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Part 3: Host Controller features
(Release 7)

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Contents

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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 (Release 7)";

Part 2: "UICC features (Release 7)";

Part 3: "Host Controller features (Release 7)".

Introduction

The present document defines test cases for the terminal relating to the Host Controller Interface (HCI) as specified in 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 TS 102 695-1 [10].

The present document specifies the test cases for:

- the HCI core as described in the first part of TS 102 622 [1]
- the contactless platform as described in the second part of TS 102 622 [1]

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

2 References

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the reference document (including any amendments) applies.

- 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.

2.1 Normative references

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: "Identification cards - Contactless integrated circuit(s) cards - Proximity cards - Part 3: Initialization and anticollision".

[7] ISO/IEC 14443-4: "Identification cards - Contactless integrated circuit(s) cards - Proximity cards - Part 4: Transmission Protocol".

[8] ISO/IEC 7816-4: "Information technology - Identification cards - Integrated circuit(s) cards with contacts - Part 4: Interindustry 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".

2.2 Informative references

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

Not applicable.

3 Definitions, symbols and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in 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 TS 102 622 [1]

non-occurrence RQ: RQ which has been extracted from 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 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 TS 102 622 [1] and the following apply:

AC	Alternating Current
DUT	Device under test
FFS	For further study
HCUT	Host controller Under Test
HCUT	Host controller under test
HS	Host Simulator
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
SDL	Specification and Description Language
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.

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 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

4.2 Applicability table

Table 4.2 specifies the applicability of each test case to the device under test. See clause 3.4 for the format of table 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	Support
5.3.1.2.1.2	Test case 1: ANY_SET_PARAMETER reception - invalid structure	Rel-7		M	
5.3.1.2.1.3	Test case 2: ANY_SET_PARAMETER reception - RO registry parameter	Rel-7		M	
5.3.1.2.2.2	Test case 1: ANY_GET_PARAMETER reception - invalid structure	Rel-7		M	
5.3.1.2.2.3	Test case 2: ANY_GET_PARAMETER reception - WO registry parameter	Rel-7	SR1	M	
5.3.1.2.3.2	Test case 1: ANY_OPEN_PIPE transmission	Rel-7	TR1	C102	
5.3.1.2.4.2	Test case 1: ANY_CLOSE_PIPE transmission	Rel-7	TR2	C103	
5.3.2.2	Test case 1: responses received out of order, previous command sent by host	Rel-7		M	
5.3.2.3	Test case 2: responses received out of order, previous command sent by host controller	Rel-7	TR1	M	
5.4.2.2.1.2	Test case 1: REC_ERROR	Rel-7	ICR1	M	
5.4.2.2.2.2	Test case 1: REC_ERROR	Rel-7	TR3	M	
5.4.2.3.1.2	Test case 1: registry parameters - optional registries	Rel-7		O	
5.5.1.1.2	Test case 1: valid pipe creation from host simulator to another host	Rel-7	SR2	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	
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	
5.5.1.1.5	Test case 4: valid pipe creation from host controller to host simulator	Rel-7	TR4	M	
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	
5.5.1.2.2	Test case 1: valid pipe deletion from host simulator to another host	Rel-7	SR2	M	
5.5.1.3.2	Test case 1: clear all pipes from host controller - static pipes, dynamic pipes to host	Rel-7	TR5	M	
5.5.5.2	Test case 1: pipe creation	Rel-7		M	
5.6.3.3.4.2.2	Test case 1: MODE parameter			M	
5.6.3.3.4.2.3	Test case 2: UID_REG - verify parameter	Rel-7		M	
5.6.3.3.4.2.4	Test case 3: FWI, SFGI	Rel-7		M	
5.6.3.3.4.3.2	MODE parameter	Rel-7		M	

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

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

Execution requirement	Description
SR1	A gate 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 this 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 controller'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.
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 table 4.2 c).	

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	Indication of presence of HCI_VERSION, and value if supported.		M	V_HCI_VERSION
6	Value of GATES_LIST		M	V_GATES_LIST
7	Value of MAX_PIPE		M	V_ MAX_PIPE
8	Value of HOST_LIST		M	V_ HOST_LIST
NOTE: Conditional values shall be provided if the corresponding option is supported in the table 4.1.				

4.4 Test equipment

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 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 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.

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

Unless otherwise specified, the test equipment shall apply the default conditions described in the following subclauses during test procedure execution.

4.4.2.1 General

The test equipment shall attempt to ensure that the identity check mechanism of the lower layer passes (see 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 (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 (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 recognised 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 recognised that the consequence is that the particular feature will not be tested.

4.6 Pass criterion

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: TS 102 622 [1], clause 4.1.

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

5.1.2 Hosts

Reference: 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.
NOTE 1: RQ4.1 is a non-occurrence RQ. NOTE 2: Development of test cases for RQ4.2 is FFS.	

5.1.3 Gates

5.1.3.1 Conformance requirements

Reference: 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	The host controller shall reject received gate identifiers which are RFU.
RQ4.9	The host controller shall not use gate identifiers which are host specific but not yet allocated in TS 102 622 [1].
RQ4.10	The host controller shall reject received gate identifiers which are host specific but not yet allocated in TS 102 622 [1].
NOTE 1: RQ4.7 and RQ4.9 are not tested, as they are non-occurrence RQs. NOTE 2: Development of test cases for RQ4.10 is FFS.	

5.1.4 Pipes

5.1.4.1 Conformance requirements

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

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

Reference: 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 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 TS 102 622 [1] are needed.

5.1.5 Registries

5.1.5.1 Conformance requirements

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

RQ4.21	For all gates defined in TS 102 622 [1], parameter identifiers in the range of '00' to 'EF' are reserved for use in 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 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 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: 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 recognise 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: 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 recognise 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: 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 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: 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 TS 102 622 [1], the host controller shall not use instruction values between '10' and '3F' which are not allocated in 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: 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: 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 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: 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 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: 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: 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 TS 102 622 [1].
RQ6.42	When receiving ADM_CREATE_PIPE, the host controller shall accept any gate identifier being used as source gate.
NOTE 1: All conformance requirements for the referenced clause are included in clauses 5.5.1.1 and 5.1.4.3 of the present document.	
NOTE 2: Development of test cases for RQ6.42 is FFS.	

5.3.1.3.2 ADM_NOTIFY_PIPE_CREATED

5.3.1.3.2.1 Conformance requirements

Reference: 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: 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: 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: 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 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: 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: 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 TS 102 622 [1], the host controller shall only return a response code which is specified for that command in table 16 in TS 102 622 [1].
NOTE:	Development of test cases for RQ6.24 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: 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 TS 102 622 [1], the host controller shall not use event values which are not allocated in TS 102 622 [1].
NOTE 1: RQ6.28 is not tested, as it is a non-occurrence RQ. NOTE 2: Development of test cases for RQ6.26 and RQ6.27 is FFS.	

5.4 GATES and subclauses

5.4.1 GATES

5.4.1.1 Conformance requirements

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

RQ7.1	Gates shall support the commands and events specified for them in tables 18 and 19 of 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 the 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 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: TS 102 622 [1], clauses 7.1.1.1 and 4.5.

RQ4.26	Registry parameters which are in the range reserved for usage by TS 102 622 [1] but which are not defined in 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.
NOTE 1:	Development of test cases for RQ4.26 and RQ7.8 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 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 present document.

5.4.2.1.2 Host administration gate

5.4.2.1.2.1 Conformance requirements

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

RQ4.26	Registry parameters which are in the range reserved for usage by TS 102 622 [1] but which are not defined in 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 RQ4.26 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: 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 Initial conditions

- The HCI interface is idle; i.e. no further communication is expected.
- PIPE0 is open.

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

NOTE: This clause covers the conformance requirements contained within 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 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.
RQ7.21	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 VERSION_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 VERSION_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	If present in the host controller, the host controller shall apply the access condition of RO to HCI_VERSION.
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'.
NOTE 1: Development of test cases for RQ4.26 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 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.	

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: TS 102 622 [1], clause 7.1.3.

NOTE: This clause covers the conformance requirements contained within 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 VERSION_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 this document, there are no previous HCI versions. RQ7.39 is therefore not tested in the current version of this 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: 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 TS 102 622 [1] shall not be present in the registry.
NOTE:	Development of test cases for RQ1 is FFS.	

5.4.3 Generic gates

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

These conformance requirements must be interpreted in the context of the SDL diagram in clause A.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 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 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 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 doesn't 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: TS 102 622 [1], clauses 8.1.2, 6.1.3.3 and 6.1.3.4.

These conformance requirements must be interpreted in the context of the SDL diagram in clause A.3.

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 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 TS 102 622 [1] are needed.

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.	RQ6.27

5.5.1.3 Clear all Pipes

5.5.1.3.1 Conformance requirements

Reference: 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 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 doesn't 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 must respond appropriately to this command, independently of what command has been sent.			

5.5.2 Registry access

Reference: 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: 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: 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 PIPE1.
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: 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: 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.

5.6.2 Void

Reference: 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: 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: 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.

5.6.3.3 Card RF gates

5.6.3.3.1 Overview

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

RQ9.10	The Card RF gates shall support the EVT_SEND_DATA event.
NOTE:	RQ1 is tested in clause 5.6.4.

5.6.3.3.3.2 EVT_SEND_DATA

Reference: 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: 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: 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 tunneling 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 tunneling 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 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 TS 102 622 [1] but which are not defined in TS 102 622 [1] shall not be present in the registry.

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.

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
7	HS → HCUT	Send ANY _GET _PARAMETER (MODE) on PIPEa.	
8	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:

- UID of length 4, UIDa = 01 02 03 04 and SAKa = 00.
- UID of length 7, UIDa = 01 02 03 04 05 06 07 and SAKa = 20.
- UID of length 10, UIDa = 01 02 03 04 05 06 07 08 09 0A and SAKa = 20.

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'.

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 HCUT → HS	Set the MODE parameter to '02'	
10	User →PCD	The terminal is placed in PCD field.	
11	PCD → HCUT	Transitions from POWER_OFF to IDLE state.	
12	PCD → HCUT	Send REQA.	
13	HCUT → PCD	Send ATQA and enter READY state.	
14	PCD → HCUT	Send AC command with appropriate cascade level.	
15	HCUT → PCD	Send UID CLn given in step 3.	RQ9.18
16	PCD → HCUT	Send SELECT command with received UID.	
17	HCUT → PCD	Send: • SAKa (UID is complete). • SAK (UID is not complete): repeat the steps 14 to 17.	RQ9.18, RQ9.21
18	User → HCUT	The terminal is removed from the PCD field.	
19	User → HCUT	The terminal is placed in PCD field.	
20	PCD → HCUT	Transitions from POWER_OFF to IDLE state.	
21	PCD → HCUT	Send REQA.	
22	HCUT → PCD	Send ATQA and enter READY state.	
23	PCD → HCUT	Send AC command with appropriate cascade level.	
24	HCUT → PCD	Send UID CLn given in step 3.	RQ9.18
25	PCD → HCUT	Send SELECT with received UID.	
26	HCUT → PCD	Send: • SAKa (UID is complete). • SAK (UID is not complete): 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'

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	PCD → HCUT HCUT → PCD	Perform initialization of RF ISO/IEC 14443-3 [6] Type A (with anti-collision and selection).	
7	PCD → HCUT	Send RATS	
8	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: TS 102 622 [1], clause 9.3.3.4.2.

RQ9.40	Registry parameters which are in the range reserved for usage by TS 102 622 [1] but which are not defined in 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 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 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 RQ64 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.

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
7	HS → HCUT	Send ANY _GET _PARAMETER (MODE) on PIPEa	
8	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: 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: TS 102 622 [1], clause 9.3.3.4.4.

RQ9.65	Registry parameters which are in the range reserved for usage by TS 102 622 [1] but which are not defined in 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 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:	Development of test cases for above listed RQs is FFS.

5.6.3.4 Card application gates

5.6.3.4.1 Overview

Reference: 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: 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: 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: 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 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 above listed RQs is FFS.

5.6.3.4.3.3 EVT_CARD_DEACTIVATED

5.6.3.4.3.3.1 Conformance requirements

Reference: 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.
NOTE:	Development of test cases for above listed RQs is FFS.

5.6.3.4.3.4 EVT_CARD_ACTIVATED

5.6.3.4.3.4.1 Conformance requirements

Reference: 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.
NOTE:	Development of test cases for above listed RQs is FFS.

5.6.3.4.3.5 EVT_FIELD_OFF

5.6.3.4.3.5.1 Conformance requirements

Reference: 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.
NOTE:	Development of test cases for above listed RQs is FFS.

5.6.3.4.3.6 EVT_SEND_DATA

5.6.3.4.3.6.1 Conformance requirements

Reference: 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.
NOTE:	Development of test cases for above listed RQs is FFS.

5.6.3.4.4 Registry

5.6.3.4.4.1 Conformance requirements

Reference: 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: TS 102 622 [1], clause 9.4.1.

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

RQ9.82	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.
RQ9.83	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	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	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].
RQ9.86	The card RF gate shall forward the C-APDUs from the external contactless reader to the card application gate using the EVT_SEND_DATA.
RQ9.87	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	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	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	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
NOTE:	Development of test cases for RQ9.83, RQ9.89 is FFS.

5.6.4.2 Non ISO/IEC 14443-4 type A

5.6.4.2.1 Conformance requirements

Reference: 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 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.
NOTE:	Development of test cases for above listed RQs is FFS.

5.6.4.3 Type B' RF technology

5.6.4.3.1 Conformance requirements

Reference: 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: 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	In case SWP as defined in TS 102 613 [2] is used as a data link layer, 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 performed using CLT as defined in TS 102 613 [2] for the RF technology ISO/IEC 18092 [4] 212 kbps/424 kbps passive mode type F.
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 TS 102 622 [1].
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 TS 102 622 [1].
RQ9.108	The command codes reserved for the NFCIP-1 protocol shall not be forwarded.
NOTE:	Development of test cases for above listed RQs is FFS.

5.6.4.5 Update RF technology settings

5.6.4.5.1 Conformance requirements

Reference: 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: 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: 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.
NOTE:	Development of test cases for above listed RQs is FFS.

5.7.2 Reader RF gates

5.7.2.1 Overview

Reference: 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: 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 TS 102 622 [1].
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	When command WR_XCHG_DATA is successful, the RF error indicator shall be '01' if error.
NOTE:	Development of test cases for above listed RQs 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: TS 102 622 [1], clause 10.2.3.1.

RQ10.11	Registry parameters which are in the range reserved for usage by TS 102 622 [1] but which are not defined in TS 102 622 [1] shall not be present in the registry.
RQ10.12	The registry is not persistent.
RQ10.13	The values are updated after each target activation.
RQ10.14	The CLF shall set a default value for UID_REG of '08000000'.
RQ10.15	The CLF shall apply the access condition of RO for UID.
RQ10.16	The CLF shall use a default value for ATQA of '0000'.
RQ10.17	The CLF shall apply the access condition of RO for ATQA.
RQ10.18	The CLF shall use a default value for APPLICATION_DATA of an empty array.
RQ10.19	The CLF shall apply the access condition of RO for APPLICATION_DATA.
RQ10.20	The CLF shall use a default value for SAK of '00'.
RQ10.21	The CLF shall apply the access condition of RO for SAK.
RQ10.22	The CLF shall use a default value for FWI, SFGT of 'EE'
RQ10.23	The CLF shall apply the access condition of RO for FWI, SFGT.
RQ10.24	The CLF shall set a default value for DATARATE_MAX of '00'.
RQ10.25	The CLF shall apply to the access condition of RW to DATARATE_MAX.
RQ10.26	The CLF shall accept valid values of DATARATE_MAX as defined in TS 102 622 [1].
RQ10.27	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.
NOTE:	Development of test cases for above listed RQs is FFS.

5.7.2.3.2 Type B reader RF gate

5.7.2.3.2.1 Conformance requirements

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

RQ10.28	Registry parameters which are in the range reserved for usage by TS 102 622 [1] but which are not defined in TS 102 622 [1] shall not be present in the registry.
RQ10.29	The registry is not persistent.
RQ10.30	The values are updated after each target activation.
RQ10.31	The CLF shall use a default value for PUPI of 'N0=0'.
RQ10.32	The CLF shall apply the access condition of RO for PUPI.
RQ10.33	The CLF shall use a default value for APPLICATION_DATA of 'N1=0'.
RQ10.34	The CLF shall apply the access condition of RO for APPLICATION_DATA.
RQ10.35	The CLF shall set a default value for AFI of '00'.
RQ10.36	The CLF shall apply the access condition of RW to AFI.
RQ10.37	The CLF shall use a default value for HIGHER_LAYER_RESPONSE of 'N2=0'.
RQ10.38	The CLF shall apply the access condition of RO to HIGHER_LAYER_RESPONSE.
RQ10.39	The CLF shall set a default value for HIGHER_LAYER_DATA of 'N3=0'.
RQ10.40	The CLF shall apply the access condition of RW to HIGHER_LAYER_DATA.
NOTE:	Development of test cases for above listed RQs is FFS.

5.7.2.4 Events and subclauses

5.7.2.4.1 Events

5.7.2.4.1.1 Conformance requirements

Reference: 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.
NOTE:	Development of test cases for above listed RQs is FFS.

5.7.2.4.2 EVT_READER_REQUESTED

5.7.2.4.2.1 Conformance requirements

Reference: 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.
NOTE:	Development of test cases for above listed RQs is FFS.

5.7.2.4.3 EVT_END_OPERATION

5.7.2.4.3.1 Conformance requirements

Reference: 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
NOTE:	Development of test cases for RQ10.58 is FFS.

5.7.2.5 Responses

5.7.2.5.1 Conformance requirements

Reference: 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: 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: 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: 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: 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: 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 above listed RQs is FFS.	

5.7.4 Procedures

5.7.4.1 Use of contactless reader application

5.7.4.1.1 Conformance requirements

Reference: 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_DISCOVERD,
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	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	Once the CLF responds with ANY_E_TIMEOUT, it shall discard data received from the target thereafter.
NOTE: Development of test cases for above listed RQs is FFS.	

5.8 Connectivity

5.8.1 Overview

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

There are no conformance requirements for the Terminal Host for the referenced clause.

5.8.2.2 Commands

5.8.2.2.1 PRO_HOST_REQUEST

5.8.2.2.1.1 Conformance requirements

Reference: 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: 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: 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 TS 102 223 [3].
NOTE: Development of test cases for above listed RQs is FFS.	

5.8.2.3.3 Void

Reference: TS 102 622 [1], clause 11.2.2.2.

There are no conformance requirements for the Terminal Host for the referenced clause.

5.8.2.3.4 EVT_OPERATION_ENDED

5.8.2.3.4.1 Conformance requirements

Reference: 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: 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.
NOTE: Development of test cases for above listed RQs is FFS.	

5.8.2.4 Registry

5.8.2.4.1 Conformance requirements

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

RQ11.6	Registry parameters which are in the range reserved for usage by TS 102 622 [1] but which are not defined in TS 102 622 [1] shall not be present in the registry.
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: 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: 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: 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: 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: 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: TS 102 622 [1], clause 11.4.1.

There are no conformance requirements for the Terminal Host for the referenced clause.

Annex A (informative): Bibliography

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

Annex B (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 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
2011-03	SCP #48	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
2011-03	SCP #48	SCP(11)0125	005	-	F	CR 102 695-3 R7 #005: Update the requirements to version 7.8.0 of TS 102 622	7.0.0	7.1.0
2011-03	SCP #48	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
2011-03	SCP #48	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

History

Document history		
V7.0.0	April 2010	Publication
V7.1.0	July 2013	Publication