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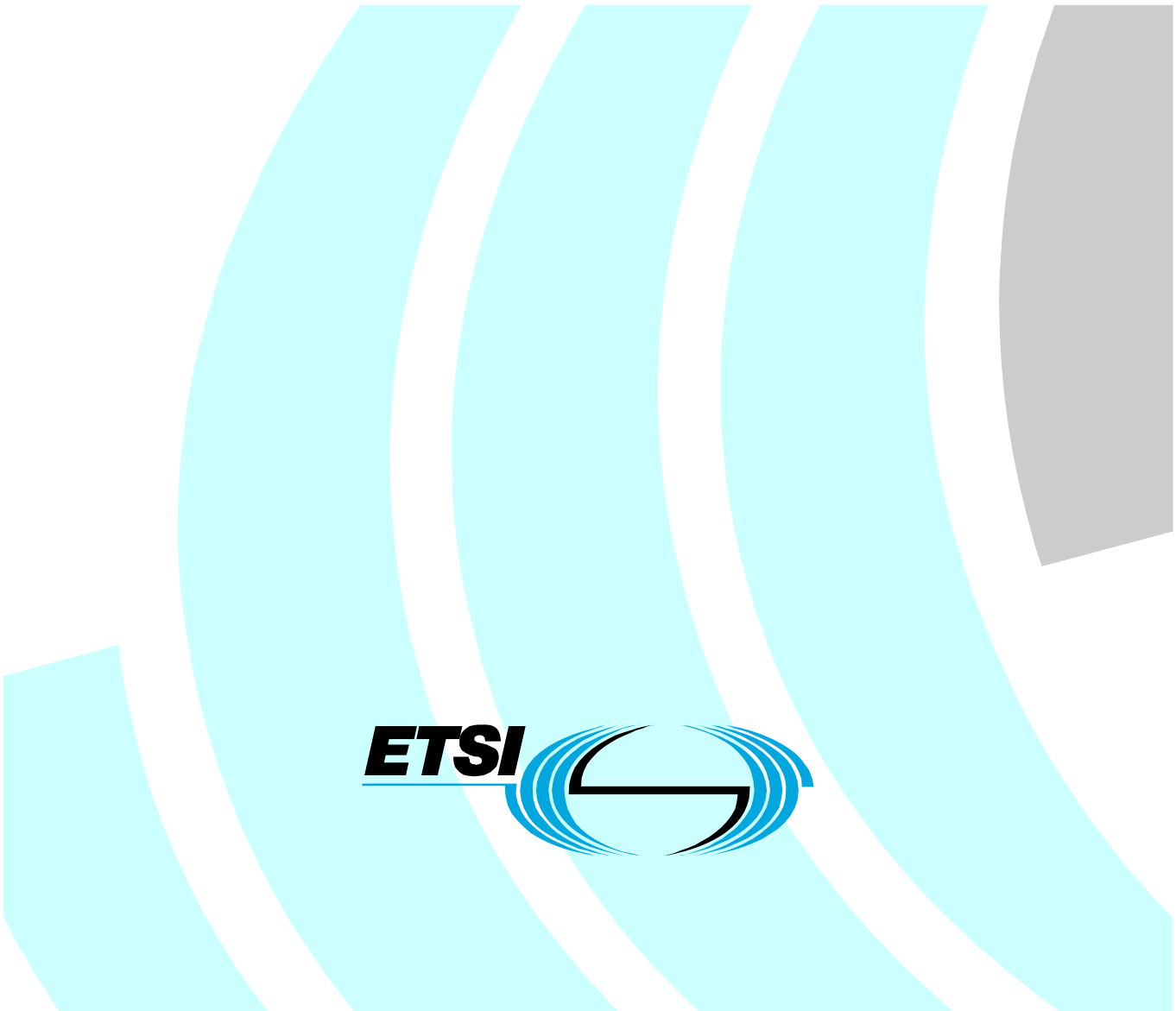
Technical Specification

Intelligent Transport Systems (ITS);
RTTT;
Test specifications for High Data Rate (HDR) data transmission equipment operating in the 5,8 GHz ISM band;
Part 2: Application Layer Common Application Service Elements;
Sub-Part 2: Test Suite Structure and Test Purposes (TSS&TP)



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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 2, sub-part 2 of a multi-part deliverable covering the test specifications for High Data Rate (HDR) Dedicated Short Range Communication (DSRC).

Full details of the entire series can be found in part 2-1 [2].

1 Scope

The present document contains the Test Suite Structure (TSS) and Test Purposes (TP) to test the Dedicated Short Range Communication (DSRC) High Data Rate (HDR) Application Layer Common Application Service Elements.

The objective of this test specification is to provide a basis for conformance tests for DSRC-HDR equipment specified in [1] 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 [3] is 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.

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] ETSI ES 200 674-1: "Electromagnetic compatibility and Radio spectrum Matters (ERM); Road Transport and Traffic Telematics (RTTT); Part 1: Technical characteristics and test methods for High Data Rate (HDR) data transmission equipment operating in the 5,8 GHz Industrial, Scientific and Medical (ISM) band".

[2] ETSI TS 102 708-2-1: "Intelligent Transport Systems (ITS); RTTT; Test specifications for High Data Rate (HDR) data transmission equipment operating in the 5,8 GHz ISM band; Part 2: Application Layer Common Application Service Elements; Sub-Part 1: Protocol Implementation Conformance Statement (PICS) proforma specification".

[3] ISO/IEC 9646-1 (1991): "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 1: General concepts".

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 purpose of the present document, the terms and definitions given in [1] and [3] apply.

3.2 Abbreviations

For the purpose of the present document, the abbreviations given in [1] and [3] apply.

4 Test Suite Structure

4.1 Structure

Table 1 shows the application layer common application service elements test suite structure (TSS) including its groups defined for the conformance testing.

Table 1: Test suite structure for DSRC-HDR application layer common application service elements

Group	Type of system under test (SUT)	Behaviour
Kernel unit	On Board Unit	Valid behaviour
		Invalid behaviour
	Road Side Unit	Valid behaviour
Read access	On Board Unit	Valid behaviour
	Road Side Unit	Valid behaviour
Write access	On Board Unit	Valid behaviour
	Road Side Unit	Valid behaviour
Optional functionality	On Board Unit	Valid behaviour
		Invalid behaviour
	Road Side Unit	Valid behaviour
Integrity constraints	On Board Unit	Invalid behaviour

4.2 Test groups

There are five test groups defined for the application layer common application service elements of DSRC-HDR as presented in table 1.

4.3 Type of SUT

Two types of systems under test (SUT) are distinguished, i.e. on board units (OBUs) and road side units (RSUs).

4.4 Behaviour test groups

4.4.1 Valid behaviour tests

Valid behaviour tests shall verify that the IUT reacts in conformity with the base standard [1], after receipt or exchange of valid protocol data units (PDUs). "Valid PDU" means that the exchange of messages and the content of the exchanged messages are considered as valid, i.e. compliant with the base standard.

4.4.2 Invalid behaviour tests

Invalid behaviour tests shall verify that the IUT reacts in conformity with the base standard [1], after receipt of a syntactically invalid protocol data unit (PDU).

5 Test purposes

5.1 Introduction

5.1.1 Definition conventions

Test purposes (TPs) are defined following particular rules as presented in table 2.

Table 2: TP definition rules

TP ID	Title:
	Reference:
	ICS Selection:
	TC Reference:
	Initial condition:
Stimulus and Expected behaviour:	

TP ID	The TP ID is a unique identifier. It shall be specified according to the TP naming conventions defined in the clause below.
Title	Short description of test purpose objective.
Reference	The reference should contain the references of the subject to be validated by the actual TP (specification reference, clause, paragraph).
PICS Selection	Reference to the PICS statement involved for selection of the TP. Contains a Boolean expression. Only those ICS statements are shown that are explicitly related to the test.
TC reference	Shows the reference number of the related test case in the ATS.
Initial condition	The condition defines in which initial state the IUT has to be to apply the actual TP.
Stimulus and Expected behaviour	Definition of the events the tester performs, and the events that are expected from the IUT to conform to the base specification.

5.1.2 Naming conventions

The identifier of the TP is built according to table 3.

Table 3: TP naming convention

Identifier	**TP/<sut>/<layer>/<group>/<x>/<n>**		
	<sut> = Type of SUT	OBU	On Board Unit
		RSU	Road Side Unit
	<layer>	AL	Data Link Layer
	<group>	KU	Kernel Unit
		RA	Read Access
		WA	Write Access
		OF	Optional Functionality
		IC	Integrity Constraints
	x = Type of testing	BV	Valid Behaviour Test
		BI	Invalid Behaviour Test
	<n> = sequential number	>0	<n> = sequential number
NOTE: All tests specified in the present document are application layer tests. The term <layer> in the TP identifier is used to have a consistent TP reference covering also the tests on the data link layer provided in a separate part of this multi-part deliverable.			

5.1.3 Sources of TP definitions

All TPs are specified according to the base standard ES 200 674 [1].

5.1.4 General reference

All references in the test purposes, if not stated differently, are indicating clauses of the base standard ES 200 674 [1].

All references to PICS are indicating tables in part 2 sub-part 1 [2] of this multi-part deliverable.

5.1.5 General conditions

For all TPs related to OBUs the following pre-conditions shall apply, if not defined differently for a specific TP:

- The SUT (OBU) shall be ready for communication, i.e. it shall not be in sleep mode and all boot processes shall be finalized.
- The "AP Invocation Identifier" used in the SUT shall be as defined by the applicant.
- "Responding Mode" used in the SUT (RSU) shall be set to "response-slow-speed", if not required differently for a specific TP.
- The SUT (OBU) shall have no active association with the tester (RSU).

For all TPs related to RSUs, the following general conditions shall apply, if not defined differently for a specific TP:

- The SUT (RSU) shall provide means which allow issuing requests for APDUs to be transmitted.
- Repetition of a request message shall be possible only in case a reply was not received within due time.

NOTE: From this it follows that repetitive or periodic request messages are disabled in the SUT.

Additional pre-conditions may apply for specific TPs.

5.1.6 Default PICS selection

For all TPs related to OBUs the following PICS selections shall apply in addition to those specified for a specific TP:

- Tables A.1, A.2, A.4/1, A.4/2 and A.4/3 of the PICS [2] shall be implicitly selected for all TPs.

For all TPs related to RSUs the following PICS selections shall apply in addition to those specified for a specific TP:

- Tables B.1, B.2, B.4/1, B.4/2 and B.4/3 of the PICS [2] shall be implicitly selected for all TPs.

Further PICS selections may apply as specified for a specific TP. These either select options of the base standard [1] or give hints on the major properties to be tested.

5.1.7 Presentation conventions

Concatenation of directives in a single frame shall be indicated with the symbol |.

EXAMPLE: Concatenation of Open-Rq with Close-Rq is presented as
Open-Rq | Close-Rq,
with Open-Rq sent first.

5.2 Test purposes for on-board units

5.2.1 Kernel Unit

5.2.1.1 Valid behaviour tests

TP/OBU/AL/KU/BV/01	Verify that the IUT can handle Open-Rq and Close-Rq
	Reference: Clauses 11.5.2, 11.5.3, 11.6.1, 11.6.2, 11.6.3 and 11.6.4
	PICS Selection: Table A.3/1 AND Table A.3/2 AND Table A.3/3 AND Table A.3/4
	TC reference:
	Initial condition:

Stimulus and Expected Behaviour:
1) Tester sends Open-Rq with new private LinkID.
2) Verify reception of a response with "Result" set to '06'H and "Diagnostic" set to '00'H and with "AP Invocation Identifier" having the same value as used in step 1).
3) Tester sends Close-Rq with LinkID as used in step 1).
4) Verify reception of a response with "Result" set to '06'H and "Diagnostic" set to '00'H and with "AP Invocation Identifier" having the same value as used in step 3).
5) Tester sends Open-Rq | Close-Rq with new private LinkID.
6) Verify reception of a response with "Result" set to '06'H and "Diagnostic" set to '00'H and with "AP Invocation Identifier" having the same value as used in step 5).

TP/OBU/AL/KU/BV/02	Verify that the IUT can handle Select-TBA-Id-Rq
	Reference: Clauses 11.5.4, 11.6.1, 11.6.2 and 11.6.5
	PICS Selection: Table A.3/5 AND Table A.3/6
	TC reference:
	Initial condition:

Stimulus and Expected Behaviour:
1) Tester sends Open-Rq | Close-Rq with new private LinkID.
2) Verify reception of a response message with "Result" set to '06'H and "Diagnostic" set to '00'H. Note the value of "Called AP Title".
3) Tester sends Open | Select-TBA-Id-Rq | Close-Rq with new private LinkID and with "Responding AP Title" set equal to the value of "Called AP Title" noted in step 2).
4) Verify reception of a response message with "Result" set to '06'H and "Diagnostic" set to '00'H.

5.2.1.2 Invalid behaviour tests

TP/OBU/AL/KU/BI/01	Verify that the IUT can manage Select-TBA-Id-Rq with an invalid length
	Reference: Clauses 11.5.4, 11.6.1, 11.6.2 and 11.6.5
	PICS Selection: Table A.3/5 AND Table A.3/6
	TC reference:
	Initial condition:

Stimulus and Expected Behaviour:
1) Tester sends Open-Rq | Close-Rq with new private LinkID.
2) Verify reception of a response message with "Result" set to '06'H and "Diagnostics" set to '00'H. Note the value of "Called AP Title".
3) Tester sends Open | Select-TBA-Id-Rq | Close-Rq with new private LinkID and with "Responding AP Title" set equal to the value of "Called AP Title" noted in step 2), but giving a wrong value of "Length".
4) Verify reception of a response message with "Result" set to '06'H and "Diagnostic" set to '05'H.

TP/OBU/AL/KU/BI/02	Verify that the IUT can manage Select-TBA-Id-Rq with an invalid value
	Reference: Clauses 11.5.4, 11.6.1, 11.6.2 and 11.6.5
	PICS Selection: Table A.3/5 AND Table A.3/6
	TC reference:
	Initial condition:

Stimulus and Expected Behaviour:
1) Tester sends Open-Rq | Close-Rq new private LinkID.
2) Verify reception of a response message with "Result" set to '06'H and "Diagnostic" set to '00'H. Note the value of "Called AP Title".
3) Tester sends Open | Select-TBA-Id-Rq | Close-Rq with new private LinkID and with "Responding AP Title" set equal to a value different to "Called AP Title" noted in step 2), but with correct value of "Length".
4) Verify reception of a response message with "Result" set to '06'H and "Diagnostic" set to '05'H.

5.2.2 Read access

TP/OBU/AL/RA/BV/01	Verify that the IUT can manage Open-Rq | Read-Master-Core-Rq | Close-Rq
	Reference: Clauses 11.5.6, 11.6.2 and 11.6.7
	PICS Selection: Table A.3/9 AND Table A.3/10
	TC reference:
	Initial condition:

Stimulus and Expected Behaviour:
1) Tester sends Open-Rq | Read-Master-Core-Rq | Close-Rq with new private LinkID and with valid combinations of "Offset" and "Length" in Read-Master-Core-Rq in order to retrieve a part of or the whole master core.
2) Verify reception of a response message with "Result" set to '06'H and "Diagnostic" set to '00'H, and with the data of "Read-Master-Core-Rs" as specified by the applicant for the selected range.
3) Repeat steps 1) and 2) for different valid combinations of "Offset" and "Length" in order to cover the whole master core, each with new private LinkID.

TP/OBU/AL/RA/BV/02	Verify that the IUT can manage Read-Master-Core-Rq with broadcast LinkID
	Reference: Clauses 11.5.6, 11.6.2 and 11.6.7
	PICS Selection: Table A.3/9 AND Table A.3/10
	TC reference:
	Initial condition:

Stimulus and Expected Behaviour:
1) Tester sends Read-Master-Core-Rq with broadcast LinkID and with valid combinations of "Offset" and "Length" in Read-Master-Core-Rq in order to retrieve a part of or the whole master core.
2) Verify reception of a response message with "Result " set to '06'H and "Diagnostic" set to '00'H, and with the data of "Read-Master-Core-Rs" as specified by the applicant for the selected range.
3) Repeat steps 1) and 2) for different valid combinations of "Offset" and "Length" in order to cover the whole master core.

TP/OBU/AL/RA/BV/03	Verify that the IUT can manage Open-Rq | Read-Appl-Core-Rq | Close-Rq
	Reference: Clauses 11.5.7, 11.6.2 and 11.6.8
	PICS Selection: Table A.3/11 AND Table A.3/12
	TC reference:
	Initial condition:

Stimulus and Expected Behaviour:
1) Tester sends Open-Rq | Read-Appl-Core-Rq | Close-Rq with new private LinkID and with valid combinations of "Offset" and "Length" in Read-Appl-Core-Rq in order to retrieve a part of or the whole application core.
2) Verify reception of a response message with "Result " set to '06'H and "Diagnostic" set to '00'H, and with the data of "Read-Appl-Core-Rs" as specified by the applicant for the selected range.
3) Repeat steps 1) and 2) for different valid combinations of "Offset" and "Length" in order to cover the whole application core, each with new private LinkID.

TP/OBU/AL/RA/BV/04	Verify that the IUT can manage Read-Appl-Core-Rq with broadcast LinkId
	Reference: Clauses 11.5.7, 11.6.2 and 11.6.8
	PICS Selection: Table A.3/11 AND Table A.3/12
	TC reference:
	Initial condition:

Stimulus and Expected Behaviour:

1) Tester sends Read-Appl-Core-Rq with broadcast LinkID with valid combinations of "Offset" and "Length" in Read-Appl-Core-Rq in order to retrieve a part of or the whole application core.
2) Verify reception of a response message with ""Result"" set to '06'H and "Diagnostic" set to '00'H, and with the data of "Read-Appl-Core-Rs" as specified by the applicant for the selected range.
3) Repeat steps 1) and 2) for different valid combinations of "Offset" and "Length" in order to cover the whole application core.

TP/OBU/AL/RA/BV/05	Verify that the IUT can manage Open-Rq | Read-Appl-Record-Rq | Close-Rq
	Reference: Clauses 11.5.10, 11.6.2 and 11.6.11
	PICS Selection: Table A.3/17 AND Table A.3/18
	TC reference:
	Initial condition:

Stimulus and Expected Behaviour:

1) Tester sends Open-Rq | Read-Appl-Record-Rq | Close-Rq with new private LinkID and with valid combinations of "Offset" and "Length" in Read-Appl-Record -Rq in order to retrieve a part of or the whole application record.
2) Verify reception of a response message with "Result" set to '06'H and "Diagnostic" set to '00'H, and with the data of "Read-Appl-Record-Rs" as specified by the applicant for the selected range.
3) Repeat steps 1) and 2) for different valid combinations of "Offset" and "Length" in order to cover the whole application record, each with new private LinkID.

TP/OBU/AL/RA/BV/06	Verify that the IUT can manage Read-Appl-Record-Rq with broadcast LinkId
	Reference: Clauses 11.5.10, 11.6.2 and 11.6.11
	PICS Selection: Table A.3/17 AND Table A.3/18
	TC reference:
	Initial condition:

Stimulus and Expected Behaviour:

1) Tester sends Read-Appl-Record-Rq with broadcast Link ID with valid combinations of "Offset" and "Length" in Read-Appl-Record-Rq in order to retrieve a part of or the whole application record.
2) Verify reception of a response message with "Result"" set to '06'H and "Diagnostic" set to '00'H, and with the data of "Read-Appl-Record-Rs" as specified by the applicant for the selected range.
3) Repeat steps 1) and 2) for different valid combinations of "Offset" and "Length" in order to cover the whole application record.

5.2.3 Write Access

TP/OBU/AL/WA/BV/01	Verify that the IUT can manage Open-Rq | Select-TBA-Id-Rq | Write-Appl-Core-Rq | Close-Rq
	Reference: Clauses 11.5.8, 11.6.2 and 11.6.9
	PICS Selection: Table A.3/13 AND Table A.3/14
	TC reference:
	Initial condition:

Stimulus and Expected Behaviour:
1) Tester sends Open-Rq | Read-Appl-Core-Rq | Close-Rq with new private LinkID and with valid combinations of "Offset" and "Length" in Read-Appl-Core-Rq in order to retrieve a part of or the whole application core.
2) Verify reception of a response message with "Result" set to '06'H and "Diagnostic" set to '00'H. Note the data retrieved. Note the value of "Called AP Title".
3) Tester sends Open-Rq | Select-TBA-Id-Rq | Write-Appl-Core-Rq | Close-Rq with new private LinkID with the same value of "Offset" and "Length" as used in step 1) and with "Responding AP Title" set equal to the value of "Called AP Title" noted in step 2) in order to write data to the application core being different to the data received in step 2).
4) Verify reception of a response message with "Result" set to '06'H and "Diagnostic" set to '00'H.
5) Tester sends Open-Rq | Select-TBA-Id-Rq | Read-Appl-Core-Rq | Close-Rq with new private LinkID and with the same value of "Offset" and "Length" as used in step 1) and with "Responding AP Title" set equal to the value of "Called AP Title" noted in step 2) in order to retrieve data from the application core.
6) Verify reception of a response message with "Result" set to '06'H and "Diagnostic" set to '00'H. Note the data retrieved.
7) Verify that the data received in step 5) are identical to the data sent in step 3).
8) Repeat steps 1) through 6) for different valid combinations of "Offset" and "Length" in order to cover the whole application core, each with new private LinkID.

TP/OBU/AL/WA/BV/02	Verify that the IUT can manage Write-Appl-Core-Rq | Read-Appl-Core-Rq
	Reference: Clauses 11.5.8, 11.6.2 and 11.6.9
	PICS Selection: Table A.3/11 AND Table A.3/12 AND Table A.3/13 AND Table A.3/14
	TC reference:
	Initial condition:

Stimulus and Expected Behaviour:
1) Tester sends Open-Rq | Read-Appl-Core-Rq | Close-Rq with new private LinkID and with valid combinations of "Offset" and "Length" in Read-Appl-Core-Rq in order to retrieve a part of or the whole application core.
2) Verify reception of a response message with "Result" set to '06'H and "Diagnostic" set to '00'H. Note the data retrieved. Note the value of "Called AP Title".
3) Tester sends Open-Rq | Select-TBA-Id-Rq | Write-Appl-Core-Rq | Read-Appl-Core-Rq | Close-Rq with new private LinkID and with the same value of "Offset" and "Length" as used in step 1) and with "Responding AP Title" set equal to the value of "Called AP Title" noted in step 2) in order to write data to the application core being different to the data received in step 2) and subsequently retrieve data from the same memory in the application core.
4) Verify reception of a response message with "Result" set to '06'H and "Diagnostic" set to '00'H. Note the data retrieved.
5) Verify that the data received in step 4) are identical to the data sent in step 3).
6) Repeat steps 1) through 5) for different valid combinations of "Offset" and "Length" in order to cover the whole application core, each with new private LinkID.

TP/OBU/AL/WA/BV/03	Verify that the IUT can manage multiple Write-Appl-Core-Rq in a single frame
	Reference: Clauses 11.5.8, 11.6.2 and 11.6.9
	PICS Selection: Table A.3/13 AND Table A.3/14
	TC reference:
	Initial condition:

Stimulus and Expected Behaviour:
1) Tester sends Open-Rq | Read-Appl-Core-Rq | Close-Rq with new private LinkID and with "Offset" set to zero and "Length" set to the maximum length D provided by the applicant in order to retrieve the whole application core.
2) Verify reception of a response message with "Result" set to '06'H and "Diagnostic" set to '00'H. Note the data retrieved. Note the value of "Called AP Title".
3) Tester sends Open-Rq | Select-TBA-Id-Rq | Write-Appl-Core-Rq("Offset"=0, "Length"=A) | Write-Appl-Core-Rq("Offset"=A, "Length"=B) | Write-Appl-Core-Rq("Offset"=A+B, "Length"=C) | Read-Appl-Core-Rq("Offset"=0, "Length"=A+B+C=D) | Close-Rq with new private LinkID and with "Responding AP Title" set equal to the value of "Called AP Title" noted in step 2) in order to write data to the application core being different to the data received in step 2) and subsequently retrieve all data from the application core.
4) Verify reception of a response message with "Result" set to '06'H and "Diagnostic" set to '00'H. Note the data retrieved.
5) Verify that the data received in step 4) are identical to the data sent in step 3).

TP/OBU/AL/WA/BV/04	Verify that the IUT can manage Write-Appl-Core-Conf-Rq
	Reference: Clauses 11.5.9, 11.6.2 and 11.6.10
	PICS Selection: Table A.3/15 AND Table A.3/16
	TC reference:
	Initial condition:

Stimulus and Expected Behaviour:

1) Tester sends Open-Rq | Read-Appl-Core-Rq | Close-Rq with new private LinkID and with valid combinations of "Offset" and "Length" in Read-Appl-Core-Rq in order to retrieve a part of or the whole application core.
2) Verify reception of a response message with "Result" set to '06'H and "Diagnostic" set to '00'H. Note the data retrieved. Note the value of "Called AP Title".
3) Tester sends Open-Rq | Select-TBA-Id-Rq | Write-Appl-Core-Conf-Rq | Close-Rq with new private LinkID and with the same value of "Offset" and "Length" as used in step 1) and with "Responding AP Title" set equal to the value of "Called AP Title" noted in step 2) in order to write data to the application core being different to the data received in step 2).
4) Verify reception of a response message with "Result" set to '06'H and "Diagnostic" set to '00'H.
5) Tester sends Open-Rq | Select-TBA-Id-Rq | Read-Appl-Core-Rq | Close-Rq with new private LinkID and with the same value of "Offset" and "Length" as used in step 1) and with "Responding AP Title" set equal to the value of "Called AP Title" noted in step 2) in order to retrieve data from the application core.
6) Verify reception of a response message with "Result" set to '06'H and "Diagnostic" set to '00'H. Note the data retrieved.
7) Verify that the data received in step 5) are identical to the data sent in step 3).
8) Repeat steps 1) through 6) for different valid combinations of "Offset" and "Length" in order to cover the whole application core, each with new private LinkID.

TP/OBU/AL/WA/BV/05	Verify that the IUT can manage Write-Appl-Record-Curr-Rq
	Reference: Clauses 11.5.11, 11.6.2 and 11.6.12
	PICS Selection: Table A.3/19 AND Table A.3/20
	TC reference:
	Initial condition:

Stimulus and Expected Behaviour:

1) Tester sends Open-Rq | Read-Appl-Record-Rq | Close-Rq with new private LinkID and with valid combinations of "Offset" and "Length" in Read-Appl-Record-Rq in order to retrieve a part of or the whole application record.
2) Verify reception of a response message with "Result" set to '06'H and "Diagnostic" set to '00'H. Note the data retrieved. Note the value of "Called AP Title".
3) Tester sends Open-Rq | Select-TBA-Id-Rq | Write-Appl-Record-Curr-Rq | Close-Rq with new private LinkID and with the same value of "Offset" and "Length" as used in step 1) and with "Responding AP Title" set equal to the value of "Called AP Title" noted in step 2) in order to write data to the current application record being different to the data received in step 2).
4) Verify reception of a response message with "Result" set to '06'H and "Diagnostic" set to '00'H.
5) Tester sends Open-Rq | Select-TBA-Id-Rq | Read-Appl-Record-Rq | Close-Rq with new private LinkID and with the same value of "Offset" and "Length" as used in step 1) and with "Responding AP Title" set equal to the value of "Called AP Title" noted in step 2) in order to retrieve data from the application record.
6) Verify reception of a response message with "Result" set to '06'H and "Diagnostic" set to '00'H. Note the data retrieved.
7) Verify that the data received in step 5) are identical to the data sent in step 3).
8) Repeat steps 1) through 6) for different valid combinations of "Offset" and "Length" in order to cover the whole application record, each with new private LinkID.

TP/OBU/AL/WA/BV/06	Verify that the IUT can manage Write-Appl-Record-Curr-Rq | Read-Appl-Record-Rq
	Reference: Clauses 11.5.11, 11.6.2 and 11.6.12
	PICS Selection: Table A.3/17 AND Table A.3/18 AND Table A.3/19 AND Table A.3/20
	TC reference:
	Initial condition:

Stimulus and Expected Behaviour:

1) Tester sends Open-Rq | Read-Appl-Record-Rq | Close-Rq with new private LinkID and with valid combinations of "Offset" and "Length" in Read-Appl-Record-Rq in order to retrieve a part of or the whole application record.
2) Verify reception of a response message with "Result" set to '06'H and "Diagnostic" set to '00'H. Note the data retrieved. Note the value of "Called AP Title".
3) Tester sends Open-Rq | Select-TBA-Id-Rq | Write-Appl-Record-Curr-Rq | Read-Appl-RecordRq | Close-Rq with new private LinkID and with the same value of "Offset" and "Length" as used in step 1) and with "Responding AP Title" set equal to the value of "Called AP Title" noted in step 2) in order to write data to the current application record being different to the data received in step 2) and subsequently retrieve data from the same memory in the application record.
4) Verify reception of a response message with "Result" set to '06'H and "Diagnostic" set to '00'H. Note the data retrieved.
5) Verify that the data received in step 4) are identical to the data sent in step 3).
6) Repeat steps 1) through 5) for different valid combinations of "Offset" and "Length" in order to cover the whole application record, each with new private LinkID.

TP/OBU/AL/WA/BV/07	Verify that the IUT can manage Write-Appl-Record-Curr-Conf-Rq
	Reference: Clauses 11.5.12, 11.6.2 and 11.6.13
	PICS Selection: Table A.3/21 AND Table A.3/22
	TC reference:
	Initial condition:

Stimulus and Expected Behaviour:

1) Tester sends Open-Rq | Read-Appl-Record-Rq | Close-Rq with new private LinkID and with valid combinations of "Offset" and "Length" in Read-Appl-Record-Rq in order to retrieve a part of or the whole application record.
2) Verify reception of a response message with "Result" set to '06'H and "Diagnostic" set to '00'H. Note the data retrieved. Note the value of "Called AP Title".
3) Tester sends Open-Rq | Select-TBA-Id-Rq | Write-Appl-Record-Curr-Conf-Rq | Close-Rq with new private LinkID and with the same value of "Offset" and "Length" as used in step 1) and with "Responding AP Title" set equal to the value of "Called AP Title" noted in step 2) in order to write data to the current application record being different to the data received in step 2).
4) Verify reception of a response message with "Result" set to '06'H and "Diagnostic" set to '00'H.
5) Tester sends Open-Rq | Select-TBA-Id-Rq | Read-Appl-Record-Rq | Close-Rq with new private LinkID and with the same value of "Offset" and "Length" as used in step 1) and with "Responding AP Title" set equal to the value of "Called AP Title" noted in step 2) in order to retrieve data from the application record.
6) Verify reception of a response message with "Result" set to '06'H and "Diagnostic" set to '00'H. Note the data retrieved.
7) Verify that the data received in step 5) are identical to the data sent in step 3).
8) Repeat steps 1) through 6) for different valid combinations of "Offset" and "Length" in order to cover the whole application record, each with new private LinkID.

TP/OBU/AL/WA/BV/08	Verify that the IUT can manage Write-Appl-Record-Curr-Conf-Rq | Read-Appl-Record-Rq
	Reference: Clauses 11.5.12, 11.6.2 and 11.6.13
	PICS Selection: Table A.3/17 AND Table A.3/18 AND Table A.3/21 AND Table A.3/22
	TC reference:
	Initial condition:

Stimulus and Expected Behaviour:

1) Tester sends Open-Rq | Read-Appl-Record-Rq | Close-Rq with new private LinkID and with valid combinations of "Offset" and "Length" in Read-Appl-Record-Rq in order to retrieve a part of or the whole application record.
2) Verify reception of a response message with "Result" set to '06'H and "Diagnostic" set to '00'H. Note the data retrieved. Note the value of "Called AP Title".
3) Tester sends Open-Rq | Select-TBA-Id-Rq | Write-Appl-Record-Curr-Conf-Rq | Read-Appl-Record-Rq | Close-Rq with new private LinkID and with the same value of "Offset" and "Length" as used in step 1) and with "Responding AP Title" set equal to the value of "Called AP Title" noted in step 2) in order to write data to the current application record being different to the data received in step 2) and subsequently retrieve data from the same memory in the application record.
4) Verify reception of a response message with "Result" set to '06'H and "Diagnostic" set to '00'H. Note the data retrieved.
5) Verify that the data received in step 4) are identical to the data sent in step 3).
6) Repeat steps 1) through 5) for different valid combinations of "Offset" and "Length" in order to cover the whole application record, each with new private LinkID.

TP/OBU/AL/WA/BV/09	Verify that the IUT can manage multiple Write-Appl-Record-Curr-Conf-Rq in a single frame
	Reference: Clauses 11.5.12, 11.6.2 and 11.6.13
	PICS Selection: Table A.3/21 AND Table A.3/22
	TC reference:
	Initial condition:

Stimulus and Expected Behaviour:

1) Tester sends Open-Rq | Read-Appl-Record-Rq | Close-Rq with new private LinkID and with "Offset" set to zero and "Length" set to the maximum length D provided by the applicant in order to retrieve the whole application record.
2) Verify reception of a response message with "Result" set to '06'H and "Diagnostic" set to '00'H. Note the data retrieved. Note the value of "Called AP Title".
3) Tester sends Open-Rq | Select-TBA-Id-Rq | Write-Appl-Record-Curr-Conf-Rq("Offset"=0, "Length"=A) | Write-Appl-Record-Curr-Conf -Rq("Offset"=A, "Length"=B) | Write-Appl-Record-Curr-Conf-Rq("Offset"=A+B, "Length"=C) | Read-Appl-Record-Rq("Offset"=0, "Length"=A+B+C=D) | Close-Rq with new private LinkID and with "Responding AP Title" set equal to the value of "Called AP Title" noted in step 2) in order to write data to the application record being different to the data received in step 2) and subsequently retrieve all data from the application record.
4) Verify reception of a response message with "Result" set to '06'H and "Diagnostic" set to '00'H. Note the data retrieved.
5) Verify that the data received in step 4) are identical to the data sent in step 3).

TP/OBU/AL/WA/BV/10	Verify that the IUT can manage Write-Appl-Record-Next-Rq
	Reference: Clauses 11.5.13, 11.6.2 and 11.6.14
	PICS Selection: Table A.3/23 AND Table A.3/24
	TC reference:
	Initial condition:

Stimulus and Expected Behaviour:

1) Tester sends Open-Rq | Read-Appl-Record-Rq | Close-Rq with new private LinkID and with valid combinations of "Offset" and "Length" in Read-Appl-Record-Rq in order to retrieve a part of or the whole application record.
2) Verify reception of a response message with "Result" set to '06'H and "Diagnostic" set to '00'H. Note the value of "Called AP Title".
3) Tester sends Open-Rq | Select-TBA-Id-Rq | Write-Appl-Record-Next-Rq | Close-Rq with new private LinkID and with the same value of "Offset" and "Length" as used in step 1) and with "Responding AP Title" set equal to the value of "Called AP Title" noted in step 2) in order to write all-zero data to the next application record, which by this command will become the current record.
4) Wait the time needed to store the data in the application record.
5) Tester sends Open-Rq | Select-TBA-Id-Rq | Read-Appl-Record-Rq | Close-Rq with new private LinkID and with with the same value of "Offset" and "Length" as used in step 1) and with "Responding AP Title" set equal to the value of "Called AP Title" noted in step 2) in order to retrieve data from the application record.
6) Verify reception of a response message with "Result" set to '06'H and "Diagnostic" set to '00'H. Note the data retrieved.
7) Verify that the data received in step 5) are identical to the data sent in step 4).
8) Repeat steps 3) through 6) until all next records were addressed, each with new private LinkID.
9) Repeat steps 3) through 6), but writing all-one data in step 3), each with new private LinkID.
10) Repeat step 8) until all next records were addressed, each with new private LinkID.

TP/OBU/AL/WA/BV/11	Verify that the IUT can manage Write-Appl-Record-Next-Conf-Rq
	Reference: Clauses 11.5.14, 11.6.2 and 11.6.15
	PICS Selection: Table A.3/25 AND Table A.3/26
	TC reference:
	Initial condition:
Stimulus and Expected Behaviour: 1) Tester sends Open-Rq | Read-Appl-Record-Rq | Close-Rq with new private LinkID and with valid combinations of "Offset" and "Length" in Read-Appl-Record-Rq in order to retrieve a part of or the whole application record. 2) Verify reception of a response message with "Result" set to '06'H and "Diagnostic" set to '00'H. Note the value of "Called AP Title". 3) Tester sends Open-Rq | Select-TBA-Id-Rq | Write-Appl-Record-Next-Conf-Rq | Close-Rq with new private LinkID and with the same value of "Offset" and "Length" as used in step 1) and with "Responding AP Title" set equal to the value of "Called AP Title" noted in step 2) in order to write all-zero data to the next application record, which by this command will become the current record. 4) Tester sends Open-Rq | Select-TBA-Id-Rq | Read-Appl-Record-Rq | Close-Rq with new private LinkID and with the same value of "Offset" and "Length" as used in step 1) and with "Responding AP Title" set equal to the value of "Called AP Title" noted in step 2) in order to retrieve data from the application record. 5) Verify reception of a response message with "Result" set to '06'H and "Diagnostic" set to '00'H. Note the data retrieved. 6) Verify that the data received in step 5) are identical to the data sent in step 4). 7) Repeat steps 3) through 6) until all next records were addressed, each with new private LinkID. 8) Repeat steps 3) through 6), but writing all-one data in step 3) , each with new private LinkID. 9) Repeat step 8) until all next records were addressed, each with new private LinkID.	

TP/OBU/AL/WA/BV/12	Verify that the IUT can manage Write-Appl-Record-Next-Conf-Rq | Read-Appl-Record-Rq
	Reference: Clauses 11.5.14, 11.6.2 and 11.6.15
	PICS Selection: Table A.3/17 AND Table A.3/18 AND Table A.3/25 AND Table A.3/26
	TC reference:
	Initial condition:
Stimulus and Expected Behaviour: 1) Tester sends Open-Rq | Read-Appl-Record-Rq | Close-Rq with new private LinkID and with valid combinations of "Offset" and "Length" in Read-Appl-Record-Rq in order to retrieve a part of or the whole application record. 2) Verify reception of a response message with "Result" set to '06'H and "Diagnostic" set to '00'H. Note the value of "Called AP Title". 3) Tester sends Open-Rq | Select-TBA-Id-Rq | Write-Appl-Record-Next-Conf-Rq | Read-Appl-Record-Rq | Close-Rq with new private LinkID and with the same value of "Offset" and "Length" as used in step 1) and with "Responding AP Title" set equal to the value of "Called AP Title" noted in step 2) in order to write all-zero data to the next application record and to subsequently read the same record. 4) Verify reception of a response message with "Result" set to '06'H and "Diagnostic" set to '00'H. Note the data retrieved. 5) Verify that the data received in step 4) are identical to the data sent in step 3). 6) Repeat steps 3) through 5) until all next records were addressed, each with new private LinkID. 7) Repeat steps 3) through 5), but writing all-one data in step 3) , each with new private LinkID. 8) Repeat step 7) until all next records were addressed, each with new private LinkID.	

5.2.4 Optional functionality

5.2.4.1 Valid behaviour tests

TP/OBU/AL/OF/BV/01	Verify that the IUT can manage the Read-Display-Type-Rq
	Reference: Clauses 11.5.5, 11.6.2 and 11.6.6
	PICS Selection: Table A.3/7 AND Table A.3/8 AND Table A.4/5
	TC reference:
	Initial condition:
Stimulus and Expected Behaviour: 1) Tester sends Open-Rq | Read-Display-Type-Rq | Close-Rq with new private LinkID. 2) Verify reception of a response message with "Result" set to '06'H and "Diagnostic" set to '00'H, and indicating the display type as either '41'H or '4E'H, as specified by the applicant.	

TP/OBU/AL/OF/BV/02	Verify that the IUT can manage the Action-Rq
	Reference: Clauses 11.5.15, 11.6.2 and 11.6.16
	PICS Selection: Table A.3/27 AND Table A.3/28 AND Table A.4/4
	TC reference:
	Initial condition:
Stimulus and Expected Behaviour: 1) Tester sends Open-Rq | Action-Rq | Close-Rq with new private LinkID and with parameters as specified by the applicant. 2) Verify reception of a response message with "Result" set to '06'H and "Diagnostic" set to '00'H, and providing response parameters as specified by the applicant. 3) Repeat steps 1) and 2) for all actions specified by the applicant.	

5.2.4.2 Invalid behaviour tests

TP/OBU/AL/OF/BI/01	Verify that the IUT can manage an invalid Action-Rq
	Reference: Clauses 11.5.15, 11.6.2 and 11.6.16
	PICS Selection: Table A.3/27 AND Table A.3/28 AND Table A.4/4
	TC reference:
	Initial condition:
Stimulus and Expected Behaviour: 1) Tester sends Open-Rq | Action-Rq | Close-Rq with new private LinkID and with parameters as specified by the applicant, but at least one parameter having a wrong value. 2) Verify reception of a response message with "Result" set to '15'H and "Diagnostic" set to '04', not providing any response parameters.	

5.2.5 Integrity constraints

TP/OBU/AL/IC/BI/01	Verify that the IUT correctly identifies an invalid termination request
	Reference: Clauses 11.6.2 and 11.6.4
	PICS Selection: Table A.3/3 AND Table A.3/4
	TC reference:
	Initial condition:
Stimulus and Expected Behaviour: 1) Tester sends Close-Rq with new private LinkID. 2) Verify reception of a response message with "Result" set to '15'H and "Diagnostic" set to '02'H and not data. 3) Tester sends Close-Rq with broadcast LinkID. 4) Verify reception of a response message with "Result" set to '15'H and "Diagnostic" set to '02'H and not data.	

TP/OBU/AL/IC/BI/02	Verify that the IUT correctly identifies an invalid Read-Appl-Record-Rq outside a session
	Reference: Clauses 11.6.2 and 11.6.4
	PICS Selection: Table A.3/17 AND Table A.3/18
	TC reference:
	Initial condition:
Stimulus and Expected Behaviour: 1) Tester send Open-Rq with new private LinkID. 2) Verify reception of a response message with "Result" set to '06'H and "Diagnostic" set to '00'H. 3) Tester send Close-Rq with LinkID as used in step 1). 4) Verify reception of a response message with "Result" set to '06'H and "Diagnostic" set to '00'H. 5) Tester sends Read-Appl-Record-Rq with private LinkID as used in step 1) and with valid combinations of "Offset" and "Length" in Read-Appl-Record-Rq in order to retrieve a part of or the whole application record. 6) Verify reception of a response message with "Result" set to '15'H and "Diagnostic" set to '02'H and not data. 7) Tester sends Read-Appl-Record-Rq with broadcast LinkID and with valid combinations of "Offset" and "Length" in Read-Appl-Record-Rq in order to retrieve a part of or the whole application record.	

TP/OBU/AL/IC/BI/03	Verify that the IUT correctly identifies an invalid Read-Appl-Core-Rq outside a session
	Reference: Clauses 11.6.2 and 11.6.4
	PICS Selection: Table A.3/11 AND Table A.3/12
	TC reference:
	Initial condition:

Stimulus and Expected Behaviour:
1) Tester send Open-Rq with new private LinkID.
2) Verify reception of a response message with "Result" set to '06'H and "Diagnostic" set to '00'H.
3) Tester send Close-Rq with LinkID as used in step 1).
4) Verify reception of a response message with "Result" set to '06'H and "Diagnostic" set to '00'H.
5) Tester sends Read-Appl-Core-Rq with LinkID as used in step 1) and with valid combinations of "Offset" and "Length" in Read-Appl-Core-Rq in order to retrieve a part of or the whole application record.
6) Verify reception of a response message with "Result" set to '15'H and "Diagnostic" set to '02'H and not data.
7) Tester sends Read-Appl-Core-Rq with broadcast LinkID and with valid combinations of "Offset" and "Length" in Read-Appl-Core-Rq in order to retrieve a part of or the whole application record.
8) Verify reception of a response message with "Result" set to '15'H and "Diagnostic" set to '02'H and not data.

TP/OBU/AL/IC/BI/04	Verify that the IUT correctly identifies an invalid Read-Master-Core-Rq outside a session
	Reference: Clauses 11.6.2 and 11.6.4
	PICS Selection: Table A.3/9 AND Table A.3/10
	TC reference:
	Initial condition:

Stimulus and Expected Behaviour:
1) Tester send Open-Rq with new private LinkID.
2) Verify reception of a response message with "Result" set to '06'H and "Diagnostic" set to '00'H.
3) Tester send Close-Rq with LinkID as used in step 1).
4) Verify reception of a response message with "Result" set to '06'H and "Diagnostic" set to '00'H.
5) Tester sends Read- Master-Core-Rq with LinkID as used in step 1) and with valid combinations of "Offset" and "Length" in Read- Master-Core-Rq in order to retrieve a part of or the whole application record.
6) Verify reception of a response message with "Result" set to '15'H and "Diagnostic" set to '02'H and not data.
7) Tester sends Read- Master-Core-Rq with broadcast LinkID and with valid combinations of "Offset" and "Length" in Read- Master-Core-Rq in order to retrieve a part of or the whole application record.
8) Verify reception of a response message with "Result" set to '15'H and "Diagnostic" set to '02'H and not data.

TP/OBU/AL/IC/BI/05	Verify that the IUT correctly identifies an invalid Write-Appl-Record-Curr-Rq following a valid termination request of an existing session
	Reference: Clauses 11.6.2 and 11.6.4
	PICS Selection: Table A.3/19 AND Table A.3/20
	TC reference:
	Initial condition:

Stimulus and Expected Behaviour:
1) Tester send Open-Rq with new private LinkID.
2) Verify reception of a response message with "Result" set to '06'H and "Diagnostic" set to '00'H.
3) Tester send Close-Rq with LinkID as used in step 1).
4) Verify reception of a response message with "Result" set to '06'H and "Diagnostic" set to '00'H.
5) Tester sends Write-Appl-Record-Curr-Rq with LinkID as used in step 1) and with valid combinations of "Offset" and "Length" in Write-Appl-Record-Curr-Rq in order to write a part of or the whole current application record.
6) Verify reception of a response message with "Result" set to '15'H and "Diagnostic" set to '02'H.
7) Tester sends Write-Appl-Record-Curr-Rq with broadcast LinkID and with valid combinations of "Offset" and "Length" in Write-Appl-Record-Curr-Rq in order to write a part of or the whole current application record.
8) Verify reception of a response message with "Result" set to '15'H and "Diagnostic" set to '02'H.

TP/OBU/AL/IC/BI/06	Verify that the IUT correctly identifies an invalid Write-Appl-Record-Curr-Conf-Rq following a valid termination request of an existing session
	Reference: Clauses 11.6.2 and 11.6.4
	PICS Selection: Table A.3/21 AND Table A.3/22
	TC reference:
	Initial condition:

Stimulus and Expected Behaviour:
1) Tester send Open-Rq with new private LinkID.
2) Verify reception of a response message with "Result" set to '06'H and "Diagnostic" set to '00'H.
3) Tester send Close-Rq with LinkID as used in step 1).
4) Verify reception of a response message with "Result" set to '06'H and "Diagnostic" set to '00'H.
5) Tester sends Write-Appl-Record-Curr-Conf-Rq with LinkID as used in step 1) and with valid combinations of "Offset" and "Length" in Write-Appl-Record-Curr-Conf-Rq in order to write a part of or the whole current application record.
6) Verify reception of a response message with "Result" set to '15'H and "Diagnostic" set to '02'H.
7) Tester sends Write-Appl-Record-Curr-Conf-Rq with broadcast LinkID and with valid combinations of "Offset" and "Length" in Write-Appl-Record-Curr-Conf-Rq in order to write a part of or the whole current application record.
8) Verify reception of a response message with "Result" set to '15'H and "Diagnostic" set to '02'H.

TP/OBU/AL/IC/BI/07	Verify that the IUT correctly identifies an invalid Write-Appl-Record-Next-Rq following a valid termination request of an existing session
	Reference: Clauses 11.6.2 and 11.6.4
	PICS Selection: Table A.3/23 AND Table A.3/24
	TC reference:
	Initial condition:

Stimulus and Expected Behaviour:
1) Tester send Open-Rq with new private LinkID.
2) Verify reception of a response message with "Result" set to '06'H and "Diagnostic" set to '00'H.
3) Tester send Close-Rq with LinkID as used in step 1).
4) Verify reception of a response message with "Result" set to '06'H and "Diagnostic" set to '00'H.
5) Tester sends Write-Appl-Record-Next-Rq with LinkID as used in step 1) and with valid combinations of "Offset" and "Length" in Write-Appl-Record-Next-Rq in order to write a part of or the whole current application record.
6) Verify reception of a response message with "Result" set to '15'H and "Diagnostic" set to '02'H.
7) Tester sends Write-Appl-Record-Next-Rq with broadcast LinkID and with valid combinations of "Offset" and "Length" in Write-Appl-Record-Next-Rq in order to write a part of or the whole current application record.
8) Verify reception of a response message with "Result" set to '15'H and "Diagnostic" set to '02'H.

TP/OBU/AL/IC/BI/08	Verify that the IUT correctly identifies an invalid Write-Appl-Record-Next-Conf--Rq following a valid termination request of an existing session
	Reference: Clauses 11.6.2 and 11.6.4
	PICS Selection: Table A.3/25 AND Table A.3/26
	TC reference:
	Initial condition:

Stimulus and Expected Behaviour:
1) Tester send Open-Rq with new private LinkID.
2) Verify reception of a response message with "Result" set to '06'H and "Diagnostic" set to '00'H.
3) Tester send Close-Rq with LinkID as used in step 1).
4) Verify reception of a response message with "Result" set to '06'H and "Diagnostic" set to '00'H.
5) Tester sends Write-Appl-Record-Next-Conf-Rq with LinkID as used in step 1) and with valid combinations of "Offset" and "Length" in Write-Appl-Record-Next-Conf-Rq in order to write a part of or the whole current application record.
6) Verify reception of a response message with "Result" set to '15'H and "Diagnostic" set to '02'H.
7) Tester sends Write-Appl-Record-Next-Conf-Rq with broadcast LinkID and with valid combinations of "Offset" and "Length" in Write-Appl-Record-Next-Conf-Rq in order to write a part of or the whole current application record.
8) Verify reception of a response message with "Result" set to '15'H and "Diagnostic" set to '02'H.

TP/OBU/AL/IC/BI/09	Verify that the IUT correctly identifies an invalid Write-Appl-Core-Rq following a valid termination request of an existing session
	Reference: Clauses 11.6.2 and 11.6.4
	PICS Selection: Table A.3/13 AND Table A.3/14
	TC reference:
	Initial condition:
Stimulus and Expected Behaviour: 1) Tester send Open-Rq with new private LinkID. 2) Verify reception of a response message with "Result" set to '06'H and "Diagnostic" set to '00'H. 3) Tester send Close-Rq with LinkID as used in step 1). 4) Verify reception of a response message with "Result" set to '06'H and "Diagnostic" set to '00'H. 5) Tester sends Write-Appl-Core-Rq with LinkID as used in step 1) and with valid combinations of "Offset" and "Length" in Write-Appl-Core-Rq in order to write a part of or the whole current application record. 6) Verify reception of a response message with "Result" set to '15'H and "Diagnostic" set to '02'H. 7) Tester sends Write-Appl-Core-Rq with broadcast LinkID and with valid combinations of "Offset" and "Length" in Write-Appl-Core-Rq in order to write a part of or the whole current application record. 8) Verify reception of a response message with "Result" set to '15'H and "Diagnostic" set to '02'H.	

TP/OBU/AL/IC/BI/10	Verify that the IUT correctly identifies an invalid Write-Appl-Core-Conf-Rq following a valid termination request of an existing session
	Reference: Clauses 11.6.2 and 11.6.4
	PICS Selection: Table A.3/15 AND Table A.3/16
	TC reference:
	Initial condition:
Stimulus and Expected Behaviour: 1) Tester send Open-Rq with new private LinkID. 2) Verify reception of a response message with "Result" set to '06'H and "Diagnostic" set to '00'H. 3) Tester send Close-Rq with LinkID as used in step 1). 4) Verify reception of a response message with "Result" set to '06'H and "Diagnostic" set to '00'H. 5) Tester sends Write-Appl-Core-Conf-Rq with LinkID as used in step 1) and with valid combinations of "Offset" and "Length" in Write-Appl-Core-Conf-Rq in order to write a part of or the whole current application record. 6) Verify reception of a response message with "Result" set to '15'H and "Diagnostic" set to '02'H. 7) Tester sends Write-Appl-Core-Conf-Rq with broadcast LinkID and with valid combinations of "Offset" and "Length" in Write-Appl-Core-Conf-Rq in order to write a part of or the whole current application record. 8) Verify reception of a response message with "Result" set to '15'H and "Diagnostic" set to '02'H.	

TP/OBU/AL/IC/BI/11	Verify that the IUT correctly identifies an invalid Select-TBA-Id-Rq following a valid termination request of an existing session
	Reference: Clauses 11.6.2 and 11.6.4
	PICS Selection: Table A.3/5 AND Table A.3/6
	TC reference:
	Initial condition:
Stimulus and Expected Behaviour: 1) Tester send Open-Rq with new private LinkID. 2) Verify reception of a response message with "Result" set to '06'H and "Diagnostic" set to '00'H. 3) Tester send Close-Rq with LinkID as used in step 1). 4) Verify reception of a response message with "Result" set to '06'H and "Diagnostic" set to '00'H. 5) Tester sends Select-TBA-Id-Rq with LinkID as used in step 1) and with valid Called AP Title. 6) Verify reception of a response message with "Result" set to '15'H and "Diagnostic" set to '02'H.	

TP/OBU/AL/IC/BI/12	Verify that the IUT correctly identifies termination of an active session and an invalid Read-Display-Type-Rq
	Reference: Clauses 11.6.2 and 11.6.4
	PICS Selection: Table A.3/7 AND Table A.3/8 AND Table A.4/5
	TC reference:
	Initial condition:
Stimulus and Expected Behaviour: 1) Tester send Open-Rq with new private LinkID. 2) Verify reception of a response message with "Result" set to '06'H and "Diagnostic" set to '00'H. 3) Tester sends Close-Rq with LinkID as used in step 1). 4) Verify reception of a response message with "Result" set to '06'H and "Diagnostic" set to '00'H. 5) Tester sends Read-Display-Type-Rq with LinkID as used in step 1). 6) Verify reception of a response message with "Result" set to '15'H and "Diagnostic" set to '02'H.	

TP/OBU/AL/IC/BI/13	Verify that the IUT correctly identifies termination of an active session and an invalid Action-Rq
	Reference: Clauses 11.6.2 and 11.6.4
	PICS Selection: Table A.3/27 AND Table A.3/28 AND Table A.4/4
	TC reference:
	Initial condition:
Stimulus and Expected Behaviour: 1) Tester send Open-Rq with new private LinkID. 2) Verify reception of a response message with "Result" set to '06'H and "Diagnostic" set to '00'H. 3) Tester sends Close-Rq with LinkID as used in step 1). 4) Verify reception of a response message with "Result" set to '06'H and "Diagnostic" set to '00'H. 5) Tester sends Action-Rq with LinkID as used in step 1) and with valid parameters. 6) Verify reception of a response message with "Result" set to '15'H and "Diagnostic" set to '02'H.	

TP/OBU/AL/IC/BI/14	Verify that the IUT correctly handles invalid directive codes
	Reference: Clauses 11.3 and 11.6.1
	PICS Selection:
	TC reference:
	Initial condition:
Stimulus and Expected Behaviour: 1) Tester sends Open-Rq | " Invalid directive code number" | Close-Rq with new private LinkID. 2) Verify reception of a response message with "Result" set to '15'H and "Diagnostic" set to '04'H. 3) Repeat steps 1) and 2) for all missing invalid directive codes, each with new private LinkID.	

TP/OBU/AL/IC/BI/15	Verify that the IUT correctly handles a too small number of directives in a single frame
	Reference: Clauses 11.5.1 and 11.6.1
	PICS Selection:
	TC reference:
	Initial condition:
Stimulus and Expected Behaviour: 1) Tester sends Open-Rq | Read-Master-Core-Rq ("Offset"=0, "Length"=1) | Close-Rq with new private LinkID and with "Number of Directives" set to 4. 2) Verify reception of a response message with "Result" set to '15'H and "Diagnostic" set to '04'H.	

TP/OBU/AL/IC/BI/16	Verify that the IUT handles a too big number of directives in a single frame
	Reference: Clauses 11.5.1 and 11.6.1
	PICS Selection:
	TC reference:
	Initial condition:
Stimulus and Expected Behaviour: 1) Tester sends Open-Rq | Read-Appl-Core-Rq ("Offset"=0, "Length"=1) | Close-Rq with new private LinkID and with "Number of Directives" set to 1. 2) Verify reception of a response message with "Result" set to '06'H and "Diagnostic" set to '00'H, but with no data retrieved. (Only Open-Rq shall be performed!) 3) Tester sends Write-Appl-Core-Rq ("Offset"=0, "Length"=1) | Close-Rq with private LinkID as used in step 1) and with "Number of Directives" set to 1. 4) Verify reception of a response message with "Result" set to '06'H and "Diagnostic" set to '00'H. (This shows that the session still is active. 5) Tester sends Read-Appl-Core-Rq ("Offset"=0, "Length"=1) | Close-Rq with new private LinkID and with "Number of Directives" set to 2. 6) Verify reception of a response message with "Result" set to '06'H and "Diagnostic" set to '00'H and data as written in step 3). 7) Tester sends Close-Rq. 8) Verify reception of a response message with "Result" set to '06'H and "Diagnostic" set to '00'H.	

5.3 Test purposes for road side units

5.3.1 Kernel Unit

TP/RSU/AL/KU/BV/01	Verify that the IUT can establish a connection with an OBU
	Reference: Clauses 11.5.2, 11.5.3, 11.6.3 and 11.6.4
	PICS Selection: Table B.3/1 AND Table B.3/2 AND Table B.3/3 AND Table B.3/4
	TC reference:
	Initial condition:

Stimulus and Expected Behaviour:
1) Enforce the IUT to send the sequence Open-Rq | Close-Rq with new private LinkID.
2) Verify reception of Open-Rq with a value of "Calling AP Title" as specified by the applicant, and of Close-Rq.
3) Tester acknowledges Open-Rq | Close-Rq with "Result" set to '06'H and "Diagnostic" set to '00'H.
4) Verify that the IUT is not repeating step 1) within the allowed time span.

TP/RSU/AL/KU/BV/02	Verify that the IUT can establish a connection with a specific OBU
	Reference: Clauses 11.5.4 and 11.6.5
	PICS Selection: Table B.3/5 AND Table B.3/6
	TC reference:
	Initial condition: The IUT knows the value of "Responding AP Title" used by the tester

Stimulus and Expected Behaviour:
1) Enforce the IUT to send the sequence Open-Rq | Select-TBA-Id-Rq | Close-Rq with new private LinkID and with a given value of "Responding AP Title".
2) Verify reception of Open-Rq | Select-TBA-Id-Rq | Close-Rq with the value of "Responding AP Title" as used in step 1).
3) Tester acknowledges Open-Rq | Select-TBA-Id-Rq | Close-Rq with "Result" set to '06'H and "Diagnostic" set to '00'H.
4) Verify that the IUT is not repeating step 1) within the allowed time span.

5.3.2 Read access

TP/RSU/AL/RA/BV/01	Verify that the IUT can read specific fields of the master core
	Reference: Clauses 11.5.6 and 11.6.7
	PICS Selection: Table B.3/9 AND Table B.3/10
	TC reference:
	Initial condition:

Stimulus and Expected Behaviour:
1) Enforce the IUT to send the sequence Open-Rq | Read-Master-Core-Rq | Close-Rq with new private LinkID and with given values of "Offset" and "Length" in Read-Master-Core-Rq.
2) Verify reception of Open-Rq | Read-Master-Core-Rq | Close-Rq with the values of "Offset" and "Length" as used in step 1).
3) Tester acknowledges Open-Rq | Read-Master-Core-Rq | Close-Rq with "Result" set to '06'H and "Diagnostic" set to '00'H, and with valid read-data.
4) Verify that the IUT is not repeating step 1) within the allowed time span.

TP/RSU/AL/RA/BV/02	Verify that the IUT can read specific fields of the application core
	Reference: Clauses 11.5.7 and 11.6.8
	PICS Selection: Table B.3/11 AND Table B.3/12
	TC reference:
	Initial condition:

Stimulus and Expected Behaviour:
1) Enforce the IUT to send the sequence Open-Rq | Read-Application-Core-Rq | Close-Rq with new private LinkID and with given values of "Offset" and "Length" in Read-Application-Core-Rq.
2) Verify reception of Open-Rq | Read-Application-Core-Rq | Close-Rq with the values of "Offset" and "Length" as used in step 1).
3) Tester acknowledges Open-Rq | Read-Application-Core-Rq | Close-Rq with "Result" set to '06'H and "Diagnostic" set to '00'H and with valid read-data. Verify that the IUT is not repeating step 1) within the allowed time span.
4) Verify that the IUT is not repeating step 1) within the allowed time span.

TP/RSU/AL/RA/BV/03	Verify that the IUT can read specific fields of the application record
	Reference: Clauses 11.5.10 and 11.6.11
	PICS Selection: Table B.3/17 AND Table B.3/18
	TC reference:
	Initial condition:

Stimulus and Expected Behaviour:
1) Enforce the IUT to send the sequence Open-Rq | Read-Appl-Record-Rq | Close-Rq with new private LinkID and with known values of "Offset" and "Length" in Read-Appl-Record-Rq.
2) Verify reception of Open-Rq | Read-Appl-Record-Rq | Close-Rq with the values of "Offset" and "Length" as used in step 1).
3) Tester acknowledges Open-Rq | Read-Appl-Record-Rq | Close-Rq with "Result " set to '06'H and "Diagnostic" set to '00'H, and with read-data.
4) Verify that the IUT is not repeating step 1) within the allowed time span.

5.3.3 Write access

TP/RSU/AL/WA/BV/01	Verify that the IUT can write specific fields of the application core
	Reference: Clauses 11.5.8 and 11.6.9
	PICS Selection: Table B.3/13 AND Table B.3/14
	TC reference:
	Initial condition: The IUT knows the value of Responding AP Title used by the tester

Stimulus and Expected Behaviour:
1) Enforce the IUT to send the sequence Open-Rq | Select-TBA-Id-Rq | Write-Appl-Core-Rq | Close-Rq with new private LinkID and with known values of "Offset", "Length", "Responding AP Title" and write-data.
2) Verify reception of Open-Rq | Select-TBA-Id-Rq | Write-Appl-Core-Rq | Close-Rq with the values of "Offset", "Length", "Responding AP Title" and write-data as used in step 1).
3) Tester acknowledges Open-Rq | Select-TBA-Id-Rq | Write-Appl-Core-Rq | Close-Rq with "Result" set to '06'H and "Diagnostic" set to '00'H.
4) Verify that the IUT is not repeating step 1) within the allowed time span.

TP/RSU/AL/WA/BV/02	Verify that the IUT can write to the current application record with immediate confirmation
	Reference: Clauses 11.5.11 and 11.6.12
	PICS Selection: Table B.3/19 AND Table B.3/20
	TC reference:
	Initial condition: The IUT knows the value of Responding AP Title used by the tester

Stimulus and Expected Behaviour:
1) Enforce the IUT to send the sequence Open-Rq | Select-TBA-Id-Rq | Write-Appl-Record-Curr-Rq | Close-Rq with known values of "Offset" and "Length", "Responding AP Title" and write-data.
2) Verify reception of Open-Rq | Select-TBA-Id-Rq | Write-Appl-Record-Curr-Rq | Close-Rq with the values of "Offset", "Length", "Responding AP Title" and write-data as used in step 1).
3) Tester acknowledges Open-Rq | Select-TBA-Id-Rq | Write-Appl-Record-Curr-Rq | Close-Rq with "Result" set to '06'H and "Diagnostic" set to '00'H.
4) Verify that the IUT is not repeating step 1) within the allowed time span.

TP/RSU/AL/WA/BV/03	Verify that the IUT can write to the next application record with immediate confirmation
	Reference: Clauses 11.5.13 and 11.6.14
	PICS Selection: Table B.3/23 AND Table B.3/24
	TC reference:
	Initial condition: The IUT knows the value of Responding AP Title used by the tester

Stimulus and Expected Behaviour:
1) Enforce the IUT to send the sequence Open-Rq | Select-TBA-Id-Rq | Write-Appl-Record-Next-Rq | Close-Rq with known values of "Offset" and "Length", "Responding AP Title" and write-data.
2) Verify reception of Open-Rq | Select-TBA-Id-Rq | Write-Appl-Record-Next-Rq | Close-Rq with the values of "Offset", "Length", "Responding AP Title" and write-data as used in step 1).
3) Tester acknowledges Open-Rq | Select-TBA-Id-Rq | Write-Appl-Record-Next-Rq | Close-Rq with "Result" set to '06'H and "Diagnostic" set to '00'H.
4) Verify that the IUT is not repeating step 1) within the allowed time span.

TP/RSU/AL/WA/BV/04	Verify that the IUT can write to the current application record with deferred confirmation
	Reference: Clauses 11.5.12 and 11.6.13
	PICS Selection: Table B.3/21 AND Table B.3/22
	TC reference:
	Initial condition: The IUT knows the value of Responding AP Title used by the tester
Stimulus and Expected Behaviour: 1) Enforce the IUT to send the sequence Open-Rq | Select-TBA-Id-Rq | Write-Appl-Record-Curr-Conf-Rq | Close-Rq with known values of "Offset", "Length", "Responding AP Title" and write-data. 2) Verify reception of Open-Rq | Select-TBA-Id-Rq | Write-Appl-Record-Curr-Conf-Rq | Close-Rq with the values of "Offset", "Length", "Responding AP Title" and write-data as used in step 1). 3) Tester acknowledges Open- Rs | Select-TBA-Id-Rs | Write-Appl-Record-Curr-Conf-Rs | Close-Rs with "Result" set to '06'H and "Diagnostic" set to '00'H. 4) Verify that the IUT is not repeating step 1) within the allowed time span.	

TP/RSU/AL/WA/BV/05	Verify that the IUT can write to the next application record with deferred confirmation
	Reference: Clauses 11.5.14 and 11.6.15
	PICS Selection: Table B.3/25 AND Table B.3/26
	TC reference:
	Initial condition: The IUT knows the value of Responding AP Title used by the tester
Stimulus and Expected Behaviour: 1) Enforce the IUT to send the sequence Open-Rq | Select-TBA-Id-Rq | Write-Appl-Record-Next-Conf-Rq | Close-Rq with known values of "Offset", "Length", "Responding AP Title" and write-data. 2) Verify reception of Open-Rq | Select-TBA-Id-Rq | Write-Appl-Record-Next-Conf-Rq | Close-Rq with the values of "Offset", "Length", "Responding AP Title" and write-data as used in step 1). 3) Tester acknowledges Open-Rq | Select-TBA-Id-Rq | Write-Appl-Record-Next-Conf-Rq | Close-Rq with "Result" set to '06'H and "Diagnostic" set to '00'H. 4) Verify that the IUT is not repeating step 1) within the allowed time span.	

TP/RSU/AL/WA/BV/06	Verify that the IUT can write to the application core with deferred confirmation
	Reference: Clauses 11.5.9 and 11.6.10
	PICS Selection: Table B.3/15 Table B3/16
	TC reference:
	Initial condition: The IUT knows the value of Responding AP Title used by the tester
Stimulus and Expected Behaviour: 1) Enforce the IUT to send the sequence Open-Rq | Select-TBA-Id-Rq | Write-Appl-Core-Conf-Rq | Close-Rq with known values of "Offset", "Length" and "Responding AP Title". 2) Verify reception of Open-Rq | Select-TBA-Id-Rq | Write-Appl-Core-Conf-Rq | Close-Rq with the values of "Offset", "Length", "Responding AP Title" and write-data as used in step 1. 3) Tester acknowledges Open-Rq | Select-TBA-Id-Rq | Write-Appl-Core-Conf-Rq | Close-Rq with "Result" set to '06'H and "Diagnostic" set to '00'H. 4) Verify that the IUT is not repeating step 1) within the allowed time span.	

5.3.4 Optional functionality

TP/RSU/AL/OF/BV/01	Verify that the IUT can issue a Read-Display-Type-Rq
	Reference: Clauses 11.5.5 and 11.6.6
	PICS Selection: Table B.3/7 AND Table B.3/8 AND Table A.4/5
	TC reference:
	Initial condition:
Stimulus and Expected Behaviour: 1) Enforce the IUT to send the sequence Open-Rq | Read-Display-Type-Rq | Close-Rq. 2) Verify reception of Open-Rq | Read-Display-Type-Rq | Close-Rq. 3) Tester acknowledges Open-Rq | Read-Display-Type-Rq | Close-Rq with "Result" set to '06'H and "Diagnostic" set to '00'H, and indicating a valid display type.	

TP/RSU/AL/OF/BV/02	Verify that the IUT accepts display type '41'H as response to Read-Display-Type-Rq
	Reference: Clauses 11.5.5 and 11.6.6
	PICS Selection: Table B.3/7 AND Table B.3/8 AND Table A.4/5
	TC reference:
	Initial condition:

Stimulus and Expected Behaviour:
1) Enforce the IUT to send the sequence Open-Rq | Read-Display-Type-Rq | Close-Rq.
2) Verify reception of Open-Rq | Read-Display-Type-Rq | Close-Rq.
3) Tester acknowledges Open-Rq | Read-Display-Type-Rq | Close-Rq with "Result" set to '06'H and "Diagnostic" set to '00'H, and indicating the display type '41'H.
4) Verify that the IUT is not repeating step 1) within the allowed time span.

TP/RSU/AL/OF/BV/03	Verify that the IUT accepts display type '4E'H as response to Read-Display-Type-Rq
	Reference: Clauses 11.5.5 and 11.6.6
	PICS Selection: Table B.3/7 AND Table B.3/8 AND Table A.4/5
	TC reference:
	Initial condition:

Stimulus and Expected Behaviour:
1) Enforce the IUT to send the sequence Open-Rq | Read-Display-Type-Rq | Close-Rq.
2) Verify reception of Open-Rq | Read-Display-Type-Rq | Close-Rq.
3) Tester acknowledges Open-Rq | Read-Display-Type-Rq | Close-Rq with "Result" set to '06'H and "Diagnostic" set to '00'H, and indicating the display type as either '4E'H.
4) Verify that the IUT is not repeating step 1) within the allowed time span.

TP/RSU/AL/OF/BV/04	Verify that the IUT can issue a Action-Rq
	Reference: Clauses 11.5.15 and 11.6.16
	PICS Selection: Table B.3/27 AND Table B.3/28 AND Table A.4/4
	TC reference:
	Initial condition:

Stimulus and Expected Behaviour:
1) Enforce the IUT to send the sequence Open-Rq | Action-Rq | Close-Rq with known Action-Rq parameter.
2) Verify reception of Open-Rq | Action-Rq | Close-Rq with Action-Rq parameter as used in step 1).
3) Tester acknowledges Open-Rq | Action-Rq | Close-Rq with "Result" set to '06'H and "Diagnostic" set to '00'H and with valid Action-Rs parameter.

TP/RSU/AL/OF/BV/05	Verify that the IUT accepts a valid Action-Rs
	Reference: Clauses 11.5.15 and 11.6.16
	PICS Selection: Table B.3/27 AND Table B.3/28 AND Table A.4/4
	TC reference:
	Initial condition:

Stimulus and Expected Behaviour:
1) Enforce the IUT to send the sequence Open-Rq | Action-Rq | Close-Rq with known Action-Rq parameter.
2) Verify reception of Open-Rq | Action-Rq | Close-Rq with Action-Rq parameter as used in step 1).
3) Tester acknowledges Open-Rq | Action-Rq | Close-Rq with "Result" set to '06'H and "Diagnostic" set to '00'H and with valid Action-Rs parameter.
4) Verify that the IUT is not repeating step 1) within the allowed time span.

Annex A (informative): Test coverage matrix

A.1 Introduction

The following tables show the test purposes coverage with respect to:

a) Relevant clauses in the base standard; and

b) PICS statements.

There is one table for OBU and one table for RSU.

The tables are ordered by base standard clauses. When no other indication is given, it is assumed that the referenced clause contains one testable statement. Otherwise, the referenced statement is identified by the order of sentences, list items, or rules specified in the related base standard clause.

A.2 OBU

Table A.1 constitutes the test coverage matrix for OBUs.

Table A.1: OBU test coverage matrix

Base standard clause	PICS reference	Test purpose
Foreword	None	Nothing to be tested
Introduction	None	Nothing to be tested
1 Scope	None	Nothing to be tested
2 Normative references	None	Nothing to be tested
3 Definitions, symbols and abbreviations	None	Nothing to be tested
4 General	None	Nothing to be tested
5 Test conditions, power sources and ambient temperatures	None	Nothing to be tested
6 General conditions	None	Nothing to be tested
7 Layer 1: Methods of measurement and limits for road side unit transmitter parameters	None	Nothing to be tested
8 Layer 1: Methods of measurement and limits for RSU road side unit receiver parameters	None	Nothing to be tested
9 Layer 1: Method of measurements and limits for on-board units	None	Nothing to be tested
10 Layer 2 parameters and procedures	None	Nothing to be tested
11.1 General Conditions	None	Nothing to be tested
11.2.1 Protocol data unit formats	None	Nothing to be tested
11.2.2 Concatenation	None	Nothing to be tested
11.2.3 Sessions		
11.3 Protocol messages and parameters: ASN.1 definitions	None	TP/OBU/AL/IC/BI/14
11.4 Protocol messages and parameters: encoding rules		
11.5.1 Protocol Data Unit formats	None	TP/OBU/AL/IC/BI/15, TP/OBU/AL/IC/BI/16
11.5.2 Open-Rq protocol message	Table A.3/1, Table A.3/2	TP/OBU/AL/KU/BV/01
11.5.3 Close-Rq protocol message	Table A.3/3, Table A.3/4	TP/OBU/AL/KU/BV/01, TP/OBU/AL/IC/BI/01, TP/OBU/AL/IC/BI/02, TP/OBU/AL/IC/BI/03, TP/OBU/AL/IC/BI/04, TP/OBU/AL/IC/BI/05, TP/OBU/AL/IC/BI/06, TP/OBU/AL/IC/BI/07, TP/OBU/AL/IC/BI/08, TP/OBU/AL/IC/BI/09, TP/OBU/AL/IC/BI/10, TP/OBU/AL/IC/BI/11, TP/OBU/AL/IC/BI/12, TP/OBU/AL/IC/BI/13

Base standard clause	PICS reference	Test purpose
11.5.4 Select-TBA-Id-Rq protocol message	Table A.3/5, Table A.3/6	TP/OBU/AL/KU/BV/02, TP/OBU/AL/KU/BI/01, TP/OBU/AL/KU/BI/02, TP/OBU/AL/IC/BI/11
11.5.5 Read-Display-Type-Rq protocol message	Table A.3/7, Table A.3/8, Table A.4/5	TP/OBU/AL/OF/BV/01, TP/OBU/AL/IC/BI/12
11.5.6 Read-Master-Core-Rq protocol message	Table A.3/9, Table A.3/10	TP/OBU/AL/RA/BV/01, TP/OBU/AL/RA/BV/02, 4
11.5.7 Read-Appl-Core-Rq protocol message	Table A.3/11, Table A.3/12	TP/OBU/AL/RA/BV/03, TP/OBU/AL/RA/BV/04, TP/OBU/AL/WA/BV/02, TP/OBU/AL/IC/BI/03
11.5.8 Write-Appl-Core-Rq protocol message	Table A.3/13, Table A.3/14	TP/OBU/AL/WA/BV/01, TP/OBU/AL/WA/BV/02, TP/OBU/AL/WA/BV/03, TP/OBU/AL/IC/BI/09
11.5.9 Write-Appl-Core-Conf-Rq protocol message	Table A.3/15, Table A.3/16	TP/OBU/AL/WA/BV/04, TP/OBU/AL/IC/BI/10
11.5.10 Read-Appl-Record-Rq protocol message	Table A.3/17, Table A.3/18	TP/OBU/AL/RA/BV/05, TP/OBU/AL/RA/BV/06, TP/OBU/AL/WA/BV/06, TP/OBU/AL/WA/BV/08, TP/OBU/AL/WA/BV/12, TP/OBU/AL/IC/BI/02
11.5.11 Write-Appl-Record-Curr-Rq protocol message	Table A.3/19, Table A.3/20	TP/OBU/AL/WA/BV/05, TP/OBU/AL/WA/BV/06, TP/OBU/AL/IC/BI/05
11.5.12 Write-Appl-Record-Curr-Conf-Rq protocol message	Table A.3/21, Table A.3/22	TP/OBU/AL/WA/BV/07, TP/OBU/AL/WA/BV/08, TP/OBU/AL/WA/BV/09, TP/OBU/AL/IC/BI/06
11.5.13 Write-Appl-Record-Next-Rq protocol message	Table A.3/23, Table A.3/24	TP/OBU/AL/WA/BV/10, TP/OBU/AL/IC/BI/07
11.5.14 Write-Appl-Record-Next-Conf-Rq protocol message	Table A.3/25, Table A.3/26	TP/OBU/AL/WA/BV/11, TP/OBU/AL/WA/BV/12, TP/OBU/AL/IC/BI/08
11.5.15 Action-Rq protocol message	Table A.3/27, Table A.3/38, Table A.4/4	TP/OBU/AL/OF/BV/01, TP/OBU/AL/OF/BI/01, TP/OBU/AL/IC/BI/13
11.6.1 Protocol Data Unit formats		TP/OBU/AL/KU/BV/01, TP/OBU/AL/KU/BV/02, TP/OBU/AL/KU/BI/01, TP/OBU/AL/KU/BI/02, TP/OBU/AL/IC/BI/14, TP/OBU/AL/IC/BI/15, TP/OBU/AL/IC/BI/16
11.6.2 Receiving Protocol Data Units		All TPs
11.6.3 Response to Open-Rq	Table A.3/1, Table A.3/2	TP/OBU/AL/KU/BV/01
11.6.4 Response to Close-Rq	Table A.3/3, Table A.3/4	TP/OBU/AL/KU/BV/01, TP/OBU/AL/IC/BI/01, TP/OBU/AL/IC/BI/02, TP/OBU/AL/IC/BI/03, TP/OBU/AL/IC/BI/04, TP/OBU/AL/IC/BI/05, TP/OBU/AL/IC/BI/06, TP/OBU/AL/IC/BI/07, TP/OBU/AL/IC/BI/08, TP/OBU/AL/IC/BI/09, TP/OBU/AL/IC/BI/10, TP/OBU/AL/IC/BI/11, TP/OBU/AL/IC/BI/12, TP/OBU/AL/IC/BI/13
11.6.5 Response to Select-TBA-Id-Rq	Table A.3/5, Table A.3/6	TP/OBU/AL/KU/BV/02, TP/OBU/AL/KU/BI/01, TP/OBU/AL/KU/BI/02, TP/OBU/AL/IC/BI/11
11.6.6 Response to Read-Display-Type-Rq	Table A.3/7, Table A.3/8, Table A.4/5	TP/OBU/AL/OF/BV/01, TP/OBU/AL/IC/BI/12
11.6.7 Response to Read-Master-Core-Rq	Table A.3/9, Table A.3/10	TP/OBU/AL/RA/BV/01, TP/OBU/AL/RA/BV/02, 4
11.6.8 Response to Read-Appl-Core-Rq	Table A.3/11, Table A.3/12	TP/OBU/AL/RA/BV/03, TP/OBU/AL/RA/BV/04, TP/OBU/AL/WA/BV/02, TP/OBU/AL/IC/BI/03
11.6.9 Response to Write-Appl-Core-Rq	Table A.3/13, Table A.3/14	TP/OBU/AL/WA/BV/01, TP/OBU/AL/WA/BV/02, TP/OBU/AL/WA/BV/03, TP/OBU/AL/IC/BI/09
11.6.10 Response to Write-Appl-Core-Conf-Rq	Table A.3/15, Table A.3/16	TP/OBU/AL/WA/BV/04, TP/OBU/AL/IC/BI/10

Base standard clause	PICS reference	Test purpose
11.6.11 Response to Read-Appl-Record-Rq	Table A.3/17, Table A.3/18	TP/OBU/AL/RA/BV/05, TP/OBU/AL/RA/BV/06, TP/OBU/AL/WA/BV/06, TP/OBU/AL/WA/BV/08, TP/OBU/AL/WA/BV/12, TP/OBU/AL/IC/BI/02
11.6.12 Response to Write-Appl-Record-Curr-Rq	Table A.3/19, Table A.3/20	TP/OBU/AL/WA/BV/05, TP/OBU/AL/WA/BV/06, TP/OBU/AL/IC/BI/05
11.6.13 Response to Write-Appl-Record-Curr-Conf-Rq	Table A.3/21, Table A.3/22	TP/OBU/AL/WA/BV/07, TP/OBU/AL/WA/BV/08, TP/OBU/AL/WA/BV/09, TP/OBU/AL/IC/BI/06
11.6.14 Response to Write-Appl-Record-Next-Rq	Table A.3/23, Table A.3/24	TP/OBU/AL/WA/BV/10, TP/OBU/AL/IC/BI/07
11.6.15 Response to Write-Appl-Record-Next-Conf-Rq	Table A.3/25, Table A.3/26	TP/OBU/AL/WA/BV/11, TP/OBU/AL/WA/BV/12, TP/OBU/AL/IC/BI/08
11.6.16 Response to Action-Rq	Table A.3/27, Table A.3/38, Table A.4/4	TP/OBU/AL/OF/BV/01, TP/OBU/AL/OF/BI/01, TP/OBU/AL/IC/BI/13
12 Measurement uncertainty	None	Nothing to be tested
Annex A (normative): Radiated measurement	None	Nothing to be tested
Annex B (normative): General description of measurement methods	None	Nothing to be tested
Annex C (normative): Receiver methods of measurements using messages	None	Nothing to be tested

A.3 RSU

Table A.2 constitutes the test coverage matrix for RSUs.

Table A.2: RSU test coverage matrix

Base standard clause	PICS reference	Test purpose
Foreword	None	Nothing to be tested
Introduction		
1 Scope		
2 Normative references		
3 Definitions, symbols and abbreviations		
4 General		
5 Test conditions, power sources and ambient temperatures		
6 General conditions		
7 Layer 1: Methods of measurement and limits for road side unit transmitter parameters		
8 Layer 1: Methods of measurement and limits for RSU road side unit receiver parameters		
9 Layer 1: Method of measurements and limits for on-board units		
10 Layer 2 parameters and procedures		
11.1 General Conditions	None	Nothing to be tested
11.2.1 Protocol data unit formats	None	Nothing to be tested
11.2.2 Concatenation	None	Nothing to be tested
11.2.3 Sessions	Table A.4	All TPs
11.3 Protocol messages and parameters: ASN.1 definitions	None	Nothing to be tested
11.4 Protocol messages and parameters: encoding rules	Table B.1	All TPs
11.5.1 Protocol Data Unit formats	Table B.2	All TPs
11.5.2 Open-Rq protocol message	Table B.3/1, Table B.3/2	TP/RSU/AL/KU/BV/01
11.5.3 Close-Rq protocol message	Table B.3/3, Table B.3/4	TP/RSU/AL/KU/BV/01

Base standard clause	PICS reference	Test purpose
11.5.4 Select-TBA-Id-Rq protocol message	Table B.3/5, Table B.3/6	TP/RSU/AL/KU/BV/02
11.5.5 Read-Display-Type-Rq protocol message	Table B.3/7, Table B.3/8, Table B.4/5	TP/RSU/AL/OF/BV/01, TP/RSU/AL/OF/BV/02, TP/RSU/AL/OF/BV/03
11.5.6 Read-Master-Core-Rq protocol message	Table B.3/9, Table B.3/10	TP/RSU/AL/RA/BV/01
11.5.7 Read-Appl-Core-Rq protocol message	Table B.3/11, Table B.3/12	TP/RSU/AL/RA/BV/02
11.5.8 Write-Appl-Core-Rq protocol message	Table B.3/13, Table B.3/14	TP/RSU/AL/WA/BV/01
11.5.9 Write-Appl-Core-Conf-Rq protocol message	Table B.3/15, Table B.3/16	TP/RSU/AL/WA/BV/06
11.5.10 Read-Appl-Record-Rq protocol message	Table B.3/17, Table B.3/18	TP/RSU/AL/RA/BV/03
11.5.11 Write-Appl-Record-Curr-Rq protocol message	Table B.3/19, Table B.3/20	TP/RSU/AL/WA/BV/02
11.5.12 Write-Appl-Record-Curr-Conf-Rq protocol message	Table B.3/21, Table B.3/22	TP/RSU/AL/WA/BV/04
11.5.13 Write-Appl-Record-Next-Rq protocol message	Table B.3/23, Table B.3/24	TP/RSU/AL/WA/BV/03
11.5.14 Write-Appl-Record-Next-Conf-Rq protocol message	Table B.3/25, Table B.3/26	TP/RSU/AL/WA/BV/05
11.5.15 Action-Rq protocol message	Table B.3/27, Table B.3/88, Table B.4/4	TP/RSU/AL/OF/BV/04, TP/RSU/AL/OF/BV/05
11.6.1 Protocol Data Unit formats	None	Nothing to be tested
11.6.2 Receiving Protocol Data Units	None	Nothing to be tested
11.6.3 Response to Open-Rq	Table B.3/1, Table B.3/2	TP/RSU/AL/KU/BV/01
11.6.4 Response to Close-Rq	Table B.3/3, Table B.3/4	TP/RSU/AL/KU/BV/01
11.6.5 Response to Select-TBA-Id-Rq	Table B.3/7, Table B.3/8, Table B.4/5	TP/RSU/AL/KU/BV/02
11.6.6 Response to Read-Display-Type-Rq	Table B.3/5, Table B.3/6	TP/RSU/AL/OF/BV/01, TP/RSU/AL/OF/BV/02, TP/RSU/AL/OF/BV/03
11.6.7 Response to Read-Master-Core-Rq	Table B.3/9, Table B.3/10	TP/RSU/AL/RA/BV/01
11.6.8 Response to Read-Appl-Core-Rq	Table B.3/11, Table B.3/12	TP/RSU/AL/RA/BV/02
11.6.9 Response to Write-Appl-Core-Rq	Table B.3/13, Table B.3/14	TP/RSU/AL/WA/BV/01
11.6.10 Response to Write-Appl-Core-Conf-Rq	Table B.3/15, Table B.3/16	TP/RSU/AL/WA/BV/06
11.6.11 Response to Read-Appl-Record-Rq	Table B.3/17, Table B.3/18	TP/RSU/AL/RA/BV/03
11.6.12 Response to Write-Appl-Record-Curr-Rq	Table B.3/19, Table B.3/20	TP/RSU/AL/WA/BV/02
11.6.13 Response to Write-Appl-Record-Curr-Conf-Rq	Table B.3/21, Table B.3/22	TP/RSU/AL/WA/BV/04
11.6.14 Response to Write-Appl-Record-Next-Rq	Table B.3/23, Table B.3/24	TP/RSU/AL/WA/BV/03
11.6.15 Response to Write-Appl-Record-Next-Conf-Rq	Table B.3/25, Table B.3/26	TP/RSU/AL/WA/BV/05
11.6.16 Response to Action-Rq	Table B.3/27, Table B.3/88, Table B.4/4	TP/RSU/AL/OF/BV/04, TP/RSU/AL/OF/BV/04
12 Measurement uncertainty	None	Nothing to be tested
Annex A (normative): Radiated measurement	None	Nothing to be tested
Annex B (normative): General description of measurement methods	None	Nothing to be tested
Annex C (normative): Receiver methods of measurements using messages	None	Nothing to be tested

History

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