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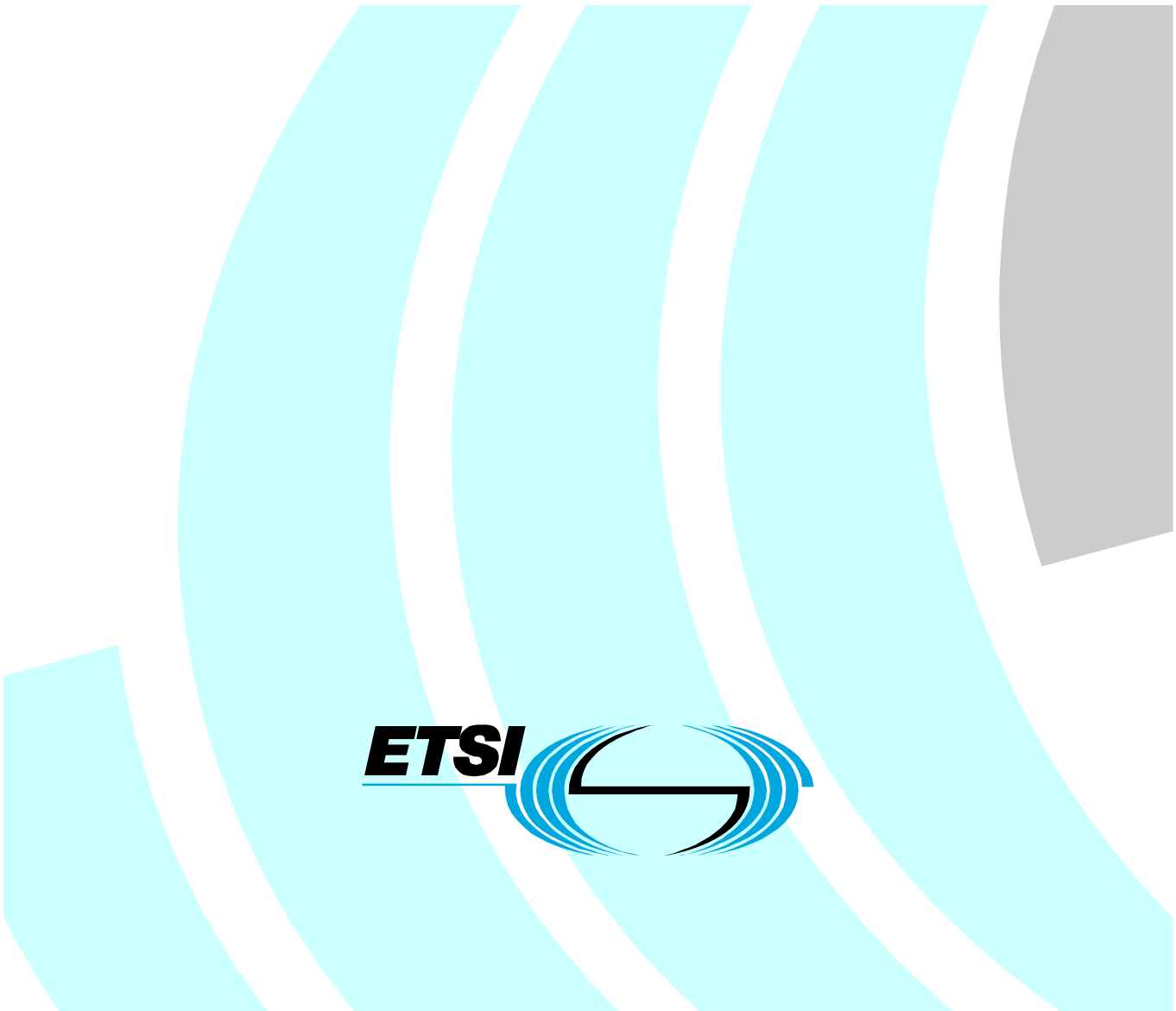
Technical Specification

Intelligent Transport Systems (ITS);
Road Transport and Traffic Telematics (RTTT);
Test specifications for Dedicated Short Range Communication (DSRC) transmission equipment;
Part 1: DSRC data link layer: medium access and logical link control;
Sub-Part 3: Abstract Test Suite (ATS) and partial PIXIT proforma



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Foreword

This Technical Specification (TS) has been produced by ETSI Technical Committee Intelligent Transport System(ITS).

The present document is part 1, sub-part 3 of a multi-part deliverable covering Intelligent Transport Systems (ITS); Dedicated Short Range Communication (DSRC); Data Link Control (DLC) layer as identified below:

Part 1: "DSRC data link layer: medium access and logical link control";

Sub-part 1: "Protocol Implementation Conformance Statement (PICS) proforma specification";

Sub-part 2: "Test Suite Structure and Test Purposes (TSS&TP)";

Sub-part 3: "Abstract Test Suite (ATS) and partial PIXIT proforma".

Part 2: "DSRC application layer".

1 Scope

The present document contains the Abstract Test Suite (ATS) and partial PIXIT proforma to test the Dedicated Short Range Communication (DSRC); Data Link Control (DLC) layer.

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

The ISO standard for the methodology of conformance testing (ISO/IEC 9646-1 [4], ISO/IEC 9646-2 [5] and ISO/IEC 9646-3 [6]) as well as the ETSI rules for conformance testing (ETS 300 406 [3]) are used as a basis for the test methodology.

2 References

References are either specific (identified by date of publication and/or edition number or version number) or non-specific.

- For a specific reference, subsequent revisions do not apply.
- Non-specific reference may be made only to a complete document or a part thereof and only in the following cases:
  - if it is accepted that it will be possible to use all future changes of the referenced document for the purposes of the referring document;
  - for informative references.

Referenced documents which are not found to be publicly available in the expected location might be found at http://docbox.etsi.org/Reference.

For online referenced documents, information sufficient to identify and locate the source shall be provided. Preferably, the primary source of the referenced document should be cited, in order to ensure traceability. Furthermore, the reference should, as far as possible, remain valid for the expected life of the document. The reference shall include the method of access to the referenced document and the full network address, with the same punctuation and use of upper case and lower case letters.

NOTE: While any hyperlinks included in this clause were valid at the time of publication ETSI cannot guarantee their long term validity.

2.1 Normative references

The following referenced documents are indispensable for the application of the present document. For dated references, only the edition cited applies. For non-specific references, the latest edition of the referenced document (including any amendments) applies.

[1] CEN EN 12795 (2003): "Road transport and traffic telematics - Dedicated Short Range Communication (DSRC) - DSRC data link layer: medium access and logical link control".

[2] CEN EN 13372 (2003): "Road transport and traffic telematics (RTTT) - Dedicated short-range communication - Profiles for RTTT".

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

[4] ISO/IEC 9646-1: "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 1: General concepts".

[5] ISO/IEC 9646-2: "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 2: Abstract Test Suite Specification".

[6] ISO/IEC 9646-3: "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 3: The Tree and Tabular Combined Notation (TTCN)".

[7] ISO/IEC 9646-5: "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 5: Requirements on test laboratories and clients for the Conformance Assessment process".

[8] ISO/IEC 9646-6: "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 6: Protocol Profile Test Specification".

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

2.2 Informative references

The following referenced documents are not essential to the use of the present document but they assist the user with regard to a particular subject area**.** For non-specific references, the latest version of the referenced document (including any amendments) applies.

Not applicable.

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in ISO/IEC 9646-1 [4], EN 12795 [1], EN 13372 [2] and the following apply:

blocked signal: signal without clock and bit information, e.g. a very weak signal

3.2 Abbreviations

For the purposes of the present document, the abbreviations given in ISO/IEC 9646-1 [4], ISO/IEC 9646-6 [8], ISO/IEC 9646-7 [9], EN 12795 [1], EN 13372 [2] and the following apply:

ASP	Abstract Service Primitive
ATM	Abstract Test Method
ATS	Abstract Test Suite
BI	Invalid Behaviour
BV	Valid Behaviour
CM	Co-ordination Message
CP	Co-ordination Point
IUT	Implementation Under Test
LT	Lower Tester
MTC	Master Test Component
PCO	Point of Control and Observation
PHL	Physical Layer
PrWA	MAC frame Private Window Allocation
PrWRq	MAC frame Private Window Request
PT	Portable radio Termination
PTC	Parallel Test Component
SAP	Service Access Point
SUT	System Under Test
TTCN	Tree and Tabular Combined Notation
UT	Upper Tester

4 Abstract Test Method (ATM)

4.1 DSRC MAC layer Abstract Test Method (ATM) for OBU

This clause describes the ATM used to test the DSRC MAC layer at the OBU side.

4.1.1 Test architecture

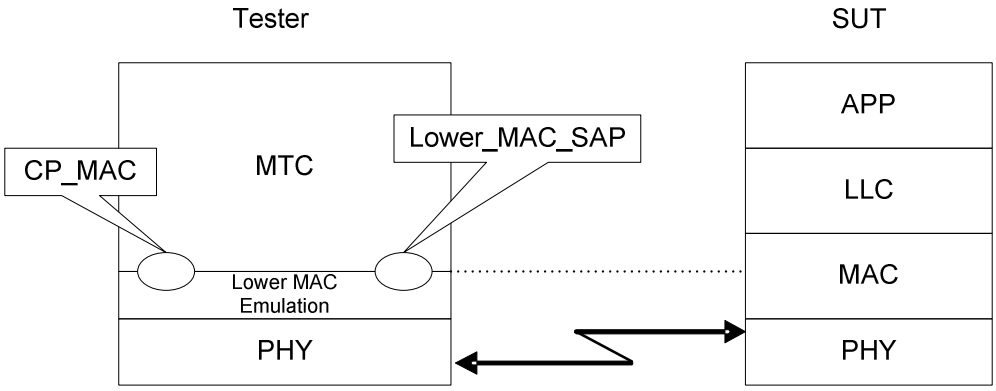

Figure 1: Test architecture for OBU DSRC MAC layer

A parallel testing concept is used, which consists of the following abstract testing parts:

Tester: A test machine that is running a TTCN engine allowing parallel testing and having a standard DSRC Physical layer.

SUT: System under test.

MTC: Master test component used to perform the test, and start/stop/configure the Lower MAC Emulation Parallel Test Component.

MAC: A standard DSRC MAC layer to be tested.

Lower_MAC_SAP: Interface between the Lower MAC emulation and MTC. MAC frames, minus their FCS and flags, are passed via this SAP. In addition, specific frame timing information is passed upwards on this SAP.

Lower MAC emulation: An DSRC MAC emulation performing some additional functions needed for covering the test purposes in addition of the behaviour of a standard DSRC MAC layer. In particular, FCS and flags are added/removed as required, and timing information on received frames is provided to the MTC.

4.1 DSRC MAC layer Abstract Test Method (ATM) for RSU

This clause describes the ATM used to test the DSRC MAC layer at the RSU side.

4.1.1 Test architecture

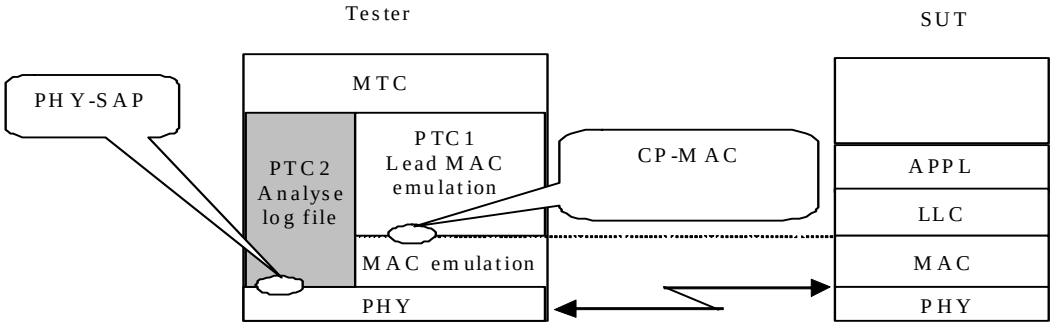

Figure 2: Test architecture for RSU DSRC MAC layer

A parallel testing concept is used, which consists of the following abstract testing parts:

Tester: A test machine that is running a TTCN engine allowing parallel testing and having a standard DSRC Physical layer.

SUT: System under test: Can be RSU or OBU Implementation.

MTC: Master test component used to synchronize the parallel test components and to provide the final verdict of the test.

PTC1: Parallel test component that is in charge of managing the MAC emulation by using external function like Start emulation, Stop emulation and some other behaviours needed for covering all test purposes.

PTC2: Parallel test component that is in charge of analysing the log file to verify the conformity with the corresponding test purpose at MAC frame level.

MAC: A standard DSRC MAC layer to be tested.

Log File: Log file containing a trace of the physical frame exchange.

PHY-SAP: For TTCN point of view: it is a PCO in which only receive events (without flags, FCS and after 0 insertion suppression) are observed and no control functions are provided.

CP-MAC: Interface between the MAC emulation and PTC1. Usually a collection of Test Suite Operation implemented to command the behaviour of the MAC emulation.

MAC emulation: A golden DSRC MAC emulation performing some additional functions needed for covering the test purposes in addition of the behaviour of a standard DSRC MAC layer.

4.2 DSRC LLC layer Abstract Test Method (ATM)

This clause describes the ATM used to test the DSRC LLC layer at the OBU side and at the RSU side.

4.2.1 Test architecture

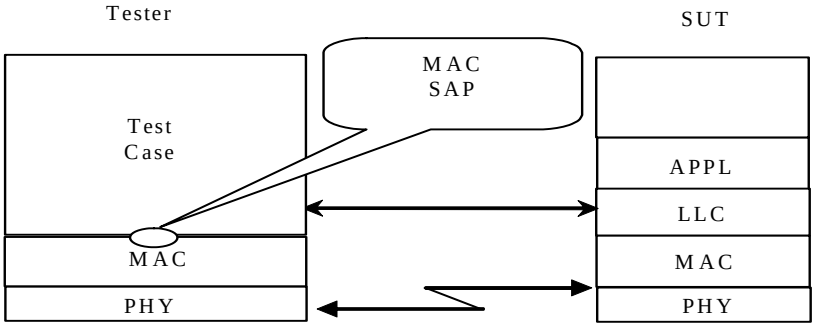

Figure 3: Test architecture for DSRC LLC layer

A single party testing concept is used, which consists of the following abstract testing parts:

Tester: A test machine that is running a TTCN engine allowing single testing and having standard DSRC MAC and Physical layer.

SUT: System under test: Can be RSU or OBU Implementation.

Test Case: A standard TTCN test case.

LCC: A standard DSRC LLC layer to be tested.

MAC: A standard DSRC MAC layer.

MAC-SAP: To be defined or standard SAP referring to the standard.

4.2 Test strategy

The ATM defined in clauses 4.1.1 and 4.2.1 requires the use of concurrent TTCN, which is specified in ISO/IEC 9646-3 [6]. The parallel test components PTC1 and PTC2 are, however, seen as two independent entities. This means that there is no communication or synchronization between the two PTCs during the test.

PTC2 is specified in TTCN (see annex A). Since PTC2 is only observing at the PCO, this ATS does not contain any send statements. Once the Test Purposes (TP) are fulfilled, the PTC2 terminates, i.e. there are no postambles, unless required by the TP.

The requirements for PTC1 (see annex B) are specified using EN 12795 [1].

The Master Test Component (MTC) creates the two PTCs (using CREATE operation), PTC1 stimulates the emulation, and then MTC waits for the two PTCs to terminate (using the DONE event). The final verdict is computed as follows:

- a PASS is assigned if PTC2 returns a PASS verdict and the expected event is received from PTC1;
- a FAIL verdict is assigned if PTC2 returns a FAIL verdict independently of what is received from PTC1;
- an INCONC verdict is assigned if: PTC2 returns an INCONC verdict and the expected event is received from PTC1, or returns a PASS verdict and an unexpected event is received from PTC1.

5 Untestable Test Purposes (TP)

This clause gives a list of TPs which are not implemented in the Abstract Test Suites due to the chosen Abstract Test Method or other restrictions.

Table 1: Untestable TPs

Test purpose	Reason

6 ATS conventions

The ATS conventions are intended to give a better understanding of the ATS but they also describe the conventions made for the development of the ATS. These conventions shall be considered during any later maintenance or further development of the ATS.

The ATS conventions contain two clauses, 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.

To define the ATS, the guidelines of the document ETS 300 406 [3] was considered.

6.1 Naming conventions

6.1.1 Declarations part

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

6.1.1.1 General

The following general rules apply for the names given in the declarations part.

Names of ASN.1 types imported from the base standard are preserved.

Predefined types (e.g. BITSTRING [7]) are never used in structured type definitions, ASP type definitions or PDU type definitions. Simple types are used instead.

All declarations in the test suite are listed in alphabetical order. A different order of listing should be used for only maintenance reasons.

6.1.1.2 Test suite operations

The test suite operation identifiers are prefixed with "TSO_".

EXAMPLE: TSO_substring.

6.1.1.3 Test suite parameter declarations

If the test suite parameter references a Protocol Implementation Conformance Statement (PICS) item, the test suite parameter identifiers are prefixed "TSPC_".

EXAMPLE 1: TSPC_extended_rf_carriers.

If the test suite parameter references a PIXIT item, the suite parameter identifiers are prefixed "TSPX_".

EXAMPLE 2: TSPX_pmid.

If the test suite parameter represents a system parameter, the complete name defined in the protocol is used.

6.1.1.4 Test case selection expression definition

The test case selection expression identifiers begin with the prefix "SEL_".

6.1.1.5 Test suite constant declarations

The test suite constant identifiers are prefixed "TSC_".

If the test suite constant represents a system parameter, the complete name defined in the protocol is used.

6.1.1.6 Test suite variable declarations

The test suite variable identifiers are prefixed "TSV_".

Complete names as defined in the protocol are used.

6.1.1.7 Test case variable declarations

The test case variable identifiers are prefixed "TCV_".

Complete names as defined in the protocol are used.

6.1.1.8 Timer declarations

Timers begin with the prefix "T_".

6.1.1.9 ASP type definitions

The general conventions in clause 6.1.1.1 applies. All capital letters shall be used.

The identifier of an ASP type uses the same name as the name defined in the protocol.

6.1.1.10 PDU type definitions

The general conventions in clause 6.1.1.1 applies. All capital letters shall be used.

The identifier of a PDU type uses the same name as the name defined in the protocol.

6.1.1.11 Co-ordination Message (CM) type definitions

All capital letters shall be used.

6.1.1.12 Alias definitions

Alias definitions are not used.

6.1.2 Constraints part

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

6.1.2.1 General

Constraints shall be written with all lowercase letters.

6.1.2.2 TTCN ASN.1 Constraints

The test suite type ASN.1 constraints are prefixed "cts_".

6.1.2.3 TTCN ASP Constraints

The TTCN ASP constraints are prefixed "casp_".

6.1.2.4 TTCN PDU Constraints

The TTCN PDU constraints are prefixed "cpdu_".

6.1.3 Dynamic part

This clause describes the naming conventions used for the elements of the ATS dynamic part.

6.1.3.1 General

All test cases shall be listed in the order in which they appear in the Test Suite Structure (TSS) and TP document.

6.1.3.2 Test Case (TC) identifier

The identifier of the test case is built in a similar way as for the test purpose.

The identifier of a TC is built according to table 2.

Table 2: TC naming convention

Identifier:	**TC_<layer>_<sut>_<x>_<nn>**		
	<layer>	MAC	MAC layer
		LLC	LLC layer
	<sut> = type of SUT	OBU	On Board Unit
		RSU	Road Side Unit
	x = Type of testing	BV	Valid Behaviour Tests
		BI	Invalid Behaviour Tests
	<nn> = sequential number	(01 to 99)	Test Purpose Number

EXAMPLE: TP identifier: TP/MAC/OBU/BV/01
TC identifier: TC_MAC_OBU_BV_01.

6.1.3.3 Test step identifier

The test step identifier is built of substrings in lowercase letters, preceded by a string of uppercase letters. The substrings are joined by underscore characters. The first substring indicates the main function of the test step; e.g. PR for preamble, PO for postamble, LTS for local tree and STP for general test step. The second substring indicates the purpose of the step.

EXAMPLE: STP_emulate_mac.

6.1.3.4 Default identifier

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

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 document. Any particularity of the element format or content is described in the comment line.

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

In the ASP, PDU, and CM type declarations, the comments column is used to identify if a parameter (in ASPs) or field (in PDUs) 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 parameter / field value, in particular if the parameter/field contains a fixed spare value.

6.2.2 Constraint part

The ASPs and PDUs are defined in a way that all relevant parameters/fields are parameterized. 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 test specifications.

The comment line of a constraint always contains a reference to the relevant protocol EN.

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

6.2.3 Dynamic part

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

All invalid events are handled in the default tree. Only FAIL or INCONC verdicts are 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.

Except for local trees, test steps do not contain a default. Then there are no restrictions regarding the error handling.

To avoid deadlocks, the Parallel Test Components shall always terminate.

TPs which are listed in the untestable TP list in clause 5 are not considered in the ATS, thus these TC identifiers are missing in the ATS and the numbering of the TCs is not always continuous.

Annex A (normative): Abstract Test Suite (ATS) for MAC OBU

This ATS has been produced using the Tree and Tabular Combined Notation (TTCN) according to ISO/IEC 9646-3 [6].

The ATS was developed on a separate TTCN software tool and therefore the TTCN tables are not completely referenced in the table of contents. The ATS itself contains a test suite overview part which provides additional information and references.

A.1 The TTCN Graphical form (TTCN.GR)

The TTCN.GR representation of this ATS is contained in an Adobe Portable Document Format™ file (MAC_OBU.pdf contained in archive ts_1024860103v010201p0.zip) which accompanies the present document.

A.2 The TTCN Machine Processable form (TTCN.MP)

The TTCN.MP representation corresponding to this ATS is contained in an ASCII file (MAC_OBU.mp contained in archive ts_1024860103v010201p0.zip) which accompanies the present document.

A.3 Specification of PTC1

A.3.1 General requirements

The PTC1 (MAC emulation) shall, in general, fullfill all mandatory requirements in EN 12795 [1].

A.3.2 Additional requirements

A number of commands have been defined to control the behaviour of PTC1 (the MAC emulation). In the ATS, these are implemented as a co-ordination message with a parameter to specify the required action. The test system shall support the actions specified in table A.1.

Table A.1: Actions to be supported by the test system

Action	Requirement
TSC_action_start	Start test case synchronization.
TSC_action_stop	Stop testcase synchronization.
TSC_action_normal	Tester transmits the PDU contained in a MAC_TEST_REQ. Tester records time Ts from the end of last bit of the end flag of the downlink frame until the beginning of the preamble of the uplink frame, and time Te from the end of last bit of the end flag of the downlink frame until the end of the last bit of the end flag of the uplink frame. A MAC_TEST_REQ command will result in the transmission of a single frame. A MAC_TEST_DUAL_REQ command will result in the transmission of two consecutive frames. The details depend on whether the first frame sent allocates a private uplink or not. The second PDU shall be sent in the downlink frame immediately within T1 after the end of an uplink frame received, if the first frame allocated a private uplink window. The second PDU shall be sent in the downlink frame immediately within T2 after the end of the first PDU in the first downlink frame, if the first frame did not allocate a private uplink window.
TSC_action_error1	Tester shall behave as in the case for TSC_action_normal, except for the following situation: In case the PDU is the first, second or third BST, prior to transmission, but after calculation of the FCS, a random double bit error is introduced in the body of the frame, i.e. between the two flags, in a way such that no flag or abort sequence is produced.
TSC_action_error2	Tester shall behave as in the case for TSC_action_normal, except for the following situation: In case the PDU is the first, second or third BST, prior to transmission, but after calculation of the FCS, a random double bit error is introduced in the FCS in a way such that no flag or abort sequence is produced.
TSC_action_error3	Tester shall behave as in the case for TSC_action_normal, except for the following situation: In case the PDU is the first, second or third BST, prior to transmission, but after calculation of the FCS, a sequence of 15 consecutive bit error is introduced in the body of the frame, i.e. between the two flags, in a way such that no flag or abort sequence is produced.
TSC_action_error4	Tester shall behave as in the case for TSC_action_normal, except for the following situation: In case the PDU is the first, second or third BST, after bit stuffing and before calculation of the FCS, the beaconID is changed such that it contains an abort sequence. FCS is calculated as if the abort sequence would be the end flag.
TSC_action_error5	Tester shall behave as in the case for TSC_action_normal, except for the following situation: In case the PDU is the first, second or third BST, prior to transmission of the frame the end flag is replaced by an abort sequence.
TSC_action_error6	Tester shall behave as in the case for TSC_action_normal, except for the following situation: In case the PDU is the first PrWA, the private LID shall be stored in a five octet field, that is correctly constructed.
TSC_action_error7	Tester shall behave as in the case for TSC_action_normal, except for the following situation: In case the PDU is the first, second or third BST, the radio signal shall be blocked during transmission 15 consecutive bits of the body of the BST frame.
TSC_action_error8	Tester shall behave as in the case for TSC_action_normal, except for the following situation: In case the PDU is the first, second or third BST, the radio signal shall be blocked during transmission of the end flag of the BST frame.
TSC_action_error9	Tester shall behave as in the case for TSC_action_normal, except for the following situation: In case the PDU is the first, second or third BST, the radio signal shall be blocked during transmission of the start flag of the BST frame.

NOTE: These actions are defined as test suite constants in the ATS.

Annex B (normative): Abstract Test Suite (ATS) for MAC RSU

This ATS has been produced using the Tree and Tabular Combined Notation (TTCN) according to ISO/IEC 9646-3 [6].

The ATS was developed on a separate TTCN software tool and therefore the TTCN tables are not completely referenced in the table of contents. The ATS itself contains a test suite overview part which provides additional information and references.

B.1 The TTCN Graphical form (TTCN.GR)

The TTCN.GR representation of this ATS is contained in an Adobe Portable Document Format™ file (MAC_RSU.pdf contained in archive ts_1024860103v010201p0.zip) which accompanies the present document.

B.2 The TTCN Machine Processable form (TTCN.MP)

The TTCN.MP representation corresponding to this ATS is contained in an ASCII file (MAC_RSU.mp contained in archive ts_1024860103v010201p0.zip) which accompanies the present document.

B.3 Specification of PTC1

B.3.1 General requirements

The PTC1 (MAC emulation) shall, in general, fullfill all mandatory requirements in EN 12795 [1].

B.3.2 Additional requirements

A number of commands have been defined to control the behaviour of PTC1 (the MAC emulation). In the ATS, these are implemented as a co-ordination message with a parameter to specify the required action. The test system shall support the actions specified in table A.1.

Table B.1: Actions to be supported by the test system

Action	Requirement
TSC_action_start	Start test case synchronization.
TSC_action_stop	Stop testcase synchronization.
TSC_action_BST_VST	Select default behaviour of MAC emulator Perform standard conformant BST/VSTcycles awaiting acknowlegement of VST by reception of privately addressed frame containing LPDU. Details on settings are provided in TTCN CM MAC_PRESET

NOTE: These actions are defined as test suite constants in the ATS.

Annex C (normative): Abstract Test Suite (ATS) for LLC OBU

This ATS has been produced using the Tree and Tabular Combined Notation (TTCN) according to ISO/IEC 9646-3 [6].

The ATS was developed on a separate TTCN software tool and therefore the TTCN tables are not completely referenced in the table of contents. The ATS itself contains a test suite overview part which provides additional information and references.

C.1 The TTCN Graphical form (TTCN.GR)

The TTCN.GR representation of this ATS is contained in an Adobe Portable Document Format™ file (LLC_OBU.pdf contained in archive ts_1024860103v010201p0.zip) which accompanies the present document.

C.2 The TTCN Machine Processable form (TTCN.MP)

The TTCN.MP representation corresponding to this ATS is contained in an ASCII file (LLC_OBU.mp contained in archive ts_1024860103v010201p0.zip) which accompanies the present document.

Annex D (normative): Abstract Test Suite (ATS) for LLC RSU

This ATS has been produced using the Tree and Tabular Combined Notation (TTCN) according to ISO/IEC 9646-3 [6].

The ATS was developed on a separate TTCN software tool and therefore the TTCN tables are not completely referenced in the table of contents. The ATS itself contains a test suite overview part which provides additional information and references.

D.1 The TTCN Graphical form (TTCN.GR)

The TTCN.GR representation of this ATS is contained in an Adobe Portable Document Format™ file (LLC_RSU.pdf contained in archive ts_1024860103v010201p0.zip) which accompanies the present document.

D.2 The TTCN Machine Processable form (TTCN.MP)

The TTCN.MP representation corresponding to this ATS is contained in an ASCII file (LLC_RSU.mp contained in archive ts_1024860103v010201p0.zip) which accompanies the present document.

Annex E (normative): Partial PIXIT proforma for MAC OBU

The PIXIT Proforma is based on ISO/IEC 9646-6 [8]. Any additional information needed can be found in this international standard document.

E.1 Identification summary

Table E.1

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

E.2 ATS summary

Table E.2

Protocol Specification:	EN 12795 [1]
Protocol to be tested:	
ATS Specification:	TS 102 486-1-3, annex A
Abstract Test Method:	TS 102 486-1-3, clause 4

E.3 Test laboratory

Table E.3

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

E.4 Client identification

Table E.4

Client Identification:	
Client Test manager:	
Test Facilities required:	

E.5 SUT

Table E.5

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

E.6 Protocol layer information

E.6.1 Protocol identification

Table E.6

Name:	DSRC MAC layer
Version:	
PICS References:	

E.6.2 IUT information

Table E.7: IUT information

Item	Name	Type	Value	Comment
1	TSPX_ManufacturerID1	Integer_65535		ManufacturerID value 1
2	TSPX_ManufacturerID2	Integer_65535		ManufacturerID value 2
3	TSPX_IndividualID1	Integer_134217727		IndividualID value 1
4	TSPX_IndividualID2	Integer_134217727		IndividualID value 2
5	TSPX_Default_profile	Profile		Default profile value
6	TSPX_Default_applicationID	DSRCApplicationEntityID		Default ApplicationID
7	TSPX_X	INTEGER		Number of BST/PrWRq cycles used to verify that the IUT selects all possible public uplink windows equally often on a random basis. At least TSPX_X = 1.000. If test fails, TSPX_X may be increased, and test may be repeated
8	TSPX_GLOBAL_TIMEOUT	INTEGER		Time in seconds for global time-out T_GLOBAL_TIMEOUT
9	TSPX_T_wakeup	INTEGER		Wakeup time of OBU in ms
10	TSPX_CREATE	BOOLEAN		TRUE if profile shall be tested, FALSE OTHERWISE

Annex F (normative): Partial PIXIT proforma for MAC RSU

The PIXIT Proforma is based on ISO/IEC 9646-6 [8]. Any additional information needed can be found in this international standard document.

F.1 Identification summary

Table F.1

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

F.2 ATS summary

Table F.2

Protocol Specification:	EN 12795 [1]
Protocol to be tested:	
ATS Specification:	TS 102 486-1-3, annex B
Abstract Test Method:	TS 102 486-1-3, clause 4

F.3 Test laboratory

Table F.3

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

F.4 Client identification

Table F.4

Client Identification:	
Client Test manager:	
Test Facilities required:	

F.5 SUT

Table F.5

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

F.6 Protocol layer information

F.6.1 Protocol identification

Table F.6

Name:	DSRC MAC layer
Version:	
PICS References:	

F.6.2 IUT information

Table F.7: IUT information

Item	Name	Type	Value	Comment
1	TSPX_fill	BITSTRING		four fill bits used in VST
2	TSPX_profile	Profile		Profile as used in VST
3	TSPX_applications	ApplicationList		As used in VST with default application
4	TSPX_applications_max	ApplicationList		As used in VST with default application plus dummy application not supported at RSU under test with parameter such, that length of VST frame equals maximum allowed length according to N3
5	TSPX_applications_max1	ApplicationList		As used in VST with default application plus dummy application not supported at RSU under test with parameter such, that length of VST frame equals maximum allowed length according to N3 plus 1
6	TSPX_obeConfiguration	ObeConfiguration		As used in VST
7	TSPX_rsu_idle	INTEGER		Maximum time in milliseconds between subsequent transmissions on the downlink (from end of downlink frame to start of next downlink frame)

Annex G (normative): Partial PIXIT proforma for LLC OBU

The PIXIT Proforma is based on ISO/IEC 9646-6 [8]. Any additional information needed can be found in this international standard document.

G.1 Identification summary

Table G.1

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

G.2 ATS summary

Table G.2

Protocol Specification:	EN 12795 [1]
Protocol to be tested:	
ATS Specification:	TS 102 486-1-3, annex C
Abstract Test Method:	TS 102 486-1-3, clause 4

G.3 Test laboratory

Table G.3

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

G.4 Client identification

Table G.4

Client Identification:	
Client Test manager:	
Test Facilities required:	

G.5 SUT

Table G.5

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

G.6 Protocol layer information

G.6.1 Protocol identification

Table G.6

Name:	DSRC LLC layer
Version:	
PICS References:	

G.6.2 IUT information

Table G.7: IUT information

Item	Name	Type	Value	Comment
1	TSPX_ManufacturerID1	Integer_65535		ManufacturerID value 1
2	TSPX_IndividualID1	Integer_134217727		IndividualID value 1
3	TSPX_IndividualID2	Integer_134217727		IndividualID value 2
4	TSPX_BST_profile	Profile		Default profile in BST
5	TSPX_BST_applicationID	DSRCApplicationEntityID		Default ApplicationID in BST
6	TSPX_T_LRproc1	Integer		Maximum time between BST transmission and reception of late response in UI command. In ms
7	TSPX_T_wait	Integer		Application transaction re-transmission in milli-seconds
8	TSPX_T_wakeup	Integer		Wake-up time of OBU. Used as well as link turn around "time-out" in the test cases
9	TSPX_exchange_data_request_1	T-APDU		Used in TC_LLC_OBU_BV_03, TC_LLC_OBU_BI_02, TC_LLC_OBU_BI_03, TC_LLC_OBU_BI_04. Application layer request for data exchange (mode=1, P=1) that does not cause late response
10	TSPX_exchange_data_request_2	T-APDU		Used in TC_LLC_OBU_BV_03. Application layer request for data exchange (mode=1, P=1) that does not cause late response
11	TSPX_exchange_data_request_LR	T-APDU		Used in TC_LLC_OBU_BV_05. Application layer request for data retrieval that causes late response
12	TSPX_exchange_data_response_1	T-APDU		Used in TC_LLC_OBU_BV_03, TC_LLC_OBU_BI_02, TC_LLC_OBU_BI_03, TC_LLC_OBU_BI_04. Response to TSPX_exchange_data_request_1
13	TSPX_exchange_data_response_2	T-APDU		Used in TC_LLC_OBU_BV_03. Response to TSPX_exchange_data_request_2
14	TSPX_exchange_data_response_LR	T-APDU		Used in TC_LLC_OBU_BV_05. Response to TSPX_exchange_data_request_LR
15	TSPX_transmit_data_request_1	T-APDU		Used in TC_LLC_OBU_BV_02. Application layer request for datatransmission (mode=0, P=0)
16	TSPX_transmit_data_request_2	T-APDU		Used in TC_LLC_OBU_BV_02. Application layer request for datatransmission (mode=0, P=0)

Annex H (normative): Partial PIXIT proforma for LLC RSU

The PIXIT Proforma is based on ISO/IEC 9646-6 [8]. Any additional information needed can be found in this international standard document.

H.1 Identification summary

Table H.1

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

H.2 ATS summary

Table H.2

Protocol Specification:	EN 12795 [1]
Protocol to be tested:	
ATS Specification:	TS 102 486-1-3, annex D
Abstract Test Method:	TS 102 486-1-3, clause 4

H.3 Test laboratory

Table H.3

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

H.4 Client identification

Table H.4

Client Identification:	
Client Test manager:	
Test Facilities required:	

H.5 SUT

Table H.5

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

H.6 Protocol layer information

H.6.1 Protocol identification

Table H.6

Name:	DSRC LLC layer
Version:	
PICS References:	

H.6.2 IUT information

Table H.7: IUT information

Item	Name	Type	Value	Comment
1	TSPX_VST_profile	Profile		Profile value in VST
2	TSPX_VST_fill	BITSTRING		Fill bits used in VST
3	TSPX_VST_applications	ApplicationList		Used in VST
4	TSPX_VST_obeConfiguration	ObeConfiguration		Used in VST
5	TSPX_exchange_data_request_LR	T-APDU		Application layer request for data retrieval that causes late response
6	TSPX_exchange_data_response_LR	T-APDU		Response to TSPX_exchange_data_request_LR
7	TSPX_N11	INTEGER		Value of parameter LLC N11 as implemented
8	TSPX_T_Global	INTEGER		Global time-out in s. Proposed value: 30s
9	TSPX_T_acknowledge	INTEGER		Maximum time for acknowledgement of a frame in ms. Proposed value: 10s.
10	TSPX_first_command	T-APDU		First ACn command after BST/VST. Can be either data transmission (mode = 0, P=0) or exchange of data (mode = 1, P = 1)
11	TSPX_first_response	T-APDU		Response from OBU to TSPX_first_command. If TSPX_first_command is with mode=0, TSPX_first_response is not used
12	TSPX_second command	T-APDU		Second ACn command after BST/VST. Can be either data transmission (mode = 0, P=0) or exchange of data (mode = 1, P = 1)
13	TSPX_second_response	T-APDU		Response from OBU to TSPX_second_command. If TSPX_first_command is with mode=0, TSPX_first_response is not used
14	TSPX_T_wait	INTEGER		Maximum frame retransmission period in ms.

Annex I (normative): PCTR Proforma for MAC OBU

The PCTR proforma is based on ISO/IEC 9646-6 [8]. Any needed additional information can be found in the present document.

I.1 Identification summary

I.1.1 Protocol conformance test report

Table I.1

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

I.1.2 IUT identification

Table I.2

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

I.1.3 Testing environment

Table I.3

PIXIT Number:	
ATS Specification:	
Abstract Test Method:	Remote test method, Embedded variant with notional UT
Means of Testing identification:	
Date of testing:	
Conformance Log reference(s):	
Retention Date for Log reference(s):	

I.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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I.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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I.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 I.3) and there are no "FAIL" verdicts to be recorded (in clause I.6) strike the words "has or", otherwise strike the words "or has not".

I.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.

I.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 I.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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I.5 Static conformance review report

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

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I.6 Test campaign report

Table I.4

ATS Reference	Selected?	Run?	Verdict	Observations (Reference to any observations made in clause I.7)
TC_MAC_OBU_BV_01	Yes/No	Yes/No		
TC_MAC_OBU_BV_02	Yes/No	Yes/No		
TC_MAC_OBU_BV_03	Yes/No	Yes/No		
TC_MAC_OBU_BV_04	Yes/No	Yes/No		
TC_MAC_OBU_BV_05	Yes/No	Yes/No		
TC_MAC_OBU_BV_06	Yes/No	Yes/No		
TC_MAC_OBU_BV_07	Yes/No	Yes/No		
TC_MAC_OBU_BV_08	Yes/No	Yes/No		
TC_MAC_OBU_BV_09	Yes/No	Yes/No		
TC_MAC_OBU_BI_01	Yes/No	Yes/No		
TC_MAC_OBU_BI_02	Yes/No	Yes/No		
TC_MAC_OBU_BI_03	Yes/No	Yes/No		
TC_MAC_OBU_BI_04	Yes/No	Yes/No		
TC_MAC_OBU_BI_05	Yes/No	Yes/No		
TC_MAC_OBU_BI_06	Yes/No	Yes/No		
TC_MAC_OBU_BI_07	Yes/No	Yes/No		
TC_MAC_OBU_BI_08	Yes/No	Yes/No		
TC_MAC_OBU_BI_09	Yes/No	Yes/No		
TC_MAC_OBU_BI_10	Yes/No	Yes/No		
TC_MAC_OBU_BI_11	Yes/No	Yes/No		
TC_MAC_OBU_BI_12	Yes/No	Yes/No		
TC_MAC_OBU_BI_13	Yes/No	Yes/No		
TC_MAC_OBU_BI_14	Yes/No	Yes/No		
TC_MAC_OBU_BI_15	Yes/No	Yes/No		
TC_MAC_OBU_BI_16	Yes/No	Yes/No		
TC_MAC_OBU_BI_17	Yes/No	Yes/No		
TC_MAC_OBU_BI_18	Yes/No	Yes/No		
TC_MAC_OBU_BI_19	Yes/No	Yes/No		
TC_MAC_OBU_BI_20	Yes/No	Yes/No		
TC_MAC_OBU_BI_21	Yes/No	Yes/No		
TC_MAC_OBU_BI_22	Yes/No	Yes/No		
TC_MAC_OBU_BI_23	Yes/No	Yes/No		
TC_MAC_OBU_BI_24	Yes/No	Yes/No		

I.7 Observations

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

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Annex J (normative): PCTR Proforma for MAC RSU

The PCTR proforma is based on ISO/IEC 9646-6 [8]. Any needed additional information can be found in the present document.

J.1 Identification summary

J.1.1 Protocol conformance test report

Table J.1

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

J.1.2 IUT identification

Table J.2

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

J.1.3 Testing environment

Table J.3

PIXIT Number:	
ATS Specification:	
Abstract Test Method:	Remote test method, Embedded variant with notional UT
Means of Testing identification:	
Date of testing:	
Conformance Log reference(s):	
Retention Date for Log reference(s):	

J.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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J.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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J.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 J.3) and there are no "FAIL" verdicts to be recorded (in clause J.6) strike the words "has or", otherwise strike the words "or has not".

J.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.

J.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 J.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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J.5 Static conformance review report

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

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J.6 Test campaign report

Table J.4

ATS Reference	Selected?	Run?	Verdict	Observations (Reference to any observations made in clause J.7)
TC_MAC_RSU_BV_01	Yes/No	Yes/No		
TC_MAC_RSU_BV_02	Yes/No	Yes/No		
TC_MAC_RSU_BV_03	Yes/No	Yes/No		
TC_MAC_RSU_BV_04	Yes/No	Yes/No		
TC_MAC_RSU_BV_05	Yes/No	Yes/No		
TC_MAC_RSU_BV_06	Yes/No	Yes/No		
TC_MAC_RSU_BV_07	Yes/No	Yes/No		
TC_MAC_RSU_BV_08	Yes/No	Yes/No		
TC_MAC_RSU_BI_01	Yes/No	Yes/No		
TC_MAC_RSU_BI_02	Yes/No	Yes/No		
TC_MAC_RSU_BI_03	Yes/No	Yes/No		
TC_MAC_RSU_BI_04	Yes/No	Yes/No		
TC_MAC_RSU_BI_05	Yes/No	Yes/No		
TC_MAC_RSU_BI_06	Yes/No	Yes/No		
TC_MAC_RSU_BI_07	Yes/No	Yes/No		
TC_MAC_RSU_BI_08	Yes/No	Yes/No		
TC_MAC_RSU_BI_09	Yes/No	Yes/No		
TC_MAC_RSU_BI_10	Yes/No	Yes/No		
TC_MAC_RSU_BI_11	Yes/No	Yes/No		
TC_MAC_RSU_BI_12	Yes/No	Yes/No		
TC_MAC_RSU_BI_13	Yes/No	Yes/No		
TC_MAC_RSU_BI_14	Yes/No	Yes/No		
TC_MAC_RSU_BI_15	Yes/No	Yes/No		
TC_MAC_RSU_BI_16	Yes/No	Yes/No		
TC_MAC_RSU_BI_17	Yes/No	Yes/No		
TC_MAC_RSU_BI_18	Yes/No	Yes/No		
TC_MAC_RSU_BI_19	Yes/No	Yes/No		
TC_MAC_RSU_BI_20	Yes/No	Yes/No		
TC_MAC_RSU_BI_21	Yes/No	Yes/No		

J.7 Observations

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

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Annex K (normative): PCTR Proforma for LLC OBU

The PCTR proforma is based on ISO/IEC 9646-6 [8]. Any needed additional information can be found in the present document.

K.1 Identification summary

K.1.1 Protocol conformance test report

Table K.1

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

K.1.2 IUT identification

Table K.2

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

K.1.3 Testing environment

Table K.3

PIXIT Number:	
ATS Specification:	
Abstract Test Method:	Remote test method, Embedded variant with notional UT
Means of Testing identification:	
Date of testing:	
Conformance Log reference(s):	
Retention Date for Log reference(s):	

K.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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K.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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K.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 K.3) and there are no "FAIL" verdicts to be recorded (in clause K.6) strike the words "has or", otherwise strike the words "or has not".

K.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.

K.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 K.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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K.5 Static conformance review report

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

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K.6 Test campaign report

Table K.4

ATS Reference	Selected?	Run?	Verdict	Observations (Reference to any observations made in clause K.7)
TC_LLC_OBU_BV_01	Yes/No	Yes/No		
TC_LLC_OBU_BV_02	Yes/No	Yes/No		
TC_LLC_OBU_BV_03	Yes/No	Yes/No		
TC_LLC_OBU_BV_04	Yes/No	Yes/No		
TC_LLC_OBU_BV_05	Yes/No	Yes/No		
TC_LLC_OBU_BI_01	Yes/No	Yes/No		
TC_LLC_OBU_BI_02	Yes/No	Yes/No		
TC_LLC_OBU_BI_03	Yes/No	Yes/No		
TC_LLC_OBU_BI_04	Yes/No	Yes/No		
TC_LLC_OBU_BI_05	Yes/No	Yes/No		
TC_LLC_OBU_BI_06	Yes/No	Yes/No		
TC_LLC_OBU_BI_07	Yes/No	Yes/No		

K.7 Observations

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

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Annex L (normative): PCTR Proforma for LLC RSU

The PCTR proforma is based on ISO/IEC 9646-6 [8]. Any needed additional information can be found in the present document.

L.1 Identification summary

L.1.1 Protocol conformance test report

Table L.1

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

L.1.2 IUT identification

Table L.2

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

L.1.3 Testing environment

Table L.3

PIXIT Number:	
ATS Specification:	
Abstract Test Method:	Remote test method, Embedded variant with notional UT
Means of Testing identification:	
Date of testing:	
Conformance Log reference(s):	
Retention Date for Log reference(s):	

L.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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L.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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L.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 L.3) and there are no "FAIL" verdicts to be recorded (in clause L.6) strike the words "has or", otherwise strike the words "or has not".

L.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.

L.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 L.6) strike the words "did or" otherwise strike the words "or did not".

Summary of the results of groups of test:

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L.5 Static conformance review report

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

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L.6 Test campaign report

Table L.4

ATS Reference	Selected?	Run?	Verdict	Observations (Reference to any observations made in clause L.7)
TC_LLC_RSU_BV_01	Yes/No	Yes/No		
TC_LLC_RSU_BV_02	Yes/No	Yes/No		
TC_LLC_RSU_BV_03	Yes/No	Yes/No		
TC_LLC_RSU_BV_04	Yes/No	Yes/No		
TC_LLC_RSU_BV_05	Yes/No	Yes/No		
TC_LLC_RSU_BI_01	Yes/No	Yes/No		
TC_LLC_RSU_BI_02	Yes/No	Yes/No		
TC_LLC_RSU_BI_03	Yes/No	Yes/No		
TC_LLC_RSU_BI_04	Yes/No	Yes/No		
TC_LLC_RSU_BI_05	Yes/No	Yes/No		

L.7 Observations

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

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Annex M (normative): Profile requirements for MAC OBU

All lists of test cases defined in this annex are specified according to EN 13372 [2].

M.1 Generic test cases

The following list of test test cases indicates the generic test cases and therefore relevant for the profile:

TC_MAC_OBU_BV_01, TC_MAC_OBU_BV_02, TC_MAC_OBU_BV_03, TC_MAC_OBU_BV_04, TC_MAC_OBU_BV_05, TC_MAC_OBU_BV_06, TC_MAC_OBU_BV_07, TC_MAC_OBU_BV_08, TC_MAC_OBU_BV_09, TC_MAC_OBU_BI_02, TC_MAC_OBU_BI_03, TC_MAC_OBU_BI_04, TC_MAC_OBU_BI_05, TC_MAC_OBU_BI_06, TC_MAC_OBU_BI_07, TC_MAC_OBU_BI_08, TC_MAC_OBU_BI_09, TC_MAC_OBU_BI_10, TC_MAC_OBU_BI_11, TC_MAC_OBU_BI_12, TC_MAC_OBU_BI_13, TC_MAC_OBU_BI_15, TC_MAC_OBU_BI_16, TC_MAC_OBU_BI_17, TC_MAC_OBU_BI_18, TC_MAC_OBU_BI_19, TC_MAC_OBU_BI_20, TC_MAC_OBU_BI_21, TC_MAC_OBU_BI_22, TC_MAC_OBU_BI_23, TC_MAC_OBU_BI_24.

M.2 Specific test cases

The following list of test test cases indicates the specific test cases that are relevant for the profile:

TC_MAC_OBU_BI_14.

M.3 Non relevant test cases

The following list of test test cases indicates the test cases that are not relevant for the profile:

TC_MAC_OBU_BV_9, TC_MAC_OBU_BI_22

M.4 Modified test campaign report

Table M.1

ATS Reference	Selected?	Run?	Verdict	Observations (Reference to any observations made in clause M.5)
TC_MAC_OBU_BV_01	Yes/No	Yes/No		
TC_MAC_OBU_BV_02	Yes/No	Yes/No		
TC_MAC_OBU_BV_03	Yes/No	Yes/No		
TC_MAC_OBU_BV_04	Yes/No	Yes/No		
TC_MAC_OBU_BV_05	Yes/No	Yes/No		
TC_MAC_OBU_BV_06	Yes/No	Yes/No		
TC_MAC_OBU_BV_07	Yes/No	Yes/No		
TC_MAC_OBU_BV_08	Yes/No	Yes/No		
TC_MAC_OBU_BI_01	Yes/No	Yes/No		
TC_MAC_OBU_BI_02	Yes/No	Yes/No		
TC_MAC_OBU_BI_03	Yes/No	Yes/No		
TC_MAC_OBU_BI_04	Yes/No	Yes/No		
TC_MAC_OBU_BI_05	Yes/No	Yes/No		
TC_MAC_OBU_BI_06	Yes/No	Yes/No		
TC_MAC_OBU_BI_07	Yes/No	Yes/No		
TC_MAC_OBU_BI_08	Yes/No	Yes/No		
TC_MAC_OBU_BI_09	Yes/No	Yes/No		
TC_MAC_OBU_BI_10	Yes/No	Yes/No		
TC_MAC_OBU_BI_11	Yes/No	Yes/No		
TC_MAC_OBU_BI_12	Yes/No	Yes/No		
TC_MAC_OBU_BI_13	Yes/No	Yes/No		
TC_MAC_OBU_BI_14	Yes/No	Yes/No		
TC_MAC_OBU_BI_15	Yes/No	Yes/No		
TC_MAC_OBU_BI_16	Yes/No	Yes/No		
TC_MAC_OBU_BI_17	Yes/No	Yes/No		
TC_MAC_OBU_BI_18	Yes/No	Yes/No		
TC_MAC_OBU_BI_19	Yes/No	Yes/No		
TC_MAC_OBU_BI_20	Yes/No	Yes/No		
TC_MAC_OBU_BI_21	Yes/No	Yes/No		
TC_MAC_OBU_BI_23	Yes/No	Yes/No		
TC_MAC_OBU_BI_24	Yes/No	Yes/No		

M.5 Observations

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

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Annex N (normative): Profile requirements for MAC RSU

All lists of test cases defined in this annex are specified according to EN 13372 [2].

N.1 Generic test cases

The following list of test test cases indicates the generic test cases and therefore relevant for the profile:

TC_MAC_RSU_BV_01, TC_MAC_RSU_BV_02, TC_MAC_RSU_BV_03, TC_MAC_RSU_BV_04, TC_MAC_RSU_BV_06, TC_MAC_RSU_BV_07, TC_MAC_RSU_BV_08, TC_MAC_RSU_BI_01, TC_MAC_RSU_BI_02, TC_MAC_RSU_BI_03, TC_MAC_RSU_BI_04, TC_MAC_RSU_BI_05, TC_MAC_RSU_BI_06, TC_MAC_RSU_BI_07, TC_MAC_RSU_BI_08, TC_MAC_RSU_BI_09, TC_MAC_RSU_BI_10, TC_MAC_RSU_BI_11, TC_MAC_RSU_BI_12, TC_MAC_RSU_BI_13, TC_MAC_RSU_BI_14, TC_MAC_RSU_BI_15, TC_MAC_RSU_BI_16, TC_MAC_RSU_BI_17, TC_MAC_RSU_BI_18, TC_MAC_RSU_BI_19, TC_MAC_RSU_BI_20, TC_MAC_RSU_BI_21.

N.2 Specific test cases

The following list of test test cases indicates the specific test cases that are relevant for the profile:

None.

N.3 Non relevant test cases

The following list of test test cases indicates the test cases that are not relevant for the profile:

TC_MAC_BV_05.

N.4 Modified test campaign report

Table N.1

ATS Reference	Selected?	Run?	Verdict	Observations (Reference to any observations made in clause N.5)
TC_MAC_RSU_BV_01	Yes/No	Yes/No		
TC_MAC_RSU_BV_02	Yes/No	Yes/No		
TC_MAC_RSU_BV_03	Yes/No	Yes/No		
TC_MAC_RSU_BV_04	Yes/No	Yes/No		
TC_MAC_RSU_BV_06	Yes/No	Yes/No		
TC_MAC_RSU_BV_07	Yes/No	Yes/No		
TC_MAC_RSU_BV_08	Yes/No	Yes/No		
TC_MAC_RSU_BI_01	Yes/No	Yes/No		
TC_MAC_RSU_BI_02	Yes/No	Yes/No		
TC_MAC_RSU_BI_03	Yes/No	Yes/No		
TC_MAC_RSU_BI_04	Yes/No	Yes/No		
TC_MAC_RSU_BI_05	Yes/No	Yes/No		
TC_MAC_RSU_BI_06	Yes/No	Yes/No		
TC_MAC_RSU_BI_07	Yes/No	Yes/No		
TC_MAC_RSU_BI_08	Yes/No	Yes/No		
TC_MAC_RSU_BI_09	Yes/No	Yes/No		
TC_MAC_RSU_BI_10	Yes/No	Yes/No		
TC_MAC_RSU_BI_11	Yes/No	Yes/No		
TC_MAC_RSU_BI_12	Yes/No	Yes/No		
TC_MAC_RSU_BI_13	Yes/No	Yes/No		
TC_MAC_RSU_BI_14	Yes/No	Yes/No		
TC_MAC_RSU_BI_15	Yes/No	Yes/No		
TC_MAC_RSU_BI_16	Yes/No	Yes/No		
TC_MAC_RSU_BI_17	Yes/No	Yes/No		
TC_MAC_RSU_BI_18	Yes/No	Yes/No		
TC_MAC_RSU_BI_19	Yes/No	Yes/No		
TC_MAC_RSU_BI_20	Yes/No	Yes/No		
TC_MAC_RSU_BI_21	Yes/No	Yes/No		

N.5 Observations

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

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Annex O (normative): Profile requirements for LLC OBU

All lists of test cases defined in this annex are specified according to EN 13372 [2].

O.1 Generic test cases

The following list of test test cases indicates the generic test cases and therefore relevant for the profile:

TC_LLC_OBU_BV_01, TC_LLC_OBU_BV_02, TC_LLC_OBU_BV_03, , TC_LLC_OBU_BV_04, TC_LLC_OBU_BI_01, TC_LLC_OBU_BI_02, TC_LLC_OBU_BI_03, TC_LLC_OBU_BI_04, TC_LLC_OBU_BI_05, TC_LLC_OBU_BI_06, TC_LLC_OBU_BI_07.

O.2 Specific test cases

The following list of test test cases indicates the specific test cases that are relevant for the profile:

TC_LLC_OBU_BV_05.

O.3 Non relevant test cases

The following list of test test cases indicates the test cases that are not relevant for the profile:

None.

O.4 Modified test campaign report

Table O.1

ATS Reference	Selected?	Run?	Verdict	Observations (Reference to any observations made in clause O.5)
TC_LLC_OBU_BV_01	Yes/No	Yes/No		
TC_LLC_OBU_BV_02	Yes/No	Yes/No		
TC_LLC_OBU_BV_03	Yes/No	Yes/No		
TC_LLC_OBU_BV_04	Yes/No	Yes/No		
TC_LLC_OBU_BV_05	Yes/No	Yes/No		
TC_LLC_OBU_BI_01	Yes/No	Yes/No		
TC_LLC_OBU_BI_02	Yes/No	Yes/No		
TC_LLC_OBU_BI_03	Yes/No	Yes/No		
TC_LLC_OBU_BI_04	Yes/No	Yes/No		
TC_LLC_OBU_BI_05	Yes/No	Yes/No		
TC_LLC_OBU_BI_06	Yes/No	Yes/No		
TC_LLC_OBU_BI_07	Yes/No	Yes/No		

O.5 Observations

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

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Annex P (normative): Profile requirements for LLC RSU

All lists of test cases defined in this annex are specified according to EN 13372 [2].

P.1 Generic test cases

The following list of test test cases indicates the generic test cases and therefore relevant for the profile:

TC_LLC_RSU_BV_01, TC_LLC_RSU_BV_02, TC_LLC_RSU_BV_03, TC_LLC_RSU_BV_04, TC_LLC_RSU_BI_01, TC_LLC_RSU_BI_02, TC_LLC_RSU_BI_03, TC_LLC_RSU_BI_04, TC_LLC_RSU_BI_05.

P.2 Specific test cases

The following list of test test cases indicates the specific test cases that are relevant for the profile:

TC_LLC_RSU_BV_05.

P.3 Non relevant test cases

The following list of test test cases indicates the test cases that are not relevant for the profile:

None.

P.4 Modified test campaign report

Table P.1

ATS Reference	Selected?	Run?	Verdict	Observations (Reference to any observations made in clause P.5)
TC_LLC_RSU_BV_01	Yes/No	Yes/No		
TC_LLC_RSU_BV_02	Yes/No	Yes/No		
TC_LLC_RSU_BV_03	Yes/No	Yes/No		
TC_LLC_RSU_BV_04	Yes/No	Yes/No		
TC_LLC_RSU_BV_05	Yes/No	Yes/No		
TC_LLC_RSU_BI_01	Yes/No	Yes/No		
TC_LLC_RSU_BI_02	Yes/No	Yes/No		
TC_LLC_RSU_BI_03	Yes/No	Yes/No		
TC_LLC_RSU_BI_04	Yes/No	Yes/No		
TC_LLC_RSU_BI_05	Yes/No	Yes/No		

P.5 Observations

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

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Annex Q (informative): Bibliography

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

ISO/IEC 9646-4: "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 4: Test realization".

History

Document history		
V1.1.1	August 2006	Publication
V1.2.1	October 2008	Publication