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Foreword

This final 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 Voting phase of the ETSI standards approval procedure.

The DECT Test Specification multipart ETS comprises nine parts, as follows:

Part 1: "Part 1: Test Suite Structure (TSS) and Test Purposes (TP) for Medium Access Control (MAC) layer".

Part 2: "Part 2: Abstract Test Suite (ATS) for Medium Access Control (MAC) layer - Portable radio Termination (PT)".

Part 3: "Part 3: Abstract Test Suite (ATS) for Medium Access Control (MAC) layer - Fixed radio Termination (FT)".

Part 4: "Part 4: Test Suite Structure (TSS) and Test Purposes (TP) - Data Link Control (DLC) layer".

Part 5: "Part 5: Abstract Test Suite (ATS) - Data Link Control (DLC) layer".

Part 6: "Part 6: Test Suite Structure (TSS) and Test Purposes (TP) - Network (NWK) layer - Portable radio Termination (PT)".

Part 7: "Part 7: Abstract Test Suite (ATS) for Network (NWK) layer - Portable radio Termination (PT)".

Part 8: "Part 8: Test Suite Structure (TSS) and Test Purposes (TP) - Network (NWK) layer - Fixed radio Termination (FT)".

Part 9: "Part 9: Abstract Test Suite (ATS) for Network (NWK) layer - Fixed radio Termination (FT)".

Proposed transposition dates	
Date of latest announcement of this ETS (doa):	3 months after ETSI publication
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Date of withdrawal of any conflicting National Standard (dow):	6 months after doa

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1 Scope

This final draft European Telecommunication Standard (ETS) contains the Abstract Test Suite (ATS) to test the DECT DLC layer.

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

The ISO standard for the methodology of conformance testing (ISO/IEC 9646-1 [21], ISO/IEC 9646-2 [22], ISO/IEC 9646-3 [23] and ISO/IEC 9646-5 [25]) as well as the ETSI rules for conformance testing (prETS 300 406 [29] and ETR 141 [30]) are used as basis for the test methodology.

Test specifications for the Physical Layer (PHL), Medium Access Control Layer (MAC), and Network Layer (NWK) are provided in other the DECT standards.

Annex A provides the Tree and Tabular Combined Notation (TTCN) part of this ATS.

Annex B provides the Partial Protocol Implementation eXtra Information for Testing (PIXIT) Proforma of this ATS.

Annex C provides the Protocol Conformance Test Report (PCTR) Proforma of this ATS.

2 Normative references

This ETS incorporates, by dated or 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 300 175-1 (1992): "Radio Equipment and Systems (RES); Digital European Cordless Telecommunications (DECT); Common interface; Part 1: Overview".

[2] ETS 300 175-2 (1992): "Radio Equipment and Systems (RES); Digital European Cordless Telecommunications (DECT); Common interface; Part 2: Physical layer".

[3] ETS 300 175-3 (1992): "Radio Equipment and Systems (RES); Digital European Cordless Telecommunications (DECT); Common interface; Part 3: Medium access control layer".

[4] ETS 300 175-4 (1992): "Radio Equipment and Systems (RES); Digital European Cordless Telecommunications (DECT); Common interface; Part 4: Data link control layer".

[5] ETS 300 175-5 (1992): "Radio Equipment and Systems (RES); Digital European Cordless Telecommunications (DECT); Common interface; Part 5: Network layer".

[6] ETS 300 175-6 (1992): "Radio Equipment and Systems (RES); Digital European Cordless Telecommunications (DECT); Common interface; Part 6: Identities and addressing".

[7] ETS 300 175-7 (1992): "Radio Equipment and Systems (RES); Digital European Cordless Telecommunications (DECT); Common interface; Part 7: Security features".

[8] ETS 300 175-8 (1992): "Radio Equipment and Systems (RES); Digital European Cordless Telecommunications (DECT); Common interface; Part 8: Speech coding and transmission".

[9] ETS 300 175-9 (1992): "Radio Equipment and Systems (RES); Digital European Cordless Telecommunications (DECT); Common interface; Part 9: Public access profile".

[10] ETS 300 444: "Radio Equipment and Systems (RES); Digital European Cordless Telecommunications (DECT); Generic Access Profile (GAP)".

[11] ETS 300 370: "Radio Equipment and Systems (RES); Digital European Cordless Telecommunications/Global System for Mobile communications (DECT/GSM) inter-working profile; Access and mapping (Protocol/procedure description for 3,1 kHz speech service)".

[12] prETS 300 434: "Radio Equipment and Systems (RES); Digital European Cordless Telecommunications (DECT) and Integrated Services Digital Network (ISDN) inter-working for end system configuration".

[13] ETS 300 331: "Radio Equipment and Systems (RES); Digital European Cordless Telecommunications (DECT); DECT Authentication Module (DAM)".

[14] CCITT Recommendation G.726 (1991): "40, 32, 24, 16 kbit/s adaptive differential pulse code modulation (ADPCM)".

[15..20] Reserved values

[21] 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)).

[22] 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)).

[23] ISO/IEC 9646-3 (1991): "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 3: The tree and tabular combined notation". (See also CCITT Recommendation X.292 (1992)).

[24] ISO/IEC 9646-4 (1991): "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 4: Test realisation". (See also CCITT Recommendation X.292 (1992)).

[25] ISO/IEC 9646-5 (1991): "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 5: Requirements on test laboratories and clients for the conformance assessment process". (See also CCITT Recommendation X.292 (1992)).

[26] ISO/IEC 9646-6 (1991): "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 6: Protocol profile test specification".

[27] ISO/IEC 9646-7 (1991): "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 7: Implementation conformance statement".

[28] ISO 7498: "Information Processing Systems - Open Systems Interconnection - Basic Reference model".

[29] ETS 300 406 (1995): "Methods for Testing and Specification (MTS); Protocol and profile conformance testing specifications; Standardization methodology".

[30] 91/263/EEC: "Council Directive of 29 April 1991 on the approximation of the laws of the Member states concerning telecommunications terminal equipment, including the mutual recognition of their conformity. (Terminal Directive)".

[31..40] Reserved values

[41] I-ETS 300 176: "Radio Equipment and Systems (RES); Digital European Cordless Telecommunications (DECT); Approval test specification".

[42] TBR 6: "Radio Equipment and Systems (RES); Digital European Cordless Telecommunications (DECT); General terminal attachment requirements".

[43] TBR 10: "Radio Equipment and Systems (RES); Digital European Cordless Telecommunications (DECT); General terminal attachment requirements: Telephony applications".

[44] TBR 11 (1992): "Radio Equipment and Systems (RES); Attachment requirements for terminal equipment for Digital European Cordless Telecommunications (DECT) Public Access Profile (PAP) applications".

[45] ETS 300 323 (1994): "Radio Equipment and Systems (RES); Digital European Cordless Telecommunications (DECT); Public Access Profile (PAP) test specification".

[46] prETS 300 476: "Radio Equipment and Systems (RES); Digital Enhanced Cordless Telecommunications (DECT); Common Interface (CI); Protocol Implementation Conformance Statement (PICS) proforma".

[47] prETS 300 497: "Radio Equipment and Systems (RES); Digital Enhanced Cordless Telecommunications (DECT); Common Interface (CI) Test Case Library (TCL)".

[48] prETS 300 474: "Radio Equipment and Systems (RES); Digital Enhanced Cordless Telecommunications (DECT); Generic Access Profile (GAP); Profile requirement list and profile specific Implementation Conformance Statement (ICS) proforma".

[49] prETS 300 494: "Radio Equipment and Systems (RES); Digital Enhanced Cordless Telecommunications (DECT); Generic Access Profile (GAP); Profile Test Specification (PTS)".

[50] prTBR 22: "Radio Equipment and Systems (RES); Attachment requirements for terminal equipment for Digital Enhanced Cordless Telecommunications (DECT) Generic Access Profile (GAP) applications".

3 Definitions and abbreviations

Refer to ETS 300 175-1 [1] for the main DECT listing of definitions, symbols and abbreviations. For the purposes of this ETS the following definitions apply:

3.1 DECT definitions

C-plane: The control plane of the DECT protocol stacks, which contains all of the internal DECT protocol control, but may also include some external user information.

NOTE 1: The C-plane stack always contains protocol entities up to and including the network layer.

DLC data link (DLC link): An association between two DLC layer entities. This can either be one C-plane association or one U-plane association.

NOTE 2: This is not the same as a MAC connection.

DLC Frame: The format used to structure all messages that are exchanged between DLC layer peer entities.

NOTE 3: Different DLC frames are used in the C-plane and the U-plane, and there is more than one format of DLC frame in each plane.

Fixed radio Termination (FT): A logical group of functions that contains all of the DECT processes and procedures on the fixed side of the DECT air interface.

NOTE 4: A FT only includes elements that are defined in the ETS 300 175 [1] to [9]. This includes radio transmission elements (layer 1) together with a selection of layer 2 and layer 3 elements.

flow control: The mechanism that is used to regulate the flow of data between two peer entities.

fragment: One of the service data units that is produced by the process of fragmentation.

NOTE 5: This is not the same as a segment.

fragmentation: The process of dividing a protocol data unit into more than one service data unit for delivery to a lower layer. The reverse process is recombination.

NOTE 6: This is not the same as segmentation.

Lower Layer Management Entity (LLME): A management entity that spans a number of lower layers, and is used to describe all control activities which do not follow the rules of layering.

NOTE 7: The DECT LLME spans the network layer, the DLC layer, the MAC layer and the physical layer.

Portable radio Termination (PT): A logical group of functions that contains all of the DECT processes and procedures on the portable side of the DECT air interface.

NOTE 8: A PT only includes elements that are defined in ETS 300 175 [1] to [9]. This includes radio transmission elements (layer 1) together with a selection of layer 2 and layer 3 elements.

Radio Fixed Part (RFP): One physical sub-group of a fixed part that contains all the radio end points (one or more) that are connected to a single system of antennas.

segment: One of the pieces of data that is produced by the process of segmentation.

NOTE 9: In general, one segment only represents a portion of a complete message.

segmentation: The process of partitioning one service data unit from a higher layer into more than one protocol data unit. The reverse process is assembly.

sequencing (sequence numbering): The process of adding a sequence number to a set of data packets so that the packets can be reassembled in the correct order, regardless of the order in which they are received. See also segmentation.

U-plane: The user plane of the DECT protocol stacks. This plane contains most of the end-to-end (external) user information and user control.

NOTE 10: The U-plane protocols do not include any internal DECT protocol control, and it may be null at the network layer and at the DLC layers for some services.

3.2 DECT abbreviations

For the purposes of this ETS the following DECT abbreviations apply:

ALI	Assigned Link Identifier. A LAPC operational state
ARQ	Automatic Repeat reQuest
ASM	Assigned Link Identifier with Synchronous Mode
BRAT	Basic Rate Adaptation service
C-Plane	Control Plane. See definitions
C/L	ConnectionLess mode. See definitions
C/O	Connection Oriented mode. See definitions
DECT	Digital Enhanced Cordless Telecommunications
DLC	Data Link Control.
FB_N	Frame Buffer (unprotected).
FB_P	Frame Buffer (protected).
FMID	Fixed part MAC IDentity. (MAC layer)
FP	Fixed Part. See definitions
FREL	Frame RELay service
FSWI	Frame SWItching service
FT	Fixed radio Termination. See definitions
LAPC	a DLC layer C-plane protocol entity
Lb	a DLC layer C-plane protocol entity
Lc	a DLC layer C-plane protocol entity
LLME	Lower Layer Management Entity. See definitions
MAC	Medium Access Control
NWK	NetWorK
PDU	Protocol Data Unit
PMID	Portable Part MAC Identity (MAC layer)
PP	Portable Part. See definitions
PT	Portable radio Termination. See definitions
RFP	Radio Fixed Part. See definitions
SAP	Service Access Point
SAPI	Service Access Point Identifier
SDU	Service Data Unit
SEL	SELective
SRAT	Secondary Rate Adaptation service
TDMA	Time Division Multiple Access
TRUP	TRansparent UnProtected service
ULI	Unassigned Link Identifier
U-Plane	User Plane. See definitions

3.3 ISO definitions

For the purposes of this ETS the following ISO definitions apply:

Implementation Under Test (IUT): see ISO/IEC 9646-1 [21];

System Under Test (SUT): see ISO/IEC 9646-1 [21];

Abstract Test Suite (ATS): see ISO/IEC 9646-1 [21];

Point of Control and Observation (PCO): see ISO/IEC 9646-1 [21];

Protocol Conformance Test Report (PCTR): see ISO/IEC 9646-5 [25];

Protocol Implementation Conformance Statement (PICS): see ISO/IEC 9646-1 [21];

Protocol Implementation eXtra Information for Testing (PIXIT): see ISO/IEC 9646-1 [21];

PCTR proforma: see ISO/IEC 9646-5 [25];

PICS proforma: see ISO/IEC 9646-1 [21];

PIXIT proforma: see ISO/IEC 9646-1 [21];

Lower Tester (LT): see ISO/IEC 9646-1 [21];

Upper Tester (UT): see ISO/IEC 9646-1 [21];

Network Layer (NWK): see ISO 7498 [28];

Physical Layer (PHL): see ISO 7498 [28].

3.4 ISO abbreviations

For the purposes of this ETS the following ISO abbreviations apply:

ASP	Abstract Service Primitive
BI	Invalid Behaviour
BO	Inopportune Behaviour
BV	Valid Behaviour
CA	Capability tests
ETS	European Telecommunication Standard
ISO	International Organisation for Standardisation
IUT	Implementation Under Test
LT	Lower Tester
NWK	Network Layer
PDU	Protocol Data Unit
PHL	Physical Layer
PICS	Protocol Implementation Conformance Statements
PIXIT	Protocol Implementation eXtra Information for Testing
SUT	System Under Test
TC	Test Case
TP	Test Purpose
TSS	Test Suite Structure
UT	Upper Tester

4 Abstract Test Method (ATM)

This clause describes the ATM used for testing the DECT DLC protocol. It is the embedded variant of Remote Single (RSE) layer test method. The RSE test method has been selected, because:

- this test method implies no specific requirements from the IUT;
- the Upper Service Access Point (USAP) of the IUT cannot be directly observed;
- the variety of the possible DECT implementations is a serious technical obstacle for the adoption of a different ATM;
- this test method places the minimum limitations in the realisation of conformance testing.

The embedded variant of the remote test method provides sufficient control of the IUT DLC behaviour, through NWK layer messages conveyed by DLC frames.

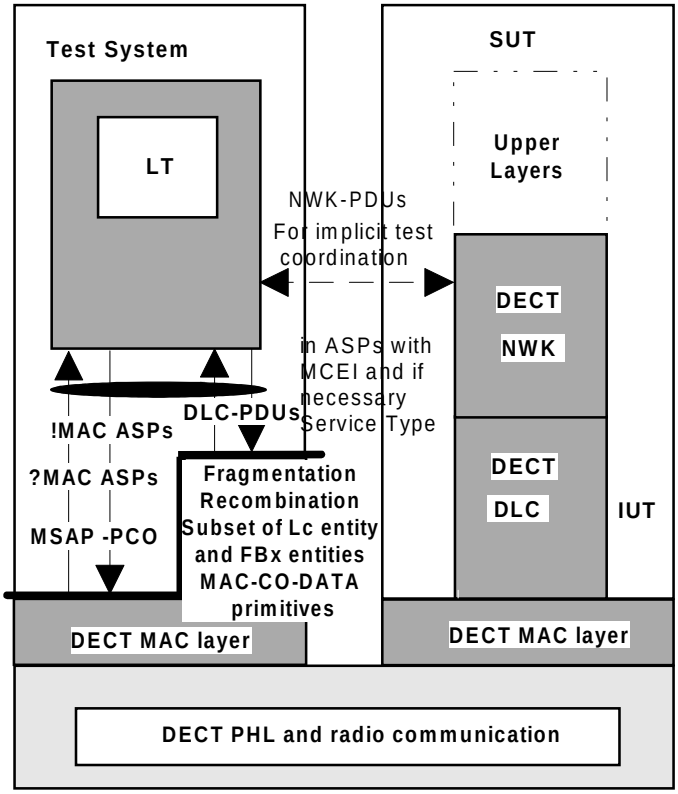

Figure 1: RS test Method embedded variant

LT A lower tester (LT) is located in a remote DECT test system. It controls and observes the behaviour of the IUT.

MSAP A unique MAC SAP is defined at the DECT interface and used to exchange service data of the DLC protocol. To avoid the complexity of data fragmentation and recombination testing, the SAP is defined below this functions of the DLC layer.

PCO The PCO for DLC layer testing is located on the MSAP. All test events at the PCO are specified in terms of MAC ASPs and DLC layer PDUs.

Notional UT No explicit upper tester (UT) exists in the system under test. Nevertheless, some network messages are sent to the SUT for the need of the co-ordination procedures. The network layer of the SUT is used as a notional UT as defined in ISO 9646.

The MSAP primitives are defined according to ETS 300 175-3 [3] clause 8 and associated subclauses.

5 Untestable Test Purposes (TPs)

Due to the ATMs chosen for this ATS or other restrictions, the test purposes in table 1 have been identified as being in the untestable category, and therefore have not been derived into final test case:

Table 1: Untestable TPs

Test purpose	Reason
TPUV_000	No procedure can be defined to determine if, after receiving the first UI frame, the IUT considers the class U link as established. It is an internal state of the DLC layer of the IUT.
TPUV_001	No procedure can be defined to determine if, after receiving an upward release, the IUT considers the class U link as released. It is an internal state of the DLC layer of the IUT.
TPAV_007	Test for connection handover needs some clarification and agreement from the respective RES03 subgroup before that are written.
TPAV_008	Test for connection handover needs some clarification and agreement from the respective RES03 subgroup before that are written.
TPAV_009	Test for connection handover needs some clarification and agreement from the respective RES03 subgroup before that are written.
TPAV_010	Test for connection handover needs some clarification and agreement from the respective RES03 subgroup before that are written.
TPLC_002	Prioritised queuing of broadcast message between normal and expedited data is not testable. It is very difficult to define a procedure in the IUT to force it, to transmit normal and expedited data in a sufficient short time. It is, also, very difficult for the tester to transmit normal and expedited data in sufficient short time and to define a procedure to verify the correct order of the reception in the IUT.

6 ATS Conventions

This clause describes the conventions applied to define the ATS and gives the naming conventions chosen for the different elements of the ATS.
The ATS conventions are intended to give a better understanding of the ATS but they describe also the conventions made for the development of the ATS, thus for any later maintenance purposes or further development of the ATS the conventions described in this clause shall be considered.

The ATS conventions contain two subclauses, the naming conventions and the implementation conventions. The naming conventions describe the structure of the naming of all ATS elements. The implementation conventions describe the functional structure of the ATS.

6.1 Naming conventions

6.1.1 Declarations part

This subclause describes the naming conventions chosen for the elements of the ATS declarations part.

6.1.1.1 Test suite type and structured type definitions

The test suite type and test suite structured type identifiers describe the information elements, and are written in uppercase:

EXAMPLE: PROTOCOL_DISCRIMINATOR simple type.
FILLSTRING structured type

6.1.1.2 Test suite operations definitions

The test suite operation identifiers are composed of string in lowercase letters starting by the uppercase string "TSO_".

EXAMPLE: TSO_compute _checksum.

6.1.1.3 Test suite parameter declarations

The test suite parameter identifiers are composed of string in lowercase letters starting by the uppercase string "TSP_".

EXAMPLE: TSP_window_size.

If the test suite parameter references a PICS item, the letter "C" is added to the standard prefix.

EXAMPLE: TSPC_pics_item_s23.

If the test suite parameter references a PIXIT item, the letter "X" is added to the standard prefix.

EXAMPLE: TSPX_pixit_item_2.

Complete names as defined in the specifications are used.

6.1.1.4 Test case selection expression definitions

The naming conventions for the test case selection expression definitions use free text starting with an uppercase letter. The name of the expression shall explain clearly the selection rule. The test case selection expressions are logical combinations of the test suite parameters definitions.

Certain test cases are selected only when the IUT is a FT part or a PT part. Therefore, to cover all test cases applicable to the implementation, it is necessary to change the relevant test suite parameter for running the desired test cases.

6.1.1.5 Test suite constant declarations

The test suite constant identifiers are composed of string in lowercase letters starting by the uppercase string "TSC_".

EXAMPLE: TSC_retry.

Complete names as defined in the specifications are used.

6.1.1.6 Test suite variable declarations

The test suite variable identifiers are composed of string in lowercase letters starting by the uppercase string "TSV_".

EXAMPLE: TSV_count.

Exception: If the test suite variable represents a system parameter or value, the name defined in the specifications is used.

EXAMPLE: VR,VS.

6.1.1.7 Test case variable declarations

The test case variable identifiers are composed of string in lowercase letters starting by the uppercase string "TCV_".

EXAMPLE: TCV_cr_value.

6.1.1.8 PCO declarations

The point of control and observation identifiers are composed of two or four capital letters, beginning with "L", as there are only LTs.

EXAMPLE: LMAC represents a PCO on MAC interface as LT in the test equipment.
LDLC represents a PCO on DLC interface as LT in the test equipment.

6.1.1.9 Timer declarations

Two kinds of timers can be distinguished:

1) standardised:

   Those defined in the standard, e.g. DL_04, use exactly the same name as in the standard, beginning with a capital "T".

As there is a tolerance margin accepted for these timers, three values are needed:

- the maximum value allowed, which will use the suffix "_max";
- the minimum value allowed, which will use the suffix "_min";
- the value actually implemented, with no suffix.

EXAMPLE 1: TDL_04_max, TDL_04_min, and TDL_04.

2) not standardised:

   Those not defined in the standard, i.e. for execution use, e. g. a timer waiting for a response. These timers begin with the prefix "T_", followed by a string in lowercase letters.

EXAMPLE 2: T_resp represents a timer for controlling the response time of the IUT.

6.1.1.10 ASP type definitions

The identifier of an ASP uses exactly the nearest name as the name defined in the specifications. It is written in uppercases, finishing by an underscore character ("_"), and three capital letters indicating whether it is a request, an indication, a response or a confirmation primitive.

EXAMPLE: DL_RELEASE_REQ for an ASP containing a layer 3 release request passed to layer 2;
MAC_DATA_REQ for an ASP containing a layer 2b PDU passed to layer 2a.

6.1.1.11 PDU type definitions

The identifier of a PDU is given in a string in uppercase letters, which represents the layer message.

EXAMPLE 1: RR for the Receive Ready layer 2 message;
DISCONNECT for the DISCONNECT layer 3 message.

Where the message is a composite word, an underscore character ("_") appears in the string.

EXAMPLE 2: RELEASE_COMPLETE is the RELEASE COMPLETE layer 3 message.

6.1.1.12 Alias definitions

These are used to make the sending and receiving of PDUs within ASPs more understandable when writing the dynamic part of the test suite. This is done by giving the ASP an alias. The alias name indicates the PDU carried by the ASP and whether it is sent or received by the tester.

No alias are used in the test suite.

6.1.2 Constraints part

This subclause describes the naming conventions chosen for the elements of the ATS constraints part.

Constraint identifiers commence with uppercase. The remaining part of the Id name is written in lowercase.

Identifier names of elements concerning the same subject have equivalent names in the declaration and the constraint part:

- Declaration Part: CC_SETUP;
- Constraint Part: Cc_setup.

The name of the modified constraint describes the particularity of the modified constraint:

EXAMPLE: Cc_setup_mand_only (modified Cc_setup with only the mandatory Information Elements).

If formal parameter lists are used, the variable names are written in lowercase. The variable name is the same as the name of the element it is representing.

6.1.3 Dynamic part

This subclause describes the naming conventions chosen for the elements of the ATS dynamic part.

6.1.3.1 Test Case identifier

The identifier of a test case is built according to table 2:

Table 2: TC naming convention

Identifier:	**TC-<fm>-x-<nnn>**			
	<fm>	= functional module	U	Control plane Class U services
			A	Control plane Class A services
			B	Control plane Class B services
			L	Control plane Broadcast services
			0	User plane transmission Class 0
			1	User plane transmission Class 1
			2	User plane transmission Class 2
			3	User plane transmission Class 3
	x	= Type of testing	CA	CA, Capability tests
			BV	BV, Valid Behaviour tests
			BO	BO, Inopportune Behaviour tests
			BI	BI, Invalid Behaviour tests
	<nnn>	= sequential number	(000-999)	test case Number

6.1.3.2 Test step identifier

The test step identifier is built with a string of lowercase letters leaded by a string of capital letter and joined by an underscore character. The first string indicates the main function of the test step; e.g. PR for preamble, PO for postamble, LTS for local tree name and STP for general step. The second string indicates the meaning of the step.

EXAMPLES: PR_name;
PO_name;
LTS_name;
STP_name.

6.1.3.3 Default identifier

The Default identifiers begin with the prefix "DF_", followed by a string in lowercase letters.

6.1.3.4 General aspects

All verdict assignments are labelled. To allow an exact identification in which table the verdict was assigned, the following name convention is applied:

TB	test Body;
DF	Default;
EH	Error handling test steps;
PO	POstamble;
PR	PReamble;
TS	test step.

6.1.3.5 ATS abbreviations

These abbreviations are used to shorten identifier names:

addr	address
ack	acknowledgement
cau	cause
cc	call control
chn	channel
est	establish
ind	indication
mety	message type
mod	modified
par	parameter
pd	protocol discriminator
req	request
rsp	response

6.2 Implementation conventions

6.2.1 Declaration part

The comment line of single element TTCN tables (e.g. test suite constants) is used to give a reference where the format and content of the element is described in the relevant protocol specifications. Any particularity of the element format or content is described in the comment line.

The comment line in the header of multi element TTCN tables (e.g. ASPs) is used to reference to the protocol specification.

The detailed comments are used to describe any particularity of the table.

In the ASP and PDU declarations, the comments column is used to identify if an element is mandatory or optional:

- M: mandatory;
- O: optional.

In the ASP and PDU declarations the comments column is further used to give information about the element value, in particular if the element contains a fixed spare value.

6.2.2 Constraint part

The ASPs and PDUs are defined in a way that all relevant element are parametrized. That improves the transparency of the constraints in the dynamic part, as all values which are relevant for the test are always present.

Generally no modified constraints are used, this allows an easier reuse and adaptation of constraints if they are reused in other DECT profile test specifications.

The comment line of a constraint contains always the reference to the used specifications.

The detailed comments sector is used to describe any particularity of the table.

6.2.3 Dynamic part

Some TCs need a particular initialisation of the IUT environment conditions to run the actual test, e.g. for testing re-provisioning procedures. Such message sequence can be quite complicated and long. In cases where a local test step (LTS) facilitates the TC structure, the preamble and the condition setting are described in a LTS called LTS_pre_step. All LTS_pre_steps are described in the detailed comment part of the TTCN table.

Some TCs need after the actual test a particular re-initialization of the IUT, e.g. after re-provisioning. Such message sequence can be quite complicated and long. In cases where a local test step (LTS) facilitates the TC structure, the postamble and the re-initialization are described in a LTS called LTS_post_step. All LTS_post_steps are described in the detailed comment part of the TTCN table.

All events which are defined as a conformance requirements by the TP, cause a preliminary verdict PASS if the requirement is met.

All invalid events are handled in the default tree. Only FAIL verdicts can be assigned in the default tree.

The preamble, the test body and the postamble have different defaults, which allows a specific verdict handling, e.g. only INCONC verdicts are assigned in the preamble.

Test steps do not contain a default. That allows to apply them with no restrictions regarding the error handling.

All verdict assignments are labelled. According to ISO 9646-3 [23], annex E.2, labels should be written to the conformance log. This allows to identify were the test failed. To allow an exact identification in which table the verdict was assigned, the naming convention as described in subclause 6.1.3.4 is applied.

The labels of the same type are numbered sequentially if they are in the same TC, test step or default.

TPs which are listed in the untestable TP list, or which reference to an other TP, e.g. BV TPs which were already defined as CA TPs, are not considered in the ATS, thus these TC identifiers are missing in the ATS and the numbering of the TCs is not always continues.

6.2.4 Documentation

The comment line of the TC or test step header contains a reference to the relevant protocol specification.

The comment column of the dynamic behaviour part is used to number the test events which are relevant for the particular test or test operation.

Based on the numbering in the comment column all for the TC relevant events are described in the detailed comments part of each TTCN table.

Test procedures which cover a conformance requirement and lead to a preliminary or final verdict assignment are described as follows in the detailed comments part:

- Expected event: a specific receive event is expected;
- Expected behaviour: no event or a timer expiry is expected;
- Expected status: the IUT is expected to be in a particular status.

7 Test case and test purpose mapping

There is a one-to-one mapping between the test case identifiers and the test purpose identifiers. The correspondence rule is given by the following examples:

Test purpose identifier	Test case identifier
TPUV-001	TC-U-BV-001
TPAI-011	TC-A-BI-011
TPBO-028	TC-B-BO-028
TPBV-034	TC-B-BV-034
TP2C-000	TC-2-CA-000

Annex A (normative): ATS for DECT DLC

The ATS is written in TTCN according to ISO/IEC 9646-3 [23].

As the ATS was developed on a separate TTCN tool the TTCN tables are not completely referenced in the contents table. The ATS itself contains a subclause test suite Overview which provides additional information and references about the ATS.

NOTE: According to ISO/IEC 9646-3 [23], in case of a conflict in interpretation of the operational semantics of TTCN.GR and TTCN.MP, the operational semantics of the TTCN.GR representation takes precedence.

A.1 The machine processable ATS (TTCN.MP)

The electronic form of the machine processable file (TTCN MP format) corresponding to this ATS is contained in an ASCII text file (DEV04975.MP[1)]) associated with this ETS.

A.2 The graphical ATS (TTCN.GR)

The graphical ATS is provided in this annex on the following pages.

1) This file is located in a compressed archive file named DEV04975.LZH. Other file formats are available on request.

I

Test Suite Overview

Test Suite Structure

Suite Name : DLC
Standards Ref : ETS 300 175−4
PICS Ref : ETS 300 476−2 for Portable Termination − ETS 300 476−5 for Fixed Termination
PIXIT Ref : ETS 300 497−5 Annex B
Test Method(s) : Remote Single Layer Embedded
Comments : This ATS is part of the DECT Common Interface Test Case Library (TCL) ETS 300 497.
This ATS is the TTCN part of ETS 300 497 Part 5, TCL DLC layer

ETSI files reference: 497P5V03.MP, 497P5V03.PS (Excluding this Generic comments part, the files of this version are identical to the ITA V03 version files DLC4.MP, and DLC4.PS)

Test Group Reference	Selection Ref	Test Group Objective	Page Nr
C_Plane/	Mandatory	Conformance of C−plane generic behaviours.	94
C_Plane/ClassU/	ClassU_mandatory	Conformance of C−plane Class U behaviours.	94
C_Plane/ClassU/CA/	ClassU_mandatory	Conformance of C−plane Class U capability behaviours.	94
C_Plane/ClassU/BI/	ClassU_mandatory	Conformance of C−plane Class U invalid behaviours.	97
C_Plane/ClassA/	ClassA_mandatory	Conformance of C−plane Class A behaviours.	105
C_Plane/ClassA/CA/	ClassA_mandatory	Conformance of C−plane Class A capability behaviours.	105
C_Plane/ClassA/BV/	ClassA_mandatory	Conformance of C−plane Class A valid behaviours.	113
C_Plane/ClassA/BI/	ClassA_mandatory	Conformance of C−plane Class A invalid behaviours.	121
C_Plane/ClassA/BO/	ClassA_mandatory	Conformance of C−plane Class A inopportune behaviours.	134
C_Plane/Lb/	Lb_mandatory	Conformance of C−plane Broadcast behaviours.	138
C_Plane/Lb/CA/	Lb_mandatory	Conformance of C−plane Broadcast capability behaviours.	138
U_Plane/	Mandatory	Conformance of U−plane generic behaviours.	140
U_Plane/Class0/	Class0_mandatory	Conformance of U−plane Class 0 behaviours.	140
U_Plane/Class0/CA/	Class0_mandatory	Conformance of U−plane Class 0 capability behaviours.	140
U_Plane/Class1/	Class1_mandatory	Conformance of U−plane Class 1 behaviours.	141
U_Plane/Class1/CA/	Class1_mandatory	Conformance of U−plane Class 1 capability behaviours.	141
U_Plane/Class1/BV/	Class1_mandatory	Conformance of U−plane Class 1 valid behaviours.	144
U_Plane/Class1/BI/	Class1_mandatory	Conformance of U−plane Class 1 invalid behaviours.	147

Detailed Comments :

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Test Group Reference	Test Case Id	Selection Ref	Description	Page Nr
C_Plane/ClassU/BI/	TC_U_BI_006	ClassU_rec	Verify that the IUT discards a UI frame with improper SAPI (not 'connectionless'). The UI frame is transmitted over connectionless MAC services.	103
C_Plane/ClassU/BI/	TC_U_BI_007	ClassU_rec_on_co	Verify that the IUT discards a UI frame with improper SAPI (not 'connection oriented'). The UI frame is transmitted over an open MAC connection.	104
C_Plane/ClassA/CA/	TC_A_CA_000	ClassA_establish	To check the IUT re−transmission of the link establishment I−Frame request N250 times.	105
C_Plane/ClassA/CA/	TC_A_CA_001	ClassA_establish	Verify that the IUT, on receipt of a valid RR frame response to the link establishment request it has sent, enters established state.	106
C_Plane/ClassA/CA/	TC_A_CA_002	ClassA_re_establish	To check the IUT re−transmission of the link re−establishment request N250 times.	107
C_Plane/ClassA/CA/	TC_A_CA_003	ClassA_re_establish	Verify that the IUT, on receipt of a valid RR frame response to the link re−establishment request it has sent, enters established state.	108
C_Plane/ClassA/CA/	TC_A_CA_005	ClassA_info_transfer	Verify that the IUT acknowledges rightly a valid received I−Frame within timer <DL−04>.	109
C_Plane/ClassA/CA/	TC_A_CA_006	ClassA_info_transfer	To check the IUT re−transmission of an I−Frame N250 times.	110
C_Plane/ClassA/CA/	TC_A_CA_007	ClassA_accept_est_req	Verify that the IUT, refuses a Class B link establishment request by sending RR response frame with the reserved LLN value "Class A operation" and NLF bit set to "1", and enters into the Class A established state.	111
C_Plane/ClassA/CA/	TC_A_CA_008	ClassA_accept_est_req	Verify that the IUT responds and enters into Class A established state , on receipt of a establishment request.	112

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Test Group Reference	Test Case Id	Selection Ref	Description	Page Nr
C_Plane/ClassA/BV/	TC_A_BV_000	ClassA_establish	Verify that the IUT reacts correctly in case of collision of establishment requests.	113
C_Plane/ClassA/BV/	TC_A_BV_002	ClassA_info_transfer	Verify that the IUT accepts a RR response frame with correct N(R) value as an acknowledgement.	114
C_Plane/ClassA/BV/	TC_A_BV_003	ClassA_info_transfer	Verify that the IUT accepts an I−Frame command with correct N(S) and N(R) values as an acknowledgement.	115
C_Plane/ClassA/BV/	TC_A_BV_004	ClassA_info_transfer	Verify that, in Class A established state, the IUT accepts a re−establishment request.	116
C_Plane/ClassA/BV/	TC_A_BV_005	ClassA_info_transfer	Verify that, in timer recovery phase, the IUT accepts a RR response frame with correct N(R) value as an acknowledgement.	117
C_Plane/ClassA/BV/	TC_A_BV_006	ClassA_info_transfer	Verify that, in timer recovery phase, the IUT accepts an I−Frame command with correct N(S) and N(R) values as an acknowledgement.	118
C_Plane/ClassA/BV/	TC_A_BV_007	ClassA_info_transfer	Verify that the IUT manages rightly the PT intracell procedure for connection handover.	119
C_Plane/ClassA/BV/	TC_A_BV_008	ClassA_info_transfer	Verify that the IUT manages rightly the PT intercell procedure for connection handover.	120
C_Plane/ClassA/BI/	TC_A_BI_000	ClassA_establish	Verify that the IUT, in establishement pending state, discards a received RR class B response frame with NLF bit set to '1', and re−transmits the establishment request.	121
C_Plane/ClassA/BI/	TC_A_BI_001	ClassA_establish	Verify that the IUT, in establishement pending state, discards a received RR response frame with NLF bit set to '1' and invalid N(R), and re−transmits the establishment request.	122

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Test Group Reference	Test Case Id	Selection Ref	Description	Page Nr
C_Plane/ClassA/BI/	TC_A_BI_002	ClassA_re_establish	Verify that the IUT, in re−establishement pending state, discards a received RR class B response frame with NLF bit set to '1', and re−transmits the re−establishment request.	123
C_Plane/ClassA/BI/	TC_A_BI_003	ClassA_re_establish	Verify that the IUT, in re−establishement pending state, discards a received RR response frame with NLF bit set to '1' and invalid N(R), and re−transmits the re−establishment request.	124
C_Plane/ClassA/BI/	TC_A_BI_004	ClassA_info_transfer	Verify that the IUT, in information transfer phase, discards a received RR class B response frame with NLF bit set to '0' and re−transmits the unacknowledged I−Frame.	125
C_Plane/ClassA/BI/	TC_A_BI_005	ClassA_info_transfer	Verify that the IUT, in information transfer phase, discards a received RR response frame with NLF bit set to '0' and invalid N(R) and re−transmits the unacknowledged I−Frame.	126
C_Plane/ClassA/BI/	TC_A_BI_006	ClassA_info_transfer	Verify that the IUT, accepts a received I−Frame with invalid N(R) and, on expiration of <DL−04>, re−transmits the unacknowledged I−Frame with updated N(R).	127
C_Plane/ClassA/BI/	TC_A_BI_007	ClassA_info_transfer	On receipt of an I−Frame with invalid N(S), the IUT indicates the expected N(S) by sending RR response frame and stops, if necessary, DL_04 according to the received N(R).	128
C_Plane/ClassA/BI/	TC_A_BI_008	ClassA_info_transfer	On receipt of an I−Frame with invalid N(S) and invalid N(R), the IUT indicates the expected N(S) by sending a RR response frame and re−transmits the unacknowledged I−Frame.	129

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Test Group Reference	Test Case Id	Selection Ref	Description	Page Nr
C_Plane/ClassA/BI/	TC_A_BI_009	ClassA_info_transfer	Verify that the IUT, in timer recovery phase, discards a received RR class B response frame with NLF bit set to ’0’, and re−transmits the unacknowledged I−Frame.	130
C_Plane/ClassA/BI/	TC_A_BI_011	ClassA_info_transfer	Verify that the IUT, in timer recovery phase, accepts a received I−Frame with invalid N(R) and, on expiration of <DL−04>, re−transmits the unacknowledged I−Frame with updated N(R).	131
C_Plane/ClassA/BI/	TC_A_BI_012	ClassA_info_transfer	The IUT, in timer recovery phase and on receipt of an I−Frame with invalid N(S), indicates the expected N(S) by sending a RR response frame, and leaves timer recovery phase.	132
C_Plane/ClassA/BI/	TC_A_BI_013	ClassA_info_transfer	In timer recovery phase and on receipt of an I−Frame with invalid N(S) and invalid N(R), the IUT indicates the expected N(S) by sending a RR response frame and re−transmits the unacknowledged I−Frame.	133
C_Plane/ClassA/BO/	TC_A_BO_000	ClassA_establish	Verify that the IUT, in establishement pending state, discards a received I−Frame with NLF bit set to ’0’, and re−transmits the establishment request.	134
C_Plane/ClassA/BO/	TC_A_BO_001	ClassA_establish	Verify that the IUT, in establishement pending state, discards a received RR response frame with NLF bit set to ’0’, and re−transmits the establishment request.	135
C_Plane/ClassA/BO/	TC_A_BO_002	ClassA_re_establish	Verify that the IUT, in re−establishement pending state, discards a received I−Frame with NLF bit set to ’0’, and re−transmits the establishment request.	136

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Test Group Reference	Test Case Id	Selection Ref	Description	Page Nr
C_Plane/ClassA/BO/	TC_A_BO_003	ClassA_re_establish	Verify that the IUT, in re−establishement pending state, discards a received RR response frame with NLF bit set to '0', and re−transmits the establishment request.	137
C_Plane/Lb/CA/	TC_L_CA_000	Lb_short_frame	Verify that the IUT is able to generate/to receive a short broadcast frame (3 octets).	138
C_Plane/Lb/CA/	TC_L_CA_001	Lb_long_frame	Verify that the IUT is able to generate/to receive a long broadcast frame (5 octets).	139
U_Plane/Class0/CA/	TC_0_CA_000	Class0_mandatory	Verify that the IUT is able to transmit a correct U−plane Class 0 frame.	140
U_Plane/Class0/CA/	TC_0_CA_001	Class0_rec	Verify that the IUT is able to receive a correct U−plane Class 0 frame.	140
U_Plane/Class1/CA/	TC_1_CA_000	Class1_snd	Verify that the IUT is able to transmit a correct U−plane Class 1 frame.	141
U_Plane/Class1/CA/	TC_1_CA_001	Class1_snd	Verify that the IUT treats a received frame including an RN with the A/N bit set to '1', as an acknowledgement for all frames up to and including frame number RN.	142
U_Plane/Class1/CA/	TC_1_CA_002	Class1_mandatory	Verify that the IUT correctly acknowledges received frame(s) with appropriate send sequence number(s). (In−sequence frames)	143
U_Plane/Class1/BV/	TC_1_BV_000	Class1_snd	Verify that the IUT disconnects the U−plane link, at the event of expiration of timer <DLU−01> without receiving the requested acknowledgement.	144
U_Plane/Class1/BV/	TC_1_BV_001	Class1_snd	Verify that the IUT resets timer <DLU−01> on receipt of a valid acknowledgement.	145
U_Plane/Class1/BV/	TC_1_BV_002	Class1_snd	Verify that the IUT maintains the <DLU−01> timer whenever the window size is reached (thereby halting further transmissions).	146
U_Plane/Class1/BI/	TC_1_BI_000	Class1_mandatory	Verify that the IUT discards a received frame with an I/R bit set to '0'.	147

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Test Group Reference	Test Case Id	Selection Ref	Description	Page Nr
U_Plane/Class1/BI/	TC_1_BI_001	Class1_mandatory	Verify that the IUT discards a received frame with an A/N bit set to '0'.	147
U_Plane/Class1/BI/	TC_1_BI_002	Class1_mandatory	Verify that the IUT correctly acknowledges received frame(s) with erroneous send sequence number(s) after waiting for L(R) TDMA frames. (Out−of−sequence frames)	148

Detailed Comments :

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Test Step Group Reference	Test Step Id	Description	Page Nr
Teststeps/U_plane/	STP_invoke_fu1_frame	Implicit Send: the IUT shall transmit a FU1 frame.	164
Teststeps/U_plane/	STP_invoke_fu5_frame	Implicit Send: the IUT shall transmit a FU5 frame.	164
Postamble/	PO_empty	When IUT is in stable MAC disconnection state before postamble	165
Postamble/	PO_mac_disconnect	Tester disconnects the MAC connection used by the current test case	165

Detailed Comments :

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Detailed Comments :

II

Declarations Part

Simple Type Definitions		
Type Name	**Type Definition**	**Comments**
NLF	BITSTRING[1]	New Link Flag
LLN	BITSTRING[3]	Logical Link Number
SAPI	BITSTRING[2]	Service Access Point Identifier
CR_BIT	BITSTRING[1]	Command/Response bit
RES	BITSTRING[1]	REServed bit = 1
NR	BITSTRING[3]	Receive sequence Number
P_BIT	BITSTRING[1]	Poll bit
PF_BIT	BITSTRING[1]	Poll/Final bit
NS	BITSTRING[3]	Send sequence Number
I_FRAME_ID	BITSTRING[1]	Information frame indicator
LI	BITSTRING[6]	Length for C−plane frame
LIU	BITSTRING[7]	Length for U−plane frame
M_BIT	BITSTRING[1]	More data bit, Segmenting
N_BIT	BITSTRING[1]	extended indicator
FILLU	OCTETSTRING[0..80]	Fill field for U plane frame
CHECKSUM	OCTETSTRING[2]	Checksum
U_FIELD1	BITSTRING[3]	Unnumbered function field 1
U_FIELD2	BITSTRING[2]	Unnumbered function field 2
U_FRAME_ID	BITSTRING[2]	Unnumbered information frame
RR_ID	BITSTRING[2]	Receive Ready identifier
S_FRAME_ID	BITSTRING[2]	Supervisory frame indicator
PROTOCOL_DISCRIMINATOR	BITSTRING[4]	Protocol discriminator
TRANSACTION_IDENTIFIER	BITSTRING[3]	M: See Table 7 of ETS 300 175−5
TRANSACTION_FLAG	BITSTRING[1]	Transation side
EXTENDED_TRANSACTION_VALUE	BITSTRING[8]	Extended transaction value
MESSAGE_TYPE	BITSTRING[8]	See Table 7.4 of ETS 300 175−5
PORTABLE_IDENTITY	OCTETSTRING[5..20]	See ETS 300 175−5 § 7.7.30
FIXED_IDENTITY	OCTETSTRING[5..20]	See ETS 300 175−5 § 7.7.18
NWK_ASGN_IDENTITY	OCTETSTRING[5..20]	See ETS 300 175−5 § 7.7.28
BASIC_SERVICE	HEXSTRING[4]	See ETS 300 175−5 § 7.6.4
CIPHER_INFO	OCTETSTRING[4..5]	See ETS 300 175−5 § 7.7.10
DONT_CARE	BITSTRING[4]	All four bits values allowed.
W	BITSTRING[1]	IPUI adress element
LCE_HEADER	BITSTRING[3]	LCE header
IPUI_CLASS	BITSTRING[4]	IPUI class
ADDRESS_I	BITSTRING[28]	lowest 28 bits of IPUI
ADDRESS_T	BITSTRING[16]	lowest 16 bits of TPUI
MCEI	INTEGER	MAC Connection Endpoint Identifier
OLD_MCEI	INTEGER	Connection_Handover for "basic".
CONNECTION_TYPE	INTEGER	Basic or Advanced
ECN	INTEGER	Exchange Connection Number (for advanced connection only)
FMID	BITSTRING[12]	Fixed mac identity = least 12 bits of RFPI
PMID	BITSTRING[20]	Portable mac identity, 20 bits derived from individual TPUI or a default TPUI
CONNECTION_HANDOVER	BOOLEAN	Connection request for handover
CF_REQUIRED	BOOLEAN	CF channel required.

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Simple Type Definitions		
Type Name	**Type Definition**	**Comments**
SLOT_TYPE	INTEGER	Double, Full, Half
SERVICE_TYPE	INTEGER	IN, IP or C−channel only service
MAX_LIFETIME	INTEGER	For IP error correction service
CONNECTION	INTEGER	Asymmetric uplink connection Asymmetric downlink connection Symmetric single bearer connection Symmetric multi bearer connection
RPN	INTEGER	RFP number
CHANNEL_TYPE	INTEGER	GF, CS, CF, IN, IP, CLF, CLS, SIN
CRC_RESULT	INTEGER	Report of CRC computation
REASON	INTEGER	Reason value for diconnection
STATUS	INTEGER	Report of abstract primitive execution
ARI	BITSTRING[36]	Access Rigths
LONG_FLAG	BOOLEAN	For paging services
CLUSTER_ID	INTEGER	Cluster identification
PAGE_TYPE	INTEGER	Normal or Fast paging
G	BITSTRING[1]	Flag. Link originator = 0
ULN	BITSTRING[3]	Link number
UCN	BITSTRING[3]	Channel number
I_R	BITSTRING[1]	Initial or retranmission bit
E_S	BITSTRING[7]	Send number
A_N	BITSTRING[1]	Acknowledgement or not bit
E_R	BITSTRING[7]	Receive number
FU_STRING	OCTETSTRING[0..76]	FU frame information field
L3INFO	BITSTRING	UI frame information field
Detailed Comments :		

Structured Type Definition		
Type Name : FILLSTRING		
Comments : Fill field (to force the frame length to be modulo 5 or 8 channel dependent). Structured type.		
Element Name	**Type Definition**	**Comments**
filloctet1	BITSTRING[8]	1 fill octet (modulo 5 or 8)
filloctet2	BITSTRING[8]	2 fill octet (modulo 5 or 8)
filloctet3	BITSTRING[8]	3 fill octet (modulo 5 or 8)
filloctet4	BITSTRING[8]	4 fill octet (modulo 5 or 8)
filloctet5	BITSTRING[8]	5 fill octet (modulo 5 or 8)
filloctet6	BITSTRING[8]	6 fill octet (modulo 5 or 8)
filloctet7	BITSTRING[8]	7 fill octet (modulo 5 or 8)
Detailed Comments :		

Test Suite Operation Definition	
Operation Name	: TSO_between(value,vmin,vmax,modulus:INTEGER)
Result Type	: BOOLEAN
Comments	: Detrmine if value is between vmin and vmax with value, vmin, vmax according to modulus.

Description

```
IF (vmax < vmin) THEN
BEGIN
IF ((value >= vmin) AND (value < modulus)) OR ((value <= 0) AND (value >= vmax)) THEN RETURN TRUE
ELSE RETURN FALSE
END
ELSE
BEGIN
IF (value >= vmin) AND (value <= vmax) THEN RETURN TRUE
ELSE RETURN FALSE
END
```

Detailed Comments :

Test Suite Operation Definition	
Operation Name	: TSO_cid_checksum
Result Type	: OCTETSTRING
Comments	: Compute the value of the checksum field for C plane Class A frame according to the frame sent.

Description

Compute the value of the checksum according to ETS 300 175−4 subclause 7.10 and Annex B.

Detailed Comments :

Test Suite Operation Definition	
Operation Name	: TSO_check_checksum
Result Type	: OCTETSTRING
Comments	: Check the value of the checksum field for C plane Class A frame according to the frame received.

Description

Verify the correct value of the checksum according to ETS 300 175−4 subclause 7.10 and Annex B.

Detailed Comments :

Test Suite Operation Definition	
Operation Name	: TSO_compute_li(nwkmsg:PDU)
Result Type	: INTEGER
Comments	: Determine the length of the PDU passed in parameter.

Description

Determine the length of the PDU passed in parameter. Standard LENGTH_OF TTCN function is not applicable for PDU.

Detailed Comments :

Test Suite Operation Definition	
Operation Name	: TSO_cid_fill(chn : BOOLEAN; length : INTEGER)
Result Type	: FILLSTRING
Comments	: Fill 0 to 7 octets with the fill field ’11110000’B according to the channel (Cs or Cf) and the parameter length (length of the PDU).
Description	

IF (chn = TRUE) THEN /* Cf channel */
BEGIN
fill (8 − (length MOD 8)) number of octet with value ’11110000’B
END
ELSE /* Cs channel */
BEGN
fill (5 − (length MOD 5)) number of octet with value ’11110000’B
END	

Detailed Comments	:

Test Suite Operation Definition	
Operation Name	: TSO_cid_fillu(slot,length:INTEGER)
Result Type	: FILLU
Comments	: Force the U plane frame length to be equal to 8 octets for half slot, 32 octets for full slot and 80 octets for double slot.
Description	

IF (slot = half slot) THEN fill (8 − length) octets with ’11110000’B
IF (slot = full slot) THEN fill (32 − length) octets with ’11110000’B
IF (slot = double slot) THEN fill (80 − length) octets with ’11110000’B	

Detailed Comments	:

Test Suite Operation Definition	
Operation Name	: TSO_flag
Result Type	: INTEGER
Comments	: Determine the value of G bit of U plane FU5 frame for IP error correction service.
Description	

IF (IUT is a PT part) THEN
BEGIN
IF (the frame is received by the Tester) THEN RETURN 0 /* IUT as PT part is the originator of the U plane link */
ELSE RETURN 1 /* Tester as FT part is the destination of the U plane link */
END
ELSE /* IUT is a FT part */
BEGIN
IF (the frame is received by the Tester) THEN RETURN 1 /* IUT as FT part is the destination of the U plane link */
ELSE RETURN 0 /* Tester as PT part is the originator of the U plane link */
END	

Detailed Comments	:

Test Suite Operation Definition	
Operation Name	: TSO_iut_in_received
Result Type	: BOOLEAN
Comments	: PIXIT operation described by the manufacturer to inform if IN data are received (or not) by the IUT.
Description	
IF IN data received RETURN TRUE ELSE RETURN FALSE	
Detailed Comments :	

Test Suite Operation Definition	
Operation Name	: TSO_iut_ui_received
Result Type	: BOOLEAN
Comments	: PIXIT operation described by the manufacturer to inform if one UI frame is received (or not) by the IUT.
Description	
IF ui received RETURN TRUE ELSE RETURN FALSE	
Detailed Comments :	

Test Suite Operation Definition	
Operation Name	: TSO_cid_lowest(nb:INTEGER;string:BITSTRING)
Result Type	: BITSTRING
Comments	: Extracting of the "nb" lowest bits of the string "string".
Description	
This test suite operation extracts the "nb" lowest bits of the bitstring passed in parameter. ex: TSO_cid_lowest(4,’0101010101011100’B) return ’1100’B	
Detailed Comments :	

Test Suite Operation Definition

Operation Name : TSO_cid_return_cr_value(iut_type,frame_type, send_constr:BOOLEAN)

Result Type : INTEGER

Comments : Determine the value of the CR_bit for C plane FA frame according to the type of the IUT (FT or PT) and the wanted type of frame (Command or Response).

Description

```
IF (send_constr = TRUE) THEN
  BEGIN /* a send constraint */
    IF (iut_type =TRUE) THEN
      BEGIN /* IUT is a PT */
        IF (frame_type = TRUE) THEN RETURN 1 /* this is a command frame */
        ELSE RETURN 0 /* this is a response frame */
      END
    ELSE
      BEGIN /* IUT is an FT */
        IF (frame_type = TRUE) THEN RETURN 0 /* this is a command frame */
        ELSE RETURN 1 /* this is a response frame */
      END
  END
ELSE
  BEGIN /* a receive constraint */
    IF (iut_type =TRUE) THEN
      BEGIN /* IUT is a PT */
        IF (frame_type = TRUE) THEN RETURN 0 /* this is a command frame */
        ELSE RETURN 1 /* this is a response frame */
      END
    ELSE
      BEGIN /* IUT is an FT */
        IF (frame_type = TRUE) THEN RETURN 1 /* this is a command frame */
        ELSE RETURN 0 /* this is a response frame */
      END
  END
```

Detailed Comments :

Test Suite Parameter Declarations			
Parameter Name	**Type**	**PICS/PIXIT Ref**	**Comments**
TSPC_class0	BOOLEAN	PICS item Q23.1	TRUE = U plane Class 0 services implemented
TSPC_class1	BOOLEAN	PICS item Q27.5	TRUE = U plane Class 1 services implemented
TSPC_classU	BOOLEAN	PICS item Q9.1	TRUE = Class U services implemented
TSPC_classA	BOOLEAN	PICS item Q9.2	TRUE = Class A services implemented
TSPC_Lb	BOOLEAN	PICS item Q10.1	TRUE = Broadcast services implemented
TSPC_fu1	BOOLEAN	PICS item Q49.1	TRUE = FU1 frame type implemented
TSPC_fu5	BOOLEAN	PICS item Q49.5	TRUE = FU5 frame type implemented
TSPC_ca_establish	BOOLEAN	PICS item Q11.1	TRUE = Class A link establishment supported
TSPC_ca_info_transfer	BOOLEAN	PICS item Q11.2	TRUE = Class A link acknowledged information transfer supported
TSPC_ca_re_establish	BOOLEAN	PICS item Q11.4	TRUE = Class A link re−establishment supported
TSPC_Lb_short_frame	BOOLEAN	PICS item Q38.1.1	TRUE = Short broadcast frame format supported
TSPC_Lb_long_frame	BOOLEAN	PICS item Q38.1.2	TRUE = Long broadcast frame format supported
TSPX_chn	BOOLEAN	PIXIT item B.7.2	CF required = TRUE
TSPX_pt	BOOLEAN	PIXIT item B7.1	The IUT is a PT = TRUE, a FT = FALSE
TSPX_slot	SLOT_TYPE	PIXIT item B.7.3	0 = Half slot testing, 1 = Full slot testing, 2 = Double slot testing
TSPX_cu_receive_on_co	BOOLEAN	PIXIT item B.11.1	TRUE = Class U information receiving supported over an open MAC connection
TSPX_cu_transmit_on_co	BOOLEAN	PIXIT item B.12.2	TRUE = Class U information transmitting supported over an open MAC connection
TSPX_cu_rec_proc_defined	BOOLEAN	PIXIT item B.11.2	TRUE = A procedure is defined to determine the reception of Class U information frame on the IUT
TSPX_in_rec_proc_defined	BOOLEAN	PIXIT item B.15.1	TRUE = A procedure is defined to determine the reception of Class 0 FU1 IN frame on the IUT
TSPX_cu_snd_proc_defined	BOOLEAN	PIXIT item B.12.1	TRUE = A procedure is defined to transmit a Class U information frame on the IUT
TSPX_fu1_snd_pr_defined	BOOLEAN	PIXIT item B.15.3	TRUE = A procedure is defined to transmit a FU1 frame on the IUT
TSPX_fu5_snd_pr_defined	BOOLEAN	PIXIT item B.16.3	TRUE = A procedure is defined to transmit a FU5 frame on the IUT

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Test Suite Parameter Declarations

Parameter Name	Type	PICS/PIXIT Ref	Comments
TSPX_lbs_proc_defined	BOOLEAN	PIXIT item B.14.1	TRUE = A procedure is defined to transmit a short page request frame on the IUT
TSPX_lbl_proc_defined	BOOLEAN	PIXIT item B.14.2	TRUE = A procedure is defined to transmit a long page request frame on the IUT
TSPX_ca_re_establish	BOOLEAN	PIXIT item B.13.2	TRUE = A procedure is defined to re−establish Class A link
TSPX_ca_accept_est	BOOLEAN	PIXIT item B.13.1	TRUE = IUT accepts the receipt of the Class A establishment request
TSPX_n250	INTEGER	PIXIT item B.8.1	Number of re−transmission
TSPX_ari	ARI	PIXIT item B.10.1	ARI
TSPX_pmid	PMID	PIXIT item B.10.2	Portable MAC Identity
TSPX_fid	FIXED_IDENTITY	PIXIT item B.10.3	Fixed Identity
TSPX_pid	PORTABLE_IDENTITY	PIXIT item B.10.4	Portable Identity
TSPX_cipher_info	CIPHER_INFO	PIXIT item B.10.5	cipher info for L3 message
TSPX_nwk_assigned_id	NWK_ASGN_IDENTITY	PIXIT item B.10.6	NWK assigned identity
TSPX_ipui_class	IPUI_CLASS	PIXIT item B.10.7	Class of IPUI
TSPX_ipui	BITSTRING	PIXIT item B.10.8	international portable id
TSPX_ui_pdu_on_cl	BITSTRING	PIXIT item B.11.4	UI frame to send to the IUT over connectionless MAC services for having a possible procedure to determine the reception of this UI frame
TSPX_ui_pdu_on_co	BITSTRING	PIXIT item B.11.3	UI frame to send to the IUT over connection oriented MAC servies for having a possible procedure to determine the reception of this UI frame
TSPX_in_pdu	OCTETSTRING	PIXIT item B.15.2	FU1 frame to send to the IUT for having a possible procedure to determine the reception of this FU1 frame
TSPX_k1	INTEGER	PIXIT item B.8.2	Value of Class 1 sending window of the IUT
TSPX_uln	ULN	PIXIT item B.16.1	Value of U plane link number
TSPX_dl04_value	INTEGER	PIXIT item B.9.1	Value of DL−04 timer
TSPX_dl07_value	INTEGER	PIXIT item B.9.2	Value of DL−07 timer
TSPX_dlu01_value	INTEGER	PIXIT item B.9.3	Value of DLU−01 timer
TSPX_lrc1_value	INTEGER	PIXIT item B.16.2	Value of L(R) Class 1 duration
TSPX_rpn	RPN	PIXIT item B.8.3	Value for RPN to used in the MAC_CON_REQ primitive.
TSPX_rpn1	RPN	PIXIT item B.8.4	Value for RPN to used in case of intercell handover. Shall be different from the value used in the MAC_CON_REQ primitive.

Detailed Comments :

Test Case Selection Expression Definitions		
Expression Name	**Selection Expression**	**Comments**
Mandatory	TRUE	For mandatory tests
ClassU_mandatory	TSPC_classU	For C−plane Class U group tests
ClassA_mandatory	TSPC_classA	For C−plane Class A group tests
Lb_mandatory	TSPC_Lb	For C−plane Broadcast group tests
Class0_mandatory	TSPC_class0 AND TSPC_fu1	For U−plane Class 0 group tests
Class0_rec	Class0_mandatory AND TSPX_in_rec_proc_defined	If it is possible to determine the reception of an IN Class 0 FU1 frame
Class0_snd	Class0_mandatory AND TSPX_fu1_snd_pr_defined	For IUT that is able to send an FU1 by using a PIXIT procedure
Class1_mandatory	TSPC_class1 AND TSPC_fu5	For U−plane Class 1 group tests
Class1_snd	Class1_mandatory AND TSPX_fu5_snd_pr_defined	For IUT that is able to send an FU5 by using a PIXIT procedure
ClassA_establish	TSPC_classA AND TSPC_ca_establish	For IUT able to establish the link
ClassA_accept_est_req	TSPC_classA AND TSPX_ca_accept_est	For IUT able to receive establishment request of the link
ClassA_info_transfer	TSPC_classA AND TSPX_ca_accept_est AND TSPC_ca_info_transfer	For IUT able to perform acknowledged information transfer
ClassA_re_establish	TSPC_classA AND TSPX_ca_accept_est AND TSPX_ca_re_establish AND NOT TSPX_pt	For IUT able to re−establish the link
ClassU_rec	ClassU_mandatory AND TSPX_cu_rec_proc_defined	If it is possible to determine the reception of an UI frame over an MAC connectionless service
ClassU_rec_on_co	TSPC_classU AND TSPX_cu_receive_on_co AND TSPX_cu_rec_proc_defined	If it is possible to determine the reception of an UI frame over an open MAC connection
ClassU_snd	ClassU_mandatory AND TSPX_cu_snd_proc_defined	For IUT that is able to send an UI frame over an MAC connectionless service by using a PIXIT procedure
ClassU_snd_on_co	TSPC_classU AND TSPX_cu_transmit_on_co AND TSPX_cu_snd_proc_defined	For IUT that is able to send an UI frame over an open MAC connection by using a PIXIT procedure
Lb_short_frame	TSPC_Lb_short_frame AND ((TSPX_pt) OR (TSPX_lbs_proc_defined))	For IUT able to generate (FT) or to receive (PT) a short broadcast frame
Lb_long_frame	TSPC_Lb_long_frame AND ((TSPX_pt) OR (TSPX_lbl_proc_defined))	For IUT able to generate (FT) or to receive (PT) a long broadcast frame
Detailed Comments :		

Test Suite Constant Declarations			
Constant Name	**Type**	**Value**	**Comments**
TSC_lln_cu	INTEGER	0	Class U LLN
TSC_lln_ca	INTEGER	1	Class A LLN
TSC_lln_unassigned	INTEGER	7	Class B unassigned LLN
TSC_connection_sapi	INTEGER	0	Connection oriented SAPI
TSC_connectionless_sapi	INTEGER	3	ConnectionLess SAPI
TSC_command	BOOLEAN	TRUE	For command frame
TSC_response	BOOLEAN	FALSE	For response frame
TSC_send	BOOLEAN	TRUE	For sent constraint
TSC_receive	BOOLEAN	FALSE	For receive constraint
TSC_nlf0	INTEGER	0	New link flag for noemal transmission
TSC_nlf1	INTEGER	1	New link flag for establishment
TSC_cs	INTEGER	1	Number of CS channel
TSC_cf	INTEGER	2	Number of CF channel
TSC_c_only	SERVICE_TYPE	2	MAC Connection with only C channel
TSC_in	SERVICE_TYPE	3	Number of IN channel
TSC_ip	SERVICE_TYPE	4	Number of IP channel
TSC_cls	SERVICE_TYPE	5	Number of CLS channel
TSC_sbcon	CONNECTION	2	Symmetric single bearer connection
TSC_normal_paging	INTEGER	0	For normal paging request
TSC_p0	INTEGER	0	Poll bit = 0
TSC_p1	INTEGER	1	Poll bit = 1
Detailed Comments :			

Test Suite Variable Declarations			
Variable Name	**Type**	**Value**	**Comments**
RC	INTEGER	0	Re−transmission counter
VR	INTEGER	0	To store the N(S) of the next expected I−Frame
VS	INTEGER	0	To store the N(S) of the next I−Frame to be sent
VA	INTEGER	0	To store the N(R) of the last received I−Frame
TR	INTEGER	0	Dummy V(R) or RN variable
TS	INTEGER	0	Dummy V(S) or SN variable
AN	INTEGER	0	U plane last received RN
SN	INTEGER	0	U plane current send number
RN	INTEGER	0	U plane current receive number
UTMP	INTEGER	0	U plane temporary variable
TSV_mcei1	MCEI	0	First connection MCEI
TSV_mcei2	MCEI	0	Connection handover MCEI
TSV_mcei3	MCEI	0	Working connection MCEI
TSV_rpn	RPN	0	To store the courent RPN in use.
TSV_chn	INTEGER	0	CF or CS channel according to value of TSPX_chn boolean parameter
Detailed Comments :			

Test Case Variable Declarations			
Variable Name	**Type**	**Value**	**Comments**
TCV_cf_required	CF_REQUIRED	FALSE	For testing cf_required parameter of MAC_CON_IND ASP
TCV_mcei	MCEI		For extracting MCEI parameter of MAC_CON_IND ASP
TCV_service_type	SERVICE_TYPE		For testing service_type parameter of MAC_CON_IND ASP
TCV_received	BOOLEAN	FALSE	For testing response of boolean procedure described in the PIXIT
TCV_bool	BOOLEAN	FALSE	For return status of repeat statement
TCV_bool1	BOOLEAN	FALSE	For exit of repeat statement
TCV_count	INTEGER	0	For test loop counting
TCV_fu5	FU5		For extracting field from FU5 frame received
Detailed Comments :			

PCO Declarations			
PCO Name	**PCO Type**	**Role**	**Comments**
LMAC	M_SAP	LT	
Detailed Comments :			

Timer Declarations			
Timer Name	**Duration**	**Unit**	**Comments**
TDL_04_min	TSPX_dl04_value − (5 * (TSPX_dl04_value / 100))	ms	DL−04 − 5%
TDL_04_max	TSPX_dl04_value + (5 * (TSPX_dl04_value / 100))	ms	DL−04 + 5%
TDL_07_min	TSPX_dl07_value − (5 * (TSPX_dl07_value / 100))	ms	DL−07 − 5%
TDL_07_max	TSPX_dl07_value + (5 * (TSPX_dl07_value / 100))	ms	DL−07 + 5%
TDLU_01_max	TSPX_dlu01_value + (5 * (TSPX_dlu01_value / 100))	ms	DLU−01 + 5%
T_LR_c1	TSPX_lrc1_value	ms	L(R) TDMA for Class 1
T_wait	10 * TSPX_dl04_value	ms	For implicit send
T_net	10 * TSPX_dl07_value	ms	Network response timer
Detailed Comments :			

ASP Type Definition		
ASP Name : MAC_CON_CFM **PCO Type :** M_SAP **Comments :**		
Parameter Name	**Parameter Type**	**Comments**
mcei	MCEI	M: MAC Connection Endpoint Identifier
connection_type	CONNECTION_TYPE	M: Basic or Advanced
ecn	ECN	M: Exchange Connection Number (for advanced connection only)
Detailed Comments :		

ASP Type Definition		
ASP Name : MAC_CON_IND **PCO Type :** M_SAP **Comments :**		
Parameter Name	**Parameter Type**	**Comments**
mcei	MCEI	M: MAC Connection Endpoint Identifier
fmid	FMID	M: Only neded for fixed part initiated "Fast Setup". Fixed mac identity = least 12 bits of RFPI
pmid	PMID	M: Portable mac identity, 20 bits derived from individual TPUI or a default TPUI
connection_handover	CONNECTION_HANDOVER	M: Connection request for handover = YES, NO otherwise.
old_mcei	OLD_MCEI	M: Only needed if Connection_Handover = YES and previous connection is "basic".
cf_required	CF_REQUIRED	M: CF channel required = YES, NO otherwise.
slot_type	SLOT_TYPE	M: Double, Full, Half
service_type	SERVICE_TYPE	M: IN, IP or C−channel only service
max_lifetime	MAX_LIFETIME	M: Only for IP error correction service
connection	CONNECTION	M: Asymmetric uplink connection Asymmetric downlink connection Symmetric single bearer connection Symmetric multi bearer connection
connection_type	CONNECTION_TYPE	M: Basic or Advanced
ecn	ECN	M: Exchange Connection Number (for advanced connection only)
rpn	RPN	RFP used for this connection
Detailed Comments :		

ASP Type Definition		
ASP Name : MAC_CON_REQ **PCO Type :** M_SAP **Comments :**		
Parameter Name	**Parameter Type**	**Comments**
mcei	MCEI	M: MAC Connection Endpoint Identifier
fmid	FMID	M: Only neded for fixed part initiated "Fast Setup". Fixed mac identity = least 12 bits of RFPI
pmid	PMID	M: Portable mac identity, 20 bits derived from individual TPUI or a default TPUI
connection_handover	CONNECTION_HANDOVER	M: Connection request for handover = YES, NO otherwise.
old_mcei	OLD_MCEI	M: Only needed if Connection_Handover = YES and previous connection is "basic".
cf_requred	CF_REQUIRED	M: CF channel required = YES, NO otherwise.
slot_type	SLOT_TYPE	M: Double, Full, Half
service_type	SERVICE_TYPE	M: IN, IP or C−channel only service
max_lifetime	MAX_LIFETIME	Only for IP error correction service
connection	CONNECTION	Asymmetric uplink connection Asymmetric downlink connection Symmetric single bearer connection Symmetric multi bearer connection
rpn	RPN	Forces connection to a specific RFP
Detailed Comments :		

ASP Type Definition		
ASP Name : MAC_DATA_IND **PCO Type :** M_SAP **Comments :**		
Parameter Name	**Parameter Type**	**Comments**
mcei	MCEI	M: MAC Connection Endpoint Identifier
receive_channel_type	CHANNEL_TYPE	M: GF, CS, CF, IN, IP
sdu	PDU	M: message unit
crc_results	CRC_RESULT	Optional field
Detailed Comments :		

ASP Type Definition		
ASP Name : MAC_DATA_REQ **PCO Type :** M_SAP **Comments :**		
Parameter Name	**Parameter Type**	**Comments**
mcei	MCEI	M: MAC Connection Endpoint Identifier
transmit_channel_type	CHANNEL_TYPE	M: GF, CS, CF, IN, IP
sdu	PDU	M:
Detailed Comments :		

ASP Type Definition		
ASP Name : MAC_DIS_IND **PCO Type :** M_SAP **Comments :**		
Parameter Name	**Parameter Type**	**Comments**
mcei	MCEI	M: MAC Connection Endpoint Identifier
reason	REASON	Normal, Abnormal
Detailed Comments :		

ASP Type Definition		
ASP Name : MAC_DIS_REQ **PCO Type :** M_SAP **Comments :**		
Parameter Name	**Parameter Type**	**Comments**
mcei	MCEI	M: MAC Connection Endpoint Identifier
Detailed Comments :		

ASP Type Definition		
ASP Name : MAC_DOWN_DATA_IND **PCO Type :** M_SAP **Comments :**		
Parameter Name	**Parameter Type**	**Comments**
channel_type	CHANNEL_TYPE	M: CLS, CLF, SIN
ari	ARI	M:
sdu	PDU	M: message unit
status	STATUS	Data contains error or not
Detailed Comments :		

ASP Type Definition		
ASP Name : MAC_DOWN_DATA_REQ **PCO Type :** M_SAP **Comments :**		
Parameter Name	**Parameter Type**	**Comments**
channel_type	CHANNEL_TYPE	M: CLS, CLF, SIN
sdu	PDU	M: message unit
Detailed Comments :		

ASP Type Definition		
ASP Name : MAC_PAGE_IND **PCO Type :** M_SAP **Comments :**		
Parameter Name	**Parameter Type**	**Comments**
cluster_id	CLUSTER_ID	M:
long_flag	LONG_FLAG	M: Needed if data length is 36
sdu	PDU	M:
crc_results	CRC_RESULT	Optional field
Detailed Comments :		

ASP Type Definition		
ASP Name : MAC_PAGE_REQ **PCO Type :** M_SAP **Comments :**		
Parameter Name	**Parameter Type**	**Comments**
page_type	PAGE_TYPE	M: Normal or Fast
sdu	PDU	M: message
long_flag	LONG_FLAG	Needed if data length is 36
Detailed Comments :		

ASP Type Definition		
ASP Name : MAC_UP_DATA_CFM **PCO Type :** M_SAP **Comments :**		
Parameter Name	**Parameter Type**	**Comments**
status	STATUS	M: Data transmitted or if not: error code
Detailed Comments :		

ASP Type Definition		
ASP Name : MAC_UP_DATA_IND **PCO Type :** M_SAP **Comments :**		
Parameter Name	**Parameter Type**	**Comments**
pmid	PMID	M: portable mac identity
sdu	PDU	M: message unit
status	STATUS	Data contains error or not
Detailed Comments :		

ASP Type Definition		
ASP Name : MAC_UP_DATA_REQ **PCO Type :** M_SAP **Comments :**		
Parameter Name	**Parameter Type**	**Comments**
sdu	PDU	M: message unit
Detailed Comments :		

PDU Type Definition		
PDU Name : CC_SETUP **PCO Type :** M_SAP **Comments :** ETS 300 175−5: § 6.3.2.1 CC−SETUP		
Field Name	**Field Type**	**Comments**
transaction_flag	TRANSACTION_FLAG	M: 0 = Transation originator
transaction_identifier	TRANSACTION_IDENTIFIER	M: See Table 7 of ETS 300 175−5
protocol_discriminator	PROTOCOL_DISCRIMINATOR	M: CC
extended_transaction_value	EXTENDED_TRANSACTION_VALUE	if Transation Identifier = ’111’B
message_type	MESSAGE_TYPE	M: See Table 7.4 of ETS 300 175−5
portable_identity	PORTABLE_IDENTITY	M: See ETS 300 175−5 § 7.7.30
fixed_identity	FIXED_IDENTITY	M: See ETS 300 175−5 § 7.7.18
basic_service	BASIC_SERVICE	M: See ETS 300 175−5 § 7.6.4
Detailed Comments : Generic CC−SETUP Network Layer message		

PDU Type Definition		
PDU Name : FU1 **PCO Type :** M_SAP **Comments :** ETS 300 175−4: § 13 Element of procedure and formats of fields for U−plane peer to peer communication. § 12.2 FU1 frame structure		
Field Name	**Field Type**	**Comments**
higher_layer_info	OCTETSTRING[0..INFINITY]	M: Higher layer info
Detailed Comments :		

PDU Type Definition

PDU Name : FU5

PCO Type : M_SAP

Comments : ETS 300 175−4: § 13 Element of procedure and formats of fields for U−plane peer to peer communication. § 12.6 FU5 frame structure

Field Name	Field Type	Comments
g	G	M: Flag. Link originator = 0
uln	ULN	M: Link number
ucn	UCN	M: Channel number
res	RES	M: Reserved bit = 1
li	LIU	M: Length
m_bit	M_BIT	M: More data bit, Segmenting = 1
i_r	I_R	M: Initial or retranmission bit
e_s	E_S	M: send number
a_n	A_N	M: Acknowledgement or not bit
e_r	E_R	M: Receive number
data	FU_STRING	M: information field
fill	FILLU	M: Fill field (to force the frame length to be equal to 8 octets/half slot, 32 octets/full slot and 80 octets/double slot)

Detailed Comments :

PDU Type Definition

PDU Name : INFORMATION

PCO Type : M_SAP

Comments : ETS 300 175−4: § 7 Element of procedure and formats of fields for C−plane peer to peer communication

Field Name	Field Type	Comments
nlf	NLF	M: New Link Flag
lln	LLN	M: Logical Link Number
sapi	SAPI	M: Service Access Point Identifier
cr_bit	CR_BIT	M: Command/Response bit
res	RES	M: REServed bit = 1
n_r	NR	M: Receive sequence Number
p_bit	P_BIT	M: Poll bit
n_s	NS	M: Send sequence Number
iframe_id	I_FRAME_ID	M: Information frame indicator = 0
li	LI	M: Length
m_bit	M_BIT	M: More data bit, Segmenting = 1
n_bit	N_BIT	M: extended indicator, no extension = 1
data	PDU	M: Data
fill	FILLSTRING	M: Fill field (to force the frame length to be modulo 5 or 8 channel dependent)
checksum	CHECKSUM	M: Checksum

Detailed Comments :

PDU Type Definition		
PDU Name : LCE_PAGE_RESPONSE **PCO Type :** M_SAP **Comments :** ETS 300 175−5: § 6.3.7.1 LCE−PAGE−RESPONSE		
Field Name	**Field Type**	**Comments**
transaction_flag	TRANSACTION_FLAG	M: 0 = Transation originator
transaction_identifier	TRANSACTION_IDENTIFIER	M: See Table 7 of ETS 300 175−5
protocol_discriminator	PROTOCOL_DISCRIMINATOR	M: LCE
extended_transaction_value	EXTENDED_TRANSACTION_VALUE	if Transation Identifier = ’111’B
message_type	MESSAGE_TYPE	M: See Table 7.4 of ETS 300 175−5
portable_identity	PORTABLE_IDENTITY	M: See ETS 300 175−5 § 7.7.30
fixed_identity	FIXED_IDENTITY	See ETS 300 175−5 § 7.7.18
nwk_assigned_identity	NWK_ASGN_IDENTITY	See ETS 300 175−5 § 7.7.28
cipher_info	CIPHER_INFO	See ETS 300 175−5 § 7.7.10
Detailed Comments :		

PDU Type Definition		
PDU Name : LCE_SHORT_REQUEST_PAGE **PCO Type :** M_SAP **Comments :** ETS 300 175−5: § 8.2 LCE request paging messages		
Field Name	**Field Type**	**Comments**
dont_care	DONT_CARE	M: All values allowed.
w	W	M: type of derived adress
lce_header	LCE_HEADER	M: LCE header
address	ADDRESS_T	M: w = 1 lowest 16 bits of assigned TPUI, w = 0 lowest 16 bits of default individual TPUI
Detailed Comments :		

PDU Type Definition		
PDU Name : LCE_LONG_REQUEST_PAGE **PCO Type :** M_SAP **Comments :** ETS 300 175−5: § 8.2 LCE request paging messages		
Field Name	**Field Type**	**Comments**
dont_care	DONT_CARE	M: All values allowed.
w	W	M: 0 = IPUI adress element
lce_header	LCE_HEADER	M: LCE header
ipui_class	IPUI_CLASS	M: IPUI class
address	ADDRESS_I	M: lowest 28 bits of IPUI
Detailed Comments :		

PDU Type Definition		
PDU Name : L3_MESSAGE **PCO Type :** M_SAP **Comments :** ETS 300 175−5: § 7 S−FORMAT message structures		
Field Name	**Field Type**	**Comments**
transaction_flag	TRANSACTION_FLAG	M: 0 = Transation originator
transaction_identifier	TRANSACTION_IDENTIFIER	M: See Table 7 of ETS 300 175−5
protocol_discriminator	PROTOCOL_DISCRIMINATOR	M: LCE,CC,CISS,MM,CLMS,COMS
extended_transaction_value	EXTENDED_TRANSACTION_VALUE	if Transation Identifier = ’111’B
message_type	MESSAGE_TYPE	M: See Table 7.4 of ETS 300 175−5
other_elements	OCTETSTRING[0..INFINITY]	Other elememts if required
Detailed Comments : Generic Network Layer S−FORMAT message		

PDU Type Definition		
PDU Name : RR **PCO Type :** M_SAP **Comments :** ETS 300 175−4 7 Element of procedure and formats of fields for C−plane peer to peer communication		
Field Name	**Field Type**	**Comments**
nlf	NLF	M: New Link Flag
lln	LLN	M: Logical Link Number
sapi	SAPI	M: Service Access Point Identifier
cr_bit	CR_BIT	M: Command/Response bit
res	RES	M: REServed bit = 1
n_r	NR	M: Receive sequence Number
pf_bit	PF_BIT	M: Poll/Final bit
rr_id	RR_ID	M: Receive Ready identifier = 00
sframe_id	S_FRAME_ID	M: Supervisory frame indicator = 01
li	LI	M: Length
m_bit	M_BIT	M: More data bit, shall be 0
n_bit	N_BIT	M: extended indicator, shall be 1
fill	FILLSTRING	M: Fill field (to force the frame length to be modulo 5 or 8 channel dependent)
checksum	CHECKSUM	M: Checksum
Detailed Comments :		

PDU Type Definition		
PDU Name : UI_PDU **PCO Type :** M_SAP **Comments :** To simulate the Network Layer PDU included in an UI frame.		
Field Name	**Field Type**	**Comments**
info	L3INFO	M: info from Network Layer
Detailed Comments :		

PDU Type Definition		
PDU Name : UNUMBERED_INFORMATION		
PCO Type : M_SAP		
Comments : ETS 300 175−4: § 7 Element of procedure and formats of fields for C−plane peer to peer communication		
Field Name	**Field Type**	**Comments**
nlf	NLF	M: New Link Flag
lln	LLN	M: Logical Link Number
sapi	SAPI	M: Service Access Point Identifier
cr_bit	CR_BIT	M: Command/Response bit
res	RES	M: REServed bit = 1
ufield1	U_FIELD1	M: Unnumbered function field 1= 000
p_bit	P_BIT	M: Poll bit
ufield2	U_FIELD2	M: Unnumbered function field 2 = 00
uframe_id	U_FRAME_ID	M: Unnumbered information = 11
li	LI	M: Length
m_bit	M_BIT	M: More data bit, Segmenting = 1
n_bit	N_BIT	M: extended indicator, no extension = 1
data	PDU	M: message unit
fill	FILLSTRING	M: Fill field (to force the frame length to be modulo 5 or 8 channel dependent)
checksum	CHECKSUM	M: Checksum
Detailed Comments :		

III

Constraints Part

Structured Type Constraint Declaration		
Constraint Name : Fillstring		
Structured Type : FILLSTRING		
Derivation Path :		
Comments : Fill field (to force the frame length to be modulo 5 or 8 channel dependent). Structured constraint.		
Element Name	**Element Value**	**Comments**
filloctet1	’11110000’B IF_PRESENT	1 fill octet (modulo 5 or 8)
filloctet2	’11110000’B IF_PRESENT	2 fill octet (modulo 5 or 8)
filloctet3	’11110000’B IF_PRESENT	3 fill octet (modulo 5 or 8)
filloctet4	’11110000’B IF_PRESENT	4 fill octet (modulo 5 or 8)
filloctet5	’11110000’B IF_PRESENT	5 fill octet (modulo 5 or 8)
filloctet6	’11110000’B IF_PRESENT	6 fill octet (modulo 5 or 8)
filloctet7	’11110000’B IF_PRESENT	7 fill octet (modulo 5 or 8)
Detailed Comments :		

ASP Constraint Declaration		
Constraint Name : Mac_con_cfm(mcei_:INTEGER)		
ASP Type : MAC_CON_CFM		
Derivation Path :		
Comments : Abstract primitive: MAC connection confirmation from lower layer.		
Parameter Name	**Parameter Value**	**Comments**
mcei	mcei_	MAC Connection Endpoint Identifier
connection_type	?	Basic or Advanced
ecn	?	Exchange Connection Number (for advanced connection only)
Detailed Comments :		

ASP Constraint Declaration		
Constraint Name : Mac_con_cfm_receive_any		
ASP Type : MAC_CON_CFM		
Derivation Path :		
Comments : Abstract primitive: MAC connection confirmation from lower layer.		
Parameter Name	**Parameter Value**	**Comments**
mcei	?	MAC Connection Endpoint Identifier
connection_type	?	Basic or Advanced
ecn	?	Exchange Connection Number (for advanced connection only)
Detailed Comments :		

ASP Constraint Declaration

Constraint Name : Mac_con_ind
ASP Type : MAC_CON_IND
Derivation Path :
Comments : Abstract primitive: MAC connection indication from lower layer. A new MAC connection is created by IUT side.

Parameter Name	Parameter Value	Comments
mcei	?	MAC Connection Endpoint Identifier
fmid	?	Only neded for fixed part initiated "Fast Setup". Fixed mac identity = least 12 bits of RFPI
pmid	?	Portable mac identity, 20 bits derived from individual TPUI or a default TPUI
connection_handover	?	Connection request for handover = YES, NO otherwise.
old_mcei	?	Only needed if Connection_Handover = YES and previous connection is "basic".
cf_required	?	CF channel required = YES, NO otherwise.
slot_type	?	Double, Full, Half
service_type	?	IN, IP or C−channel only service
max_lifetime	?	Only for IP error correction service
connection	?	Asymmetric uplink connection Asymmetric downlink connection Symmetric single bearer connection Symmetric multi bearer connection
connection_type	?	Basic or Advanced
ecn	?	Exchange Connection Number (for advanced connection only)
rpn	?	RFP used for this connection

Detailed Comments :

ASP Constraint Declaration

Constraint Name : Mac_con_ind_mcei(mcei_:INTEGER)
ASP Type : MAC_CON_IND
Derivation Path :
Comments : Abstract primitive: MAC connection indication from lower layer. A new MAC connection is created by IUT side. Only for MCEI used in the test cases.

Parameter Name	Parameter Value	Comments
mcei	mcei_	MAC Connection Endpoint Identifier
fmid	?	Only neded for fixed part initiated "Fast Setup". Fixed mac identity = least 12 bits of RFPI
pmid	?	Portable mac identity, 20 bits derived from individual TPUI or a default TPUI
connection_handover	?	Connection request for handover = YES, NO otherwise.
old_mcei	?	Only needed if Connection_Handover = YES and previous connection is "basic".
cf_required	?	CF channel required = YES, NO otherwise.
slot_type	?	Double, Full, Half
service_type	?	IN, IP or C−channel only service
max_lifetime	?	Only for IP error correction service
connection	?	Asymmetric uplink connection Asymmetric downlink connection Symmetric single bearer connection Symmetric multi bearer connection
connection_type	?	Basic or Advanced
ecn	?	Exchange Connection Number (for advanced connection only)
rpn	?	RFP used for this connection

Detailed Comments :

ASP Constraint Declaration

Constraint Name : Mac_con_ind_mcei_ch(mcei_:INTEGER)
ASP Type : MAC_CON_IND
Derivation Path :
Comments : Abstract primitive: MAC connection indication from lower layer. A new MAC connection for connection handover is created by IUT side. Only for MCEI used in the test cases.

Parameter Name	Parameter Value	Comments
mcei	?	MAC Connection Endpoint Identifier
fmid	?	Only neded for fixed part initiated "Fast Setup". Fixed mac identity = least 12 bits of RFPI
pmid	?	Portable mac identity, 20 bits derived from individual TPUI or a default TPUI
connection_handover	TRUE	Connection request for handover = YES, NO otherwise.
old_mcei	mcei_	Only needed if Connection_Handover = YES and previous connection is "basic".
cf_required	?	CF channel required = YES, NO otherwise.
slot_type	?	Double, Full, Half
service_type	?	IN, IP or C−channel only service
max_lifetime	?	Only for IP error correction service
connection	?	Asymmetric uplink connection Asymmetric downlink connection Symmetric single bearer connection Symmetric multi bearer connection
connection_type	?	Basic or Advanced
ecn	?	Exchange Connection Number (for advanced connection only)
rpn	?	RFP used for this connection

Detailed Comments :

ASP Constraint Declaration

Constraint Name : Mac_con_ind_mcei_intercell_ch(mcei_:INTEGER; rpn_ : RPN)
ASP Type : MAC_CON_IND
Derivation Path :
Comments : Abstract primitive: MAC connection indication from lower layer. A new MAC connection for connection handover is created by IUT side. Only for MCEI used in the test cases.

Parameter Name	Parameter Value	Comments
mcei	?	MAC Connection Endpoint Identifier
fmid	?	Only neded for fixed part initiated "Fast Setup". Fixed mac identity = least 12 bits of RFPI
pmid	?	Portable mac identity, 20 bits derived from individual TPUI or a default TPUI
connection_handover	TRUE	Connection request for handover = YES, NO otherwise.
old_mcei	mcei_	Only needed if Connection_Handover = YES and previous connection is "basic".
cf_required	?	CF channel required = YES, NO otherwise.
slot_type	?	Double, Full, Half
service_type	?	IN, IP or C−channel only service
max_lifetime	?	Only for IP error correction service
connection	?	Asymmetric uplink connection Asymmetric downlink connection Symmetric single bearer connection Symmetric multi bearer connection
connection_type	?	Basic or Advanced
ecn	?	Exchange Connection Number (for advanced connection only)
rpn	COMPLEMENT (rpn_)	RFP used for this connection

Detailed Comments :

ASP Constraint Declaration

Constraint Name : Mac_con_ind_other_mcei(mcei_:INTEGER)
ASP Type : MAC_CON_IND
Derivation Path :
Comments : Abstract primitive: MAC connection indication from lower layer. A new MAC connection is created by IUT side. Only for MCEI not used in the test cases.

Parameter Name	Parameter Value	Comments
mcei	COMPLEMENT (mcei_)	MAC Connection Endpoint Identifier
fmid	?	Only neded for fixed part initiated "Fast Setup". Fixed mac identity = least 12 bits of RFPI
pmid	?	Portable mac identity, 20 bits derived from individual TPUI or a default TPUI
connection_handover	?	Connection request for handover = YES, NO otherwise.
old_mcei	?	Only needed if Connection_Handover = YES and previous connection is "basic".
cf_required	?	CF channel required = YES, NO otherwise.
slot_type	?	Double, Full, Half
service_type	?	IN, IP or C−channel only service
max_lifetime	?	Only for IP error correction service
connection	?	Asymmetric uplink connection Asymmetric downlink connection Symmetric single bearer connection Symmetric multi bearer connection
connection_type	?	Basic or Advanced
ecn	?	Exchange Connection Number (for advanced connection only)
rpn	?	RFP used for this connection

Detailed Comments :

ASP Constraint Declaration

Constraint Name : Mac_con_req(mcei_:MCEI;pmid_:PMID;cho_:CONNECTION_HANDOVER;omcei_:OLD_MCEI;cfr_:CF_REQUIRED;slt_:SLOT_TYPE;svt_:SERVICE_TYPE;mlt_:MAX_LIFETIME;cn_:CONNECTION;rpn_:RPN)

ASP Type : MAC_CON_REQ

Derivation Path :

Comments : Abstract primitive: MAC connection request to lower layer. Tester uses this primitive to obtain a new MAC connection

Parameter Name	Parameter Value	Comments
mcei	mcei_	MAC Connection Endpoint Identifier
fmid	'000000000000'B	Only neded for fixed part initiated "Fast Setup". Fixed mac identity = least 12 bits of RFPI
pmid	pmid_	Portable mac identity, 20 bits derived from individual TPUI or a default TPUI
connection_handover	cho_	Connection request for handover = YES, NO otherwise.
old_mcei	omcei_	Only needed if Connection_Handover = YES and previous connection is "basic".
cf_requred	cfr_	CF channel required = YES, NO otherwise.
slot_type	slt_	Double, Full, Half
service_type	svt_	IN, IP or C−channel only service
max_lifetime	mlt_	Only for IP error correction service
connection	cn_	Asymmetric uplink connection Asymmetric downlink connection Symmetric single bearer connection Symmetric multi bearer connection
rpn	rpn_	Forces connection to a specific RFP

Detailed Comments :

ASP Constraint Declaration

Constraint Name : Mac_data_ind(mcei_,rct_:INTEGER;data:PDU)

ASP Type : MAC_DATA_IND

Derivation Path :

Comments : Abstract primitive: MAC data indication reception on one specified connection from lower layer.

Parameter Name	Parameter Value	Comments
mcei	mcei_	MAC Connection Endpoint Identifier
receive_channel_type	rct_	GF, CS, CF, IN, IP
sdu	data	
crc_results	*	Optional field

Detailed Comments :

ASP Constraint Declaration		
Constraint Name : Mac_data_ind_any_pdu(mcei_,rct_:INTEGER)		
ASP Type : MAC_DATA_IND		
Derivation Path :		
Comments : Abstract primitive: MAC data indication reception on one specified connection from lower layer with any PDU accepted.		
Parameter Name	**Parameter Value**	**Comments**
mcei	mcei_	MAC Connection Endpoint Identifier
receive_channel_type	rct_	GF, CS, CF, IN, IP
sdu	?	
crc_results	*	Optional field
Detailed Comments :		

ASP Constraint Declaration		
Constraint Name : Mac_data_ind_mcei(mcei_:INTEGER)		
ASP Type : MAC_DATA_IND		
Derivation Path :		
Comments : Abstract primitive: MAC data indication reception with any value of all field accepted. Only for MCEI used in the test cases.		
Parameter Name	**Parameter Value**	**Comments**
mcei	mcei_	MAC Connection Endpoint Identifier
receive_channel_type	?	GF, CS, CF, IN, IP
sdu	*	
crc_results	*	Optional field
Detailed Comments :		

ASP Constraint Declaration		
Constraint Name : Mac_data_ind_other_mcei(mcei_:INTEGER)		
ASP Type : MAC_DATA_IND		
Derivation Path :		
Comments : Abstract primitive: MAC data indication reception with any value of all field accepted. Only for MCEI not used in the test cases.		
Parameter Name	**Parameter Value**	**Comments**
mcei	COMPLEMENT (mcei_)	MAC Connection Endpoint Identifier
receive_channel_type	?	GF, CS, CF, IN, IP
sdu	*	
crc_results	*	Optional field
Detailed Comments :		

ASP Constraint Declaration

Constraint Name : Mac_data_req(mcei_,tct_:INTEGER;data:PDU)
ASP Type : MAC_DATA_REQ
Derivation Path :
Comments : Abstract primitive: MAC data sending request on one specified connection to lower layer.

Parameter Name	Parameter Value	Comments
mcei	mcei_	MAC Connection Endpoint Identifier
transmit_channel_type	tct_	GF, CS, CF, IN, IP
sdu	data	Data

Detailed Comments :

ASP Constraint Declaration

Constraint Name : Mac_dis_ind(mcei_:INTEGER)
ASP Type : MAC_DIS_IND
Derivation Path :
Comments : Abstract primitive: MAC disconnection indication on one specified connection from lower layer.

Parameter Name	Parameter Value	Comments
mcei	mcei_	MAC Connection Endpoint Identifier
reason	?	Normal, Abnormal

Detailed Comments :

ASP Constraint Declaration

Constraint Name : Mac_dis_ind_mcei(mcei_:INTEGER)
ASP Type : MAC_DIS_IND
Derivation Path :
Comments : Abstract primitive: MAC disconnection indication. Only for MCEI used in the test cases.

Parameter Name	Parameter Value	Comments
mcei	mcei_	MAC Connection Endpoint Identifier
reason	?	Normal, Abnormal

Detailed Comments :

ASP Constraint Declaration

Constraint Name : Mac_dis_ind_other_mcei(mcei_:INTEGER)
ASP Type : MAC_DIS_IND
Derivation Path :
Comments : Abstract primitive: MAC disconnection indication. Only for MCEI not used in the test cases.

Parameter Name	Parameter Value	Comments
mcei	COMPLEMENT (mcei_)	MAC Connection Endpoint Identifier
reason	?	Normal, Abnormal

Detailed Comments :

ASP Constraint Declaration		
Constraint Name : Mac_dis_req(mcei_:INTEGER)		
ASP Type : MAC_DIS_REQ		
Derivation Path :		
Comments : Abstract primitive: MAC disconnection request of one specified connection to lower layer.		
Parameter Name	**Parameter Value**	**Comments**
mcei	mcei_	MAC Connection Endpoint Identifier
Detailed Comments :		

ASP Constraint Declaration		
Constraint Name : Mac_down_data_ind(data:PDU)		
ASP Type : MAC_DOWN_DATA_IND		
Derivation Path :		
Comments : Abstract primitive: MAC connectionless data received from FT (downlink). Indication from lower layer.		
Parameter Name	**Parameter Value**	**Comments**
channel_type	?	CLS, CLF, SIN
ari	TSPX_ari	
sdu	data	message unit
status	?	Data contains error or not
Detailed Comments :		

ASP Constraint Declaration		
Constraint Name : Mac_down_data_ind_any		
ASP Type : MAC_DOWN_DATA_IND		
Derivation Path :		
Comments : Abstract primitive: MAC connectionless data received from FT (downlink). Indication from lower layer with any message unit accepted.		
Parameter Name	**Parameter Value**	**Comments**
channel_type	?	CLS, CLF, SIN
ari	TSPX_ari	
sdu	?	message unit
status	?	Data contains error or not
Detailed Comments :		

ASP Constraint Declaration

Constraint Name : Mac_down_data_req(data:PDU)
ASP Type : MAC_DOWN_DATA_REQ
Derivation Path :
Comments : Abstract primitive: MAC connectionless data sending request to lower layer. Tester as FT part sends connectionless downlink data to the IUT as a PT part.

Parameter Name	Parameter Value	Comments
channel_type	TSC_cls	CLS
sdu	data	message unit

Detailed Comments :

ASP Constraint Declaration

Constraint Name : Mac_page_ind(data:PDU)
ASP Type : MAC_PAGE_IND
Derivation Path :
Comments : Abstract primitive: MAC broadcast data received indication from lower layer.

Parameter Name	Parameter Value	Comments
cluster_id	?	
long_flag	?	Needed if data length is 36
sdu	data	
crc_results	*	Optional field

Detailed Comments :

ASP Constraint Declaration

Constraint Name : Mac_page_ind_any_data
ASP Type : MAC_PAGE_IND
Derivation Path :
Comments : Abstract primitive: MAC broadcast data received indication from lower layer.

Parameter Name	Parameter Value	Comments
cluster_id	?	
long_flag	?	Needed if data length is 36
sdu	?	
crc_results	*	Optional field

Detailed Comments :

ASP Constraint Declaration		
Constraint Name : Mac_page_req(pt_:INTEGER;data:PDU)		
ASP Type : MAC_PAGE_REQ		
Derivation Path :		
Comments : Abstract primitive: MAC broadcast data sending request to from lower layer.		
Parameter Name	**Parameter Value**	**Comments**
page_type	pt_	Normal or Fast
sdu	data	broadcast message
long_flag	FALSE	Needed if data length is 36
Detailed Comments :		

ASP Constraint Declaration		
Constraint Name : Mac_up_data_cfm		
ASP Type : MAC_UP_DATA_CFM		
Derivation Path :		
Comments : Abstract primitive: MAC connectionless data sending confirmation from lower layer. Tester as PT part has sent connectionless uplink data to the IUT as a FT part and lower layer of the Tester reports the result of its statement.		
Parameter Name	**Parameter Value**	**Comments**
status	?	Data transmitted or if not: error code
Detailed Comments :		

ASP Constraint Declaration		
Constraint Name : Mac_up_data_ind(data:PDU)		
ASP Type : MAC_UP_DATA_IND		
Derivation Path :		
Comments : Abstract primitive: MAC connectionless data received from PT (uplink). Indication from lower layer.		
Parameter Name	**Parameter Value**	**Comments**
pmid	?	portable mac identity
sdu	data	message unit
status	?	Data contains error or not
Detailed Comments :		

ASP Constraint Declaration		
Constraint Name : Mac_up_data_ind_any		
ASP Type : MAC_UP_DATA_IND		
Derivation Path :		
Comments : Abstract primitive: MAC connectionless data received from PT (uplink). Indication from lower layer with any message unit accepted.		
Parameter Name	**Parameter Value**	**Comments**
pmid	?	portable mac identity
sdu	?	message unit
status	?	Data contains error or not
Detailed Comments :		

ASP Constraint Declaration		
Constraint Name : Mac_up_data_req(data:PDU)		
ASP Type : MAC_UP_DATA_REQ		
Derivation Path :		
Comments : Abstract primitive: MAC connectionless data sending request to lower layer. Tester as PT part sends connectionless uplink data to the IUT as a FT part.		
Parameter Name	**Parameter Value**	**Comments**
sdu	data	message unit
Detailed Comments :		

PDU Constraint Declaration		
Constraint Name : Cc_setup_valid		
PDU Type : CC_SETUP		
Derivation Path :		
Comments : ETS 300 175−5: § 6.3.2.1 CC−SETUP		
Field Name	**Field Value**	**Comments**
transaction_flag	'0'B	Transation originator
transaction_identifier	'000'B	Transation 0
protocol_discriminator	'0011'B	Call Control message
extended_transaction_value	−	Not existing
message_type	'00000101'B	CC_SETUP message type coding
portable_identity	TSPX_pid	Test suite parameter from PIXIT
fixed_identity	TSPX_fid	Test suite parameter from PIXIT
basic_service	'E080'H	(1)
Detailed Comments : (1) ETS 300 175−5 § 7.6.4 Basic Service E0 : Basic service information element code. 80 : DECT standard coding − Call class : Normal call setup − Service : Default.		

PDU Constraint Declaration		
Constraint Name : Fu1r		
PDU Type : FU1		
Derivation Path :		
Comments : ETS 300 175−4: § 13 Element of procedure and formats of fields for U−plane peer to peer communication. § 12.2 FU1 frame structure		
Field Name	**Field Value**	**Comments**
higher_layer_info	?	Higher layer info
Detailed Comments :		

PDU Constraint Declaration		
Constraint Name : Fu1s(data_:OCTETSTRING)		
PDU Type : FU1		
Derivation Path :		
Comments : ETS 300 175−4: § 13 Element of procedure and formats of fields for U−plane peer to peer communication. § 12.2 FU1 frame structure		
Field Name	**Field Value**	**Comments**
higher_layer_info	data_	Higher layer info
Detailed Comments :		

PDU Constraint Declaration

Constraint Name : Fu5r(e_s_,e_r_:INTEGER)
PDU Type : FU5
Derivation Path :
Comments : ETS 300 175−4: § 13 Element of procedure and formats of fields for U−plane peer to peer communication. § 12.6 FU5 frame structure

Field Name	Field Value	Comments
g	INT_TO_BIT(TSO_flag(),1)	Flag.
uln	?	Link number
ucn	’000’B	Channel number
res	’1’B	Reserved bit
li	?	Length
m_bit	’0’B	More data bit
i_r	’1’B	Initial tranmission
e_s	INT_TO_BIT(e_s_,7)	send number
a_n	’1’B	Acknowledgement
e_r	INT_TO_BIT(e_r_,7)	Receive number
data	?	Information field
fill	*	Fill field (to force the frame length to be equal to 8 octets/half slot, 32 octets/full slot and 80 octets/double slot)

Detailed Comments :

PDU Constraint Declaration

Constraint Name : Fu5r_any_ack(e_s_:INTEGER)
PDU Type : FU5
Derivation Path :
Comments : ETS 300 175−4: § 13 Element of procedure and formats of fields for U−plane peer to peer communication. § 12.6 FU5 frame structure

Field Name	Field Value	Comments
g	INT_TO_BIT(TSO_flag(),1)	Flag.
uln	?	Link number
ucn	’000’B	Channel number
res	’1’B	Reserved bit
li	?	Length
m_bit	’0’B	More data bit
i_r	’1’B	Initial tranmission
e_s	INT_TO_BIT(e_s_,7)	send number
a_n	’1’B	Acknowledgement
e_r	?	Receive number
data	?	Information field
fill	*	Fill field (to force the frame length to be equal to 8 octets/half slot, 32 octets/full slot and 80 octets/double slot)

Detailed Comments :

PDU Constraint Declaration

Constraint Name : Fu5s(e_s_,e_r_:INTEGER)
PDU Type : FU5
Derivation Path :
Comments : ETS 300 175−4: § 13 Element of procedure and formats of fields for U−plane peer to peer communication. § 12.6 FU5 frame structure

Field Name	Field Value	Comments
g	INT_TO_BIT(TSO_flag(),1)	Flag.
uln	TSPX_uln	Link number
ucn	'000'B	Channel number
res	'1'B	Reserved bit
li	INT_TO_BIT(4,7)	Length
m_bit	'0'B	More data bit
i_r	'1'B	Initial tranmission
e_s	INT_TO_BIT(e_s_,7)	send number
a_n	'1'B	Acknowledgement
e_r	INT_TO_BIT(e_r_,7)	Receive number
data	'41414141'O	Information field
fill	TSO_cid_fillu(TSPX_slot,4)	Fill field (to force the frame length to be equal to 8 octets/half slot, 32 octets/full slot and 80 octets/double slot)

Detailed Comments :

PDU Constraint Declaration

Constraint Name : Fu5s_nack(e_s_,e_r_:INTEGER)
PDU Type : FU5
Derivation Path :
Comments : ETS 300 175−4: § 13 Element of procedure and formats of fields for U−plane peer to peer communication. § 12.6 FU5 frame structure

Field Name	Field Value	Comments
g	INT_TO_BIT(TSO_flag(),1)	Flag.
uln	TSPX_uln	Link number
ucn	'000'B	Channel number
res	'1'B	Reserved bit
li	INT_TO_BIT(4,7)	Length
m_bit	'0'B	More data bit
i_r	'1'B	Initial tranmission
e_s	INT_TO_BIT(e_s_,7)	send number
a_n	'0'B	Negative acknowledgement
e_r	INT_TO_BIT(e_r_,7)	Receive number
data	'41414141'O	Information field
fill	TSO_cid_fillu(TSPX_slot,4)	Fill field (to force the frame length to be equal to 8 octets/half slot, 32 octets/full slot and 80 octets/double slot)

Detailed Comments :

PDU Constraint Declaration

Constraint Name : Fu5s_retransmit(e_s_,e_r_:INTEGER)
PDU Type : FU5
Derivation Path :
Comments : ETS 300 175−4: § 13 Element of procedure and formats of fields for U−plane peer to peer communication. § 12.6 FU5 frame structure

Field Name	Field Value	Comments
g	INT_TO_BIT(TSO_flag(),1)	Flag.
uln	TSPX_uln	Link number
ucn	’000’B	Channel number
res	’1’B	Reserved bit
li	INT_TO_BIT(4,7)	Length
m_bit	’0’B	More data bit
i_r	’0’B	Retranmission
e_s	INT_TO_BIT(e_s_,7)	send number
a_n	’1’B	Acknowledgement
e_r	INT_TO_BIT(e_r_,7)	Receive number
data	’41414141’O	Information field
fill	TSO_cid_fillu(TSPX_slot,4)	Fill field (to force the frame length to be equal to 8 octets/half slot, 32 octets/full slot and 80 octets/double slot)

Detailed Comments :

PDU Constraint Declaration		
Constraint Name : lr_ca(nlf_,nr_,ns_:INTEGER;NWKMSG:PDU)		
PDU Type : INFORMATION		
Derivation Path :		
Comments : Information Class A frame with L3 PDU parametrised, Receiving constraint.		
Field Name	**Field Value**	**Comments**
nlf	INT_TO_BIT(nlf_,1)	New Link Flag
lln	INT_TO_BIT(TSC_lln_ca,3)	Logical Link Number
sapi	INT_TO_BIT(TSC_connection_sapi,2)	Service Access Point Identifier
cr_bit	INT_TO_BIT(TSO_cid_return_cr_value(TSPX_pt,TSC_command, TSC_receive),1)	Command/Response bit
res	'1'B	REServed bit = 1
n_r	INT_TO_BIT(nr_,3)	Receive sequence Number
p_bit	'0'B	Poll bit
n_s	INT_TO_BIT(ns_,3)	Send sequence Number
iframe_id	'0'B	Information frame indicator = 0
li	?	Length
m_bit	'0'B	More data bit, Segmenting = 1
n_bit	'1'B	extended indicator, no extension = 1
data	NWKMSG	Data
fill	Fillstring	Fill field (to force the frame length to be modulo 5 or 8 channel dependent)
checksum	TSO_check_checksum()	Check value of Checksum
Detailed Comments :		

PDU Constraint Declaration

Constraint Name : lr_ca_anyornone_pdu(nlf_,nr_,ns_:INTEGER)
PDU Type : INFORMATION
Derivation Path :
Comments : Information Class A frame with any or no L3 PDU accepted, Receiving constraint.

Field Name	Field Value	Comments
nlf	INT_TO_BIT(nlf_,1)	New Link Flag
lln	INT_TO_BIT(TSC_lln_ca,3)	Logical Link Number
sapi	INT_TO_BIT(TSC_connection_sapi,2)	Service Access Point Identifier
cr_bit	INT_TO_BIT(TSO_cid_return_cr_value(TSPX_pt,TSC_command, TSC_receive),1)	Command/Response bit
res	'1'B	REServed bit = 1
n_r	INT_TO_BIT(nr_,3)	Receive sequence Number
p_bit	'0'B	Poll bit
n_s	INT_TO_BIT(ns_,3)	Send sequence Number
iframe_id	'0'B	Information frame indicator = 0
li	?	Length
m_bit	'0'B	More data bit, Segmenting = 1
n_bit	'1'B	extended indicator, no extension = 1
data	*	Data
fill	Fillstring	Fill field (to force the frame length to be modulo 5 or 8 channel dependent)
checksum	TSO_check_checksum()	Check value of Checksum

Detailed Comments :

PDU Constraint Declaration		
Constraint Name : lr_ca_any_pdu(nlf_,nr_,ns_:INTEGER)		
PDU Type : INFORMATION		
Derivation Path :		
Comments : Information Class A frame with any L3 PDU accepted, Receiving constraint.		
Field Name	**Field Value**	**Comments**
nlf	INT_TO_BIT(nlf_,1)	New Link Flag
lln	INT_TO_BIT(TSC_lln_ca,3)	Logical Link Number
sapi	INT_TO_BIT(TSC_connection_sapi,2)	Service Access Point Identifier
cr_bit	INT_TO_BIT(TSO_cid_return_cr_value(TSPX_pt,TSC_command, TSC_receive),1)	Command/Response bit
res	'1'B	REServed bit = 1
n_r	INT_TO_BIT(nr_,3)	Receive sequence Number
p_bit	'0'B	Poll bit
n_s	INT_TO_BIT(ns_,3)	Send sequence Number
iframe_id	'0'B	Information frame indicator = 0
li	?	Length
m_bit	'0'B	More data bit, Segmenting = 1
n_bit	'1'B	extended indicator, no extension = 1
data	?	Data
fill	Fillstring	Fill field (to force the frame length to be modulo 5 or 8 channel dependent)
checksum	TSO_check_checksum()	Check value of Checksum
Detailed Comments :		

PDU Constraint Declaration

Constraint Name : lr_ca_no_pdu(nlf_,nr_,ns_:INTEGER)
PDU Type : INFORMATION
Derivation Path :
Comments : Information Class A frame with no L3 PDU accepted, Receiving constraint.

Field Name	Field Value	Comments
nlf	INT_TO_BIT(nlf_,1)	New Link Flag
lln	INT_TO_BIT(TSC_lln_ca,3)	Logical Link Number
sapi	INT_TO_BIT(TSC_connection_sapi,2)	Service Access Point Identifier
cr_bit	INT_TO_BIT(TSO_cid_return_cr_value(TSPX_pt,TSC_command, TSC_receive),1)	Command/Response bit
res	'1'B	REServed bit = 1
n_r	INT_TO_BIT(nr_,3)	Receive sequence Number
p_bit	'0'B	Poll bit
n_s	INT_TO_BIT(ns_,3)	Send sequence Number
iframe_id	'0'B	Information frame indicator = 0
li	'000000'B	Length
m_bit	'0'B	More data bit, Segmenting = 1
n_bit	'1'B	extended indicator, no extension = 1
data	−	Data
fill	Fillstring	Fill field (to force the frame length to be modulo 5 or 8 channel dependent)
checksum	TSO_check_checksum()	Check value of Checksum

Detailed Comments :

PDU Constraint Declaration

Constraint Name : ls_ca(nlf_,nr_,ns_:INTEGER;NWKMSG:PDU)
PDU Type : INFORMATION
Derivation Path :
Comments : Information Class A frame with L3 PDU parametrised, Sending constraint.

Field Name	Field Value	Comments
nlf	INT_TO_BIT(nlf_,1)	New Link Flag
lln	INT_TO_BIT(TSC_lln_ca,3)	Logical Link Number
sapi	INT_TO_BIT(TSC_connection_sapi,2)	Service Access Point Identifier
cr_bit	INT_TO_BIT(TSO_cid_return_cr_value(TSPX_pt,TSC_command, TSC_send),1)	Command/Response bit
res	'1'B	REServed bit = 1
n_r	INT_TO_BIT(nr_,3)	Receive sequence Number
p_bit	'0'B	Poll bit
n_s	INT_TO_BIT(ns_,3)	Send sequence Number
iframe_id	'0'B	Information frame indicator = 0
li	INT_TO_BIT(TSO_compute_li(NWKMSG),6)	Length
m_bit	'0'B	More data bit, Segmenting = 1
n_bit	'1'B	extended indicator, no extension = 1
data	NWKMSG	Data
fill	TSO_cid_fill(TSPX_chn, TSO_compute_li(NWKMSG))	Fill field (to force the frame length to be modulo 5 or 8 channel dependent)
checksum	TSO_cid_checksum()	Checksum

Detailed Comments :

PDU Constraint Declaration

Constraint Name : ls_ca_no_pdu(nlf_,nr_,ns_:INTEGER)
PDU Type : INFORMATION
Derivation Path :
Comments : Information Class A frame with no L3 PDU included, Sending constraint.

Field Name	Field Value	Comments
nlf	INT_TO_BIT(nlf_,1)	New Link Flag
lln	INT_TO_BIT(TSC_lln_ca,3)	Logical Link Number
sapi	INT_TO_BIT(TSC_connection_sapi,2)	Service Access Point Identifier
cr_bit	INT_TO_BIT(TSO_cid_return_cr_value(TSPX_pt,TSC_command, TSC_send),1)	Command/Response bit
res	'1'B	REServed bit = 1
n_r	INT_TO_BIT(nr_,3)	Receive sequence Number
p_bit	'0'B	Poll bit
n_s	INT_TO_BIT(ns_,3)	Send sequence Number
iframe_id	'0'B	Information frame indicator = 0
li	INT_TO_BIT(0,6)	Length
m_bit	'0'B	More data bit, Segmenting = 1
n_bit	'1'B	extended indicator, no extension = 1
data	−	Data
fill	TSO_cid_fill(TSPX_chn,0)	Fill field (to force the frame length to be modulo 5 or 8 channel dependent)
checksum	TSO_cid_checksum()	Checksum

Detailed Comments :

PDU Constraint Declaration		
Constraint Name : ls_cb(nlf_,nr_,ns_,lln_:INTEGER)		
PDU Type : INFORMATION		
Derivation Path :		
Comments : Information Class B frame with no L3 PDU included, Sending constraint.		
Field Name	**Field Value**	**Comments**
nlf	INT_TO_BIT(nlf_,1)	New Link Flag
lln	INT_TO_BIT(lln_,3)	Logical Link Number
sapi	INT_TO_BIT(TSC_connection_sapi,2)	Service Access Point Identifier
cr_bit	INT_TO_BIT(TSO_cid_return_cr_value(TSPX_pt,TSC_command, TSC_send),1)	Command/Response bit
res	'1'B	REServed bit = 1
n_r	INT_TO_BIT(nr_,3)	Receive sequence Number
p_bit	'0'B	Poll bit
n_s	INT_TO_BIT(ns_,3)	Send sequence Number
iframe_id	'0'B	Information frame indicator = 0
li	INT_TO_BIT(0,6)	Length
m_bit	'0'B	More data bit, Segmenting = 1
n_bit	'1'B	extended indicator, no extension = 1
data	−	Data
fill	TSO_cid_fill(TSPX_chn,0)	Fill field (to force the frame length to be modulo 5 or 8 channel dependent)
checksum	TSO_cid_checksum()	Checksum
Detailed Comments :		

PDU Constraint Declaration		
Constraint Name : Lces_long_request_page		
PDU Type : LCE_LONG_REQUEST_PAGE		
Derivation Path :		
Comments : ETS 300 175−5: § 8.2 LCE request paging messages		
Field Name	**Field Value**	**Comments**
dont_care	'0000'B	
w	'0'B	adress is the lowest 28 bits of IPUI
lce_header	'000'B	Basic connection required
ipui_class	TSPX_ipui_class	IPUI class
address	TSO_cid_lowest(28,TSPX_ipui)	Lowest 28 bits of IPUI
Detailed Comments :		

PDU Constraint Declaration		
Constraint Name : Lcer_long_request_page		
PDU Type : LCE_LONG_REQUEST_PAGE		
Derivation Path :		
Comments : ETS 300 175−5: § 8.2 LCE request paging messages		
Field Name	**Field Value**	**Comments**
dont_care	?	
w	?	adress is the lowest 28 bits of IPUI
lce_header	'?00'B	Basic connection required
ipui_class	TSPX_ipui_class	IPUI class
address	TSO_cid_lowest(28,TSPX_ipui)	Lowest 28 bits of IPUI
Detailed Comments :		

PDU Constraint Declaration		
Constraint Name : Lce_page_response		
PDU Type : LCE_PAGE_RESPONSE		
Derivation Path :		
Comments : ETS 300 175−5: § 6.3.7.1 LCE−PAGE−RESPONSE		
Field Name	**Field Value**	**Comments**
transaction_flag	'0'B	Transation originator
transaction_identifier	'000'B	Transation 0
protocol_discriminator	'0000'B	LCE message
extended_transaction_value	−	Not existing
message_type	'01110001'B	LCE−PAGE−RESPONSE message type coding
portable_identity	*	Test suite parameter from PIXIT
fixed_identity	*	Test suite parameter from PIXIT
nwk_assigned_identity	*	Test suite parameter from PIXIT
cipher_info	*	Test suite parameter from PIXIT
Detailed Comments :		

PDU Constraint Declaration		
Constraint Name : Lces_short_request_page		
PDU Type : LCE_SHORT_REQUEST_PAGE		
Derivation Path :		
Comments : ETS 300 175−5: § 8.2 LCE request paging messages.		
Field Name	**Field Value**	**Comments**
dont_care	’0000’B	MAC BS channel is 20 bits for short page paging and short LCE request paging message is 3 octets = ignore these 4 bits
w	’0’B	adress is the lowest 16 bits of default individual TPUI
lce_header	’000’B	Basic connection required
address	TSO_cid_lowest(16,TSPX_ipui)	Lowest 16 bits of default individual TPUI
Detailed Comments :		

PDU Constraint Declaration		
Constraint Name : Lcer_short_request_page		
PDU Type : LCE_SHORT_REQUEST_PAGE		
Derivation Path :		
Comments : ETS 300 175−5: § 8.2 LCE request paging messages.		
Field Name	**Field Value**	**Comments**
dont_care	?	MAC BS channel is 20 bits for short page paging and short LCE request paging message is 3 octets = ignore these 4 bits
w	?	adress is the lowest 16 bits of default individual TPUI
lce_header	’?00’B	Basic connection required
address	TSO_cid_lowest(16,TSPX_ipui)	Lowest 16 bits of default individual TPUI
Detailed Comments :		

PDU Constraint Declaration		
Constraint Name : Lce_short_request_page_in		
PDU Type : LCE_SHORT_REQUEST_PAGE		
Derivation Path :		
Comments : ETS 300 175−5: § 8.2 LCE request paging messages.		
Field Name	**Field Value**	**Comments**
dont_care	’0000’B	MAC BS channel is 20 bits for short page paging and short LCE request paging message is 3 octets = ignore these 4 bits
w	’0’B	adress is the lowest 16 bits of default individual TPUI
lce_header	’100’B	In minimum delay service required
address	TSO_cid_lowest(16,TSPX_ipui)	Lowest 16 bits of default individual TPUI
Detailed Comments :		

PDU Constraint Declaration		
Constraint Name : Lce_short_request_page_ip		
PDU Type : LCE_SHORT_REQUEST_PAGE		
Derivation Path :		
Comments : ETS 300 175−5: § 8.2 LCE request paging messages.		
Field Name	**Field Value**	**Comments**
dont_care	’0000’B	MAC BS channel is 20 bits for short page paging and short LCE request paging message is 3 octets = ignore these 4 bits
w	’0’B	adress is the lowest 16 bits of default individual TPUI
lce_header	’111’B	IP error correct service required
address	TSO_cid_lowest(16,TSPX_ipui)	Lowest 16 bits of default individual TPUI
Detailed Comments :		

PDU Constraint Declaration		
Constraint Name : L3_unknow		
PDU Type : L3_MESSAGE		
Derivation Path :		
Comments : ETS 300 175−5: § 7 S−FORMAT message structures		
Field Name	**Field Value**	**Comments**
transaction_flag	’0’B	Transation originator
transaction_identifier	’000’B	Transation 0
protocol_discriminator	’1000’B	Unknow entity
extended_transaction_value	−	Not existing
message_type	’00000000’B	Unknown message type
other_elements	−	Not existing
Detailed Comments : L3 message for unknow protocol entity. This message shall be ignored by the receiving side		

PDU Constraint Declaration

Constraint Name : Rrr_ca(nlf_,nr_:INTEGER)
PDU Type : RR
Derivation Path :
Comments : Receive Ready Class A frame, Receiving constraint.

Field Name	Field Value	Comments
nlf	INT_TO_BIT(nlf_,1)	New Link Flag
lln	INT_TO_BIT(TSC_lln_ca,3)	Logical Link Number
sapi	INT_TO_BIT(TSC_connection_sapi,2)	Service Access Point Identifier
cr_bit	INT_TO_BIT(TSO_cid_return_cr_value(TSPX_pt,TSC_response, TSC_receive),1)	Command/Response bit
res	'1'B	REServed bit = 1
n_r	INT_TO_BIT(nr_,3)	Receive sequence Number
pf_bit	'0'B	Poll/Final bit
rr_id	'00'B	Receive Ready identifier = 00
sframe_id	'01'B	Supervisory frame indicator = 01
li	?	Length
m_bit	'0'B	More data bit, shall be 0
n_bit	'1'B	extended indicator, shall be 1
fill	Fillstring	Fill field (to force the frame length to be modulo 5 or 8 channel dependent)
checksum	TSO_check_checksum()	Check value of Checksum

Detailed Comments :

PDU Constraint Declaration

Constraint Name : Rrs_ca(nlf_,nr_:INTEGER)
PDU Type : RR
Derivation Path :
Comments : Receive Ready Class A frame, Sending constraint.

Field Name	Field Value	Comments
nlf	INT_TO_BIT(nlf_,1)	New Link Flag
lln	INT_TO_BIT(TSC_lln_ca,3)	Logical Link Number
sapi	INT_TO_BIT(TSC_connection_sapi,2)	Service Access Point Identifier
cr_bit	INT_TO_BIT(TSO_cid_return_cr_value(TSPX_pt,TSC_response, TSC_send),1)	Command/Response bit
res	'1'B	REServed bit = 1
n_r	INT_TO_BIT(nr_,3)	Receive sequence Number
pf_bit	'0'B	Poll/Final bit
rr_id	'00'B	Receive Ready identifier = 00
sframe_id	'01'B	Supervisory frame indicator = 01
li	'000000'B	Length
m_bit	'0'B	More data bit, shall be 0
n_bit	'1'B	extended indicator, shall be 1
fill	TSO_cid_fill(TSPX_chn,0)	Fill field (to force the frame length to be modulo 5 or 8 channel dependent)
checksum	TSO_cid_checksum()	Checksum

Detailed Comments :

PDU Constraint Declaration		
Constraint Name : Rrs_cb(nlf_,nr_:INTEGER)		
PDU Type : RR		
Derivation Path :		
Comments : Receive Ready Class B frame, Sending constraint.		
Field Name	**Field Value**	**Comments**
nlf	INT_TO_BIT(nlf_,1)	New Link Flag
lln	INT_TO_BIT(TSC_lln_unassigned,3)	Logical Link Number
sapi	INT_TO_BIT(TSC_connection_sapi,2)	Service Access Point Identifier
cr_bit	INT_TO_BIT(TSO_cid_return_cr_value(TSPX_pt,TSC_response, TSC_send),1)	Command/Response bit
res	'1'B	REServed bit = 1
n_r	INT_TO_BIT(nr_,3)	Receive sequence Number
pf_bit	'0'B	Poll/Final bit
rr_id	'00'B	Receive Ready identifier = 00
sframe_id	'01'B	Supervisory frame indicator = 01
li	'000000'B	Length
m_bit	'0'B	More data bit, shall be 0
n_bit	'1'B	extended indicator, shall be 1
fill	TSO_cid_fill(TSPX_chn,0)	Fill field (to force the frame length to be modulo 5 or 8 channel dependent)
checksum	TSO_cid_checksum()	Checksum
Detailed Comments :		

PDU Constraint Declaration		
Constraint Name : Ui_pdu_on_cl		
PDU Type : UI_PDU		
Derivation Path :		
Comments : Network Layer PDU included in an UI frame for transfer over a connectionless MAC service.		
Field Name	**Field Value**	**Comments**
info	TSPX_ui_pdu_on_cl	Info from Network Layer
Detailed Comments :		

PDU Constraint Declaration		
Constraint Name : Ui_pdu_on_co		
PDU Type : UI_PDU		
Derivation Path :		
Comments : Network Layer PDU included in an UI frame for transfer over a connection oriented MAC service.		
Field Name	**Field Value**	**Comments**
info	TSPX_ui_pdu_on_co	Info from Network Layer
Detailed Comments :		

PDU Constraint Declaration

Constraint Name : Uir_cu_any_pdu(sapi_:INTEGER)
PDU Type : UNUMBERED_INFORMATION
Derivation Path :
Comments : Unnumbered information Class U frame with any L3 PDU accepted, Receiving constraint.

Field Name	Field Value	Comments
nlf	'0'B	New Link Flag
lln	INT_TO_BIT(TSC_lln_cu,3)	Logical Link Number
sapi	INT_TO_BIT(sapi_,2)	Service Access Point Identifier
cr_bit	INT_TO_BIT(TSO_cid_return_cr_value(TSPX_pt,TSC_command, TSC_receive),1)	Command/Response bit
res	'1'B	REServed bit = 1
ufield1	'000'B	Unnumbered function field 1
p_bit	'0'B	Poll bit
ufield2	'00'B	Unnumbered function field 2
uframe_id	'11'B	Unnumbered information indicator
li	?	Length
m_bit	'0'B	More data bit, Segmenting = 1
n_bit	'1'B	extended indicator, no extension = 1
data	?	Data
fill	Fillstring	Fill field (to force the frame length to be modulo 5 or 8 channel dependent)
checksum	TSO_check_checksum()	Check value of Checksum

Detailed Comments :

PDU Constraint Declaration		
Constraint Name : Uis_cu(nlf_,lln_,sapi_,p_:INTEGER;data_:PDU)		
PDU Type : UNUMBERED_INFORMATION		
Derivation Path :		
Comments : Unnumbered information Class U frame with L3 PDU parametrised, Sending constraint.		
Field Name	**Field Value**	**Comments**
nlf	INT_TO_BIT(nlf_,1)	New Link Flag
lln	INT_TO_BIT(lln_,3)	Logical Link Number
sapi	INT_TO_BIT(sapi_,2)	Service Access Point Identifier
cr_bit	INT_TO_BIT(TSO_cid_return_cr_value(TSPX_pt,TSC_command, TSC_send),1)	Command/Response bit
res	'1'B	REServed bit = 1
ufield1	'000'B	Unnumbered function field 1
p_bit	INT_TO_BIT(p_,1)	Poll bit
ufield2	'00'B	Unnumbered function field 2
uframe_id	'11'B	Unnumbered information indicator
li	INT_TO_BIT(TSO_compute_li(data_),6)	Length
m_bit	'0'B	More data bit, Segmenting = 1
n_bit	'1'B	extended indicator, no extension = 1
data	data_	Data
fill	TSO_cid_fill(TSPX_chn, TSO_compute_li(data_))	Fill field (to force the frame length to be modulo 5 or 8 channel dependent)
checksum	TSO_cid_checksum()	Checksum
Detailed Comments :		

IV

Dynamic Part

Test Case Dynamic Behaviour

Test Case Name : TC_U_CA_000
Group : C_Plane/ClassU/CA/
Purpose : Verify that the IUT is able to generate an UI frame by using MAC connectionless services.
Configuration :
Default : DF_handle_nwk_msg ,
DF_handle_accepted_mac_events ,
DF_handle_rejected_mac_events
Comments : ETS 300 175−4: § 9.3 Unacknowledged operation
Only applicable when a procedure is specified in the PIXIT to force the IUT to send an UI frame.

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		[TSPX_pt]			
2		+STP_invoke_uplink_data			(1)
3		[NOT TSPX_pt]			
4		+STP_invoke_downlink_data			(2)

Detailed Comments : (1) IUT is a PT. Implicit request for UI frame over MAC connectionless service (Uplink).
(2) IUT is a FT. Implicit request for UI frame over MAC connectionless service (Downlink).

Test Case Dynamic Behaviour

Test Case Name : TC_U_CA_001
Group : C_Plane/ClassU/CA/
Purpose : Verify that the IUT is able to generate an UI frame by using an open MAC connection.
Configuration :
Default : DF_handle_nwk_msg ,
DF_handle_accepted_mac_events ,
DF_handle_rejected_mac_events
Comments : ETS 300 175−4: § 9.3 Unacknowledged operation
Only applicable when a procedure is specified in the PIXIT to force the IUT to send an UI frame.

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		+PR_ca_information_transfer			(1)
2		+STP_invoke_cl_data_on_co			(2)
3		+PO_mac_disconnect			****

Detailed Comments : (1) Initial condition: Establishment of a MAC connection.
(2) Implicit request for UI frame over the open MAC connection.
**** Tester disconnects the MAC connection to terminate in stable state.

Test Case Dynamic Behaviour

Test Case Name : TC_U_CA_002
Group : C_Plane/ClassU/CA/
Purpose : Verify that the IUT is able to receive an UI frame over connectionless MAC services.
Configuration :
Default : DF_handle_nwk_msg ,
DF_handle_accepted_mac_events ,
DF_handle_rejected_mac_events
Comments : ETS 300 175−4: § 9.3 Unacknowledged operation.
Only applicable when a procedure is specified in the PIXIT to determine UI frame reception.

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		[TSPX_pt]			
2		LMAC ! MAC_DOWN_DATA_REQ START T_wait	Mac_down_data_req(Uis_cu(TSC_nlf0, TSC_lln_cu, TSC_connectionless_sapi, TSC_p0, Ui_pdu_on_cl))		(1)
3		?TIMEOUT T_wait			
4		+LTS_test_iut_reception			(2)
5		[NOT TSPX_pt]			
6		LMAC ! MAC_UP_DATA_REQ START T_wait	Mac_up_data_req(Uis_cu(TSC_nlf0, TSC_lln_cu, TSC_connectionless_sapi, TSC_p0, Ui_pdu_on_cl))		(3)
7		LMAC ? MAC_UP_DATA_CFM	Mac_up_data_cfm		(4)
8		?TIMEOUT T_wait			
9		+LTS_test_iut_reception			(5)
		LTS_test_iut_reception			
10		(TCV_received := TSO_iut_ui_received())			
11	TB01	[TCV_received]		(PASS)	(6)
12		+PO_empty			
13	TB02	[NOT TCV_received]		(FAIL)	(7)
14		+PO_empty			

Detailed Comments : (1) IUT is a PT. Tester sends an UI frame on the connectionless Downlink.
(2) Tester checks for IUT reception.
(3) IUT is a FT. Tester sends an UI frame on the connectionless Uplink.
(4) Tester receives a confirmation for its request from the MAC layer.
(5) Tester checks for IUT reception.
(6) Expected Behaviour: The IUT received the UI frame sent.
(7) The IUT did not receive the UI frame sent.

Test Case Dynamic Behaviour

Test Case Name : TC_U_CA_003
Group : C_Plane/ClassU/CA/
Purpose : Verify that the IUT is able to receive an UI frame over an open MAC connection.
Configuration :
Default : DF_handle_nwk_msg ,
DF_handle_accepted_mac_events ,
DF_handle_rejected_mac_events
Comments : ETS 300 175−4: § 9.3 Unacknowledged operation.
Only applicable when a procedure is specified in the PIXIT to determine UI frame reception.

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		+PR_ca_information_transfer			(1)
2		LMAC ! MAC_DATA_REQ START T_wait	Mac_data_req(TSV_mcei1, TSV_chn, Uis_cu(TSC_nlf0, TSC_lln_cu, TSC_connection_sapi, TSC_p0, Ui_pdu_on_co))		(2)
3		?TIMEOUT T_wait			
4		+LTS_test_iut_reception			(3)
		LTS_test_iut_reception			
5		(TCV_received := TSO_iut_ui_received())			
6	TB01	[TCV_received]		(PASS)	(4)
7		+PO_mac_disconnect			****
8	TB02	[NOT TCV_received]		(FAIL)	(5)
9		+PO_mac_disconnect			****

Detailed Comments : (1) Initial condition: Establishment of a MAC connection.
(2) Tester sends an UI frame on the open MAC connection.
(3) Tester checks for IUT reception.
(4) Expected Behaviour: The IUT received the UI frame sent.
(5) The IUT did not receive the UI frame sent.
**** Tester disconnects the MAC connection to terminate in stable state.

Test Case Dynamic Behaviour

Test Case Name : TC_U_BI_000

Group : C_Plane/ClassU/BI/

Purpose : Verify that the IUT, on receipt of an UI frame with P bit set to '1', accepts this erroneous frame. the UI frame is transmitted over connectionless MAC services.

Configuration :

Default : DF_handle_nwk_msg ,
DF_handle_accepted_mac_events ,
DF_handle_rejected_mac_events

Comments : ETS 300 175−4: § 9.3.3.2 Reception of unacknowledged information.
Only applicable when a procedure is specified in the PIXIT to determine UI frame reception.

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		[TSPX_pt]			
2		LMAC ! MAC_DOWN_DATA_REQ START T_wait	Mac_down_data_req(Uis_cu(TSC_nlf0, TSC_lln_cu, TSC_connectionless_sapi, TSC_p1, Ui_pdu_on_cl))		(1)
3		?TIMEOUT T_wait			
4		+LTS_test_iut_reception			(2)
5		[NOT TSPX_pt]			
6		LMAC ! MAC_UP_DATA_REQ START T_wait	Mac_up_data_req(Uis_cu(TSC_nlf0, TSC_lln_cu, TSC_connectionless_sapi, TSC_p1, Ui_pdu_on_cl))		(3)
7		LMAC ? MAC_UP_DATA_CFM	Mac_up_data_cfm		(4)
8		?TIMEOUT T_wait			
9		+LTS_test_iut_reception			(5)
		LTS_test_iut_reception			
10		(TCV_received := TSO_iut_ui_received())			
11	TB01	[TCV_received]		(PASS)	(6)
12		+PO_empty			
13	TB02	[NOT TCV_received]		(FAIL)	(7)
14		+PO_empty			

Detailed Comments : (1) IUT is a PT. Tester sends an UI frame with P bit = 1 on the connectionless Downlink.
(2) Tester checks for IUT reception.
(3) IUT is a FT. Tester sends an UI frame with P bit = 1 on the connectionless Uplink.
(4) Tester receives a confirmation for its request from the MAC layer.
(5) Tester checks for IUT reception.
(6) Expected Behaviour: The IUT received the UI frame sent.
(7) The IUT did not receive the UI frame sent.

Test Case Dynamic Behaviour

Test Case Name : TC_U_BI_001

Group : C_Plane/ClassU/BI/

Purpose : Verify that the IUT, on receipt of an UI frame with P bit set to '1', accepts this erroneous frame. the UI frame is transmitted over an open MAC connection.

Configuration :

Default : DF_handle_nwk_msg ,
DF_handle_accepted_mac_events ,
DF_handle_rejected_mac_events

Comments : ETS 300 175−4: § 9.3.3.2 Reception of unacknowledged information.
Only applicable when a procedure is specified in the PIXIT to determine UI frame reception.

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		+PR_ca_information_transfer			(1)
2		LMAC ! MAC_DATA_REQ START T_wait	Mac_data_req(TSV_mcei1, TSV_chn, Uis_cu(TSC_nlf0, TSC_lln_cu, TSC_connection_sapi, TSC_p1, Ui_pdu_on_co))		(2)
3		?TIMEOUT T_wait			
4		+LTS_test_iut_reception			(3)
		LTS_test_iut_reception			
5		(TCV_received := TSO_iut_ui_received())			
6	TB01	[TCV_received]		(PASS)	(4)
7		+PO_mac_disconnect			****
8	TB02	[NOT TCV_received]		(FAIL)	(5)
9		+PO_mac_disconnect			****

Detailed Comments : (1) Initial condition: Establishment of a MAC connection.
(2) Tester sends an UI frame with P bit = 1 on the open MAC connection.
(3) Tester checks for IUT reception.
(4) Expected Behaviour: The IUT received the UI frame sent.
(5) The IUT did not receive the UI frame sent.
**** Tester disconnects the MAC connection to terminate in stable state.

Test Case Dynamic Behaviour

Test Case Name : TC_U_BI_002

Group : C_Plane/ClassU/BI/

Purpose : Verify that the IUT, on receipt of an UI frame with NLF bit set to '1', accepts this erroneous frame. The UI frame is transmitted over connectionless MAC services.

Configuration :

Default : DF_handle_nwk_msg , DF_handle_accepted_mac_events , DF_handle_rejected_mac_events

Comments : ETS 300 175−4: § 9.3.3.2 Reception of unacknowledged information. Only applicable when a procedure is specified in the PIXIT to determine UI frame reception.

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		[TSPX_pt]			
2		LMAC ! MAC_DOWN_DATA_REQ START T_wait	Mac_down_data_req(Uis_cu(TSC_nlf1, TSC_lln_cu, TSC_connectionless_sapi, TSC_p0, Ui_pdu_on_cl))		(1)
3		?TIMEOUT T_wait			
4		+LTS_test_iut_reception			(2)
5		[NOT TSPX_pt]			
6		LMAC ! MAC_UP_DATA_REQ START T_wait	Mac_up_data_req(Uis_cu(TSC_nlf1, TSC_lln_cu, TSC_connectionless_sapi, TSC_p0, Ui_pdu_on_cl))		(3)
7		LMAC ? MAC_UP_DATA_CFM	Mac_up_data_cfm		(4)
8		?TIMEOUT T_wait			
9		+LTS_test_iut_reception			(5)
		LTS_test_iut_reception			
10		(TCV_received := TSO_iut_ui_received())			
11	TB01	[TCV_received]		(PASS)	(6)
12		+PO_empty			
13	TB02	[NOT TCV_received]		(FAIL)	(7)
14		+PO_empty			

Detailed Comments : (1) IUT is a PT. Tester sends an UI frame with NLF bit = 1 on the connectionless Downlink.
(2) Tester checks for IUT reception.
(3) IUT is a FT. Tester sends an UI frame with NLF bit = 1 on the connectionless Uplink.
(4) Tester receives a confirmation for its request from the MAC layer.
(5) Tester checks for IUT reception.
(6) Expected Behaviour: The IUT received the UI frame sent.
(7) The IUT did not receive the UI frame sent.

Test Case Dynamic Behaviour

Test Case Name : TC_U_BI_003

Group : C_Plane/ClassU/BI/

Purpose : Verify that the IUT, on receipt of an UI frame with NLF bit set to '1', accepts this erroneous frame. the UI frame is transmitted over an open MAC connection.

Configuration :

Default : DF_handle_nwk_msg ,
DF_handle_accepted_mac_events ,
DF_handle_rejected_mac_events

Comments : ETS 300 175−4: § 9.3.3.2 Reception of unacknowledged information.
Only applicable when a procedure is specified in the PIXIT to determine UI frame reception.

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		+PR_ca_information_transfer			(1)
2		LMAC ! MAC_DATA_REQ START T_wait	Mac_data_req(TSV_mcei1, TSV_chn, Uis_cu(TSC_nlf1, TSC_lln_cu, TSC_connection_sapi, TSC_p0, Ui_pdu_on_co))		(2)
3		?TIMEOUT T_wait			
4		+LTS_test_iut_reception			(3)
		LTS_test_iut_reception			
5		(TCV_received := TSO_iut_ui_received())			
6	TB01	[TCV_received]		(PASS)	(4)
7		+PO_mac_disconnect			****
8	TB02	[NOT TCV_received]		(FAIL)	(5)
9		+PO_mac_disconnect			****

Detailed Comments : (1) Initial condition: Establishment of a MAC connection.
(2) Tester sends an UI frame with NLF bit = 1 on the open MAC connection.
(3) Tester checks for IUT reception.
(4) Expected Behaviour: The IUT received the UI frame sent.
(5) The IUT did not receive the UI frame sent.
**** Tester disconnects the MAC connection to terminate in stable state.

Test Case Dynamic Behaviour

Test Case Name : TC_U_BI_004

Group : C_Plane/ClassU/BI/

Purpose : Verify that the IUT discards a UI frame with improper LLN (not Class U operation). The UI frame is transmitted over connectionless MAC services.

Configuration :

Default : DF_handle_nwk_msg ,
DF_handle_accepted_mac_events ,
DF_handle_rejected_mac_events

Comments : ETS 300 175−4: § 9.3.3.2 Reception of unacknowledged information.
Only applicable when a procedure is specified in the PIXIT to determine UI frame reception.

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		[TSPX_pt]			
2		LMAC ! MAC_DOWN_DATA_REQ START T_wait	Mac_down_data_req(Uis_cu(TSC_nlf0, TSC_lln_ca, TSC_connectionless_sapi, TSC_p0, Ui_pdu_on_cl))		(1)
3		?TIMEOUT T_wait			
4		+LTS_test_iut_reception			(2)
5		[NOT TSPX_pt]			
6		LMAC ! MAC_UP_DATA_REQ START T_wait	Mac_up_data_req(Uis_cu(TSC_nlf0, TSC_lln_ca, TSC_connectionless_sapi, TSC_p0, Ui_pdu_on_cl))		(3)
7		LMAC ? MAC_UP_DATA_CFM	Mac_up_data_cfm		(4)
8		?TIMEOUT T_wait			
9		+LTS_test_iut_reception			(5)
		LTS_test_iut_reception			
10		(TCV_received := TSO_iut_ui_received())			
11	TB01	[TCV_received]		(FAIL)	(6)
12		+PO_empty			
13	TB02	[NOT TCV_received]		(PASS)	(7)
14		+PO_empty			

Detailed Comments : (1) IUT is a PT. Tester sends an UI frame with improper LLN on the connectionless Downlink.
(2) Tester checks for IUT reception.
(3) IUT is a FT. Tester sends an UI frame with improper LLN on the connectionless Uplink.
(4) Tester receives a confirmation for its request from the MAC layer.
(5) Tester checks for IUT reception.
(6) Error: The IUT accepted the UI frame sent.
(7) Expected Behaviour: The IUT discarded the UI frame sent.

Test Case Dynamic Behaviour

Test Case Name : TC_U_BI_005

Group : C_Plane/ClassU/BI/

Purpose : Verify that the IUT discards a UI frame with improper LLN (not Class U operation). The UI frame is transmitted over an open MAC connection.

Configuration :

Default : DF_handle_nwk_msg ,
DF_handle_accepted_mac_events ,
DF_handle_rejected_mac_events

Comments : ETS 300 175−4: § 9.3.3.2 Reception of unacknowledged information.
Only applicable when a procedure is specified in the PIXIT to determine UI frame reception.

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		+PR_ca_information_transfer			(1)
2		LMAC ! MAC_DATA_REQ START T_wait	Mac_data_req(TSV_mcei1, TSV_chn, Uis_cu(TSC_nlf0, TSC_lln_ca, TSC_connection_sapi, TSC_p0, Ui_pdu_on_co))		(2)
3		?TIMEOUT T_wait			
4		+LTS_test_iut_reception			(3)
		LTS_test_iut_reception			
5		(TCV_received := TSO_iut_ui_received())			
6	TB01	[TCV_received]		(FAIL)	(4)
7		+PO_mac_disconnect			****
8	TB02	[NOT TCV_received]		(PASS)	(5)
9		+PO_mac_disconnect			****

Detailed Comments : (1) Initial condition: Establishment of a MAC connection.
(2) Tester sends an UI frame with improper LLN on the open MAC connection.
(3) Tester checks for IUT reception.
(4) Error: The IUT accepted the UI frame sent.
(5) Expected Behaviour: The IUT discarded the IU frame sent.
**** Tester disconnects the MAC connection to terminate in stable state.

Test Case Dynamic Behaviour

Test Case Name : TC_U_BI_006

Group : C_Plane/ClassU/BI/

Purpose : Verify that the IUT discards a UI frame with improper SAPI (not 'connectionless'). The UI frame is transmitted over connectionless MAC services.

Configuration :

Default : DF_handle_nwk_msg ,
DF_handle_accepted_mac_events ,
DF_handle_rejected_mac_events

Comments : ETS 300 175−4: § 9.3.3.2 Reception of unacknowledged information.
Only applicable when a procedure is specified in the PIXIT to determine UI frame reception.

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		[TSPX_pt]			
2		LMAC ! MAC_DOWN_DATA_REQ START T_wait	Mac_down_data_req(Uis_cu(TSC_nlf0, TSC_lln_cu, TSC_connection_sapi, TSC_p0, Ui_pdu_on_cl))		(1)
3		?TIMEOUT T_wait			
4		+LTS_test_iut_reception			(2)
5		[NOT TSPX_pt]			
6		LMAC ! MAC_UP_DATA_REQ START T_wait	Mac_up_data_req(Uis_cu(TSC_nlf0, TSC_lln_cu, TSC_connection_sapi, TSC_p0, Ui_pdu_on_cl))		(3)
7		LMAC ? MAC_UP_DATA_CFM	Mac_up_data_cfm		(4)
8		?TIMEOUT T_wait			
9		+LTS_test_iut_reception			(5)
		LTS_test_iut_reception			
10		(TCV_received := TSO_iut_ui_received())			
11	TB01	[TCV_received]		(FAIL)	(6)
12		+PO_empty			
13	TB02	[NOT TCV_received]		(PASS)	(7)
14		+PO_empty			

Detailed Comments : (1) IUT is a PT. Tester sends an UI frame with improper SAPI on the connectionless Downlink.
(2) Tester checks for IUT reception.
(3) IUT is a FT. Tester sends an UI frame with improper SAPI on the connectionless Uplink.
(4) Tester receives a confirmation for its request from the MAC layer.
(5) Tester checks for IUT reception.
(6) Error: The IUT accepted the UI frame sent.
(7) Expected Behaviour: The IUT discarded the UI frame sent.

Test Case Dynamic Behaviour

Test Case Name : TC_U_BI_007

Group : C_Plane/ClassU/BI/

Purpose : Verify that the IUT discards a UI frame with improper SAPI (not 'connection oriented'). The UI frame is transmitted over an open MAC connection.

Configuration :

Default : DF_handle_nwk_msg ,
DF_handle_accepted_mac_events ,
DF_handle_rejected_mac_events

Comments : ETS 300 175−4: § 9.3.3.2 Reception of unacknowledged information.
Only applicable when a procedure is specified in the PIXIT to determine UI frame reception.

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		+PR_ca_information_transfer			(1)
2		LMAC ! MAC_DATA_REQ START T_wait	Mac_data_req(TSV_mcei1, TSV_chn, Uis_cu(TSC_nlf0, TSC_lln_cu, TSC_connectionless_sapi, TSC_p0, Ui_pdu_on_co))		(2)
3		?TIMEOUT T_wait			
4		+LTS_test_iut_reception			(3)
		LTS_test_iut_reception			
5		(TCV_received := TSO_iut_ui_received())			
6	TB01	[TCV_received]		(FAIL)	(4)
7		+PO_mac_disconnect			****
8	TB02	[NOT TCV_received]		(PASS)	(5)
9		+PO_mac_disconnect			****

Detailed Comments : (1) Initial condition: Establishment of a MAC connection.
(2) Tester sends an UI frame with improper SAPI on the open MAC connection.
(3) Tester checks for IUT reception.
(4) Error: The IUT accepted the UI frame sent.
(5) Expected Behaviour: The IUT discarded the UI frame sent.
**** Tester disconnects the MAC connection to terminate in stable state.

Test Case Dynamic Behaviour

Test Case Name : TC_A_CA_000

Group : C_Plane/ClassA/CA/

Purpose : Initial condition: The IUT has sent the link establishment request and is now in establishment pending state.
Verify that the IUT re−transmits the same link establishment I−Frame request N250 times if, at each request, the timer <DL−07> expires and the expected RR response frame with the NLF bit set to '1' is not received and enters established state, if in the last re−transmission it receives the expected RR with the NLF bit set to '1'.'

Configuration :

Default : DF_handle_nwk_msg ,
DF_handle_accepted_mac_events ,
DF_handle_rejected_mac_events

Comments : ETS 300 175−4: § 9.2.3.1 Establishment of Class A operation
Only for IUT that is able to send the establishment request of the data link.

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		+PR_ca_establishment_pending			(1)
2		(TR := (VR − 1) MOD 2, RC := 0)			
3		REPEAT LTS_send UNTIL [RC=TSPX_n250]			
		LTS_send			
4		START TDL_07_max			
5		LMAC ? MAC_DATA_IND	Mac_data_ind(TSV_mcei1, TSV_chn, Ir_ca_no_pdu(TSC_nlf1, VS,TR))		(2)
6		(RC:=RC+1)			
7		[RC=TSPX_n250]			(3)
8	TB01	LMAC ! MAC_DATA_REQ	Mac_data_req(TSV_mcei1, TSV_chn, Rrs_ca(TSC_nlf1,VR))	(PASS)	(4)
9		+STP_ca_check_info_transfer			(5)
10		+PO_mac_disconnect			****
11		[RC<TSPX_n250]			(6)
12	TB02	?TIMEOUT TDL_07_max		(FAIL)	(7)
13		+PO_mac_disconnect			****

Detailed Comments : (1) Initial condition.
(2) The IUT transmits the link establishment request.
(3) Expected behaviour: Re−transmission attempts are in the greather value.
(4) Tester acknowledges link establishment request by sending RR response frame with NLF = 1.
(5) Tester checks if the IUT is now in information transfer phase.
(6) Re−transmission attempts are not in the greather value.
(7) No response received from the IUT.
**** Tester disconnects the MAC connection to terminate in stable state.

Test Case Dynamic Behaviour

Test Case Name : TC_A_CA_001

Group : C_Plane/ClassA/CA/

Purpose : Initial condition: The IUT has sent the link establishment request and is now in establishment pending state.
Verify that the IUT, on receipt of a valid RR frame response to the link establishment request it has sent, enters established state.

Configuration :

Default : DF_handle_nwk_msg ,
DF_handle_accepted_mac_events ,
DF_handle_rejected_mac_events

Comments : ETS 300 175−4: § 9.2.3.1 Establishment of Class A operation
Only for IUT that is able to send the establishment request of the data link.

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		+PR_ca_establishment_pending			(1)
2	TB01	LMAC ! MAC_DATA_REQ	Mac_data_req(TSV_mcei1, TSV_chn, Rrs_ca(TSC_nlf1,VR))	(PASS)	(2)
3		+STP_ca_check_info_transfer			(3)
4		+PO_mac_disconnect			****

Detailed Comments : (1) Initial condition.
(2) Tester acknowledges link establishment request by sending RR response frame with NLF = 1.
(3) Expected behaviour: Tester checks if the IUT is now in information transfer phase.
**** Tester disconnects the MAC connection to terminate in stable state.

Test Case Dynamic Behaviour

Test Case Name : TC_A_CA_002

Group : C_Plane/ClassA/CA/

Purpose : Initial condition: The IUT has sent the link establishment request to re−establish the link and is now in re−establishment pending state.
Verify that the IUT re−transmits the same link establishment I−Frame request N250 times if, at each request, the timer <DL−07> expires and the expected RR response frame with the NLF bit set to '1' is not received and enters established state, if in the last re−transmission it receives the expected RR with the NLF bit set to '1'.

Configuration :

Default : DF_handle_nwk_msg ,
DF_handle_accepted_mac_events ,
DF_handle_rejected_mac_events

Comments : ETS 300 175−4: § 9.2.3.8 Re−establishment of Class A operation
Only for IUT that is able to send the establishment request of the data link.

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		+PR_ca_re_establishment_pending			(1)
2		(TR := (VR − 1) MOD 2, RC := 0)			
3		REPEAT LTS_send UNTIL [RC=TSPX_n250]			
		LTS_send			
4		START TDL_07_max			
5		LMAC ? MAC_DATA_IND	Mac_data_ind(TSV_mcei1, TSV_chn, Ir_ca_no_pdu(TSC_nlf1, VS,TR))		(2)
6		(RC:=RC+1)			
7		[RC=TSPX_n250]			(3)
8	TB01	LMAC ! MAC_DATA_REQ	Mac_data_req(TSV_mcei1, TSV_chn, Rrs_ca(TSC_nlf1,VR))	(PASS)	(4)
9		+STP_ca_check_info_transfer			(5)
10		+PO_mac_disconnect			****
11		[RC<TSPX_n250]			(6)
12	TB02	?TIMEOUT TDL_07_max		(FAIL)	(7)
13		+PO_mac_disconnect			****

Detailed Comments : (1) Initial condition.
(2) The IUT transmits the link establishment request.
(3) Expected behaviour: Re−transmission attempts are in the greather value.
(4) Tester acknowledges link establishment request by sending RR response frame with NLF = 1.
(5) Tester checks if the IUT is now in information transfer phase.
(6) Re−transmission attempts are not in the greather value.
(7) No response received from the IUT.
**** Tester disconnects the MAC connection to terminate in stable state.

Test Case Dynamic Behaviour

Test Case Name : TC_A_CA_003

Group : C_Plane/ClassA/CA/

Purpose : Initial condition: The IUT has sent the link establishment request to re−establish the link and is now in re−establishment pending state.
Verify that the IUT, on receipt of a valid RR frame response to the link re−establishment request it has sent, enters established state.

Configuration :

Default : DF_handle_nwk_msg ,
DF_handle_accepted_mac_events ,
DF_handle_rejected_mac_events

Comments : ETS 300 175−4: § 9.2.3.8 Re−establishment of Class A operation
Only for IUT that is able to send the establishment request of the data link.

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		+PR_ca_re_establishment_pending			(1)
2	TB01	LMAC ! MAC_DATA_REQ	Mac_data_req(TSV_mcei1, TSV_chn, Rrs_ca(TSC_nlf1,VR))	(PASS)	(2)
3		+STP_ca_check_info_transfer			(3)
4		+PO_mac_disconnect			****

Detailed Comments : (1) Initial condition.
(2) Tester acknowledges link establishment request by sending RR response frame with NLF = 1.
(3) Expected behaviour: Tester checks if the IUT is now in information transfer phase.
**** Tester disconnects the MAC connection to terminate in stable state.

Test Case Dynamic Behaviour

Test Case Name : TC_A_CA_005

Group : C_Plane/ClassA/CA/

Purpose : Initial condition: The IUT is in Class A established state.
Verify that the IUT acknowledges rightly a valid received I−Frame within timer <DL−04>.

Configuration :

Default : DF_handle_nwk_msg ,
DF_handle_accepted_mac_events ,
DF_handle_rejected_mac_events

Comments : ETS 300 175−4: § 9.2.3.4 Reception of Class A I−Frame

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		+PR_ca_information_transfer			(1)
2		LMAC ! MAC_DATA_REQ START TDL_04_max	Mac_data_req(TSV_mcei1, TSV_chn, Is_ca(TSC_nlf0,VR,VS, L3_unknow))		(2)
3		(VS := (VS +1) MOD 2)			
4	TB01	LMAC ?MAC_DATA_IND CANCEL TDL_04_max	Mac_data_ind(TSV_mcei1, TSV_chn, Rrr_ca(TSC_nlf0,VS))	(PASS)	(3)
5		(VA := VS)			
6		+STP_ca_check_info_transfer			(5)
7		+PO_mac_disconnect			****
8	TB02	LMAC ?MAC_DATA_IND CANCEL TDL_04_max	Mac_data_ind(TSV_mcei1, TSV_chn, Ir_ca_any_pdu(TSC_nlf0, VS,VR))	(PASS)	(4)
9		(VR := (VR + 1) MOD 2, VA := VS)			
10		+STP_ca_check_info_transfer			(5)
11		+PO_mac_disconnect			****
12	TB03	?TIMEOUT TDL_04_max		(FAIL)	(6)
13		+PO_mac_disconnect			****

Detailed Comments : (1) Initial condition.
(2) Tester transmits an I−Frame with NLF = 0.
(3) Expected behaviour: The IUT acknowledges the I−Frame by sending RR frame with NLF = 0.
(4) Expected behaviour: The IUT acknowledges the I−Frame by sending I−Frame with NLF = 0.
(5) Tester checks if the IUT is in information transfer phase.
(6) No response received from the IUT.
**** Tester disconnects the MAC connection to terminate in stable state.

Test Case Dynamic Behaviour

Test Case Name : TC_A_CA_006

Group : C_Plane/ClassA/CA/

Purpose : Initial condition: The IUT is in Class A established state.
Verify that the IUT re−transmits N250 times the same I−Frame if, at each transmission, the timer <DL−04> expires and the expected acknowledgement is not received and remains in established state, if in the last re−transmission it receives the expected acknowledgement.

Configuration :

Default : DF_handle_nwk_msg ,
DF_handle_accepted_mac_events ,
DF_handle_rejected_mac_events

Comments : ETS 300 175−4: § 9.2.3.6 Waiting for acknowledgement

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		+PR_ca_unacknowledged_i_frame			(1)
2		(TR := (VR − 1) MOD 2, RC := 0)			
3		REPEAT LTS_send UNTIL [RC=TSPX_n250]			
		LTS_send			
4		START TDL_04_max			
5		LMAC ? MAC_DATA_IND	Mac_data_ind(TSV_mcei1, TSV_chn, Ir_ca_any_pdu(TSC_nlf0, VS,TR))		(2)
6		(RC:=RC+1)			
7		[RC=TSPX_n250]			(3)
8	TB01	LMAC ! MAC_DATA_REQ	Mac_data_req(TSV_mcei1, TSV_chn, Rrs_ca(TSC_nlf0,VR))	(PASS)	(4)
9		+STP_ca_check_info_transfer			(5)
10		+PO_mac_disconnect			****
11		[RC<TSPX_n250]			(6)
12	TB02	?TIMEOUT TDL_04_max		(FAIL)	(7)
13		+PO_mac_disconnect			****

Detailed Comments : (1) Initial condition.
(2) The IUT transmits an I−Frame with NLF = 0.
(3) Expected behaviour: Re−transmission attempts are in the greather value.
(4) Tester acknowledges the I−Frame by sending RR response frame with NLF = 0.
(5) Tester checks if the IUT is in information transfer phase.
(6) Re−transmission attempts are not in the greather value.
(7) No response received from the IUT.
**** Tester disconnects the MAC connection to terminate in stable state.

Test Case Dynamic Behaviour

Test Case Name : TC_A_CA_007

Group : C_Plane/ClassA/CA/

Purpose : Initial condition: The IUT is in ULI state.
Verify that the IUT, on receipt of the Class B link establishment I−Frame request, refuses this request by sending RR response frame with the reserved LLN value "Class A operation" and NLF bit set to "1", and enters into the Class A established state.

Configuration :

Default : DF_handle_nwk_msg ,
DF_handle_accepted_mac_events ,
DF_handle_rejected_mac_events

Comments : ETS 300 175−4: § 9.2.2.1 Class A operation − 9.2.2.2 Class B operation
For IUT that implement only Class A operation (no Class B).

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		+PR_basic_mac_connect			(1)
2		(VR := 0, VS := 0, VA := 0, RC := 0)			
3		[TSPX_pt]			
4		LMAC ! MAC_DATA_REQ START TDL_07_max	Mac_data_req(TSV_mcei1, TSV_chn, Is_cb(TSC_nlf1,VR,VS, TSC_lln_unassigned))		(2)
5		+LTS_rr_receive			
6		[NOT TSPX_pt]			
7		LMAC ! MAC_DATA_REQ START TDL_07_max	Mac_data_req(TSV_mcei1, TSV_chn, Is_cb(TSC_nlf1,VR,VS, 2))		(2)
8		+LTS_rr_receive			
		LTS_rr_receive			
9		(VS := (VS +1) MOD 2)			
10	TB01	LMAC ?MAC_DATA_IND CANCEL TDL_07_max	Mac_data_ind(TSV_mcei1, TSV_chn, Rrr_ca(TSC_nlf1,VS))	(PASS)	(3)
11		(VA := VS)			
12		+STP_ca_check_info_transfer			(4)
13		+PO_mac_disconnect			****
14	TB02	?TIMEOUT TDL_07_max		(FAIL)	(5)
15		+PO_mac_disconnect			****

Detailed Comments : (1) Tester establishes a basic MAC connection with the IUT.
(2) Tester transmits an I−Frame class B with NLF = 1.
(3) Expected behaviour: The IUT acknowledges the I−Frame received as a class A link establishment request.
(4) Tester checks if the IUT is in information transfer phase.
(5) No response received from the IUT.
**** Tester disconnects the MAC connection to terminate in stable state.

Test Case Dynamic Behaviour

Test Case Name : TC_A_CA_008

Group : C_Plane/ClassA/CA/

Purpose : Initial condition: The IUT is in ULI state.
Verify that the IUT, on receipt of a valid link establishment I−Frame request, responds with a RR response frame with the NLF bit set to "1" and enters into the Class A established state.

Configuration :

Default : DF_handle_nwk_msg ,
DF_handle_accepted_mac_events ,
DF_handle_rejected_mac_events

Comments : ETS 300 175−4: § 9.2.3.1 Establishment of Class A operation

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		+PR_basic_mac_connect			(1)
2		(VR := 0, VS := 0, VA := 0, RC := 0)			
3		LMAC ! MAC_DATA_REQ START TDL_07_max	Mac_data_req(TSV_mcei1, TSV_chn, Is_ca_no_pdu(TSC_nlf1, VR,VS))		(2)
4		(VS := (VS +1) MOD 2)			
5	TB01	LMAC ?MAC_DATA_IND CANCEL TDL_07_max	Mac_data_ind(TSV_mcei1, TSV_chn, Rrr_ca(TSC_nlf1,VS))	(PASS)	(3)
6		(VA := VS)			
7		+STP_ca_check_info_transfer			(4)
8		+PO_mac_disconnect			****
9	TB02	?TIMEOUT TDL_07_max		(FAIL)	(5)
10		+PO_mac_disconnect			****

Detailed Comments : (1) Tester brings the IUT in Class A information transfer phase.
(2) Tester transmits the link establishment request.
(3) Expected behaviour: The IUT acknowledges the link establishment request.
(4) Tester checks if the IUT is in information transfer phase.
(5) No response received from the IUT.
**** Tester disconnects the MAC connection to terminate in stable state.

Test Case Dynamic Behaviour

Test Case Name : TC_A_BV_000

Group : C_Plane/ClassA/BV/

Purpose : Initial condition: The IUT has sent the link establishment request and is now in establishment pending state (timer <DL−07> is active).
Verify that the IUT accepts an I−Frame indicating Class A link establishment, responds with a RR response frame with the NLF bit set and establishes class A operation. (Collision of establishment requests)

Configuration :

Default : DF_handle_nwk_msg ,
DF_handle_accepted_mac_events ,
DF_handle_rejected_mac_events

Comments : ETS 300 175−4: § 9.2.3.1 Establishment of Class A operation
Only for IUT that is able to send and to receive the establishment request of the data link.

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		+PR_ca_establishment_pending			(1)
2		(VR := 0, VS := 0, VA := 0, RC := 0)			
3		LMAC ! MAC_DATA_REQ START TDL_07_max	Mac_data_req(TSV_mcei1, TSV_chn, Is_ca_no_pdu(TSC_nlf1, VR,VS))		(2)
4		(VS := (VS + 1) MOD 2)			
5	TB01	LMAC ? MAC_DATA_IND CANCEL TDL_07_max	Mac_data_ind(TSV_mcei1, TSV_chn, Rrr_ca(TSC_nlf1,VS))	(PASS)	(3)
6		(VA := VS)			
7		+STP_ca_check_info_transfer			(4)
8		+PO_mac_disconnect			****
9	TB02	?TIMEOUT TDL_07_max		(FAIL)	(5)
10		+PO_mac_disconnect			****

Detailed Comments : (1) Initial condition.
(2) Tester transmits the link establishment request.
(3) Expected behaviour: The IUT acknowledges the link establishment request.
(4) Tester checks if the IUT is in information transfer phase.
(5) No response received from the IUT.
**** Tester disconnects the MAC connection to terminate in stable state.

Test Case Dynamic Behaviour

Test Case Name : TC_A_BV_002

Group : C_Plane/ClassA/BV/

Purpose : Initial condition: The IUT is in Class A established state and has sent an I−Frame.
Verify that the IUT accepts as an acknowledgement for a previously transmitted I−Frame, a RR response frame with correct N(R) value.

Configuration :

Default : DF_handle_nwk_msg ,
DF_handle_accepted_mac_events ,
DF_handle_rejected_mac_events

Comments : ETS 300 175−4: § 9.2.3.5 Receiving acknowledgements

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		+PR_ca_unacknowledged_i_frame			(1)
2	TB01	LMAC ! MAC_DATA_REQ	Mac_data_req(TSV_mcei1, TSV_chn, Rrs_ca(TSC_nlf0,VR))	(PASS)	(2)
3		+STP_ca_check_info_transfer			(3)
4		+PO_mac_disconnect			****

Detailed Comments : (1) Initial condition.
(2) Tester acknowledges with RR frame NLF = 0 the last I−Frame received.
(3) Expected behaviour: Tester checks if the IUT is in information transfer phase.
**** Tester disconnects the MAC connection to terminate in stable state.

Test Case Dynamic Behaviour

Test Case Name : TC_A_BV_003

Group : C_Plane/ClassA/BV/

Purpose : Initial condition: The IUT is in Class A established state and has sent an I−Frame.
Verify that the IUT accepts as an acknowledgement for a previously transmitted I−Frame, an I−Frame command with correct N(S) and N(R) values.

Configuration :

Default : DF_handle_nwk_msg ,
DF_handle_accepted_mac_events ,
DF_handle_rejected_mac_events

Comments : ETS 300 175−4: § 9.2.3.5 Receiving acknowledgements

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		+PR_ca_unacknowledged_i_frame			(1)
2		LMAC ! MAC_DATA_REQ START TDL_04_max	Mac_data_req(TSV_mcei1, TSV_chn, Is_ca(TSC_nlf0,VR,VS, L3_unknow))		(2)
3		(VS := (VS + 1) MOD 2)			
4	TB01	LMAC ?MAC_DATA_IND CANCEL TDL_04_max	Mac_data_ind(TSV_mcei1, TSV_chn, Rrr_ca(TSC_nlf0,VS))	(PASS)	(3)
5		(VA := VS)			
6		+STP_ca_check_info_transfer			(6)
7		+PO_mac_disconnect			****
8	TB02	LMAC ?MAC_DATA_IND CANCEL TDL_04_max	Mac_data_ind(TSV_mcei1, TSV_chn, Ir_ca_any_pdu(TSC_nlf0, VS,VR))	(PASS)	(4)
9		(VR := (VR + 1) MOD 2, VA := VS)			
10		LMAC !MAC_DATA_REQ	Mac_data_req(TSV_mcei1, TSV_chn, Rrs_ca(TSC_nlf0,VR))		(5)
11		+STP_ca_check_info_transfer			(6)
12		+PO_mac_disconnect			****
13	TB03	?TIMEOUT TDL_04_max		(FAIL)	(7)
14		+PO_mac_disconnect			****

Detailed Comments : (1) Initial condition.
(2) Tester sends the an I−Frame with L3_unknow network message.
(3) Expected behaviour: The IUT acknowledges with RR frame NLF = 0.
(4) Expected behaviour: The IUT acknowledges with an I−Frame NLF = 0.
(5) Tester acknowledges with RR frame NLF = 0 the last I−Frame received.
(6) Tester checks if the IUT is in information transfer phase.
(7) No RR or I−Frame acknowledgement.
**** Tester disconnects the MAC connection to terminate in stable state.

Test Case Dynamic Behaviour

Test Case Name : TC_A_BV_004

Group : C_Plane/ClassA/BV/

Purpose : Initial condition: The IUT is in Class A established state.
Verify that the IUT, on receipt of an I−Frame indicating re−establishment of Class A operation, responds by using a RR response frame with the NLF bit set and remains in Class A established state.

Configuration :

Default : DF_handle_nwk_msg ,
DF_handle_accepted_mac_events ,
DF_handle_rejected_mac_events

Comments : ETS 300 175−4: § 9.2.3.8 Re−establishment of Class A operation

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		+PR_ca_information_transfer			(1)
2		(VR := 0, VS := 0, VA := 0, RC := 0)			
3		LMAC ! MAC_DATA_REQ START TDL_07_max	Mac_data_req(TSV_mcei1, TSV_chn, Is_ca_no_pdu(TSC_nlf1, VR,VS))		(2)
4		(VS := (VS +1) MOD 2)			
5	TB01	LMAC ?MAC_DATA_IND CANCEL TDL_07_max	Mac_data_ind(TSV_mcei1, TSV_chn, Rrr_ca(TSC_nlf1,VS))	(PASS)	(3)
6		(VA := VS)			
7		+STP_ca_check_info_transfer			(4)
8		+PO_mac_disconnect			****
9	TB02	?TIMEOUT TDL_07_max		(FAIL)	(5)
10		+PO_mac_disconnect			****

Detailed Comments : (1) Initial condition.
(2) Tester transmits the link establishment request.
(3) Expected behaviour: The IUT acknowledges the link establishment request.
(4) Tester checks if the IUT is in information transfer phase.
(5) No response received from the IUT.
**** Tester disconnects the MAC connection to terminate in stable state.

Test Case Dynamic Behaviour

Test Case Name : TC_A_BV_005

Group : C_Plane/ClassA/BV/

Purpose : Initial condition: The IUT is in timer recovery phase.
Verify that the IUT accepts as an acknowledgement for a previously transmitted I−Frame, a RR response frame with correct N(R) value and leaves the timer recovery phase.

Configuration :

Default : DF_handle_nwk_msg ,
DF_handle_accepted_mac_events ,
DF_handle_rejected_mac_events

Comments : ETS 300 175−4: § 9.2.3.6 Waiting for acknowledgement

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		+PR_ca_timer_recovery			(1)
2	TB01	LMAC ! MAC_DATA_REQ	Mac_data_req(TSV_mcei1, TSV_chn, Rrs_ca(TSC_nlf0,VR))	(PASS)	(2)
3		+STP_ca_check_info_transfer			(3)
4		+PO_mac_disconnect			****

Detailed Comments : (1) Initial condition.
(2) Tester acknowledges with RR frame NLF = 0 the last I−Frame received.
(3) Expected behaviour: Tester checks if the IUT is now in information transfer phase.
**** Tester disconnects the MAC connection to terminate in stable state.

Test Case Dynamic Behaviour

Test Case Name : TC_A_BV_006

Group : C_Plane/ClassA/BV/

Purpose : Initial condition: The IUT is in timer recovery phase.
Verify that the IUT accepts as an acknowledgement for a previously transmitted I−Frame, an I−Frame with correct N(S) and N(R) values and leaves the timer recovery phase.

Configuration :

Default : DF_handle_nwk_msg ,
DF_handle_accepted_mac_events ,
DF_handle_rejected_mac_events

Comments : ETS 300 175−4: § 9.2.3.6 Waiting for acknowledgement

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		+PR_ca_timer_recovery			(1)
2		LMAC ! MAC_DATA_REQ START TDL_04_max	Mac_data_req(TSV_mcei1, TSV_chn, Is_ca(TSC_nlf0,VR,VS, L3_unknow))		(2)
3		(VS := (VS + 1) MOD 2)			
4	TB01	LMAC ?MAC_DATA_IND CANCEL TDL_04_max	Mac_data_ind(TSV_mcei1, TSV_chn, Rrr_ca(TSC_nlf0,VS))	(PASS)	(3)
5		(VA := VS)			
6		+STP_ca_check_info_transfer			(6)
7		+PO_mac_disconnect			****
8	TB02	LMAC ?MAC_DATA_IND CANCEL TDL_04_max	Mac_data_ind(TSV_mcei1, TSV_chn, Ir_ca_any_pdu(TSC_nlf0, VS,VR))	(PASS)	(4)
9		(VR := (VR + 1) MOD 2, VA := VS)			
10		LMAC !MAC_DATA_REQ	Mac_data_req(TSV_mcei1, TSV_chn, Rrs_ca(TSC_nlf0,VR))		(5)
11		+STP_ca_check_info_transfer			(6)
12		+PO_mac_disconnect			****
13	TB03	?TIMEOUT TDL_04_max		(FAIL)	(7)
14		+PO_mac_disconnect			****

Detailed Comments : (1) Initial condition.
(2) Tester sends the an I−Frame with L3_unknow network message.
(3) Expected behaviour: The IUT acknowledges with RR frame NLF = 0.
(4) Expected behaviour: The IUT acknowledges with an I−Frame NLF = 0.
(5) Tester acknowledges with RR frame NLF = 0 the last I−Frame received.
(6) Tester checks if the IUT is in information transfer phase.
(7) No RR or I−Frame acknowledgement.
**** Tester disconnects the MAC connection to terminate in stable state.

Test Case Dynamic Behaviour

Test Case Name : TC_A_BV_007

Group : C_Plane/ClassA/BV/

Purpose : Initial condition: The IUT is in established state.
Verify that the IUT manages rightly the PT intracell procedure for connection handover.

Configuration :

Default : DF_handle_nwk_msg ,
DF_handle_accepted_mac_events ,
DF_handle_rejected_mac_events

Comments : ETS 300 175−4: § 9.2.7.3.
Test applies for voluntary parallel connection handover on connection in clear mode (no encryption active).

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		+PR_ca_information_transfer			(1)
2		[TSPX_pt]			
3		+STP_invoke_pt_connection_handover			(2)
4		LMAC ? MAC_DIS_IND	Mac_dis_ind(TSV_mcei1)		(3)
5		(TSV_mcei1 := TSV_mcei2)			
6		+STP_ca_check_info_transfer			(4)
7		+PO_mac_disconnect			****
8		[NOT TSPX_pt]			
9		(TSV_mcei2 := 2)			
10		+STP_ft_connection_handover			(5)
11		LMAC ! MAC_DIS_REQ	Mac_dis_req(TSV_mcei1)		(6)
12		(TSV_mcei1 := TSV_mcei2)			
13		+STP_ca_check_info_transfer			(7)
14		+PO_mac_disconnect			****

Detailed Comments : (1) Initial condition.
(2) The IUT creates a new connection for connection handover.
(3) The IUT disconects the old connection.
(4) The IUTchecks if the new connection is in Class A information transfer state.
(5) Tester creates a new connection for connection handover.
(6) Tester disconects the old connection.
(7) Tester checks if the new connection is in Class A information transfer state.
**** Tester disconnects the MAC connection to terminate in stable state.

Test Case Dynamic Behaviour

Test Case Name : TC_A_BV_008
Group : C_Plane/ClassA/BV/
Purpose : Initial condition: The IUT is in established state.
Verify that the IUT manages rightly the PT intercell procedure for connection handover.
Configuration :
Default : DF_handle_nwk_msg ,
DF_handle_accepted_mac_events ,
DF_handle_rejected_mac_events
Comments : ETS 300 175−4: § 9.2.7.3.
Test applies for volontary parallelle connection handover on connection in clear mode (no encryption active).

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		+PR_ca_information_transfer			(1)
2		[TSPX_pt]			
3		+STP_invoke_pt_intercell_connection_hdr			(2)
4		LMAC ? MAC_DIS_IND	Mac_dis_ind(TSV_mcei1)		(3)
5		(TSV_mcei1 := TSV_mcei2)			
6		+STP_ca_check_info_transfer			(4)
7		+PO_mac_disconnect			****
8		[NOT TSPX_pt]			
9		(TSV_mcei2 := 2)			
10		+STP_ft_intercell_connection_handover			(5)
11		LMAC ! MAC_DIS_REQ	Mac_dis_req(TSV_mcei1)		(6)
12		(TSV_mcei1 := TSV_mcei2)			
13		+STP_ca_check_info_transfer			(7)
14		+PO_mac_disconnect			****

Detailed Comments : (1) Initial condition.
(2) The IUT creates a new connection for connection handover.
(3) The IUT disconects the old connection.
(4) The IUTchecks if the new connection is in Class A information transfer state.
(5) Tester creates a new connection for connection handover.
(6) Tester disconects the old connection.
(7) Tester checks if the new connection is in Class A information transfer state.
**** Tester disconnects the MAC connection to terminate in stable state.

Test Case Dynamic Behaviour

Test Case Name : TC_A_BI_000

Group : C_Plane/ClassA/BI/

Purpose : Initial condition: The IUT has sent the link establishment request and is now in establishment pending state (timer <DL−07> is active).
Verify that the IUT, on receipt of a RR Class B response frame with NLF bit set to '1', discards the received frame and, on expiration of the timer <DL−07>, re−transmits the establishment request.

Configuration :

Default : DF_handle_nwk_msg ,
DF_handle_accepted_mac_events ,
DF_handle_rejected_mac_events

Comments : ETS 300 175−4: § 9.2.3.1 Establishment of Class A operation
Only for IUT that is able to send the establishment request of the data link.

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		+PR_ca_establishment_pending			(1)
2		START TDL_07_min, START TDL_07_max			
3		(TR := (VR − 1) MOD 2)			
4		LMAC ! MAC_DATA_REQ	Mac_data_req(TSV_mcei1, TSV_chn, Rrs_cb(TSC_nlf1,VR))		(2)
5		?TIMEOUT TDL_07_min			(3)
6	TB01	LMAC ?MAC_DATA_IND CANCEL TDL_07_max	Mac_data_ind(TSV_mcei1, TSV_chn, Ir_ca_anyornone_pdu (TSC_nlf1,VS,TR))	(PASS)	(4)
7		LMAC ! MAC_DATA_REQ	Mac_data_req(TSV_mcei1, TSV_chn, Rrs_ca(TSC_nlf1,VR))		(5)
8		+STP_ca_check_info_transfer			(6)
9		+PO_mac_disconnect			****
10	TB02	?TIMEOUT TDL_07_max		(FAIL)	(7)
11		+PO_mac_disconnect			****

Detailed Comments : (1) Initial condition.
(2) Tester send a RR Class B frame with NLF bit set to 1.
(3) To ensure no frame transmission before TDL_07 time (RR Class B discarded).
(4) Expected behaviour: The IUT re−transmits the link establishment request.
(5) Tester acknoledges the last re−transmission of the establishment request.
(6) Tester checks if the IUT is in information transfer phase.
(7) No response received from the IUT.
**** Tester disconnects the MAC connection to terminate in stable state.

Test Case Dynamic Behaviour

Test Case Name : TC_A_BI_001

Group : C_Plane/ClassA/BI/

Purpose : Initial condition: The IUT has sent the link establishment request and is now in establishment pending state (timer <DL−07> is active).
Verify that the IUT, on receipt of a RR response frame with NLF bit set to '1' and invalid N(R), discards the received RR response frame and, on expiration of the timer <DL−07>, re−transmits the establishment request.

Configuration :

Default : DF_handle_nwk_msg ,
DF_handle_accepted_mac_events ,
DF_handle_rejected_mac_events

Comments : ETS 300 175−4: § 9.2.3.1 Establishment of Class A operation
Only for IUT that is able to send the establishment request of the data link.

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		+PR_ca_establishment_pending			(1)
2		START TDL_07_min, START TDL_07_max			
3		(TR := (VR − 1) MOD 2)			
4		LMAC ! MAC_DATA_REQ	Mac_data_req(TSV_mcei1, TSV_chn, Rrs_ca(TSC_nlf1,TR))		(2)
5		?TIMEOUT TDL_07_min			(3)
6	TB01	LMAC ?MAC_DATA_IND CANCEL TDL_07_max	Mac_data_ind(TSV_mcei1, TSV_chn, Ir_ca_anyornone_pdu (TSC_nlf1,VS,TR))	(PASS)	(4)
7		LMAC ! MAC_DATA_REQ	Mac_data_req(TSV_mcei1, TSV_chn, Rrs_ca(TSC_nlf1,VR))		(5)
8		+STP_ca_check_info_transfer			(6)
9		+PO_mac_disconnect			****
10	TB02	?TIMEOUT TDL_07_max		(FAIL)	(7)
11		+PO_mac_disconnect			****

Detailed Comments : (1) Initial condition.
(2) Tester send a RR frame with NLF bit set to 1 and invalid N(R).
(3) To ensure no frame transmission before TDL_07 time (RR discarded).
(4) Expected behviour: The IUT re−transmits the link establishment request.
(5) Tester acknoledges the last re−transmission of the establishment request.
(6) Tester checks if the IUT is in information transfer phase.
(7) No response received from the IUT.
**** Tester disconnects the MAC connection to terminate in stable state.

Test Case Dynamic Behaviour

Test Case Name : TC_A_BI_002

Group : C_Plane/ClassA/BI/

Purpose : Initial condition: The IUT has sent the establishment request to re−establish the link and is waiting for the acknowledgement of the request.
Verify that the IUT, on receipt of a RR Class B response frame with NLF bit set to '1', discards the received frame and, on expiration of the timer <DL−07>, re−transmits the re−establishment request.

Configuration :

Default : DF_handle_nwk_msg ,
DF_handle_accepted_mac_events ,
DF_handle_rejected_mac_events

Comments : ETS 300 175−4: § 9.2.3.8 Re−establishment of Class A operation
Only for IUT that is able to send the establishment request of the data link.

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		+PR_ca_re_establishment_pending			(1)
2		START TDL_07_min, START TDL_07_max			
3		(TR := (VR − 1) MOD 2)			
4		LMAC ! MAC_DATA_REQ	Mac_data_req(TSV_mcei1, TSV_chn, Rrs_cb(TSC_nlf1,VR))		(2)
5		?TIMEOUT TDL_07_min			(3)
6	TB01	LMAC ?MAC_DATA_IND CANCEL TDL_07_max	Mac_data_ind(TSV_mcei1, TSV_chn, Ir_ca_anyornone_pdu (TSC_nlf1,VS,TR))	(PASS)	(4)
7		LMAC ! MAC_DATA_REQ	Mac_data_req(TSV_mcei1, TSV_chn, Rrs_ca(TSC_nlf1,VR))		(5)
8		+STP_ca_check_info_transfer			(6)
9		+PO_mac_disconnect			****
10	TB02	?TIMEOUT TDL_07_max		(FAIL)	(7)
11		+PO_mac_disconnect			****

Detailed Comments : (1) Initial condition.
(2) Tester send a RR Class B frame with NLF bit set to 1.
(3) To ensure no frame transmission before TDL_07 time (RR Class B discarded).
(4) Expected behaviour: The IUT re−transmits the link establishment request.
(5) Tester acknoledges the last re−transmission of the establishment request.
(6) Tester checks if the IUT is in information transfer phase.
(7) No response received from the IUT.
**** Tester disconnects the MAC connection to terminate in stable state.

Test Case Dynamic Behaviour

Test Case Name : TC_A_BI_003

Group : C_Plane/ClassA/BI/

Purpose : Initial condition: The IUT has sent the establishment request to re−establish the link and is waiting for the acknowledgement of the request.
Verify that the IUT, on receipt of a RR response frame with NLF bit set to '1' and invalid N(R), discards the received RR response frame and, on expiration of the timer <DL−07>, re−transmits the re−establishment request.

Configuration :

Default : DF_handle_nwk_msg ,
DF_handle_accepted_mac_events ,
DF_handle_rejected_mac_events

Comments : ETS 300 175−4: § 9.2.3.8 Re−establishment of Class A operation
Only for IUT that is able to send the establishment request of the data link.

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		+PR_ca_re_establishment_pending			(1)
2		START TDL_07_min, START TDL_07_max			
3		(TR := (VR − 1) MOD 2)			
4		LMAC ! MAC_DATA_REQ	Mac_data_req(TSV_mcei1, TSV_chn, Rrs_ca(TSC_nlf1,TR))		(2)
5		?TIMEOUT TDL_07_min			(3)
6	TB01	LMAC ?MAC_DATA_IND CANCEL TDL_07_max	Mac_data_ind(TSV_mcei1, TSV_chn, Ir_ca_anyornone_pdu (TSC_nlf1,VS,TR))	(PASS)	(4)
7		LMAC ! MAC_DATA_REQ	Mac_data_req(TSV_mcei1, TSV_chn, Rrs_ca(TSC_nlf1,VR))		(5)
8		+STP_ca_check_info_transfer			(6)
9		+PO_mac_disconnect			****
10	TB02	?TIMEOUT TDL_07_max		(FAIL)	(7)
11		+PO_mac_disconnect			****

Detailed Comments : (1) Initial condition.
(2) Tester send a RR frame with NLF bit set to 1 and invalid N(R).
(3) To ensure no frame transmission before TDL_07 time (RR discarded).
(4) Expected behviour: The IUT re−transmits the link establishment request.
(5) Tester acknoledges the last re−transmission of the establishment request.
(6) Tester checks if the IUT is in information transfer phase.
(7) No response received from the IUT.
**** Tester disconnects the MAC connection to terminate in stable state.

Test Case Dynamic Behaviour

Test Case Name : TC_A_BI_004

Group : C_Plane/ClassA/BI/

Purpose : Initial condition: The IUT, in Class A established state, has sent an I−Frame and is waiting for the adequate acknowledgement.
Verify that the IUT, on receipt of a RR Class B response frame with NLF bit set to '0', discards the received frame and, on expiration of the timer <DL−04>, re−transmits the unacknowledged I−Frame.

Configuration :

Default : DF_handle_nwk_msg ,
DF_handle_accepted_mac_events ,
DF_handle_rejected_mac_events

Comments : ETS 300 175−4: § 9.2.3.6 Waiting for acknowledgement

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		+PR_ca_unacknowledged_i_frame			(1)
2		(TR := (VR − 1) MOD 2)			
3		LMAC ! MAC_DATA_REQ START TDL_04_max	Mac_data_req(TSV_mcei1, TSV_chn, Rrs_cb(TSC_nlf0,VR))		(2)
4	TB01	LMAC ?MAC_DATA_IND CANCEL TDL_04_max	Mac_data_ind(TSV_mcei1, TSV_chn, Ir_ca_any_pdu (TSC_nlf0,VS,TR))	(PASS)	(3)
5		LMAC ! MAC_DATA_REQ	Mac_data_req(TSV_mcei1, TSV_chn, Rrs_ca(TSC_nlf0,VR))		(4)
6		+STP_ca_check_info_transfer			(5)
7		+PO_mac_disconnect			****
8	TB02	?TIMEOUT TDL_04_max		(FAIL)	(6)
9		+PO_mac_disconnect			****

Detailed Comments : (1) Initial condition.
(2) Tester send a RR Class B frame with NLF bit set to 0.
(3) Expected behaviour: The IUT re−transmits the unacknowledged I−Frame.
(4) Tester acknoledges the last re−transmission of the I−Frame.
(5) Tester checks if the IUT is in information transfer phase.
(6) No response received from the IUT.
**** Tester disconnects the MAC connection to terminate in stable state.

Test Case Dynamic Behaviour

Test Case Name : TC_A_BI_005

Group : C_Plane/ClassA/BI/

Purpose : Initial condition: The IUT, in Class A established state, has sent an I−Frame and is waiting for the adequate acknowledgement.
Verify that the IUT, on receipt of a RR response frame with NLF bit set to '0' and invalid N(R), discards the received RR response frame and, on expiration of the timer <DL−04>, re−transmits the unacknowledged I−Frame.

Configuration :

Default : DF_handle_nwk_msg ,
DF_handle_accepted_mac_events ,
DF_handle_rejected_mac_events

Comments : ETS 300 175−4: § 9.2.3.5 Receiving acknowledgements

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		+PR_ca_unacknowledged_i_frame			(1)
2		(TR := (VR − 1) MOD 2)			
3		LMAC ! MAC_DATA_REQ START TDL_04_max	Mac_data_req(TSV_mcei1, TSV_chn, Rrs_ca(TSC_nlf0,TR))		(2)
4	TB01	LMAC ?MAC_DATA_IND CANCEL TDL_04_max	Mac_data_ind(TSV_mcei1, TSV_chn, Ir_ca_any_pdu (TSC_nlf0,VS,TR))	(PASS)	(3)
5		LMAC ! MAC_DATA_REQ	Mac_data_req(TSV_mcei1, TSV_chn, Rrs_ca(TSC_nlf0,VR))		(4)
6		+STP_ca_check_info_transfer			(5)
7		+PO_mac_disconnect			****
8	TB02	?TIMEOUT TDL_04_max		(FAIL)	(6)
9		+PO_mac_disconnect			****

Detailed Comments : (1) Initial condition.
(2) Tester send a RR response frame with NLF bit set to 0 and invalid N(R).
(3) Expected behaviour: The IUT re−transmits the unacknowledged I−Frame.
(4) Tester acknoledges the last re−transmission of the I−Frame.
(5) Tester checks if the IUT is in information transfer phase.
(6) No response received from the IUT.
**** Tester disconnects the MAC connection to terminate in stable state.

Test Case Dynamic Behaviour

Test Case Name : TC_A_BI_006

Group : C_Plane/ClassA/BI/

Purpose : Initial condition: The IUT, in Class A established state, has sent an I−Frame and is waiting for the adequate acknowledgement.
Verify that the IUT, on receipt of an I−Frame with invalid N(R), accepts the received frame and, on expiration of the timer <DL−04>, re−transmits the unacknowledged I−Frame with N(R) set to correctly acknowledge the received I−Frame.

Configuration :

Default : DF_handle_nwk_msg ,
DF_handle_accepted_mac_events ,
DF_handle_rejected_mac_events

Comments : ETS 300 175−4: § 9.2.3.5 Receiving acknowledgements

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		+PR_ca_unacknowledged_i_frame			(1)
2		(TR := (VR − 1) MOD 2)			
3		LMAC ! MAC_DATA_REQ START TDL_04_max	Mac_data_req(TSV_mcei1, TSV_chn, Is_ca_no_pdu(TSC_nlf0, TR,VS))		(2)
4		(VS := (VS +1) MOD 2)			
5	TB01	LMAC ?MAC_DATA_IND CANCEL TDL_04_max	Mac_data_ind(TSV_mcei1, TSV_chn, Ir_ca_any_pdu (TSC_nlf0,VS,TR))	(PASS)	(3)
6		LMAC ! MAC_DATA_REQ	Mac_data_req(TSV_mcei1, TSV_chn, Rrs_ca(TSC_nlf0,VR))		(4)
7		+STP_ca_check_info_transfer			(5)
8		+PO_mac_disconnect			****
9	TB02	?TIMEOUT TDL_04_max		(FAIL)	(6)
10		+PO_mac_disconnect			****

Detailed Comments : (1) Initial condition.
(2) Tester send an I−Frame with NLF bit set to 0 and invalid N(R).
(3) Expected behaviour: The IUT re−transmits the unacknowledged I−Frame with N(R) updated.
(4) Tester acknoledges the last re−transmission of the I−Frame.
(5) Tester checks if the IUT is in information transfer phase.
(6) No response received from the IUT.
**** Tester disconnects the MAC connection to terminate in stable state.

Test Case Dynamic Behaviour

Test Case Name : TC_A_BI_007

Group : C_Plane/ClassA/BI/

Purpose : Initial condition: The IUT, in Class A established state, has sent an I−Frame and is waiting for the adequate acknowledgement.
Verify that the IUT, on receipt of an I−Frame with invalid N(S), responds with a RR response frame indicating in the N(R) field the expected N(S) of the received I−Frame and accepts the N(R) of the I−Frame as an acknowledgement for the previously transmitted frame.

Configuration :

Default : DF_handle_nwk_msg ,
DF_handle_accepted_mac_events ,
DF_handle_rejected_mac_events

Comments : ETS 300 175−4: § 9.2.3.4 Reception of Class A I−Frames

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		+PR_ca_unacknowledged_i_frame			(1)
2		(TS := (VS + 1) MOD 2)			
3		LMAC ! MAC_DATA_REQ START TDL_04_max	Mac_data_req(TSV_mcei1, TSV_chn, Is_ca_no_pdu(TSC_nlf0, VR,TS))		(2)
4	TB01	LMAC ? MAC_DATA_IND CANCEL TDL_04_max	Mac_data_ind(TSV_mcei1, TSV_chn, Rrr_ca(TSC_nlf0,VS))	(PASS)	(3)
5		(VA := VS)			
6		+STP_ca_check_info_transfer			(4)
7		+PO_mac_disconnect			****
8	TB02	?TIMEOUT TDL_04_max		(FAIL)	(5)
9		+PO_mac_disconnect			****

Detailed Comments : (1) Initial condition.
(2) Tester send an I−Frame with NLF bit set to 0 and invalid N(S).
(3) Expected behaviour: The IUT indicates the expected N(S) by sending RR response frame and stops DL_04 according to the received N(R).
(4) Tester checks if the IUT is in information transfer phase.
(5) No response received from the IUT.
**** Tester disconnects the MAC connection to terminate in stable state.

Test Case Dynamic Behaviour

Test Case Name : TC_A_BI_008

Group : C_Plane/ClassA/BI/

Purpose : Initial condition: The IUT, in Class A established state, has sent an I−Frame and is waiting for the adequate acknowledgement.
Verify that the IUT, on receipt of an I−Frame with invalid N(S) and invalid N(R), responds with a RR response frame indicating in the N(R) field the expected N(S) of the received I−Frame, and, on expiration of the timer <DL−04>, re−transmits the unacknowledged I−Frame.

Configuration :

Default : DF_handle_nwk_msg ,
DF_handle_accepted_mac_events ,
DF_handle_rejected_mac_events

Comments : ETS 300 175−4: § 9.2.3.6 Waiting for acknowledgement

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		+PR_ca_unacknowledged_i_frame			(1)
2		(TS := (VS + 1) MOD 2 , TR := (VR − 1) MOD 2)			
3		LMAC ! MAC_DATA_REQ START TDL_04_max	Mac_data_req(TSV_mcei1, TSV_chn, Is_ca_no_pdu(TSC_nlf0, TR,TS))		(2)
4	TB01	LMAC ? MAC_DATA_IND	Mac_data_ind(TSV_mcei1, TSV_chn, Rrr_ca(TSC_nlf0,VS))	(PASS)	(3)
5	TB02	LMAC ?MAC_DATA_IND CANCEL TDL_04_max	Mac_data_ind(TSV_mcei1, TSV_chn, Ir_ca_any_pdu (TSC_nlf0,VS,TR))	(PASS)	(4)
6		LMAC ! MAC_DATA_REQ	Mac_data_req(TSV_mcei1, TSV_chn, Rrs_ca(TSC_nlf0,VR))		(5)
7		+STP_ca_check_info_transfer			(6)
8		+PO_mac_disconnect			****
9	TB03	?TIMEOUT TDL_04_max		(FAIL)	(7)
10		+PO_mac_disconnect			****
11	TB04	?TIMEOUT TDL_04_max		(FAIL)	(7)
12		+PO_mac_disconnect			****

Detailed Comments : (1) Initial condition.
(2) Tester send an I−Frame with NLF bit set to 0, invalid N(R) and invalid N(S).
(3) Expected event: The IUT indicates the expected N(S) by sending RR response frame.
(4) Expected behaviour: The IUT re−transmits the unacknowledged I−Frame.
(5) Tester acknoledges the last re−transmission of the I−Frame.
(6) Tester checks if the IUT is in information transfer phase.
(7) No response received from the IUT.
**** Tester disconnects the MAC connection to terminate in stable state.

Test Case Dynamic Behaviour

Test Case Name : TC_A_BI_009

Group : C_Plane/ClassA/BI/

Purpose : Initial condition: The IUT is in timer recovery phase.
Verify that the IUT, on receipt of a RR Class B response frame with NLF bit set to '0', discards the received frame, it remains in timer recovery phase, and, on expiration of the timer <DL−04>, re−transmits the unacknowledged I−Frame.

Configuration :

Default : DF_handle_nwk_msg ,
DF_handle_accepted_mac_events ,
DF_handle_rejected_mac_events

Comments : ETS 300 175−4: § 9.2.3.6 Waiting for acknowledgement

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		+PR_ca_timer_recovery			(1)
2		START TDL_04_min, START TDL_04_max			
3		LMAC ! MAC_DATA_REQ	Mac_data_req(TSV_mcei1, TSV_chn, Rrs_cb(TSC_nlf0,VR))		(2)
4		?TIMEOUT TDL_04_min			(3)
5	TB01	LMAC ?MAC_DATA_IND CANCEL TDL_04_max	Mac_data_ind(TSV_mcei1, TSV_chn, Ir_ca_anyornone_pdu (TSC_nlf1,VS,TR))	(PASS)	(4)
6		LMAC ! MAC_DATA_REQ	Mac_data_req(TSV_mcei1, TSV_chn, Rrs_ca(TSC_nlf1,VR))		(5)
7		+STP_ca_check_info_transfer			(6)
8		+PO_mac_disconnect			****
9	TB02	?TIMEOUT TDL_04_max		(FAIL)	(7)
10		+PO_mac_disconnect			****

Detailed Comments : (1) Initial condition.
(2) Tester send a RR Class B frame with NLF bit set to 0.
(3) To ensure no frame transmission before TDL_04 time (RR Class B discarded).
(4) Expected behaviour: The IUT re−transmits the unacknowledged I−Frame.
(5) Tester acknoledges the last re−transmission of the I−Frame.
(6) Tester checks if the IUT is in information transfer phase.
(7) No response received from the IUT.
**** Tester disconnects the MAC connection to terminate in stable state.

Test Case Dynamic Behaviour

Test Case Name : TC_A_BI_011

Group : C_Plane/ClassA/BI/

Purpose : Initial condition: The IUT is in timer recovery phase.
Verify that the IUT, on receipt of an I−Frame with invalid N(R), accepts the received I−Frame and responds with an appropriate RR frame and, on expiration of the timer <DL−04>, re−transmits the unacknowledged I−Frame with N(R) set according to the last accepted I−Frame.

Configuration :

Default : DF_handle_nwk_msg ,
DF_handle_accepted_mac_events ,
DF_handle_rejected_mac_events

Comments : ETS 300 175−4: § 9.2.3.6 Waiting for acknowledgement

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		+PR_ca_timer_recovery			(1)
2		(TR := (VR − 1) MOD 2)			
3		LMAC ! MAC_DATA_REQ START TDL_04_max	Mac_data_req(TSV_mcei1, TSV_chn, Is_ca_no_pdu(TSC_nlf0, TR,VS))		(2)
4		(VS := (VS +1) MOD 2)			
5		LMAC ? MAC_DATA_IND	Mac_data_ind(TSV_mcei1, TSV_chn, Rrr_ca(TSC_nlf0,VS))		
6	TB01	LMAC ?MAC_DATA_IND CANCEL TDL_04_max	Mac_data_ind(TSV_mcei1, TSV_chn, Ir_ca_any_pdu (TSC_nlf0,VS,TR))	(PASS)	(3)
7		LMAC ! MAC_DATA_REQ	Mac_data_req(TSV_mcei1, TSV_chn, Rrs_ca(TSC_nlf0,VR))		(4)
8		+STP_ca_check_info_transfer			(5)
9		+PO_mac_disconnect			****
10	TB02	?TIMEOUT TDL_04_max		(FAIL)	(6)
11		+PO_mac_disconnect			****
12	TB03	?TIMEOUT TDL_04_max		(FAIL)	(6)
13		+PO_mac_disconnect			****

Detailed Comments : (1) Initial condition.
(2) Tester send an I−Frame with NLF bit set to 0 and invalid N(R).
(3) Expected behaviour: The IUT re−transmits the unacknowledged I−Frame with N(R) updated.
(4) Tester acknoledges the last re−transmission of the I−Frame.
(5) Tester checks if the IUT is in information transfer phase.
(6) No response received from the IUT.
**** Tester disconnects the MAC connection to terminate in stable state.

Test Case Dynamic Behaviour

Test Case Name : TC_A_BI_012

Group : C_Plane/ClassA/BI/

Purpose : Initial condition: The IUT is in timer recovery phase.
Verify that the IUT, on receipt of an I−Frame with invalid N(S), responds with a RR response frame, indicating in the N(R) field the expected N(S) of the received I−Frame, and leaves timer recovery phase because the N(R) of the received I−Frame is a valid acknowledgement for the previously I−Frame it has transmitted.

Configuration :

Default : DF_handle_nwk_msg ,
DF_handle_accepted_mac_events ,
DF_handle_rejected_mac_events

Comments : ETS 300 175−4: § 9.2.3.6 Waiting for acknowledgement

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		+PR_ca_timer_recovery			(1)
2		(TS := (VS + 1) MOD 2)			
3		LMAC ! MAC_DATA_REQ START TDL_04_max	Mac_data_req(TSV_mcei1, TSV_chn, Is_ca_no_pdu(TSC_nlf0, VR,TS))		(2)
4	TB01	LMAC ? MAC_DATA_IND CANCEL TDL_04_max	Mac_data_ind(TSV_mcei1, TSV_chn, Rrr_ca(TSC_nlf0,VS))	(PASS)	(3)
5		(VA := VS)			
6		+STP_ca_check_info_transfer			(4)
7		+PO_mac_disconnect			****
8	TB02	?TIMEOUT TDL_04_max		(FAIL)	(5)
9		+PO_mac_disconnect			****

Detailed Comments : (1) Initial condition.
(2) Tester send an I−Frame with NLF bit set to 0 and invalid N(S).
(3) Expected behaviour: The IUT indicates the expected N(S) by sending RR response frame and leaves tinmer recovery phase according to the received N(R).
(4) Tester checks if the IUT is in information transfer phase.
(5) No response received from the IUT.
**** Tester disconnects the MAC connection to terminate in stable state.

Test Case Dynamic Behaviour

Test Case Name : TC_A_BI_013

Group : C_Plane/ClassA/BI/

Purpose : Initial condition: The IUT is in timer recovery phase.
Verify that the IUT, on receipt of an I−Frame with invalid N(S) and invalid N(R), responds with a RR response frame indicating in the N(R) field the N(S) of the expected I−Frame and, re−transmits the last unacknowledged I−Frame.

Configuration :

Default : DF_handle_nwk_msg ,
DF_handle_accepted_mac_events ,
DF_handle_rejected_mac_events

Comments : ETS 300 175−4: § 9.2.3.6 Waiting for acknowledgement

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		+PR_ca_timer_recovery			(1)
2		(TS := (VS + 1) MOD 2 , TR := (VR − 1) MOD 2)			
3		LMAC ! MAC_DATA_REQ START TDL_04_max	Mac_data_req(TSV_mcei1, TSV_chn, Is_ca_no_pdu(TSC_nlf0, TR,TS))		(2)
4	TB01	LMAC ? MAC_DATA_IND	Mac_data_ind(TSV_mcei1, TSV_chn, Rrr_ca(TSC_nlf0,VS))	(PASS)	(3)
5	TB02	LMAC ?MAC_DATA_IND CANCEL TDL_04_max	Mac_data_ind(TSV_mcei1, TSV_chn, Ir_ca_any_pdu (TSC_nlf0,VS,TR))	(PASS)	(4)
6		LMAC ! MAC_DATA_REQ	Mac_data_req(TSV_mcei1, TSV_chn, Rrs_ca(TSC_nlf0,VR))		(5)
7		+STP_ca_check_info_transfer			(6)
8		+PO_mac_disconnect			****
9	TB03	?TIMEOUT TDL_04_max		(FAIL)	(7)
10		+PO_mac_disconnect			****
11	TB04	?TIMEOUT TDL_04_max		(FAIL)	(7)
12		+PO_mac_disconnect			****

Detailed Comments : (1) Initial condition.
(2) Tester send an I−Frame with NLF bit set to 0, invalid N(R) and invalid N(S).
(3) Expected event: The IUT indicates the expected N(S) by sending RR response frame.
(4) Expected behaviour: The IUT re−transmits the unacknowledged I−Frame.
(5) Tester acknoledges the last re−transmission of the I−Frame.
(6) Tester checks if the IUT is in information transfer phase.
(7) No response received from the IUT.
**** Tester disconnects the MAC connection to terminate in stable state.

Test Case Dynamic Behaviour

Test Case Name : TC_A_BO_000

Group : C_Plane/ClassA/BO/

Purpose : Initial condition: The IUT has sent the link establishment request and is now in establishment pending state.
Verify that the IUT, on receipt of an I−Frame with NLF bit set to '0', discards the received frame and, on expiration of the timer <DL−07>, re−transmits the establishment request.

Configuration :

Default : DF_handle_nwk_msg ,
DF_handle_accepted_mac_events ,
DF_handle_rejected_mac_events

Comments : ETS 300 175−4: § 9.2.3.1 Establishment of Class A operation
Only for IUT that is able to send the establishment request of the data link.

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		+PR_ca_establishment_pending			(1)
2		START TDL_07_min, START TDL_07_max			
3		(TR := (VR − 1) MOD 2)			
4		LMAC ! MAC_DATA_REQ	Mac_data_req(TSV_mcei1, TSV_chn, Is_ca_no_pdu(TSC_nlf0, VR,VS))		(2)
5		?TIMEOUT TDL_07_min			(3)
6	TB01	LMAC ?MAC_DATA_IND CANCEL TDL_07_max	Mac_data_ind(TSV_mcei1, TSV_chn, Ir_ca_anyornone_pdu (TSC_nlf1,VS,TR))	(PASS)	(4)
7		LMAC ! MAC_DATA_REQ	Mac_data_req(TSV_mcei1, TSV_chn, Rrs_ca(TSC_nlf1,VR))		(5)
8		+STP_ca_check_info_transfer			(6)
9		+PO_mac_disconnect			****
10	TB02	?TIMEOUT TDL_07_max		(FAIL)	(7)
11		+PO_mac_disconnect			****

Detailed Comments : (1) Initial condition.
(2) Tester send a I−Frame with NLF bit set to 0.
(3) To ensure no frame transmission before TDL_07 time (I−Frame NLF 0 discarded).
(4) Expected behaviour: The IUT re−transmits the link establishment request.
(5) Tester acknoledges the last re−transmission of the establishment request.
(6) Tester checks if the IUT is in information transfer phase.
(7) No response received from the IUT.
**** Tester disconnects the MAC connection to terminate in stable state.

Test Case Dynamic Behaviour

Test Case Name : TC_A_BO_001

Group : C_Plane/ClassA/BO/

Purpose : Initial condition: The IUT has sent the link establishment request and is now in establishment pending state.
Verify that the IUT, on receipt of a RR response frame with NLF bit set to '0', discards the received RR response frame and, on expiration of the timer <DL−07>, re−transmits the establishment request.

Configuration :

Default : DF_handle_nwk_msg ,
DF_handle_accepted_mac_events ,
DF_handle_rejected_mac_events

Comments : ETS 300 175−4: § 9.2.3.1 Establishment of Class A operation
Only for IUT that is able to send the establishment request of the data link.

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		+PR_ca_establishment_pending			(1)
2		START TDL_07_min, START TDL_07_max			
3		(TR := (VR − 1) MOD 2)			
4		LMAC ! MAC_DATA_REQ	Mac_data_req(TSV_mcei1, TSV_chn, Rrs_ca(TSC_nlf0,VR))		(2)
5		?TIMEOUT TDL_07_min			(3)
6	TB01	LMAC ?MAC_DATA_IND CANCEL TDL_07_max	Mac_data_ind(TSV_mcei1, TSV_chn, Ir_ca_anyornone_pdu (TSC_nlf1,VS,TR))	(PASS)	(4)
7		LMAC ! MAC_DATA_REQ	Mac_data_req(TSV_mcei1, TSV_chn, Rrs_ca(TSC_nlf1,VR))		(5)
8		+STP_ca_check_info_transfer			(6)
9		+PO_mac_disconnect			****
10	TB02	?TIMEOUT TDL_07_max		(FAIL)	(7)
11		+PO_mac_disconnect			****

Detailed Comments : (1) Initial condition.
(2) Tester send a RR response frame with NLF bit set to 0.
(3) To ensure no frame transmission before TDL_07 time (RR response frame NLF 0 discarded).
(4) Expected behaviour: The IUT re−transmits the link establishment request.
(5) Tester acknoledges the last re−transmission of the establishment request.
(6) Tester checks if the IUT is in information transfer phase.
(7) No response received from the IUT.
**** Tester disconnects the MAC connection to terminate in stable state.

Test Case Dynamic Behaviour

Test Case Name : TC_A_BO_002

Group : C_Plane/ClassA/BO/

Purpose : Initial condition: The IUT has sent the establishment request to re−establish the link and is waiting for the acknowledgement of the request.
Verify that the IUT, on receipt of an I−Frame with NLF bit set to '0', discards the received frame and, on expiration of the timer <DL−07>, re−transmits the re−establishment request.

Configuration :

Default : DF_handle_nwk_msg ,
DF_handle_accepted_mac_events ,
DF_handle_rejected_mac_events

Comments : ETS 300 175−4: § 9.2.3.8 Re−establishment of Class A operation
Only for IUT that is able to send the establishment request of the data link.

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		+PR_ca_re_establishment_pending			(1)
2		START TDL_07_min, START TDL_07_max			
3		(TR := (VR − 1) MOD 2)			
4		LMAC ! MAC_DATA_REQ	Mac_data_req(TSV_mcei1, TSV_chn, Is_ca_no_pdu(TSC_nlf0, VR,VS))		(2)
5		?TIMEOUT TDL_07_min			(3)
6	TB01	LMAC ?MAC_DATA_IND CANCEL TDL_07_max	Mac_data_ind(TSV_mcei1, TSV_chn, Ir_ca_anyornone_pdu (TSC_nlf1,VS,TR))	(PASS)	(4)
7		LMAC ! MAC_DATA_REQ	Mac_data_req(TSV_mcei1, TSV_chn, Rrs_ca(TSC_nlf1,VR))		(5)
8		+STP_ca_check_info_transfer			(6)
9		+PO_mac_disconnect			****
10	TB02	?TIMEOUT TDL_07_max		(FAIL)	(7)
11		+PO_mac_disconnect			****

Detailed Comments : (1) Initial condition.
(2) Tester send a I−Frame with NLF bit set to 0.
(3) To ensure no frame transmission before TDL_07 time (I−Frame NLF 0 discarded).
(4) Expected behaviour: The IUT re−transmits the link establishment request.
(5) Tester acknoledges the last re−transmission of the establishment request.
(6) Tester checks if the IUT is in information transfer phase.
(7) No response received from the IUT.
**** Tester disconnects the MAC connection to terminate in stable state.

Test Case Dynamic Behaviour

Test Case Name : TC_A_BO_003

Group : C_Plane/ClassA/BO/

Purpose : Initial condition: The IUT has sent the establishment request to re−establish the link and is waiting for the acknowledgement of the request.
Verify that the IUT, on receipt of a RR response frame with NLF bit set to '0', discards the received RR response frame and, on expiration of the timer <DL−07>, re−transmits the re−establishment request.

Configuration :

Default : DF_handle_nwk_msg ,
DF_handle_accepted_mac_events ,
DF_handle_rejected_mac_events

Comments : ETS 300 175−4: § 9.2.3.8 Re−establishment of Class A operation
Only for IUT that is able to send the establishment request of the data link.

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		+PR_ca_re_establishment_pending			(1)
2		START TDL_07_min, START TDL_07_max			
3		(TR := (VR − 1) MOD 2)			
4		LMAC ! MAC_DATA_REQ	Mac_data_req(TSV_mcei1, TSV_chn, Rrs_ca(TSC_nlf0,VR))		(2)
5		?TIMEOUT TDL_07_min			(3)
6	TB01	LMAC ?MAC_DATA_IND CANCEL TDL_07_max	Mac_data_ind(TSV_mcei1, TSV_chn, Ir_ca_anyornone_pdu (TSC_nlf1,VS,TR))	(PASS)	(4)
7		LMAC ! MAC_DATA_REQ	Mac_data_req(TSV_mcei1, TSV_chn, Rrs_ca(TSC_nlf1,VR))		(5)
8		+STP_ca_check_info_transfer			(6)
9		+PO_mac_disconnect			****
10	TB02	?TIMEOUT TDL_07_max		(FAIL)	(7)
11		+PO_mac_disconnect			****

Detailed Comments : (1) Initial condition.
(2) Tester send a RR response frame with NLF bit set to 0.
(3) To ensure no frame transmission before TDL_07 time (RR response frame NLF 0 discarded).
(4) Expected behaviour: The IUT re−transmits the link establishment request.
(5) Tester acknoledges the last re−transmission of the establishment request.
(6) Tester checks if the IUT is in information transfer phase.
(7) No response received from the IUT.
**** Tester disconnects the MAC connection to terminate in stable state.

Test Case Dynamic Behaviour

Test Case Name : TC_L_CA_000

Group : C_Plane/Lb/CA/

Purpose : For Fixed radio termination:
Verify that the IUT is able to generate a broadcast frame of the short frame format (3 octets).
For Portable radio termination:
Verify that the IUT is able to receive a broadcast frame of the short frame format (3 octets).

Configuration :

Default : DF_handle_nwk_msg ,
DF_handle_accepted_mac_events ,
DF_handle_rejected_mac_events

Comments : ETS 300 175−4: § 5.2 Broadcast service (Lb) − § 6.2 Broadcast frame structure

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		[TSPX_pt]			
2		LMAC ! MAC_PAGE_REQ	Mac_page_req(TSC_normal_paging, Lces_short_request_page)		(1)
3		START T_wait			
4		LMAC ? MAC_CON_IND (TSV_mcei1 := MAC_CON_IND.mcei) START T_wait	Mac_con_ind		(2)
5		(VR := 0, VS := 0, VA := 0, RC := 0)			
6	TB01	LMAC ?MAC_DATA_IND CANCEL T_wait	Mac_data_ind(TSV_mcei1, TSV_chn, Ir_ca(TSC_nlf1,VS,VR, Lce_page_response))	(PASS)	(3)
7		+PO_mac_disconnect			****
8	TB02	?TIMEOUT T_wait		(FAIL)	(5)
9		+PO_mac_disconnect			****
10	TB03	?TIMEOUT T_wait		(FAIL)	(5)
11		+PO_mac_disconnect			****
12		[NOT TSPX_pt]			
13		+STP_invoke_short_page			(4)
14		+PO_mac_disconnect			****

Detailed Comments : (1) IUT is a PT, Tester sends a LCE_request in short length format.
(2) Tester receives an indication of a new MAC connection.
(3) IUT is a PT, The IUT establishes the link by sending an I−Frame with NLF = 1and containing the L3 message LCE−PAGE−RESPONSE.
(4) IUT is a FT, The IUT as sent a correct LCE−REQUEST−PAGE in short length format.
(5) No response received from the IUT.
**** Tester disconnects the MAC connection to terminate in stable state.

Test Case Dynamic Behaviour

Test Case Name : TC_L_CA_001

Group : C_Plane/Lb/CA/

Purpose : For Fixed radio termination:
Verify that the IUT is able to generate a broadcast frame of the long frame format (5 octets).
For Portable radio termination:
Verify that the IUT is able to receive a broadcast frame of the long frame format (5 octets).

Configuration :

Default : DF_handle_nwk_msg ,
DF_handle_accepted_mac_events ,
DF_handle_rejected_mac_events

Comments : ETS 300 175−4: § 5.2 Broadcast service (Lb) − § 6.2 Broadcast frame structure

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		[TSPX_pt]			
2		LMAC ! MAC_PAGE_REQ	Mac_page_req(TSC_normal_paging, Lces_long_request_page)		(1)
3		START T_wait			
4		LMAC ? MAC_CON_IND (TSV_mcei1 := MAC_CON_IND.mcei) START T_wait	Mac_con_ind		(2)
5		(VR := 0, VS := 0, VA := 0, RC := 0)			
6	TB01	LMAC ?MAC_DATA_IND CANCEL T_wait	Mac_data_ind(TSV_mcei1, TSV_chn, Ir_ca(TSC_nlf1,VS,VR, Lce_page_response))	(PASS)	(3)
7		+PO_mac_disconnect			****
8	TB02	?TIMEOUT T_wait		(FAIL)	(5)
9		+PO_mac_disconnect			****
10	TB03	?TIMEOUT T_wait		(FAIL)	(5)
11		+PO_mac_disconnect			****
12		[NOT TSPX_pt]			
13		+STP_invoke_long_page			(4)
14		+PO_mac_disconnect			****

Detailed Comments : (1) IUT is a PT, Tester sends a LCE_request in long length format.
(2) Tester receives an indication of a new MAC connection.
(3) IUT is a PT, The IUT establishes the link by sending an I−Frame with NLF = 1and containing the L3 message LCE−PAGE−RESPONSE.
(4) IUT is a FT, The IUT as sent a correct LCE−REQUEST−PAGE in long length format.
(5) No response received from the IUT.
**** Tester disconnects the MAC connection to terminate in stable state.

Test Case Dynamic Behaviour

Test Case Name : TC_0_CA_000
Group : U_Plane/Class0/CA/
Purpose : Verify that the IUT is able to transmit a correct U−plane Class 0 frame.
Configuration :
Default : DF_handle_nwk_u_plane_services ,
DF_handle_accepted_mac_events ,
DF_handle_rejected_mac_events
Comments : ETS 300 175−4: § 14.3.2.1 Sending side procedure

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		+PR_inmin_mac_connect			(1)
2		+STP_invoke_fu1_frame			(2)
3		+PO_mac_disconnect			****

Detailed Comments : (1) Establishment of a basic MAC connection for IN minimum delay services.
(2) Implicit request for FU1 frame.
**** Tester disconnects the MAC connection to terminate in stable state.

Test Case Dynamic Behaviour

Test Case Name : TC_0_CA_001
Group : U_Plane/Class0/CA/
Purpose : Verify that the IUT is able to receive a correct U−plane Class 0 frame.
Configuration :
Default : DF_handle_nwk_u_plane_services ,
DF_handle_accepted_mac_events ,
DF_handle_rejected_mac_events
Comments : ETS 300 175−4: § 14.3.2.2 Receiving side procedure

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		+PR_inmin_mac_connect			(1)
2		LMAC ! MAC_DATA_REQ START T_wait	Mac_data_req(TSV_mcei1, TSC_in, Fu1s(TSPX_in_pdu))		(2)
3		?TIMEOUT T_wait			
4		+LTS_test_iut_reception			(3)
		LTS_test_iut_reception			
5		(TCV_received := TSO_iut_in_received())			
6	TB01	[TCV_received]		(PASS)	(4)
7		+PO_empty			
8	TB02	[NOT TCV_received]		(FAIL)	(5)
9		+PO_empty			

Detailed Comments : (1) Establishment of a basic MAC connection for IN minimum delay services.
(2) Tester sends FU1 frame to the IUT.
(3) Tester checks for IUT reception.
(4) Expected Behaviour: The IUT received the FU1 frame sent.
(5) The IUT did not receive the FU1 frame sent.

Test Case Dynamic Behaviour

Test Case Name : TC_1_CA_000
Group : U_Plane/Class1/CA/
Purpose : Verify that the IUT is able to transmit a correct U−plane Class 1 frame.
Configuration :
Default : DF_handle_nwk_u_plane_services ,
DF_handle_accepted_mac_events ,
DF_handle_rejected_mac_events
Comments : ETS 300 175−4: § 14.3.3.1 Sending side procedure

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		+PR_ip_mac_connect			(1)
2		(TR := 0, RN := 0, TS := 0, SN := 0, AN := 0)			
3		+STP_invoke_fu5_frame			(2)
4		(UTMP := BIT_TO_INT (TCV_fu5.e_r), RN := (RN + 1) MOD 128)			
5		(TCV_bool := TSO_between(UTMP,AN,SN,128))			
6	TB01	[TCV_bool]		(PASS)	(3)
7		(AN := UTMP)			
8		+PO_mac_disconnect			****
9	TB02	[NOT TCV_bool]		(FAIL)	(4)
10		+PO_mac_disconnect			****

Detailed Comments : (1) Establishment of a basic MAC connection for IP error correct services.
(2) Implicit request. the IUT shall transmit a FU5 frame.
(3) Expected Behaviour: The new acknowledgement is within the interval of the last acknowledgment and the last send.
(4) Error: The new acknowledgement is without the interval of the last acknowledgment and the last send.
**** Tester disconnects the MAC connection to terminate in stable state.

Test Case Dynamic Behaviour

Test Case Name : TC_1_CA_001
Group : U_Plane/Class1/CA/
Purpose : Verify that the IUT treats a received frame including an RN with the A/N bit set to '1', as an acknowledgement for all frames up to and including frame number RN.
Configuration :
Default : DF_handle_nwk_u_plane_services ,
DF_handle_accepted_mac_events ,
DF_handle_rejected_mac_events
Comments : ETS 300 175−4: § 14.3.3.1 Sending side procedure

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		+PR_ip_mac_connect			(1)
2		(TR := 0, RN := 0, TS := 0, SN := 0, AN := 0)			
3		+STP_c1_iut_transmit_fu5(2)			
4		[TCV_bool]			(2)
5		LMAC ! MAC_DATA_REQ START T_wait	Mac_data_req(TSV_mcei1, TSC_ip, Fu5s(SN,TR))		(3)
6	TB01	LMAC ? MAC_DATA_IND CANCEL T_wait	Mac_data_ind(TSV_mcei1, TSC_ip, Fu5r(RN,SN))	(PASS)	(4)
7		+PO_mac_disconnect			****
8		?TIMEOUT T_wait			(5)
9		+PO_mac_disconnect			****
10	TB02	[NOT TCV_bool]		(FAIL)	(6)
11		+PO_mac_disconnect			****

Detailed Comments : (1) Establishment of a basic MAC connection for IP error correct services.
(2) Exit of the test step statement without error.
(3) Tester sends a FU5 frame with A/N bit = 1 and RN = last frame number received.
(4) The IUT acknowledges the last FU5 frame sent by the Tester.
(5) No FU5 frame sent by the IUT.
(6) Exit of the test step statement with error.
**** Tester disconnects the MAC connection to terminate in stable state.

Test Case Dynamic Behaviour

Test Case Name : TC_1_CA_002

Group : U_Plane/Class1/CA/

Purpose : Verify that the IUT correctly acknowledges received frame(s) with appropriate send sequence number(s). (In−sequence frames)

Configuration :

Default : DF_handle_nwk_u_plane_services ,
DF_handle_accepted_mac_events ,
DF_handle_rejected_mac_events

Comments : ETS 300 175−4: § 14.3.3.2 Receiving side procedure

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		+PR_ip_mac_connect			(1)
2		(TR := 0, RN := 0, TS := 0, SN := 0, AN := 0)			
3		LMAC ! MAC_DATA_REQ START T_wait	Mac_data_req(TSV_mcei1, TSC_ip, Fu5s(SN,TR))		(2)
4		(TS := SN, SN := (SN + 1) MOD 128)			
5	TB01	LMAC ? MAC_DATA_IND CANCEL T_wait	Mac_data_ind(TSV_mcei1, TSC_ip, Fu5r(RN,TS))	(PASS)	(3)
6		(TR := RN, RN := (RN + 1) MOD 128, AN := TS)			
7		+PO_mac_disconnect			****
8	TB02	?TIMEOUT T_wait		(FAIL)	(4)
9		+PO_mac_disconnect			****

Detailed Comments : (1) Establishment of a basic MAC connection for IP error correct services.
(2) Tester sends FU5 frame to the IUT
(3) Expected Event: IUT acknowledges the received frame by sending FU5 frame with E/R properly set.
(4) No FU5 frame sent by the IUT.
**** Tester disconnects the MAC connection to terminate in stable state.

Test Case Dynamic Behaviour

Test Case Name : TC_1_BV_000
Group : U_Plane/Class1/BV/
Purpose : Verify that the IUT disconnects the U−plane link, at the event of expiration of timer <DLU−01> without receiving the requested acknowledgement.
Configuration :
Default : DF_handle_nwk_u_plane_services ,
DF_handle_accepted_mac_events ,
DF_handle_rejected_mac_events
Comments : ETS 300 175−4: § 14.3.3.1 Sending side procedure

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		+PR_ip_mac_connect			(1)
2		(TR := 0, RN := 0, TS := 0, SN := 0, AN := 0)			
3		+STP_c1_iut_transmit_fu5(TSPX_k1)			(2)
4		[TCV_bool]			(3)
5		START TDLU_01_max			
6	TB01	LMAC ? MAC_DIS_IND	Mac_dis_ind(TSV_mcei1)	(PASS)	(4)
7		+PO_empty			
8		?TIMEOUT TDLU_01_max			(5)
9		+PO_mac_disconnect			****
10	TB02	[NOT TCV_bool]		(FAIL)	(6)
11		+PO_mac_disconnect			****

Detailed Comments : (1) Establishment of a basic MAC connection for IP error correct services.
(2) Tester forces the IUT to reach its sending window.
(3) Exit of the test step statement without error.
(4) Expected Event: The IUT releases the MAC connection due to the expiration of its timer DLU−01.
(5) No MAC connection release sent by the IUT.
(6) Exit of the test step statement with error.
**** Tester disconnects the MAC connection to terminate in stable state.

Test Case Dynamic Behaviour

Test Case Name : TC_1_BV_001

Group : U_Plane/Class1/BV/

Purpose : Verify that the IUT resets timer <DLU−01> on receipt of a frame that includes a valid acknowledgement.

Configuration :

Default : DF_handle_nwk_u_plane_services ,
DF_handle_accepted_mac_events ,
DF_handle_rejected_mac_events

Comments : ETS 300 175−4: § 14.3.3.1 Sending side procedure

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		+PR_ip_mac_connect			(1)
2		(TR := 0, RN := 0, TS := 0, SN := 0, AN := 0)			
3		+STP_c1_iut_transmit_fu5(TSPX_k1)			(2)
4		[TCV_bool]			(3)
5		LMAC ! MAC_DATA_REQ START T_wait	Mac_data_req(TSV_mcei1, TSC_ip, Fu5s(SN,TR))		(4)
6		(TS := SN, SN := (SN + 1) MOD 128)			
7	TB01	LMAC ? MAC_DATA_IND CANCEL T_wait	Mac_data_ind(TSV_mcei1, TSC_ip, Fu5r(RN,TS))	(PASS)	(5)
8		(TR := RN, RN := (RN + 1) MOD 128, AN := TS)			
9		+PO_mac_disconnect			****
10	TB02	?TIMEOUT T_wait		(FAIL)	(6)
11		+PO_mac_disconnect			****
12	TB03	[NOT TCV_bool]		(FAIL)	(7)
13		+PO_mac_disconnect			****

Detailed Comments : (1) Establishment of a basic MAC connection for IP error correct services.
(2) Tester forces the IUT to reach its sending window.
(3) Exit of the test step statement without error.
(4) Tester sends FU5 frame to the IUT with E/R set to acknowledge all received frame.
(5) Expected Event: IUT acknowledges the received frame by sending FU5 frame with E/R properly set and canceled its timer DLU−01.
(6) No FU5 frame sent by the IUT.
(7) Exit of the test step statement with error.
**** Tester disconnects the MAC connection to terminate in stable state.

Test Case Dynamic Behaviour

Test Case Name : TC_1_BV_002
Group : U_Plane/Class1/BV/
Purpose : Verify that the IUT maintains the <DLU−01> timer whenever the window size is reached (thereby halting further transmissions).
Configuration :
Default : DF_handle_nwk_u_plane_services ,
DF_handle_accepted_mac_events ,
DF_handle_rejected_mac_events
Comments : ETS 300 175−4: § 14.3.3.1 Sending side procedure

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		+PR_ip_mac_connect			(1)
2		(TR := 0, RN := 0, TS := 0, SN := 0, AN := 0)			
3		+STP_c1_iut_transmit_fu5(TSPX_k1)			(2)
4		[TCV_bool]			(3)
5		(UTMP := (RN + 2) MOD 128)			
6		LMAC ! MAC_DATA_REQ START T_wait	Mac_data_req(TSV_mcei1, TSC_ip, Fu5s(SN,UTMP))		(4)
7		(TS := SN, SN := (SN + 1) MOD 128)			
8	TB01	LMAC ? MAC_DIS_IND	Mac_dis_ind(TSV_mcei1)	(PASS)	(5)
9		+PO_empty			
10	TB02	?TIMEOUT T_wait		(FAIL)	(6)
11		+PO_mac_disconnect			****
12	TB03	[NOT TCV_bool]		(FAIL)	(7)
13		+PO_mac_disconnect			****

Detailed Comments : (1) Establishment of a basic MAC connection for IP error correct services.
(2) Tester forces the IUT to reach its sending window.
(3) Exit of the test step statement without error.
(4) Tester sends FU5 frame to the IUT with erroneous E/R.
(5) Expected Event: The IUT releases the MAC connection due to the expiration of its timer DLU−01 and sent nothing.
(6) No MAC connection release sent by the IUT.
(7) Exit of the test step statement with error.
**** Tester disconnects the MAC connection to terminate in stable state.

Test Case Dynamic Behaviour

Test Case Name : TC_1_BI_000
Group : U_Plane/Class1/BI/
Purpose : Verify that the IUT discards a received frame with an I/R bit set to '0'.
Configuration :
Default : DF_handle_nwk_u_plane_services ,
DF_handle_accepted_mac_events ,
DF_handle_rejected_mac_events
Comments : ETS 300 175−4: § 14.3.3.1 Sending side procedure

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		+PR_ip_mac_connect			(1)
2		(TR := 0, RN := 0, TS := 0, SN := 0, AN := 0)			
3		LMAC ! MAC_DATA_REQ START T_wait	Mac_data_req(TSV_mcei1, TSC_ip, Fu5s_retransmit(SN,TR))		(2)
4	TB01	?TIMEOUT T_wait		(PASS)	(3)
5		+PO_mac_disconnect			****

Detailed Comments : (1) Establishment of a basic MAC connection for IP error correct services.
(2) Tester sends FU5 frame to the IUT with I/R bit set to 0.
(3) Expected Event: No FU5 frame sent by the IUT (Received frame discarded).
**** Tester disconnects the MAC connection to terminate in stable state.

Test Case Dynamic Behaviour

Test Case Name : TC_1_BI_001
Group : U_Plane/Class1/BI/
Purpose : Verify that the IUT discards a received frame with an A/N bit set to '0'.
Configuration :
Default : DF_handle_nwk_u_plane_services ,
DF_handle_accepted_mac_events ,
DF_handle_rejected_mac_events
Comments : ETS 300 175−4: § 14.3.3.1 Sending side procedure

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		+PR_ip_mac_connect			(1)
2		(TR := 0, RN := 0, TS := 0, SN := 0, AN := 0)			
3		LMAC ! MAC_DATA_REQ START T_wait	Mac_data_req(TSV_mcei1, TSC_ip, Fu5s_nack(SN,TR))		(2)
4	TB01	?TIMEOUT T_wait		(PASS)	(3)
5		+PO_mac_disconnect			****

Detailed Comments : (1) Establishment of a basic MAC connection for IP error correct services.
(2) Tester sends FU5 frame to the IUT with A/N bit set to 0.
(3) Expected Event: No FU5 frame sent by the IUT (Received frame discarded).
**** Tester disconnects the MAC connection to terminate in stable state.

Test Case Dynamic Behaviour

Test Case Name : TC_1_BI_002
Group : U_Plane/Class1/BI/
Purpose : Verify that the IUT correctly acknowledges received frame(s) with erroneous send sequence number(s) after waiting for L(R) TDMA frames. (Out−of−sequence frames)
Configuration :
Default : DF_handle_nwk_u_plane_services ,
DF_handle_accepted_mac_events ,
DF_handle_rejected_mac_events
Comments : ETS 300 175−4: § 14.3.3.2 Receiving side procedure

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		+PR_ip_mac_connect			(1)
2		(TR := 0, RN := 0, TS := 0, SN := 0, AN := 0)			
3		(UTMP := (SN + 7) MOD 128)			
4		LMAC ! MAC_DATA_REQ START T_LR_c1	Mac_data_req(TSV_mcei1, TSC_ip, Fu5s(UTMP,TR))		(2)
5		(TS := UTMP, SN := (UTMP + 1) MOD 128)			
6		?TIMEOUT T_LR_c1 START T_wait			
7	TB01	LMAC ? MAC_DATA_IND CANCEL T_wait	Mac_data_ind(TSV_mcei1, TSC_ip, Fu5r(RN,TS))	(PASS)	(3)
8		(TR := RN, RN := (RN + 1) MOD 128, AN := TS)			
9		+PO_mac_disconnect			****
10	TB02	?TIMEOUT T_wait		(FAIL)	(4)
11		+PO_mac_disconnect			****

Detailed Comments : (1) Establishment of a basic MAC connection for IP error correct services.
(2) Tester sends FU5 frame to the IUT with out of sequence E/S number.
(3) Expected Event: IUT acknowledges the received frame by sending FU5 frame with E/R properly set after L(R) TDMA.
(4) No FU5 frame sent by the IUT.
**** Tester disconnects the MAC connection to terminate in stable state.

Test Step Dynamic Behaviour

Test Step Name : PR_ca_establishment_pending

Group : Preamble/C_plane/

Objective : The IUT sends the link establishment request and is in establishment pending state.

Default : DF_handle_nwk_msg ,
DF_handle_accepted_mac_events ,
DF_handle_rejected_mac_events

Comments : ETS 300 175−4: § 9.2.3.1 Establishment of Class A operation
Only for IUT that is able to send the establishment request of the data link.

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		+PR_basic_mac_connect			(1)
2		(VR := 0, VS := 0, VA := 0, RC := 0)			
3		[TSPX_pt]			
4		START TDL_07_max			
5		LMAC ?MAC_DATA_IND CANCEL TDL_07_max	Mac_data_ind(TSV_mcei1, TSV_chn, Ir_ca(TSC_nlf1,VS,VR, Lce_page_response))		(2)
6	PR01	(VR := (VR + 1) MOD 2, VA := VS)		(PASS)	
7	PR02	?TIMEOUT TDL_07_max		(I)	(3)
8		+PO_mac_disconnect			****
9		[NOT TSPX_pt]			
10		+STP_invoke_ca_establishment			(4)

Detailed Comments : (1) Establishment of a basic MAC connection.
(2) IUT is a PT part. Tester receives the Class A establishment request containing LCE_PAGE_RESPONSE Network Layer message.
(3) No establishment request received from the IUT. Preamble is inconclusive.
(4) IUT is a FT part. Implicit send. The IUT shall send the Class A establshment request.
**** Tester disconnects the MAC connection to terminate in stable state.

Test Step Dynamic Behaviour

Test Step Name : PR_ca_information_transfer
Group : Preamble/C_plane/
Objective : Tester brings the IUT into Class A information transfer phase.
Default : DF_handle_nwk_msg ,
DF_handle_accepted_mac_events ,
DF_handle_rejected_mac_events
Comments : ETS 300 175−4: § 9.2.3.1 Establishment of Class A operation

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		+PR_basic_mac_connect			(1)
2		(VR := 0, VS := 0, VA := 0, RC := 0)			
3		START TDL_07_max			
4		[TSPX_pt]			
5		LMAC ?MAC_DATA_IND CANCEL TDL_07_max	Mac_data_ind(TSV_mcei1, TSV_chn, Ir_ca(TSC_nlf1,VS,VR, Lce_page_response))		(2)
6		(VR := (VR + 1) MOD 2, VA := VS)			
7	PR01	LMAC ! MAC_DATA_REQ	Mac_data_req(TSV_mcei1, TSV_chn, Rrs_ca(TSC_nlf1,VR))	(PASS)	(3)
8	PR02	?TIMEOUT TDL_07_max		(I)	(4)
9		+PO_mac_disconnect			****
10		[NOT TSPX_pt]			
11		LMAC ! MAC_DATA_REQ	Mac_data_req(TSV_mcei1, TSV_chn, Is_ca_no_pdu(TSC_nlf1, VR,VS))		(5)
12		(VS := (VS +1) MOD 2)			
13		LMAC ?MAC_DATA_IND CANCEL TDL_07_max	Mac_data_ind(TSV_mcei1, TSV_chn, Rrr_ca(TSC_nlf1,VS))		(6)
14	PR03	(VA := VS)		(PASS)	
15	PR04	?TIMEOUT TDL_07_max		(I)	(7)
16		+PO_mac_disconnect			****

Detailed Comments : (1) Establishment of a basic MAC connection.
(2) IUT is a PT part. Tester receives the Class A establishment request containing LCE_PAGE_RESPONSE Network Layer message.
(3) Tester sends the Class A establishment acknowledgement.
(4) No establishment request received from the IUT. Preamble is inconclusive.
(5) IUT is a FT part. Tester sends the Class A establshment request.
(6) Tester receives the Class A establishment acknowledgement sent by the IUT.
(7) No RR response frame received from the IUT. Preamble is inconclusive.
**** Tester disconnects the MAC connection to terminate in stable state.

Test Step Dynamic Behaviour

Test Step Name : PR_ca_re_establishment_pending

Group : Preamble/C_plane/

Objective : Tester forces the IUT to re−establish the link during Class A information transfer phase

Default : DF_handle_nwk_msg ,
DF_handle_accepted_mac_events ,
DF_handle_rejected_mac_events

Comments : ETS 300 175−4: § 9.2.3.1 Establishment of Class A operation − § 9.2.5.2 Receiving I frames

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		+PR_ca_information_transfer			(1)
2		LMAC ! MAC_DATA_REQ START TDL_04_max	Mac_data_req(TSV_mcei1, TSV_chn, Is_ca(TSC_nlf0,VR,VS, L3_unknow))		(2)
3		(VS := (VS +1) MOD 2)			
4		LMAC ?MAC_DATA_IND CANCEL TDL_04_max	Mac_data_ind(TSV_mcei1, TSV_chn, Rrr_ca(TSC_nlf0,VS))		(3)
5		+LTS_re_establish			
6		LMAC ?MAC_DATA_IND CANCEL TDL_04_max	Mac_data_ind(TSV_mcei1, TSV_chn, Ir_ca_any_pdu(TSC_nlf0, VS,VR))		(4)
7		+LTS_re_establish			
8	PR01	?TIMEOUT TDL_04_max		(I)	(5)
9		+PO_mac_disconnect			****
		LTS_re_establish			
10		(VR := 0, VS := 0, VA := 0, RC := 0)			
11		+STP_invoke_ca_establishment			(6)

Detailed Comments : (1) Tester brings the IUT in Class A information transfer phase.
(2) Tester sends a class A I−Frame with NLF = 0 an correct NR and NS.
(3) The IUT responds with a Class A RR response frame including correct NR.
(4) The IUT responds with a Class A I−Frame including correct NR and NS.
(5) No response received from the IUT. Preamble is inconclusive.
(6) Implicit send. The IUT shall send the Class A establshment request.
**** Tester disconnects the MAC connection to terminate in stable state.

Test Step Dynamic Behaviour

Test Step Name : PR_ca_timer_recovery
Group : Preamble/C_plane/
Objective : Tester brings the IUT into Class A timer recovery phase.
Default : DF_handle_nwk_msg ,
DF_handle_accepted_mac_events ,
DF_handle_rejected_mac_events
Comments : ETS 300 175−4: § 9.2.3 Link establishment and information transfer in Class A operation

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		+PR_ca_unacknowledged_i_frame			(1)
2		START TDL_04_min, START TDL_04_max			
3		?TIMEOUT TDL_04_min			(2)
4	PR01	LMAC ?MAC_DATA_IND CANCEL TDL_04_max	Mac_data_ind(TSV_mcei1, TSV_chn, Ir_ca_any_pdu(TSC_nlf0, VS,TR))	(PASS)	(3), (4)
5	PR02	?TIMEOUT TDL_04_max		(I)	(5)
6		+PO_mac_disconnect			****

Detailed Comments : (1) Tester brings the IUT in Class A information transfer phase with its V(S) = V(A) + 1.
(2) To ensure no frame transmission before TDL_04 time.
(3) The network layer of the IUT re−transmits CC−RELEASE−COMPLETE message.
(4) The IUT is now into timer recovery phase.
(5) No response received from the IUT, incoclusive verdict
**** Tester disconnects the MAC connection to terminate in stable state.

Test Step Dynamic Behaviour

Test Step Name : PR_ca_unacknowledged_i_frame

Group : Preamble/C_plane/

Objective : Tester brings the IUT into Class A information transfer phase with its V(S) = V(A) + 1.

Default : DF_handle_nwk_msg ,
DF_handle_accepted_mac_events ,
DF_handle_rejected_mac_events

Comments : ETS 300 175−4: § 9.2.3 Link establishment and information transfer in Class A operation

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		+PR_ca_information_transfer			(1)
2		LMAC ! MAC_DATA_REQ START T_net	Mac_data_req(TSV_mcei1, TSV_chn, Is_ca(TSC_nlf0,VR,VS, Cc_setup_valid))		(2)
3		(VS := (VS +1) MOD 2)			
4		LMAC ?MAC_DATA_IND	Mac_data_ind(TSV_mcei1, TSV_chn, Rrr_ca(TSC_nlf0,VS))		(3)
5		(VA := VS)			
6		LMAC ?MAC_DATA_IND CANCEL T_net	Mac_data_ind(TSV_mcei1, TSV_chn, Ir_ca_any_pdu(TSC_nlf0, VS,VR))		(4)
7	PR01	(TR := VR, VR := (VR + 1) MOD 2)		(PASS)	
8	PR02	?TIMEOUT T_net		(I)	(5)
9		+PO_mac_disconnect			****
10		LMAC ?MAC_DATA_IND CANCEL T_net	Mac_data_ind(TSV_mcei1, TSV_chn, Ir_ca_any_pdu(TSC_nlf0, VS,VR))		(4)
11	PR03	(VA := VS , VR := (VR + 1) MOD 2)		(PASS)	
12	PR04	?TIMEOUT T_net		(I)	(5)
13		+PO_mac_disconnect			****

Detailed Comments : (1) Tester brings the IUT in Class A information transfer phase.
(2) Tester sends an invalid CC−SETUP network message.
(3) The IUT acknowledges the last received I−Frame by sending RR.
(4) The network layer of the IUT reacts to the invalid CC−SETUP by sending CC−RELEASE−COMPLETE message
(5) No response received from the IUT, incoclusive verdict
**** Tester disconnects the MAC connection to terminate in stable state.

Test Step Dynamic Behaviour

Test Step Name : PR_inmin_mac_connect

Group : Preamble/U_plane/

Objective : Tester establishes, with the IUT, a basic MAC connection for IN minimum delay services.

Default : DF_handle_nwk_u_plane_services ,
DF_handle_accepted_mac_events ,
DF_handle_rejected_mac_events

Comments :

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		[TSPX_pt]			
2		LMAC ! MAC_PAGE_REQ START T_wait	Mac_page_req(TSC_normal_paging, Lce_short_request_page_in)		(1)
3		LMAC ? MAC_CON_IND (TCV_mcei := MAC_CON_IND.mcei, TCV_service_type := MAC_CON_IND.service_type) CANCEL T_wait	Mac_con_ind		(2)
4		[TCV_service_type = TSC_in]			
5	PR01	(TSV_mcei1 := TCV_mcei)		(PASS)	(3)
6		[TCV_service_type <> TSC_in]			
7	PR02	CANCEL		I	(4)
8	PR03	?TIMEOUT T_wait		I	(5)
9		[NOT TSPX_pt]			
10		(TSV_mcei1 := 1)			
11		LMAC ! MAC_CON_REQ START T_wait	Mac_con_req(TSV_mcei1,TSPX_pmid, FALSE,0,FALSE, TSPX_slot,TSC_in,0, TSC_sbcon,TSPX_rpn)		(6)
12		LMAC ? MAC_CON_CFM CANCEL T_wait	Mac_con_cfm(TSV_mcei1)	(PASS)	(7)
13	PR04	?TIMEOUT T_wait		I	(5)

Detailed Comments : (1) IUT is a PT part .Tester sends LCE_REQUEST_PAGE paging message to invoke PT initiated setup.
(2) Tester receives MAC_CON_IND ASP. The basic MAC IN minimum delay connection is established
(3) The established MAC connection corresponds to the selected service type. Preamble pass.
(4) The established MAC connection does not correspond to the selected service type. Preamble is inconclusive.
(5) No response to the connection request of the Tester. Preamble is inconclusive.
(6) IUT is a FT part. Tester sends MAC_CON_REQ ASP to simulate PT initiated setup.
(7) Tester receives MAC_CON_CFM ASP. The basic MAC IN minimum delay connection is established.

Test Step Dynamic Behaviour

Test Step Name : PR_ip_mac_connect

Group : Preamble/U_plane/

Objective : Tester establishes, with the IUT, a basic MAC connection for IP error correct services.

Default : DF_handle_nwk_u_plane_services ,
DF_handle_accepted_mac_events ,
DF_handle_rejected_mac_events

Comments :

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		[TSPX_pt]			
2		LMAC ! MAC_PAGE_REQ START T_wait	Mac_page_req(TSC_normal_paging, Lce_short_request_page_ip)		(1)
3		LMAC ? MAC_CON_IND (TCV_mcei := MAC_CON_IND.mcei, TCV_service_type := MAC_CON_IND.service_type) CANCEL T_wait	Mac_con_ind		(2)
4		[TCV_service_type = TSC_ip]			
5	PR01	(TSV_mcei1 := TCV_mcei)		(PASS)	(3)
6		[TCV_service_type <> TSC_ip]			
7	PR02	CANCEL		I	(4)
8	PR03	?TIMEOUT T_wait		I	(5)
9		[NOT TSPX_pt]			
10		(TSV_mcei1 := 1)			
11		LMAC ! MAC_CON_REQ START T_wait	Mac_con_req(TSV_mcei1,TSPX_pmid, FALSE,0,FALSE, TSPX_slot,TSC_ip,0, TSC_sbcon,TSPX_rpn)		(6)
12		LMAC ? MAC_CON_CFM CANCEL T_wait	Mac_con_cfm(TSV_mcei1)	(PASS)	(7)
13	PR04	?TIMEOUT T_wait		I	(5)

Detailed Comments : (1) IUT is a PT part .Tester sends LCE_REQUEST_PAGE paging message to invoke PT initiated setup.
(2) Tester receives MAC_CON_IND ASP. The basic MAC IP error correction connection is established
(3) The established MAC connection corresponds to the selected service type. Preamble pass.
(4) The established MAC connection does not correspond to the selected service type. Preamble is inconclusive.
(5) No response to the connection request of the Tester. Preamble is inconclusive.
(6) IUT is a FT part. Tester sends MAC_CON_REQ ASP to simulate PT initiated setup.
(7) Tester receives MAC_CON_CFM ASP. The basic MAC IP error correction connection is established.

Test Step Dynamic Behaviour

Test Step Name : PR_basic_mac_connect
Group : Preamble/General/
Objective : Tester establishes a basic MAC connection, for C−plane services only, with the IUT
Default : DF_handle_nwk_msg ,
DF_handle_accepted_mac_events ,
DF_handle_rejected_mac_events
Comments :

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		[NOT TSPX_chn]			
2		(TSV_chn := TSC_cs)			(1)
3		[TSPX_pt]			
4		+LTS_pt_connect (FALSE)			(2)
5		[NOT TSPX_pt]			
6		(TSV_mcei1 := 1)			
7		+LTS_ft_connect (FALSE)			(3)
8		[TSPX_chn]			
9		(TSV_chn := TSC_cf)			(4)
10		[TSPX_pt]			
11		+LTS_pt_connect (TRUE)			(2)
12		[NOT TSPX_pt]			
13		(TSV_mcei1 := 1)			
14		+LTS_ft_connect (TRUE)			(3)
		LTS_ft_connect (cf_:CF_REQUIRED)			
15		LMAC ! MAC_CON_REQ START T_wait	Mac_con_req(TSV_mcei1,TSPX_pmid, FALSE,0,cf_, TSPX_slot,TSC_c_only,0, TSC_sbcon,TSPX_rpn)		(5)
16	PR01	LMAC ? MAC_CON_CFM CANCEL T_wait	Mac_con_cfm(TSV_mcei1)	(PASS)	(6)
17	PR02	?TIMEOUT T_wait		(I)	(7)
18		+PO_empty			
		LTS_pt_connect(cf_:CF_REQUIRED)			
19		LMAC ! MAC_PAGE_REQ START T_wait	Mac_page_req(TSC_normal_paging, Lces_short_request_page)		(8)
20		LMAC ? MAC_CON_IND (TCV_cf_required := MAC_CON_IND.cf_required, TSV_mcei1 := MAC_CON_IND.mcei, TSV_rpn := MAC_CON_IND.rpn) CANCEL T_wait	Mac_con_ind		(9)
21	PR03	[TCV_cf_required = cf_]		(PASS)	(10)
22	PR04	[TCV_cf_required = NOT cf_]		(I)	(11)
23		+PO_mac_disconnect			
24	PR05	?TIMEOUT T_wait		(I)	(7)
25		+PO_empty			

Detailed Comments : (1) Slow signalling selected.
(2) IUT is a PT part. Invoke PT initiated setup by sending paging message.
(3) IUT is a FT part. Simulate PT initiated setup by using MAC_con_req MAC ASP.
(4) Fast signalling selected.
(5) Tester sends MAC_CON_REQ ASP to simulate PT initiated setup.
(6) Tester receives MAC_CON_CFM ASP. The basic MAC connection is established.

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Test Step Dynamic Behaviour

Detailed Comments : ...
(7) No response to the connection request of the Tester. Preamble is inconclusive.
(8) Tester sends LCE_REQUEST_PAGE paging message to invoke PT initiated setup.
(9) Tester receives MAC_CON_IND ASP. The basic MAC connection is established
(10) The established MAC connection corresponds to the selected type of signalling. Preamble pass.
(11) The established MAC connection does not correspond to the selected type of signalling. Preamble is inconclusive.

Test Step Dynamic Behaviour

Test Step Name : STP_ca_check_info_transfer
Group : Teststeps/C_plane/
Objective : Tester checks if the IUT is in Class A information transfer phase
Default :
Comments : ETS 300 175−4: § 9.2.3.4 Reception of Class A I−Frame

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		LMAC ! MAC_DATA_REQ START TDL_04_max	Mac_data_req(TSV_mcei1, TSV_chn, Is_ca(TSC_nlf0,VR,VS, L3_unknow))		(1)
2		(VS := (VS +1) MOD 2)			
3		LMAC ?MAC_DATA_IND CANCEL TDL_04_max	Mac_data_ind(TSV_mcei1, TSV_chn, Rrr_ca(TSC_nlf0,VS))		(2)
4	CS01	(VA := VS)		(PASS)	
5		LMAC ?MAC_DATA_IND CANCEL TDL_04_max	Mac_data_ind(TSV_mcei1, TSV_chn, Ir_ca_any_pdu(TSC_nlf0, VS,VR))		(3)
6	CS02	(VR := (VR + 1) MOD 2, VA := VS)		(PASS)	
7	CS03	?TIMEOUT TDL_04_max		(I)	(4)

Detailed Comments : (1) Tester sends a class A I−Frame with NLF = 0 an correct NR and NS.
(2) Expected event: The IUT responds with a Class A RR response frame including correct NR.
(3) Expected event: The IUT responds with a Class A I−Frame including correct NR and NS.
(4) No response received. Inconclusive verdict.

Test Step Dynamic Behaviour

Test Step Name : STP_ft_connection_handover
Group : Teststeps/C_plane/
Objective : The Tester (as PT part) creates a new connection for intracell connection handover.
Default : DF_handle_nwk_msg ,
DF_handle_accepted_mac_events ,
DF_handle_rejected_mac_events
Comments : PIXIT Table B.??

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		LMAC ! MAC_CON_REQ START T_wait	Mac_con_req(TSV_mcei2,TSPX_pmid, TRUE,TSV_mcei1,FALSE, TSPX_slot,TSC_c_only,0, TSC_sbcon,TSPX_rpn)		(1)
2	ST01	LMAC ? MAC_CON_CFM CANCEL T_wait	Mac_con_cfm(TSV_mcei1)	(PASS)	(2)
3	ST02	?TIMEOUT T_wait		I	(3)

Detailed Comments : (1) The Tester (as PT part) creates a new connection for connection handover.
(2) Tester receives a confirmation of the new connection created.
(3) No confirmation for new connection received. Step is inconclusive.

Test Step Dynamic Behaviour

Test Step Name : STP_ft_intercell_connection_handover
Group : Teststeps/C_plane/
Objective : The Tester (as PT part) creates a new connection for intercell connection handover.
Default : DF_handle_nwk_msg ,
DF_handle_accepted_mac_events ,
DF_handle_rejected_mac_events
Comments : PIXIT Table B.??

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		LMAC ! MAC_CON_REQ START T_wait	Mac_con_req(TSV_mcei2,TSPX_pmid, TRUE,TSV_mcei1,FALSE, TSPX_slot,TSC_c_only,0, TSC_sbcon,TSPX_rpn1)		(1)
2	ST01	LMAC ? MAC_CON_CFM CANCEL T_wait	Mac_con_cfm(TSV_mcei1)	(PASS)	(2)
3	ST02	?TIMEOUT T_wait		I	(3)

Detailed Comments : (1) The Tester (as PT part) creates a new connection for connection handover.
(2) Tester receives a confirmation of the new connection created.
(3) No confirmation for new connection received. Step is inconclusive.

Test Step Dynamic Behaviour

Test Step Name : STP_invoke_downlink_data
Group : Teststeps/C_plane/
Objective : Implicit Send: The IUT as FT part transmits connectionless data on downlink service.
Default : DF_handle_nwk_msg ,
DF_handle_accepted_mac_events ,
DF_handle_rejected_mac_events
Comments : PIXIT Table B.12

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		<IUT ! MAC_DOWN_DATA_IND>	Mac_down_data_ind(Uir_cu_any_pdu(TSC_connectionless_sapi))		(1)
2		START T_wait			
3	ST01	LMAC ? MAC_DOWN_DATA_IND CANCEL T_wait	Mac_down_data_ind(Uir_cu_any_pdu(TSC_connectionless_sapi))	(PASS)	(2)
4		+PO_empty			
5	ST02	?TIMEOUT T_wait		(FAIL)	(3)
6		+PO_empty			

Detailed Comments : (1) IUT is a FT. Implicit request for UI frame over MAC connectionless service (Downlink).
(2) Expected Event: The IUT sends an unacknowleged information frame.
(3) No UI frame received from the IUT.

Test Step Dynamic Behaviour

Test Step Name : STP_invoke_uplink_data
Group : Teststeps/C_plane/
Objective : Implicit Send: The IUT as PT part transmits connectionless data on uplink service.
Default : DF_handle_nwk_msg ,
DF_handle_accepted_mac_events ,
DF_handle_rejected_mac_events
Comments : PIXIT Table B.12

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		<IUT ! MAC_UP_DATA_IND>	Mac_up_data_ind(Uir_cu_any_pdu(TSC_connectionless_sapi))		(1)
2		START T_wait			
3	ST01	LMAC ? MAC_UP_DATA_IND CANCEL T_wait	Mac_up_data_ind(Uir_cu_any_pdu(TSC_connectionless_sapi))	(PASS)	(2)
4		+PO_empty			
5	ST02	?TIMEOUT T_wait		(FAIL)	(3)
6		+PO_empty			

Detailed Comments : (1) IUT is a PT. Implicit request for UI frame over MAC connectionless service (Uplink).
(2) Expected Event: The IUT sends an unacknowleged information frame.
(3) No UI received from the IUT.

Test Step Dynamic Behaviour

Test Step Name : STP_invoke_cl_data_on_co
Group : Teststeps/C_plane/
Objective : Implicit Send: The IUT transmits connectionless data over an open MAC connection..
Default : DF_handle_nwk_msg ,
DF_handle_accepted_mac_events ,
DF_handle_rejected_mac_events
Comments : PIXIT Table B.12

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		<IUT ! MAC_DATA_IND>	Mac_data_ind(TSV_mcei1, TSV_chn, Uir_cu_any_pdu(TSC_connection_sapi))		(1)
2		START T_wait			
3	ST01	LMAC ? MAC_DATA_IND CANCEL T_wait	Mac_data_ind(TSV_mcei1, TSV_chn, Uir_cu_any_pdu(TSC_connection_sapi))	(PASS)	(2)
4	ST02	?TIMEOUT T_wait		(FAIL)	(3)
5		+PO_mac_disconnect			****

Detailed Comments : (1) Implicit request for UI frame over the open MAC connection.
(2) Expected Event: The IUT sends an unacknowleged information frame on the MAC connection.
(3) No UI frame received from the IUT.
**** Tester disconnects the MAC connection to terminate in stable state.

Test Step Dynamic Behaviour

Test Step Name : STP_invoke_ca_establishment
Group : Teststeps/C_plane/
Objective : Implicit Send: The IUT transmits the Class A establishment request.
Default : DF_handle_nwk_msg ,
DF_handle_accepted_mac_events ,
DF_handle_rejected_mac_events
Comments : PIXIT Table B.13

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		<IUT ! MAC_DATA_IND>	Mac_data_ind(TSV_mcei1, TSV_chn, Ir_ca_any_pdu(TSC_nlf1, VS,VR))		(1)
2		START T_wait			
3		LMAC ?MAC_DATA_IND CANCEL T_wait	Mac_data_ind(TSV_mcei1, TSV_chn, Ir_ca_any_pdu(TSC_nlf1, VS,VR))		(2)
4	ST01	(VR := (VR + 1) MOD 2, VA := VS)		(PASS)	
5	ST02	?TIMEOUT T_wait		(I)	(3)
6		+PO_mac_disconnect			****

Detailed Comments : (1) Implicit send. The IUT shall send the Class A establshment request.
(2) Tester receives the Class A establishment request sent by the IUT.
(3) No establishment request received from the IUT. Preamble is inconclusive.
**** Tester disconnects the MAC connection to terminate in stable state.

Test Step Dynamic Behaviour

Test Step Name : STP_invoke_pt_connection_handover
Group : Teststeps/C_plane/
Objective : Implicit Send: The IUT (as PT part) creates a new connection for intracell connection handover.
Default : DF_handle_nwk_msg ,
DF_handle_accepted_mac_events ,
DF_handle_rejected_mac_events
Comments : PIXIT Table B.??

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		<IUT ! MAC_CON_IND>	Mac_con_ind_mcei_ch(TSV_mcei1)		(1)
2		START T_wait			
3	ST01	LMAC ?MAC_CON_IND (TSV_mcei2 := MAC_CON_IND.mcei) CANCEL T_wait	Mac_con_ind_mcei_ch(TSV_mcei1)	(PASS)	(2)
4	ST02	?TIMEOUT T_wait		I	(3)

Detailed Comments : (1) Implicit Send: The IUT (as PT part) creates a new connection for connection handover.
(2) Tester receives an indication of the new connection created by the IUT.
(3) No indication for new connection received from the IUT. Step is inconclusive.

Test Step Dynamic Behaviour

Test Step Name : STP_invoke_pt_intercell_connection_hdr
Group : Teststeps/C_plane/
Objective : Implicit Send: The IUT (as PT part) creates a new connection for intercell connection handover.
Default : DF_handle_nwk_msg ,
DF_handle_accepted_mac_events ,
DF_handle_rejected_mac_events
Comments : PIXIT Table B.??

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		<IUT ! MAC_CON_IND>	Mac_con_ind_mcei_intercell _ch(TSV_mcei1, TSV_rpn)		(1)
2		START T_wait			
3	ST01	LMAC ?MAC_CON_IND (TSV_mcei2 := MAC_CON_IND.mcei) CANCEL T_wait	Mac_con_ind_mcei_intercell _ch(TSV_mcei1, TSV_rpn)	(PASS)	(2)
4	ST02	?TIMEOUT T_wait		I	(3)

Detailed Comments : (1) Implicit Send: The IUT (as PT part) creates a new connection for connection handover.
(2) Tester receives an indication of the new connection created by the IUT.
(3) No indication for new connection received from the IUT. Step is inconclusive.

Test Step Dynamic Behaviour

Test Step Name : STP_invoke_long_page
Group : Teststeps/C_plane/
Objective : Implicit Send: The IUT as FT part transmits a correct LCE−REQUEST−PAGE in long length format.
Default : DF_handle_nwk_msg ,
DF_handle_accepted_mac_events ,
DF_handle_rejected_mac_events
Comments : PIXIT Table B.12

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		<IUT ! MAC_PAGE_IND>	Mac_page_ind(Lcer_long_request_page)		
2		START T_wait			
3	ST01	LMAC ?MAC_PAGE_IND CANCEL T_wait	Mac_page_ind(Lcer_long_request_page)	(PASS)	(1)
4	ST02	?TIMEOUT T_wait		(FAIL)	(2)

Detailed Comments : (1) IUT is a FT, The IUT as sent a correct LCE−REQUEST−PAGE in long length format.
(2) No response received from the IUT.
**** Tester disconnects the MAC connection to terminate in stable state.

Test Step Dynamic Behaviour

Test Step Name : STP_invoke_short_page
Group : Teststeps/C_plane/
Objective : Implicit Send: The IUT as FT part transmits a correct LCE−REQUEST−PAGE in short length format.
Default : DF_handle_nwk_msg ,
DF_handle_accepted_mac_events ,
DF_handle_rejected_mac_events
Comments : PIXIT Table B.12

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		<IUT ! MAC_PAGE_IND>	Mac_page_ind(Lcer_short_request_page)		
2		START T_wait			
3	ST01	LMAC ?MAC_PAGE_IND CANCEL T_wait	Mac_page_ind(Lcer_short_request_page)	(PASS)	(1)
4	ST02	?TIMEOUT T_wait		(FAIL)	(2)

Detailed Comments : (1) IUT is a FT, The IUT as sent a correct LCE−REQUEST−PAGE in short length format.
(2) No response received from the IUT.
**** Tester disconnects the MAC connection to terminate in stable state.

Test Step Dynamic Behaviour

Test Step Name : STP_c1_iut_transmit_fu5(nb:INTEGER)

Group : Teststeps/U_plane/

Objective : In Class 1 operation, forces the IUT to send a parametrised number of FU5 frame.

Default : DF_handle_nwk_u_plane_services ,
DF_handle_accepted_mac_events ,
DF_handle_rejected_mac_events

Comments : ETS 300 175−4: § 14.3.3.1 Sending side procedure

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		(TCV_bool := TRUE, TCV_bool1 := FALSE, TCV_count := 0)			
2		REPEAT LTS_iut_transmission(nb) UNTIL [TCV_bool1]			
		LTS_iut_transmission(nb:INTEGER)			
3		+STP_invoke_fu5_frame			(1)
4		(UTMP := BIT_TO_INT(TCV_fu5.e_r), TR := RN, RN := (RN + 1) MOD 128)			
5		(TCV_bool := TSO_between (UTMP,AN,SN,128))			
6		[TCV_bool]			(2)
7		(AN := UTMP)			
8		(TCV_count := TCV_count + 1)			
9		[TCV_count = nb]			
10		(TCV_bool1 := TRUE)			
11		[TCV_count <> nb]			
12		[NOT TCV_bool]			(3)
13		(TCV_bool1 := TRUE, TCV_bool := FALSE)			

Detailed Comments : (1) Implicit request. the IUT shall transmit a FU5 frame.
(2) The new acknowledgement is within the interval of the last acknowledgment and the last send.
(3) The new acknowledgement is without the interval of the last acknowledgment and the last send.

Test Step Dynamic Behaviour

Test Step Name : STP_invoke_fu1_frame
Group : Teststeps/U_plane/
Objective : Implicit Send: the IUT shall transmit a FU1 frame.
Default : DF_handle_nwk_u_plane_services ,
DF_handle_accepted_mac_events ,
DF_handle_rejected_mac_events
Comments : PIXIT table B.14

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		<IUT ! MAC_DATA_IND>	Mac_data_ind(TSV_mcei1, TSC_in, Fu1r)		(1)
2		START T_wait			
3	ST01	LMAC ? MAC_DATA_IND CANCEL T_wait	Mac_data_ind(TSV_mcei1, TSC_in, Fu1r)	(PASS)	(2)
4	ST02	?TIMEOUT T_wait		(FAIL)	(3)
5		+PO_mac_disconnect			****

Detailed Comments : (1) Implicit request for FU1 frame.
(2) Expected Event: The IUT sends an FU1 frame.
(3) No FU1 frame received from the IUT.
**** Tester disconnects the MAC connection to terminate in stable state.

Test Step Dynamic Behaviour

Test Step Name : STP_invoke_fu5_frame
Group : Teststeps/U_plane/
Objective : Implicit Send: the IUT shall transmit a FU5 frame.
Default : DF_handle_nwk_u_plane_services ,
DF_handle_accepted_mac_events ,
DF_handle_rejected_mac_events
Comments : PIXIT table B.15

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		<IUT ! MAC_DATA_IND>	Mac_data_ind(TSV_mcei1, TSC_ip, Fu5r_any_ack(RN))		(1)
2		START T_wait			
3	ST01	LMAC ? MAC_DATA_IND (TCV_fu5 := MAC_DATA_IND.sdu) CANCEL T_wait	Mac_data_ind(TSV_mcei1, TSC_ip, Fu5r_any_ack(RN))	(PASS)	(2)
4	ST02	?TIMEOUT T_wait		(FAIL)	(3)
5		+PO_mac_disconnect			****

Detailed Comments : (1) Implicit request. the IUT shall transmit a FU5 frame.
(2) The IUT transmitted the expected FU5 frame.
(3) No FU5 frame sent by the IUT.
**** Tester disconnects the MAC connection to terminate in stable state.

Test Step Dynamic Behaviour

Test Step Name : PO_empty
Group : Postamble/
Objective : When IUT is in stable MAC disconnection state before postamble
Default : DF_handle_nwk_msg ,
DF_handle_accepted_mac_events ,
DF_handle_rejected_mac_events
Comments :

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1	PO01	CANCEL		R	(1)

Detailed Comments : (1) All running Timeout (if any) are stopped here.

Test Step Dynamic Behaviour

Test Step Name : PO_mac_disconnect
Group : Postamble/
Objective : Return to stable state between two test cases. No MAC connection active.
Default : DF_handle_nwk_msg ,
DF_handle_accepted_mac_events ,
DF_handle_rejected_mac_events
Comments :

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		LMAC ! MAC_DIS_REQ	Mac_dis_req(TSV_mcei1)		(1)
2	PO01	CANCEL		R	(2)

Detailed Comments : (1) Tester disconects the current connection.
(2) All running Timeout (if any) are stopped here.

Default Dynamic Behaviour

Default Name : DF_handle_accepted_mac_events
Group :
Objective : Handling of unexpected accepted MAC ASPs events.
Comments :

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		LMAC ? MAC_DATA_IND	Mac_data_ind_other_mcei(TSV_mcei1)		(1)
2		RETURN			
3		LMAC ? MAC_CON_IND (TSV_mcei3 := MAC_CON_IND.mcei)	Mac_con_ind_other_mcei(TSV_mcei1)		(2)
4		LMAC ! MAC_DIS_REQ	Mac_dis_req(TSV_mcei3)		(3)
5		RETURN			
6		LMAC ? MAC_DIS_IND	Mac_dis_ind_other_mcei(TSV_mcei1)		(4)
7		RETURN			
8		LMAC ? MAC_DOWN_DATA_IND	Mac_down_data_ind_any		(5)
9		RETURN			
10		LMAC ? MAC_UP_DATA_IND	Mac_up_data_ind_any		(6)
11		RETURN			
12		LMAC ? MAC_PAGE_IND	Mac_page_ind_any_data		(7)
13		RETURN			

Detailed Comments : (1) Data received on a MCEI not used for the tests. Accepted event.
(2) Connection indication received on a MCEI not used for the tests.
(3) Tester disconects the non expected connection.
(4) Disconnection indication received on a MCEI not used for the tests. Accepted event.
(5) Downlink connectionless data received. Accepted event.
(6) Uplink connectionless data received. Accepted event.
(7) Paging data received. Accepted event.

Default Dynamic Behaviour

Default Name : DF_handle_rejected_mac_events
Group :
Objective : Handling of unexpected rejected MAC ASPs events.
Comments :

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1		LMAC ? MAC_DATA_IND	Mac_data_ind_mcei(TSV_mcei1)		(1)
2	DF01	CANCEL		I	
3		LMAC ? MAC_CON_IND	Mac_con_ind_mcei(TSV_mcei1)		(2)
4	DF02	CANCEL		I	
5		LMAC ? MAC_CON_CFM	Mac_con_cfm_receive_any		(3)
6	DF03	CANCEL		I	
7		LMAC ? MAC_DIS_IND	Mac_dis_ind_mcei(TSV_mcei1)		(4)
8	DF04	CANCEL		I	
9		LMAC ? MAC_UP_DATA_CFM	Mac_up_data_cfm		(5)
10	DF05	CANCEL		I	
11		LMAC?OTHERWISE			(6)
12	DF06	CANCEL		I	

Detailed Comments : (1) Unexpected data received on the MCEI used for a test. Inconclusive verdict.
(2) Connection indication received on the MCEI used for a test. Inconclusive verdict.
(3) Connection confirmation received and no request pending. Inconclusive verdict.
(4) Unexpected disconnection indication received on the MCEI used for a test. Inconclusive verdict.
(5) Uplink connectionless data confirmation received and no request pending. Inconclusive verdict
(6) Other unexpected events. Inconclusive verdict.

Default Dynamic Behaviour

Default Name : DF_handle_nwk_msg
Group :
Objective :
Comments :

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1	DF01	LMAC ?MAC_DATA_IND	Mac_data_ind(TSV_mcei1, TSV_chn, Ir_ca(TSC_nlf1,0,0, Lce_page_response))		(1)
2		RETURN			
3	DF02	LMAC ?MAC_DATA_IND	Mac_data_ind_any_pdu(TSV_mcei1, TSV_chn)		(4)
4		RETURN			

Detailed Comments : (1) LCE_PAGE_RESPONSE received.
(2) Accept any message from the IUT not trapped in the test case or test step tree.

Default Dynamic Behaviour

Default Name : DF_handle_nwk_u_plane_services
Group :
Objective :
Comments :

Nr	Label	Behaviour Description	Constraints Ref	Verdict	Comments
1	DF01	LMAC ?MAC_DATA_IND	Mac_data_ind(TSV_mcei1, TSV_chn, Ir_ca(TSC_nlf1,0,0, Lce_page_response))		(1)
2		(VR := 1, VS := 0, VA := 0, RC := 0)			
3		LMAC ! MAC_DATA_REQ	Mac_data_req(TSV_mcei1, TSV_chn, Rrs_ca(TSC_nlf1,VR))		
4		RETURN			
5	DF02	LMAC ?MAC_DATA_IND	Mac_data_ind_any_pdu(TSV_mcei1, TSV_chn)		(2)
6		RETURN			

Detailed Comments : (1) LCE_PAGE_RESPONSE received. Tester acknowledges it.
(2) Accept any message from the IUT not trapped in the test case or test step tree.

Annex B (normative): Partial PIXIT proforma for DECT DLC

The PIXIT Proforma is based on ISO/IEC 9646-6 [26]. Any additional information needed can be found in this international standard document.

B.1 Identification summary

Table B.1

PIXIT Number:	
Test Laboratory Name:	
Date of Issue:	
Issued to:	

B.2 ATS summary

Table B.2

Protocol Specification:	ETS 300 175-4
Protocol to be tested:	
ATS Specification:	ETS 300 497-5
Abstract Test Method:	Remote, embedded variant

B.3 Test laboratory

Table B.3

Test Laboratory Identification:	
Test Laboratory Manager:	
Means of Testing:	
SAP Address:	

B.4 Client identification

Table B.4

Client Identification:	
Client Test manager:	
Test Facilities required:	

B.5 SUT

Table B.5

Name:	
Version:	
SCS Number:	
Machine configuration:	
Operating System Identification:	
IUT Identification:	
PICS Reference for IUT:	
Limitations of the SUT:	
Environmental Conditions:	

B.6 Protocol layer information

B.6.1 Protocol identification

Table B.6

Name:	DECT - Data Link Control Layer - ETS 300 175-4
Version:	
PICS References:	

B.6.2 IUT information

B.6.2.1 General configuration

Table B.7 General configuration

Item	Parameter	Parameter Type	Explanation	Value
1	TSPX_pt	BOOLEAN	Indicate the IUT type (PT = TRUE - FT = FALSE)	
2	TSPX_chn	BOOLEAN	Indicate the desired signalling channel for testing signalling procedure (For I_N or I_P testing only C_S channel is used). For C_S write FALSE and write TRUE for C_F	
3	TSPX_slot	SLOT_TYPE	Indicate the slot type to be use in MAC connection for the test suite (Half = 0 - Full = 1 - Double = 2)	

B.6.2.2 Parameter values

Table B.8 Parameter values

Item	Parameter	Parameter Type	Explanation	Value
1	TSPX_n250	INTEGER	Indicate the value of the re-transmission counter for Class A establishment procedure.	
2	TSPX_k1	INTEGER	If supported, indicate the value of Class 1 sending window.	
3	TSPX_rpn	RPN	FT's Radio fixed Part Number	
4	TSPX_rpn1	RPN	Second FT’s Radio fixed Part Number for Intercell Handover	

B.6.2.3 Timer values

Table B.9 Timer values

Item	Parameter	Parameter Type	Type	Value
1	TSPX_dl04_value	INTEGER	Indicate the value of the Class A established state re-transmission timer	
2	TSPX_dl07_value	INTEGER	Indicate the value of the Class A establishment timer	
3	TSPX_dlu01_value	INTEGER	Indicate the of the Class 1 timer	

B.6.2.4 Network parameter values

Table B.10 Network parameter values

Item	Parameter	Parameter Type	Explanation	Value
1	TSPX_ari	ARI	Access Rights Identity	
2	TSPX_pmid	PMID	Portable MAC Identity	
3	TSPX_fid	FIXED_IDENTITY	Fixed Identity	
4	TSPX_pid	PORTABLE_IDENTITY	Portable Identity	
5	TSPX_cipher_info	CIPHER_INFO	NWK cipher information	
6	TSPX_nwk_assigned_id	NWK_ASGN_IDENTITY	NWK assigned Identity	
7	TSPX_ipui_class	IPUI-CLASS	Class of international portable user identity	
8	TSPX_ipui	BITSTRING	International Portable User Identity	

B.6.3 Procedural Information

B.6.3.1 Class U procedural information

Table B.11 Class U reception procedural information

Item	Parameter	Parameter Type	Explanation	Value
1	TSPX_cu_receive_on_co	BOOLEAN	In case of an open Mac connection exist, the IUT is able to receive Class U information frame (UI frame) in this connection?	TRUE FALSE
2	TSPX_cu_rec_proc_defined	BOOLEAN	Is it possible to determine if the IUT received a Class U information frame (UI frame)?	TRUE FALSE
3	TPSPX_ui_pdu_on_co	BITSTRING	If item 1 and item 2 are TRUE: Indicate in the following lines the desired information field for the UI frame.	
	TSO_iut_ui_received	Test suite Operation	If item 1 and item 2 are TRUE: Indicate in the following lines the procedure to determine the reception of the UI frame.	
4	TPSPX_ui_pdu_on_cl	BITSTRING	If item 1 is FALSE and item 2 is TRUE: Indicate in the following lines the desired information field for the UI frame.	
	TSO_iut_ui_received	Test suite Operation	If item 1 is FALSE and item 2 is TRUE: Indicate in the following lines the procedure to determine the reception of the UI frame.	

Table B.12 Class U transmission procedural information

Item	Parameter	Parameter Type	Explanation	Value
1	TSPX_cu_snd_proc_defined	BOOLEAN	Is it possible to force the IUT to transmit a Class U information frame (UI frame)?	TRUE FALSE
	STP_invoke_uplink_data for PT part STP_invoke_downlink_data for FT part	Implicit Send	If item 1 is TRUE: Indicate in the following lines the procedure to transmit the UI frame.	
2	TSPX_cu_transmit_on_co	BOOLEAN	In case of an open Mac connection exist, the IUT uses this connection for transmitting Class U information frame (UI frame)?	TRUE FALSE
	STP_invoke_cl_data_on_co	Implicit Send	If item 1 and item 2 are TRUE: Indicate in the following lines the procedure to transmit the UI frame.	

B.6.3.2 Class A procedural information

Table B.13 Class A procedural information

Item	Parameter	Parameter Type	Explanation	Value
1	TSPX_ca_accept_est	BOOLEAN	Does the IUT react properly in case of reception of the Class A establishment request?	TRUE FALSE
2	TSPX_ca_re_establish	BOOLEAN	Identical to PICS item Q11.4 used in test suite with the name TSPC_ca_re_establish.	TRUE FALSE
	STP_invoke_ca_establishment	Implicit Send	If item 2 is TRUE: Indicate in the following lines the procedure to force the IUT to re-establish the Class A link.	

B.6.3.3 Paging procedural information

Table B.14 Paging procedural information

Item	Parameter	Parameter Type	Explanation	Value
1	TSPX_lbs_proc_defined	BOOLEAN	Only if the IUT is a FP part: Is it possible to force if the IUT to transmit a LCE-PAGE-REQUEST message in short format (3 octets)?	TRUE FALSE
	STP_invoke_short_page	Implicit Send	If item 1 is TRUE: Indicate in the following lines the procedure to force the transmission of the LCE-PAGE-REQUEST message in short format.	
2	TSPX_lbl_proc_defined	BOOLEAN	Only if the IUT is a FP part: Is it possible to force if the IUT to transmit a LCE-PAGE-REQUEST message in long format (5 octets)?	TRUE FALSE
	STP_invoke_long_page	Implicit Send	If item 2 is TRUE: Indicate in the following lines the procedure to force the transmission of the LCE-PAGE-REQUEST message in long format.	

B.6.3.4 Class 0 procedural information

Table B.15 Class 0 procedural information

Item	Parameter	Parameter Type	Explanation	Value
1	TSPX_in_rec_proc_defined	BOOLEAN	Is it possible to determine if the IUT received a Class 0 FU1 frame?	TRUE FALSE
2	TSPX_in_pdu	OCTETSTRING	If item 1 is TRUE: Indicate in the following lines the desired information field for the FU1 frame.	
	TSO_iut_in_received	Test suite Operation	If item 1 is TRUE: Indicate in the following lines the procedure to determine the reception of the FU1 frame.	
3	TSPX_fu1_snd_pr_defined	BOOLEAN	Is it possible to force the IUT to transmit a Class 0 FU1 frame?	TRUE FALSE
	STP_invoke_fu1_frame	Implicit Send	If item 3 is TRUE: Indicate in the following lines the procedure to force the IUT to transmit the FU1 frame.	

B.6.3.5 Class 1 procedural information

Table B.16 Class 1 procedural information

Item	Parameter	Parameter Type	Explanation	Value
1	TSPX_uln	ULN	Indicate the value of the U plane link number (ULN) used on the first IP service for FU5 frame.	
2	TSPX_lrc1_value	INTEGER	Indicate the duration (in seconds) of the buffering period of out of sequence frame(s). (L(R) TDMA frames).	
3	TSPX_fu5_snd_pr_defined	BOOLEAN	Is it possible to force the IUT to transmit a Class 1 FU5 frame?	TRUE FALSE
	STP_invoke_fu5_frame	Implicit Send	If item 3 is TRUE: Indicate in the following lines the procedure to force the IUT to transmit the FU5 frame.	

Annex C (normative): Protocol Conformance Test Report (PCTR) Proforma for DECT DLC

The PCTR Proforma is based on ISO/IEC 9646-6 [26]. Any additional information needed can be found in this document.

C.1 Identification summary

C.1.1 Protocol conformance test report

Table C.1

PCTR Number:	
PCTR Date:	
Corresponding SCTR Number:	
Corresponding SCTR Date:	
Test Laboratory Identification:	
Test Laboratory Manager:	
Signature:	

C.1.2 IUT identification

Table C.2

Name:	
Version:	
Protocol specification:	
PICS:	
Previous PCTR if any:	

C.1.3 Testing environment

Table C.3

PIXIT Number:	
ATS Specification:	
Abstract Test Method:	Remote test method, Embedded variant with no UT
Means of Testing identification:	
Date of testing:	
Conformance Log reference(s):	
Retention Date for Log reference(s):	

C.1.4 Limits and reservation

Additional information relevant to the technical contents or further use of the test report, or the rights and obligations of the test laboratory and the client, may be given here. Such information may include restriction on the publication of the report.

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C.1.5 Comments

Additional comments may be given by either the client or the test laboratory on any of the contents of the PCTR, for example, to note disagreement between the two parties.

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C.2 IUT Conformance status

This IUT has or has not been shown by conformance assessment to be non conforming to the specified protocol specification.

Strike the appropriate words in this sentence. If the PICS for this IUT is consistent with the static conformance requirements (as specified in clause 3 in this report) and there are no "FAIL" verdicts to be recorded (in clause 6) strike the words "has or". otherwise strike the words "or has not".

C.3 Static conformance summary

The PICS for this IUT is or is not consistent with the static conformance requirements in the specified protocol.

Strike the appropriate words in this sentence.

C.4 Dynamic conformance summary

The test campaign did or did not reveal errors in the IUT.

Strike the appropriate words in this sentence. If there are no "FAIL" verdicts to be recorded (in clause 6 of this report) strike the words "did or" otherwise strike the words "or did not".

Summary of the results of groups of test:

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C.5 Static conformance review report

If clause 3 indicates non-conformance, this subclause itemises the mismatches between the PICS and the static conformance requirements of the specified protocol specification.

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C.6 Test campaign report

Table C.4

ATS Reference	Selected?	Run?	Verdict	Observations (Reference to any observations made in clause 7)
TC-U-CA-000	Yes/No	Yes/No		
TC-U-CA-001	Yes/No	Yes/No		
TC-U-CA-002	Yes/No	Yes/No		
TC-U-CA-003	Yes/No	Yes/No		
TC-U-BI-000	Yes/No	Yes/No		
TC-U-BI-001	Yes/No	Yes/No		
TC-U-BI-002	Yes/No	Yes/No		
TC-U-BI-003	Yes/No	Yes/No		
TC-U-BI-004	Yes/No	Yes/No		
TC-U-BI-005	Yes/No	Yes/No		
TC-U-BI-006	Yes/No	Yes/No		
TC-U-BI-007	Yes/No	Yes/No		
TC-A-CA-000	Yes/No	Yes/No		
TC-A-CA-001	Yes/No	Yes/No		
TC-A-CA-002	Yes/No	Yes/No		
TC-A-CA-003	Yes/No	Yes/No		
TC-A-CA-005	Yes/No	Yes/No		
TC-A-CA-006	Yes/No	Yes/No		
TC-A-CA-007	Yes/No	Yes/No		
TC-A-CA-008	Yes/No	Yes/No		
TC-A-BV-000	Yes/No	Yes/No		
TC-A-BV-002	Yes/No	Yes/No		
TC-A-BV-003	Yes/No	Yes/No		
TC-A-BV-004	Yes/No	Yes/No		
TC-A-BV-005	Yes/No	Yes/No		
TC-A-BV-006	Yes/No	Yes/No		
TC-A-BI-000	Yes/No	Yes/No		
TC-A-BI-001	Yes/No	Yes/No		
TC-A-BI-002	Yes/No	Yes/No		
TC-A-BI-003	Yes/No	Yes/No		
TC-A-BI-004	Yes/No	Yes/No		

(continued)

Table C.4 (concluded)

ATS Reference	Selected ?	Run ?	Verdict	Observations (Reference to any observations made in clause 7)
TC-A-BI-005	Yes/No	Yes/No		
TC-A-BI-006	Yes/No	Yes/No		
TC-A-BI-007	Yes/No	Yes/No		
TC-A-BI-008	Yes/No	Yes/No		
TC-A-BI-009	Yes/No	Yes/No		
TC-A-BI-011	Yes/No	Yes/No		
TC-A-BI-012	Yes/No	Yes/No		
TC-A-BI-013	Yes/No	Yes/No		
TC-A-BO-000	Yes/No	Yes/No		
TC-A-BO-001	Yes/No	Yes/No		
TC-A-BO-002	Yes/No	Yes/No		
TC-A-BO-003	Yes/No	Yes/No		
TC-L-CA-000	Yes/No	Yes/No		
TC-L-CA-001	Yes/No	Yes/No		
TC-0-CA-000	Yes/No	Yes/No		
TC-0-CA-001	Yes/No	Yes/No		
TC-1-CA-000	Yes/No	Yes/No		
TC-1-CA-001	Yes/No	Yes/No		
TC-1-CA-002	Yes/No	Yes/No		
TC-1-BV-000	Yes/No	Yes/No		
TC-1-BV-001	Yes/No	Yes/No		
TC-1-BV-002	Yes/No	Yes/No		
TC-1-BI-000	Yes/No	Yes/No		
TC-1-BI-001	Yes/No	Yes/No		
TC-1-BI-002	Yes/No	Yes/No		

C.7 Observations

Additional information relevant to the technical content of the PCTR are given here.

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Annex D (informative): Bibliography

1) EWOS/ETSI Project Team No 5: "Project Report and Technical Report. OSI Conformance Testing Methodology and Procedures in Europe".

2) ETR 022 (1991): "Advanced Testing Methods (ATM); Vocabulary of terms used in communications protocols conformance testing".

3) ETR 141: "Methods for Testing and Specification (MTS); Protocol and profile conformance testing specifications; The Tree and Tabular Combined Notation (TTCN) style guide".

4) CEPT Recommendation T/SGT SF2 (89) 6/0: "Draft Recommendation T/SF Services and Facilities of Digital European Cordless Telecommunications".

5) ETR 015: "Radio Equipment and Systems (RES); Digital European Cordless Telecommunications (DECT); Reference document".

6) ETR 041 "Transmission and Multiplexing (TM); Digital European Cordless Telecommunications (DECT); Transmission aspects 3,1 kHz telephony Interworking with other networks".

7) ETR 042 "Radio Equipment and Systems (RES); Digital European Cordless Telecommunications (DECT); A Guide to DECT features that influence the traffic capacity and the maintenance of high radio link transmission quality, including the results of simulations"

8) ETR 043: "Radio Equipment and Systems (RES); Digital European Cordless Telecommunications (DECT); Common interface; Services and Facilities requirements specification".

9) ETR 056: "Radio Equipment and Systems (RES); Digital European Cordless Telecommunications (DECT); System description document".

History

Document history			
June 1995	Public Enquiry	PE 85:	1995-06-05 to 1995-09-29
May 1996	Vote	V 102:	1996-05-06 to 1996-08-09