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

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Contents

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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.

The objective of the present document 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 specific references, only the cited version applies. For non-specific references, the latest version of the reference document (including any amendments) applies.

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 necessary for the application of the present document.

[1] ETSI ES 200 674-1: "Intelligent Transport Systems (ITS); Road Transport and Traffic Telematics (RTTT); Dedicated Short Range Communications (DSRC); 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; Sub-Part 1: Protocol Implementation Conformance Statement (PICS) proforma specification".

[3] ISO/IEC 9646-1 (1994): "Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 1: General concepts".

2.2 Informative references

The following referenced documents are not necessary for the application of the present document but they assist the user with regard to a particular subject area.

Not applicable.

3 Definitions and abbreviations

3.1 Definitions

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

3.2 Abbreviations

For the purposes 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 test suite structure (TSS) including its groups defined for the conformance testing.

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

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
		Invalid behaviour
	Road Side Unit	Valid behaviour
Write access	On Board Unit	Valid behaviour
		Invalid behaviour
	Road Side Unit	Valid behaviour
Optional functionality	On Board Unit	Valid behaviour
		Invalid behaviour
	Road Side Unit	Valid behaviour
Security	On Board Unit	Valid behaviour
		Invalid behaviour
	Road Side Unit	Valid behaviour
		Invalid behaviour
Integrity constraints	On Board Unit	Invalid behaviour

4.2 Test groups

There are six test groups defined for the application layer 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:
	PICS 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 and 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	Application Layer
	<group>	KU	Kernel Unit
		RA	Read Access
		WA	Write Access
		OF	Optional Functionality
		IC	Integrity Constraints
		SC	Security
	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 [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 [1].

All references to PICS are indicating tables in TS 102 708-2-1 [2].

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.3, A.5/1, A.5/2, A5/3 and A.5/7 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.3, B.5, B.6/1, B.6/4, B.9/1, B.9/2, B.9/3 and B.9/7 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

TP/OBU/AL/KU/BV/01	Verify that the IUT can handle Open-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.4/1 AND Table A.4/2 AND Table A.4/3 AND Table A.4/4
Initial conditions	

with {
the IUT being in the "initial state"
}	

Expected behaviour	

ensure that {
when {
the IUT receives a valid Open-Rq with new private LinkID and an "AP Invocation Identifier" having a valid value as specified by the applicant
}
then {
the IUT issues a response with "Result" set to '06'H and "Diagnostic" set to '00'H and with "AP Invocation Identifier" having the same value as received
}
}	

TP/OBU/AL/KU/BV/02	Verify that the IUT can handle 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.4/1 AND Table A.4/2 AND Table A.4/3 AND Table A.4/4
Initial conditions	

with {
the IUT being in the "initial state"
and the IUT having received a valid Open-Rq with new private LinkID and a valid "AP Invocation Identifier"
and the IUT having issued a response with "Result" set to '06'H and "Diagnostic" set to '00'H
}	

Expected behaviour	

ensure that {
when {
the IUT receives a valid Close-Rq with LinkID having the same value as in the initial conditions
}
then {
the IUT issues a response with "Result" set to '06'H and "Diagnostic" set to '00'H and with "AP Invocation Identifier" having the same value as received
}
}	

TP/OBU/AL/KU/BV/03	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.4/1 AND Table A.4/2 AND Table A.4/3 AND Table A.4/4
Initial conditions	

with {
the IUT being in the "initial state"
}	

Expected behaviour	

ensure that {
when {
the IUT receives a valid Open-Rq | Close-Rq with new private LinkID
}
then {
the IUT issues a response with "Result" set to '06'H and "Diagnostic" set to '00'H and with "AP Invocation Identifier" having the same value as received
}
}	

TP/OBU/AL/KU/BV/04	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.4/5 AND Table A.4/6
	TC reference:
	Initial condition:

Initial conditions

```
with {
    the IUT being in the "initial state"
    and the IUT having received a valid Open-Rq | Close-Rq with new private LinkID
    and the IUT having issued a response with "Result" set to '06'H and "Diagnostic" set to '00'H
    }
```

Expected behaviour

```
ensure that {
    when {
        the IUT receives a valid 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" as sent in the initial conditions
        }
    then {
        the IUT issues a response with "Result" set to '06'H and "Diagnostic" set to '00'H
        }
}
```

5.2.1.2 Invalid behaviour

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.4/5 AND Table A.4/6

Initial conditions

```
with {
    the IUT being in the "initial state"
    and the IUT having received a valid Open-Rq | Close-Rq with new private LinkID
    and the IUT having issued a response with "Result" set to '06'H and "Diagnostic" set to '00'H
    }
```

Expected behaviour

```
ensure that {
    when {
        the IUT receives a 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" as sent in the initial conditions, but with an invalid value of "Length"
        }
    then {
        the IUT issues a response with "Result" set to '06'H and "Diagnostic" set to '05'H
        }
}
```

TP/OBU/AL/KU/BI/02	Verify that the IUT supporting the EETS profile can manage Select-TBA-Id-Rq with an invalid value
	Reference: Clauses 11.5.4, 11.6.1, 11.6.2, 11.6.5 and D.2.2
	PICS Selection: Table A.4/5 AND Table A.4/6 AND Table A.2/1

Initial conditions

```
with {
    the IUT being in the "initial state"
    and the IUT having received a valid Open-Rq | Close-Rq with new private LinkID
    and the IUT having issued a response with "Result" set to '06'H and "Diagnostic" set to '00'H
    }
```

Expected behaviour

```
ensure that {
    when {
        the IUT receives a valid 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" as sent in the initial conditions
        }
    then {
        the IUT does not respond
        }
}
```

TP/OBU/AL/KU/BI/03	Verify that the IUT not supporting the EETS profile 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.4/5 AND Table A.4/6 AND NOT Table A.2/1

Initial conditions

```
with {
    the IUT being in the "initial state"
    and the IUT having received a valid Open-Rq | Close-Rq with new private LinkID
    and the IUT having issued a response with "Result" set to '06'H and "Diagnostic" set to '00'H
    }
```

Expected behaviour

```
ensure that {
    when {
        the IUT receives a valid 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 previously
        }
    then {
        the IUT does not respond OR the IUT responds with "Result" set to '15'H and "Diagnostic" set to '05'H
        }
}
```

TP/OBU/AL/KU/BI/04	Verify that the IUT handles an invalid application identifier
	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.4/1 AND Table A.4/2 AND Table A.4/3 AND Table A.4/4

Initial conditions

```
with {
    the IUT being in the "initial state"
    }
```

Expected behaviour

```
ensure that {
    when {
        the IUT receives a valid Open-Rq with new private LinkID and an invalid "AP Invocation Identifier" (different from
        valid values specified by the applicant)
        }
    then {
        the IUT issues a response with "Result" set to '06'H and "Diagnostic" set to '06'H
        }
}
```

5.2.2 Read access

5.2.2.1 Valid behaviour

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.4/9 AND Table A.4/10
Initial conditions	

with {
the IUT being in the "initial state"
}	

Expected behaviour	

ensure that {
repeat with different private LinkID and different combinations of "Offset" and "Length" parameters in order to cover the whole Master Core
when {
the IUT receives a valid 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
}
then {
the IUT issues a response 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
}
}	

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.4/9 AND Table A.4/10
Initial conditions	

with {
the IUT being in the "initial state"
}	

Expected behaviour	

ensure that {
repeat with different combinations of "Offset" and "Length" parameters in order to cover the whole Master Core
when {
the IUT receives a valid Open-Rq | Read-Master-Core-Rq | Close-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
}
then {
the IUT issues a response 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
}
}	

TP/OBU/AL/RA/BV/03	Verify that the IUT can manage Open-Rq | Get-Master-Record-Rq | Close-Rq
	Reference: Clauses 11.5.7, 11.6.2 and 11.6.8
	PICS Selection: Table A.4/11 AND Table A.4/12
Initial conditions	

with {
the IUT being in the "initial state"
}	

Expected behaviour	

ensure that {
repeat with different private LinkID and different combinations of "Offset" and "Length" parameters in order to cover the whole Master Record
when {
the IUT receives a valid Open-Rq | Get-Master-Record-Rq | Close-Rq with new private LinkID and with valid combinations of "Offset" and "Length" in Get-Master-Record-Rq in order to retrieve a part of or the whole master record
}
then {
the IUT issues a response with "Result" set to '06'H and "Diagnostic" set to '00'H, and with the data of "Get-Master-Record-Rs" as specified by the applicant for the selected range
}
}	

TP/OBU/AL/RA/BV/04	Verify that the IUT can manage Open-Rq | Read-Appl-Core-Rq | Close-Rq
	Reference: Clauses 11.5.8, 11.6.2 and 11.6.9
	PICS Selection: Table A.4/13 AND Table A.4/14
Initial conditions	

with {
the IUT being in the "initial state"
}	

Expected behaviour	

ensure that {
repeat with different private LinkID and different combinations of "Offset" and "Length" parameters in order to cover the whole Application Core
when {
the IUT receives a valid 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
}
then {
the IUT issues a response with "Result" set to '06'H and "Diagnostic" set to '00'H, and with the data of "Read-Application-Core-Rs" as specified by the applicant for the selected range
}
}	

TP/OBU/AL/RA/BV/05	Verify that the IUT can manage Read-Appl-Core-Rq with broadcast LinkId
	Reference: Clauses 11.5.8, 11.6.2 and 11.6.9
	PICS Selection: Table A.4/13 AND Table A.4/14
Initial conditions	

with {
the IUT being in the "initial state"
}	

Expected behaviour	

ensure that {
repeat with different combinations of "Offset" and "Length" parameters in order to cover the whole Application Core
when {
the IUT receives a valid Open-Rq | Read-Appl-Core-Rq | Close-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 core
}
then {
the IUT issues a response with "Result" set to '06'H and "Diagnostic" set to '00'H, and with the data of "Read-Application-Core-Rs" as specified by the applicant for the selected range
}
}	

TP/OBU/AL/RA/BV/06	Verify that the IUT can manage Open-Rq | Read-Appl-Record-Rq | Close-Rq
	Reference: Clauses 11.5.13, 11.6.2 and 11.6.14
	PICS Selection: Table A.4/23 AND Table A.4/24
Initial conditions	

with {
the IUT being in the "initial state"
}	

Expected behaviour	

ensure that {
repeat with different private LinkID and different combinations of "Offset" and "Length" parameters in order to cover the whole Application Record
when {
the IUT receives a valid 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
}
then {
the IUT issues a response with "Result" set to '06'H and "Diagnostic" set to '00'H, and with the data of "Read-Application-Record-Rs" as specified by the applicant for the selected range
}
}	

TP/OBU/AL/RA/BV/07	Verify that the IUT can manage Read-Appl-Record-Rq with broadcast LinkId
	Reference: Clauses 11.5.13, 11.6.2 and 11.6.14
	PICS Selection: Table A.3/23 AND Table A.3/24
Initial conditions	

with {
the IUT being in the "initial state"
}	

Expected behaviour	

ensure that {
repeat with different combinations of "Offset" and "Length" parameters in order to cover the whole Application Record
when {
the IUT receives a valid Open-Rq | Read-Appl-Record-Rq | Close-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
}
then {
the IUT issues a response with "Result" set to '06'H and "Diagnostic" set to '00'H, and with the data of "Read-Application-record-Rs" as specified by the applicant for the selected range
}
}	

5.2.2.2 Invalid behaviour

TP/OBU/AL/RA/BI/01	Verify that the IUT can manage reception of Get-Master-Record-Rq outside a session
	Reference: Clauses 11.5.7, 11.6.2 and 11.6.8
	PICS Selection: Table A.4/11 AND Table A.4/12
Initial conditions	

with {
the IUT being in the "initial state"
}	

Expected behaviour	

ensure that {
when {
the IUT receives a valid Get-Master-Record-Rq with broadcast LinkID and with valid combinations of "Offset" and "Length" in Get-Master-Record-Rq in order to retrieve a part of or the whole application record
}
then {
the IUT issues a response with " Result" set to '15'H and "Diagnostic" set to '02'H
}
}	

5.2.3 Write Access

5.2.3.1 Valid behaviour

TP/OBU/AL/WA/BV/01	Verify that the IUT can manage Open-Rq | Select-TBA-Id-Rq | Write-Appl-Core-Rq | Close-Rq with no restrictions due to EETS profile
	Reference: Clauses 11.5.9, 11.6.2, 11.6.10
	PICS Selection: Table A.4/15 AND Table A.4/16 AND NOT Table A.2/1
Initial conditions	

repeat with different private LinkID and different combinations of "Offset" and "Length" parameters in order to cover the whole Application Core
with {
the IUT being in the "initial state"
and the IUT having received a valid 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
and the IUT having issued a response with "Result" set to '06'H and "Diagnostic" set to '00'H. Note the value of "Called AP Title" and the data received
}	

Expected behaviour	

ensure that {
when {
the IUT receives a valid Open-Rq | Select-TBA-Id-Rq | Write-Appl-Core-Rq | Close-Rq with new private LinkID and with the same values of "Offset" and "Length" as in the previous Read-Appl-Core-Rq in order to write different data in the same position as the data previously received
}
then {
the IUT issues a response with "Result" set to '06'H and "Diagnostic" set to '00'H
}
}	

Final Conditions	

ensure that {
when {
the IUT receives a valid Open-Rq | Read-Appl-Core-Rq | Close-Rq with new private LinkID and with the same values of "Offset" and "Length" as used previously and with "Responding AP Title" set equal to the value of "Called AP Title" noted previously
}
then {
the IUT issues a response with "Result" set to '06'H and "Diagnostic" set to '00'H. Verify that the data received are the same as the data sent previously
}
}	

TP/OBU/AL/WA/BV/02	Verify that the IUT can manage Open-Rq | Select-TBA-Id-Rq | Write-Appl-Core-Rq | Close-Rq with the restrictions due to EETS profile
	Reference: Clauses 11.5.9, 11.6.2, 11.6.10 and D.2.2
	PICS Selection: Table A.4/15 AND Table A.4/16 AND Table A.2/1

Initial conditions

repeat with different private LinkID and different combinations of "Offset" and "Length" parameters in order to cover the whole Application Core
with {
the IUT being in the "initial state"
and the IUT having received a valid Open-Rq | Read-Appl-Core-Rq | Close-Rq with new private LinkID and with "Offset" set to 47 Decimal and "Length" set to 28 Decimal in Read-Appl-Core-Rq in order to retrieve the first writable part of the Application Core
and the IUT having issued a response with "Result" set to '06'H and "Diagnostic" set to '00'H. Note the value of "Called AP Title" and the data received
}

Expected behaviour

ensure that {
when {
the IUT receives a valid Open-Rq | Select-TBA-Id-Rq | Write-Appl-Core-Rq | Read-Appl-Core | Close-Rq with new private LinkID and with the same values of "Offset" and "Length" as in the previous Read-Appl-Core-Rq and with "Responding AP Title" set equal to the value of "Called AP Title" noted previously in order to write data to the application core being different to the data previously received and subsequently retrieve data from the same memory in the application core
}
then {
the IUT issues a response with "Result" set to '06'H and "Diagnostic" set to '00'H. Verify that the data received are the same as the data sent previously
}
}

TP/OBU/AL/WA/BV/03	Verify that the IUT can manage Write-Appl-Core-Rq | Read-Appl-Core-Rq with no restrictions due to the EETS profile
	Reference: Clauses 11.5.9, 11.6.2 and 11.6.10
	PICS Selection: Table A.4/13 AND Table A.4/14 AND Table A.4/15 AND Table A.4/16 AND NOT Table A.2/1

Initial conditions

repeat with different private LinkID and different combinations of "Offset" and "Length" parameters in order to cover the whole Application Core
with {
the IUT being in the "initial state"
and the IUT having received a valid 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.
and the IUT having issued a response with "Result" set to '06'H and "Diagnostic" set to '00'H
}

Expected behaviour

ensure that {
when {
the IUT receives a valid Open-Rq | Select-TBA-Id-Rq | Write-Appl-Core-Rq | Read_Appl-Core-Rq | Close-Rq with new private LinkID and with the same values of "Offset" and "Length" as in the initial conditions and with "Responding AP Title" set to the value of "Called AP Title" as sent in the initial conditions in order to write different data in the same position as the data previously received, and then to read back that data
}
then {
the IUT issues a response with "Result" set to '06'H and "Diagnostic" set to '00'H. Verify that the data received are the same as the data sent previously
}
}

TP/OBU/AL/WA/BV/04	Verify that the IUT can manage multiple Write-Appl-Core-Rq in a single frame with no restrictions due to the EETS profile
	Reference: Clauses 11.5.9, 11.6.2 and 11.6.10
	PICS Selection: Table A.4/15 AND Table A.4/16 AND NOT Table A.2/1

Initial conditions

with {
the IUT being in the "initial state"
and the IUT receives a valid 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
and the IUT having issued a response with "Result" set to '06'H and "Diagnostic" set to '00'H
}

Expected behaviour

ensure that {
when {
the IUT receives a valid 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 to the value of "Called AP Title" sent in the initial conditions
}
then {
the IUT issues a response with "Result" set to '06'H and "Diagnostic" set to '00'H. Verify that the data received are the same as the data sent previously
}
}

TP/OBU/AL/WA/BV/05	Verify that the IUT can manage Write-Appl-Core-Conf-Rq
	Reference: Clauses 11.5.10, 11.6.2 and 11.6.11
	PICS Selection: Table A.4/17 AND Table A.4/18

Initial conditions

with {
the IUT being in the "initial state"
and the IUT having received a valid 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
and the IUT having issued a response with "Result" set to '06'H and "Diagnostic" set to '00'H
}

Expected behaviour

ensure that {
when {
the IUT receives a valid 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 the initial conditions and with "Responding AP Title" set to the value of "Called AP Title" as sent in the initial conditions
}
then {
the IUT issues a response with "Result" set to '06'H and "Diagnostic" set to '00'H
}
}

Final Conditions

ensure that {
when {
the IUT receives a valid Open-Rq | Select-TBA-Id-Rq | Read-Appl-Core-Rq | Close-Rq with new private LinkID and with the same values of "Offset" and "Length" as used previously and with "Responding AP Title" set to the value of "Called AP Title" as sent in the initial conditions
}
then {
the IUT issues a response with "Result" set to '06'H and "Diagnostic" set to '00'H. Verify that the data received are the same as the data sent previously
}
}

TP/OBU/AL/WA/BV/06	Verify that the IUT can manage Write-Appl-Record-Curr-Rq
	Reference: Clauses 11.5.14, 11.6.2 and 11.6.15
	PICS Selection: Table A.4/25 AND Table A.4/26

Initial conditions

repeat with different private LinkID and different combinations of "Offset" and "Length" parameters in order to cover the whole Application Record
with {
the IUT being in the "initial state"
and the IUT having received a valid 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
and the IUT having issued a response with "Result" set to '06'H and "Diagnostic" set to '00'H
}

Expected behaviour

ensure that {
when {
the IUT receives a valid 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 received in the initial conditions and with "Responding AP Title" set to the value of "Called AP Title" as sent in the initial conditions
}
then {
the IUT issues a response with "Result" set to '06'H and "Diagnostic" set to '00'H
}
}

Final Conditions

ensure that {
when {
the IUT receives a valid Open-Rq | Select-TBA-Id-Rq | Read-Appl-Record-Rq | Close-Rq with new private LinkID and with the same values of "Offset" and "Length" as used previously and with "Responding AP Title" set equal to the value of "Called AP Title" noted previously
}
then {
the IUT issues a response with "Result" set to '06'H and "Diagnostic" set to '00'H. Verify that the data received are the same as the data sent previously
}
}

TP/OBU/AL/WA/BV/07	Verify that the IUT can manage Write-Appl-Record-Curr-Rq | Read-Appl-Record-Rq
	Reference: Clauses 11.5.14, 11.6.2 and 11.6.15
	PICS Selection: Table A.4/23 AND Table A.4/24 AND Table A.4/25 AND Table A.4/26

Initial conditions

repeat with different private LinkID and different combinations of "Offset" and "Length" parameters in order to cover the whole Application Record
with {
the IUT being in the "initial state"
and the IUT having received a valid 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
and the IUT having issued a response with "Result" set to '06'H and "Diagnostic" set to '00'H
}

Expected behaviour

ensure that {
when {
the IUT receives a valid Open-Rq | Select-TBA-Id-Rq | Write-Appl-Record-Curr-Rq | Read_Appl-Record-Rq | Close-Rq with new private LinkID and with the same values of "Offset" and "Length" as in the initial conditions and with "Responding AP Title" set to the value of "Called AP Title" as sent in the initial conditions
}
then {
the IUT issues a response with "Result" set to '06'H and "Diagnostic" set to '00'H. Verify that the data received are the same as the data sent previously
}
}

TP/OBU/AL/WA/BV/08	Verify that the IUT can manage Write-Appl-Record-Curr-Conf-Rq
	Reference: Clauses 11.5.15, 11.6.2 and 11.6.16
	PICS Selection: Table A.4/27 AND Table A.4/28

Initial conditions

repeat with different private LinkID and different combinations of "Offset" and "Length" parameters in order to cover the whole Application Record
with {
the IUT being in the "initial state"
and the IUT having received a valid 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
and the IUT having issued a response with "Result" set to '06'H and "Diagnostic" set to '00'H
}

Expected behaviour

ensure that {
when {
the IUT receives a valid 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 the initial conditions and with "Responding AP Title" set to the value of "Called AP Title" as sent in the initial conditions
}
then {
the IUT issues a response with "Result" set to '06'H and "Diagnostic" set to '00'H
}
}

Final Conditions

ensure that {
when {
the IUT receives a valid Open-Rq | Select-TBA-Id-Rq | Read-Appl-Record-Rq | Close-Rq with new private LinkID and with the same values of "Offset" and "Length" as used previously and with "Responding AP Title" set equal to the value of "Called AP Title" noted previously
}
then {
the IUT issues a response with "Result" set to '06'H and "Diagnostic" set to '00'H. Verify that the data received are the same as the data sent previously
}
}

TP/OBU/AL/WA/BV/09	Verify that the IUT can manage Write-Appl-Record-Curr-Conf-Rq | Read-Appl-Record-Rq
	Reference: Clauses 11.5.15, 11.6.2 and 11.6.16
	PICS Selection: Table A.4/23 AND Table A.4/24 AND Table A.4/27 AND Table A.4/28

Initial conditions

repeat with different private LinkID and different combinations of "Offset" and "Length" parameters in order to cover the whole Application Record
with {
the IUT being in the "initial state"
and the IUT having received a valid 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
and the IUT having issued a response with "Result" set to '06'H and "Diagnostic" set to '00'H
}

Expected behaviour

ensure that {
when {
the IUT receives a valid 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 values of "Offset" and "Length" as in the initial conditions and with "Responding AP Title" set to the value of "Called AP Title" as sent in the initial conditions
}
then {
the IUT issues a response with "Result" set to '06'H and "Diagnostic" set to '00'H. Verify that the data received are the same as the data sent previously
}
}

TP/OBU/AL/WA/BV/10	Verify that the IUT can manage multiple Write-Appl-Record-Curr-Conf-Rq in a single frame
	Reference: Clauses 11.5.15, 11.6.2 and 11.6.16
	PICS Selection: Table A.4/27 AND Table A.4/28

Initial conditions

```
with {
    the IUT being in the "initial state"
    and the IUT having received a valid 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
    and the IUT having issued a response with "Result" set to '06'H and "Diagnostic" set to '00'H
    }
```

Expected behaviour

```
ensure that {
    when {
        the IUT receives a valid 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 to the value of "Called AP Title" as sent in the initial conditions
        }
    then {
        the IUT issues a response with "Result" set to '06'H and "Diagnostic" set to '00'H. Verify that the data received are
        the same as the data sent previously.
        }
}
```

TP/OBU/AL/WA/BV/11	Verify that the IUT can manage Write-Appl-Record-Next-Rq
	Reference: Clauses 11.5.16, 11.6.2 and 11.6.17
	PICS Selection: Table A.4/29 AND Table A.4/30

Initial conditions

```
    repeat with different private LinkID and different combinations of "Offset" and "Length" parameters in order to cover
    the whole Application Record
with {
    the IUT being in the "initial state"
    and the IUT having received a valid 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
    and the IUT having issued a response with "Result" set to '06'H and "Diagnostic" set to '00'H
    }
```

Expected behaviour

```
ensure that {
    when {
        the IUT receives a valid 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 the initial conditions and with "Responding AP
        Title" set to the value of "Called AP Title" sent in the initial conditions and "Data" set to '0'B in order to write all-
        zero data to the next application record, which by this command will become the current record
        }
    then {
        the IUT issues a response with "Result" set to '06'H and "Diagnostic" set to '00'H
        }
}
```

Final Conditions

```
ensure that {
    when {
        the IUT receives a valid 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 previously and with "Responding AP Title" set equal to
        the value of "Called AP Title" used previously in order to retrieve data from the application record
        }
    then {
        the IUT issues a response with "Result" set to '06'H and "Diagnostic" set to '00'H. Verify that the data received are
        identical to those sent previously
        }
}
```

TP/OBU/AL/WA/BV/12	Verify that the IUT can manage Write-Appl-Record-Next-Rq
	Reference: Clauses 11.5.16, 11.6.2 and 11.6.17
	PICS Selection: Table A.4/29 AND Table A.4/30

Initial conditions

repeat with different private LinkID and different combinations of "Offset" and "Length" parameters in order to cover the whole Application Record
with {
the IUT being in the "initial state"
and the IUT having received a valid 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
and the IUT having issued a response with "Result" set to '06'H and "Diagnostic" set to '00'H
}

Expected behaviour

ensure that {
when {
the IUT receives a valid 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 the initial conditions and with "Responding AP Title" set to the value of "Called AP Title" sent in the initial conditions and "Data" set to '1'B in order to write all-one data to the next application record, which by this command will become the current record
}
then {
the IUT issues a response with "Result" set to '06'H and "Diagnostic" set to '00'H
}

Final Conditions

ensure that {
when {
the IUT receives a valid 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 previously and with "Responding AP Title" set equal to the value of "Called AP Title" noted previously in order to retrieve data from the application record
}
then {
the IUT issues a response with "Result" set to '06'H and "Diagnostic" set to '00'H. Verify that the data received are identical to those sent previously
}
}

TP/OBU/AL/WA/BV/13	Verify that the IUT can manage Write-Appl-Record-Next-Conf-Rq
	Reference: Clauses 11.5.17, 11.6.2 and 11.6.18
	PICS Selection: Table A.4/31 AND Table A.4/32

Initial conditions

repeat with different private LinkID and different combinations of "Offset" and "Length" parameters in order to cover the whole Application Record
with {
the IUT being in the "initial state"
and the IUT having received a valid 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
and the IUT issues a response with "Result" set to '06'H and "Diagnostic" set to '00'H
}

Expected behaviour

ensure that {
when {
the IUT receives a valid 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 the initial conditions and with "Responding AP Title" set to the value of "Called AP Title" sent in the initial conditions and "Data" set to '0'B in order to write all-zero data to the next application record, which by this command will become the current record
}
then {
the IUT issues a response with "Result" set to '06'H and "Diagnostic" set to '00'H
}
}

Final Conditions

ensure that {
when {
the IUT receives a valid 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 previously and with "Responding AP Title" set equal to the value of "Called AP Title" noted previously in order to retrieve data from the application record
}
then {
the IUT issues a response with "Result" set to '06'H and "Diagnostic" set to '00'H. Verify that the data received are identical to those sent previously
}
}

TP/OBU/AL/WA/BV/14	Verify that the IUT can manage Write-Appl-Record-Next-Conf-Rq
	Reference: Clauses 11.5.17, 11.6.2 and 11.6.18
	PICS Selection: Table A.4/31 AND Table A.4/32

Initial conditions

repeat with different private LinkID and different combinations of "Offset" and "Length" parameters in order to cover the whole Application Record
with {
the IUT being in the "initial state"
and the IUT having received a valid 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
and the IUT issues a response with "Result" set to '06'H and "Diagnostic" set to '00'H
}

Expected behaviour

ensure that {
when {
the IUT receives a valid 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 in the initial conditions and with "Responding AP Title" set equal to the value of "Called AP Title" as sent in the initial conditions and "Data" set to '1'B in order to write all-one data to the next application record, which by this command will become the current record
}
then {
the IUT issues a response with "Result" set to '06'H and "Diagnostic" set to '00'H
}
}

Final Conditions

ensure that {
when {
the IUT receives a valid 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 previously and with "Responding AP Title" set equal to the value of "Called AP Title" noted previously in order to retrieve data from the application record
}
then {
the IUT issues a response with "Result" set to '06'H and "Diagnostic" set to '00'H. Verify that the data received are identical to those sent previously
}
}

TP/OBU/AL/WA/BV/15	Verify that the IUT can manage Write-Appl-Record-Next-Conf-Rq | Read-Appl-Record-Rq
	Reference: Clauses 11.5.17, 11.6.2 and 11.6.18
	PICS Selection: Table A.4/23 AND Table A.4/24 AND Table A.4/31 AND Table A.4/32

Initial conditions

repeat with different private LinkID and different combinations of "Offset" and "Length" parameters in order to cover the whole Application Record
with {
the IUT being in the "initial state"
and the IUT having received a valid 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
the IUT having issued a response with "Result" set to '06'H and "Diagnostic" set to '00'H
}

Expected behaviour

ensure that {
when {
the IUT receives a valid 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 the initial conditions and with "Responding AP Title" set to the value of "Called AP Title" sent in the initial conditions and "Data" set to '0'B in order to write all-zero data to the next application record, which by this command will become the current record
}
then {
the IUT issues a response with "Result" set to '06'H and "Diagnostic" set to '00'H. Verify that the data received are identical to those sent previously
}
}

TP/OBU/AL/WA/BV/16	Verify that the IUT can manage Write-Appl-Record-Next-Conf-Rq | Read-Appl-Record-Rq
	Reference: Clauses 11.5.17, 11.6.2 and 11.6.18
	PICS Selection: Table A.4/23 AND Table A.4/24 AND Table A.4/31 AND Table A.4/32
Initial conditions	

repeat with different private LinkID and different combinations of "Offset" and "Length" parameters in order to cover the whole Application Record
with {
the IUT being in the "initial state"
and the IUT having received a valid 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
the IUT having issued a response with "Result" set to '06'H and "Diagnostic" set to '00'H
}	

Expected behaviour	

ensure that {
when {
the IUT receives a valid 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 the initial conditions and with "Responding AP Title" set to the value of "Called AP Title" sent in the initial conditions and "Data" set to '1'B in order to write all-one data to the next application record, which by this command will become the current record
}
then {
the IUT issues a response with "Result" set to '06'H and "Diagnostic" set to '00'H. Verify that the data received are identical to those sent previously
}
}	

5.2.3.2 Invalid behaviour

TP/OBU/AL/WA/BI/01	Verify that the IUT can manage a sequence Open-Rq | Select-TBA-Id-Rq | Write-Appl-Core-Rq | Close-Rq that violates the restrictions due to EETS profile
	Reference: Clauses 11.5.9, 11.6.2, 11.6.10 and D.2.2
	PICS Selection: Table A.4/15 AND Table A.4/16 AND Table A.2/1
Initial conditions	

with {
the IUT being in the "initial state"
and the IUT having received a valid Open-Rq | Read-Appl-Core-Rq | Close-Rq with new private LinkID and with "Offset" set to 40 Decimal and "Length" set to 28 Decimal in Read-Appl-Core-Rq in order to retrieve part of the read/only section and part of the read/write section of the Application Core
and the IUT having issued a response with "Result" set to '06'H and "Diagnostic" set to '00'H
}	

Expected behaviour	

ensure that {
when {
the IUT receives a valid Open-Rq | Select-TBA-Id-Rq | Write-Appl-Core-Rq| Close-Rq with new private LinkID and with the same values of "Offset" and "Length" as in the initial conditions and with "Responding AP Title" set to the value of "Called AP Title" sent in the initial conditions in order to write different data in the same position as the data previously received
}
then {
the IUT issues a response with "Result" set to '15'H and "Diagnostic" set to '04'H
}	

Final Conditions	

ensure that {
when {
the IUT receives a valid Open-Rq | Read-Appl-Core-Rq | Close-Rq with new private LinkID and with "Offset" set to 40 Decimal and "Length" set to 28 Decimal in Read-Appl-Core-Rq in order to retrieve the same information as previously received
}
then {
the IUT issues a response with "Result" set to '06'H and "Diagnostic" set to '00'H. Verify that the data received are identical to the data received in the first read operation
}
}	

5.2.4 Optional functionality

5.2.4.1 Valid behaviour

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.4/7 AND Table A.4/8 AND Table A.5/6
Initial conditions	

with {
the IUT being in the "initial state"
}	

Expected behaviour	

ensure that {
when {
the IUT receives a valid Open-Rq | Read-Display-Type-Rq | Close-Rq with new private LinkID
}
then {
the IUT issues a response 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 (covers also Write-Data-To-External-Rq and Read-Data-from-External-Rq)
	Reference: Clauses 11.5.11, 11.5.12, 11.5.19, 11.6.2, 11.6.12, 11.6.13 and 11.6.20
	PICS Selection: Table A.4/19 AND Table A.4/20 AND Table A.4/21 AND Table A.4/22 AND Table A.4/35 AND Table A.4/36 AND Table A.5/14
Initial conditions	

with {
the IUT being in the "initial state"
}	

Expected behaviour	

repeat for all actions specified by the applicant
ensure that {
when {
the IUT receives a valid Open-Rq | Action-Rq | Close-Rq with new private LinkID and with parameters as specified by the applicant
}
then {
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
}
}	

TP/OBU/AL/OF/BV/03	Verify that the IUT can manage the Set-UIF-Rq
	Reference: Clauses 11.5.18, 11.6.2 and 11.6.19
	PICS Selection: Table A.4/33 AND Table A.4/34
Initial conditions	

with {
the IUT being in the "initial state"
}	

Expected behaviour	

ensure that {
when {
the IUT receives a valid Open-Rq | Set-UIF-Rq | Set-UIF-Rq | Close-Rq with new private LinkID. The parameters for the two Set-UIF-Rq primitives shall be:
• "Video" set to '00'H in all three Set-UIF-Rq directives
• "Audio" set to '01'H in the first Set-UIF-Rq directive, and '02'H in the second Set-UIF-Rq directive.
• "Time" set to 1
• "Count" set to 1 in the first Set-UIF-Rq directive, and 2 in the second Set-UIF-Rq directive
}
then {
Verify that the IUT generates two different audio signals, with 1, and 2 repetitions, respectively
}
}	

5.2.4.2 Invalid behaviour

TP/OBU/AL/OF/BI/01	Verify that the IUT can manage an invalid Action-Rq (covers also Write-Data-To-External-Rq and Read-Data_from-External-Rq)
	Reference: Clauses 11.5.11, 11.5.12, 11.5.19, 11.6.2, 11.6.12, 11.6.13, 11.6.20
	PICS Selection: Table A.4/19 AND Table A.4/20 AND Table A.4/21 AND Table A.4/22 AND Table A.4/35 AND Table A.4/36 AND Table A.5/14
Initial conditions	

with {
the IUT being in the "initial state"
}	

Expected behaviour	

ensure that {
when {
the IUT receives a valid 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
}
then {
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 Security

5.2.5.1 Valid behaviour

TP/OBU/AL/SC/BV/01	Verify that the IUT can manage Set-Password-Rq
	Reference: Clauses 11.5.20, 11.6.2 and 11.6.21
	PICS Selection: Table A.4/37 AND Table A.4/38
Initial conditions	

with {
the IUT being in the "initial state" AND the password to be used in the OBU is accessed according to the applicant specifications, and recorded in an external media
}	

Expected behaviour	

ensure that {
when {
the IUT receives a valid Open-Rq | Set-Password-Rq with new private LinkID and with valid value of "Length" in Set-Password-Rq and the value of the transmitted password set to a value different from that of the original password
}
then {
Verify reception of a response message with "Result" set to '06'H and "Diagnostic" set to '00', Note the value of "Called AP Title"
}
}	

Final Conditions	

ensure that {
when {
the IUT receives a valid Select-TBA-Id-Rq | Close-Rq with the "Responding AP Title" parameter set to the previously received "Called AP Title" value
}
then {
Verify that the password to be used reverts back to its original value, by accessing the OBU according to the applicant specifications
}
}	

TP/OBU/AL/SC/BV/02	Verify that the IUT can manage Use-Last-Password-Rq
	Reference: Clauses 11.5.21, 11.6.2 and 11.6.22
	PICS Selection: Table A.4/39 AND Table A.4/38

Initial conditions

```
with {
    the IUT being in the "initial state"
    and the IUT having received a valid Open-Rq | Set-Password-Rq | Close-Rq with new private LinkID and with valid
    value of "Length" in Set-Password-Rq and a value for password different from the original settings as specified by
    the applicant
    }
```

Expected behaviour

```
ensure that {
    when {
        the IUT receives a valid Open-Rq | Use-Last-Password-Rq with new private LinkID and with valid value of
        "Length" in Use-Last-Password-Rq
        }
    then {
        Verify reception of a response message with "Result" set to '06'H and "Diagnostic" set to '00'. Note the value of
        "Called AP Title"
        Verify that the password to be used in the OBU is the same as the one transmitted in TP/OBU/AL/SC/BV/01, by
        accessing the OBU according to the applicant specifications
        }
}
```

Final Conditions

```
ensure that {
    when {
        the IUT receives a valid Select-TBA-Id-Rq | Close-Rq with the "Responding AP Title" parameter set to the
        previously received "Called AP Title" value
        }
    then {
        Verify reception of a response message with "Result" set to '06'H and "Diagnostic" set to '00'H
        Verify that the password to be used reverts back to its original value, by accessing the OBU according to the
        applicant specifications
        }
}
```

TP/OBU/AL/SC/BV/03	Verify that the IUT can manage Get-TBA-Random-Rq
	Reference: Clauses 11.5.22, 11.6.2 and 11.6.23
	PICS Selection: Table A.4/41 AND Table A.4/42

Initial conditions

```
with {
        the IUT being in the "initial state"
    }
```

Expected behaviour

```
repeat 10 times, by modifying each time the value of "Length" parameter in Get-TBA-Random-Rq
ensure that {
    when {
        the IUT receives a valid Open-Rq | Get-TBA-Random-Rq | Close-Rq with new private LinkID and with valid value
        of "Length" in Get-TBA-Random-Rq
        }
    then {
        Verify reception of a response message with "Result" set to '06'H and "Diagnostic" set to '00'. Note the data
        retrieved
        }
    Repeat 100 times {
        when {
            the IUT receives a valid Open-Rq | Get-TBA-Random-Rq | Close-Rq with new private LinkID and with valid
            value of "Length" in Get-TBA-Random-Rq
            }
        then {
            Verify reception of a response message with "Result" set to '06'H and "Diagnostic" set to '00'H. Verify that the
            data retrieved is different from that received in the previously issued Get-TBA-Random-Rq
            }
    }
}
```

TP/OBU/AL/SC/BV/04	Verify that the IUT can manage Set-Credential-Rq with no support for the EETS profile
	Reference: Clauses 11.5.23, 11.6.2 and 11.6.24
	PICS Selection: Table A.4/43 AND Table A.4/44 AND Table A.5/10 AND Table A.5/12 AND NOT Table A.2/1

Initial conditions

with {
the IUT being in the "initial state"
and the IUT having received a valid Open-Rq | Get-TBA-Random-Rq | Close-Rq with new private LinkID and with valid value of "Length" in Get-TBA-Random-Rq
and the IUT having issued a response message with "Result" set to '06'H and "Diagnostic" set to '00'
and tester having retrieved data from the OBU according to the field and length as specified by the applicant for calculating credentials and having computed its credentials based on the random number received after the Get-TBA-Random-Rq and the data previously received
}

Expected behaviour

ensure that {
when {
the IUT receives a valid Open-Rq | Set-Credential-Rq | Close-Rq with values for "Length" and "Credentials" according to the computed credentials
}
then {
Verify reception of a response message with "Result" set to '06'H and "Diagnostic" set to '00'H
}
}

TP/OBU/AL/SC/BV/05	Verify that the IUT can manage Set-Credential-Rq with support for the EETS profile
	Reference: Clauses 11.5.23, 11.6.2 and 11.6.24
	PICS Selection: Table A.4/43 AND Table A.4/44 AND Table A.5/10 AND Table A.5/12 AND Table A.2/1

Initial conditions

with {
the IUT being in the "initial state" AND Test Purpose TP/OBU/AL/SC/BV/03 successfully executed
and the IUT having received a valid Open-Rq | Get-TBA-Random-Rq | Get-Master-Record-Rq | Close-Rq with new private LinkID and with valid value of "Length" in Get-TBA-Random-Rq and values of '10'D for "Offset" and '2'D for "Length in the Get-Master-Record-Rq in order to get the value of AC_CR-KeyReference
and the IUT having issued a response message with "Result" set to '06'H and "Diagnostic" set to '00'
and the tester having computed credentials based on the data received
}

Expected behaviour

ensure that {
when {
the IUT receives a valid Open-Rq | Set-Credential-Rq | Close-Rq with values for "Length" and "Credentials" according to the computed credentials in the initial conditions
}
then {
Verify reception of a response message with "Result" set to '06'H and "Diagnostic" set to '00'H
}
}

TP/OBU/AL/SC/BV/06	Verify that the IUT can manage Get-Credential-Rq with no support for the EETS profile
	Reference: Clauses 11.5.24, 11.6.2 and 11.6.25
	PICS Selection: Table A.4/45 AND Table A.4/46 AND Table A.5/09 AND Table A.5/11 AND NOT Table A.2/1

Initial conditions

Repeat 10 times varying the values of the issued parameters within their limits
with {
the IUT being in the "initial state"
and the IUT having received a valid Open-Rq | Read-Appl-Core-Rq | Close-Rq with new private LinkID and with valid values for "Displacement" and for "Length" in Read-Appl-Core-Rq
and the IUT having issued a response message with "Result" set to '06'H and "Diagnostic" set to '00'
}

Expected behaviour

Repeat 8 times varying the key used to generate credentials
ensure that {
when {
Tester having computed credentials according to the data received, a randomly generated number of 10 octets and one of the available keys
and the IUT receives a valid Open-Rq | Get-Credential-Rq | Close-Rq with the same values for "Offset" and "Length" as used in the initial conditions, with values for "Nonce-len" and "Nonce" parameters corresponding to a generated random number and with a value for the "Key" parameter indicating the key used for computation of the credentials
}
then {
Verify reception of a response message with "Result" set to '06'H and "Diagnostic" set to '00' and with a value for the received credentials equal to the computed value
}
}

TP/OBU/AL/SC/BV/07	Verify that the IUT can manage Get-Credential-Rq with support for the EETS profile
	Reference: Clauses 11.5.24, 11.6.2 and 11.6.25
	PICS Selection: Table A.4/45 AND Table A.4/46 AND Table A.5/09 AND Table A.5/11 AND Table A.2/1

Initial conditions

with {
the IUT being in the "initial state"
and the IUT having received a valid Open-Rq | Read-Appl-Core-Rq | Close-Rq with new private LinkID and with value '0'D for "Displacement" and '14'D for "Length" in Read-Appl-Core-Rq
and the IUT having issued a response message with "Result" set to '06'H and "Diagnostic" set to '00'
}

Expected behaviour

Repeat 8 times varying the key used to generate credentials.
ensure that {
when {
Tester having computed credentials according to the data received, a randomly generated number of 10 octets and one of the available keys
and the IUT receives a valid Open-Rq | Get-Credential-Rq | Close-Rq with the same values for "Offset" and "Length" as used in the initial conditions, with values of '10'D for "Nonce-len" parameter and "Nonce" corresponding to the generated random number and with a value for the "Key" parameter indicating the key used for computation of the credentials
}
then {
Verify reception of a response message with "Result" set to '06'H and "Diagnostic" set to '00' and with a value for the received credentials equal to the computed value
}
}

5.2.5.2 Invalid behaviour

TP/OBU/AL/SC/BI/01	Verify that the IUT can manage Set-Password-Rq with invalid length
	Reference: Clauses 11.5.20, 11.6.2 and 11.6.21
	PICS Selection: Table A.4/37 AND Table A.4/38
Initial conditions	
with { the IUT being in the "initial state" AND the password to be used in the OBU is accessed according to the applicant specifications, and recorded in an external media }	
Expected behaviour	
ensure that { when { the IUT receives a sequence Open-Rq | Set-Password-Rq with new private LinkID and with invalid value of "Length" in Set-Password-Rq and the value of the transmitted password set to a value different from that of the original password } then { Verify reception of a response message with "Result" set to '15'H and "Diagnostic" set to '04', Verify that the password to be used remains set to its original value, by accessing the OBU according to the applicant specifications } }	

TP/OBU/AL/SC/BI/02	Verify that the IUT can manage Get-TBA-Random with invalid length
	Reference: Clauses 11.5.22, 11.6.2 and 11.6.23
	PICS Selection: Table A.4/42 AND Table A.4/42
Initial conditions	
with { the IUT being in the "initial state" }	
Expected behaviour	
ensure that { when { the IUT receives a sequence Open-Rq | Get-TBA-Random-Rq with new private LinkID and with invalid value of "Length" in Get-TBA-Random-Rq } then { Verify reception of a response message with "Result" set to '15'H and "Diagnostic" set to '04' } }	

TP/OBU/AL/SC/BI/03	Verify that the IUT with no support for the EETS profile can manage invalid Set-Credential-Rq
	Reference: Clauses 11.5.23, 11.6.2 and 11.6.24
	PICS Selection: Table A.4/43 AND Table A.4/44 AND Table A.5/10 AND Table A.5/12 AND NOT Table A.2/1

Initial conditions

with {
the IUT being in the "initial state"
and the IUT having received a valid Open-Rq | Get-TBA-Random-Rq | Close-Rq with new private LinkID and with valid value of "Length" in Get-TBA-Random-Rq
and the IUT having issued a response message with "Result" set to '06'H and "Diagnostic" set to '00'
and Tester having retrieved data from the OBU according to the field and length as specified by the applicant for calculating credentials and having computed its credentials based on the random number received after the Get-TBA-Random-Rq and the data previously received. The value of the credentials is then modified
}

Expected behaviour

ensure that {
when {
the IUT receives a valid Open-Rq | Set-Credential-Rq | Close-Rq with values for "Length" and "Credentials" according to the value computed in the initial conditions
}
then {
Verify reception of a response message with "Result" set to '15'H and "Diagnostic" set to '04'H
}
}

TP/OBU/AL/SC/BI/04	Verify that the IUT with support for the EETS profile can manage invalid Set-Credential-Rq
	Reference: Clauses 11.5.23, 11.6.2 and 11.6.24
	PICS Selection: Table A.4/43 AND Table A.4/44 AND Table A.5/10 AND Table A.5/12 AND Table A.2/1

Initial conditions

with {
the IUT being in the "initial state" AND Test Purpose TP/OBU/AL/SC/BV/03 successfully executed
and the IUT having received a valid Open-Rq | Get-TBA-Random-Rq | Get-Master-Record-Rq | Close-Rq with new private LinkID and with valid value of "Length" in Get-TBA-Random-Rq and values of '10'D for "Offset" and '2'D for "Length in the Get-Master-Record-Rq
and the IUT having issued a response message with "Result" set to '06'H and "Diagnostic" set to '00'
and the Tester having retrieved data from the OBU and having computed its credentials based on the random number received after the Get-TBA-Random-Rq and the data previously received. The value of the credentials is then modified
}

Expected behaviour

ensure that {
when {
the IUT receives a valid Open-Rq | Set-Credential-Rq | Close-Rq with values for "Length" and "Credentials" according to the altered value
}
then {
Verify reception of a response message with "Result" set to '15'H and "Diagnostic" set to '04'H
}
}

TP/OBU/AL/SC/BI/05	Verify that the IUT with support for the EETS profile can manage invalid Get-Credential-Rq
	Reference: Clauses 11.5.24, 11.6.2 and 11.6.25
	PICS Selection: Table A.4/45 AND Table A.4/46 AND Table A.5/09 AND Table A.5/11 AND Table A.2/1
Initial conditions	

with {
the IUT being in the "initial state"
}	

Expected behaviour	

ensure that {
when {
the IUT receives a valid Open-Rq | Get-Credential-Rq | Close-Rq with valid values for "Offset" and "Length", but with a value for "Nonce-len" parameter different from '10'D
}
then {
Verify reception of a response message with "Result" set to '15'H and "Diagnostic" set to '04'
}
}	

TP/OBU/AL/SC/BI/06	Verify that the IUT with support for the EETS profile can manage invalid Get-Credential-Rq
	Reference: Clauses 11.5.24, 11.6.2 and 11.6.25
	PICS Selection: Table A.4/45 AND Table A.4/46 AND Table A.5/09 AND Table A.5/11 AND Table A.2/1
Initial conditions	

with {
the IUT being in the "initial state"
}	

Expected behaviour	

ensure that {
when {
the IUT receives a valid Open-Rq | Get-Credential-Rq | Close-Rq with values of '10'D for "Nonce-len" parameter and "Nonce" corresponding to a generated random number but with an invalid value for the "Key" parameter indicating the key used for computation of the credentials.
}
then {
Verify reception of a response message with "Result" set to '15'H and "Diagnostic" set to '04'.
}
}	

5.2.6 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.4/3 AND Table A.4/4
Initial conditions	

with {
the IUT being in the "initial state"
}	

Expected behaviour	

ensure that {
when {
the IUT receives a valid Close-Rq with new private LinkID.
}
then {
the IUT issues a response with "Result" set to '15'H and "Diagnostic" set to '02'H and no data
}
}	

TP/OBU/AL/IC/BI/02	Verify that the IUT correctly identifies an invalid termination request
	Reference: Clauses 11.6.2 and 11.6.4
	PICS Selection: Table A.4/3 AND Table A.4/4
Initial conditions	

with {
the IUT being in the "initial state"
}	

Expected behaviour	

ensure that {
when {
the IUT receives a valid Close-Rq with broadcast LinkID
}
then {
the IUT issues a response with "Result" set to '15'H and "Diagnostic" set to '02'H and no data
}
}	

TP/OBU/AL/IC/BI/03	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.4/23 AND Table A.4/24
Initial conditions	

with {
the IUT being in the "initial state"
and the IUT having received a valid Open-Rq | Close-Rq with a new private LinkID
and the IUT having issued a response with "Result" set to '06'H and "Diagnostic" set to '00'H
}	

Expected behaviour	

ensure that {
when {
the IUT receives a valid Read-Appl-Record-Rq with private LinkID as used in the initial conditions 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
}
then {
the IUT issues a response with "Result" set to '15'H and "Diagnostic" set to '02'H and no data
}
}	

TP/OBU/AL/IC/BI/04	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.4/23 AND Table A.4/24
Initial conditions	

with {
the IUT being in the "initial state"
and the IUT having received a valid Open-Rq | Close-Rq with a new private LinkID
and the IUT having issued a response with "Result" set to '06'H and "Diagnostic" set to '00'H
}	

Expected behaviour	

ensure that {
when {
the IUT receives a valid 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
}
then {
the IUT issues a response with "Result" set to '15'H and "Diagnostic" set to '02'H and no data
}
}	

TP/OBU/AL/IC/BI/05	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

Initial conditions

```
with {
    the IUT being in the "initial state"
    and the IUT having received a valid Open-Rq | Close-Rq with a new private LinkID
    and the IUT having issued a response with "Result" set to '06'H and "Diagnostic" set to '00'H
    }
```

Expected behaviour

```
ensure that {
    when {
        the IUT receives a valid Read-Appl-Record-Rq with private LinkID as used in the initial conditions 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
        }
    then {
        the IUT issues a response with "Result" set to '15'H and "Diagnostic" set to '02'H and no data
        }
}
```

TP/OBU/AL/IC/BI/06	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

Initial conditions

```
with {
    the IUT being in the "initial state"
    and the IUT having received a valid Open-Rq | Close-Rq with a new private LinkID
    and the IUT having issued a response with "Result" set to '06'H and "Diagnostic" set to '00'H
    }
```

Expected behaviour

```
ensure that {
    when {
        the IUT receives a valid 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 core
        }
    then {
        the IUT issues a response with "Result" set to '15'H and "Diagnostic" set to '02'H and no data
        }
}
```

TP/OBU/AL/IC/BI/07	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.4/13 AND Table A.4/14

Initial conditions

```
with {
    the IUT being in the "initial state"
    and the IUT having received a valid Open-Rq | Close-Rq with a new private LinkID
    and the IUT having issued a response with "Result" set to '06'H and "Diagnostic" set to '00'H
    }
```

Expected behaviour

```
ensure that {
    when {
        the IUT receives a valid Read- Master-Core-Rq with LinkID as used in the initial conditions 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
        }
    then {
        the IUT issues a response with "Result" set to '15'H and "Diagnostic" set to '02'H and no data
        }
}
```

TP/OBU/AL/IC/BI/08	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.4/13 AND Table A.4/14
Initial conditions	

with {
the IUT being in the "initial state"
and the IUT having received a valid Open-Rq | Close-Rq with a new private LinkID
and the IUT having issued a response with "Result" set to '06'H and "Diagnostic" set to '00'H
}	

Expected behaviour	

ensure that {
when {
the IUT receives a valid 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
}
then {
the IUT issues a response with "Result" set to '15'H and "Diagnostic" set to '02'H and no data
}
}	

TP/OBU/AL/IC/BI/09	Verify that the IUT correctly identifies a Get-Master-Record-Rq outside a session
	Reference: Clauses 11.6.2 and 11.6.4
	PICS Selection: Table A.4/11 AND Table A.4/12 AND Table A.5/4
Initial behaviour	

with {
the IUT being in the "initial state"
and the IUT having received a valid Open-Rq | Close-Rq with a new private LinkID
and the IUT having issued a response with "Result" set to '06'H and "Diagnostic" set to '00'H
}	

Expected behaviour	

ensure that {
when {
the IUT receives a valid Get-Master-Record-Rq with LinkID as used in the initial conditions and with valid combinations of "Offset" and "Length" in Get-Master-Record-Rq in order to retrieve a part of or the whole master record
}
then {
the IUT issues a response with "Result" set to '15'H and "Diagnostic" set to '02'H and no data
}
}	

TP/OBU/AL/IC/BI/10	Verify that the IUT correctly identifies a Get-Master-Record-Rq outside a session
	Reference: Clauses 11.6.2 and 11.6.4
	PICS Selection: Table A.4/11 AND Table A.4/12 AND Table A.5/4
Initial behaviour	

with {
the IUT being in the "initial state"
and the IUT having received a valid Open-Rq | Close-Rq with a new private LinkID
and the IUT having issued a response with "Result" set to '06'H and "Diagnostic" set to '00'H
}	

Expected behaviour	

ensure that {
when {
the IUT receives a valid 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
}
then {
the IUT issues a response with "Result" set to '15'H and "Diagnostic" set to '02'H and no data
}
}	

TP/OBU/AL/IC/BI/11	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.4/25 AND Table A.4/26
Initial conditions	

with {
the IUT being in the "initial state"
and the IUT having received a valid Open-Rq | Close-Rq with a new private LinkID
and the IUT having issued a response with "Result" set to '06'H and "Diagnostic" set to '00'H
}	

Expected behaviour	

ensure that {
when {
the IUT receives a valid Write-Appl-Record-Curr-Rq with LinkID as used in the initial conditions 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
}
then {
the IUT issues a response with "Result" set to '15'H and "Diagnostic" set to '02'H
}
}	

TP/OBU/AL/IC/BI/12	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.4/25 AND Table A.4/26
Initial conditions	

with {
the IUT being in the "initial state"
and the IUT having received a valid Open-Rq | Close-Rq with a new private LinkID
and the IUT having issued a response with "Result" set to '06'H and "Diagnostic" set to '00'H
}	

Expected behaviour	

ensure that {
when {
the IUT receives a valid 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
}
then {
the IUT issues a response with "Result" set to '15'H and "Diagnostic" set to '02'H
}
}	

TP/OBU/AL/IC/BI/13	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.4/27 AND Table A.4/28
Initial conditions	

with {
the IUT being in the "initial state"
and the IUT having received a valid Open-Rq | Close-Rq with a new private LinkID
and the IUT having issued a response with "Result" set to '06'H and "Diagnostic" set to '00'H
}	

Expected behaviour	

ensure that {
when {
the IUT receives a valid Write-Appl-Record-Curr-Conf-Rq with LinkID as used in the initial conditions 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
}
then {
the IUT issues a response with "Result" set to '15'H and "Diagnostic" set to '02'H
}
}	

TP/OBU/AL/IC/BI/14	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.4/27 AND Table A.4/28
Initial conditions	

with {
the IUT being in the "initial state"
and the IUT having received a valid Open-Rq | Close-Rq with a new private LinkID
and the IUT having issued a response with "Result" set to '06'H and "Diagnostic" set to '00'H
}	

Expected behaviour	

ensure that {
when {
the IUT receives a valid 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
}
then {
the IUT issues a response with "Result" set to '15'H and "Diagnostic" set to '02'H
}
}	

TP/OBU/AL/IC/BI/15	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.4/29 AND Table A.4/30
Initial Conditions	

with {
the IUT being in the "initial state"
and the IUT having received a valid Open-Rq | Close-Rq with a new private LinkID
and the IUT having issued a response with "Result" set to '06'H and "Diagnostic" set to '00'H
}	

Expected behaviour	

ensure that {
when {
the IUT receives a valid Write-Appl-Record-Next-Rq with LinkID as used in the initial conditions 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
}
then {
the IUT issues a response with "Result" set to '15'H and "Diagnostic" set to '02'H
}
}	

TP/OBU/AL/IC/BI/16	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.4/29 AND Table A.4/30
Initial Conditions	

with {
the IUT being in the "initial state"
and the IUT having received a valid Open-Rq | Close-Rq with a new private LinkID
and the IUT having issued a response with "Result" set to '06'H and "Diagnostic" set to '00'H
}	

Expected behaviour	

ensure that {
when {
the IUT receives a valid 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
}
then {
the IUT issues a response with "Result" set to '15'H and "Diagnostic" set to '02'H
}
}	

TP/OBU/AL/IC/BI/17	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.4/31 AND Table A.4/32
Initial conditions	

with {
the IUT being in the "initial state"
and the IUT having received a valid Open-Rq | Close-Rq with a new private LinkID
and the IUT having issued a response with "Result" set to '06'H and "Diagnostic" set to '00'H
}	

Expected behaviour	

ensure that {
when {
the IUT receives a valid Write-Appl-Record-Next-Conf-Rq with LinkID as used in the initial conditions 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
}
then {
the IUT issues a response with "Result" set to '15'H and "Diagnostic" set to '02'H
}
}	

TP/OBU/AL/IC/BI/18	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.4/31 AND Table A.4/32
Initial conditions	

with {
the IUT being in the "initial state"
and the IUT having received a valid Open-Rq | Close-Rq with a new private LinkID
and the IUT having issued a response with "Result" set to '06'H and "Diagnostic" set to '00'H
}	

Expected behaviour	

ensure that {
when {
the IUT receives a valid 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
}
then {
the IUT issues a response with "Result" set to '15'H and "Diagnostic" set to '02'H
}
}	

TP/OBU/AL/IC/BI/19	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.4/15 AND Table A.4/16

Initial conditions

```
with {
    the IUT being in the "initial state"
    and the IUT having received a valid Open-Rq | Close-Rq with a new private LinkID
    and the IUT having issued a response with "Result" set to '06'H and "Diagnostic" set to '00'H
    }
```

Expected behaviour

```
ensure that {
    when {
        the IUT receives a valid Write-Appl-Core-Rq with LinkID as used in the initial conditions 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 core
        }
    then {
        the IUT issues a response with "Result" set to '15'H and "Diagnostic" set to '02'H
        }
}
```

TP/OBU/AL/IC/BI/20	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.4/15 AND Table A.4/16

Initial conditions

```
with {
    the IUT being in the "initial state"
    and the IUT having received a valid Open-Rq | Close-Rq with a new private LinkID
    and the IUT having issued a response with "Result" set to '06'H and "Diagnostic" set to '00'H
    }
```

Expected behaviour

```
ensure that {
    when {
        the IUT receives a valid 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 core
        }
    then {
        the IUT issues a response with "Result" set to '15'H and "Diagnostic" set to '02'H
        }
}
```

TP/OBU/AL/IC/BI/21	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.4/17 AND Table A.4/18

Initial conditions

```
with {
    the IUT being in the "initial state"
    and the IUT having received a valid Open-Rq | Close-Rq with a new private LinkID
    and the IUT having issued a response with "Result" set to '06'H and "Diagnostic" set to '00'H
    }
```

Expected behaviour

```
ensure that {
    when {
        the IUT receives a valid Write-Appl-Core-Conf-Rq with LinkID as used in the initial conditions 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 core
        }
    then {
        the IUT issues a response with "Result" set to '15'H and "Diagnostic" set to '02'H
        }
}
```

TP/OBU/AL/IC/BI/22	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.4/17 AND Table A.4/18
Initial conditions	

with {
the IUT being in the "initial state"
and the IUT having received a valid Open-Rq | Close-Rq with a new private LinkID
and the IUT having issued a response with "Result" set to '06'H and "Diagnostic" set to '00'H
}	

Expected behaviour	

ensure that {
when {
the IUT receives a valid 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 core
}
then {
the IUT issues a response with "Result" set to '15'H and "Diagnostic" set to '02'H
}
}	

TP/OBU/AL/IC/BI/23	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.4/5 AND Table A.4/6
Initial conditions	

with {
the IUT being in the "initial state"
and the IUT having received a valid Open-Rq | Close-Rq with a new private LinkID
and the IUT having issued a response with "Result" set to '06'H and "Diagnostic" set to '00'H
}	

Expected behaviour	

ensure that {
when {
the IUT receives a valid Select-TBA-Id-Rq with LinkID as used in the initial conditions and with validCalled AP Title
}
then {
the IUT issues a response with "Result" set to '15'H and "Diagnostic" set to '02'H
}
}	

TP/OBU/AL/IC/BI/24	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.4/7 AND Table A.4/8 AND Table A.5/6
Initial conditions	

with {
the IUT being in the "initial state"
and the IUT having received a valid Open-Rq | Close-Rq with a new private LinkID
and the IUT having issued a response with "Result" set to '06'H and "Diagnostic" set to '00'H
}	

Expected behaviour	

ensure that {
when {
the IUT receives a valid Read-Display-Type-Rq with LinkID as used previously and with validCalled AP Title
}
then {
the IUT issues a response with "Result" set to '15'H and "Diagnostic" set to '02'H
}	

TP/OBU/AL/IC/BI/25	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.4/35 AND Table A.4/36 AND Table A.5/14

Initial conditions

```
with {
    the IUT being in the "initial state"
    and the IUT having received a valid Open-Rq | Close-Rq with a new private LinkID
    and the IUT having issued a response with "Result" set to '06'H and "Diagnostic" set to '00'H
    }
```

Expected behaviour

```
ensure that {
    when {
        the IUT receives a valid Action-Rq with LinkID as used in the initial conditions and with validCalled AP Title
        }
    then {
        the IUT issues a response with "Result" set to '15'H and "Diagnostic" set to '02'H
        }
}
```

TP/OBU/AL/IC/BI/26	Verify that the IUT correctly handles invalid directive codes
	Reference: Clauses 11.3 and 11.6.1
	PICS Selection: Table A.3/3

Initial conditions

```
with {
        the IUT being in the "initial state"
    }
```

Expected behaviour

```
Repeat 100 times, by varying invalid directive codes
ensure that {
    when {
        the IUT receives Open-Rq | "Invalid directive code number" | Close-Rq with new private LinkID
        }
    then {
        the IUT issues a response with "Result" set to '15'H and "Diagnostic" set to '03'H
        }
}
```

TP/OBU/AL/IC/BI/27	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: Table A.3/1

Initial conditions

```
with {
        the IUT being in the "initial state"
    }
```

Expected behaviour

```
ensure that {
    when {
        the IUT receives Open-Rq | Read-Master-Core-Rq ("Offset"=0, "Length"=1) | Close-Rq with new private LinkID
        and with "Number of Directives" set to 4
        }
    then {
        the IUT issues a response with "Result" set to '15'H and "Diagnostic" set to '04'H
        }
}
```

TP/OBU/AL/IC/BI/28	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: Table A.3/1

Initial conditions

```
with {
        the IUT being in the "initial state"
    }
```

Expected behaviour

```
ensure that {
    when {
        the IUT receives an Open-Rq | Read-Appl-Core-Rq ("Offset"=0, "Length"=1) | Close-Rq with new private LinkID
        and with "Number of Directives" set to 1
        }
    then {
        the IUT issues a response with "Result" set to '06'H and "Diagnostic" set to '00'H, but with no data, to show that
        only Open-Rq has been performed
        }
    when {
        the IUT receives a valid Write-Appl-Core-Rq ("Offset"=0, "Length"=1) | Close-Rq with private LinkID as used
        previously and with "Number of Directives" set to 1
        }
    then {
        the IUT issues a response with "Result" set to '06'H and "Diagnostic" set to '00'H, to show that the session is still
        active
        }
    when {
        the IUT receives a Read-Appl-Core-Rq ("Offset"=0, "Length"=1) | Close-Rq with new private LinkID and with
        "Number of Directives" set to 2
        }
    then {
        the IUT issues a response with "Result" set to '06'H and "Diagnostic" set to '00'H and data as written previously
        }
    when {
        the IUT receives a valid Close-Rq
        }
    then {
        the IUT issues a response with "Result" set to '06'H and "Diagnostic" set to '00'H
        }
}
```

TP/OBU/AL/IC/BI/29	Verify that the IUT correctly identifies a Set-Password-Rq outside a session
	Reference: Clauses 11.6.2 and 11.6.4
	PICS Selection: Table A.4/37 AND Table A.4/38 AND Table A.5/5

Initial conditions

```
with {
     the IUT being in the "initial state"
     and the IUT having received a valid Open-Rq | Close-Rq with a new private LinkID
     and the IUT having issued a response with "Result" set to '06'H and "Diagnostic" set to '00'H.
     }
```

Expected behaviour

```
ensure that {
    when {
        the IUT receives a valid Set-Password-Rq with LinkID as used in the initial conditions and with valid parameter
        values for "Length" and "Password"
        }
    then {
        the IUT issues a response with "Result" set to '15'H and "Diagnostic" set to '02'H
        }
}
```

TP/OBU/AL/IC/BI/30	Verify that the IUT correctly identifies a Use-Last-Password-Rq outside a session
	Reference: Clauses 11.6.2 and 11.6.4
	PICS Selection: Table A.4/39 AND Table A.4/40 AND Table A.5/5

Initial conditions

```
with {
    the IUT being in the "initial state"
    and the IUT having received a valid Open-Rq | Close-Rq with a new private LinkID
    and the IUT having issued a response with "Result" set to '06'H and "Diagnostic" set to '00'H
    }
```

Expected behaviour

```
ensure that {
    when {
        the IUT receives a valid Use-Last-Password-Rq with LinkID as used in the initial conditions
        }
    then {
        the IUT issues a response with "Result" set to '15'H and "Diagnostic" set to '02'H
        }
}
```

TP/OBU/AL/IC/BI/31	Verify that the IUT correctly identifies a Get-TBA-Tandom-Rq outside a session
	Reference: Clauses 11.6.2 and 11.6.4
	PICS Selection: Table A.4/42 AND Table A.4/43 AND Table A.5/5

Initial conditions

```
with {
    the IUT being in the "initial state"
    and the IUT having received a valid Open-Rq | Close-Rq with a new private LinkID
    and the IUT having issued a response with "Result" set to '06'H and "Diagnostic" set to '00'H
    }
```

Expected behaviour

```
ensure that {
    when {
        the IUT receives a valid Get-TBA-Random-Rq with LinkID as used in the initial conditions and with valid
        parameter value for "Length"
        }
    then {
        the IUT issues a response with "Result" set to '15'H and "Diagnostic" set to '02'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.4/1 AND Table B.4/2 AND Table B.4/3 AND Table B.4/4
Initial conditions	

with {
the IUT being in the "initial state"
and the IUT is stimulated to send the sequence Open-Rq | Close-Rq with new private LinkID
and the IUT issues a valid Open-Rq with a value of "Calling AP Title" as specified by the applicant, followed by a Close-Rq
}	

Expected behaviour	

ensure that {
when {
the IUT receives a valid sequence Open-Rs | Close-Rs with "Result" set to '06'H and "Diagnostic" set to '00'H with LinkID having the same value as previously
}
then {
the IUT is not re-issuing the sequence Open-Rq | Close-Rq 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.4/5 AND Table B43/6
Initial conditions	

with {
the IUT being in the "initial state"
and the IUT knows the value of "Responding AP Title" used by the tester
and the IUT is stimulated 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
and the IUT issues a sequence of Open-Rq | Select-TBA-Id-Rq | Close-Rq with the correct value of "Responding AP Title"
}	

Expected behaviour	

ensure that {
when {
the IUT receives a valid sequence Open-Rs | Close-Rs with "Result" set to '06'H and "Diagnostic" set to '00'H
}
then {
the IUT is not re-issuing the sequence Open-Rq | Select-TBA-Id-Rq | Close-Rq 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.4/9 AND Table B.4/10
Initial conditions	

with {
the IUT being in the "initial state"
and the IUT is stimulated 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
and the IUT issues a sequence of Open-Rq | Read-Master-Core-Rq | Close-Rq with correct values of "Offset" and "Length"
}	

Expected behaviour	

ensure that {
when {
the IUT receives a valid sequence Open-Rs | Read-Master-Core-Rs | Close-Rs with "Result" set to '06'H and "Diagnostic" set to '00'H, and with valid read-data
}
then {
the IUT is not re-issuing the sequence Open-Rq | Read-Master-Core-Rq | Close-Rq within the allowed time span
}
}	

TP/RSU/AL/RA/BV/02	Verify that the IUT can read specific fields of the master record
	Reference: Clauses 11.5.7 and 11.6.8
	PICS Selection: Table B.4/11 AND Table B.4/12
Initial conditions	

with {
the IUT being in the "initial state"
and the IUT is stimulated to send the sequence Open-Rq | Get-Master-Record-Rq | Close-Rq with new private LinkID and with given values of "Offset" and "Length" in Get-Master-Record-Rq
and the IUT issues a sequence Open-Rq | Get-Master-Record-Rq | Close-Rq with correct values of "Offset" and "Length"
}	

Expected behaviour	

ensure that {
when {
the IUT receives a valid sequence Open-Rs | Get-Master-Record-Rs | Close-Rs with "Result" set to '06'H and "Diagnostic" set to '00'H, and with valid read-data
}
then {
the IUT is not re-issuing the sequence Open-Rq | Get-Master-Record-Rq | Close-Rq within the allowed time span
}
}	

TP/RSU/AL/RA/BV/03	Verify that the IUT can read specific fields of the application core
	Reference: Clauses 11.5.8 and 11.6.9
	PICS Selection: Table B.4/13 AND Table B.4/14
Initial conditions	

with {
the IUT being in the "initial state"
and the IUT is stimulated 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
and the IUT issues a sequence of Open-Rq | Read-Application-Core-Rq | Close-Rq with correct values of "Offset" and "Length"
}	

Expected behaviour	

ensure that {
when {
the IUT receives a valid sequence Open-Rs | Read-Application-Core-Rs | Close-Rs with "Result" set to '06'H and "Diagnostic" set to '00'H and with valid read-data
}
then {
the IUT is not re-issuing the sequence Open-Rq | Read-Application-Core-Rq | Close-Rq within the allowed time span
}
}	

TP/RSU/AL/RA/BV/04	Verify that the IUT can read specific fields of the application record
	Reference: Clauses 11.5.13 and 11.6.14
	PICS Selection: Table B.4/23 AND Table B.4/24
Initial conditions	

with {
the IUT being in the "initial state"
and the IUT is stimulated 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
and the IUT issues a sequence Open-Rq | Read-Appl-Record-Rq | Close-Rq with valid values of "Offset" and "Length"
}	

Expected behaviour	

ensure that {
when {
the IUT receives a valid sequence Open-Rs | Read-Appl-Record-Rs | Close-Rs with "Result" set to '06'H and "Diagnostic" set to '00'H, and with read-data
}
then {
the IUT is not re-issuing the sequence Open-Rq | Read-Appl-Record-Rq | Close-Rq 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 11.5.9 and 11.6.10
	PICS Selection: Table B.4/16 AND Table B.4/17
Initial conditions	

with {
the IUT being in the "initial state"
and the IUT knows the value of "Responding AP Title" used by the tester
and the IUT is stimulated 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
and the IUT issues a sequence Open-Rq | Select-TBA-Id-Rq | Write-Appl-Core-Rq | Close-Rq with valid values of "Offset", "Length", "Responding AP Title" and write-data
}	

Expected behaviour	

ensure that {
when {
the IUT receives a valid sequence Open-Rs | Select-TBA-Id-Rs | Write-Appl-Core-Rs | Close-Rs with "Result" set to '06'H and "Diagnostic" set to '00'H
}
then {
the IUT is not re-issuing the sequence Open-Rq | Select-TBA-Id-Rq | Write-Appl-Core-Rq | Close-Rq 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 11.5.14 and 11.6.15
	PICS Selection: Table B.4/25 AND Table B.4/26
Initial conditions	

with {
the IUT being in the "initial state"
and the IUT knows the value of "Responding AP Title" used by the tester
and the IUT is stimulated 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
and the IUT issues a sequence Open-Rq | Select-TBA-Id-Rq | Write-Appl-Record-Curr-Rq | Close-Rq with valid values of "Offset", "Length", "Responding AP Title" and write-data
}	

Expected behaviour	

ensure that {
when {
the IUT receives a valid sequence Open-Rs | Select-TBA-Id-Rs | Write-Appl-Record-Curr-Rs | Close-Rs with "Result" set to '06'H and "Diagnostic" set to '00'H
}
then {
the IUT is not re-issuing the sequence Open-Rq | Select-TBA-Id-Rq | Write-Appl-Record-Curr-Rq | Close-Rq 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 11.5.16 and 11.6.17
	PICS Selection: Table B.4/29 AND Table B.4/30

Initial conditions

```
with {
    the IUT being in the "initial state"
    and the IUT knows the value of "Responding AP Title" used by the tester
    and the IUT is stimulated 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
    and the IUT issues a sequence Open-Rq | Select-TBA-Id-Rq | Write-Appl-Record-Next-Rq | Close-Rq with correct
    values of "Offset", "Length", "Responding AP Title" and write-data
    }
```

Expected behaviour

```
ensure that {
    when {
        the IUT receives a valid sequence Open-Rs | Select-TBA-Id-Rs | Write-Appl-Record-Next-Rs | Close-Rqswith
        "Result" set to '06'H and "Diagnostic" set to '00'H
        }
    then {
        the IUT is not re-issuing the sequence Open-Rq | Select-TBA-Id-Rq | Write-Appl-Record-Next-Rq | Close-Rq
        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 11.5.15 and 11.6.16
	PICS Selection: Table B.4/27 AND Table B.4/28

Initial conditions

```
with {
    the IUT being in the "initial state"
    and the IUT knows the value of "Responding AP Title" used by the tester
    and the IUT is stimulated to send the sequence Open-Rq | Select-TBA-Id-Rq | Write-Appl-Record-Curr-Conf-Rq |
    Close-Rq with known values of "Offset" and "Length", "Responding AP Title" and write-data
    and the IUT issues a sequence Open-Rq | Select-TBA-Id-Rq | Write-Appl-Record-Curr-Conf-Rq | Close-Rq with valid
    values of "Offset", "Length", "Responding AP Title" and write-data
    }
```

Expected behaviour

```
ensure that {
    when {
        the IUT receives a valid sequence 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
        }
    then {
        the IUT is not re-issuing the sequence Open-Rq | Select-TBA-Id-Rq | Write-Appl-Record-Curr-Conf-Rq | Close-Rq
        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 11.5.17 and 11.6.18
	PICS Selection: Table B.4/31 AND Table B.4/32
Initial conditions	

with {
the IUT being in the "initial state"
and the IUT knows the value of "Responding AP Title" used by the tester
and the IUT is stimulated to send the sequence Open-Rq | Select-TBA-Id-Rq | Write-Appl-Record-Next-Conf-Rq | Close-Rq with known values of "Offset" and "Length", "Responding AP Title" and write-data
and the IUT issues a sequence Open-Rq | Select-TBA-Id-Rq | Write-Appl-Record-Next-Conf-Rq | Close-Rq with valid values of "Offset", "Length", "Responding AP Title" and write-data
}	

Expected behaviour	

ensure that {
when {
the IUT receives a valid sequence Open-Rs | Select-TBA-Id-Rs | Write-Appl-Record-Next-Conf-Rs | Close-Rs with "Result" set to '06'H and "Diagnostic" set to '00'H
}
then {
the IUT is not re-issuing the sequence Open-Rq | Select-TBA-Id-Rq | Write-Appl-Record-Next-Conf-Rq | Close-Rq 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.4/15 Table B.4/16
Initial conditions	

with {
the IUT being in the "initial state"
the IUT knows the value of "Responding AP Title" used by the tester
and the IUT is stimulated 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"
and the IUT issues a sequence of Open-Rq | Select-TBA-Id-Rq | Write-Appl-Core-Conf-Rq | Close-Rq with valid values of "Offset", "Length", "Responding AP Title" and write-data
}	

Expected behaviour	

ensure that {
when {
the IUT receives a valid sequence Open-Rs | Select-TBA-Id-Rs | Write-Appl-Core-Conf-Rs | Close-Rs with "Result" set to '06'H and "Diagnostic" set to '00'H
}
then {
the IUT is not re-issuing the sequence Open-Rq | Select-TBA-Id-Rq | Write-Appl-Core-Conf-Rq | Close-Rq 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.4/7 AND Table B.4/8 AND Table A.5/6
Initial conditions	

with {
the IUT being in the "initial state"
and the IUT is stimulated to send the sequence Open-Rq | Read-Display-Type-Rq | Close-Rq
}	

Expected behaviour	

ensure that {
when {
the IUT receives a valid sequence Open-Rs | Read-Display-Type-Rs | Close-Rs with "Result" set to '06'H and "Diagnostic" set to '00'H, and indicating a valid display type
}
then {
verify that the IUT has correctly received the sequence
}
}	

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.4/7 AND Table B.4/8 AND Table A.5/6
Initial conditions	

with {
the IUT being in the "initial state"
and the IUT is stimulated to send the sequence Open-Rq | Read-Display-Type-Rq | Close-Rq
}	

Expected behaviour	

ensure that {
when {
the IUT receives a valid sequence 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
}
then {
the IUT is not re-issuing the sequence Open-Rq | Read-Display-Type-Rq | Close-Rq 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.4/7 AND Table B.4/8 AND Table A.5/6
Initial conditions	

with {
the IUT being in the "initial state"
and the IUT is stimulated to send the sequence Open-Rq | Read-Display-Type-Rq | Close-Rq
}	

Expected behaviour	

ensure that {
when {
the IUT receives a valid sequence 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 '4E'H
}
then {
the IUT is not re-issuing the sequence Open-Rq | Read-Display-Type-Rq | Close-Rq within the allowed time span
}
}	

TP/RSU/AL/OF/BV/04	Verify that the IUT can issue a Action-Rq (covers also Write-Data-To-External-Rq and Read-Data-from-External-Rq)
	Reference: Clauses 11.5.11, 11.5.12, 11.5.19, 11.6.12, 11.6.13 and 11.6.20
	PICS Selection: Table B4/19 AND Table B.4/20 AND Table B.4/21 AND Table B.4/22 B.4/35 AND Table B.4/36 AND Table B.9/13

Initial conditions

with {
the IUT being in the "initial state"
and the IUT is stimulated to send the sequence Open-Rq | Action-Rq | Close-Rq with known Action-Rq parameter as specified by the applicant
}

Expected behaviour

ensure that {
when {
the IUT receives a valid sequence Open-Rs | Action-Rs | Close-Rs with "Result" set to '06'H and "Diagnostic" set to '00'H and with valid Action-Rs parameter
}
then {
verify that the IUT has correctly received the sequence
}
}

TP/RSU/AL/OF/BV/05	Verify that the IUT accepts a valid Action-Rs
	Reference: Clauses 11.5.19 and 11.6.20
	PICS Selection: Table B.4/35 AND Table B.4/36 AND Table B.9/13

Initial conditions

with {
the IUT being in the "initial state"
and the IUT is stimulated to send the sequence Open-Rq | Action-Rq | Close-Rq with known Action-Rq parameter as specified by the applicant
}

Expected behaviour

ensure that {
when {
the IUT receives a valid sequence Open-Rs | Action-Rs | Close-Rs with "Result" set to '06'H and "Diagnostic" set to '00'H and with valid Action-Rs parameter
}
then {
the IUT is not re-issuing the sequence Open-Rq | Read-Display-Type-Rq | Close-Rq within the allowed time span
}
}

TP/RSU/AL/OF/BV/06	Verify that the IUT can issue a Set-UIF-Rq
	Reference: Clauses 11.5.18, and 11.6.19
	PICS Selection: Table B4/33 AND Table B.4/34

Initial conditions

with {
the IUT being in the "initial state"
}

Expected behaviour

ensure that {
when {
the IUT is stimulated to send Open-Rq | Set-UIF-Rq | Set-UIF-Rq | Close-Rq with new private LinkID. The parameters for the two Set-UIF-Rq primitives shall be:
- "Video" set to '00'H in all three Set-UIF-Rq directives
- "Audio" set to '01'H in the first Set-UIF-Rq directive, 'and to 02'H in the second Set-UIF-Rq directive
- "Time" set to 1
- "Count" set to 1 in the first Set-UIF-Rq directive, and to 2 in the second Set-UIF-Rq directive

}
then {
verify reception of Open-Rq | Set-UIF-Rq | Set-UIF-Rq | Close-Rq with valid values for all parameters
}
}

5.3.5 Security

TP/RSU/AL/SC/BV/01	Verify that the IUT can issue a Set-Password-Rq
	Reference: Clauses 11.5.20 and 11.6.21
	PICS Selection: Table B.4/37 AND Table B.4/38
Initial conditions	

with {
the IUT being in the "initial state"
and the IUT is stimulated to send the sequence Open-Rq | Set-Password-Rq with new private LinkID and with valid value of "Length" in Set-Password-Rq
}	

Expected behaviour	

ensure that {
when {
the IUT receives a valid sequence Open-Rs | Set-Password -Rs with "Result" set to '06'H and "Diagnostic" set to '00'H
}
then {
verify that the IUT has correctly received the sequence
}
}	

TP/RSU/AL/SC/BV/02	Verify that the IUT can issue a Use-Last-Password-Rq
	Reference: Clauses 11.5.21 and 11.6.22
	PICS Selection: Table B.4/39 AND Table B.4/40
Initial conditions	

with {
the IUT being in the "initial state"
and the IUT is stimulated to send the sequence Open-Rq | Use-Last-Password-Rq with new private LinkID
}	

Expected behaviour	

ensure that {
when {
the IUT receives a valid sequence Open-Rs | Use-Last-Password -Rs with "Result" set to '06'H and "Diagnostic" set to '00'H
}
then {
verify that the IUT has correctly received the sequence
}
}	

TP/RSU/AL/SC/BV/03	Verify that the IUT can issue a Get-TBA-Random-Rq
	Reference: Clauses 11.5.22 and 11.6.23
	PICS Selection: Table B.4/41 AND Table B.4/42
Initial conditions	

with {
the IUT being in the "initial state"
and the IUT is stimulated to send the sequence Open-Rq | Get-TBA-Random-Rq | Close-Rq with new private LinkID and with valid value of "Length" in Get-TBA-Random-Rq
}	

Expected behaviour	

ensure that {
when {
the IUT receives a valid sequence Open-Rs | Get-TBA-Random-Rs | Close-Rs with "Result" set to '06'H and "Diagnostic" set to '00'H and with a random number as data
}
then {
verify that the IUT has correctly received the sequence
}
}	

TP/RSU/AL/SC/BV/04	Verify that the IUT can issue a Set-Credential-Rq with support for the EETS profile
	Reference: Clauses 11.5.23 and 11.6.24
	PICS Selection: Table B.4/43 AND Table B.4/44 AND Table B.9/8 AND Table B.9/9 AND Table B.9/11

Initial conditions

with {
the IUT being in the "initial state"
and the IUT is stimulated to send the sequence Open-Rq | Get-TBA-Random-Rq | Get-Master-Record-Rq | Close-Rq with new private LinkID and with valid value of "Length" in Get-TBA-Random-Rq and values of '10'D for "Offset" and '2'D for "Length in the Get-Master-Record-Rq in order to get a value corresponding to AC_CR-KeyReference
}

Expected behaviour

ensure that {
when {
the IUT receives a valid sequence Open-Rs | Get-TBA-Random-Rs | Close-Rs with "Result" set to '06'H and "Diagnostic" set to '00'H and with a random number as data and the requested data from the master record
}
then {
the IUT is stimulated to compute its credentials according to the data received and to issue a sequence Open-Rq | Set-Credential-Rq | Close-Rq with values for "Length" and "Credentials" according to the computed credentials based on the random number received after the Get-TBA-Random-Rq and the data previously transmitted
}
}

Final Conditions

ensure that {
the IUT has correctly computed its credentials.
}

TP/RSU/AL/SC/BV/05	Verify that the IUT can issue a Get-Credential-Rq with support for the EETS profile
	Reference: Clauses 11.5.24 and 11.6.25
	PICS Selection: Table B.4/45 AND Table B.4/46 AND Table B.9/8 AND Table B.9/10

Initial conditions

with {
the IUT being in the "initial state"
and the IUT is stimulated to send the sequence Open-Rq | Read-Appl-Core-Rq | Close-Rq with new private LinkID and with value '0'D for "Displacement" and '14'D for "Length" in Read-Appl-Core-Rq in order to read the value of PaymentMeans attribute
and
}

Expected behaviour

ensure that {
when {
the IUT receives a response message with "Result" set to '06'H and "Diagnostic" set to '00' and the data read from the application core
}
then {
the IUT is stimulated to compute credentials according to the data received, a randomly generated number of 10 octets and one of the available keys Open-Rq | Get-Credential-Rq | Close-Rq with the same values for "Offset" and "Length" as used in the previously issued Read-Appl-Core-Rq, with values of '10'D for "Nonce-len" parameter and "Nonce" corresponding to the generated random number and with a value for the "Key" parameter indicating the key used for computation of the credentials
}
}

Final Conditions

ensure that {
the IUT has correctly computed the credentials
}

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	Table A.5/1, Table A.5/2, Table A.5/3, Table A.5/4, Table A.5/5, Table A.5/6	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, TP/OBU/AL/IC/BI/14, TP/OBU/AL/IC/BI/15, TP/OBU/AL/IC/BI/16, TP/OBU/AL/IC/BI/17, TP/OBU/AL/IC/BI/18, TP/OBU/AL/IC/BI/19, TP/OBU/AL/IC/BI/20, TP/OBU/AL/IC/BI/21, TP/OBU/AL/IC/BI/22, TP/OBU/AL/IC/BI/23, TP/OBU/AL/IC/BI/24, TP/OBU/AL/IC/BI/25, TP/OBU/AL/IC/BI/29, TP/OBU/AL/IC/BI/30, TP/OBU/AL/IC/BI/31
11.3 Protocol messages and parameters: ASN.1 definitions	None	TP/OBU/AL/IC/BI/26

Base standard clause	PICS reference	Test purpose
11.4 Protocol messages and parameters: encoding rules	Table A.5	All
11.5.1 Protocol Data Unit formats	None	TP/OBU/AL/IC/BI/27, TP/OBU/AL/IC/BI/28
11.5.2 Open-Rq protocol message	Table A.4/1, Table A.4/2	TP/OBU/AL/KU/BV/01, TP/OBU/AL/KU/BV/02, TP/OBU/AL/KU/BV/03
11.5.3 Close-Rq protocol message	Table A.4/3, Table A.4/4	TP/OBU/AL/KU/BV/01, TP/OBU/AL/KU/BV/02, TP/OBU/AL/KU/BV/03, 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/19, TP/OBU/AL/IC/BI/20, TP/OBU/AL/IC/BI/21, TP/OBU/AL/IC/BI/22, TP/OBU/AL/IC/BI/23, TP/OBU/AL/IC/BI/24, TP/OBU/AL/IC/BI/25
11.5.4 Select-TBA-Id-Rq protocol message	Table A.4/5, Table A.4/6	TP/OBU/AL/KU/BV/04, TP/OBU/AL/KU/BI/01, TP/OBU/AL/KU/BI/02, TP/OBU/AL/IC/BI/23
11.5.5 Read-Display-Type-Rq protocol message	Table A.4/7, Table A.4/8, Table A.5/1	TP/OBU/AL/OF/BV/01, TP/OBU/AL/IC/BI/24
11.5.6 Read-Master-Core-Rq protocol message	Table A.4/9, Table A.4/10, Table A.5/1	TP/OBU/AL/RA/BV/01, TP/OBU/AL/RA/BV/02
11.5.7 Get-Master-Record-Rq protocol message	Table A.4/11, Table A.4/12, Table A.5/1	TP/OBU/AL/RA/BV/03
11.5.8 Read-Appl-Core-Rq protocol message	Table A.4/13, Table A.4/14, Table A.5/1	TP/OBU/AL/RA/BV/04, TP/OBU/AL/RA/BV/05, TP/OBU/AL/WA/BV/03, TP/OBU/AL/IC/BI/05, TP/OBU/AL/IC/BI/06
11.5.9 Write-Appl-Core-Rq protocol message	Table A.4/15, Table A.4/16, Table A.5/2	TP/OBU/AL/WA/BV/01, TP/OBU/AL/WA/BV/02, TP/OBU/AL/WA/BV/03, TP/OBU/AL/WA/BV/04, TP/OBU/AL/IC/BI/09
11.5.10 Write-Appl-Core-Conf-Rq protocol message	Table A.4/17, Table A.4/18, Table A.5/2	TP/OBU/AL/WA/BV/05, TP/OBU/AL/IC/BI/21
11.5.11 Write-Data-To-External-Rq protocol message	Table A.4/19, Table A.4/20, Table A.5/14	TP/OBU/AL/OF/BV/02, TP/OBU/AL/OF/BI/01
11.5.12 Read-Data-From-External-Rq protocol message	Table A.4/21, Table A.4/22, Table A.5/14	TP/OBU/AL/OF/BV/02, TP/OBU/AL/OF/BI/01
11.5.13 Read-Appl-Record-Rq protocol message	Table A.4/23, Table A.4/24, Table A.5/1	TP/OBU/AL/RA/BV/06, TP/OBU/AL/RA/BV/07, TP/OBU/AL/WA/BV/07, TP/OBU/AL/WA/BV/09, TP/OBU/AL/WA/BV/15, TP/OBU/AL/WA/BV/16, TP/OBU/AL/IC/BI/03
11.5.14 Write-Appl-Record-Curr-Rq protocol message	Table A.4/25, Table A.4/26, Table A.5/2	TP/OBU/AL/WA/BV/06, TP/OBU/AL/WA/BV/07, TP/OBU/AL/IC/BI/11
11.5.15 Write-Appl-Record-Curr-Conf-Rq protocol message	Table A.4/27, Table A.4/28, Table A.5/2	TP/OBU/AL/WA/BV/08, TP/OBU/AL/WA/BV/09, TP/OBU/AL/WA/BV/10, TP/OBU/AL/IC/BI/13, TP/OBU/AL/IC/BI/14
11.5.16 Write-Appl-Record-Next-Rq protocol message	Table A.4/29, Table A.4/30, Table A.5/2	TP/OBU/AL/WA/BV/11, TP/OBU/AL/WA/BV/12, TP/OBU/AL/IC/BI/15, TP/OBU/AL/IC/BI/16
11.5.17 Write-Appl-Record-Next-Conf-Rq protocol message	Table A.4/31, Table A.4/32, Table A.5/2	TP/OBU/AL/WA/BV/13, TP/OBU/AL/WA/BV/14, TP/OBU/AL/WA/BV/15, TP/OBU/AL/WA/BV/16,TP/OBU/AL/IC/BI/17, TP/OBU/AL/IC/BI/18

Base standard clause	PICS reference	Test purpose
11.5.18 Set-UIF-Rq protocol message	Table A.4/33, Table A.4/34	TP/OBU/AL/OF/BV/03
11.5.19 Action-Rq protocol message	Table A.4/35, Table A.4/36, Table A.5/14	TP/OBU/AL/OF/BV/01, TP/OBU/AL/OF/BI/01, TP/OBU/AL/IC/BI/13
11.5.20 Set-Password-Rq protocol message	Table A.4/37, Table A.4/38, Table A.5/5	TP/OBU/AL/SC/BV/01, TP/OBU/AL/SC/BI/01
11.5.21 Use-Last-Password-Rq protocol message	Table A.4/39, Table A.4/40, Table A.5/5	TP/OBU/AL/SC/BV/02
11.5.22 Get-TBA-Random-Rq protocol message	Table A.4/41, Table A.4/42, Table A.5/5	TP/OBU/AL/SC/BV/03
11.5.23 Set-Credential-Rq protocol message	Table A.4/43, Table A.4/44, Table A.5/5, Table A.5/9, Table A.5/10, Table A.5/11, Table A.5/12	TP/OBU/AL/SC/BV/04, TP/OBU/AL/SC/BV/05, TP/OBU/AL/SC/BI/03, TP/OBU/AL/SC/BV/04
11.5.24 Get-Credential-Rq protocol message	Table A.4/45, Table A.4/46, Table A.5/5, Table A.5/9, Table A.5/10, Table A.5/11, Table A.5/12	TP/OBU/AL/SC/BV/06, TP/OBU/AL/SC/BV/07, TP/OBU/AL/SC/BI/05, TP/OBU/AL/SC/BV/06
11.6.1 Protocol Data Unit formats		TP/OBU/AL/KU/BV/01, TP/OBU/AL/KU/BV/02, TP/OBU/AL/KU/BV/03,TP/OBU/AL/KU/BI/01, TP/OBU/AL/KU/BI/02, TP/OBU/AL/IC/BI/26, TP/OBU/AL/IC/BI/27, TP/OBU/AL/IC/BI/28
11.6.2 Receiving Protocol Data Units		All TPs
11.6.3 Response to Open-Rq	Table A.4/1, Table A.4/2	TP/OBU/AL/KU/BV/01, TP/OBU/AL/KU/BV/02, TP/OBU/AL/KU/BV/03
11.6.4 Response to Close-Rq	Table A.4/3, Table A.4/4	TP/OBU/AL/KU/BV/01, TP/OBU/AL/KU/BV/02, TP/OBU/AL/KU/BV/03, 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/19, TP/OBU/AL/IC/BI/20, TP/OBU/AL/IC/BI/21, TP/OBU/AL/IC/BI/22, TP/OBU/AL/IC/BI/23, TP/OBU/AL/IC/BI/24, TP/OBU/AL/IC/BI/25
11.6.5 Response to Select-TBA-Id-Rq	Table A.4/5, Table A.4/6	TP/OBU/AL/KU/BV/04, TP/OBU/AL/KU/BI/01, TP/OBU/AL/KU/BI/02, TP/OBU/AL/IC/BI/23
11.6.6 Response to Read-Display-Type-Rq	Table A.4/7, Table A.4/8, Table A.5/1	TP/OBU/AL/OF/BV/01, TP/OBU/AL/IC/BI/24
11.6.7 Response to Read-Master-Core-Rq	Table A.4/9, Table A.4/10, Table A.5/1	TP/OBU/AL/RA/BV/01, TP/OBU/AL/RA/BV/02
11.6.8 Response to Get-Application-Record-Rq	Table A.4/11, Table A.4/12 Table A.5/1	TP/OBU/AL/RA/BV/03
11.6.9 Response to Read-Appl-Core-Rq	Table A.4/13, Table A.4/14 Table A.5/1	TP/OBU/AL/RA/BV/04, TP/OBU/AL/RA/BV/05, TP/OBU/AL/WA/BV/03, TP/OBU/AL/IC/BI/05, TP/OBU/AL/IC/BI/06

Base standard clause	PICS reference	Test purpose
11.6.10 Response to Write-Appl-Core-Rq	Table A.4/15, Table A.4/16, Table A.5/2	TP/OBU/AL/WA/BV/01, TP/OBU/AL/WA/BV/02, TP/OBU/AL/WA/BV/03, TP/OBU/AL/WA/BV/04, TP/OBU/AL/IC/BI/09
11.6.11 Response to Write-Appl-Core-Conf-Rq	Table A.4/17, Table A.4/18, Table A.5/2	TP/OBU/AL/WA/BV/05, TP/OBU/AL/IC/BI/21
11.6.12 Response to Write-Data-To-External-Rq	Table A.4/19, Table A.4/20, Table A.5/14	TP/OBU/AL/OF/BV/02, TP/OBU/AL/OF/BI/01
11.6.13 Response to Read-Data-From-External-Rq	Table A.4/21, Table A.4/22, Table A.5/14	TP/OBU/AL/OF/BV/02, TP/OBU/AL/OF/BI/01
11.6.14 Response to Read-Appl-Record-Rq	Table A.4/23, Table A.4/24, Table A.5/1	TP/OBU/AL/RA/BV/06, TP/OBU/AL/RA/BV/07, TP/OBU/AL/WA/BV/07, TP/OBU/AL/WA/BV/09, TP/OBU/AL/WA/BV/15, TP/OBU/AL/WA/BV/16, TP/OBU/AL/IC/BI/03
11.6.15 Response to Write-Appl-Record-Curr-Rq	Table A.4/25, Table A.4/26, Table A.5/2	TP/OBU/AL/WA/BV/06, TP/OBU/AL/WA/BV/07, TP/OBU/AL/IC/BI/11
11.6.16 Response to Write-Appl-Record-Curr-Conf-Rq	Table A.4/27, Table A.4/28, Table A.5/2	TP/OBU/AL/WA/BV/08, TP/OBU/AL/WA/BV/09, TP/OBU/AL/WA/BV/10, TP/OBU/AL/IC/BI/13, TP/OBU/AL/IC/BI/14
11.6.17 Response to Write-Appl-Record-Next-Rq	Table A.4/29, Table A.4/30, Table A.5/2	TP/OBU/AL/WA/BV/11, TP/OBU/AL/WA/BV/12, TP/OBU/AL/IC/BI/15, TP/OBU/AL/IC/BI/16
11.6.18 Response to Write-Appl-Record-Next-Conf-Rq	Table A.4/31, Table A.4/32, Table A.5/2	TP/OBU/AL/WA/BV/13, TP/OBU/AL/WA/BV/14, TP/OBU/AL/WA/BV/15, TP/OBU/AL/WA/BV/16,TP/OBU/AL/IC/BI/17, TP/OBU/AL/IC/BI/18
11.6.19 Response to Set-UIF-Rq	Table A.4/33, Table A.4/34	TP/OBU/AL/OF/BV/03
11.6.20 Response to Action-Rq	Table A.4/35, Table A.4/36, Table A.5/14	TP/OBU/AL/OF/BV/01, TP/OBU/AL/OF/BI/01, TP/OBU/AL/IC/BI/13
11.6.21 Response to Set-Password-Rq	Table A.4/37, Table A.4/38 Table A.5/5	TP/OBU/AL/SC/BV/01, TP/OBU/AL/SC/BI/01
11.6.22 Response to Use-Last-Password-Rq	Table A.4/39, Table A.4/40, Table A.5/5	TP/OBU/AL/SC/BV/02
11.6.23 Response to Get-TBA-Random-Rq	Table A.4/41, Table A.4/42, Table A.5/5	TP/OBU/AL/SC/BV/03
11.6.24 Response to Set-Credential-Rq	Table A.4/43, Table A.4/44, Table A.5/5, Table A.5/9, Table A.5/10, Table A.5/11, Table A.5/12	TP/OBU/AL/SC/BV/04, TP/OBU/AL/SC/BV/05, TP/OBU/AL/SC/BI/03, TP/OBU/AL/SC/BV/04
11.6.25 Response to Get-Credential-Rq	Table A.4/45, Table A.4/46, Table A.5/5, Table A.5/9, Table A.5/10, Table A.5/11, Table A.5/12	TP/OBU/AL/SC/BV/06, TP/OBU/AL/SC/BV/07, TP/OBU/AL/SC/BI/05, TP/OBU/AL/SC/BV/06

Base standard clause	PICS reference	Test purpose
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
Annex D (normative): Profile for the European Electronic Fee Collection Service	Table A.2	Test selection according to conditions in the PICS

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 B.9	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.3, Table B.5, Table B.6	All TPs
11.5.2 Open-Rq protocol message	Table B.4/1, Table B.4/2	TP/RSU/AL/KU/BV/01
11.5.3 Close-Rq protocol message	Table B.4/3, Table B.4/4	TP/RSU/AL/KU/BV/01
11.5.4 Select-TBA-Id-Rq protocol message	Table B.4/5, Table B.4/6	TP/RSU/AL/KU/BV/02
11.5.5 Read-Display-Type-Rq protocol message	Table B.4/7, Table B.4/8, Table B.9/1	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.4/9, Table B.4/10, Table B.9/1	TP/RSU/AL/RA/BV/01
11.5.7 Get-Master-Record-Rq protocol message	Table B.4/11, Table B.4/12, Table B.9/1	TP/RSU/AL/RA/BV/02
11.5.8 Read-Appl-Core-Rq protocol message	Table B.4/13, Table B.4/14, Table B.9/1	TP/RSU/AL/RA/BV/03

Base standard clause	PICS reference	Test purpose
11.5.9 Write-Appl-Core-Rq protocol message	Table B.4/15, Table B.4/16, Table B.9/2	TP/RSU/AL/WA/BV/01
11.5.10 Write-Appl-Core-Conf-Rq protocol message	Table B.4/17, Table B.4/18, Table B.5/2	TP/RSU/AL/WA/BV/06
11.5.11 Write-Data-To-External-Rq protocol message	Table B.4/19, Table B.4/20, Table B.9/13	TP/RSU/AL/OF/BV/04, TP/RSU/AL/OF/BV/05
11.5.12 Read-Data-From-External-Rq protocol message	Table B.4/21, Table B.4/22, Table B.9/13	TP/RSU/AL/OF/BV/04, TP/RSU/AL/OF/BV/05
11.5.13 Read-Appl-Record-Rq protocol message	Table B.4/23, Table B.4/24, Table B.9/1	TP/RSU/AL/RA/BV/04
11.5.14 Write-Appl-Record-Curr-Rq protocol message	Table B.4/25, Table B.4/26, Table B.9/2	TP/RSU/AL/WA/BV/02
11.5.15 Write-Appl-Record-Curr-Conf-Rq protocol message	Table B.4/27, Table B.4/28, Table B.9/2	TP/RSU/AL/WA/BV/04
11.5.16 Write-Appl-Record-Next-Rq protocol message	Table B.4/29, Table B.4/30, Table B.9/2	TP/RSU/AL/WA/BV/03
11.5.17 Write-Appl-Record-Next-Conf-Rq protocol message	Table B.4/31, Table B.4/32, Table B.9/2	TP/RSU/AL/WA/BV/05
11.5.18 Set-UIF-Rq protocol message	Table B.4/33, Table B.4/34	TP/RSU/AL/OF/BV/06
11.5.19 Action-Rq protocol message	Table B.4/35, Table B.4/36, Table B.9/13	TP/RSU/AL/OF/BV/04, TP/RSU/AL/OF/BV/05
11.5.20 Set-Password-Rq protocol message	Table B.4/37, Table B.4/38 Table B.9/5	TP/RSU/SC/BV/01
11.5.21 Use-Last-Password-Rq protocol message	Table B.4/39, Table B.4/40, Table B.9/5	TP/RSU/SC/BV/02
11.5.22 Get-TBA-Random-Rq protocol message	Table B.4/41, Table B.4/42, Table B.9/5	TP/RSU/SC/BV/03
11.5.23 Set-Credential-Rq protocol message	Table B.4/43, Table B.4/44, Table B.9/5, Table B.9/8, Table B.9/9, Table B.9/10, Table B.9/11	TP/RSU/SC/BV/04
11.5.24 Get-Credential-Rq protocol message	Table B.4/45, Table B.4/46, Table B.9/5, Table B.9/8, Table B.9/9, Table B.9/10, Table B.9/11	TP/RSU/SC/BV/05

Base standard clause	PICS reference	Test purpose
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.4/1, Table B.4/2	TP/RSU/AL/KU/BV/01
11.6.4 Response to Close-Rq	Table B.4/3, Table B.4/4	TP/RSU/AL/KU/BV/01
11.6.5 Response to Select-TBA-Id-Rq	Table B.4/5, Table B.4/6	TP/RSU/AL/KU/BV/02
11.6.6 Response to Read-Display-Type-Rq	Table B.4/7, Table B.4/8, Table B.9/1	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.4/9, Table B.4/10, Table B.9/1	TP/RSU/AL/RA/BV/01
11.6.8 Response to Get-Master-Record-Rq	Table B.4/11, Table B.4/12 Table B.9/1	TP/RSU/AL/RA/BV/02
11.6.9 Response to Read-Appl-Core-Rq	Table B.4/13, Table B.4/14, Table B.9/1	TP/RSU/AL/RA/BV/03
11.6.10 Response to Write-Appl-Core-Rq	Table B.4/15, Table B.4/16 Table B.9/2	TP/RSU/AL/WA/BV/01
11.6.11 Response to Write-Appl-Core-Conf-Rq	Table B.4/17, Table B.4/18, Table B.5/2	TP/RSU/AL/WA/BV/06
11.6.12 Response to Write-Data-To-External-Rq	Table B.4/19, Table B.4/20, Table B.9/13	TP/RSU/AL/OF/BV/04, TP/RSU/AL/OF/BV/05
11.6.13 Response to Read-Data-From-External-Rq	Table B.4/21, Table B.4/22, Table B.9/13	TP/RSU/AL/OF/BV/04, TP/RSU/AL/OF/BV/05
11.6.14 Response to Read-Appl-Record-Rq	Table B.4/23, Table B.4/24, Table B.9/1	TP/RSU/AL/RA/BV/04
11.6.15 Response to Write-Appl-Record-Curr-Rq	Table B.4/25, Table B.4/26, Table B.9/2	TP/RSU/AL/WA/BV/02
11.6.16 Response to Write-Appl-Record-Curr-Conf-Rq	Table B.4/27, Table B.4/28, Table B.9/2	TP/RSU/AL/WA/BV/04
11.6.17 Response to Write-Appl-Record-Next-Rq	Table B.4/29, Table B.4/30, Table B.9/2	TP/RSU/AL/WA/BV/03
11.6.18 Response to Write-Appl-Record-Next-Conf-Rq	Table B.4/31, Table B.4/32, Table B.9/2	TP/RSU/AL/WA/BV/05
11.16.19 Response to Set-UIF-Rq	Table B.4/33, Table B.4/34	TP/RSU/AL/OF/BV/06
11.6.20 Response to Action-Rq	Table B.4/35, Table B.4/36, Table B.9/13	TP/RSU/AL/OF/BV/04, TP/RSU/AL/OF/BV/05
11.6.21 Response to Set-Password-Rq	Table B.4/37, Table B.4/38, Table B.9/5	TP/RSU/SC/BV/01
11.6.22 Response to Use-Last-Password-Rq	Table B.4/39, Table B.4/40, Table B.9/5	TP/RSU/SC/BV/02
11.6.22 Response to Get-TBA-Random-Rq	Table B.4/41, Table B.4/42, Table B.9/5	TP/RSU/SC/BV/03

Base standard clause	PICS reference	Test purpose
11.6.23 Response to Set-Credential-Rq	Table B.4/43, Table B.4/44, Table B.9/5, Table B.9/8, Table B.9/9, Table B.9/10, Table B.9/11	TP/RSU/SC/BV/04
11.6.24 Response to Get-Credential-Rq	Table B.4/45, Table B.4/46, Table B.9/5, Table B.9/8, Table B.9/9, Table B.9/10, Table B.9/11	TP/RSU/SC/BV/05
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
Annex D (normative): Profile for the European Electronic Fee Collection Service	Table B.2	Test selection according to conditions in the PICS

History

Document history		
V1.1.1	March 2010	Publication
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