receives multiple unsegmented SDUs in AL-FINAL and AL-FINAL-AR PDUs up to the maximum supported window size of N.272 so that the acknowledgement is requested only in the last PDU, the IUT accepts the SDUs and acknowledges those by sending one or more AL-ACK PDUs.</p>

TP/LLC/BV/AA/DT-08	<p>Reference: ETS 300 392-2 [2], subclause 22.3.3.1</p> <p>Condition: IUT supports advanced link acknowledged service connection setup and data transfer</p> <p>Initial state: IUT has an advanced link acknowledged service connection established and ready for data transfer</p> <p>Stimulus: IUT receives an incoming advanced link acknowledged service connection setup</p> <p>Verify that, when the IUT receives an AL-SETUP PDU with report set to "Reset" and with the same an acceptable QoS value set as in existing connection, it responds with an AL-SETUP PDU with report set to "Success" or "Service change" or an AL-DISC PDU with report "Reject", and in the event of data transmission re-starting, it resets the SDU numbering to 0.</p>
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### 7.2.3.3 Link release

Test group objective:

- to test the valid behaviour of the LLC entity of the IUT, when using the link release of the advanced link, acknowledged service.

Condition:

- IUT supports advanced link acknowledged service disconnection.

TP/LLC/BV/AA/LR-01	<p>Reference: ETS 300 392-2 [2], subclause 22.3.3.3</p> <p>Initial state: IUT has an advanced link acknowledged service connection established and ready for data transfer</p> <p>Stimulus: IUT initiates an advanced link acknowledged service disconnection</p> <p>Verify that, when the IUT initiates an advanced link acknowledged service disconnection, it sends an AL-DISC PDU with the report set to "close", the IUT accepts an AL-DISC PDU with the report set to "success" as a response and the IUT closes the connection.</p>
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TP/LLC/BV/AA/LR-02	<p>Reference: ETS 300 392-2 [2], subclause 22.3.3.3.1, annex A.2</p> <p>Condition: IUT supports parameter N.263</p> <p>Initial state: IUT has an advanced link acknowledged service connection established and ready for data transfer</p> <p>Stimulus: IUT initiates an advanced link acknowledged disconnection</p> <p>Verify that, when the IUT initiates an advanced link acknowledged disconnection sending AL-DISC PDU and does not receive an AL-DISC PDU as a response, it repeats the same AL-DISC PDU N.263 times.</p>
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TP/LLC/BV/AA/LR-03	<p>Reference: ETS 300 392-2 [2], subclause 22.3.3.3</p> <p>Initial state: IUT has an advanced link acknowledged service connection established and ready for data transfer</p> <p>Stimulus: IUT receives an incoming advanced link acknowledged service disconnection</p> <p>Verify that, when the IUT receives an AL-DISC PDU with report set to "close", it responds with an AL-DISC PDU with report set to "success" and closes the connection.</p>
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### 7.3 Invalid behaviour tests

Test group objective:

- to test the invalid behaviour of the LLC entity of the IUT.

### 7.3.1 Basic link, acknowledged service

Test group objective:

- to test the invalid behaviour of the LLC entity of the IUT, when using the basic link, acknowledged data transfer.

Condition:

- IUT supports basic link acknowledged data transfer.

TP/LLC/BI/BA-01	<p>Reference: ETS 300 392-2 [2], subclauses 22.3.2.3, 22.3.1.5, annex C</p> <p>Condition: IUT supports basic link acknowledged service data reception with FCS</p> <p>Initial state: IUT is attached to a cell</p> <p>Stimulus: IUT receives an SDU with incorrect FCS</p> <p>Verify that, when the IUT receives a BL-DATA PDU with an incorrect FCS, it does not accept the SDU transferred in that PDU nor acknowledge it.</p>
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### 7.3.2 Basic link, unacknowledged service

Test group objective:

- to test the invalid behaviour of the LLC entity of the IUT, when using the basic link, unacknowledged data transfer.

Condition:

- IUT supports basic link unacknowledged data transfer.

TP/LLC/BI/BU-01	<p>Reference: ETS 300 392-2 [2], subclauses 22.3.2.4.2, 22.3.1.5, annex C</p> <p>Condition: IUT supports basic link unacknowledged service data reception with FCS</p> <p>Initial state: IUT is attached to a cell</p> <p>Stimulus: IUT receives an SDU with incorrect FCS</p> <p>Verify that, when the IUT receives a BL-UDATA PDU with an incorrect FCS, it does not accept the SDU transferred in that PDU.</p>
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### 7.3.3 Advanced link, acknowledged service

Test group objective:

- to test the invalid behaviour of the LLC entity of the IUT, when using the advanced link, acknowledged service.

Condition:

- IUT supports advanced link acknowledged service.

TP/LLC/BI/AA-01	<p>Reference: ETS 300 392-2 [2], subclause 22.3.3.2</p> <p>Condition: IUT supports advanced link acknowledged service data reception</p> <p>Initial state: IUT has an advanced link acknowledged service connection established and ready for data transfer</p> <p>Stimulus: IUT receives an incomplete segmented SDU</p> <p>Verify that, when the IUT receives a segmented SDU in AL-DATA and AL-FINAL-AR PDUs and the first segment of that SDU is not transferred, the IUT responds with an AL-ACK or AL-RNR PDU requesting the retransmission of the missing first segment of that SDU.</p>
TP/LLC/BI/AA-02	<p>Reference: ETS 300 392-2 [2], subclauses 22.3.3.2, 22.3.1.5, annex C</p> <p>Condition: IUT supports advanced link acknowledged service data reception</p> <p>Initial state: IUT has an advanced link acknowledged service connection established and ready for data transfer</p> <p>Stimulus: IUT receives a segmented SDU with incorrect FCS</p> <p>Verify that, when the IUT receives a segmented SDU in AL-DATA and AL-FINAL-AR PDUs with an incorrect FCS, the IUT checks the FCS correctly and requests the retransmission of the whole SDU using an AL-ACK or AL-RNR PDU.</p>
TP/LLC/BI/AA-03	<p>Reference: ETS 300 392-2 [2], subclause 22.3.3.3</p> <p>Condition: IUT supports advanced link acknowledged service disconnection</p> <p>Initial state: IUT has an advanced link acknowledged service connection established and ready for data transfer</p> <p>Stimulus: IUT performs an advanced link acknowledged service data transfer</p> <p>Verify that, when the IUT performs an advanced link acknowledged service data transfer of a segmented or unsegmented SDU sending the AL-DATA, AL-DATA-AR, AL-FINAL or AL-FINAL-AR PDUs as appropriate, it accepts an AL-DISC PDU with report "close" as a response to the PDU containing the first segment and furthermore responds with an AL-DISC PDU with report "success" confirming the disconnection.</p>

### 7.4 Timer tests

Test group objective:

- to test the protocol behaviour related to timers of the LLC entity of the IUT.



#### 7.4.1 Basic link, acknowledged service

Test group objective:

- to test the protocol behaviour related to timers of the LLC entity of the IUT when using basic link, acknowledged service.

TP/LLC/TI/BA-01	<p>Reference: ETS 300 392-2 [2], subclause 22.3.2.3, annex A.1          Condition: IUT supports timer T.251          Initial state: IUT is attached to a cell          Stimulus: IUT performs a basic link acknowledged service data transfer</p> <p>Verify that, when the IUT performs basic link acknowledged data transfer sending a BL-DATA PDU and does not receive a BL-ACK PDU as a response, it repeats the same BL-DATA PDU at intervals of timer T.251.</p>
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#### 7.4.2 Advanced link, acknowledged service

Test group objective:

- to test the protocol behaviour related to timers of the LLC entity of the IUT when using advanced link, acknowledged service.

TP/LLC/TI/AA-01	<p>Reference: ETS 300 392-2 [2], subclause 22.3.3.1.1, annex A.1          Condition: IUT supports timer T.261          Initial state: IUT is attached to a cell          Stimulus: IUT initiates an advanced link acknowledged service connection setup</p> <p>Verify that, when the IUT initiates an advanced link acknowledged connection sending AL-SETUP PDU and does not receive an AL-SETUP PDU as a response, it repeats the same AL-SETUP at interval between transmissions of T.261.</p>
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TP/LLC/TI/AA-02	<p>Reference: ETS 300 392-2 [2], subclause 22.3.3.3.1, annex A.1          Condition: IUT supports timer T.263          Initial state: IUT has an advanced link acknowledged service connection established and ready for data transfer          Stimulus: IUT initiates an advanced link acknowledged disconnection</p> <p>Verify that, when the IUT initiates an advanced link acknowledged disconnection sending AL-DISC PDU and does not receive an AL-DISC PDU as a response, it repeats the same AL-DISC PDU at interval between transmissions of T.263.</p>
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## 8 MAC layer test purposes

### 8.1 Capability tests

Test group objective:

- to test the basic capabilities of the MAC entity of the IUT.

TP/MAC/CA-01	Reference: ETS 300 392-2 [2], subclauses 23.4.3.1.1, 23.4.2.1.2 Initial state: IUT is allocated on the MCCH Stimulus: IUT receives and responds to message from the test system  Verify that, when the IUT receives a MAC-RESOURCE PDU containing an LLC message from the tester with no fragmentation soliciting a response, and no slots have been granted for the IUT, the IUT responds using a MAC-ACCESS PDU containing the LLC response as a TM-SDU.
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### 8.2 Valid behaviour tests

Test group objective:

- to test the valid behaviour of the MAC entity of the IUT.

#### 8.2.1 Minimum mode

Test group objective:

- to test the MAC entity during minimum mode.

TP/MAC/BV/MI-01	Reference: ETS 300 392-2 [2], subclauses 23.3.3.3, 23.3.3.6, 23.4.2.1.3 Condition: IUT supports minimum mode procedures Initial state: The minimum mode state is entered and all frames 1-17 allocated to another MS Stimulus: IUT receives a message from the tester  Verify that, when the IUT in minimum mode receives a MAC-RESOURCE PDU with a TM-SDU for the LLC that requires a response (acknowledgement), the IUT sends a MAC-ACCESS PDU in frame 18.
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TP/MAC/BV/MI-02	Reference: ETS 300 392-2 [2], subclause 23.3.3.5 Initial state: The IUT has entered minimum mode as defined by the tester in previous ACCESS-ASSIGN PDUs Stimulus: IUT receives a message from the tester  Verify that, when the IUT receives an ACCESS-ASSIGN PDU from the tester containing information that slot 1 is again available for common control (end of minimum mode), then the IUT leaves minimum mode, and when the IUT receives a MAC-RESOURCE PDU with an LLC message soliciting a response and grant has been given to the IUT, the IUT sends a MAC-DATA PDU in uplink slot 1 assigned to the IUT in the ACCESS-ASSIGN PDU.
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### 8.2.2 Addressing

Test group objective:

- to test the event label addressing in the MAC.

TP/MAC/BV/AD-01	<p>Reference: ETS 300 392-2 [2], subclause 23.4.1.2.3</p> <p>Initial state: IUT is allocated on the MCCH and an event label has been assigned by the tester</p> <p>Stimulus: IUT receives message using event label address from the tester</p> <p>Verify that, when the IUT receives a MAC-RESOURCE PDU from the tester using the event label address of the IUT and the MAC-RESOURCE PDU contains an LLC message soliciting a response, the IUT responds with a MAC-ACCESS PDU.</p>
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### 8.2.3 Random access

Test group objective:

To test the random access in the MAC.

TP/MAC/BV/RA-01	<p>Reference: ETS 300 392-2 [2], subclauses 23.4.2.1.1, 23.4.3.1.1</p> <p>Initial state: IUT is allocated on the MCCH</p> <p>Stimulus: IUT receives fragmented message from the tester</p> <p>Verify that, when the IUT receives the first fragment of a TM-SDU from the tester in a MAC-RESOURCE PDU, followed by a number of MAC-FRAG PDUs and the final fragment is received in a MAC-END PDU, and when LLC acknowledgement is required, a TM-SDU is sent from the IUT in a MAC-ACCESS PDU.</p>
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### 8.2.4 Reserved access

Test group objective:

- to test the reserved access of the MAC entity.

TP/MAC/BV/RE-01	<p>Reference: ETS 300 392-2 [2], subclause 23.4.2.1.2, ETS 300 392-1 [1], clause 7</p> <p>Initial state: IUT is allocated on the MCCH and has been granted slots by the tester</p> <p>Stimulus: IUT sends fragmented message to tester, e.g. caused by an MM U-LOCATION UPDATE DEMAND used to register with new ITSI</p> <p>Verify that, when the IUT sends an LLC TM-SDU that does not fit within a single MAC block and the IUT has been granted slots, it sends the first fragment in a MAC-DATA PDU followed by a number of MAC-FRAG PDUs and a final MAC-END PDU to transfer the TM-SDU using reserved access.</p>
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TP/MAC/BV/RE-02	<p>Reference: ETS 300 392-2 [2], subclause 23.5.2.2</p> <p>Initial state: IUT is allocated on the MCCH</p> <p>Stimulus: IUT sends message to tester</p> <p>Verify that, when IUT initiates random access sending a MAC-ACCESS PDU with request for reserved access, and the tester responds with a MAC-RESOURCE PDU with the necessary capacity allocation and a granting delay parameter specifying the number of uplink opportunities to delay the reserved access, the IUT does not continue with the reserved access MAC-DATA PDU until this number of opportunities has passed.</p>
TP/MAC/BV/RE-03	<p>Reference: ETS 300 392-2 [2], subclause 23.4.2.1.2, ETS 300 392-1 [1], clause 7</p> <p>Initial state: IUT is allocated on the MCCH and no slots have been granted to the IUT</p> <p>Stimulus: IUT sends fragmented message to tester, e.g. caused by an MM U-LOCATION UPDATE DEMAND used to register with new ITSI</p> <p>Verify that, when the IUT sends an LLC TM-SDU that does not fit within a single MAC block, it sends MAC-ACCESS PDU with the first fragment of the SDU including capacity request for the remaining SDU, and when the IUT receives a MAC-RESOURCE PDU granting slots, the IUT sends a number of MAC-FRAG PDUs and a final MAC-END PDU to indicate end of transmission of the TM-SDU.</p>

### 8.3 Invalid behaviour tests

Test group objective:

- to test invalid behaviour for the MAC entity of the IUT.

#### 8.3.1 Addressing

Test group objective:

- to test invalid addressing for the MAC entity.

TP/MAC/BI/AD-01	<p>Reference: ETS 300 392-2 [2], subclause 23.4.1.2.3</p> <p>Initial state: IUT is allocated on the MCCH and an event label has been assigned by the tester</p> <p>Stimulus: IUT receives a message using event label address from the tester</p> <p>Verify that, when the IUT receives a MAC-RESOURCE PDU from the tester using the assigned event label, but at least time T.201 has passed since the last message using this event label was received, then the IUT does not accept and hence respond to the message, even if the message contains an LLC SDU for which a response from the IUT is required.</p>
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### 8.3.2 Random access

Test group objective:

- to test invalid behaviour for the random access of the MAC.

TP/MAC/BI/RA-01	<p>Reference: ETS 300 392-2 [2], subclauses 23.5.1.4.3, 23.5.1.4.1, 23.5.1.4.4</p> <p>Initial state: IUT is allocated on the MCCH</p> <p>Stimulus: IUT tries to initiate random access transmission</p> <p>Verify that, when the IUT has an LLC SDU to send but the current access codes received in the ACCESS-ASSIGN PDU do not allow the IUT to use random access transmission, then the IUT abandons the random access attempt.</p>
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TP/MAC/BI/RA-02	<p>Reference: ETS 300 392-2 [2], subclauses 23.5.1.4.5, 23.5.1.4.9</p> <p>Initial state: IUT is allocated on the MCCH</p> <p>Stimulus: IUT sends message to tester</p> <p>Verify that, when the IUT has a non-emergency LLC SDU to send, it sends a MAC-ACCESS PDU to the tester, and if no response to the PDU is received from the tester, the IUT retries the random access procedure "Nu" times before failing the random access transmission.</p>
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### 8.4 Timer tests

Test group objective:

- to test timer values of the MAC entity of the IUT.

TP/MAC/TI-01	<p>Reference: ETS 300 392-2 [2], subclause 23.4.2.1.2, ETS 300 392-1 [1], clause 7</p> <p>Initial state: IUT is allocated on the MCCH</p> <p>Stimulus: IUT sends a fragmented message to the tester, e.g. caused by an MM U-LOCATION UPDATE DEMAND used to register with new ITSI</p> <p>Verify that, when the IUT sends a random access MAC-ACCESS PDU and receives a MAC-RESOURCE PDU with instruction to wait for another Slot Grant, the IUT fails the transmission after time T.202 and does not continue the transmission, even if slots are then granted for the IUT.</p>
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TP/MAC/TI-02	<p>Reference: ETS 300 392-2 [2], subclause 23.5.1.4.8</p> <p>Initial state: IUT is allocated on the MCCH</p> <p>Stimulus: IUT sends message to tester using random access</p> <p>Verify that, when the IUT sends a MAC-ACCESS PDU but does not receive a MAC-RESOURCE PDU assigning uplink capacity within "WT" downlink signalling opportunities, the IUT re-transmits the MAC-ACCESS PDU.</p>
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## History

Document history	
December 1996	Public Enquiry PE 121: 1996-12-30 to 1997-04-25