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TECHNICAL SPECIFICATION

**Smart Cards;
Test specification for the Host Controller Interface (HCI);
Part 3: Host Controller features
(Release 13)**

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3 or greater indicates TC SCP approved document under change control.

y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.

z the third digit is incremented when editorial only changes have been incorporated in the document.

The present document is part 3 of a multi-part deliverable covering the Test specification for the Host Controller Interface (HCI), as identified below:

Part 1: "Terminal features";

Part 2: "UICC features";

Part 3: "Host Controller features".

Modal verbs terminology

In the present document "**shall**", "**shall not**", "**should**", "**should not**", "**may**", "**need not**", "**will**", "**will not**", "**can**" and "**cannot**" are to be interpreted as described in clause 3.2 of the ETSI Drafting Rules (Verbal forms for the expression of provisions).

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Introduction

The present document defines test cases for the terminal relating to the Host Controller Interface (HCI) as specified in ETSI TS 102 622 [1].

The aim of the present document is to ensure interoperability between the terminal and the UICC independently of the respective manufacturer, card issuer or operator.

1　Scope

The present document covers additional test cases for the Host Controller to those specified in ETSI TS 102 695-1 [10].

The present document specifies the test cases for:

- the HCI core as described in the first part of ETSI TS 102 622 [1];

- the contactless platform as described in the second part of ETSI TS 102 622 [1].

Test cases for the UICC and terminal relating to ETSI TS 102 622 [1] and test cases for the Single Wire Protocol (SWP) covering both terminal and UICC are out of scope of the present document.

2　References

2.1　Normative 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 referenced document (including any amendments) applies.

- In the case of a reference to a TC SCP document, a non-specific reference implicitly refers to the latest version of that document in the same Release as the present document.

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.

The following referenced documents are necessary for the application of the present document.

[1]　ETSI TS 102 622: "Smart Cards; UICC - Contactless Front-end (CLF) Interface; Host Controller Interface (HCI)".

[2]　ETSI TS 102 613: "Smart Cards; UICC - Contactless Front-end (CLF) Interface; Part 1: Physical and data link layer characteristics".

[3]　ETSI TS 102 223: "Smart Cards; Card Application Toolkit (CAT)".

[4]　ISO/IEC 18092: "Information technology -- Telecommunications and information exchange between systems -- Near Field Communication -- Interface and Protocol (NFCIP-1)".

[5]　ISO/IEC 14443-2: "Identification cards -- Contactless integrated circuit(s) cards -- Proximity cards -- Part 2: Radio frequency power and signal interface".

[6]　ISO/IEC 14443-3: "Cards and security devices for personal identification -- Contactless proximity objects -- Part 3: Initialization and anticollision".

[7]　ISO/IEC 14443-4: "Cards and security devices for personal identification -- Contactless proximity objects -- Part 4: Transmission protocol".

[8]　ISO/IEC 7816-4: "Information technology -- Identification cards -- Part 4: Organization, security and commands for interchange".

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

[10]　ETSI TS 102 695-1: "Smart Cards; Test specification for the Host Controller Interface (HCI); Part 1: Terminal features".

[11]　ETSI TS 102 221: "Smart Cards; UICC-Terminal interface; Physical and logical characteristics".

[12]   ISO/IEC 7816-3: "Identification cards -- Integrated circuit cards -- Part 3: Cards with contacts -- Electrical interface and transmission protocols".

2.2   Informative 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 referenced document (including any amendments) applies.

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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   Definition of terms, symbols, abbreviations and formats

3.1   Terms

For the purposes of the present document, the terms given in ETSI TS 102 622 [1] and the following apply:

allowed error response code: response code which is not ANY_OK and which is allowed for the referenced command as specified in ETSI TS 102 622 [1]

non-occurrence RQ: RQ which has been extracted from ETSI TS 102 622 [1], but which indicates a situation which should never occur

NOTE: The consequence is that such RQs cannot be explicitly tested.

user: any logical or physical entity which controls the test equipment in a way that it is able to trigger activities of the DUT

3.2   Symbols

For the purposes of the present document, the symbols given in ETSI TS 102 622 [1] and the following apply:

PIPE0   the static pipe connected to the link management gate of the device under test.
PIPE1   the static pipe connected to the administration gate of the device under test.

3.3   Abbreviations

For the purposes of the present document, the abbreviations given in ETSI TS 102 622 [1] and the following apply:

AC   Alternating Current
DUT   Device Under Test
FFS   For Further Study
HCUT   Host Controller Under Test
HS   Host Simulator
ICRx   Initial Condition Requirement (where x is a number)

NOTE: As used in the applicability table; see clauses 4.2 and 4.5.2.

NAA   Network Access Application
PCD   Proximity Coupling Device

PICC	Proximity Card
RFU	Reserved for Future Use
RO	Read-Only
RQ	Conformance requirement
RW	Read-Write
SRx	Static requirement (where x is a number)

NOTE: As used in the applicability table; see clauses 4.2 and 4.5.2.

TRx	Trigger Requirement (where x is a number)

NOTE: As used in the applicability table; see clauses 4.2 and 4.5.2.

WO	Write-Only

3.4 Formats

3.4.1 Format of the table of optional features

The columns in table 4.1 have the following meaning.

Column	Meaning
Option	The optional feature supported or not by the DUT.
Status	See clause 3.4.3.
Support	The support columns are to be filled in by the supplier of the implementation. The following common notations, defined in ISO/IEC 9646-7 [9], are used for the support column in table 4.1. Y or y supported by the implementation. N or n not supported by the implementation. N/A, n/a or - no answer required (allowed only if the status is N/A, directly or after evaluation of a conditional status).
Mnemonic	The mnemonic column contains mnemonic identifiers for each item.

3.4.2 Format of the applicability table

The applicability of every test in table 4.2 is formally expressed by the use of Boolean expression defined in the following clause.

The columns in table 4.2 have the following meaning.

Column	Meaning
Clause	The "Clause" column identifies the clause containing the test case referenced in the "Test case number and description" column.
Test case number and description	The "Test case number and description" column gives a reference to the test case number (along with the corresponding description) detailed in the present document and required to validate the DUT.
Release	The "Release" column gives the Release applicable and onwards, for the corresponding test case.
Execution requirements	The usage of the "Execution requirements" column is described in clause 4.5.2.
Rel-x Terminal	For a given Release, the corresponding "Rel-x " column lists the tests required for a DUT to be declared compliant to this Release.
Support	The "Support" column is blank in the proforma, and is to be completed by the manufacturer in respect of each particular requirement to indicate the choices, which have been made in the implementation.

3.4.3 Status and Notations

The "Rel-x" columns show the status of the entries as follows:

The following notations, defined in ISO/IEC 9646-7 [9], are used for the status column:

M	mandatory - the capability is required to be supported.

O   optional - the capability may be supported or not.

N/A   not applicable - in the given context, it is impossible to use the capability.

X   prohibited (excluded) - there is a requirement not to use this capability in the given context.

O.i   qualified optional - for mutually exclusive or selectable options from a set. "i" is an integer which identifies an unique group of related optional items and the logic of their selection which is defined immediately following the table.

Ci   conditional - the requirement on the capability ("M", "O", "X" or "N/A") depends on the support of other optional or conditional items. "i" is an integer identifying an unique conditional status expression which is defined immediately following the table. For nested conditional expressions, the syntax "IF ... THEN (IF ... THEN ... ELSE...) ELSE ..." is to be used to avoid ambiguities.

References to items

For each possible item answer (answer in the support column) there exists a unique reference, used, for example, in the conditional expressions. It is defined as the table identifier, followed by a solidus character "/", followed by the item number in the table. If there is more than one support column in a table, the columns are to be discriminated by letters (a, b, etc.), respectively.

EXAMPLE: 4.1/4 is the reference to the answer of item 4 in table 4.1.

3.4.4   Format of the conformance requirements tables

The conformance requirements tables contained in the present document have the following format and meaning:

Column Status	Meaning
Mandatory	This mandatory column contains the conformance requirement number (e.g. RQ3).
Optional	This optional column is present when the containing clause sources conformance requirements from multiple clauses in the core specification. In this case, the cells in this column indicate the specific clause from the core specification from which the conformance requirement was sourced. If the conformance requirements are sourced from a single clause in the core specification, this column is not present.
Optional	This optional column is present when the table contains conformance requirements which are applicable to only a subset of the releases which are covered by the present document. In this case, the content of the cells indicates the release(s) to which the conformance requirement is applicable. Additionally, a cell being empty indicates that the conformance requirement is applicable to every release which is covered by the present document. Examples of the content of cells in this column are given below: {table below} The absence of this column indicates that all conformance requirements are applicable to every release which is covered by the present document.
Mandatory	This mandatory column contains the text of the conformance requirement.

Sample Content	Applicability of conformance requirement
	All releases covered by the present document.
Rel-7 to Rel-8	Rel-7 to Rel-8 only.
Rel-9 upwards	Rel-9 up to the latest release which is covered by the present document.
Rel-7	Rel-7 only.

4 Test environment

4.1 Table of optional features

The device supplier shall state the support of possible options in table 4.1. See clause 3.4 for the format of table 4.1.

Table 4.1: Options

Item	Option	Status	Support	Mnemonic
1	Data link layer specified in ETSI TS 102 613 [2] is used.	O		O_102_613
2	ANY_OPEN_PIPE command transmission is implemented in the terminal.	O		O_OPEN_PIPE
3	ANY_CLOSE_PIPE command transmission is implemented in the terminal.	O		O_CLOSE_PIPE
4	ADM_CREATE_PIPE command transmission is implemented in the terminal.	O		O_CREATE_PIPE
5	ADM_NOTIFY_ALL_PIPE_CLEARED command transmission is implemented in the terminal, with the host controller as the requesting host.	O		O_NTF_PIPE_CL_HC
6	Card RF gate for technology A is supported.	O		O_CE_TypeA
7	Card RF gate for technology B is supported.	O		O_CE_TypeB
8	Card RF gate for technology F is supported.	O		O_CE_TypeF
9	CLT for Type A as specified in ETSI TS 102 613 [2] is supported, see note.	O		O_CE_CLT_TypeA
10	Client APDU host is supported	O		O_APDU_Client
NOTE: If item 9 is supported, then items 1 and 6 shall also be supported.				

4.2 Applicability table

Tables 4.2 specifies the applicability of each test case to the device under test. See clause 3.4 for the format of tables 4.2.

Clause 4.5.2 should be referenced for usage of the execution requirements which are referenced in table 4.2 a) and described in table 4.2 c).

Table 4.2 a): Applicability of tests

Clause	Test case number and description	Release	Execution requirements	Rel-7	Rel-8	Rel-9	Rel-10	Rel-11	Rel-12	Rel-13	Support
5.3.1.2.1.2	Test case 1: ANY_SET_PARAMETER reception - invalid structure	Rel-7		M	M	M	M	M	M	M	
5.3.1.2.1.3	Test case 2: ANY_SET_PARAMETER reception - RO registry parameter	Rel-7		M	M	M	M	M	M	M	
5.3.1.2.2.2	Test case 1: ANY_GET_PARAMETER reception - invalid structure	Rel-7		M	M	M	M	M	M	M	
5.3.1.2.2.3	Test case 2: ANY_GET_PARAMETER reception - WO registry parameter	Rel-7	SR1	M	M	M	M	M	M	M	
5.3.1.2.3.2	Test case 1: ANY_OPEN_PIPE transmission	Rel-7	TR1	C102	C102	C102	C102	C102	C102	C102	
5.3.1.2.4.2	Test case 1: ANY_CLOSE_PIPE transmission	Rel-7	TR2	C103	C103	C103	C103	C103	C103	C103	
5.3.2.2	Test case 1: responses received out of order, previous command sent by host	Rel-7		M	M	M	M	M	M	M	
5.3.2.3	Test case 2: responses received out of order, previous command sent by host controller	Rel-7	TR1	C102	C102	C102	C102	C102	C102	C102	
5.4.2.2.1.2	Test case 1: REC_ERROR	Rel-7	ICR1	M	M	M	M	M	M	M	
5.4.2.2.2.2	Test case 1: REC_ERROR	Rel-7	TR3	M	M	M	M	M	M	M	
5.4.2.3.1.2	Test case 1: registry parameters - optional registries	Rel-7		O	O	O	O	O	O	O	
5.5.1.1.2	Test case 1: valid pipe creation from host simulator to another host	Rel-7	SR2	M	M	M	M	M	M	M	
5.5.1.1.3	Test case 2: pipe creation from host simulator to another host, host simulator not in other host's WHITELIST	Rel-7	SR3	M	M	M	M	M	M	M	
5.5.1.1.4	Test case 3: pipe creation from host simulator to another host, other host rejects pipe creation	Rel-7	SR4	M	M	M	M	M	M	M	
5.5.1.1.5	Test case 4: valid pipe creation from host controller to host simulator	Rel-7	TR4	C104	C104	C104	C104	C104	C104	C104	
5.5.1.1.6	Test case 5: pipe creation from host simulator to host controller, pipe not supported by host controller	Rel-7	SR5	M	M	M	M	M	M	M	
5.5.1.2.2	Test case 1: valid pipe deletion from host simulator to another host	Rel-7	SR2	M	M	M	M	M	M	M	
5.5.1.3.2	Test case 1: clear all pipes from host controller - static pipes, dynamic pipes to host	Rel-7	TR5	C105	C105	C105	C105	C105	C105	C105	
5.5.5.2	Test case 1: pipe creation	Rel-7		M	M	M	M	M	M	M	
5.6.3.3.4.2.2	Test case 1: MODE parameter	Rel-7		C106	C106	C106	C106	C106	C106	C106	
5.6.3.3.4.2.3	Test case 2: UID_REG - verify parameter	Rel-7		C106	C106	C106	C106	C106	C106	C106	
5.6.3.3.4.2.4	Test case 3: FWI, SFGI	Rel-7		C106	C106	C106	C106	C106	C106	C106	
5.6.3.3.4.3.2	MODE parameter	Rel-7		C107	C107	C107	C107	C107	C107	C107	
5.6.3.3.4.5.2	Test case 1: MODE parameter	Rel-7		C108	C108	C108	C108	C108	C108	C108	
5.6.3.3.4.5.3	Test case 2: CLT_SUPPORT and SPEED_CAP - verify parameter	Rel-7		C108	C108	C108	C108	C108	C108	C108	
5.6.4.4.2	Test case 1: NFCIP-1 command is not forwarded to UICC	Rel-9		N/A	N/A	C108	C108	C108	C108	C108	

Clause	Test case number and description	Release	Execution requirements	Rel-7	Rel-8	Rel-9	Rel-10	Rel-11	Rel-12	Rel-13	Support
5.9.2.3.2	Test case 1: initial activation of APDU gate – Client APDU host	Rel-12	TR6	N/A	N/A	N/A	N/A	N/A	C109	C109	
5.9.2.3.3	Test case 2: APDU command processing exceeds the maximum waiting time	Rel-12	TR6	N/A	N/A	N/A	N/A	N/A	C109	C109	

Table 4.2 b): Conditional items referenced by table 4.2 a)

Conditional item	Condition	Description
C101	IF 4.1/1 THEN M ELSE N/A	O_102_613
C102	IF 4.1/2 THEN M ELSE N/A	O_OPEN_PIPE
C103	IF 4.1/3 THEN M ELSE N/A	O_CLOSE_PIPE
C104	IF 4.1/4 THEN M ELSE N/A	O_CREATE_PIPE
C105	IF 4.1/5 THEN M ELSE N/A	O_NTF_PIPE_CL_HC
C106	IF 4.1/6 THEN M ELSE N/A	O_CE_TypeA
C107	IF 4.1/7 THEN M ELSE N/A	O_CE_TypeB
C108	IF 4.1/8 THEN M ELSE N/A	O_CE_TypeF
C109	IF 4.1/10 THEN M ELSE N/A	O_APDU_Client

Table 4.2 c): Execution requirements referenced by table 4.2 a)

Execution requirement	Description
SR1	A gate in the host controller which contains at least one WO registry parameter.
SR2	Another host exists, with which the host simulator can communicate (i.e. host simulator is in the WHITELIST).
SR3	Another host exists, with which the host simulator cannot communicate (i.e. host simulator is not in the WHITELIST).
SR4	Another host exists, with which the host simulator can communicate (i.e. host simulator is in the WHITELIST). A valid G_{ID} exists, which is not contained in the GATES_LIST of the host.
SR5	A G_{ID} exists for which the host controller does not support pipe creation.
TR1	Trigger the host controller to open PIPE_ID_MAN.
TR2	Trigger the host controller to close PIPE_ID_MAN.
TR3	Trigger the host controller to write a value of REC_ERROR into the registry of the host simulator's link management gate in order to restart an error rate measure.
TR4	Trigger the host controller to send ADM_CREATE_PIPE to the host simulator.
TR5	Trigger the host controller to send ADM_NOTIFY_ALL_PIPE_CLEARED to the host simulator, with the host controller as the requesting host.
TR6	The DUT manufacturer has to provide information how the APDU gate can be configured as "client APDU host" to exchange commands with "Server APDU host" in the host simulator, where the host simulator is acting as the UICC.
ICR1	The last value of REC_ERROR in the host's registry for PIPE0 is not '0000' (TBC).
NOTE:	Clause 4.5.2 should be referenced for the meaning and usage of the execution requirements which are described in this table.

4.3   Information to be provided by the device supplier

The device supplier shall provide the information indicated in table 4.3.

Table 4.3: Default configuration

Item	Description	Presence/Value	Status	Mnemonic
1	Indication of presence of VERSION_SW, and value if supported.		M	V_VERSION_SW
2	Indication of presence of VERSION_HARD, and value if supported.		M	V_VERSION_HARD
3	Indication of presence of VENDOR_NAME, and value if supported.		M	V_VENDOR_NAME
4	Indication of presence of MODEL_ID, and value if supported.		M	V_MODEL_ID
5	Void.			
6	Void.			
7	Void.			
8	Void.			
NOTE:	Conditional values shall be provided if the corresponding option is supported in the table 4.1.			

4.4   Test equipment

4.4.0   Base Requirements

The test equipment shall provide a host simulator which is connected to the DUT during test procedure execution, unless otherwise specified.

With respect to the DUT, the host simulator shall act as a valid host according to ETSI TS 102 622 [1] unless otherwise specified. In particular, the host simulator shall ensure that the value GATES_LIST is valid, according to the particular requirements of the test case being executed.

With respect to the DUT, the host simulator shall comprise a valid host according to the specific DUT. The details are out of the scope of the present document.

For some test cases, usage of a PCD is required. The detailed requirements are specified in the individual test cases.

The test equipment shall ensure that a matching SYNC_ID is used during test case execution, unless otherwise specified.

Some terminals might require the presence of an NAA (e.g. (U)SIM), which shall be provided by the test equipment.

> NOTE: The implementation of the terminal may imply certain activities or settings on the HCI layer. This should be taken into account when testing the HCI interface (e.g. PIPE state should be checked, activity after initialization, already open pipes, etc.).

With respect to the DUT, the host simulator shall act as a valid host according to ETSI TS 102 622 [1] unless otherwise specified. In particular, the host simulator shall ensure before running a test case that all static pipes are closed, all dynamic pipes are deleted and the registry values are set to their defaults by running the sequence in table 4.4.

Table 4.4: HCI test case initialization sequence

Step	Direction	Description
a1	HS → HCUT	Send ANY_OPEN_PIPE on PIPE1.
a2	HCUT → HS	Send ANY_OK.
a3	HS → HCUT	Send ADM_CLEAR_ALL_PIPE on PIPE1 with parameter. ('FF FF').
a4	HCUT → HS	Send ANY_OK.

With respect to the DUT, the host simulator shall act as a valid host according to ETSI TS 102 622 [1] unless otherwise specified. In particular, before running a test case which is only applicable from Release 12 onwards, the host simulator shall ensure that HCI_VERSION in the Identity Management gate is set to '02' and shall set the HOST_TYPE in the Host Controller administration gate to '02 00'.

Before the execution of the RF technology test cases, RF gate parameters has to be modified properly to run the test.

4.4.1   Measurement / setting uncertainties

Void.

4.4.2   Default conditions for DUT operation

4.4.2.1   General

Unless otherwise specified, the following applies during test procedure execution.

The test equipment shall attempt to ensure that the identity check mechanism of the lower layer passes (see ETSI TS 102 622 [1], clause 8.4).

If the test procedure indicates that the host simulator is to send ANY_OK in response to an ANY_OPEN_PIPE command, the parameter shall contain the number of pipes already open on the gate before the execution of the command.

4.4.2.2   Status of UICC interfaces

Void.

4.4.3   Minimum/maximum conditions for DUT operation

Void.

4.4.4   Conventions

Unless otherwise specified, ADM_CREATE_PIPE is sent by the test equipment with source $H_{ID} = H_{ID}$ of host simulator and destination $H_{ID} = H_{ID}$ of host controller.

If the pipe for a response is not explicitly specified, then the pipe for the response is required to be the pipe on which the preceding command was sent.

4.5   Test execution

4.5.1   Parameter variations

Unless otherwise specified, all test cases shall be carried out in full power mode only, and for the parameter variations specified individually for each test case.

4.5.2   Execution requirements

Table 4.2, Applicability of tests, specifies "execution requirements" for several test cases. For these test cases, it has not been possible to specify the corresponding test procedure in such a way that it can be guaranteed that the test procedure can be executed against every possible DUT.

Some sample scenarios of test requirements are listed below:

- The test case requires certain state to be present on the DUT in order to test a particular feature, but there is no mandatory requirement in the core specification (ETSI TS 102 622 [1]) for this state to be present.

- The test case requires the DUT to perform a particular operation in order to test that feature, but the core specification (ETSI TS 102 622 [1]) does not provide a standardized mechanism to trigger that operation to be executed by the DUT.

The test requirements have been split into various categories, as indicated by table 4.2 c):

- Static requirements (SRx): information about, for example, particular gates or registry parameters which can be used in the test procedure execution.

- Trigger requirements (TRx): mechanisms for triggering the DUT to perform certain operations.

- Initial condition requirements (ICRx): information about how to establish initial condition states.

The DUT supplier should make every effort to provide appropriate information or mechanisms to allow these execution requirements to be satisfied for the DUT.

It is recognized that this might not always be possible. For example, if the configuration of the DUT does not allow for the required state to be present; or if it is not possible to provide a particular trigger mechanism for the DUT. In these cases, it is acceptable that the test case is not carried out. However, it should be recognized that the consequence is that the particular feature will not be tested.

4.6 Pass criterion

4.6.0 Principle

A test shall only be considered as successful, if the test procedure was carried out successfully under all parameter variations with the DUT respecting all conformance requirements referenced in the test procedure. This is subject to the additional qualifications described in clause 4.6.1.

NOTE: Within the test procedures, the RQs are referenced in the step where they are observable. In some cases, this is different from the step where they occur with respect to the DUT.

4.6.1 Unanticipated behaviour from the DUT

In the specification of the test procedures, every attempt has been made to ensure that the interface between the simulator and the DUT is in a known state before and during test procedure execution. However, as the DUT is an autonomous device, it is not possible to fully guarantee this.

If the DUT unexpectedly closes or deletes a pipe which is intended to be used during a subsequent part of the test procedure, this should not be considered as a failure of the DUT, even though the test procedure cannot be completed successfully. Instead, the test procedure should be executed again to attempt to execute the test procedure to completion. If the unexpected behaviour occurs again, further effort should be applied by the tester to attempt to ensure that the unexpected behaviour does not occur.

5 Test cases

5.1 HCI architecture

5.1.1 Overview

Reference: ETSI TS 102 622 [1], clause 4.1.

There are no conformance requirements for the terminal for the referenced clause.

5.1.2 Hosts

Reference: ETSI TS 102 622 [1], clause 4.2.

RQ4.1		The host controller shall not use host identifiers which are RFU.
RQ4.2		The host controller shall reject received host identifiers which are RFU.
RQ4.28	Rel-12 upwards	The dynamically allocated range of values shall be used by the host controller to assign a host identifier to any host not identified in Table 1.
RQ4.29	Rel-12 upwards	The host controller shall always assign the same H_{ID} to a given host throughout different sessions as long as there is no modification in the hardware configuration of the device.
RQ4.30	Rel-12 upwards	The host controller shall assign the H_{ID} value '02' to the first UICC detected, with priority to pre-release 12 UICC. Others UICCs if present will use dynamically allocated H_{ID} values.
RQ4.31	Rel-12 upwards	In case of several pre-release 12 UICC, the host controller shall assign H_{ID} '02' only to the first one, the others will be dynamically assigned.
NOTE 1:	RQ4.1 is a non-occurrence RQ.	
NOTE 2:	Development of test cases for RQ4.2, RQ4.28, RQ4.29, RQ4.30 and RQ4.31 is FFS.	

5.1.3 Gates

5.1.3.1 Conformance requirements

Reference: ETSI TS 102 622 [1], clause 4.3.

RQ4.3	The host controller shall have one administration gate.
RQ4.4	The host controller shall have one link management gate.
RQ4.5	The host controller shall have one identity management gate.
RQ4.6	The host controller shall have one loop back gate.
RQ4.7	The host controller shall not use gate identifiers which are RFU.
RQ4.8	Void.
RQ4.9	The host controller shall not use gate identifiers which are host specific but not yet allocated in ETSI TS 102 622 [1].
RQ4.10	Void.
NOTE:	RQ4.7 and RQ4.9 are not tested, as they are non-occurrence RQs.

5.1.4 Pipes

5.1.4.1 Conformance requirements

Reference: ETSI TS 102 622 [1], clause 4.4.

RQ4.11	The host controller shall not attempt to delete a static pipe.
RQ4.12	The host controller shall reject any attempts to delete a static pipe.
RQ4.13	The state of a pipe (i.e. open or closed) shall remain persistent if the hosts are powered down and up again.
RQ4.14	The state of a dynamic pipe after creation shall be closed.
RQ4.15	The initial state of a static pipe shall be closed.
RQ4.16	The host controller shall not use pipe identifiers which are RFU.
RQ4.17	The state of a pipe shall remain persistent if a host is temporarily removed from the host network and was not replaced by a different device in the meantime.
RQ4.18	For dynamic pipes, pipe identifiers are dynamically allocated by the host controller.
RQ4.19	All pipe identifiers allocated by the host controller for dynamic pipes shall be in the range '02' to '6F'.
RQ4.20	Dynamic pipe identifiers shall be unique in the host network.
NOTE 1:	RQ4.11 and RQ4.16 are not tested, as they are non-occurrence RQs.
NOTE 2:	RQ4.15 is not tested, as it is not clear when the initial state of the static pipe applies.
NOTE 3:	RQ4.18 is covered in clause 8.1.1 of ETSI TS 102 622 [1], covered by clause 5.5.1.1 of the present document. This RQ is therefore not tested within this clause, as it is effectively tested in clause 5.5.1.1.
NOTE 4:	RQ4.19 and RQ4.20 are tested implicitly in different test cases in this test specification.

Reference: ETSI TS 102 622 [1], clauses 7.1.1.1.

RQ7.2	The registry of the host controller administration gate shall be persistent.

Reference: ETSI TS 102 622 [1], clauses 8.1.1, 6.1.3.1 and 6.1.3.2.

RQ8.3	The host controller assigns an unused pipe identifier.
RQ6.30	When the pipe was successfully created, the host controller shall send the response ANY_OK in response to the ADM_CREATE_PIPE command, with parameters as specified in ETSI TS 102 622 [1].
RQ8.7	When a pipe is created towards the host controller then only steps 1 and 4 in figure 6 of ETSI TS 102 622 [1] are needed.

5.1.5   Registries

5.1.5.1   Conformance requirements

Reference: ETSI TS 102 622 [1], clause 4.5.

RQ4.21	For all gates defined in ETSI TS 102 622 [1], parameter identifiers in the range of '00' to 'EF' are reserved for use in ETSI TS 102 622 [1].
RQ4.22	A new instance of the registry is created for every pipe that connects to the gate.
RQ4.23	Upon pipe creation all registry parameters with access rights Read-write (RW) or Write-only (WO) shall be set to their default values.
RQ4.24	Upon pipe creation all read-only (RO) parameters shall be set by the entity managing the registry to an appropriate value which may differ from the default values.
RQ4.25	When a pipe is deleted its registry instance is also deleted.
RQ4.26	Registry parameters which are in the range of '00' to 'EF' but which are not allocated in ETSI TS 102 622 [1] shall not be present in the registry.
NOTE 1:	As the specification of registry parameters is specific to each individual registry, RQ4.21, RQ4.23 and RQ4.24 are not tested in this clause, but are tested in other clauses of the present document for each individual registry.
NOTE 2:	RQ4.22 is not currently tested as ETSI TS 102 622 [1] does not specify any gates with the required properties to exercise this functionality.
NOTE 3:	Development of test cases for RQ4.26 is FFS.

5.2   HCP

5.2.1   HCP packets

5.2.1.1   Conformance requirements

Reference: ETSI TS 102 622 [1], clause 5.1.

RQ5.1	The host controller shall use the correct structure for transmitted HCP packets.
RQ5.2	The host controller shall recognize correctly structured received HCP packets.
RQ5.3	When receiving a packet, the host controller as destination host forwards the packet to the destination gate.
RQ5.4	When it receives a packet from a host, the host controller uses the value of P_{ID} to forward a packet to the destination host.
RQ5.5	When it receives a packet from a host, the host controller shall verify that the pipe identifier is used by a host involved in the creation of the pipe.
NOTE 1:	RQ5.1 and RQ5.2 are implicitly tested by the testing of higher layers in other clauses of the present document.
NOTE 2:	RQ5.3 is internal to the host controller and is not tested in this clause. It will be implicitly tested in many other test cases within the present document.
NOTE 3:	RQ5.4 and RQ5.5 are tested in clause 5.5.1.1.2 of the present document.

5.2.2 HCP message structure

5.2.2.1 Conformance requirements

Reference: ETSI TS 102 622 [1], clause 5.2.

RQ5.6	The host controller shall use the correct structure for transmitted HCP messages.
RQ5.7	Type value 3 shall not be used.
RQ5.8	The host controller shall recognize correctly structured received HCP messages.
RQ5.9	A gate shall only accept a command or an event on a pipe when the state of that pipe is open unless otherwise stated.
RQ5.10	A gate shall not send a command or event on a pipe when it is waiting for a response to a previous command on that pipe unless otherwise stated.
NOTE 1:	RQ5.6 and RQ5.8 are implicitly tested by the testing of higher layers in other clauses of the present document.
NOTE 2:	RQ5.7 and RQ5.10 are not tested, as they are non-occurrence RQs.

5.2.3 Message fragmentation

5.2.3.1 Conformance requirements

Reference: ETSI TS 102 622 [1], clause 5.3.

RQ5.11	Message fragmentation shall be used when the size of the message is larger than supported by the underlying data link layer.
RQ5.12	Messages shall be fragmented according to the rules specified in ETSI TS 102 622 [1].
RQ5.13	The destination gate is responsible for rebuilding the message from the fragmented messages.
RQ5.14	If a reset of the underlying data link layer occurs, fragments of a partially received message shall be discarded and a partially sent message shall be re-sent from the beginning.
NOTE:	Development of test cases for RQ5.11, RQ5.12, RQ5.13 and RQ5.14 is FFS.

5.3 Instructions

5.3.1 Commands

5.3.1.1 Overview

5.3.1.1.1 Conformance requirements

Reference: ETSI TS 102 622 [1], clause 6.1.1.

RQ6.1	For all gates, the host controller shall not use RFU instruction values ('05' to '0F') in commands.
RQ6.2	For administration gates, the host controller shall not use RFU instruction values ('16' to '3F') in commands.
RQ6.3	For gates defined in ETSI TS 102 622 [1], the host controller shall not use instruction values between '10' and '3F' which are not allocated in ETSI TS 102 622 [1].
NOTE:	RQ6.1, RQ6.2 and RQ6.3 are not tested, as they are non-occurrence RQs.

5.3.1.2 Generic commands

5.3.1.2.1 ANY_SET_PARAMETER

5.3.1.2.1.1 Conformance requirements

Reference: ETSI TS 102 622 [1], clause 6.1.2.1.

RQ6.4	The host controller shall reject an incorrectly formatted ANY_SET_PARAMETER command with an allowed error response code.
RQ6.5	The host controller shall reject an ANY_SET_PARAMETER command if the access right for the parameter does not allowed writing (i.e. is not RW or WO).
RQ6.6	The host controller shall not send an ANY_SET_PARAMETER command if the access right for the parameter does not allow writing (i.e. is not RW or WO).
RQ6.7	When the host controller receives a valid ANY_SET_PARAMETER command, it shall write the parameter value into the registry and respond with ANY_OK without any parameters.
RQ6.8	Whenever the host controller sends an ANY_SET_PARAMETER command, it shall do so correctly: • It shall only be sent to a gate which supports the command. • It shall always have at least one byte in the command parameters. • The parameter identifier shall match one of those defined for the specific gate. • The parameter value shall be a valid value as defined for the specific gate.
NOTE 1:	RQ6.6 is not tested, as it is a non-occurrence RQ.
NOTE 2:	RQ6.7 and RQ6.8 are not tested in this clause, as they are effectively tested in other clauses of the present document for each individual registry parameter.

5.3.1.2.1.2 Test case 1: ANY_SET_PARAMETER reception - invalid structure

5.3.1.2.1.2.1 Test execution

There are no test case-specific parameters for this test case.

5.3.1.2.1.2.2 Initial conditions

- The HCI interface is idle; i.e. no further communication is expected.

- PIPE1 is open.

5.3.1.2.1.2.3 Test procedure

Step	Direction	Description	RQ
1	HS → HCUT	Send ANY_SET_PARAMETER with no parameters on PIPE1.	
2	HCUT → HS	Send response containing an allowed error response code for the command.	RQ6.4

5.3.1.2.1.3 Test case 2: ANY_SET_PARAMETER reception - RO registry parameter

5.3.1.2.1.3.1 Test execution

There are no test case-specific parameters for this test case.

5.3.1.2.1.3.2 Initial conditions

- The HCI interface is idle; i.e. no further communication is expected.

- A pipe (PIPE_ID_MAN) has been created to the host controller's identity management gate, and is open.

5.3.1.2.1.3.3 Test procedure

Step	Direction	Description	RQ
1	HS → HCUT	Send ANY_SET_PARAMETER(GATES_LIST) on PIPE_ID_MAN, where the parameter value is equal to the existing value of GATES_LIST in the host controller's registry.	
2	HCUT → HS	Send response containing an allowed error response code for the command.	RQ6.5

5.3.1.2.2 ANY_GET_PARAMETER

5.3.1.2.2.1 Conformance requirements

Reference: ETSI TS 102 622 [1], clause 6.1.2.2.

RQ6.9	The host controller shall reject an incorrectly formatted ANY_GET_PARAMETER command with an allowed error response code.
RQ6.10	The host controller shall reject an ANY_GET_PARAMETER command if the access right for the parameter does not allowed reading (i.e. is not RW or RO).
RQ6.11	The host controller shall not send an ANY_GET_PARAMETER command if the access right for the parameter does not allowed reading (i.e. is not RW or RO).
RQ6.12	When the host controller receives a valid ANY_GET_PARAMETER command, it shall respond with ANY_OK with the value of the parameter.
RQ6.13	Whenever the host controller sends an ANY_GET_PARAMETER command, it shall do so correctly: • It shall only be sent to a gate which supports the command. • It shall always have exactly one byte in the command parameters. • The parameter identifier shall match one of those defined for the specific gate.
NOTE 1:	RQ6.11 is not tested, as it is a non-occurrence RQ.
NOTE 2:	RQ6.12 and RQ6.13 are not tested, as they are effectively tested in other clauses of the present document for each individual registry parameter.

5.3.1.2.2.2 Test case 1: ANY_GET_PARAMETER reception - invalid structure

5.3.1.2.2.2.1 Test execution

There are no test case-specific parameters for this test case.

5.3.1.2.2.2.2 Initial conditions

- The HCI interface is idle; i.e. no further communication is expected.

- A pipe (PIPE_ID_MAN) has been created to the host controller's identity management gate, and is open.

5.3.1.2.2.2.3 Test procedure

Step	Direction	Description	RQ
1	HS → HCUT	Send ANY_GET_PARAMETER with no parameters on PIPE_ID_MAN.	
2	HCUT → HS	Send response containing an allowed error response code for the command.	RQ6.9
3	HS → HCUT	Send ANY_GET_PARAMETER containing parameters of length 2, with each byte containing the value of the GATES_LIST identifier, on PIPE_ID_MAN.	
4	HCUT → HS	Send response containing an allowed error response code for the command.	RQ6.9

5.3.1.2.2.3 Test case 2: ANY_GET_PARAMETER reception - WO registry parameter

5.3.1.2.2.3.1 Test execution

Assignment of terms to entities referenced in SR1: G_{ID} of gate = GATE_X, registry parameter identifier = REG_PARAM.

There are no test case-specific parameters for this test case.

5.3.1.2.2.3.2   Initial conditions

- The HCI interface is idle; i.e. no further communication is expected.

- A pipe (PIPE_X) has been created to the gate with G_{ID} = GATE_X, and is open.

5.3.1.2.2.3.3   Test procedure

Step	Direction	Description	RQ
1	HS → HCUT	Send ANY_GET_PARAMETER(REG_PARAM) on PIPE_X.	
2	HCUT → HS	Send response containing an allowed error response code for the command.	RQ6.10

5.3.1.2.3   ANY_OPEN_PIPE

5.3.1.2.3.1   Conformance requirements

Reference: ETSI TS 102 622 [1], clause 6.1.2.3.

RQ6.14	The host controller shall reject an incorrectly formatted ANY_OPEN_PIPE command.
RQ6.15	When the host controller receives a valid ANY_OPEN_PIPE command on a closed pipe, it shall open the pipe and return ANY_OK without any parameter.
RQ6.16	When the host controller sends an ANY_OPEN_PIPE command, it shall contain no command parameters.
RQ6.17	When the host controller receives ANY_OK in response to an ANY_OPEN_PIPE command, it shall open the pipe.
NOTE:	In ETSI TS 102 622 [1], it is not specified whether ANY_OPEN_PIPE is valid over a pipe which is already open. This is therefore not listed as a conformance requirement.

5.3.1.2.3.2   Test case 1: ANY_OPEN_PIPE transmission

5.3.1.2.3.2.1   Test execution

There are no test case-specific parameters for this test case.

5.3.1.2.3.2.2   Initial conditions

- The HCI interface is idle; i.e. no further communication is expected.

- A pipe (PIPE_ID_MAN) has been created to the host controller's identity management gate, and is open.

5.3.1.2.3.2.3   Test procedure

Step	Direction	Description	RQ
1	HS → HCUT	Send ANY_CLOSE_PIPE on PIPE_ID_MAN.	
2	HCUT → HS	Send ANY_OK.	
3	User → HCUT	Trigger the host controller to open PIPE_ID_MAN.	
4	HCUT → HS	Send ANY_OPEN_PIPE on PIPE_ID_MAN.	RQ6.16
5	HS → HCUT	Send ANY_OK with valid response parameter.	
6	HS → HCUT	Send ANY_GET_PARAMETER(GATES_LIST) on PIPE_ID_MAN.	
7	HCUT → HS	Send ANY_OK (parameters are not checked).	RQ6.17

5.3.1.2.4 ANY_CLOSE_PIPE

5.3.1.2.4.1 Conformance requirements

Reference: ETSI TS 102 622 [1], clause 6.1.2.4.

RQ6.18	The host controller shall reject an incorrectly formatted ANY_CLOSE_PIPE command.
RQ6.19	When the host controller receives a valid ANY_CLOSE_PIPE on an open pipe, it shall close the pipe and respond with ANY_OK and no parameters.
RQ6.20	When the host controller sends an ANY_CLOSE_PIPE command, it shall contain no command parameters.
RQ6.21	When the host controller receives ANY_OK in response to an ANY_CLOSE_PIPE command, it shall close the pipe.

5.3.1.2.4.2 Test case 1: ANY_CLOSE_PIPE transmission

5.3.1.2.4.2.1 Test execution

There are no test case-specific parameters for this test case.

5.3.1.2.4.2.2 Initial conditions

- The HCI interface is idle; i.e. no further communication is expected.

- A pipe (PIPE_ID_MAN) has been created to the host controller's identity management gate, and is open.

5.3.1.2.4.2.3 Test procedure

Step	Direction	Description	RQ
1	User → HCUT	Trigger the host controller to close PIPE_ID_MAN.	
2	HCUT → HS	Send ANY_CLOSE_PIPE on PIPE_ID_MAN.	RQ6.20
3	HS → HCUT	Send ANY_OK.	
4	HS → HCUT	Send ANY_GET_PARAMETER(GATES_LIST) on PIPE_ID_MAN.	
5	HCUT → HS	Send response containing an allowed error response code for the command.	RQ6.21

5.3.1.3 Administration commands

5.3.1.3.1 ADM_CREATE_PIPE

5.3.1.3.1.1 Conformance requirements

Reference: ETSI TS 102 622 [1], clause 6.1.3.1.

RQ6.22		When the host controller receives an ADM_CREATE_PIPE command, it shall use the WHITELIST defined by the destination host in order to verify that the source host is authorized to create a pipe.
RQ6.23		When the pipe was successfully created, the host controller shall send the response ANY_OK in response to the ADM_CREATE_PIPE command, with parameters as specified in ETSI TS 102 622 [1].
RQ6.42		When receiving ADM_CREATE_PIPE, the host controller shall accept any gate identifier being used as source gate.
RQ6.43	Rel-11 upwards	Only one pipe is allowed to be created for each combination of source host/source gate and destination host/destination gate.
NOTE 1:	All conformance requirements for the referenced clause are included in clause 5.5.1.1 of the present document.	
NOTE 2:	Development of test cases for RQ6.42 and RQ6.43 is FFS.	

5.3.1.3.2   ADM_NOTIFY_PIPE_CREATED

5.3.1.3.2.1   Conformance requirements

Reference: ETSI TS 102 622 [1], clause 6.1.3.2.

RQ6.24	When the host controller sends an ADM_NOTIFY_PIPE_CREATED command, the command parameters shall be 5 bytes long.
RQ6.25	When the host controller sends an ADM_NOTIFY_PIPE_CREATED command as a result of an ADM_CREATE_PIPE command being received from a host, the source H_{ID} in the command parameters shall be the H_{ID} of that host.
NOTE:	All conformance requirements for the referenced clause are included in clause 5.5.1.1 of the present document.

5.3.1.3.3   ADM_DELETE_PIPE

5.3.1.3.3.1   Conformance requirements

Reference: ETSI TS 102 622 [1], clause 6.1.3.3.

RQ6.26	The host that requested the deletion of the pipe can only be the source host or destination host.
RQ6.27	When the pipe is successfully deleted, the host controller shall send the response ANY_OK without parameters.
NOTE:	All conformance requirements for the referenced clause are included in clause 5.5.1.2 of the present document.

5.3.1.3.4   ADM_NOTIFY_PIPE_DELETED

5.3.1.3.4.1   Conformance requirements

Reference: ETSI TS 102 622 [1], clause 6.1.3.4.

RQ6.28	When the host controller sends an ADM_NOTIFY_PIPE_DELETED command, the command parameters shall be 1 byte long.
NOTE:	All conformance requirements for the referenced clause are included in clause 5.5.1.2 of the present document.

5.3.1.3.5   ADM_CLEAR_ALL_PIPE

5.3.1.3.5.1   Conformance requirements

Reference: ETSI TS 102 622 [1], clause 6.1.3.5.

RQ6.29	When the host controller receives a valid ADM_CLEAR_ALL_PIPE command and the data link layer specified in ETSI TS 102 613 [2] is used, it shall interpret the two bytes in the command parameters as the identity reference data, and shall use the identity reference data to initialize the reference data used by the host controller to check the UICC host identity.
RQ6.30	When the host controller receives a valid ADM_CLEAR_ALL_PIPE command, it shall delete all the dynamic pipes connected to the requesting host, close all static pipes connected to the requesting host and set all registry values related to static pipes connected to the requesting host to their default values.
RQ6.31	When ADM_CLEAR_ALL_PIPE is successful the host controller shall respond with an ANY_OK without parameters.
NOTE:	All conformance requirements for the referenced clause are included in clause 5.5.1.3 of the present document.

5.3.1.3.6 ADM_NOTIFY_ALL_PIPE_CLEARED

5.3.1.3.6.1 Conformance requirements

Reference: ETSI TS 102 622 [1], clause 6.1.3.6.

RQ6.32	When the host controller receives a valid ADM_CLEAR_ALL_PIPE command from a requesting host, it shall send ADM_NOTIFY_ALL_PIPE_CLEARED to every host with at least one pipe to the requesting host.
RQ6.33	When the host controller sends an ADM_NOTIFY_ALL_PIPE_CLEARED command with the host controller as the requesting host, it shall delete all dynamic pipes between the host controller and the host and shall close all static pipes between the host and the host controller.
RQ6.34	When the host controller sends an ADM_NOTIFY_ALL_PIPE_CLEARED command, the command parameters shall be one byte long and shall contain the H_{ID} of the requesting host.
NOTE:	All conformance requirements for the referenced clause are included in clause 5.5.1.3 of the present document.

5.3.2 Responses

5.3.2.1 Conformance requirements

Reference: ETSI TS 102 622 [1], clause 6.2.

RQ6.35	A response shall be sent to all commands received even to those unknown to the receiving gate.
RQ6.36	Responses received out of order (i.e. if no command was sent previously) shall be discarded.
RQ6.37	For a received command which is defined in table 16 in ETSI TS 102 622 [1], the host controller shall only return a response code which is specified for that command in table 16 in ETSI TS 102 622 [1].
NOTE:	Development of test cases for RQ6.37 is FFS.

5.3.2.2 Test case 1: responses received out of order, previous commands sent by host

5.3.2.2.1 Test execution

There are no test case-specific parameters for this test case.

5.3.2.2.2 Initial conditions

- The HCI interface is idle; i.e. no further communication is expected.

- A pipe (PIPE_ID_MAN) has been created to the host controller's identity management gate, and is open.

5.3.2.2.3 Test procedure

Step	Direction	Description	RQ
1	HS → HCUT	Send ANY_GET_PARAMETER(GATES_LIST) on PIPE_ID_MAN.	
2	HCUT → HS	Send response with ANY_OK and value of GATES_LIST on PIPE_ID_MAN.	
3	HS → HCUT	Send response with ANY_OK and no parameters on PIPE_ID_MAN.	
4	HCUT	No message on PIPE_ID_MAN.	RQ6.36
5	HS → HCUT	Send ANY_GET_PARAMETER(GATES_LIST) on PIPE_ID_MAN.	
6	HCUT → HS	Send response with ANY_OK and same value of GATES_LIST as in step 2.	RQ6.36

5.3.2.3 Test case 2: responses received out of order, previous commands sent by host controller

5.3.2.3.1 Test execution

There are no test case-specific parameters for this test case.

5.3.2.3.2 Initial conditions

- The HCI interface is idle; i.e. no further communication is expected.

- A pipe (PIPE_ID_MAN) has been created to the host controller's identity management gate, and is open.

5.3.2.3.3 Test procedure

Step	Direction	Description	RQ
1	HS → HCUT	Send ANY_CLOSE_PIPE on PIPE_ID_MAN.	
2	HCUT → HS	Send ANY_OK.	
3	User → HCUT	Trigger the host controller to open PIPE_ID_MAN.	
4	HCUT → HS	Send ANY_OPEN_PIPE on PIPE_ID_MAN.	
5	HS → HCUT	Send ANY_OK with valid response parameter on PIPE_ID_MAN.	
6	HS → HCUT	Send ANY_E_NOK on PIPE_ID_MAN.	
7	HCUT	No message on PIPE_ID_MAN.	RQ6.36
8	HS → HCUT	Send ANY_GET_PARAMETER(GATES_LIST) on PIPE_ID_MAN.	
9	HCUT → HS	Send response with ANY_OK and value of GATES_LIST on PIPE_ID_MAN.	RQ6.36

5.3.3 Events

5.3.3.1 Conformance requirements

Reference: ETSI TS 102 622 [1], clause 6.3.

RQ6.38	Unknown events received shall be discarded.
RQ6.39	EVT_HOT_PLUG shall be sent by the host controller to any other connected host to notify the connection or disconnection of a host to the host controller.
RQ6.40	When the host controller send EVT_HOT_PLUG, it shall contain no parameters.
RQ6.41	For gates defined in ETSI TS 102 622 [1], the host controller shall not use event values which are not allocated in ETSI TS 102 622 [1].
NOTE 1:	RQ6.41 is not tested, as it is a non-occurrence RQ.
NOTE 2:	Development of test cases for RQ6.39 and RQ6.40 is FFS.

5.4   GATES and subclauses

5.4.1   GATES

5.4.1.1   Conformance requirements

Reference: ETSI TS 102 622 [1], clause 7.

RQ7.1	Gates shall support the commands and events specified for them in tables 18 and 19 of ETSI TS 102 622 [1].
NOTE 1:	RQ1 is not tested in this clause, as it is effectively tested in other clauses of the present document.
NOTE 2:	ANY_GET_PARAMETER and ANY_SET_PARAMETER are not tested in this clause, as they are tested in the specific clauses for each gate for testing registry parameters.
NOTE 3:	ADM_CREATE_PIPE, ADM_DELETE_PIPE and ADM_CLEAR_ALL_PIPE are not tested for the host controller administration gate, as they are tested in the specific clauses for each command.
NOTE 4:	EVT_POST_DATA is not tested for the loop back gate, as it is tested in clause 5.5.5.
NOTE 5:	EVT_HCI_END_OF_OPERATION is not tested for the host controller link management gate, as the reaction of the host controller is not specified in ETSI TS 102 622 [1].

5.4.2   Management gates

5.4.2.1   Administration gates

5.4.2.1.1   Host controller administration gate

5.4.2.1.1.1   Conformance requirements

Reference: ETSI TS 102 622 [1], clauses 7.1.1.1 and 4.5.

RQ4.28		Registry parameters which are in the range reserved for usage by ETSI TS 102 622 [1] but which are not defined in ETSI TS 102 622 [1] shall not be present in the registry.
RQ7.2		The registry of the host controller administration gate shall be persistent.
RQ7.3		The host controller shall use a default value for SESSION_IDENTITY of 'FFFFFFFFFFFFFFFF'.
RQ7.4		The host controller shall apply the access condition of RW to SESSION_IDENTITY.
RQ7.5		The host controller shall only accept values of SESSION_IDENTITY of length 8 bytes.
RQ7.6		The host controller shall use a default value for MAX_PIPE of between '10' and '7D' inclusive.
RQ7.7		The host controller shall apply the access condition of RO to MAX_PIPE.
RQ7.8		The host controller shall allow MAX_PIPE created dynamic pipes for the host.
RQ7.9		The host controller shall use a default value for WHITELIST of an empty array.
RQ7.10		The host controller shall apply the access condition of RW to WHITELIST.
RQ7.11		The host controller shall use a default value for HOST_LIST containing the list of the hosts that are accessible from this host controller including the host controller itself, as a list of host identifiers.
RQ7.12		The host controller shall apply the access condition of RO to HOST_LIST.
RQ7.13		The HOST_LIST shall contain the list of the hosts that are accessible from this host controller including the host controller itself.
RQ7.14		The host controller shall reject create pipe requests if the source host is not listed in the WHITELIST of the destination host.
RQ7.45	Rel-12 upwards	The host controller shall apply the access condition of RO to HOST_ID of length 1 byte.
RQ7.46	Rel-12 upwards	The host controller shall use a default value for HOST_TYPE of 'FFFF'.
RQ7.47	Rel-12 upwards	The host controller shall apply the access condition of RW to HOST_TYPE.
RQ7.48	Rel-12 upwards	The host controller shall only accept values of HOST_TYPE of length 2 bytes.
RQ7.49	Rel-12 upwards	The host controller shall use a default value for HOST_TYPE_LIST of '0000'.

RQ7.50	Rel-12 upwards	The host controller shall apply the access condition of RO to HOST_TYPE_LIST of length 2*N_1 bytes, where N_1 the list of the hosts that are accessible from this host controller including the host controller itself.
RQ7.51	Rel-12 upwards	The host controller shall notify all connected hosts with a EVT_HOT_PLUG sent to each host administration gate at initial power-up of the system, when all hosts in the system have completed the session initialization as described in clause 8.4 in ETSI TS 102 622 [1].
RQ7.52	Rel-12 upwards	The host controller shall notify all connected hosts with a EVT_HOT_PLUG sent to each host administration gate when a host is connected to the HCI network and has completed the session initialization as described in clause 8.4 in ETSI TS 102 622 [1].
RQ7.53	Rel-12 upwards	The host controller shall notify all connected hosts with a EVT_HOT_PLUG sent to each host administration gate when a host is disconnected from the HCI network.
NOTE 1:		Development of test cases for RQ4.28, RQ7.8, RQ7.45, RQ7.46, RQ7.47, RQ7.48, RQ7.49, RQ7.50, RQ7.51, RQ7.52 and RQ7.53 is FFS.
NOTE 2:		RQ7.13 is only tested in the context of RQ7.11 (i.e. default value).
NOTE 3:		RQ7.14 is also covered in clause 8.1.1 of ETSI TS 102 622 [1], covered by clause 5.5.1.1 of the present document. This RQ is therefore not tested within this clause, as it is effectively tested in clause 5.5.1.1.
NOTE 4:		RQ7.2 is tested in clause 5.1.4.3 of the ETSI TS 102 695-1 [10].

5.4.2.1.2 Host administration gate

5.4.2.1.2.1 Conformance requirements

Reference: ETSI TS 102 622 [1], clause 7.1.1.2.

There are no conformance requirements for the terminal for the referenced clause.

5.4.2.2 Link management gate

5.4.2.2.1 Host controller link management gate

5.4.2.2.1.1 Conformance requirements

Reference: ETSI TS 102 622 [1], clauses 7.1.2.1 and 4.5.

RQ4.28	Registry parameters which are in the range reserved for usage by ETSI TS 102 622 [1] but which are not defined in ETSI TS 102 622 [1] shall not be present in the registry.
RQ7.15	The host controller shall use a default value for REC_ERROR of '0000'.
RQ7.16	The host controller shall apply the access condition of RW to REC_ERROR.
RQ7.17	The host controller shall only accept values of REC_ERROR of length 2 bytes.
NOTE:	Development of test cases for RQ4.28 is FFS.

5.4.2.2.1.2 Test case 1: REC_ERROR

5.4.2.2.1.2.1 Test execution

There are no test case-specific parameters for this test case.

5.4.2.2.1.2.2 Initial conditions

- The HCI interface is idle; i.e. no further communication is expected.

- PIPE1 is currently open.

5.4.2.2.1.2.3 Test procedure

Step	Direction	Description	RQ
1	HS → HCUT	Send ADM_CLEAR_ALL_PIPE on PIPE1.	
2	HCUT → HS	Send ANY_OK (parameters are not checked).	
3	HS → HCUT	Send ANY_OPEN_PIPE on PIPE0.	
4	HCUT → HS	Send ANY_OK.	
5	HS → HCUT	Send ANY_GET_PARAMETER(REC_ERROR) on PIPE0.	
6	HCUT → HS	Send ANY_OK with parameter value '0000' (see note).	RQ7.15, RQ7.16
7	HS → HCUT	Send ANY_SET_PARAMETER(REC_ERROR, '0000') on PIPE0.	
8	HCUT → HS	Send ANY_OK.	RQ7.16
9	HS → HCUT	Send ANY_SET_PARAMETER(REC_ERROR, '000000') on PIPE0.	
10	HCUT → HS	Send response containing an allowed error response code for the command.	RQ7.17
NOTE:		This assumes that the HCI session initialization procedure has not resulted in any errors at the data link layer which would result in the incrementing of REC_ERROR.	

5.4.2.2.2 Host link management gate

5.4.2.2.2.1 Conformance requirements

Reference: ETSI TS 102 622 [1], clause 7.1.2.2.

RQ7.18	The host controller shall only set values of REC_ERROR with length 2 bytes.

5.4.2.2.2.2 Test case 1: REC_ERROR

5.4.2.2.2.2.1 Test execution

There are no test case-specific parameters for this test case.

5.4.2.2.2.2.2 Initial conditions

- The HCI interface is idle; i.e. no further communication is expected.

- PIPE0 is open.

5.4.2.2.2.2.3 Test procedure

Step	Direction	Description	RQ
1	User → HCUT	Trigger the host controller to write a value of REC_ERROR into the registry of the host simulator's link management gate in order to restart an error rate measure.	
2	HCUT → HS	Send ANY_SET_PARAMETER(REC_ERROR) on PIPE0.	RQ7.18
3	HS → HCUT	Send ANY_OK.	

5.4.2.3 Identity management gate

5.4.2.3.1 Local registry

5.4.2.3.1.1 Conformance requirements

Reference: ETSI TS 102 622 [1], clauses 7.1.3 and 4.5.

NOTE: This clause covers the conformance requirements contained within ETSI TS 102 622 [1], clause 7.1.3 for the local registry. The requirements for the remote registry are contained in clause 5.4.2.3.2.

RQ4.26		Registry parameters which are in the range of '00' to 'EF' but which are not allocated in ETSI TS 102 622 [1] shall not be present in the registry.
RQ7.19		The registry of the identity management gate shall be persistent.
RQ7.20		This gate shall be provided by all hosts and the host controller.
RQ7.41	Rel-11 upwards	As destination gate, the identity management gate in the host controller shall accept at least one pipe from each host in its WHITELIST.
RQ7.21		If present in the host controller, the host controller shall use a value for VERSION_SW of length 3 bytes.
RQ7.22		If present in the host controller, the host controller shall apply the access condition of RO to VERSION_SW.
RQ7.23		If present in the host controller, the host controller shall use a value for VERSION_HARD of length 3 bytes.
RQ7.24		If present in the host controller, the host controller shall apply the access condition of RO to VERSION_HARD.
RQ7.25		If present in the host controller, the host controller shall use a value for VENDOR_NAME of maximum length 20 bytes with UTF8 coding.
RQ7.26		If present in the host controller, the host controller shall apply the access condition of RO to VENDOR_NAME.
RQ7.27		If present in the host controller, the host controller shall use a value for MODEL_ID of length 1 byte.
RQ7.28		If present in the host controller, the host controller shall apply the access condition of RO to MODEL_ID.
RQ7.29	Rel-7 to Rel-11	If present in the host controller, the host controller shall apply the access condition of RO to HCI_VERSION.
RQ7.54	Rel-12 upwards	The HCI_VERSION shall be provided by the host controller identity management gate and shall apply the access condition RO for it.
RQ7.30		The host controller shall use a value for GATES_LIST containing the list of all gates that accept dynamic pipes as an array of gate identifiers.
RQ7.31		The host controller shall apply the access condition of RO to GATES_LIST.
RQ7.32		A host controller according to the present document shall set the HCI_VERSION parameter if provided to '01'.
RQ7.55	Rel-12 upwards	A host controller according to the present document shall set the HCI_VERSION parameter to '02'.
RQ7.42	Rel-11 upwards	If present in the host controller, the MAX_CURRENT parameter shall represent the maximum current that it is able to provide to a host during operation as defined for the different contactless mode of operation.
RQ7.43	Rel-11 upwards	If present in the host controller, the host controller shall use a value for MAX_CURRENT of length 1 byte.
RQ7.44	Rel-11 upwards	If present in the host controller, the host controller shall apply the access condition of RO to MAX_CURRENT.
NOTE 1:	Development of test cases for RQ4.26, RQ7.41 , RQ7.42, RQ7.43, RQ7.44, RQ7.54 and RQ7.55 is FFS.	
NOTE 2:	RQ7.19 is not tested within this clause, as the registry contains no writeable parameters which can be used to test the persistence of the registry.	
NOTE 3:	RQ7.20 is also covered in clause 4.3 of ETSI TS 102 622 [1], covered by clause 5.1.3 of the present document. This RQ is therefore not tested within this clause, as it is effectively tested in clause 5.1.3 in ETSI TS 102 695-1 [10].	

5.4.2.3.1.2 Test case 1: registry parameters - optional registries

5.4.2.3.1.2.1 Test execution

The test procedure shall be executed for each of the parameters in the following table.

Registry parameter (designated REG_PARAM)	Presence	Expected value (designated VALUE)	RQ to be checked in steps 2 and 6	RQ to be checked in step 4
VERSION_SW	O	V_VERSION_SW	RQ7.21	RQ7.22
VERSION_HARD	O	V_VERSION_HARD	RQ7.23	RQ7.24
VERSION_NAME	O	V_VERSION_NAME	RQ7.25	RQ7.26
MODEL_ID	O	V_MODEL_ID	RQ7.27	RQ7.28

5.4.2.3.1.2.2 Initial conditions

- The HCI interface is idle; i.e. no further communication is expected.

- A pipe (PIPE_ID_MAN) has been created to the host controller's identity management gate, and is open.

5.4.2.3.1.2.3 Test procedure

Step	Direction	Description	RQ
1	HS → HCUT	Send ANY_GET_PARAMETER(REG_PARAM) on PIPE_ID_MAN.	
2	HCUT → HS	If REG_PARAM is supported by the device under test as indicated in table 4.3, send ANY_OK with parameter value equal to VALUE. If REG_PARAM is not supported by the device under test as indicated in table 4.3, send response containing an allowed error response code for the command.	See test execution clause

5.4.2.3.2 Remote registry

5.4.2.3.2.1 Conformance requirements

Reference: ETSI TS 102 622 [1], clause 7.1.3.

NOTE: This clause covers the conformance requirements contained within ETSI TS 102 622 [1], clause 7.1.3 for the remote registry. The requirements for the local registry are contained in clause 5.4.2.3.1.

RQ7.33	The host controller shall adhere to the access condition of RO for VERSION_SW in the host.
RQ7.34	The host controller shall adhere to the access condition of RO for VERSION_HARD in the host.
RQ7.35	The host controller shall adhere to the access condition of RO for VENDOR_NAME in the host.
RQ7.36	The host controller shall adhere to the access condition of RO for MODEL_ID in the host.
RQ7.37	The host controller shall adhere to the access condition of RO for HCI_VERSION in the host.
RQ7.38	The host controller shall adhere to the access condition of RO for GATES_LIST in the host.
RQ7.39	The host controller shall manage backward compatibility with previous HCI versions and use only commands and parameters defined in the specification having the lower HCI version number between of the 2 hosts involved in a transaction.
RQ7.40	A host controller connected to a host with higher HCI version number shall operate according to its own version.
NOTE 1:	RQ7.33, RQ7.34, RQ7.35, RQ7.36, RQ7.37 and RQ7.38 are not tested, as they are non-occurrence RQs.
NOTE 2:	In the current version of the present document, there are no previous HCI versions. RQ7.39 is therefore not tested in the current version of the present document.
NOTE 3:	Development of test cases for RQ7.40 is FFS.

5.4.2.4   Loop back gate

5.4.2.4.1   Conformance requirements

Reference: ETSI TS 102 622 [1], clauses 7.1.4 and 4.5.

RQ4.26	4.5		Registry parameters which are in the range of '00' to 'EF' but which are not allocated in ETSI TS 102 622 [1] shall not be present in the registry.
RQ4.27	7.1.4	Rel-11 upwards	As destination gate, the loop back gate in the host controller shall accept at least one pipe from each host in its WHITELIST.
NOTE:	Development of test cases for RQ4.26 and RQ4.27 is FFS.		

5.4.3   Generic gates

Reference: ETSI TS 102 622 [1], clause 7.2.

There are no conformance requirements for the terminal for the referenced clause.

5.5   HCI procedures

5.5.1   Pipe management

5.5.1.1   Pipe creation

5.5.1.1.1   Conformance requirements

Reference: ETSI TS 102 622 [1], clauses 8.1.1, 5.1, 6.1.3.1 and 6.1.3.2.

RQ6.22	When the host controller receives an ADM_CREATE_PIPE command, it shall use the WHITELIST defined by the destination host in order to verify that the source host is authorized to create a pipe.
RQ8.1	The host controller shall verify that the destination host's administration gate WHITELIST contains the host identifier of the source host. If the host identifier of the source host is not part of the WHITELIST of the destination host, the host controller shall send ANY_E_PIPE_ACCESS_DENIED response to the source host and stop any further processing of this command.
RQ8.2	If the source host's host identifier is part of the WHITELIST of the destination host, the host controller shall continue with the procedure.
RQ8.3	The host controller assigns an unused pipe identifier.
RQ8.4	The host controller notifies the destination host that the source host requested the creation of $PIPE_x$.
RQ6.24	When the host controller sends an ADM_NOTIFY_PIPE_CREATED command, the command parameters shall be 5 bytes long.
RQ6.25	When the host controller sends an ADM_NOTIFY_PIPE_CREATED command as a result of an ADM_CREATE_PIPE command being received from a host, the source H_{ID} in the command parameters shall be the H_{ID} of that host.
RQ6.23	When the pipe was successfully created, the host controller shall send the response ANY_OK in response to the ADM_CREATE_PIPE command, with parameters as specified in ETSI TS 102 622 [1].
RQ8.5	The host controller responds to ADM_CREATE_PIPE that $PIPE_x$ has been created.
RQ8.6	When the host controller wants to create a pipe then the pipe identifier is assigned and only steps 2 and 3 in figure 6 of ETSI TS 102 622 [1] are needed.
RQ8.7	When a pipe is created towards the host controller then only steps 1 and 4 in figure 6 of ETSI TS 102 622 [1] are needed.
RQ8.8	If the host controller does not accept the creation of the pipe, it shall respond to ADM_CREATE_PIPE with an appropriate response code.
RQ5.4	When it receives a packet from a host, the host controller uses the value of P_{ID} to forward a packet to the destination host.

RQ5.5	When it receives a packet from a host, the host controller shall verify that the pipe identifier is used by a host involved in the creation of the pipe.
NOTE 1:	RQ6.22 is contained with RQ8.1 and RQ8.3; it is therefore not explicitly tested within this clause.
NOTE 2:	RQ8.4 and RQ6.25 are not currently tested, as they require access to the interfaces between two hosts and the host controller.
NOTE 3:	RQ8.5 is a duplicate of RQ6.23; it is therefore not explicitly tested within this clause.

5.5.1.1.2 Test case 1: valid pipe creation from host simulator to another host

5.5.1.1.2.1 Test execution

Assignment of terms to entities referenced in SR2: H_{ID} of host = HOST_X.

There are no test case-specific parameters for this test case.

5.5.1.1.2.2 Initial conditions

- The HCI interface is idle; i.e. no further communication is expected.

- PIPE1 is open.

5.5.1.1.2.3 Test procedure

Step	Direction	Description	RQ
1	HS → HCUT	Send ADM_CREATE_PIPE on PIPE1, with source G_{ID} = 'EE', destination H_{ID} = HOST_X and destination G_{ID} = G_{ID} of identity management gate.	
2	HCUT → HS	Send ANY_OK, with parameters of 5 bytes as follows: • Source H_{ID} = H_{ID} of host simulator. • Source G_{ID} = source G_{ID} in command. • Destination H_{ID} = destination H_{ID} in command. • Destination G_{ID} = destination G_{ID} in command. • P_{ID} = a previously unallocated P_{ID}. Designate the create pipe PIPE_ID_MAN.	RQ8.2, RQ8.3, RQ6.23, RQ8.7
3	HS → HCUT	Send ANY_OPEN_PIPE on PIPE_ID_MAN.	
4	HCUT → HS	Send ANY_OK.	
5	HS → HCUT	Send ANY_GET_PARAMETER(GATES_LIST) on PIPE_ID_MAN.	
6	HCUT → HS	Send ANY_OK (parameters are not checked).	RQ5.4, RQ5.5

5.5.1.1.3 Test case 2: pipe creation from host simulator to another host, host simulator not in other host's WHITELIST

5.5.1.1.3.1 Test execution

Assignment of terms to entities referenced in SR3: H_{ID} of host = HOST_X.

There are no test case-specific parameters for this test case.

5.5.1.1.3.2 Initial conditions

- The HCI interface is idle; i.e. no further communication is expected.

- PIPE1 is open.

5.5.1.1.3.3   Test procedure

Step	Direction	Description	RQ
1	HS → HCUT	Send ADM_CREATE_PIPE on PIPE1, with source G_{ID} = 'EE', destination H_{ID} = HOST_X and destination G_{ID} = G_{ID} of identity management gate.	
2	HCUT → HS	Send ANY_E_PIPE_ACCESS_DENIED.	RQ8.1

5.5.1.1.4   Test case 3: pipe creation from host simulator to another host, other host rejects pipe creation

5.5.1.1.4.1   Test execution

Assignment of terms to entities referenced in SR4: H_{ID} of host = HOST_X, and G_{ID} of gate = GATE_X.

There are no test case-specific parameters for this test case.

5.5.1.1.4.2   Initial conditions

- The HCI interface is idle; i.e. no further communication is expected.

- PIPE1 is open.

5.5.1.1.4.3   Test procedure

Step	Direction	Description	RQ
1	HS → HCUT	Send ADM_CREATE_PIPE on PIPE1, with source G_{ID} = 'EE', destination H_{ID} = HOST_X and destination G_{ID} = GATE_X.	
2	HCUT → HS	Send response containing an allowed error response code for the command.	RQ6.23

5.5.1.1.5   Test case 4: valid pipe creation from host controller to host simulator

5.5.1.1.5.1   Test execution

There are no test case-specific parameters for this test case.

5.5.1.1.5.2   Initial conditions

- The HCI interface is idle; i.e. no further communication is expected.

- PIPE1 is open.

- Host simulator's GATE_LIST includes all valid G_{ID}.

5.5.1.1.5.3   Test procedure

Step	Direction	Description	RQ
1	User → HCUT	Trigger the host controller to create a pipe to any gate which exists in the host simulator's GATE_LIST.	
2	HCUT → HS	Send ADM_NOTIFY_PIPE_CREATED on PIPE1, with parameters 5 bytes long, as follows: • Source H_{ID} = H_{ID} of host controller. • Source G_{ID} = valid G_{ID}. • Destination H_{ID} = H_{ID} of host simulator. • Destination G_{ID} = G_{ID} in the host simulator's GATE_LIST. • P_{ID} = a previously unallocated P_{ID}. Designate the created pipe PIPE_X.	RQ8.3, RQ6.24, RQ8.6
3	HS → HCUT	Send ANY_OK (parameters are not checked).	
4	HCUT → HS	Wait for a reasonable delay for the host controller to send a command on PIPE_X. If the host controller sends a command on PIPE_X, consider the test passed. If the host controller does not send a command on PIPE_X, perform steps 5 and 6.	
5	HS → HCUT	Send ANY_OPEN_PIPE on PIPE_X.	
6	HCUT → HS	Send ANY_OK.	

5.5.1.1.6   Test case 5: pipe creation from host simulator to host controller, pipe not supported by host controller

5.5.1.1.6.1   Test execution

Assignment of terms to entities referenced in SR5: G_{ID} of gate = GATE_X.

There are no test case-specific parameters for this test case.

5.5.1.1.6.2   Initial conditions

- The HCI interface is idle; i.e. no further communication is expected.

- PIPE1 is open.

5.5.1.1.6.3   Test procedure

Step	Direction	Description	RQ
1	HS → HCUT	Send ADM_CREATE_PIPE on PIPE1, with source G_{ID} = 'EE', destination H_{ID} = H_{ID} of host controller and destination G_{ID} = GATE_X.	
2	HCUT → HS	Send response containing an allowed error response code for the command.	RQ8.8

5.5.1.2   Pipe deletion

5.5.1.2.1   Conformance requirements

Reference: ETSI TS 102 622 [1], clauses 8.1.2, 6.1.3.3 and 6.1.3.4.

RQ8.9	After receiving a valid ADM_DELETE PIPE command from a host, the host controller notifies the destination host (with an ADM_NOTIFY_PIPE_DELETED command).
RQ6.28	When the host controller sends an ADM_NOTIFY_PIPE_DELETED command, the command parameters shall be 1 byte long.
RQ6.26	The host that requested the deletion of the pipe can only be the source host or destination host.
RQ6.27	When the pipe is successfully deleted, the host controller shall send the response ANY_OK without parameters.
RQ8.10	When PIPEx connects to a gate at the host controller and the connecting host requests the deletion, then only steps 1 and 4 in figure 8 of ETSI TS 102 622 [1] are needed.

| RQ8.11 | When PIPEx connects to a gate at the host controller and the host controller requests the deletion, then only steps 2 and 3 in figure 8 of ETSI TS 102 622 [1] are needed. |
| NOTE: | Development of test cases for RQ8.9, RQ8.10, RQ8.11 and RQ6.28 is FFS. |

5.5.1.2.2 Test case 1: valid pipe deletion from host simulator to another host

5.5.1.2.2.1 Test execution

Assignment of terms to entities referenced in SR2: H_{ID} of host = HOST_X.

There are no test case-specific parameters for this test case.

5.5.1.2.2.2 Initial conditions

- The HCI interface is idle; i.e. no further communication is expected.

- PIPE1 is open.

- A pipe (PIPE_X) has been created between a gate on the host simulator and a gate on HOST_X, and is currently open.

5.5.1.2.2.3 Test procedure

Step	Direction	Description	RQ
1	HS → HCUT	Send ADM_DELETE_PIPE(PIPE_X) on PIPE1.	
2	HCUT → HS	Send ANY_OK with no parameters.	RQ6.26 RQ6.27

5.5.1.3 Clear all Pipes

5.5.1.3.1 Conformance requirements

Reference: ETSI TS 102 622 [1], clauses 8.1.3, 6.1.3.5 and 6.1.3.6.

RQ6.29	When the host controller receives a valid ADM_CLEAR_ALL_PIPE command and the data link layer specified in ETSI TS 102 613 [2] is used, it shall interpret the two bytes in the command parameters as the identity reference data, and shall use the identity reference data to initialize the reference data used by the host controller to check the UICC host identity.
RQ6.30	When the host controller receives a valid ADM_CLEAR_ALL_PIPE command, it shall delete all the dynamic pipes connected to the requesting host, close all static pipes connected to the requesting host and set all registry values related to static pipes connected to the requesting host to their default values.
RQ6.31	When ADM_CLEAR_ALL_PIPE is successful the host controller shall respond with an ANY_OK without parameters.
RQ6.32	When the host controller receives a valid ADM_CLEAR_ALL_PIPE command from a requesting host, it shall send ADM_NOTIFY_ALL_PIPE_CLEARED to every host with at least one pipe to the requesting host.
RQ6.33	When the host controller sends an ADM_NOTIFY_ALL_PIPE_CLEARED command with the host controller as the requesting host, it shall delete all dynamic pipes between the host controller and the host and shall close all static pipes between the host and the host controller.
RQ6.34	When the host controller sends an ADM_NOTIFY_ALL_PIPE_CLEARED command, the command parameters shall be one byte long and shall contain the H_{ID} of the requesting host.

5.5.1.3.2 Test case 1: clear all pipes from host controller - static pipes, dynamic pipes to host

5.5.1.3.2.1 Test execution

There are no test case-specific parameters for this test case.

5.5.1.3.2.2 Initial conditions

- The HCI interface is idle; i.e. no further communication is expected.

- PIPE1 is open.

- A pipe (PIPE_LOOP_BACK) has been created to the host controller's loop back gate, and is currently open.

5.5.1.3.2.3 Test procedure

Step	Direction	Description	RQ
1	User → HCUT	Trigger the host controller to send ADM_NOTIFY_ALL_PIPE_CLEARED, with the host controller as the requesting host.	
2	HCUT → HS	Send ADM_NOTIFY_ALL_PIPE_CLEARED, with the host controller as the requesting host.	RQ6.34
3	HS → HCUT	Send ANY_OK.	
4	HCUT → HS	Wait for a reasonable delay for the host controller to send a command on PIPE1. If host controller sends a command on PIPE1, perform step 5. If host controller does not send a command on PIPE1, perform steps 6 to 9.	
5	HCUT → HS	Check that the command sent in step 3 is ANY_OPEN_PIPE (see note).	RQ6.33
6	HS → HCUT	Send ADM_CREATE_PIPE on PIPE1, with source and destination G_{ID} = G_{ID} of identity management gate.	
7	HCUT → HS	Send response containing an allowed error response code for the command.	RQ6.33
8	HS → HCUT	Send ANY_OPEN_PIPE on PIPE1.	
9	HCUT → HS	Send ANY_OK.	RQ6.33
NOTE:	The host simulation shall respond appropriately to this command, independently of what command has been sent.		

5.5.2 Registry access

Reference: ETSI TS 102 622 [1], clause 8.2.

There are no new conformance requirements for the terminal for the referenced clause.

5.5.3 Host and Gate discovery

Reference: ETSI TS 102 622 [1], clause 8.3.

There are no conformance requirements for the terminal for the referenced clause.

5.5.4 Session initialization

5.5.4.1 Conformance requirements

Reference: ETSI TS 102 622 [1], clause 8.4.

RQ6.29	In case the lower layer identity check fails, the host controller shall execute only the following commands: ANY_OPEN_PIPE, ADM_CLEAR_ALL_PIPE, ANY_GET_PARAMETER, and only if these are sent on PIPE$_1$.
RQ6.30	In case the lower layer identity check fails, the host controller shall return ANY_E_INHIBITED to all commands, except for ANY_OPEN_PIPE, ADM_CLEAR_ALL_PIPE, ANY_GET_PARAMETER on PIPE$_1$.
RQ6.31	In case the lower layer identity check fails, the host controller shall ignore all events on all pipes.
RQ6.32	In case the lower layer identity check fails, the host controller shall return the default value of the SESSION_IDENTITY. However the value of the SESSION_IDENTITY in the registry remains unchanged.
RQ6.33	The inhibited state shall be terminated after processing a valid ADM_CLEAR_ALL_PIPE command.
RQ6.34	In case the lower layer identity check passes, the host controller shall not enter the inhibited state.

5.5.5 Loop back testing

5.5.5.1 Conformance requirements

Reference: ETSI TS 102 622 [1], clause 8.5.

RQ8.18	The host controller shall accept the creation of a pipe to its loop back gate from any gate in another host.
RQ8.19	When the host controller receives the event EVT_POST_DATA on a pipe connected to its loop back gate, it shall send back the event EVT_POST_DATA with same data as received in the received EVT_POST_DATA.
RQ8.20	The loopback gate shall support at least all messages with size up to 250 bytes.

5.5.5.2 Test case 1: pipe creation

5.5.5.2.1 Test execution

The test procedure shall be executed once for each of following parameters:

- Source G_{ID} values of: '00', '03', '05', '10', 'AA', 'FF'.

5.5.5.2.2 Initial conditions

- The HCI interface is idle; i.e. no further communication is expected.

- PIPE1 is open.

5.5.5.2.3 Test procedure

Step	Direction	Description	RQ
1	HS → HCUT	Send ADM_CREATE_PIPE on PIPE1, with source G_{ID} as specified and destination G_{ID} = G_{ID} of loop back gate.	
2	HCUT → HS	Send ANY_OK (parameters are not checked).	RQ8.18

5.6 Contactless card emulation

5.6.1 Overview

5.6.1.1 Conformance requirements

Reference: ETSI TS 102 622 [1], clause 9.1.

RQ9.1		The CLF shall handle the RF communication layers to the external contactless reader.
RQ9.2		The host controller has one card RF gate for each RF technology it supports.
RQ9.3		For the contactless platform for card emulation mode the pipes to card RF gates shall be created, opened, closed and deleted by the host.
RQ9.4		The RF technology of a card RF gate is active when there is an open pipe connected to it.
RQ9.5		The host controller shall activate one or more RF technologies as requested by the host to the external reader.
RQ9.114	Rel-11 upwards	If MAX_CURRENT present in the host controller, the host is allowed to consume a current up to the maximum defined by the host controller in its identity management gate registry between the appearance and the disappearance of the RF unless restricted by the underlying layers e.g. ETSI TS 102 613 [2] where the restrictions for low-power mode and power saving mode still apply.
NOTE:	Development of test case for RQ9.3 and RQ9.114 is FFS.	

5.6.2 Void

Reference: ETSI TS 102 622 [1], clause 9.2.

There are no conformance requirements for the terminal for the referenced clause.

5.6.3 Gates

5.6.3.1 Void

Reference: ETSI TS 102 622 [1], clause 9.3.1.

There are no conformance requirements for the terminal for the referenced clause.

5.6.3.2 Identity management gate

5.6.3.2.1 Conformance requirements

Reference: ETSI TS 102 622 [1], clause 9.3.2.

RQ9.6	If low power mode is supported, the parameter LOW_POWER_SUPPORT of identity management gate shall be '01'.
RQ9.7	If low power mode is not supported, the parameter LOW_POWER_SUPPORT of identity management gate shall be '00'.
RQ9.8	The host controller shall apply the access condition of RO to LOW_POWER_SUPPORT.
NOTE:	Development of test cases for above listed RQs is FFS.

5.6.3.3 Card RF gates

5.6.3.3.1 Overview

Reference: ETSI TS 102 622 [1], clause 9.3.3.1.

There are no conformance requirements for the terminal for the referenced clause.

5.6.3.3.2 Commands

5.6.3.3.2.1 Conformance requirements

Reference: ETSI TS 102 622 [1], clause 9.3.3.2.

There are no conformance requirements for the terminal for the referenced clause.

5.6.3.3.3 Events and subclauses

5.6.3.3.3.1 Events

5.6.3.3.3.1.1 Conformance requirements

Reference: ETSI TS 102 622 [1], clause 9.3.3.3.

RQ9.10	The Card RF gates shall support the EVT_SEND_DATA event.
NOTE:	RQ9.10 is tested in clause 5.6.4.

5.6.3.3.3.2 EVT_SEND_DATA

Reference: ETSI TS 102 622 [1], clause 9.3.3.3.1.

There are no conformance requirements for the terminal for the referenced clause.

5.6.3.3.4 Registry and subclauses

5.6.3.3.4.1 Registry

5.6.3.3.4.1.1 Conformance requirements

Reference: ETSI TS 102 622 [1], clause 9.3.3.4.

RQ9.11	All registries shall be persistent.
NOTE:	Development of test cases for above listed RQs is FFS.

5.6.3.3.4.2 RF technology type A

5.6.3.3.4.2.1 Conformance requirements

Reference: ETSI TS 102 622 [1], clause 9.3.3.4.1.

RQ9.12	The CLF shall only accept values of MODE of 'FF' and '02'.
RQ9.13	The CLF shall set a default value for MODE of 'FF'.
RQ9.14	The CLF shall apply the access condition of RW for MODE.
RQ9.15	The CLF shall use a default value for UID_REG of length zero bytes.
RQ9.16	If Length of UID_REG equals 0 then the CLF generates a single size UID with uid0 ='08'and uid1 to uid3 as random numbers.
RQ9.17	The random numbers shall be generate only on state transitions POWER_OFF to IDLE state (state definitions according to ISO/IEC 14443-3 [6]) The CLF shall interpret the absence of an RF-field as POWER-OFF state.
RQ9.18	If Length equals 4, 7 or 10 then the CLF shall use UID_REG as UID.
RQ9.19	The CLF shall apply the access condition of WO for UID_REG.
RQ9.20	The CLF shall set a default value for SAK of '00'.
RQ9.21	The CLF shall apply the access condition of RW for SAK.
RQ9.22	The CLF shall set a default value for ATQA of '0000'.
RQ9.23	The CLF shall apply the access condition of RW for ATQA.
RQ9.24	The CLF shall set a default value for APPLICATION_DATA of 'N1=0'.
RQ9.25	The CLF shall apply the access condition of RW for APPLICATION_DATA.
RQ9.26	The CLF shall set a default value for FWI, SFGI of 'EE'.
RQ9.27	The CLF shall apply the access condition of RW for FWI, SFGI.
RQ9.28	If CID_SUPPORT ='01' the CLF shall set CID support in the ATS.
RQ9.29	Void.
RQ9.30	The CLF shall set a default value for CID_SUPPORT of '00'.
RQ9.31	The CLF shall apply the access condition of RW for CID_SUPPORT.
RQ9.32	If the CLF contains a tunnelling mode capability for type A ISO/IEC 14443-4 [7] non-compliant protocol support then the value of CLT_SUPPORT shall be '01'.
RQ9.33	If the CLF does not contain a tunnelling mode capability for type A ISO/IEC 14443-4 [7] non-compliant protocol support then the value of CLT_SUPPORT shall be '00'.
RQ9.34	The CLF shall apply the access condition of RO to CLT_SUPPORT.
RQ9.35	The host controller shall support DATARATE_MAX which codes maximum divisor supported with coding as defined in ETSI TS 102 622 [1] where: • Byte 1 defines the maximum divisor supported in direction PCD to PICC. • Byte 3 defines the limitation to support different divisors for each direction.
RQ9.36	The CLF shall set a default value for DATARATE_MAX of '030300'.
RQ9.37	The CLF shall apply the access condition of RW for DATARATE_MAX.
RQ9.38	The CLF shall use the minimum of the value indicated in the registry and the maximum divisor implemented in the CLF as the maximum support divisor indicated in TA (1) as defined in ISO/IEC 14443-4 [7].
RQ9.39	Registry parameters which are in the range reserved for usage by ETSI TS 102 622 [1] but which are not defined in ETSI TS 102 622 [1] shall not be present in the registry.
NOTE 1:	Development of test cases for RQ 9.39 is FFS.
NOTE 2:	Development of test cases for RQ 9.32, RQ 9.33 and RQ 9.34 is FFS.

5.6.3.3.4.2.2 Test case 1: MODE parameter

5.6.3.3.4.2.2.1 Test execution

There is no test case specific parameters for this test case.

5.6.3.3.4.2.2.2 Initial conditions

- The HCI interface is idle; i.e. no further communication is expected.

- A PIPEa is created and opened by the host with source G_{ID} = '23' to the card RF gate of type A.

- HCI session initialization is ongoing.

5.6.3.3.4.2.2.3 Test procedure

Step	Direction	Description	RQ
1	HS → HCUT	Send ANY _GET _PARAMETER (MODE) on PIPEa.	
2	HCUT → HS	Send ANY_OK with value of 'FF'.	RQ9.13, RQ9.14
3	HS → HCUT	Send ANY _SET _PARAMETER (MODE, '02') on PIPEa.	
4	HCUT→ HS	Send ANY_OK.	RQ9.12, RQ9.14
5	HS → HCUT	Send ANY _GET _PARAMETER (MODE) on PIPEa.	
6	HCUT → HS	Send ANY_OK with value '02'.	RQ9.12, RQ9.14
7	HS → HCUT	Send ANY _SET _PARAMETER (MODE, 'FF') on PIPEa.	
8	HCUT→ HS	Send ANY_OK.	RQ9.12, RQ9.14
9	HS → HCUT	Send ANY _GET _PARAMETER (MODE) on PIPEa.	
10	HCUT→ HS	Send ANY_OK with a parameter value of 'FF'.	RQ9.12, RQ9.14

5.6.3.3.4.2.3 Test case 2: UID_REG and SAK - verify parameter

5.6.3.3.4.2.3.1 Test execution

The test procedure shall be executed once for each of following parameters which is supported by the terminal according to the Applicability column:

Applicability	UID length	UIDa value	SAKa value	ATQAa	Cascade levels expected
O_CE_TypeA AND O_CE_CLT_TypeA	4	01 02 03 04	00	0100	1
O_CE_TypeA AND O_CE_CLT_TypeA	7	01 02 03 04 05 06 07	00	4100	2
O_CE_TypeA AND O_CE_CLT_TypeA	10	01 02 03 04 05 06 07 08 09 0A	00	8100	3
O_CE_TypeA	4	01 02 03 04	20	0100	1
O_CE_TypeA	7	01 02 03 04 05 06 07	20	4100	2
O_CE_TypeA	10	01 02 03 04 05 06 07 08 09 0A	20	8100	3

5.6.3.3.4.2.3.2 Initial conditions

- The HCI interface is idle; i.e. no further communication is expected.

- A PIPEa is created and opened by the host with source G_{ID} = '23' to the card RF gate of type A.

- The Proximity Coupling Device (PCD) supporting ISO/IEC14443-3 Type A protocol is powered off.

- MODE is set to 'FF'.

- HCI session initialization is ongoing (to be completed during the test procedure).

5.6.3.3.4.2.3.3 Test procedure

Step	Direction	Description	RQ
1	HS → HCUT	Send ANY _GET _PARAMETER (UI_REG) on PIPEa.	
2	HCUT → HS	Send response containing an allowed error response code for the command.	RQ9.19
3	HS → HCUT	Send ANY _SET _PARAMETER (UID, 'UIDa') on PIPEa.	
4	HCUT→ HS	Send ANY_OK.	RQ9.18, RQ9.19
5	HS → HCUT	Send ANY _GET _PARAMETER (SAK) on PIPEa.	
6	HCUT→ HS	Send ANY_OK.	RQ9.20, RQ9.21
7	HS → HCUT	Send ANY _SET _PARAMETER (SAK, 'SAKa') on PIPEa.	
8	HCUT→ HS	Send ANY_OK.	RQ9.21
9	HS → HCUT	Send ANY _SET _PARAMETER (ATQA, 'ATQAa') on PIPEa.	
10	HCUT→ HS	Send ANY_OK.	RQ9.23
11	HS → HCUT HCUT → HS	Set the MODE parameter to '02'	
12	HS → HCUT	Set SESSION_IDENTITY to a random value on PIPE1.	
13	User →PCD	The terminal is placed in PCD field.	
14	PCD → HCUT	Transitions from POWER_OFF to IDLE state.	
15	PCD → HCUT	Send REQA.	
16	HCUT → PCD	Send ATQA and enter READY state.	
17	PCD → HCUT	Send AC command with appropriate cascade level.	
18	HCUT → PCD	Send UID CLn given in step 3.	RQ9.18
19	PCD → HCUT	Send SELECT command with received UID.	
20	HCUT → PCD	If this is the last expected cascade level: HCUT sends SAKa (UID is complete). Only check bit3. Otherwise, HCUT sends SAK (UID is not complete). Only check bit3. Then repeat the steps 14 to 17.	RQ9.18, RQ9.21
21	User → HCUT	The terminal is removed from the PCD field.	
22	User → HCUT	The terminal is placed in PCD field.	
23	PCD → HCUT	Transitions from POWER_OFF to IDLE state.	
24	PCD → HCUT	Send REQA.	
25	HCUT → PCD	Send ATQA and enter READY state.	
26	PCD → HCUT	Send AC command with appropriate cascade level.	
27	HCUT → PCD	Send UID CLn given in step 3.	RQ9.18
28	PCD → HCUT	Send SELECT with received UID.	
29	HCUT → PCD	If this is the last expected cascade level: HCUT sends SAKa (UID is complete). Only check bit3. Otherwise, HCUT sends SAK (UID is not complete). Only check bit3. Then repeat the steps 23 to 26.	RQ9.18, RQ9.21

5.6.3.3.4.2.4 Test case 3: FWI, SFGI

5.6.3.3.4.2.4.1 Test execution

The test procedure shall be executed once for each of following parameters:

- SFGI_1 = 4.

- FWI_1 = 8.

5.6.3.3.4.2.4.2 Initial conditions

- The HCI interface is idle; i.e. no further communication is expected.

- A PIPEa is created and opened by the host with source G_{ID} = '23' to the card RF gate of type A.

- MODE is set to 'FF' and SAK is set to '20'.

- HCI session initialization is ongoing (to be completed during the test procedure).

5.6.3.3.4.2.4.3   Test procedure

Step	Direction	Description	RQ
1	HS → HCUT	Send ANY _SET _PARAMETER (FWI, SFGI, 'FWI_1 SFG_1') on PIPEa.	
2	HCUT → HS	Send ANY_OK.	RQ9.27
3	HS → HCUT	Send ANY _GET _PARAMETER (FWI, SFGI) on PIPEa.	
4	HCUT → HS	Send ANY_OK with value 'FWI_1 SFG_1' given in step 1.	RQ9.27
5	HS → HCUT HCUT → HS	Set the MODE parameter to '02'.	
6	HS → HCUT	Set SESSION_IDENTITY to a random value on PIPE1.	
7	PCD → HCUT HCUT → PCD	Perform initialization of RF ISO/IEC 14443-3 [6] Type A (with anti-collision and selection).	
8	PCD → HCUT	Send RATS.	
9	HCUT → PCD	Send ATS with value (TB(1)) given in step 1.	RQ9.27

5.6.3.3.4.3   RF technology type B

5.6.3.3.4.3.1   Conformance requirements

Reference: ETSI TS 102 622 [1], clause 9.3.3.4.2.

RQ9.40	Registry parameters which are in the range reserved for usage by ETSI TS 102 622 [1] but which are not defined in ETSI TS 102 622 [1] shall not be present in the registry.
RQ9.41	The CLF shall only accept values of MODE of 'FF' and '02'.
RQ9.42	The CLF shall set a default value for MODE of 'FF'.
RQ9.43	The CLF shall apply the access condition of RW for MODE.
RQ9.44	The CLF shall only accept values of PUPI of length 0 or 4 bytes.
RQ9.45	If N=0 then the CLF shall generate the PUPI as dynamically generated number.
RQ9.46	The PUPI shall only be generated by a state transition from the POWER-OFF to the IDLE state(state definitions according to ISO/IEC 14443-3 [6]).
RQ9.47	The CLF shall interpret the absence of an RF-field as POWER-OFF state.
RQ9.48	If N is not equal to 0, the CLF shall use the PUPI_REG as PUPI.
RQ9.49	The CLF shall apply the access condition of WO for PUPI_REG.
RQ9.50	The CLF shall use the AFI registry parameter as AFI according to ISO/IEC 14443-3 [6].
RQ9.51	The CLF shall set a default value for AFI of '00'.
RQ9.52	The CLF shall apply the access condition of RW to AFI.
RQ9.53	The CLF shall set a default value for ATQB of '00 00 00 E4'.
RQ9.54	The CLF shall only accept values of ATQB of length 4 bytes.
RQ9.55	The CLF shall set additional data for ATQB as defined in the registry table 31 of ETSI TS 102 622 [1].
RQ9.56	The CLF shall apply the access condition of RW to ATQB.
RQ9.57	The CLF shall set higher layer response in answer to ATTRIB command as defined registry.
RQ9.58	The CLF shall set a default value for HIGHER_LAYER_RESPONSE of 'N2=0'.
RQ9.59	The CLF shall apply the access condition of RW for HIGHER_LAYER_RESPONSE.
RQ9.60	The host controller shall support DATARATE_MAX which codes maximum bit rates supported with coding as defined in ETSI TS 102 622 [1] where: • Byte 1 defines the maximum bit rates supported in direction PCD to PICC. • Byte 3 defines the limitation of having the bit rate in both direction.
RQ9.61	The CLF shall set a default value for DATARATE_MAX of '030300'.
RQ9.62	The CLF shall apply the access condition of RW for DATARATE_MAX.
RQ9.63	The CLF shall set a default value for ATQB of length 0.
RQ9.64	The CLF shall use the minimum of the value indicated in the registry and the maximum bit rate supported implemented in the CLF as the maximum bit rate indicated in the first byte of the protocol information as defined in ISO/IEC 14443-3 [6].
NOTE:	Development of test cases for RQ9.40 and RQ9.64 is FFS.

5.6.3.3.4.3.2   Test case 1: MODE parameter

5.6.3.3.4.3.2.1   Test execution

There is no test case specific parameters for this test case.

5.6.3.3.4.3.2.2 Initial conditions

- The HCI interface is idle; i.e. no further communication is expected.

- A PIPEa is created and opened by the host with source G_{ID} = '21' to the card RF gate of type B.

- HCI session initialization is ongoing.

5.6.3.3.4.3.2.3 Test procedure

Step	Direction	Description	RQ
1	HS → HCUT	Send ANY _GET _PARAMETER (MODE) on PIPEa.	
2	HCUT → HS	Send ANY_OK with value 'FF'.	RQ9.42, RQ9.43
3	HS → HCUT	Send ANY _SET _PARAMETER (MODE, '02') on PIPEa.	
4	HCUT→ HS	Send ANY_OK.	RQ9.41, RQ9.43
5	HS → HCUT	Send ANY _GET _PARAMETER (MODE) on PIPEa.	
6	HCUT → HS	Send ANY_OK with value '02'.	RQ9.43
7	HS → HCUT	Send ANY _SET _PARAMETER (MODE, 'FF') on PIPEa.	
8	HCUT→ HS	Send ANY_OK.	RQ9.41, RQ9.43
9	HS → HCUT	Send ANY _GET _PARAMETER (MODE) on PIPEa.	
10	HCUT→ HS	Send ANY_OK with value 'FF'.	RQ9.43

5.6.3.3.4.4 RF technology type B'

5.6.3.3.4.4.1 Conformance requirements

Reference: ETSI TS 102 622 [1], clause 9.3.3.4.3.

NOTE: Defining conformance requirements is out of scope of the present document.

5.6.3.3.4.5 RF technology Type F (ISO18092 212 kbps/424 kbps card emulation only)

5.6.3.3.4.5.1 Conformance requirements

Reference: ETSI TS 102 622 [1], clause 9.3.3.4.4.

RQ9.65	Registry parameters which are in the range reserved for usage by ETSI TS 102 622 [1] but which are not defined in ETSI TS 102 622 [1] shall not be present in the registry.
RQ9.66	The CLF shall only accept values of MODE of 'FF' and '02'.
RQ9.67	The CLF shall set a default value for MODE of 'FF'.
RQ9.68	The CLF shall apply the access condition of RW for MODE.
RQ9.69	The CLF shall support the capabilities indicated in the SPEED_CAP parameter as specified in ETSI TS 102 622 [1].
RQ9.70	The CLF shall apply the access condition of RO to SPEED_CAP.
RQ9.71	The CLF shall contain a tunnelling mode capability for type F card emulation anti-collision support if CLT_SUPPORT='01'.
RQ9.72	The CLF shall not contain a tunnelling mode capability for type F card emulation anti-collision support if CLT_SUPPORT ='00'.
RQ9.73	The CLF shall apply the access condition of RO to CLT_SUPPORT.
NOTE 1:	Development of test cases for RQ9.65, RQ9.70 and RQ9.73 is FFS.
NOTE 2:	RQ9.69 is not fully tested, further test cases for RQ9.69 are FFS.

5.6.3.3.4.5.2 Test case 1: MODE parameter

5.6.3.3.4.5.2.1 Test execution

There is no test case specific parameters for this test case.

5.6.3.3.4.5.2.2   Initial conditions

- The user has to ensure that the RF technology type F is enabled in the terminal for the UICC.

- The HCI interface is idle; i.e. no further communication is expected.

- A PIPEa is created and opened by the host with source G_{ID} = '24' to the card RF gate of type F.

- HCI session initialization is ongoing.

5.6.3.3.4.5.2.3   Test procedure

Step	Direction	Description	RQ
1	HS → HCUT	Send ANY _GET _PARAMETER (MODE) on PIPEa.	
2	HCUT → HS	Send ANY_OK with value of 'FF'.	RQ9.67, RQ9.68
3	HS → HCUT	Send ANY _SET _PARAMETER (MODE, '02') on PIPEa.	
4	HCUT→ HS	Send ANY_OK.	RQ9.66, RQ9.68
5	HS → HCUT	Send ANY _GET _PARAMETER (MODE) on PIPEa.	
6	HCUT → HS	Send ANY_OK with value '02'.	RQ9.66, RQ9.68
7	HS → HCUT	Send ANY _SET _PARAMETER (MODE, 'FF') on PIPEa.	
8	HCUT→ HS	Send ANY_OK.	RQ9.66, RQ9.68
9	HS → HCUT	Send ANY _GET _PARAMETER (MODE) on PIPEa.	
10	HCUT→ HS	Send ANY_OK with a parameter value of 'FF'.	RQ9.66, RQ9.68

5.6.3.3.4.5.3   Test case 2: CLT_SUPPORT and SPEED_CAP - verify parameter

5.6.3.3.4.5.3.1   Test execution

There is no test case specific parameters for this test case.

5.6.3.3.4.5.3.2   Initial conditions

- The user has to ensure that the RF technology type F is enabled in the terminal for the UICC prior to placing the terminal in the PCD field.

- The HCI interface is idle; i.e. no further communication is expected.

- A PIPEa is created and not opened by the host with source G_{ID} = '24' to the card RF gate of type F of HCUT.

- HCI session initialization is ongoing (to be completed during the test procedure).

- The Proximity Coupling Device (PCD) supporting ISO/IEC 18092 [4] 212 kbps/424 kbps Type F protocol is powered off.

5.6.3.3.4.5.3.3 Test procedure

Step	Direction	Description	RQ
1	HS → HCUT	Send ANY_OPEN_PIPE on PIPEa.	
2	HCUT → HS	Send ANY_OK.	
3	HS → HCUT	Send ANY_GET_PARAMETER (MODE) on PIPEa.	
4	HCUT → HS	Send ANY_OK with a parameter value of 'FF'.	RQ9.67, RQ9.68
5	HS → HCUT	Send ANY_GET_PARAMETER (CLT_SUPPORT) on PIPEa.	
6	HCUT → HS	Send ANY_OK with a parameter value of '01'.	RQ9.71, RQ9.72
7	HS → HCUT	Send ANY_GET_PARAMETER (SPEED_CAP) on PIPEa.	
8	HCUT → HS	Send ANY_OK with a valid parameter value of 'SPEED_CAPa', as defined in ETSI TS 102 622 [1].	RQ9.69
9	HS → HCUT	Send ANY_SET_PARAMETER (MODE, '02') on PIPEa.	
10	HCUT → HS	Send ANY_OK.	RQ9.66, RQ9.68
11	HS → HCUT	Set SESSION_IDENTITY to a random value on PIPE1.	
12	User → HCUT	While the field is off, the terminal is placed in the area where the field will be powered on.	
13	PCD → HCUT	Power on the field.	
14	PCD -> HCUT HCUT -> HS HS -> HCUT HCUT -> PCD	Perform initialization of RF ISO/IEC 18092 [4] 212 kbps/424 kbps passive mode. In case SWP as defined in ETSI TS 102 613 [2] is used as a data link layer, the initialization data exchange is performed using CLT as defined in ETSI TS 102 613 [2]. The UICC provides information for the initialization.	RQ9.71, RQ9.72

5.6.3.4 Card application gates

5.6.3.4.1 Overview

Reference: ETSI TS 102 622 [1], clause 9.3.4.1.

There are no conformance requirements for the terminal for the referenced clause.

5.6.3.4.2 Commands

5.6.3.4.2.1 Conformance requirements

Reference: ETSI TS 102 622 [1], clause 9.3.4.2.

There are no conformance requirements for the terminal for the referenced clause.

5.6.3.4.3 Events and subclauses

5.6.3.4.3.1 Events

5.6.3.4.3.1.1 Conformance requirements

Reference: ETSI TS 102 622 [1], clause 9.3.4.3.

RQ9.74	When sending to a card application gate, the CLF shall respect the values and events as listed.
NOTE:	Development of test cases for above listed RQs is FFS.

5.6.3.4.3.2   EVT_FIELD_ON

5.6.3.4.3.2.1   Conformance requirements

Reference: ETSI TS 102 622 [1], clause 9.3.4.3.1.

RQ9.75	When EVT_FIELD_ON is sent by the host controller, it shall be sent within 2 ms after the detection of an RF field.
RQ9.76	In case of an underlying data link layer according to ETSI TS 102 613 [2], if SWP is in DEACTIVATED state, the CLF shall activate the interface instead of sending the EVT_FIELD_ON.
RQ9.77	When the host controller sends EVT_FIELD_ON, it shall not contain parameters.
NOTE:	Development of test cases for RQ9.75 & RQ9.77 is FFS.

5.6.3.4.3.3   EVT_CARD_DEACTIVATED

5.6.3.4.3.3.1   Conformance requirements

Reference: ETSI TS 102 622 [1], clause 9.3.4.3.2.

RQ9.78	When the host controller sends EVT_CARD_DEACTIVATED, it shall not contain parameters.

5.6.3.4.3.4   EVT_CARD_ACTIVATED

5.6.3.4.3.4.1   Conformance requirements

Reference: ETSI TS 102 622 [1], clause 9.3.4.3.3.

RQ9.79	When the host controller sends EVT_CARD_ACTIVATED, it shall not contain parameters.

5.6.3.4.3.5   EVT_FIELD_OFF

5.6.3.4.3.5.1   Conformance requirements

Reference: ETSI TS 102 622 [1], clause 9.3.4.3.4.

RQ9.80	When the host controller sends EVT_FIELD_OFF, it shall not contain parameters.

5.6.3.4.3.6   EVT_SEND_DATA

5.6.3.4.3.6.1   Conformance requirements

Reference: ETSI TS 102 622 [1], clause 9.3.4.3.5.

RQ9.81	On sending EVT_SEND_DATA the CLF shall set the last parameter byte as RF error indicator.

5.6.3.4.4   Registry

5.6.3.4.4.1   Conformance requirements

Reference: ETSI TS 102 622 [1], clause 9.3.4.4.

There are no conformance requirements for the terminal for the referenced clause.

5.6.4   Procedures

5.6.4.1   Use of contactless card application

5.6.4.1.1   Conformance requirements

Reference: ETSI TS 102 622 [1], clauses 9.4 and 9.4.1.

NOTE: These requirements apply for usage of ISO/IEC 14443-4 [7].

RQ9.82	9.4.1		In full power mode, when the CLF detects a RF field, the card RF gate shall send the event EVT_FIELD_ON to the card application gate unless otherwise as specified in clause 9.3.4.3.1 of ETSI TS 102 622 [1].
RQ9.83	9.4.1		When there are multiple open card RF gates the CLF shall send the EVT_FIELD_ON to the open card application gate with the lowest G_{ID}.
RQ9.84	9.4.1		When the CLF detects a RF field, and after sending EVT_FIELD_ON (if sent), the CLF shall start the initialization and anti-collision process as defined in ISO/IEC 14443-3 [6] using the parameters from the appropriate card RF gate registry for the present RF technology.
RQ9.85	9.4.1	Rel-7 - Rel-9	If The card RF gate sends EVT_CARD_ACTIVATED to the card application gate, it shall send it at the end of the activation sequence as defined ISO/IEC 14443-4 [7].
RQ9.112	9.4.1	Rel-10 upwards	The card RF gate shall send EVT_CARD_ACTIVATED to the card application gate at the end of the activation sequence as defined ISO/IEC 14443-4 [7].
RQ9.86	9.4.1		The card RF gate shall forward the C-APDUs from the external contactless reader to the card application gate using the EVT_SEND_DATA.
RQ9.113	9.4.1		The CLF may forward an empty C-APDU to the UICC.
RQ9.87	9.4.1		If the CLF detects the end of the PICC deactivation sequence by the external contactless reader, the card RF gate shall send an EVT_CARD_DEACTIVATED.
RQ9.88	9.4.1		In full power mode, when the CLF detects at any time during the sequence that the RF field is off, the card RF gate shall send EVT_FIELD_OFF to the card application gate.
RQ9.89	9.4.1		When there are multiple open cards RF gates the CLF shall send the EVT_FIELD_OFF to the card application gate used during the transaction or to the open card application gate with the lowest G_{ID}.
RQ9.90	9.4.1		In low power mode, when the CLF detects at any time during the sequence that the RF field is off, the card RF gate shall either send EVT_FIELD_OFF to the card application gate or power down the host.
RQ9.111	9.4.1		If the CLF forwards an empty C-APDU to the UICC, it shall accept an empty R-APDU or an R-APDU containing an error code in response, and forward the R-APDU to the external contactless reader as specified in ISO/IEC 14443-4 [7].
RQ9.115	9.4	Rel-11 upwards	The CLF shall only send events defined in Table 35 from ETSI TS 102 622 [1] to the Card application gate or open a CLT session as defined in ETSI TS 102 613 [2] for the corresponding RF technology if the MODE parameter in the associated Card RF gate registry is set to '02' (enabled).
NOTE:	Development of test cases for RQ9.111, RQ9.113 and RQ9.115 is FFS.		

5.6.4.2   Non ISO/IEC 14443-4 type A applications

5.6.4.2.1   Conformance requirements

Reference: ETSI TS 102 622 [1], clause 9.4.2.

RQ9.91	In full power mode, and if SWP is not in DEACTIVATED_state, when the CLF detects a RF field, the card RF gate shall send the event EVT_FIELD_ON to the card application gate.
RQ9.92	When there are multiple open card RF gates the CLF shall send the EVT_FIELD_ON to the open card application gate with the lowest G_{ID}.
RQ9.93	When the CLF detects a RF field, and after sending EVT_FIELD_ON (if sent), the CLF shall start the initialization and anti-collision process as defined in ISO/IEC 14443-3 [6] using the parameters from the card RF gate registry for the RF technology type A.
RQ9.94	Any other communications are done using the CLT mode as defined in ETSI TS 102 613 [2].
RQ9.95	In full power mode, when the CLF detects at any time during the sequence that the RF field is off, the card RF gate shall send EVT_FIELD_OFF to the card application gate.

RQ9.96	When there are multiple open cards RF gates the CLF shall send the EVT_FIELD_OFF to the card application gate used during the transaction or to the open card application gate with the lowest G_{ID}.
RQ9.97	In low power mode, when the CLF detects at any time during the sequence that the RF field is off, the card RF gate shall either send EVT_FIELD_OFF to the card application gate or power down the host.

5.6.4.3 Type B' RF technology

5.6.4.3.1 Conformance requirements

Reference: ETSI TS 102 622 [1], clause 9.4.3.

NOTE: Defining conformance requirements is out of scope of the present document.

5.6.4.4 Type F RF technology

5.6.4.4.1 Conformance requirements

Reference: ETSI TS 102 622 [1], clause 9.4.4.

RQ9.98		In full power mode, and if SWP is not in DEACTIVATED state, when the CLF detects a RF field, the card RF gate shall send the event EVT_FIELD_ON to the card application gate.
RQ9.99		When there are multiple open cards RF gates the CLF shall send the EVT_FIELD_ON to the open card application gate with the lowest G_{ID}.
RQ9.100	Rel-7 to Rel-11	In case SWP as defined in ETSI TS 102 613 [2] is used as a data link layer, the initialization data exchange is performed using CLT as defined in ETSI TS 102 613 [2]. The host provides information for the initialization.
RQ9.109	Rel-12 upwards	In case SWP as defined in ETSI TS 102 613 [2] is used as a data link layer, if an initialization command is received, then the initialization data exchange is performed using CLT as defined in ETSI TS 102 613 [2] The host provides information for the initialization.
RQ9.102		The card RF gate shall forward the ISO/IEC 18092 [4] 212 kbps/424 kbps frames from the external reader to the card application gate using the EVT_SEND_DATA with the structure specified in ETSI TS 102 622 [1].
RQ9.110	Rel-12 upwards	The host controller shall be able to receive the ISO/IEC 18092 [4] 212 kbps/424 kbps frames without a previous initialization in the RQ9.109 before.
RQ9.111	Rel-12 upwards	The CLF shall not forward RF frames to the host if a response from the host is pending. If an RF frame was received but the response from the host is still pending the received RF frame shall be discarded.
RQ9.103		The host sending a response shall encapsulate the ISO/IEC 18092 [4] 212 kbps/424 kbps frames in an EVT_SEND_DATA event and shall send it to the card RF gate.
RQ9.104		In full power mode, when the CLF detects at any time during the sequence that the RF field is off, the card RF gate shall send EVT_FIELD_OFF to the card application gate.
RQ9.105		When there are multiple open cards RF gates the CLF shall send the EVT_FIELD_OFF to the card application gate used during the transaction or to the open card application gate with the lowest G_{ID}.
RQ9.106		In low power mode, when the CLF detects at any time during the sequence that the RF field is off, the card RF gate shall either send EVT_FIELD_OFF to the card application gate or power down the host.
RQ9.107		ISO/IEC 18092 [4] 212 kbps/424 kbps frames, except initialization command and response (command code '00' and '01'),shall be exchanged using the appropriate gate depending on the command code of the frame as described in ETSI TS 102 622 [1].
RQ9.108		The command codes reserved for the NFCIP-1 protocol shall not be forwarded.
RQ9.112	Rel-12 upwards	After receiving an empty EVT_SEND_DATA from the host the CLF shall not send anything to RF but shall be able to receive RF frames.
NOTE:		Development of test cases for RQ9.99, RQ9.100, RQ9.102, RQ9.103, RQ9.105, RQ9.107, RQ9.109, RQ9.110, RQ9.111 and RQ9.112 is FFS.

5.6.4.4.2 Test case 1: NFCIP-1 command is not forwarded to UICC

5.6.4.4.2.1 Test execution

Run this test with the following parameters:

- None.

5.6.4.4.2.2 Initial conditions

- The user has to ensure that the RF technology type F is enabled in the Host Controller for the UICC prior to placing the Host Controller in the PCD field.

- A PIPEa is created and opened by the host with source G_{ID} = '24' to the card RF gate of type F of HCUT.

- MODE is set to '02'.

- SESSION_IDENTITY is set to a random value.

- The Proximity Coupling Device (PCD) supporting ISO/IEC 18092 [4] 212 kbps/424 kbps Type F protocol is powered off.

5.6.4.4.2.3 Test procedure

Step	Direction	Description	RQ
1	User → HCUT	While the field is off, the Host Controller is placed in the area where the field will be powered on.	
2	PCD → HCUT	Power on the field.	
3	HCUT → HS	If SWP was not in DEACTIVATED state when the field was powered on, the HCUT shall send EVT_FIELD_ON. If SWP was in the DEACTIVATED state when the field was powered on, the HCUT shall activate the interface instead of sending EVT_FIELD_ON.	RQ9.98, RQ9.76
4	PCD -> HCUT HCUT -> HS HS -> HCUT HCUT -> PCD	Perform initialization of RF ISO/IEC 18092 [4] 212 kbps/424 kbps passive mode. PCD transmits RF frame with payload of the initialization command (POLLING REQUEST) as defined in ISO/IEC 18092 [4] 212 kbps/424 kbps passive mode, where the Length is set to '06', 1st byte to '00', 2nd and 3rd bytes to '8EFC', 4th byte to '00', 5th byte to '00', and bytes 6 and 7 represent the correct CRC at 212 kbps, and HCUT responds RF frame (POLLING RESPONSE) to PCD in one of the available time slot(s) according to the initialization procedure as defined in ISO/IEC 18092 [4] for 212 kbps/424 kbps passive mode, where the Length is set to '12', 1st byte to '01', 2nd to 9th bytes to '02FE000000000000', 10th to 17th bytes to 'FFFFFFFFFFFFFFFF', 18 and 19 bytes represent the correct CRC at 212 kbps. In case SWP as defined in ETSI TS 102 613 [2] is used as a data link layer, the initialization data exchange is performed using CLT as defined in ETSI TS 102 613 [2]. The UICC provides information for the initialization.	
5	PCD -> HCUT	Send the ATR_REQ command, where the LEN is set to '11', CMD0 to 'D4', CMD1 to '00', Byte 0 to Byte 9 to '01FE0000000000000000', DID to '00', BS to '00', BR to '00', PP to '00', and the last 2 bytes represent the correct CRC at 212 kbps.	
6	HCUT → HS	No frame is forwarded to HS.	RQ9.108
7	HCUT → PCD	The HCUT may or may not send an RF response frame to the PCD. The PCD shall therefore wait for a potential response for a certain amount of time before continuing. This amount of time is up to the test case implementation and shall be such that the overall test case verdict is not affected.	
8	PCD -> HCUT	Send the DEP_REQ command, where the LEN is set to '0C', CMD0 to 'D4', CMD1 to '06', PFB to '00', DATA to '0001020304050607', and the last 2 bytes represent the correct CRC at 212 kbps.	
9	HCUT → HS	No frame is forwarded.	RQ9.108
10	HCUT → PCD	The HCUT may or may not send an RF response frame to the PCD. The PCD shall therefore wait for a potential response for a certain amount of time before continuing. This amount of time is up to the test case implementation and shall be such that the overall test case verdict is not affected.	

Step	Direction	Description	RQ
11	PCD -> HCUT HCUT -> HS HS -> HCUT HCUT -> PCD	Perform initialization of RF ISO/IEC 18092 [4] 212 kbps/424 kbps passive mode. PCD transmits RF frame with payload of the initialization command (POLLING REQUEST) as defined in ISO/IEC 18092 [4] 212 kbps/424 kbps passive mode, where the Length is set to '06', 1st byte to '00', 2nd and 3rd bytes to '8EFC', 4th byte to '00', 5th byte to '00', and bytes 6 and 7 represent the correct CRC at 212 kbps and HCUT responds RF frame (POLLING RESPONSE) to PCD in one of the available time slot(s) according to the initialization procedure as defined in ISO/IEC 18092 [4] for 212 kbps/424 kbps passive mode, where the Length is set to '12', 1st byte to '01', 2nd to 9th bytes to '02FE000000000000', 10th to 17th bytes to 'FFFFFFFFFFFFFFFF', 18 and 19 bytes represent the correct CRC at 212 kbps. In case SWP as defined in ETSI TS 102 613 [2] is used as a data link layer, the initialization data exchange is performed using CLT as defined in ETSI TS 102 613 [2]. The UICC provides information for the initialization.	
12	User → HCUT	The Host Controller is removed from the PCD field.	
13	HCUT → HS	Send EVT_FIELD_OFF.	RQ9.104, RQ9.106

5.6.4.5 Update RF technology settings

5.6.4.5.1 Conformance requirements

Reference: ETSI TS 102 622 [1], clause 9.4.5.

There are no conformance requirements for the terminal for the referenced clause.

5.6.4.6 Identity check

5.6.4.6.1 Conformance requirements

Reference: ETSI TS 102 622 [1], clause 9.4.6.

RQ9.110	If the lower identity check fails, the host controller shall not respond to the external contactless reader with any parameter from the card emulation registries related to the UICC host.
NOTE:	Development of test cases for above listed RQs is FFS.

5.7 Contactless reader

5.7.1 Overview

5.7.1.1 Conformance requirements

Reference: ETSI TS 102 622 [1], clause 10.1.

RQ10.1		The host controller has one reader RF gate for each RF technology it supports.
RQ10.2		The CLF shall handle the RF layers of the communications as defined in ISO/IEC 14443-2 [5].
RQ10.3		The anti-collision and activation as defined in ISO/IEC 14443-3 [6] shall be handled by the CLF under the control of the host.
RQ10.4		The RF protocol as defined in ISO/IEC 14443-4 [7] shall be handled by the CLF.
RQ10.5		The reader RF gate and reader application gate shall exchange APDUs defined in ISO/IEC 7816-4 [8] over their pipe.
RQ10.59	Rel-11 upwards	If MAX_CURRENT present in the host controller, the host is allowed to consume a current up to the maximum defined by the host controller in its identity management gate registry between the appearance and the disappearance of the RF unless restricted by the underlying layers e.g. ETSI TS 102 613 [2] where the restrictions for low-power mode and power saving mode still apply.
NOTE:	Development of test cases for RQ10.59 is FFS.	

5.7.2 Reader RF gates

5.7.2.1 Overview

Reference: ETSI TS 102 622 [1], clause 10.2.1.

There are no conformance requirements for the terminal for the referenced clause.

5.7.2.2 Command

5.7.2.2.1 WR_XCHG_DATA

5.7.2.2.1.1 Conformance requirements

Reference: ETSI TS 102 622 [1], clause 10.2.2.1.

RQ10.6		If b5 of the CTR field of WR_XCHG_DATA is set to zero, application level time-out is deactivated.
RQ10.7		If b5 of the CTR field of WR_XCHG_DATA is set to one, then b4 to b1 is a time-out value which shall use to calculate the application level time-out with the formula specified in ETSI TS 102 622 [1].
RQ10.60	Rel-11 upwards	If b5 of the CTR field is set to one and no response is received by the CLF from a target within the time-out period commencing after the error free transmission of this command by the CLF to the target, the CLF shall respond to the host with ANY_E_TIMEOUT with no parameters and shall discard data received from the target thereafter.
RQ10.8		When command WR_XCHG_DATA is successful, the host controller shall respond with ANY_OK with parameter which contains the data received and the RF error indicator.
RQ10.9		When command WR_XCHG_DATA is successful, the RF error indicator shall be '00' if no error.
RQ10.10	Rel-7 to Rel-10	When command WR_XCHG_DATA is successful, the RF error indicator shall be '01' if error.
RQ10.61	Rel-11 upwards	When command WR_XCHG_DATA is successful, the RF error indicator shall be '01' if non-recoverable error occurs.
RQ10.62	Rel-11 upwards	If the CLF detects an RF transmission error and the error detection and recovery procedure defined by ISO/IEC 14443-4 [7] does not succeed then the CLF shall respond to the host with ANY_OK with the error indicator set to '01'.
NOTE:		Development of test cases for RQ10.6, RQ10.7, RQ10.60, RQ10.10, RQ10.61 and RQ10.62 is FFS.

5.7.2.3 Registries

5.7.2.3.1 Type A reader RF gate

5.7.2.3.1.1 Conformance requirements

Reference: ETSI TS 102 622 [1], clause 10.2.3.1.

RQ10.11	10.2.3.1		Registry parameters which are in the range reserved for usage by ETSI TS 102 622 [1] but which are not defined in ETSI TS 102 622 [1] shall not be present in the registry.
RQ10.12	10.2.3.1		The registry is not persistent.
RQ10.13	10.2.3.1	Rel-7 to Rel-10	The values are updated after each target activation.
RQ10.63	10.2.3.1	Rel-11 upwards	The values '02' to '06' (from table 42 in ETSI TS 102 622 [1]) are updated after each target activation.
RQ10.64	10.2.3.1	Rel-11 upwards	The value '07' (from table 42 in ETSI TS 102 622 [1]) is updated when the operating status changes.
RQ10.14	10.2.3.1		The CLF shall set a default value for UID_REG of '08000000'.
RQ10.15	10.2.3.1		The CLF shall apply the access condition of RO for UID.
RQ10.16	10.2.3.1		The CLF shall use a default value for ATQA of '0000'.
RQ10.17	10.2.3.1		The CLF shall apply the access condition of RO for ATQA.
RQ10.18	10.2.3.1		The CLF shall use a default value for APPLICATION_DATA of an empty array.
RQ10.19	10.2.3.1		The CLF shall apply the access condition of RO for APPLICATION_DATA.
RQ10.20	10.2.3.1		The CLF shall use a default value for SAK of '00'.
RQ10.21	10.2.3.1		The CLF shall apply the access condition of RO for SAK.
RQ10.22	10.2.3.1		The CLF shall use a default value for FWI, SFGT of 'EE'.
RQ10.23	10.2.3.1		The CLF shall apply the access condition of RO for FWI, SFGT.
RQ10.24	10.2.3.1		The CLF shall set a default value for DATARATE_MAX of '00'.
RQ10.25	10.2.3.1		The CLF shall apply to the access condition of RW to DATARATE_MAX.
RQ10.26	10.2.3.1		The CLF shall accept valid values of DATARATE_MAX as defined in ETSI TS 102 622 [1].
RQ10.27	10.2.3.1		The maximum supported divisor used over the RF interface shall be the minimum of the value as indicated in the registry and the maximum divisor implemented in the CLF.
RQ10.65	10.2.3.1	Rel-11 upwards	The CLF shall set b1 to 0 of OPERATING_STATUS when the Type A reader mode is not available for the host (e.g. the CLF is exclusively active for another host).
RQ10.66	10.2.3.1	Rel-11 upwards	The CLF shall set b1 to 1 of OPERATING_STATUS when the Type A reader mode is available for the host.
RQ10.67	10.2.3.1	Rel-11 upwards	The CLF shall apply to the access condition of RO to OPERATING_STATUS.
RQ10.68	10.2.3.1	Rel-11 upwards	The CLF shall set a default value for STATUS_EVENT_EN of '00'.
RQ10.69	10.2.3.1	Rel-11 upwards	The CLF shall accept valid values of STATUS_EVENT_EN as defined in ETSI TS 102 622 [1].
RQ10.70	10.2.3.1	Rel-11 upwards	The CLF shall apply to the access condition of RW to STATUS_EVENT_EN.
NOTE:			Development of test cases for RQ10.11, RQ10.12, RQ10.63, RQ10.64, RQ10.65, RQ10.66, RQ10.67, RQ10.68, RQ10.69 and RQ10.70 is FFS.

5.7.2.3.2 Type B reader RF gate

5.7.2.3.2.1 Conformance requirements

Reference: ETSI TS 102 622 [1], clause 10.2.2.1and 10.2.3.2.

RQ10.28	10.2.3.2		Registry parameters which are in the range reserved for usage by ETSI TS 102 622 [1] but which are not defined in ETSI TS 102 622 [1] shall not be present in the registry.
RQ10.29	10.2.3.2		The registry is not persistent.
RQ10.30	10.2.3.2	Rel-7 to Rel-10	The values are updated after each target activation.
RQ10.71	10.2.3.2	Rel-11 upwards	The values '01', '03', '04' and '02' (read value) from table 43 defined in ETSI TS 102 622 [1] are updated after each target activation.
RQ10.72	10.2.3.2	Rel-11 upwards	The value '07' from table 43 defined in ETSI TS 102 622 [1] is updated when the operating status changes.
RQ10.31	10.2.3.2		The CLF shall use a default value for PUPI of 'N0=0'.
RQ10.32	10.2.3.2		The CLF shall apply the access condition of RO for PUPI.
RQ10.33	10.2.3.2		The CLF shall use a default value for APPLICATION_DATA of 'N1=0'.
RQ10.34	10.2.3.2		The CLF shall apply the access condition of RO for APPLICATION_DATA.
RQ10.35	10.2.3.2		The CLF shall set a default value for AFI of '00'.
RQ10.36	10.2.3.2		The CLF shall apply the access condition of RW to AFI.
RQ10.73	10.2.3.2	Rel-11 upwards	The CLF shall use the value written to the AFI registry by the host to poll the target.
RQ10.74	10.2.3.2	Rel-11 upwards	The CLF shall set the AFI registry value to the AFI value of the target after the activation of the target.
RQ10.37	10.2.3.2		The CLF shall use a default value for HIGHER_LAYER_RESPONSE of 'N2=0'.
RQ10.38	10.2.3.2		The CLF shall apply the access condition of RO to HIGHER_LAYER_RESPONSE.
RQ10.39	10.2.3.2		The CLF shall set a default value for HIGHER_LAYER_DATA of 'N3=0'.
RQ10.40	10.2.3.2		The CLF shall apply the access condition of RW to HIGHER_LAYER_DATA.
RQ10.75	10.2.2.1	Rel-11 upwards	The CLF shall set b1 to 0 of OPERATING_STATUS when the Type B reader mode is not available for the host (e.g. the CLF is exclusively active for another host).
RQ10.76	10.2.2.1	Rel-11 upwards	The CLF shall set b1 to 1 of OPERATING_STATUS when the Type B reader mode is available for the host.
RQ10.77	10.2.2.1	Rel-11 upwards	The CLF shall apply to the access condition of RO to OPERATING_STATUS.
RQ10.78	10.2.2.1	Rel-11 upwards	The CLF shall set a default value for STATUS_EVENT_EN of '00'.
RQ10.79	10.2.2.1	Rel-11 upwards	The CLF shall accept valid values of STATUS_EVENT_EN as defined in ETSI TS 102 622 [1].
RQ10.80	10.2.2.1	Rel-11 upwards	The CLF shall apply to the access condition of RW to STATUS_EVENT_EN.
NOTE:		Development of test cases for RQ10.28, RQ10.29, RQ10.71, RQ10.72, RQ10.73, RQ10.74, RQ10.75, RQ10.76, RQ10.77, RQ10.78, RQ10.79, RQ10.80 is FFS.	

5.7.2.4 Events and subclauses

5.7.2.4.1 Events

5.7.2.4.1.1 Conformance requirements

Reference: ETSI TS 102 622 [1], clause 10.2.4.

RQ10.41	The reader RF gates shall support the EVT_READER_REQUESTED and EVT_END_OPERATION events.

5.7.2.4.2 EVT_READER_REQUESTED

5.7.2.4.2.1 Conformance requirements

Reference: ETSI TS 102 622 [1], clause 10.2.4.1.

RQ10.42	On receiving the EVT_READER_REQUESTED event, the CLF shall activate the RF polling (turn on the RF carrier).
RQ10.43	The CLF shall accept EVT_READER_REQUESTED event on any open pipe of any reader RF gate.

5.7.2.4.3 EVT_END_OPERATION

5.7.2.4.3.1 Conformance requirements

Reference: ETSI TS 102 622 [1], clause 10.2.4.2.

RQ10.58	Upon reception of the event EVT_END_OPERATION from a host the CLF controller shall turn the RF field OFF if the EVT_TARGET_DISCOVERED has been previously sent to that specific host.

5.7.2.4.4 EVT_READER_STATUS

5.7.2.4.4.1 Conformance requirements

Reference: ETSI TS 102 622 [1], clause 10.2.4.2.

RQ10.81	Rel-11 upwards	The CLF shall send this event once after the reader status event enable bit (b1) in the STATUS_EVENT_EN is changed to 1
RQ10.82	Rel-11 upwards	The CLF shall send this event as long as the reader status event enable bit (b1) in the corresponding STATUS_EVENT_EN remains at 1 whenever the availability status of a reader RF gate has changed.
RQ10.83	Rel-11 upwards	If multiple pipes from one host to reader RF gates are open, the CLF shall send this event over one of these pipes only.
RQ10.84	Rel-11 upwards	If different types of the reader mode become available/unavailable for the host at different points in time, the CLF shall send one event for each change.
RQ10.85	Rel-11 upwards	The CLF shall not send the EVT_READER_STATUS if the reader status event enable bit (b1) in the corresponding STATUS_EVENT_EN is set to 0.
RQ10.86	Rel-11 upwards	The CLF shall set the reader status field of READER_ STATUS for b1: Type A reader status to 0 if the reader mode for Type A targets is not available for this host.
RQ10.87	Rel-11 upwards	The CLF shall set the reader status field of READER_ STATUS for b1: Type A reader status to 1 if the reader mode for Type A targets is available for this host.
RQ10.88	Rel-11 upwards	The CLF shall set the reader status field of READER_ STATUS for b2: Type B reader status to 0 if the reader mode for Type B targets is not available for this host. 1 if the reader mode for Type B targets is available for this host.
RQ10.89	Rel-11 upwards	The CLF shall set the reader status field of READER_ STATUS for b2: Type B reader status to 1 if the reader mode for Type B targets is available for this host.
NOTE:		Development of test cases for above listed RQs is FFS.

5.7.2.5 Responses

5.7.2.5.1 Conformance requirements

Reference: ETSI TS 102 622 [1], clause 10.2.5.

RQ10.44	If command WR_XCHG_DATA is successful, response shall be ANY_OK.
RQ10.45	If command WR_XCHG_DATA is rejected and/or not completed, response shall be ANY_E_OK.
RQ10.46	If Application level time-out occurred, the response shall be ANY_E_TIMEOUT.
RQ10.47	If Target has returned an RF error the response shall be 'WR_RF_ERROR.
NOTE:	Development of test cases for above listed RQs is FFS.

5.7.3 Reader application gates

5.7.3.1 Overview

Reference: ETSI TS 102 622 [1], clause 10.3.1.

There are no conformance requirements for the terminal for the referenced clause.

5.7.3.2 Command

5.7.3.2.1 Conformance requirements

Reference: ETSI TS 102 622 [1], clause 10.3.2.

There are no conformance requirements for the terminal for the referenced clause.

5.7.3.3 Registry

5.7.3.3.1 Conformance requirements

Reference: ETSI TS 102 622 [1], clause 10.3.3.

There are no conformance requirements for the terminal for the referenced clause.

5.7.3.4 Events and subclauses

5.7.3.4.1 Events

5.7.3.4.1.1 Conformance requirements

Reference: ETSI TS 102 622 [1], clause 10.3.4.

There are no conformance requirements for the terminal for the referenced clause.

5.7.3.4.2 EVT_TARGET_DISCOVERED

5.7.3.4.2.1 Conformance requirements

Reference: ETSI TS 102 622 [1], clause 10.3.4.1.

RQ10.48	The existence of an RF target in the field of the activated RF technology shall be signalled to the reader application gate by EVT_TARGET_DISCOVERED event.
RQ10.49	If there is a single target in the reader field and the activation of the target is completed then the value of STATUS parameter of EVT_TARGET_DISCOVERED event shall be equal to '00'.
RQ10.50	If there are several targets in the field irrespective of the RF technology then the value of STATUS parameter of EVT_TARGET_DISCOVERED event shall be equal to '03'.
NOTE:	Development of test cases for RQ10.50 is FFS.

5.7.4 Procedures

5.7.4.1 Use of contactless reader application

5.7.4.1.1 Conformance requirements

Reference: ETSI TS 102 622 [1], clause 10.4.1.

RQ10.51		On receiving the EVT_READER_REQUESTED event, the CLF shall enable the RF polling.
RQ10.52		Once RF polling is enabled, the CLF shall start the detecting of a target according to all reader RF gates of the host that have an open pipe.
RQ10.53		When a target has been detected and activated, the CLF shall notify the host via the event EVT_TARGET_DISCOVERED.
RQ10.54		If the several targets in the field then the procedure shall stop.
RQ10.55		When the CLF receives a response from the target to a forwarded C-APDU, the reader RF gate shall reply in sending back an R-APDU to the reader application gate.
RQ10.56	Rel-7 to Rel-10	If an application level time-out occurs before the CLF receives a response from the target, the CLF shall respond to the UICC with ANY_E_TIMEOUT.
RQ10.57	Rel-7 to Rel-10	Once the CLF responds with ANY_E_TIMEOUT, it shall discard data received from the target thereafter.
NOTE:	Development of test cases for RQ10.54, RQ10.56 and RQ10.57 is FFS.	

5.7.4.2 Contactless reader not available

5.7.4.2.1 Conformance requirements

Reference: ETSI TS 102 622 [1], clause 10.4.2

RQ10.90	Rel-11 upwards	After receiving ANY_GET_PARAMETER(OPERATING_STATUS), if the reader is not available the CLF shall report to the UICC that the reader is not available in the response ANY_OK (not available) as specified in RQ10.65 and RQ10.75.
RQ10.91	Rel-11 upwards	After receiving ANY_SET_PARAMETER(STATUS_EVENT_EN, on) from the host, the CLF shall reports to the UICC that the reader is (still not) available via EVT_READER_STATUS.
RQ10.92	Rel-11 upwards	Once the reader becomes available for the host, the CLF activates the reader for the host and the reader RF gates signals this via the event reader status.
NOTE:	Development of test cases for above listed RQs is FFS.	

5.7.4.3 Error management

5.7.4.3.1 Conformance requirements

Reference: ETSI TS 102 622 [1], clause 10.4.3

RQ10.93	Rel-11 upwards	If the CLF detected a non-recoverable RF error after WR_XCHG_DATA reception and the reader RF gate replies in sending the response ANY_OK with parameter "Error indicator" set to '01'.
RQ10.94	Rel-11 upwards	The CLF shall be able to restart the reader operation if the host sends the EVT_READER_REQUESTED after stopping a pervious reader operation by sending the EVT_END_OPERATION upon RF error occurrence.
NOTE:	Development of test cases for above listed RQs is FFS.	

5.8 Connectivity

5.8.1 Overview

Reference: ETSI TS 102 622 [1], clause 11.1.

There are no conformance requirements for the terminal host for the referenced clause.

5.8.2 Connectivity gate and subclauses

5.8.2.1 Connectivity gate

Reference: ETSI TS 102 622 [1], clause 11.2.

RQ11.8	Rel-11 upwards	As destination gate, the connectivity gate shall accept at least one pipe from each host in its WHITELIST.
NOTE:	Development of test cases for RQ11.8 is FFS.	

5.8.2.2 Commands

5.8.2.2.1 PRO_HOST_REQUEST

5.8.2.2.1.1 Conformance requirements

Reference: ETSI TS 102 622 [1], clause 11.2.1.1.

RQ11.1	When the terminal host receives an PRO_HOST_REQUEST, it shall attempt to activate every host in the list of host identifiers during the Activation Duration.
RQ11.2	If every requested host has successfully been activated, the terminal host shall send an ANY_OK response with no parameters.
RQ11.3	If no requested host has been successfully activated, the terminal host shall send a response which is not ANY_OK.
NOTE:	Development of test cases for above listed RQs is FFS.

5.8.2.3 Events and subclauses

5.8.2.3.1 Events

Reference: ETSI TS 102 622 [1], clause 11.2.2.

There are no conformance requirements for the terminal host for the referenced clause.

5.8.2.3.2 EVT_CONNECTIVITY

5.8.2.3.2.1 Conformance requirements

Reference: ETSI TS 102 622 [1], clause 11.2.2.1.

RQ11.4	When the terminal host receives an EVT_CONNECTIVITY, it shall send a "HCI connectivity event" as defined in ETSI TS 102 223 [3].
NOTE:	Development of test cases for above listed RQs is FFS.

5.8.2.3.3 Void

5.8.2.3.4   EVT_OPERATION_ENDED

5.8.2.3.4.1   Conformance requirements

Reference: ETSI TS 102 622 [1], clause 11.2.2.3.

There are no conformance requirements for the terminal host for the referenced clause.

5.8.2.3.5   EVT_TRANSACTION

5.8.2.3.5.1   Conformance requirements

Reference: ETSI TS 102 622 [1], clause 11.2.2.4.

RQ11.5		When the terminal host receives an EVT_TRANSACTION, it shall attempt to launch an application associated to an NFC application in a UICC host identified by the AID.
RQ11.17	Rel-12 upwards	The terminal host shall make the PARAMETERS available to the launched application.
NOTE:	Development of test cases for RQ11.17 is FFS.	

5.8.2.4   Registry

5.8.2.4.1   Conformance requirements

Reference: ETSI TS 102 622 [1], clause 11.2.3.

RQ11.6		Registry parameters which are in the range reserved for usage by ETSI TS 102 622 [1] but which are not defined in ETSI TS 102 622 [1] shall not be present in the registry.
RQ11.9	Rel-12 upwards	The terminal host shall use a default value for UI_STATE of '00'.
RQ11.10	Rel-12 upwards	The terminal host shall apply the access condition of RO to UI_STATE of 1 byte length.
RQ11.11	Rel-12 upwards	The terminal host shall set UI_STATE to '00' if the UI availability unknown.
RQ11.12	Rel-12 upwards	The terminal host shall set UI_STATE to '01' if UI is fully available, i.e. the screen is currently active and the terminal application can display a message to the user and/or ask for a user input.
RQ11.13	Rel-12 upwards	The terminal host shall set UI_STATE to '02' if the UI is locked and the user cannot be notified
RQ11.14	Rel-12 upwards	The terminal host shall set UI_STATE to '03' if the UI is locked and the user can be notified.
RQ11.15	Rel-12 upwards	The terminal host shall set UI_STATE to '04' if the UI is unlocked but the user cannot be notified.
RQ11.16	Rel-12 upwards	The terminal should update this information whenever the availability state of the UI is modified, where the information provided by the terminal is only accurate at the time it is delivered by the terminal.
NOTE:	Development of test cases for above listed RQs is FFS.	

5.8.3   Connectivity application gate and subclauses

5.8.3.1   Connectivity application gate

5.8.3.1.1   Conformance requirements

Reference: ETSI TS 102 622 [1], clause 11.3.

There are no conformance requirements for the terminal host for the referenced clause.

5.8.3.2 Commands

5.8.3.2.1 Conformance requirements

Reference: ETSI TS 102 622 [1], clause 11.3.1.

There are no conformance requirements for the terminal host for the referenced clause.

5.8.3.3 Events and subclauses

5.8.3.3.1 Events

5.8.3.3.1.1 Conformance requirements

Reference: ETSI TS 102 622 [1], clause 11.3.2.

There are no conformance requirements for the terminal host for the referenced clause.

5.8.3.3.2 EVT_STANDBY

5.8.3.3.2.1 Conformance requirements

Reference: ETSI TS 102 622 [1], clause 11.3.2.1.

RQ11.7	When the terminal host send EVT_STANDBY, it shall not contain parameters.
NOTE:	Development of test cases for above listed RQs is FFS.

5.8.3.4 Registry

5.8.3.4.1 Conformance requirements

Reference: ETSI TS 102 622 [1], clause 11.3.3.

There are no conformance requirements for the terminal host for the referenced clause.

5.8.4 Procedures

5.8.4.1 Use of connectivity gate

Reference: ETSI TS 102 622 [1], clause 11.4.1.

There are no conformance requirements for the terminal host for the referenced clause.

5.9 APDU Transport

5.9.1 Server APDU host (APDU gate)

5.9.1.1 General

5.9.1.1.1 Conformance requirements

Reference: ETSI TS 102 622 [1], clauses 12.1, 12.2 and 12.3.

RQ12.1	12.1	Rel-12 upwards	A client APDU host shall be able to create a pipe to the APDU gate of a server APDU host only if the client APDU host is included in the WHITELIST of the server APDU host.
RQ12.2	12.2	Rel-12 upwards	The APDU gate may accept only an implementation specific maximum concurrent number of pipes from other hosts.
RQ12.3	12.2	Rel-12 upwards	The server APDU host shall support the generic gate commands and events as defined in clause 7.2 in ETSI TS 102 622 [1]
RQ12.4	12.3	Rel-12 upwards	The G_{ID} for APDU application gate shall be dynamically assigned by the host.
NOTE:	Development of test cases for all above listed RQs is FFS.		

5.9.1.2 Commands

Reference: ETSI TS 102 622 [1], clause 12.2.1.

There are no conformance requirements for the terminal for the referenced clause.

5.9.1.3 Events

5.9.1.3.1 Conformance requirements

Reference: ETSI TS 102 622 [1], clauses 12.2.2 and subclauses, 12.3.2 and subclauses.

RQ12.5	12.2.2	Rel-12 upwards	The APDU gate shall support the events listed in table 55 defined in ETSI TS 102 622 [1].
RQ12.6	12.2.2.2	Rel-12 upwards	Upon reception of EVT_ABORT the server APDU host shall reset the state of the APDU gate to "INIT" and behave as the signal input (RST) was reset on the ETSI TS 102 221 [11] interface, and should not imply any impact on the contactless interface or any other HCI pipe.
RQ12.7	12.2.2.2	Rel-12 upwards	After processing EVT_ABORT the server APDU host shall send an EVT_ATR event to the client APDU host.
RQ12.8	12.3.2.1	Rel-12 upwards	EVT_R-APDU event shall be sent by the server APDU host after processing of APDU command received in an EVT_C-APDU.
RQ12.9	12.3.2.1	Rel-12 upwards	EVT_R-APDU shall be sent by the server APDU host not later than the maximum waiting time specified in the APDU gate registry after receiving EVT_C-APDU or after sending the last EVT_WTX.
RQ12.10	12.3.2.1	Rel-12 upwards	EVT_R-APDU event shall contain the Response APDU Data parameter.
RQ12.11	12.3.2.2	Rel-12 upwards	EVT_WTX event shall be sent by the server APDU host during processing of APDU command if the processing of the command exceeds the maximum waiting time specified in the APDU gate registry and can be sent repeatedly if more time is required for the processing.
RQ12.12	12.3.2.2	Rel-12 upwards	EVT_WTX event shall contain no parameters.
RQ12.13	12.3.2.3	Rel-12 upwards	The EVT_ATR event shall be sent by the server APDU host to indicate to the client APDU host the availability of the server for APDU processing.
RQ12.14	12.3.2.3	Rel-12 upwards	EVT_ATR shall be sent not later than 100 ms after opening of the pipe by the client APDU host.
RQ12.15	12.3.2.3	Rel-12 upwards	EVT_ATR shall be sent not later than 100 ms after reception of an EVT_ABORT.
RQ12.16	12.3.2.3	Rel-12 upwards	EVT_ATR shall be sent not later than 100 ms after the end of the session initialization as described in clause 8.4 in ETSI TS 102 622 [1], in case the server APDU host is powered up and the pipe is already open.
RQ12.17	12.3.2.3	Rel-12 upwards	EVT_ATR shall contain ATR parameter, where the value of ATR is encoded as defined in ISO/IEC 7816-3 [12].
NOTE:	Development of test cases for all above listed RQs is FFS.		

5.9.1.4 Registry

5.9.1.4.1 Conformance requirements

Reference: ETSI TS 102 622 [1], clause 12.2.3.

RQ12.18	Rel-12 upwards	The registry shall be persistent.
RQ12.19	Rel-12 upwards	The host controller shall apply the access condition of RO for MAX_C-APDU_SIZE.
RQ12.20	Rel-12 upwards	The host controller shall apply the access condition of RO for MAX_WAIT_TIME.
NOTE:	Development of test cases for all above listed RQs is FFS.	

5.9.1.5 State diagram for the APDU gate

5.9.1.5.1 Conformance requirements

Reference: ETSI TS 102 622 [1], clauses 12.4.

Extraction of requirements for this clause is FFS.

5.9.2 Client APDU host (APDU application gate)

5.9.2.1 General

5.9.2.1.1 Conformance requirements

Reference: ETSI TS 102 622 [1], clauses 12.1 and 12.3.

RQ12.21	12.1	Rel-12 upwards	A client APDU host shall not create more than one pipe to the APDU gate of a server APDU host.
RQ12.22	12.3	Rel-12 upwards	The APDU application gate of a client APDU host shall support the generic gate commands and events as defined in clause 7.2 in ETSI TS 102 622 [1].
RQ12.4	12.3	Rel-12 upwards	The G_{ID} for APDU application gate shall be dynamically assigned by the host.
NOTE:	RQ12.21, RQ12.22 and RQ12.3 are tested under clause 5.9.2.3 of the present document.		

5.9.2.2 Commands

Reference: ETSI TS 102 622 [1], clause 12.3.1.

There are no conformance requirements for the terminal for the referenced clause.

5.9.2.3 Events

5.9.2.3.1 Conformance requirements

Reference: ETSI TS 102 622 [1], clauses 12.2.2 and subclauses, 12.3.2 and subclauses

RQ12.23	12.3.2	Rel-12 upwards	The APDU application gate support the events listed in table 58 defined in ETSI TS 102 622 [1].
RQ12.24	12.2.2.1	Rel-12 upwards	The event EVT_C-APDU shall be used by the client APDU host in order to send an APDU command to be processed by the server APDU host.
RQ12.25	12.2.2.1	Rel-12 upwards	The event EVT_C-APDU has one parameter describing the Command APDU field and the length shall not exceed the length specified in the gate's registry
RQ12.26	12.2.2.2	Rel-12 upwards	Event EVT_ABORT shall contain no parameters
RQ12.27	12.2.2.3	Rel-12 upwards	The event EVT_END_OF_APDU_TRANSACTION shall contain no parameters
RQ12.28	12.2.2.3	Rel-12 upwards	The event EVT_END_OF_APDU_TRANSACTION shall be sent by the client APDU host when no more activity is requested on the sever APDU host.
RQ12.21	12.1	Rel-12 upwards	A client APDU host shall not create more than one pipe to the APDU gate of a server APDU host.
RQ12.22	12.3	Rel-12 upwards	The APDU application gate of a client APDU host shall support the generic gate commands and events as defined in clause 7.2 in ETSI TS 102 622 [1].
RQ12.4	12.3	Rel-12 upwards	The G_{ID} for APDU application gate shall be dynamically assigned by the host
NOTE:	Development of test cases for RQ12.26 is FFS.		

5.9.2.3.2 Test case 1: initial activation of APDU gate – Client APDU host

5.9.2.3.2.1 Test execution

The test procedure shall be executed once for each of following parameters in step 6:

- EVT_ATR delay = 15 ms.

- EVT_ATR delay = 95 ms.

5.9.2.3.2.2 Initial conditions

- PIPE1 is currently open.

- Conditions of TRx are met.

- HCI session initialization has been performed and SESSION_IDENTITY is set to a random value.

5.9.2.3.2.3 Test procedure

Step	Direction	Description	RQ
1	User	Trigger the HCUT to initialize the APDU gate.	
2	HCUT → HS	Send ADM_NOTIFY_PIPE_CREATED on PIPE1, with source G_{ID} = G_{ID} of the APDU gate and destination G_{ID} = '30'; designate the created pipe PIPEapdu.	RQ12.4, RQ12.21 RQ12.22
3	HS → HCUT	Send ANY_OK.	
4	HCUT → HS	Send ANY_OPEN_PIPE on PIPEapdu.	RQ12.22
5	HS → HCUT	Send ANY_OK with valid response parameter.	
6	HS → HCUT	Send EVT_ATR with content '3B 00' after the time indicated in the Test execution clause.	RQ12.23
7	HCUT → HS	The HCUT may send ANY_GET_PARAMETER (MAX_C-APDU_SIZE).	RQ12.22
8	HS → HCUT	If the HCUT sent the command in step 7, send ANY_OK with parameter value equal to '261'.	
9	HCUT → HS	The HCUT may send ANY_GET_PARAMETER (MAX_WAIT_TIME).	RQ12.22
10	HS → HCUT	If the HCUT sent the command in step 9, send ANY_OK with parameter value equal to '1000'.	
11	User	Trigger the HCUT to send a C-APDU ('00 A4 00 0C').	
12	HCUT → HS	Send EVT_C-APDU ('00 A4 00 0C') on PIPEapdu.	RQ12.24, RQ12.25
13	HS → HCUT	Send EVT_R-APDU ('90 00') on PIPEapdu.	
14	User	Trigger the HCUT to send a C-APDU ('00 B0 00 00 02').	
15	HCUT → HS	Send EVT_C-APDU ('00 B0 00 00 02') on PIPEapdu.	RQ12.24, RQ12.25

Step	Direction	Description	RQ
16	HS → HCUT	Send EVT_R-APDU ('01 02 90 00') on PIPEapdu.	
17	User	Trigger the HCUT to send a C-APDU ('00 A4 00 0C 02 3F 00').	
18	HCUT → HS	Send EVT_C-APDU ('00 A4 00 0C 02 3F 00') on PIPEapdu.	RQ12.24, RQ12.25
19	HS → HCUT	Send EVT_R-APDU ('90 00') on PIPEapdu.	
20	User	Trigger the HCUT to send a C-APDU ('00 A4 00 04 02 3F 00 00').	
21	HCUT → HS	Send EVT_C-APDU ('00 A4 00 04 02 3F 00 00') on PIPEapdu.	RQ12.24, RQ12.25
22	HS → HCUT	Send EVT_R-APDU ('01 02 90 00') on PIPEapdu.	
NOTE:		Steps 6, 7/8 and 9/10 may occur in any order.	

5.9.2.3.3 Test case 2: APDU command processing after reboot

5.9.2.3.3.1 Test execution

The test procedure shall be executed once for each of following parameters in step 3:

- EVT_ATR delay = 15 ms.

- EVT_ATR delay = 95 ms.

There are no test case-specific parameters for this test case.

5.9.2.3.3.2 Initial conditions

- Conditions of TRx are met.

- MAX_WAIT_TIME is set to '1000' and MAX_C-APDU_SIZE is set to '261'.

- A PIPEapdu is created and opened by the host controller with source G_{ID} = G_{ID} of the APDU gate and destination G_{ID} = '30'.

- The host controller is powered down.

5.9.2.3.3.3 Test procedure

Step	Direction	Description	RQ
1	User → HCUT	Power up the HCUT.	
2	HS → HCUT	Perform session initialization by retrieving SESSION_IDENTITY.	
3	HS → HCUT	Send EVT_ATR with content '3B 00' on PIPEapdu after the time indicated in the Test execution clause.	RQ12.21, RQ12.23
4	User	Trigger the HCUT to send a C-APDU ('00 A4 00 04').	
5	HCUT → HS	Send EVT_C-APDU ('00 A4 00 04') on PIPEapdu.	RQ12.24, RQ12.25
6	HS → HCUT	Send EVT_R-APDU ('90 00') on PIPEapdu.	

5.9.2.4 Registry

Reference: ETSI TS 102 622 [1], clause 12.3.3.

There are no conformance requirements for the terminal for the referenced clause.

5.9.2.5 State diagram for the APDU gate

5.9.2.5.1 Conformance requirements

Reference: ETSI TS 102 622 [1], clauses 12.4.

Extraction of requirements for this clause is FFS.

Annex A (informative):
Bibliography

- ETSI TS 101 220: "Smart Cards; ETSI numbering system for telecommunication application providers".

Annex B (informative):
Core specification version information

Unless otherwise specified, the versions of ETSI TS 102 622 [1] from which conformance requirements have been extracted are as follows.

Release	Latest version from which conformance requirements have been extracted
7	V7.10.0
8	V8.4.0
9	V9.4.0
10	V10.3.0
11	V11.3.0
12	V12.1.0 + accepted CRs (SCP(14)000282, SCP(14)000283, SCP(14)000284 and SCP(15)000047)
13	The applicability table has been extended to cover Rel-13. Additional Rel-13 requirements are still to be identified.

Annex C (informative):
Change history

The table below indicates all changes that have been incorporated into the present document since it was placed under change control.

Change history								
Date	Meeting	Plenary Doc	CR	Rev	Cat	Subject/Comment	Old	New
						Creation of the specification		7.0.0
2011-01	SCP #47	SCP(11)0031	001	-	F	Modify RF registries setting test cases to consider the procedure in ETSI TS 102 622 clause 9.4.5	7.0.0	7.1.0
2011-03	SCP #48	SCP(11)0122	002	-	F	CR 102 695-3 R7 #002: editorial corrections	7.0.0	7.1.0
		SCP(11)0123	003	-	F	CR 102 695-3 R7 #003: essential corrections	7.0.0	7.1.0
		SCP(11)0124	004	-	F	CR 102 695-3 R7 #004: Move mandatory tests to optional, based on terminal features declaration	7.0.0	7.1.0
		SCP(11)0125	005	-	F	CR 102 695-3 R7 #005: Update the requirements to version 7.8.0 of ETSI TS 102 622	7.0.0	7.1.0
		SCP(11)0128	008	-	F	CR 102 695-3 R7 #008: Correction of execution parameters in clause 5.6.3.3.4.2.3	7.0.0	7.1.0
		SCP(11)0129	009	-	F	CR 102 695-3 R7 #009: Specification of default of full power mode only for test execution	7.0.0	7.1.0
		SCP(11)0126	006	-	F	Creation of Rel-8 of ETSI TS 102 695-3 to cover Rel-8 conformance requirements of ETSI TS 102 622	7.1.0	8.0.0
2011-06	SCP #50	SCP(11)0239	010	-	F	Modification of applicability of mandatory tests to conditional based on terminal features declaration	8.0.0	8.1.0
		SCP(11)0240	011	-	D	Editorial corrections of VENDOR_NAME typo	8.0.0	8.1.0
2011-12	SCP #53	SCP(11)0349	012	-	F	Correct TR3, to make it consistent with TC 5.4.2.2.2.2	8.1.0	8.2.0
2012-09	SCP #56	SCP(12)000196	013	2	F	Correction of editorial errors on RQs in ETSI TS 102 695-3	8.2.0	8.3.0
2013-03	SCP #58	SCP(13)000034r1	014	1	F	Clarification of SAK test	8.3.0	8.4.0
2013-03	SCP #58	SCP(13)000035	015		B	Creation of Rel-9 of ETSI TS 102 695-3	8.4.0	9.0.0
2013-04	SCP #59	SCP(13)000083	017		F	Tidy up of RQ status	9.0.0	9.1.0
2013-04	SCP #59	SCP(13)000084	018		F	Test case 5.6.3.3.4.2.3: clarification of cascade levels	9.0.0	9.1.0
2013-07	SCP #60	SCP(13)000137r1	019	1	B	Test procedures for Type F	9.1.0	9.2.0
2015-10	SCP #70	SCP(15)000231	020		F	Card emulation test cases: update to set SESSION_IDENTITY and MODE	9.2.0	9.3.0
2015-10	SCP #70	SCP(15)000232	021		F	Test case 5.6.3.3.4.2.3: correction of applicability for terminals not supporting CLT-A	9.2.0	9.3.0
2015-10	SCP #70	SCP(15)000233	023		F	Card emulation test cases: correction of applicability	9.2.0	9.3.0
2015-10	SCP #70	SCP(15)000234	024		F	Type F test cases: correction and clarifications related to RF field	9.2.0	9.3.0
2015-10	SCP #70	SCP(15)000235	026		F	Clause 4.3: consolidation of information to be provided by the device supplier	9.2.0	9.3.0
2016-04	SCP #73	SCP(16)000070	027		D	Deletion of notes under 5.6.3.4.3 sub-clauses	9.2.0	9.3.0
2016-04	SCP #73	SCP(16)000071r1	028	1	F	Test case 5.6.4.4.2: clarification of whether RF responses are expected	9.2.0	9.3.0
2015-10	SCP #70	SCP(15)00236r1	022	1	B	Update to Rel-10	9.3.0	10.0.0
2015-10	SCP #70	SCP(15)000237	025	1	B	Creation of ETSI TS 102 695-3 Rel-11	10.0.0	11.0.0
2016-07	SCP #74	SCP(16)000132r1	029	1	B	Creation of ETSI TS 102 695-3 REL-12	11.0.0	12.0.0
2016-10	SCP #75	SCP(16)000182	030		D	Deletion of incorrect sentence in clause 5.5.1.1.1 and 5.5.1.2.1	11.0.0	12.0.0
2016-12	SCP #76	SCP(16)000250	031		B	Introduction of test cases on APDU gate	11.0.0	12.0.0
2017-06	SCP #79	SCP(17)000095	032		F	Test case 5.6.3.3.4.2.3: specification of ATQA	11.0.0	12.0.0
2017-11	SCP #81	SCP(17)000172r1	033	1	B	Creation of ETSI TS 102 695-3 REL-13	12.0.0	13.0.0

History

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