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Part 2: UICC features
(Release 10)

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The present document is part 2 of a multi-part deliverable covering the Test specification for the Host Controller Interface (HCI), as identified below:

Part 1: "Terminal features";

Part 2: "UICC features";

Part 3: "Host Controller features".

Modal verbs terminology

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

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Introduction

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

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

1 Scope

The present document covers the minimum characteristics which are considered necessary for the UICC in order to provide compliance to ETSI TS 102 622 [1].

The present document specifies the test cases for:

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

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

2 References

2.1 Normative references

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[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]	ISO/IEC 18092: "Information technology - Telecommunications and information exchange between systems - Near Field Communication - Interface and Protocol (NFCIP-1)".
[4]	ISO/IEC 14443-3: "Cards and security devices for personal identification Contactless proximity objects Part 3: Initialization and anticollision".
[5]	ISO/IEC 14443-4: "Cards and security devices for personal identification Contactless proximity objects Part 4: Transmission protocol".
[6]	ISO/IEC 9646-7: "Information technology Open Systems Interconnection Conformance testing methodology and framework Part 7: Implementation Conformance Statements".
[7]	ETSI TS 102 221: "Smart Cards; UICC-Terminal interface; Physical and logical characteristics".
[8]	ETSI TS 102 600: "Smart Cards; UICC-Terminal interface; Characteristics of the USB interface".
[9]	ISO/IEC 7816-4: "Identification cards - Integrated circuit cards - Part 4: Organization, security and commands for interchange".

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3 Definition of terms, symbols and abbreviations

3.1 Terms

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

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

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

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

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

3.2 Symbols

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

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

3.3 Abbreviations

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

ATQA Answer To reQuest of type A
ATQB Answer To reQuest of type B
CLT ContactLess Tunnelling
DUT Device Under Test
EOF End of Frame
FFS For Further Study
FWI Frame Waiting time Integer
HCI Host Controller Interface

HCI Host Controller Interface
HCS Host Controller Simulator

HUT Host Under Test

ICRx Initial Condition Requirement (where x is a number)

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

LEN LENgth

PUPI Pseudo-Unique PICC Identifier

RFU Reserved for Future Use

RO Read-Only

RQ conformance Requirement

RW Read-Write

SAK Select AcKnowledge SFGT Start-up Frame Guard Time

SOF Starf of Frame

SRx Static Requirement (where x is a number)

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

SWIO Single Wire protocol Input/Output

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 Void

Content of this clause has been moved to clause 3A.

3A Formats

3A.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 3A.3.
Support	The support columns shall be filled in by the supplier of the implementation. The following common notations, defined in ISO/IEC 9646-7 [6], 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.

3A.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 UICC	For a given Release, the corresponding "Rel-x UICC" 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 shall be completed by the manufacturer in respect of each particular requirement to indicate the choices, which have been made in the implementation.

3A.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 [6], 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" shall 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 shall 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.

3A.4 Format of the conformance requirements tables

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

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

Column Status		Meaning
	Examples of the conte	ent of cells in this column are given below:
	Sample Content	Applicability of conformance requirement
		All releases covered by the present document.
	Rel-7 to Rel-8	Rel-7 to Rel-8 only.
	Rel-9 upwards	Rel-9 up to the latest release which is covered by the present document.
	Rel-7	Rel-7 only.
	Rel-7, Rel-9 upwards	Rel-7 and for Rel-9 up to the latest release which is covered by the present document.
	The absence of this co	blumn indicates that all conformance requirements are applicable to every release e present document.
Mandatory	This mandatory colum	n contains the text of the conformance requirement.

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 3A for the format of table 4.1.

Table 4.1: Options

Item	Option	Status	Support	Mnemonic
1	Link management gate supported	0		O_LINK_MAN
2	WHITELIST contains the H _{ID} of at least one further host	0		O_WHITELIST_NON_EMPTY
3	Data link layer specified in ETSI TS 102 613 [2] is being	0		O_102_613
	used			
4	CLT, ISO/IEC 14443-3 [4] Type A	0		O_CLT_A
5	Card emulation, Type A	0		O_TYPE_A
6	Card emulation, Type B	0		O_TYPE_B
7	Card emulation, Type B'	0		O_TYPE_B_PRIME
8	Card emulation, Type F	0		O TYPE F

4.2 Applicability table

Table 4.2 specifies the applicability of each test case to the device under test. See clause 3A 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		Execution requirements	Rel-7 UICC	Rel-8 UICC	Rel-9 UICC	Rel-10 UICC	Support
5.1.2.2	Test case 1: processing of RFU host identifier	Rel-7	requirements	M	M	M	M	
5.1.3.2	Test case 1: existence of gates	Rel-7		M	М	M	М	
5.1.4.2	Test case 1: static pipe deletion - administration gate	Rel-7		M	M	M	М	
5.1.4.3	Test case 2: static pipe deletion - link management gate	Rel-7		C101	C101	C101	C101	
5.1.4.4	Test case 3: persistence of pipe state	Rel-7		М	М	М	М	
5.1.4.5	Test case 4: initial pipe state	Rel-7		М	М	М	М	
5.2.2.2	Test case 1: commands/events on pipe which is not open	Rel-7		М	М	М	М	
5.3.1.2.1.2	Test case 1: ANY SET PARAMETER reception - invalid structure	Rel-7		C101	C101	C101	C101	
5.3.1.2.1.3	Test case 2: ANY SET PARAMETER reception - RO registry parameter	Rel-7		М	М	М	М	
5.3.1.2.2.2	Test case 1: ANY GET PARAMETER reception - invalid structure	Rel-7		М	М	М	М	
5.3.1.2.3.2	Test case 1: ANY OPEN PIPE reception	Rel-7		М	М	М	М	
5.3.1.2.4.2	Test case 1: ANY CLOSE PIPE reception	Rel-7		М	М	М	М	
5.3.2.2	Test case 1: response to unknown command	Rel-7		М	М	М	М	
5.3.2.3	Test case 2: responses received out of order, previous command sent by host controller	Rel-7		М	М	М	М	
5.3.3.2	Test case 1: reception of unknown events	Rel-7		М	М	М	М	
5.4.1.2	Test case 1: command and event support for link management gate	Rel-7		C101	C101	C101	C101	
5.4.1.3	Test case 2: command and event support for host administration gate	Rel-7		М	М	M	М	
5.4.2.1.1.2	Test case 1: SESSION_IDENTITY	Rel-7		М	М	М	М	
5.4.2.3.1.2	Test case 1: registry parameters	Rel-7		М	М	М	М	
5.5.1.1.3	Test case 2: ADM_NOTIFY_PIPE_CREATED from host controller	Rel-7		М	М	М	М	
5.5.1.1.4	Test case 3: ADM_NOTIFY_PIPE_CREATED from other host	Rel-7		C102	C102	C102	C102	
5.5.1.1.5	Test case 4: ADM_NOTIFY_PIPE_CREATED with incorrect destination H _{ID}	Rel-7		М	М	М	М	
5.5.1.1.6	Test case 5: unsuccessful ADM_NOTIFY_PIPE_CREATED	Rel-7	SR5	М	М	М	М	
5.5.1.2.3	Test case 2: receiving ADM_NOTIFY_PIPE_DELETED	Rel-7		М	М	М	М	
5.5.1.3.2	Test case 1: ADM_CLEAR_ALL_PIPE for data link layer specified in ETSI TS 102 613 [2]	Rel-7		C103	C103	C103	C103	
5.5.1.3.3	Test case 2: ADM_CLEAR_ALL_PIPE - static pipes, dynamic pipes to host controller	Rel-7		C103	C103	C103	C103	
5.5.1.3.4	Test case 3: ADM_CLEAR_ALL_PIPE - dynamic pipes to other host	Rel-7		C102	C102	C102	C102	
5.5.4.2	Test case 1: SESSION IDENTITY not changed	Rel-7		C103	C103	C103	C103	
5.5.4.3	Test case 2: SESSION IDENTITY changed	Rel-7		C103	C103	C103	C103	
5.5.4.4	Test case 3: activation in low power mode, no session initialization	Rel-7		N/A	N/A	N/A	C103	
5.5.4.5	Test case 4: subsequent activation, no session initialization	Rel-7		N/A	N/A	N/A	C103	
5.5.4.6	Test case 5: activation in low power mode, ACT_POWER_MODE with FR=1, no session initialization	Rel-7		N/A	N/A	N/A	C103	

Clause	Test case number and description	Release	Execution requirements	Rel-7 UICC	Rel-8 UICC	Rel-9 UICC	Rel-10 UICC	Support
5.5.4.7	Test case 6: subsequent activation, ACT_POWER_MODE with FR=1, no session initialization	Rel-7		N/A	N/A	N/A	C103	
5.5.5.2	Test case 1: pipe creation from host controller	Rel-7		М	M	М	M	
5.5.5.3	Test case 2: pipe creation from another host	Rel-7		C102	C102	C102	C102	
5.5.5.4	Test case 3: processing of EVT_POST_DATA	Rel-7		М	M	М	M	
5.6.3.3.4.2.2	Test case 1: Type A registry values	Rel-7	SR8	C104	C104	C104	C104	
5.6.3.3.4.3.2	Test case 1: Type B registry values	Rel-7	SR8	C105	C105	C105	C105	
5.6.3.3.4.5.2	Test case 1: Type F registry values	Rel-7	SR8	C106	C106	C106	C106	
5.6.4.1.2	Test case 1: full power mode	Rel-7	SR6	C107	C107	C107	C107	
5.6.4.1.3	Test case 2: full power mode, no EVT_CARD_ACTIVATED and EVT_CARD_DEACTIVATED	Rel-7	SR6	C107	C107	C107	C107	
5.6.4.1.4	Test case 3: sequence from DEACTIVATED state	Rel-7	SR6	C107	C107	C107	C107	
5.6.4.1.5	Test case 4: sequence from DEACTIVATED state, no EVT_CARD_ACTIVATED or EVT_CARD_DEACTIVATED	Rel-7	SR6	C107	C107	C107	C107	
5.6.4.1.6	Test case 5: low power, power down instead of EVT_FIELD_OFF	Rel-7	SR6	C107	C107	C107	C107	
5.6.4.1.7	Test case 6: EVT_FIELD_OFF after EVT_FIELD_ON / SWP interface activation	Rel-7	SR6	C107	C107	C107	C107	
5.6.4.1.8	Test case 7: EVT_FIELD_OFF after EVT_CARD_ACTIVATED	Rel-7	SR6	C107	C107	C107	C107	
5.6.4.1.9	Test case 8: EVT_FIELD_OFF after EVT_SEND_DATA	Rel-7	SR6	C107	C107	C107	C107	
5.6.4.1.10	Test case 9: multiple open card gates	Rel-7	SR6	C108	C108	C108	C108	
5.6.4.1.11	Test case 10: empty C-APDU	Rel-7	SR6			C107	C107	
5.6.4.2.2	Test case 1: full power mode	Rel-7	SR7	N/A	N/A	N/A	C109	
5.6.4.2.3	Test case 2: sequence from DEACTIVATED state	Rel-7	SR7	N/A	N/A	N/A	C109	
5.6.4.2.4	Test case 3: low power mode, power down instead EVT_FIELD_OFF	Rel-7	SR7	N/A	N/A	N/A	C109	
5.6.4.2.5	Test case 4: EVT_FIELD_OFF after EVT_FIELD_ON / SWP interface activation	Rel-7	SR7	N/A	N/A	N/A	C109	
5.6.4.2.6	Test case 5: EVT_FIELD_OFF during CLT frames exchange	Rel-7	SR7	N/A	N/A	N/A	C109	
5.6.4.2.7	Test case 6: multiple open card gates	Rel-7	SR7	N/A	N/A	N/A	C110	
5.6.4.4.2	Test case 1: RF error indicator	Rel-7	SR9				C106	
5.6.4.4.3	Test case 2: full power mode	Rel-7	SR9				C106	
5.6.4.4.4	Test case 3: sequence from DEACTIVATED state	Rel-7	SR9				C106	
5.6.4.4.5	Test case 4: low power, power down instead of EVT_FIELD_OFF	Rel-7	SR9				C106	
5.6.4.4.6	Test case 5: EVT_FIELD_OFF after EVT_FIELD_ON / SWP interface activation	Rel-7	SR9				C106	
5.6.4.4.7	Test case 6: EVT_FIELD_OFF after EVT_SEND_DATA	Rel-7	SR9				C106	
5.6.4.4.8	Test case 7: multiple open card gates	Rel-7	SR9				C111	
5.6.4.4.9	Test case 8: EVT_FIELD_OFF during CLT frames exchange	Rel-7	SR9				C106	

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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_LINK_MAN
C102	IF 4.1/2 THEN M ELSE N/A	O_WHITELIST_NON_EMPTY
C103	IF 4.1/3 THEN M ELSE N/A	O_102_613
C104	IF 4.1/5 THEN M ELSE N/A	O_TYPE_A
C105	IF 4.1/6 THEN M ELSE N/A	O_TYPE_B
C106	IF 4.1/8 THEN M ELSE N/A	O_TYPE_F
C107	IF 4.1/5 OR 4.1/6 THEN M ELSE N/A	O_TYPE_A OR O_TYPE_B
C108	IF (4.1/5 AND (4.1/6 OR 4.1/7 OR 4.1/8)) OR (4.1/6	(O_TYPE_A AND (O_TYPE_B OR O_TYPE_B_PRIME OR O_TYPE_F)) OR
	AND (4.1/5 OR 4.1/7 OR 4.1/8)) THEN M ELSE N/A	(O_TYPE_B AND (O_TYPE_A OR O_TYPE_B_PRIME OR O_TYPE_F))
C109	IF 4.1/4 AND 4.1/5 THEN M ELSE N/A	O_CLT_A AND O_TYPE_A
C110	IF 4.1/4 AND 4.1/5 AND (4.1/6 OR 4.1/7 OR 4.1/8)	O_CLT_A AND O_TYPE_A AND (O_TYPE_B OR O_TYPE_B_PRIME OR
	THEN M ELSE N/A	O_TYPE_F)
C111	IF 4.1/8 AND (4.1/5 OR 4.1/6 OR 4.1/7) THEN M ELSE	O_TYPE_F AND (TYPE A OR O_TYPE_B OR O_TYPE_B_PRIME)
	N/A	

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

Execution	Description
requirement	
SR1	Void
SR2	Void
SR3	Void.
SR4	Void
SR5	A G _{ID} exists which is reserved for proprietary use or is host specific according to table 2 of ETSI TS 102 622 [1], and which is not
	contained in the GATES_LIST of the host.
SR6	The UICC contains an application which can respond predictably with R-APDUs to received C-APDUs.
SR7	The UICC contains an application which can respond predictably with CLT responses to received CLT commands for non ISO/IEC 14443-4 [5] Type A. For this application, the DUT manufacturer has to confirm, that the UICC responds to the command '3000' received when opening a CLT session or within a CLT session with a response containing a non-empty DATA_FIELD, and not requesting a transition to "HALT" or "IDLE" state as per ISO/IEC 14443-3 [4].
SR8	An application is needed on the UICC, in order for the Host Controller to be able to verify the settings of the registry parameters for the given RF technology.
SR9	The UICC contains an application which can respond predictably with ISO/IEC 18092 [3] 212 kbps/424 kbps response frames to received ISO/IEC 18092 [3] 212 kbps/424 kbps command frames.
TR1	Void
TR2	Void
TR3	Void
TR4	Void
TR5	Void
TR6	Void
ICR1	Void

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		М	V_VERSION_SW
	supported.			
2	Indication of presence of VERSION_HARD, and		M	V_VERSION_HARD
	value if supported.			
3	Indication of presence of VENDOR_NAME, and value		M	V_VENDOR_NAME
	if supported.			
4	Indication of presence of MODEL_ID, and value if		M	V_MODEL_ID
	supported.			
5	Indication of presence of HCI_VERSION, and value if		M	V_HCI_VERSION
	supported.			
6	Value of GATES_LIST.		М	V_GATES_LIST
NOTE	E: Conditional values shall be provided if the corresp	onding option is su	pported in	table 4.1.

4.4 Test equipment

4.4.0 Base Requirements

The test equipment shall provide a host controller simulator which is connected to the DUT during test procedure execution, unless otherwise specified. For test cases which require a further host to be present, the test equipment shall further provide a host simulator which is connected to the DUT via the host controller simulator during test procedure execution, unless otherwise specified.

Before execution of each test case, the host network state shall be set back to the state in which it was after the UICC was powered up in full power mode using the default SESSION_IDENTITY (in order to instigate a new HCI session initialization).

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

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

With respect to the DUT, the host network simulation (i.e. host controller simulator and any host simulators) shall comprise a valid network according to the specific DUT. The details are out of the scope of the present document.

When the DUT is expected *not* to send an HCI response or event in response to a prior HCI message sent by the simulator, the simulator shall wait 500 ms, during which it checks whether an HCI response or event has been sent in response.

NOTE: The value of 500 ms specified above is not derived from any value in ETSI TS 102 622 [1]. This value was selected to optimize the duration of the test execution.

4.4.1 Measurement/setting uncertainties

Void.

4.4.2 Default conditions for DUT operation

4.4.2.1 General

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

The test equipment shall treat the identity check mechanism of the lower layer as having passed (see ETSI TS 102 622 [1], clause 8.4).

The test equipment shall use the same SESSION_IDENTITY on power up within an individual test case.

4.4.2.2 Status of UICC interfaces

If the data link layer in ETSI TS 102 613 [2] is used and the DUT is a UICC, the terminal simulator shall not activate the ETSI TS 102 221 [7] interface or the ETSI TS 102 600 [8] interface.

4.4.3 Minimum/maximum conditions for DUT operation

Void.

4.4.4 Conventions

Unless otherwise specified, ADM_NOTIFY_PIPE_CREATED is sent by the test equipment with source $H_{ID} = H_{ID}$ of host controller, destination $H_{ID} = H_{ID}$ of host and a currently unused P_{ID} .

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, when the data link layer in ETSI TS 102 613 [2] is used, all tests shall be carried out once for each of following parameter variations in addition to the parameter variations specified individually for each test case.

 Voltage class and power mode
 Vcc

 B
 Default: in the range of 2,90 V to 3,10 V Minimum: in the range of 2,70 V to 2,80 V Maximum: in the range of 3,20 V to 3,30 V Default: in the range of 1,75 V to 1,85 V Minimum: in the range of 1,75 V to 1,85 V Maximum: in the range of 1,62 V to 1,67 V Maximum: in the range of 1,75 V to 1,85 V Default: in the range of 1,75 V to 1,85 V Minimum: in the range of 1,62 V to 1,67 V Maximum: in the range of 1,93 V to 1,98 V

Table 4.5.1: Global parameter variations

The specification of global parameter variations for when other data link layers are used is out of the scope of the present document.

4.5.2 Execution requirements

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

Some sample scenarios of test requirements are listed below:

- The test case requires certain state to be present on the DUT in order to test a particular feature, but there is no mandatory requirement in the core specification (ETSI TS 102 622 [1]) for this state to be present.
- The test case requires the DUT to perform a particular operation in order to test that feature, but the core specification (ETSI TS 102 622 [1]) does not provide a standardized mechanism to trigger that operation to be executed by the DUT.

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

- Static requirements (SRx): information about, for example, particular gates or registry parameters which can be used in the test procedure execution.
- Trigger requirements (TRx): mechanisms for triggering the DUT to perform certain operations.
- Initial condition requirements (ICRx): information about how to establish initial condition states.

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

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

4.6 Pass criterion

4.6.0 Principle

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

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

4.6.1 Unanticipated behaviour from the DUT

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

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

5 Test cases

5.1 HCI architecture

5.1.1 Overview

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

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

5.1.2 Hosts

5.1.2.1 Conformance requirements

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

RQ1	A host shall not use host identifiers which are RFU.
RQ2	A host shall reject received host identifiers which are RFU.
NOTE:	RQ1 is a non-occurrence RQ.

5.1.2.2 Test case 1: processing of RFU host identifier

5.1.2.2.1 Test execution

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

• Source H_{ID} values of: every H_{ID} value which is RFU as defined in ETSI TS 102 622 [1].

5.1.2.2.2 Initial conditions

- The HCI interface is idle; i.e. no further communication is expected.
- PIPE₁ is open.

5.1.2.2.3 Test procedure

Step	Direction	Description	RQ
1	$I HCS \rightarrow HIIT$	Send ADM_NOTIFY_PIPE_CREATED on PIPE ₁ , with the specified source H_{ID} , source $G_{ID} = 0.01$ and destination $G_{ID} = G_{ID}$ of loop back gate.	
2	HUT → HCS	Send response containing an allowed error response code for the command.	RQ2

5.1.3 Gates

5.1.3.1 Conformance requirements

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

RQ1	All hosts shall have one administration gate.
RQ2	All hosts shall have one identity management gate.
RQ3	All hosts shall have one loop back gate.
RQ4	A host shall not use gate identifiers which are RFU.
RQ5	Void.
RQ6	A host shall not use gate identifiers which are host specific but not yet allocated in ETSI TS 102 622 [1].
RQ7	Void.
NOTE	: RQ4 and RQ6 are not tested, as they are non-occurrence RQs.

5.1.3.2 Test case 1: existence of gates

5.1.3.2.1 Test execution

Void.

5.1.3.2.2 Initial conditions

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

• PIPE₁ is open.

5.1.3.2.3 Test procedure

Step	Direction	Description	RQ
1	HCS → HUT	Send ADM_NOTIFY_PIPE_CREATED on PIPE ₁ , with source and destination $G_{ID} = G_{ID}$ of identity management gate; designate the created pipe PIPE ID MAN.	
2	HUT → HCS	Send ANY_OK (parameters are not checked).	RQ1, RQ2
3	HCS → HUT	Send ANY_OPEN_PIPE on PIPE_ID_MAN.	
4	HUT → HCS	Send ANY_OK (parameters are not checked).	RQ2
5	HCS → HUT	Send ANY_GET_PARAMETER(GATES_LIST) on PIPE_ID_MAN.	
6	HUT → HCS	Send ANY_OK with parameters as indicated below. Check that the GATES_LIST returned contains the $G_{\rm ID}$ of the identity management gate and the $G_{\rm ID}$ of the loop back gate.	RQ2, RQ3
7	HCS → HUT	Send ADM_NOTIFY_PIPE_CREATED on PIPE ₁ , with source G_{ID} = '01' and destination G_{ID} = G_{ID} of the loop back gate; designate the created pipe PIPE_LOOP_BACK.	
8	HUT → HCS	Send ANY_OK (parameters are not checked).	RQ3
9	HCS → HUT	Send ANY_OPEN_PIPE on PIPE_LOOP_BACK.	
10	HUT → HCS	Send ANY_OK (parameters are not checked).	RQ3
11	HCS → HUT	Send EVT_POST_DATA containing '01 02 03 04' on PIPE_LOOP_BACK.	
12	HUT → HCS	Send EVT_POST_DATA containing '01 02 03 04' on PIPE_LOOP_BACK.	RQ3

5.1.3.3 Void

5.1.4 Pipes

5.1.4.1 Conformance requirements

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

RQ1	A host shall not attempt to delete a static pipe.
RQ2	A host shall reject any attempts to delete a static pipe.
RQ3	The state of a pipe (i.e. open or closed) shall remain persistent if the hosts are powered down and up again.
RQ4	The state of a dynamic pipe after creation shall be closed.
RQ5	The initial state of a static pipe shall be closed.
RQ6	A host shall not use pipe identifiers which are RFU.
NOTE ²	1: RQ1 and RQ6 are not tested, as they are non-occurrence RQs.
NOTE 2	2: RQ5 is not tested, as it is not clear when the initial state of the static pipe applies.

5.1.4.2 Test case 1: static pipe deletion - administration gate

5.1.4.2.1 Test execution

Void.

5.1.4.2.2 Initial conditions

- The HCI interface is idle; i.e. no further communication is expected.
- PIPE₁ is open.

5.1.4.2.3 Test procedure

Step	Direction	Description	RQ
1	HCS → HUT	Send ADM_NOTIFY_PIPE_DELETED(PIPE ₁) on PIPE ₁ .	
2	HUT → HCS	Send response containing an allowed error response code for the command.	RQ2

5.1.4.3 Test case 2: static pipe deletion - link management gate

5.1.4.3.1 Test execution

Void.

5.1.4.3.2 Initial conditions

- The HCI interface is idle; i.e. no further communication is expected.
- PIPE₁ is open.

5.1.4.3.3 Test procedure

Step	Direction	Description	RQ
1	HCS → HUT	Send ADM_NOTIFY_PIPE_DELETED(PIPE ₀) on PIPE ₁ .	
2	HUT → HCS	Send response containing an allowed error response code for the command.	RQ2

5.1.4.4 Test case 3: persistence of pipe state

5.1.4.4.1 Test execution

Void.

5.1.4.4.2 Initial conditions

- The HCI interface is idle; i.e. no further communication is expected.
- PIPE₁ is open.
- A pipe (PIPE_ID_MAN) has been created to the host's identity management gate, and is open.

5.1.4.4.3 Test procedure

Step	Direction	Description	RQ
		Send ADM_NOTIFY_PIPE_CREATED on PIPE ₁ , with source G _{ID} = '01' and	
1	HCS → HUT	destination $G_{ID} = G_{ID}$ of the loop back gate; designate the created pipe	
		PIPE_LOOP_BACK.	
2	HUT → HCS	Send ANY_OK (parameters are not checked).	
3		Power down host.	
4		Power up host, and proceed until the HCl interface is available.	
5	HCS → HUT	Send ANY_CLOSE_PIPE on PIPE ₁ .	
6	HUT → HCS	Send ANY_OK (parameters are not checked).	RQ3
7	HCS → HUT	Send ANY_GET_PARAMETER(GATES_LIST) on PIPE_ID_MAN.	
8	HUT → HCS	Send ANY_OK (parameters are not checked).	RQ3
9	HCS → HUT	Send EVT_POST_DATA on PIPE_LOOP_BACK.	
10	HUT → HCS	Send no message on PIPE_LOOP_BACK.	RQ3
11	HCS → HUT	Send ANY_OPEN_PIPE on PIPE_LOOP_BACK.	
12	HUT → HCS	Send ANY_OK (parameters are not checked).	RQ3

5.1.4.5 Test case 4: initial pipe state

5.1.4.5.1 Test execution

Void.

5.1.4.5.2 Initial conditions

- The HCI interface is idle; i.e. no further communication is expected.
- PIPE₁ is open.

5.1.4.5.3 Test procedure

Step	Direction	Description	RQ
		Send ADM_NOTIFY_PIPE_CREATED on PIPE ₁ , with source G _{ID} = '00' and	
1	HCS → HUT	destination $G_{ID} = G_{ID}$ of identity management gate; designate the created	
		pipe PIPEx.	
2	HUT → HCS	Send ANY_OK (parameters are not checked).	
3	HCS → HUT	Send ANY_GET_PARAMETER(GATES_LIST) on PIPEx.	
4	HUT → HCS	Send response containing an allowed error response code for the command.	RQ4

5.1.5 Registries

5.1.5.1 Conformance requirements

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

RQ1	For all gates defined in ETSI TS 102 622 [1], parameter identifiers in the range of '00' to 'EF' are
	reserved for use in ETSI TS 102 622 [1].
RQ2	A new instance of the registry is created for every pipe that connects to the gate.
RQ3	Upon pipe creation all registry parameters with access rights Read-write (RW) or Write-only (WO) shall
	be set to their default values.
RQ4	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.
RQ5	When a pipe is deleted its registry instance is also deleted.
NOTE 1	: As the specification of registry parameters is specific to each individual registry, RQ1, RQ3 and RQ4
	are not tested in this clause, but are tested in other clauses of the present document for each
	individual registry.
NOTE 2	: RQ2 and RQ5 are not testable in a standardized manner. See Annex A for test cases which could be
	used in a non-standardised manner.

5.1.5.2 Void

5.1.5.3 Void

5.2 HCPstandardized

5.2.1 HCP packets

5.2.1.1 Conformance requirements

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

	All hosts shall use the correct structure for transmitted HCP packets.		
RQ2	All hosts shall recognize correctly structured received HCP packets.		
RQ3	The destination host forwards the packet to the destination gate.		
NOTE 1	NOTE 1: RQ1 and RQ2 are implicitly tested by the testing of higher layers in other clauses		
of the present document.			
NOTE 2	2: RQ3 is internal to the host, and is not tested in this clause. It will be implicitly tested		
	in many other test cases within the present document.		

5.2.2 HCP message structure

5.2.2.1 Conformance requirements

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

RQ1		All hosts shall use the correct structure for transmitted HCP messages.
RQ2		Type value 3 shall not be used.
RQ3		All hosts shall recognize correctly structured received HCP messages.
RQ4		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		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.
RQ6	Rel-9	A gate shall interpret incoming events and commands even while it is waiting for a response to a
	upwards	previously sent command.
NOTE	1: RQ1 and F	RQ3 are implicitly tested by the testing of higher layers in other clauses of the present document.
NOTE	2: RQ2 and F	RQ5 are not tested, as they are non-occurrence RQs.
NOTE	3: Developme	ent of test cases for RQ6 is FFS.

5.2.2.2 Test case 1: commands/events on pipe which is not open

5.2.2.2.1 Test execution

Void.

5.2.2.2.2 Initial conditions

- The HCI interface is idle; i.e. no further communication is expected.
- PIPE₁ is open.

5.2.2.3 Test procedure

Step	Direction	Description	RQ
		Send ADM_NOTIFY_PIPE_CREATED on PIPE ₁ , with source and	
1	HCS → HUT	destination $G_{ID} = G_{ID}$ of identity management gate; designate the created	
		pipe PIPE ID MAN.	
2	HUT → HCS	Send ANY_OK (parameters are not checked).	
3	HCS → HUT	Send ANY GET PARAMETER(GATES LIST) on PIPE ID MAN.	
4	HUT → HCS	Send response containing an allowed error response code for the command.	RQ4
5	HCS → HUT	Send ANY_OPEN_PIPE on PIPE_ID_MAN.	
6	HUT → HCS	Send ANY_OK (parameters are not checked).	
7	HCS → HUT	Send ANY_GET_PARAMETER(GATES_LIST) on PIPE_ID_MAN.	
8	HUT → HCS	Send ANY_OK (parameters are not checked).	RQ4
9	HCS → HUT	Send ANY_CLOSE_PIPE on PIPE_ID_MAN.	
10	HUT → HCS	Send ANY_OK (parameters are not checked).	
11	HCS → HUT	Send ANY_GET_PARAMETER(GATES_LIST) on PIPE_ID_MAN.	
12	HUT → HCS	Send response containing an allowed error response code for the command.	RQ4
		Send ADM_NOTIFY_PIPE_CREATED on PIPE ₁ , with source G _{ID} = '00' and	
13	HCS → HUT	destination $G_{ID} = G_{ID}$ of the loop back gate; designate the created pipe	
		PIPE_LOOP_BACK.	
14	HUT → HCS	Send ANY_OK (parameters are not checked).	
15	HCS → HUT	Send EVT_POST_DATA containing '01 02 03 04' on PIPE_LOOP_BACK.	
16	HUT → HCS	Send no message on PIPE_LOOP_BACK.	RQ4
17	HCS → HUT	Send ANY_OPEN_PIPE on PIPE_LOOP_BACK.	
18	HUT → HCS	Send ANY_OK (parameters are not checked).	
19	HCS → HUT	Send EVT_POST_DATA containing '01 02 03 04' on PIPE_LOOP_BACK.	
20	HUT → HCS	Send EVT_POST_DATA containing '01 02 03 04' on PIPE_LOOP_BACK.	RQ4
21	HCS → HUT	Send ANY_CLOSE_PIPE on PIPE_LOOP_BACK.	
22	HUT → HCS	Send ANY_OK (parameters are not checked).	
23	HCS → HUT	Send EVT_POST_DATA containing '01 02 03 04' on PIPE_LOOP_BACK.	
24	HUT → HCS	Send no message on PIPE_LOOP_BACK.	RQ4
25	HCS → HUT	Send ANY_OPEN_PIPE on PIPE_LOOP_BACK.	
26	HUT → HCS	Send ANY_OK (parameters are not checked).	RQ4

5.2.3 Message fragmentation

5.2.3.1 Conformance requirements

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

RQ1	Message fragmentation shall be used when the size of the message is larger than supported by the		
	underlying data link layer.		
RQ2	Messages shall be fragmented according to the rules specified in ETSI TS 102 622 [1].		
RQ3	The destination gate is responsible for rebuilding the message from the fragmented messages.		
RQ4	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 RQ1, RQ2, RQ3 and RQ4 is FFS.		

5.3 Instructions

5.3.1 Commands

5.3.1.1 Overview

5.3.1.1.1 Conformance requirements

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

RQ1	For all gates, hosts shall not use RFU instruction values ('05' to '0F') in commands.
RQ2	For administration gates, hosts shall not use RFU instruction values ('16' to '3F') in commands.
RQ3	For gates defined in ETSI TS 102 622 [1], hosts shall not use instruction values between '10' and '3F'
	which are not allocated in ETSI TS 102 622 [1].
NOTE:	RQ1, RQ2 and RQ3 are not tested, as they are non-occurrence RQs.

5.3.1.2 Generic commands

5.3.1.2.1 ANY_SET_PARAMETER

5.3.1.2.1.1 Conformance requirements

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

RQ1	A host shall reject an incorrectly formatted ANY_SET_PARAMETER command.		
RQ2	A host 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).		
RQ3	A host 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).		
RQ4	When a host receives a valid ANY_SET_PARAMETER command, it shall write the parameter value into		
	the registry and respond with ANY_OK without any parameters.		
RQ5	Whenever a host 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	NOTE 1: RQ3 is not tested, as it is a non-occurrence RQ.		
NOTE 2	2: RQ4 and RQ5 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

Void.

5.3.1.2.1.2.2 Initial conditions

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

5.3.1.2.1.2.3 Test procedure

Step	Direction	Description	RQ
1	HCS → HUT	Send ANY_SET_PARAMETER with no parameters on PIPE ₀ .	
2	HUT → HCS	Send response containing an allowed error response code for the command.	RQ1

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

Void.

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's identity management gate, and is open.

5.3.1.2.1.3.3 Test procedure

Step	Direction	Description	RQ
1		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's registry.	
2	HUT → HCS	Send response containing an allowed error response code for the command.	RQ2

5.3.1.2.2 ANY_GET_PARAMETER

5.3.1.2.2.1 Conformance requirements

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

RQ1	A host shall reject an incorrectly formatted ANY_GET_PARAMETER command.
RQ2	A host 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).
RQ3	A host 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).
RQ4	When a host receives a valid ANY_GET_PARAMETER command, it shall respond with ANY_OK with
	the value of the parameter.
RQ5	Whenever a host 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	: RQ3 is not tested, as it is a non-occurrence RQ.
NOTE 2	: RQ4 and RQ5 are not tested, as they are effectively tested in other clauses of the present document
	for each individual registry parameter.
NOTE 3	: RQ2 is not testable in a standardized manner. See Annex A for test cases which could be used in a
	non-standardized manner.

5.3.1.2.2.2 Test case 1: ANY_GET_PARAMETER reception - invalid structure

5.3.1.2.2.2.1 Test execution

Void.

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's identity management gate and is open.

5.3.1.2.2.2.3 Test procedure

Step	Direction	Description	RQ
1	HCS → HUT	Send ANY_GET_PARAMETER with no parameters on PIPE_ID_MAN.	
2	HUT → HCS	Send response containing an allowed error response code for the command.	RQ1
3	HCS → HUT	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	HUT → HCS	Send response containing an allowed error response code for the command.	RQ1

5.3.1.2.2.3 Void

5.3.1.2.3 ANY_OPEN_PIPE

5.3.1.2.3.1 Conformance requirements

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

RQ1	A host shall reject an incorrectly formatted ANY_OPEN_PIPE command.
RQ2	When a host other than the host controller receives a valid ANY_OPEN_PIPE command on a closed
	pipe, it shall open the pipe and return ANY_OK with a parameter containing the "number of pipes already
	open on this gate before the execution of the command".
RQ3	When a host sends an ANY_OPEN_PIPE command, it shall contain no command parameters.
RQ4	When a host receives ANY_OK in response to an ANY_OPEN_PIPE command, it shall open the pipe.
NOTE	1: In ETSI TS 102 622 [1], it is not clear whether ANY_OPEN_PIPE is valid over a pipe which is already
	open. This is therefore not listed as a conformance requirement.
NOTE:	2: RQ3 and RQ4 are not testable in a standardized manner. See Annex A for test cases which could be
	used in a non-standardized manner.

5.3.1.2.3.2 Test case 1: ANY_OPEN_PIPE reception

5.3.1.2.3.2.1 Test execution

Void.

5.3.1.2.3.2.2 Initial conditions

- The HCI interface is idle; i.e. no further communication is expected.
- PIPE₁ is open.

5.3.1.2.3.2.3 Test procedure

Step	Direction	Description	RQ
1	HCS → HUT	Send ANY_CLOSE_PIPE on PIPE ₁ .	
2	HUT → HCS	Send ANY_OK (parameters are not checked).	
3	HCS → HUT	Send ANY_OPEN_PIPE with parameter '00' on PIPE ₁ .	
4	HUT → HCS	Send response containing an allowed error response code for the command.	RQ1
5	1100 > 1111	Send ADM_NOTIFY_PIPE_CREATED on PIPE ₁ , with source and destination	
3	HCS → HUT	$G_{ID} = G_{ID}$ of identity management gate.	
6	HUT → HCS	Send response containing an allowed error response code for the command.	RQ1
7	HCS → HUT	Send ANY_OPEN_PIPE on PIPE ₁ .	
8	HUT → HCS	Send ANY_OK with parameter '00'.	RQ2
	HCS → HUT	Send ADM_NOTIFY_PIPE_CREATED on PIPE ₁ , with source and destination	
9		G_{ID} = G_{ID} of identity management gate; designate the created pipe	
		PIPE_ID_MAN.	
10	HUT → HCS	Send ANY_OK (parameters are not checked).	RQ2
11	HCS → HUT	Send ANY_OPEN_PIPE on PIPE_ID_MAN.	
12	HUT → HCS	Send ANY_OK with a parameter containing the number of pipes already open on this gate before the execution of the command (see note).	RQ2

Step	Direction	Description	RQ
13	HCS → HUT	Send ANY_GET_PARAMETER(GATES_LIST) on PIPE_ID_MAN.	
14	HUT → HCS	Send ANY_OK (parameters are not checked).	RQ2
15	HCS → HUT	Send ANY_CLOSE_PIPE on PIPE_ID_MAN.	
16	HUT → HCS	Send ANY_OK (parameters are not checked).	
17	HCS → HUT	Send ANY_OPEN_PIPE on PIPE_ID_MAN.	
18	HUT → HCS	Send ANY_OK with a parameter containing the number of pipes already open	RQ2
10		on this gate before the execution of the command (see note).	
	HCS → HUT	Send ADM_NOTIFY_PIPE_CREATED on PIPE ₁ , with source G _{ID} = '01' and	
19		destination $G_{ID} = G_{ID}$ of the loop back gate; designate the created pipe	
		PIPE_LOOP_BACK.	
20	HUT → HCS	Send ANY_OK (parameters are not checked).	
21	HCS → HUT	Send ANY_OPEN_PIPE on PIPE_LOOP_BACK.	
22	HUT → HCS	Send ANY_OK with a parameter containing the number of pipes already open	RQ2
22		on this gate before the execution of the command (see note).	NQZ

NOTE: The test equipment shall calculate the number of pipes already open on the gate before the execution of the command, taking into account any pipes which have been opened by the host.

Example for step 12: if no pipes were opened to the host controller's identity management gate before the execution of the test procedure and no further pipes have been opened by the host, this value would be '00'.

5.3.1.2.3.3 Void

5.3.1.2.4 ANY_CLOSE_PIPE

5.3.1.2.4.1 Conformance requirements

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

RQ1	A host shall reject an incorrectly formatted ANY_CLOSE_PIPE command.
RQ2	When a host receives a valid ANY_CLOSE_PIPE on an open pipe, it shall close the pipe and respond
	with ANY_OK and no parameters.
RQ3	When a host sends an ANY_CLOSE_PIPE command, it shall contain no command parameters.
RQ4	When a host receives ANY_OK in response to an ANY_CLOSE_PIPE command, it shall close the pipe.
NOTE:	RQ3 and RQ4 are not testable in a standardized manner. See Annex A for test cases which could be
	used in a non-standardized manner.

5.3.1.2.4.2 Test case 1: ANY_CLOSE_PIPE reception

5.3.1.2.4.2.1 Test execution

Void.

5.3.1.2.4.2.2 Initial conditions

- The HCI interface is idle; i.e. no further communication is expected.
- PIPE₁ is open.

5.3.1.2.4.2.3 Test procedure

Step	Direction	Description	RQ
1	HCS → HUT	Send ANY_CLOSE_PIPE with parameter '00' on PIPE ₁ .	
2	HUT → HCS	Send response containing an allowed error response code for the command.	RQ1
		Send ADM_NOTIFY_PIPE_CREATED on PIPE ₁ , with source and	
3	HCS → HUT	destination $G_{ID} = G_{ID}$ of identity management gate; designate the created	
		pipe PIPE ID MAN.	
4	HUT → HCS	Send ANY_OK (parameters are not checked).	RQ1
5	HCS → HUT	Send ANY_CLOSE_PIPE on PIPE ₁ .	
6	HUT → HCS	Send ANY_OK with no parameters.	RQ2
7	HCS → HUT	Send ADM_NOTIFY_PIPE_CREATED on PIPE ₁ , with source and	
7		destination $G_{ID} = G_{ID}$ of identity management gate.	
8	HUT → HCS	Send response containing an allowed error response code for the command.	RQ2
9	HCS → HUT	Send ANY_OPEN_PIPE on PIPE_ID_MAN.	
10	HUT → HCS	Send ANY_OK (parameters are not checked).	
11	HCS → HUT	Send ANY_GET_PARAMETER(GATES_LIST) on PIPE_ID_MAN.	
12	HUT → HCS	Send ANY_OK (parameters are not checked).	
13	HCS → HUT	Send ANY_CLOSE_PIPE on PIPE_ID_MAN.	
14	HUT → HCS	Send ANY_OK with no parameters.	RQ2
15	HCS → HUT	Send ANY_GET_PARAMETER(GATES_LIST) on PIPE_ID_MAN.	
16	HUT → HCS	Send response containing an allowed error response code for the command.	RQ2

5.3.1.2.4.3 Void

5.3.1.3 Administration commands

5.3.1.3.1 ADM CREATE PIPE

5.3.1.3.1.1 Conformance requirements

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

NOTE: All conformance requirements for the referenced clause are included in clause 5.5.1.1 of the present document.

5.3.1.3.2 ADM_NOTIFY_PIPE_CREATED

5.3.1.3.2.1 Conformance requirements

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

NOTE: All conformance requirements for the referenced clause are included in clause 5.5.1.1 of the present document.

5.3.1.3.3 ADM DELETE PIPE

5.3.1.3.3.1 Conformance requirements

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

NOTE: All conformance requirements for the referenced clause are included in clause 5.5.1.2 of the present

document.

5.3.1.3.4 ADM NOTIFY PIPE DELETED

5.3.1.3.4.1 Conformance requirements

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

NOTE: All conformance requirements for the referenced clause are included in clause 5.5.1.2 of the present document.

5.3.1.3.5 ADM CLEAR ALL PIPE

5.3.1.3.5.1 Conformance requirements

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

NOTE: All conformance requirements for the referenced clause are included in clause 5.5.1.3 of the present

document.

5.3.1.3.6 ADM_NOTIFY_ALL_PIPE_CLEARED

5.3.1.3.6.1 Conformance requirements

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

NOTE: All conformance requirements for the referenced clause are included in clause 5.5.1.3 of the present

document.

5.3.2 Responses

5.3.2.1 Conformance requirements

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

RQ1	A response shall be sent to all commands received even to those unknown to the receiving gate.		
RQ2	Responses received out of order (i.e. if no command was sent previously) shall be discarded.		
RQ3	For a received command which is defined in table 16 in ETSI TS 102 622 [1], hosts shall only return a		
	response code which is specified for that command in table 16 in ETSI TS 102 622 [1].		
NOTE 1	NOTE 1: Development of test cases for RQ3 is FFS.		
NOTE 2	: RQ2 is not fully verified in this clause. See Annex A for further test scenarios that cannot be		
	implemented in a standardized way.		

5.3.2.2 Test case 1: response to unknown command

5.3.2.2.1 Test execution

Void.

5.3.2.2.2 Initial conditions

- The HCI interface is idle; i.e. no further communication is expected.
- PIPE₁ is open.
- A pipe (PIPE_ID_MAN) has been created to the host's identity management gate and is open.

5.3.2.2.3 Test procedure

Step	Direction	Description	RQ
1	HCS → HUT	Send command with an RFU instruction value on PIPE ₁ .	
2	HUT → HCS	Send response (contents are not checked).	RQ1
3	HCS → HUT	Send command with an RFU instruction value on PIPE_ID_MAN.	
4	HUT → HCS	Send response (contents are not checked).	RQ1

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

5.3.2.3.1 Test execution

Void.

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's identity management gate and is open.

5.3.2.3.3 Test procedure

Step	Direction	Description	RQ
1	HCS → HUT	Send ANY_GET_PARAMETER(GATES_LIST) on PIPE_ID_MAN.	
2	HUT → HCS	Send response with ANY_OK and value of GATES_LIST on PIPE_ID_MAN.	
3	HCS → HUT	Send response with ANY_OK and no parameters on PIPE_ID_MAN.	
4	HUT	No message on PIPE_ID_MAN.	RQ2
5	HCS → HUT	Send ANY_GET_PARAMETER(GATES_LIST) on PIPE_ID_MAN.	
6	HUT → HCS	Send response with ANY OK and same value of GATES LIST as in step 2.	RQ2

5.3.2.4 Void

5.3.3 Events

5.3.3.1 Conformance requirements

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

RQ1	Unknown events received shall be discarded.
RQ2	When the host sends EVT_HCI_END_OF_OPERATION, it shall contain no parameters.
RQ3	For gates defined in ETSI TS 102 622 [1], hosts shall not use event values which are not allocated in
	ETSI TS 102 622 [1].
NOTE	1: No RQs are specified for when the host should send EVT_HCI_END_OF_OPERATION, as the
	conditions for sending this event are internal to the host.
NOTE	2: Development of test cases for RQ2 is FFS.
NOTE	3: RQ3 is not tested, as it is a non-occurrence RQ.

5.3.3.2 Test case 1: reception of unknown events

5.3.3.2.1 Test execution

Void.

5.3.3.2.2 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's identity management gate, and is open.

5.3.3.2.3 Test procedure

Step	Direction Description		RQ
1	HCS → HUT	Send ANY_GET_PARAMETER(GATES_LIST) on PIPE_ID_MAN.	
2	HUT → HCS	Send response with ANY_OK and value of GATES_LIST on PIPE_ID_MAN.	
3	HCS → HUT	Send event with an RFU instruction value on PIPE_ID_MAN.	
4	HCS → HUT	Send ANY_GET_PARAMETER(GATES_LIST) on PIPE_ID_MAN.	
5	HUT → HCS	Send response with ANY_OK and same value of GATES_LIST as in step 2.	RQ1

5.4 GATES and subclauses

5.4.1 GATES

5.4.1.1 Conformance requirements

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

RQ1	Gates shall support the commands and events specified for them in tables 18 and 19 of
	ETSI TS 102 622 [1].
NOTE 1:	In this clause, RQ1 is only tested for the management gates. Other clauses may test RQ1 for other
	gates as applicable.
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_NOTIFY_PIPE_CREATED, ADM_NOTIFY_PIPE_DELETED and
	ADM_NOTIFY_ALL_PIPE_CLEARED are not tested for the host administration gate, as they are
	tested in the specific clauses for each command.
	EVT_POST_DATA is not tested for the loop back gate, as it is tested in the clause 5.5.5.
NOTE 5:	EVT_HOT_PLUG is not tested for the host administration gate, as the reaction of the host is not
	specified in ETSI TS 102 622 [1].

5.4.1.2 Test case 1: command and event support for link management gate

5.4.1.2.1 Test execution

Void.

5.4.1.2.2 Initial conditions

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

5.4.1.2.3 Test procedure

Step	Direction	Description	RQ
1	HCS → HUT Send ANY_CLOSE_PIPE on PIPE ₀ .		
2	HUT → HCS	Send ANY_OK (parameters are not checked).	RQ1
3	HCS → HUT	Send ANY_OPEN_PIPE on PIPE ₀ .	
4	HUT → HCS	Send ANY_OK (parameters are not checked).	RQ1

5.4.1.3 Test case 2: command and event support for management gates except link management gate

5.4.1.3.1 Test execution

The test procedure shall be executed once for each of following parameters, indicating the pipe to be used in the test procedure:

- PIPE₁;
- a pipe which has been created from the host controller's identity management gate to the host's identity management;
- a pipe which has been created from gate with $G_{ID} = '01'$ on the host controller to the host's loop back gate.

5.4.1.3.2 Initial conditions

- The HCI interface is idle; i.e. no further communication is expected.
- The pipe indicated in the test execution clause is open.

5.4.1.3.3 Test procedure

Step	Direction	Description	RQ	
1	HCS → HUT	Send ANY_CLOSE_PIPE on the pipe indicated in the test execution clause.		
2	HUT → HCS	Send ANY_OK (parameters are not checked).	RQ1	
3	HCS → HUT	end ANY_OPEN_PIPE on the pipe indicated in the test execution clause.		
4	HUT → HCS	Send ANY_OK (parameters are not checked).	RQ1	

5.4.2 Management gates

5.4.2.1 Administration gates

5.4.2.1.1 Host controller administration gate

5.4.2.1.1.1 Conformance requirements

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

RQ1	The host shall only set values of SESSION_IDENTITY with length 8 bytes.
RQ2	The session identity shall be modified by the host whenever a modification of the configuration is
	performed by the host.
RQ3	The default value of the session identity shall never be written by a host.
RQ4	The session identity shall use random values.
RQ5	The host shall adhere to the access condition of RO for MAX_PIPE.
RQ6	The host shall only set values of WHITELIST containing valid host identifiers (including proprietary host identifiers but excluding RFU host identifiers) as specified in table 1 in ETSI TS 102 622 [1], and not
	containing the host controller's host identifier and the host's own host identifier; an empty array is allowed.
RQ7	The host shall adhere to the access condition of RO for HOST_LIST.
NOTE 1	: RQ2 is not tested in this clause. It is tested in the context of HCI session initialization in clause 5.5.4. As other circumstances in which the host may modify the configuration are not evident, it is not tested further in this clause.
	 RQ5 and RQ7 are not tested, as they are non-occurrence RQs. RQ6 is not testable in a standardized manner. See Annex A for test cases which could be used in a non-standardized manner.

5.4.2.1.1.2 Test case 1: SESSION_IDENTITY

5.4.2.1.1.2.1 Test execution

Run this test procedure in full power mode only.

5.4.2.1.1.2.2 Initial conditions

• The host is not powered up.

5.4.2.1.1.2.3 Test procedure

Step	Direction	Description	RQ
1	HCS → HUT	Power up host; behave as if lower layer identity check has failed (i.e. enter inhibited state).	
2	HUT ← → HCS	Perform HCI session initialization.	
3	HUT → HCS	Send ANY_SET_PARAMETER(SESSION_IDENTITY) on PIPE ₁ .	RQ1,
3	1101 / 1103	Check value is 8 bytes long, and is different from the default value.	RQ3
4	HCS → HUT	Send ANY_OK with no parameters.	
5		Execute steps 7 to 10 ten times.	
6	HCS → HUT	Power down host.	
7	HCS → HUT	Power up host; behave as if lower layer identity check has failed (i.e. enter inhibited state).	
8	HUT ← → HCS	Perform HCI session initialization.	
9	HUT → HCS	Send ANY_SET_PARAMETER(SESSION_IDENTITY) on PIPE ₁ . Check value is 8 bytes long, is different from the default value, and is	RQ1, RQ3, RQ4
10	HCS → HUT	different from any value previously sent by the host in the test procedure. Send ANY OK with no parameters.	1104

5.4.2.1.1.3 Void

5.4.2.1.2 Host administration gate

5.4.2.1.2.1 Conformance requirements

Reference: ETSI TS 102 622 [1], clauses 7.1.1.2 and 4.5.

RQ1		Registry parameters which are in the range of '00' to 'EF' but which are not allocated in ETSI TS 102 622 [1] shall not be present in the registry.
NOTE:	De	velopment of test cases for RQ1 is FFS.

5.4.2.2 Link management gate

5.4.2.2.1 Host controller link management gate

5.4.2.2.1.1 Conformance requirements

Reference: ETSI TS 102 622 [1], clause 7.1.2.1.

RQ1	The host shall only set values of REC_ERROR with length 2 bytes.
110(1	The heat shall only set values of thes_Entrol war longar 2 bytes.
NOTE:	RQ1 is not testable in a standardized manner. See Annex A for test cases which could be used in a
INO IL.	NOT IS NOT lestable in a standardized manner. See Annex A for lest cases which could be used in a
	non-standardized manner
	non-standardized manner

5.4.2.2.1.2 Void

5.4.2.2.2 Host link management gate

5.4.2.2.2.1 Conformance requirements

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

RQ1	4.5	Registry parameters which are in the range of '00' to 'EF' but which are not allocated in			
		ETSI TS 102 622 [1] shall not be present in the registry.			
RQ2	7.1.2.1	The host shall use a default value for REC_ERROR of '0000'.			
RQ3	7.1.2.1	The host shall apply the access condition of RW to REC_ERROR.			
RQ4	7.1.2.1	The host shall only accept values of REC_ERROR of length 2 bytes.			
NOTE	NOTE 1: Development of test cases for RQ1 is FFS.				
NOTE	2: RQ2	2, RQ3 and RQ4 are not testable in a standardized manner. See Annex A for test cases which could be			
	used in a non-standardized manner.				

5.4.2.2.2 Void

5.4.2.3 Identity management gate

5.4.2.3.1 Local registry

5.4.2.3.1.1 Conformance requirements

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

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

RQ1	4.5	Registry parameters which are in the range of '00' to 'EF' but which are not allocated in			
		ETSI TS 102 622 [1] shall not be present in the registry.			
RQ2	7.1.3	The registry of the identity management gate shall be persistent.			
RQ3	7.1.3	This gate shall be provided by all hosts and the host controller.			
RQ4	7.1.3	If present in the host, the host shall use a value for VERSION_SW of length 3 bytes.			
RQ5	7.1.3	If present in the host, the host shall apply the access condition of RO to VERSION SW.			
RQ6	7.1.3	If present in the host, the host shall use a value for VERSION_HARD of length 3 bytes.			
RQ7	7.1.3	If present in the host, the host shall apply the access condition of RO to VERSION_HARD.			
RQ8	7.1.3	If present in the host, the host shall use a value for VENDOR_NAME of maximum length 20 bytes with			
		UTF8 coding.			
RQ9	7.1.3	If present in the host, the host shall apply the access condition of RO to VENDOR_NAME.			
RQ10	7.1.3	If present in the host, the host shall use a value for MODEL_ID of length 1 byte.			
RQ11	7.1.3	If present in the host, the host shall apply the access condition of RO to MODEL_ID.			
RQ12	7.1.3	If present in the host, the host shall apply the access condition of RO to HCI_VERSION.			
RQ13	7.1.3	The host shall use a value for GATES_LIST containing the list of all gates that accept dynamic pipes as			
		an array of gate identifiers.			
RQ14	7.1.3	The host shall apply the access condition of RO to GATES_LIST.			
RQ15	7.1.3	A host according to the present document shall set the HCI_VERSION parameter if provided to '01'.			
NOTE	1: Deve	lopment of test cases for RQ1 is FFS.			
NOTE :	2: RQ2	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: RQ3	is also covered in clause 4.3 of ETSI TS 102 622 [1], covered by clause 5.1.3 of the present document.			
	This I	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

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)	Value to be used in ANY_SET_PARAMETER (designated VALUE_SET)	RQ to be checked in steps 2 and 6	RQ to be checked in step 4
VERSION_SW	0	V_VERSION_SW	'01 01 01'	RQ4	RQ5
VERSION_HARD	0	V_VERSION_HARD	'01 01 01'	RQ6	RQ7
VENDOR_NAME	0	V_VENDOR_NAME	'56 65 6E 64 6F 72'	RQ8	RQ9
MODEL_ID	0	V_MODEL_ID	'01'	RQ10	RQ11
HCI_VERSION	0	V_HCI_VERSION	'01'	RQ15	RQ12
GATES_LIST	M	V_GATES_LIST	'04 05'	RQ13	RQ14

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's identity management gate, and is open.

5.4.2.3.1.2.3 Test procedure

Step	Direction	Direction Description			
1	HCS → HUT	Send ANY_GET_PARAMETER(REG_PARAM) on PIPE_ID_MAN.			
2	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. HUT → HCS 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		
3	HCS → HUT	Send ANY_SET_PARAMETER(REG_PARAM, VALUE_SET) on PIPE ID MAN.			
4	HUT → HCS	Send response containing an allowed error response code for the command.			
5	HCS → HUT	Send ANY_GET_PARAMETER(REG_PARAM) on PIPE_ID_MAN.			
6	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.		See test execution clause		

5.4.2.3.2 Remote registry

5.4.2.3.2.1 Conformance requirements

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

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

RQ1	The host shall adhere to the access condition of RO for VERSION_SW in the host controller.
RQ2	The host shall adhere to the access condition of RO for VERSION_HARD in the host controller.
RQ3	The host shall adhere to the access condition of RO for VENDOR_NAME in the host controller.
RQ4	The host shall adhere to the access condition of RO for MODEL_ID in the host controller.
RQ5	The host shall adhere to the access condition of RO for HCI_VERSION in the host controller.
RQ6	The host shall adhere to the access condition of RO for GATES_LIST in the host controller.
RQ7	Every host shall manage backward compatibility with previous HCI versions and use only commands and
	parameters defined in the specification having the lower HCl version number between of the 2 hosts
	involved in a transaction.
RQ8	A host connected to a host with higher HCI version number shall operate according to its own version.
NOTE 1	: RQ1, RQ2, RQ3, RQ4, RQ5 and RQ6 are not tested, as they are non-occurrence RQs.
NOTE 2	
	not tested in the current version of the present document.
NOTE 3	: Development of test cases for RQ8 is FFS.

5.4.2.4 Loop back gate

5.4.2.4.1 Conformance requirements

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

RQ1	4.5	Registry parameters which are in the range of '00' to 'EF' but which are not allocated in
		ETSI TS 102 622 [1] shall not be present in the registry.
NOTE	: D	evelopment of test cases for RQ1 is FFS.

5.4.3 Generic gates

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

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

5.5 HCI procedures

5.5.1 Pipe management

5.5.1.1 Pipe creation

5.5.1.1.1 Conformance requirements

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

RQ1	6.1.3.1	When a host sends an ADM_CREATE_PIPE command, the command parameters shall be 3 bytes long, and contain valid $G_{\rm ID}$ s and $H_{\rm ID}$.
RQ2	6.1.3.2	When a host receives an ADM_NOTIFY_PIPE_CREATED command, it shall respond with ANY_OK with no parameters if it accepts the pipe.
RQ3	6.1.3.2	If a host receives an ADM_NOTIFY_PIPE_CREATED command containing a destination H _{ID} which is
		not the H _{ID} of the host, it shall reject the pipe creation.
RQ4	8.1.1	If host B does not accept the creation of the pipe, it shall respond to ADM_NOTIFY_PIPE_CREATED with an appropriate response code.
RQ5	6.1.3.1	When receiving ADM_NOTIFY_PIPE_CREATED, the host shall accept any gate identifier being used as
		source gate.
NOTE	1: Devel	opment of test cases for RQ5 is FFS.
NOTE	2: RQ1 i	is not testable in a standardized manner. See Annex A for test cases which could be used in a non-
	stand	ardized manner.

5.5.1.1.2 Void

5.5.1.1.3 Test case 2: ADM_NOTIFY_PIPE_CREATED from host controller

5.5.1.1.3.1 Test execution

Void.

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
		Send ADM_NOTIFY_PIPE_CREATED on PIPE ₁ , with source G _{ID} '01' and	
1	HCS → HUT	destination G _{ID} of the loop back gate; designate the create pipe	
		PIPE_LOOP_BACK.	
2	HUT → HCS	Send ANY_OK with no parameters.	RQ2
3	HCS → HUT	Send ANY_OPEN_PIPE on PIPE_LOOP_BACK.	
4	HUT → HCS	Send ANY_OK (parameters are not checked).	RQ2
5	HCS → HUT	Send EVT_POST_DATA containing '01 02 03 04' on PIPE_LOOP_BACK.	
6	HUT → HCS	Send EVT POST DATA containing '01 02 03 04' on PIPE LOOP BACK.	RQ2

5.5.1.1.4 Test case 3: ADM_NOTIFY_PIPE_CREATED from other host

5.5.1.1.4.1 Test execution

Void.

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
		Send ADM_NOTIFY_PIPE_CREATED on PIPE ₁ with source H _{ID} equal to a	
1	HCS → HUT	value in the WHITELIST of the host, source G_{ID} = '01' and destination G_{ID} =	
		G _{ID} of the loop back gate; designate the created pipe PIPE_LOOP_BACK.	
2	HUT → HCS	Send ANY_OK with no parameters.	RQ2
3	HCS → HUT	Send ANY_OPEN_PIPE on PIPE_LOOP_BACK.	
4	HUT → HCS	Send ANY_OK (parameters are not checked).	RQ2
5	HCS → HUT	Send EVT_POST_DATA containing '01 02 03 04' on PIPE_LOOP_BACK.	
6	HUT → HCS	Send EVT_POST_DATA containing '01 02 03 04' on PIPE_LOOP_BACK.	RQ2

5.5.1.1.5 Test case 4: ADM NOTIFY PIPE CREATED with incorrect destination H_{ID}

5.5.1.1.5.1 Test execution

Void.

5.5.1.1.5.2 Initial conditions

- The HCI interface is idle; i.e. no further communication is expected.
- PIPE₁ is open.

5.5.1.1.5.3 Test procedure

Step	Direction	Description	RQ
1	UC6 7 IIII	Send ADM_NOTIFY_PIPE_CREATED on PIPE ₁ with destination H_{ID} equal to a proprietary H_{ID} according to table 1 of ETSI TS 102 622 [1] but which is not equal to the H_{ID} of the host, with source G_{ID} = '01' and destination G_{ID} = G_{ID} of the loop back gate.	
2	HUT → HCS	Send response containing an allowed error response code for the command.	RQ3

5.5.1.1.6 Test case 5: unsuccessful ADM_NOTIFY_PIPE_CREATED

5.5.1.1.6.1 Test execution

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

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
	1100 > 1111	Send ADM_NOTIFY_PIPE_CREATED on PIPE ₁ , with source G _{ID} = '01' and	
1	HCS → HUT	destination G _{ID} equal to GATE_UNSUPPORTED.	
2	HUT → HCS	Send response containing an allowed error response code for the command.	RQ4

5.5.1.2 Pipe deletion

5.5.1.2.1 Conformance requirements

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

RQ1	6.1.3.3	3.3 When a host sends an ADM_DELETE_PIPE command, the command parameters shall be 1 byte long.		
RQ2	6.1.3.3 When a host sends an ADM DELETE PIPE command, the host that requested the deletion of the			
		shall be the source host or destination host.		
RQ3	6.1.3.4	When a host receives a valid ADM_NOTIFY_PIPE_DELETED command, it shall respond with ANY_OK		
		with no parameters.		
NOTE	NOTE 1: RQ2 is not tested, as it is a non-occurrence RQ.			
NOTE	2: RQ1 i	s not testable in a standardized manner. See Annex A for test cases which could be used in a non-		
	standardized manner.			

5.5.1.2.2 Void

5.5.1.2.3 Test case 2: receiving ADM_NOTIFY_PIPE_DELETED

5.5.1.2.3.1 Test execution

Void.

5.5.1.2.3.2 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's loop back gate, and is open.

5.5.1.2.3.3 Test procedure

Step	Direction	Description	RQ
4	$HCS \rightarrow HUI$	Send ADM_ NOTIFY_PIPE_DELETED on PIPE ₁ , with parameter value of	
'		length 1 and equal to PIPE_LOOP_BACK.	
2	HUT → HCS	Send ANY_OK with no parameters.	RQ3
3	HCS → HUT	Send EVT_POST_DATA containing '01 02 03 04' on PIPE_LOOP_BACK.	
4	HUT → HCS	No messages on PIPE_LOOP_BACK.	RQ3
5	HCS → HUT	Send ANY_OPEN_PIPE on PIPE_LOOP_BACK.	
6		Send no response, or a response containing an allowed error response code for the command.	RQ3

5.5.1.3 Clear all Pipes

5.5.1.3.1 Conformance requirements

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

RQ1	6.1.3.5	When the host sends an ADM_CLEAR_ALL_PIPE command and the data link layer specified in		
		ETSI TS 102 613 [2] is used, the command parameters are the identity reference data and shall be two		
		bytes long.		
RQ2	6.1.3.5	When the data link layer specified in ETSI TS 102 613 [2] is used, the identity reference data in the		
		ADM_CLEAR_ALL_PIPE command shall contain random elements.		
RQ3	6.1.3.5	When the host receives ANY_OK in response to an ADM_CLEAR_ALL_PIPE command, it shall		
		consider that all dynamic pipes connected to it are deleted, all static pipes connected to it are closed,		
		and all registry values related to static pipes connected to it are set to their default values.		
RQ4	6.1.3.6	When the host receives a valid ADM_NOTIFY_ALL_PIPE_CLEARED command, and the requesting		
		host is not the host controller, the host shall consider all dynamic pipes between the host and the		
		requesting host to be deleted.		
RQ5	6.1.3.6	When the host receives a valid ADM_NOTIFY_ALL_PIPE_CLEARED command, and the requesting		
		host is the host controller, the host shall consider all dynamic pipes between the host controller and the		
		host to be deleted, and all static pipes between the host and the host controller to be closed.		
RQ6	6.1.3.6	The host shall respond to an ADM_NOTIFY_ALL_PIPE_CLEARED command with an ANY_OK without		
		parameters.		
NOTE	NOTE 1: Development of test cases for RQ4, RQ5 and RQ6 is FFS.			
NOTE	2: RQ3	is not fully verified in this clause. See Annex A for further test scenarios that cannot be implemented in a		
	stand	ardized way.		

5.5.1.3.2 Test case 1: ADM_CLEAR_ALL_PIPE for data link layer specified in ETSI TS 102 613

5.5.1.3.2.1 Test execution

Run this test procedure in full power mode only.

5.5.1.3.2.2 Initial conditions

• The host is not powered up.

5.5.1.3.2.3 Test procedure

Step	Direction	Description	RQ		
1	HCS → HUT	Power up host; behave as if lower layer identity check has failed (i.e. enter inhibited state).			
2	HUT → HCS	Send ADM_CLEAR_ALL_PIPE on PIPE ₁ , with a parameter value of length 2 bytes (see note).	RQ1		
3	HCS → HUT	Send ANY_OK with no parameters.			
4	HCS	Wait for HCl session initialization to be completed, and for the HCl interface to be idle; i.e. no further communication is expected.			
5		Execute steps 6 to 12 ten times.			
6	HCS → HUT	Power down host.			
7	HCS → HUT	Power up host.			
8	HUT → HCS	Send ACT_SYNC, with SYNC_ID equal to the parameter value in the last ADM_CLEAR_ALL_PIPE command.	RQ1		
9	HCS → HUT HUT → HCS	Complete SWP interface activation and SHDLC link establishment.			
10	HCS → HUT	Behave as if lower layer identity check has failed (i.e. enter inhibited state).			
11	HUT → HCS	Send ADM_CLEAR_ALL_PIPE on PIPE ₁ , with a parameter value of length 2 bytes, and with a value different from any value previously sent by the host in the test procedure (see note).	RQ2		
12	HCS → HUT	Send ANY_OK with no parameters.			
13	HUT ← → HCS	Complete HCl session initialization.			
NOTE	NOTE: Other commands may be sent prior to the ADM_CLEAR_ALL_PIPE command.				

5.5.1.3.3 Test case 2: ADM_CLEAR_ALL_PIPE - static pipes, dynamic pipes to host controller

5.5.1.3.3.1 Test execution

Run this test procedure in full power mode only.

5.5.1.3.3.2 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's loop back gate, and is open.

5.5.1.3.3.3 Test procedure

Step	Direction	Description	RQ
1	HCS → HUT	Power down host.	
2	HCS → HUT	Power up host; behave as if lower layer identity check has failed (i.e. enter inhibited state).	
3	HUT → HCS	Send ADM_CLEAR_ALL_PIPE on PIPE ₁ ; parameter value is not checked (see note 1).	
4	HCS → HUT	Send ANY_OK with no parameters.	
5	HUT → HCS	Send ANY_OPEN_PIPE on PIPE ₁ .	RQ3
6	HCS → HUT	Send ANY_OK with no parameters.	
7	HCS	See note 2.	
8	HCS → HUT	Send EVT_POST_DATA containing '01 02 03 04' on PIPE_LOOP_BACK.	
9	HUT → HCS	No messages on PIPE_LOOP_BACK.	RQ3
10	HCS → HUT	Send ANY_OPEN_PIPE on PIPE_LOOP_BACK.	
11	HUT → HCS	Send no response, or a response containing an allowed error response code for the command.	RQ3
		nands may be sent prior to the ADM_CLEAR_ALL_PIPE command.	tion

NOTE 2: The host controller simulator shall not use PIPE_LOOP_BACK for any subsequent pipe creation.

5.5.1.3.4 Test case 3: ADM_CLEAR_ALL_PIPE - dynamic pipes to other host

5.5.1.3.4.1 Test execution

Run this test procedure in full power mode only.

5.5.1.3.4.2 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 from gate '01' on a host whose H_{ID} is in the WHITELIST of the host to the host's loop back gate, and is open.

5.5.1.3.4.3 Test procedure

Step	Direction	Description	RQ	
1	HCS → HUT	Power down host.		
2	HCS → HUT	Power up host; behave as if lower layer identity check has failed (i.e. enter inhibited state).		
3	HUT → HCS	Send ADM_CLEAR_ALL_PIPE on PIPE ₁ ; parameter value is not checked (see note 1).		
4	HCS → HUT	Send ANY_OK with no parameters.		
5	HCS	See note 2.		
6	HCS → HUT	Send EVT_POST_DATA containing '01 02 03 04' on PIPE_LOOP_BACK.		
7	HUT → HCS	No messages on PIPE_LOOP_BACK.	RQ3	
8	HCS → HUT	Send ANY_OPEN_PIPE on PIPE_LOOP_BACK.		
9	HUT → HCS	Send no response, or a response containing an allowed error response code for the command.	RQ3	
NOTE 1: Other commands may be sent prior to the ADM_CLEAR_ALL_PIPE command. NOTE 2: The host controller simulator shall not use PIPE LOOP BACK for any subsequent pipe creation.				

5.5.1.3.5 Void

5.5.2 Registry access

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

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

5.5.3 Host and Gate discovery

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

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

5.5.4 Session initialization

5.5.4.1 Conformance requirements

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

RQ1	Up to Rel-9	The Host shall perform session initialization only if no contactless transaction is pending at startup			
		(e.g. after power up in full-power mode as defined in ETSI TS 102 613 [2]).			
RQ2	Up to Rel-9	If the data link layer specified in ETSI TS 102 613 [2] is being used, then after power up in full-			
		power mode, the host shall perform session initialization.			
RQ3		If the returned value of SESSION_IDENTITY equals the previous value stored in the host, the host			
		shall stop the session initialization procedure.			
RQ4		If the returned value of SESSION IDENTITY does not equal the previous value stored in the host,			
		the host needs to reinitialize and it requests the host controller to clear all pipes.			
RQ5		In the context of RQ4, after performing any further initializations, the host generates a new session			
		identity and stores its value and stores it in the host controller registry.			
RQ6	Rel-10	The host shall perform this procedure only at startup and only if no contactless transaction is			
	upwards	pending.			
RQ7	Rel-10	In case of an underlying data link layer according to ETSI TS 102 613 [2] this procedure shall only			
	upwards	be performed after the initial interface activation in full-power mode and only if no contactless			
	-	transaction is pending.			
NOTE	1: RQ1 is n	not tested in this clause, as the only circumstances where no contactless transaction is pending at			
	startup v	which are defined after power up in full-power mode as defined in ETSI TS 102 613 [2], which is			
	dealt with in RQ2.				
NOTE	2: For the c	case of an underlying data link layer according to ETSI TS 102 613 [2], testing of RQ6 is			
	incorpora	ated into testing of RQ7.			

5.5.4.2 Test case 1: SESSION_IDENTITY not changed

5.5.4.2.1 Test execution

Run this test procedure in full power mode only.

5.5.4.2.2 Initial conditions

The host is not powered up.

5.5.4.2.3 Test procedure

Step	Direction	Description	RQ		
1	HCS → HUT	Power up host.			
2	HUT → HCS	Send ANY_SET_PARAMETER(SESSION_IDENTITY) on PIPE ₁ (see note 1).			
3	HCS → HUT	Send ANY_OK with no parameters.			
4	HUT ←→ HCS	Wait for any the HCI interface to be idle.			
5	HCS → HUT	Power down host.			
6	HCS → HUT	Power up host.			
7	HUT → HCS	Send ANY_GET_PARAMETER(SESSION_IDENTITY) on PIPE ₁ (see	RQ2/		
'	1101 7 1103	note 2).	RQ7		
8	HCS → HUT	Send ANY_OK with the same value of SESSION_IDENTITY as in step 2.			
9	HUT → HCS	Do not send ADM_CLEAR_ALL_PIPE or	RQ3		
9		ANY_SET_PARAMETER(SESSION_IDENTITY).	RQS		
NOTE	NOTE 1: Other commands may be sent prior to the ANY SET PARAMETER command (i.e. in order to let the				

HUT run the session initialization procedure).

NOTE 2: Other commands may be sent prior to the ANY_GET_PARAMETER command.

Test case 2: SESSION_IDENTITY changed 5.5.4.3

5.5.4.3.1 Test execution

Run this test procedure in full power mode only.

5.5.4.3.2 Initial conditions

The host is not powered up.

5.5.4.3.3 Test procedure

Direction	Description	RQ
HCS → HUT	Power up host; behave as if lower layer identity check has failed (i.e. enter inhibited state).	
HUT → HCS	Send ANY_GET_PARAMETER(SESSION_IDENTITY) on PIPE ₁ (see note 1).	RQ2/ RQ7
HCS → HUT	Send an allowed response code for the command.	
HUT → HCS	Send ADM_CLEAR_ALL_PIPE on PIPE ₁ ; parameter value is not checked (see note 2)	RQ4
HCS → HUT	Send ANY_OK with no parameters.	
HUT → HCS	Send ANY_SET_PARAMETER(SESSION_IDENTITY) on PIPE ₁ with a different value from that previously used by the host (see note 3).	RQ5
HCS → HUT	Send ANY_OK with no parameters.	
	$HCS \rightarrow HUT$ $HUT \rightarrow HCS$ $HCS \rightarrow HUT$ $HUT \rightarrow HCS$ $HCS \rightarrow HUT$ $HUT \rightarrow HCS$	HCS → HUT Power up host; behave as if lower layer identity check has failed (i.e. enter inhibited state). HUT → HCS Send ANY_GET_PARAMETER(SESSION_IDENTITY) on PIPE₁ (see note 1). HCS → HUT Send an allowed response code for the command. HUT → HCS Send ADM_CLEAR_ALL_PIPE on PIPE₁; parameter value is not checked (see note 2) HCS → HUT Send ANY_OK with no parameters. HUT → HCS Send ANY_SET_PARAMETER(SESSION_IDENTITY) on PIPE₁ with a different value from that previously used by the host (see note 3).

NOTE 1: Other commands may be sent prior to the ANY_GET_PARAMETER command. NOTE 2: Other commands may be sent prior to the ADM_CLEAR_ALL_PIPE command.

NOTE 3: Other commands may be sent prior to the ANY_SET_PARAMETER command.

5.5.4.4 Test case 3: activation in low power mode, no session initialization

5.5.4.4.1 Test execution

Run this test procedure in low power mode only.

5.5.4.4.2 Initial conditions

- The Host is not powered up.
- At the end of the previous full power mode activation, the state of at least one card emulation pipe was open, and the MODE parameter was '02' (as set by the UICC).

5.5.4.4.3 Test procedure

Step	Direction	Description	RQ
1	HCS → HUT	Power up host in low power mode.	
2	HUT → HCS	Do not send ANY_GET_PARAMETER(SESSION_IDENTITY), ADM_CLEAR_ALL_PIPE or ANY_SET_PARAMETER(SESSION_IDENTITY).	RQ7

5.5.4.5 Test case 4: subsequent activation, no session initialization

5.5.4.5.1 Test execution

Run this test procedure in full power mode only.

5.5.4.5.2 Initial conditions

- HCI session initialization has been performed and the SWP interface is DEACTIVATED.
- The UICC has opened at least one card emulation pipe and set the MODE parameter to '02'.

5.5.4.5.3 Test procedure

Step	Direction	Description	RQ
1	HCS → HUT	Perform subsequent interface activation.	
2		Do not send ANY_GET_PARAMETER(SESSION_IDENTITY), ADM_CLEAR_ALL_PIPE or ANY_SET_PARAMETER(SESSION_IDENTITY).	RQ7

5.5.4.6 Test case 5: activation in low power mode, ACT_POWER_MODE with FR=1, no session initialization

5.5.4.6.1 Test execution

Run this test procedure in low power mode only.

5.5.4.6.2 Initial conditions

- The Host is not powered up.
- At the end of the previous full power mode activation, the state of at least one card emulation pipe was open, and the MODE parameter was '02' (as set by the UICC).

5.5.4.6.3 Test procedure

Step	Direction	Description	RQ
1	HCS → HUT	Activate Vcc and SWIO.	
2	HUT → HCS	Send ACT_SYNC frame.	
3	HCS → HUT	Send ACT_POWER_MODE frame with FR=1 and low power mode indication.	
4	HUT → HCS	Send ACT_SYNC frame.	
5	HCS → HUT	Perform SHDLC link establishment.	
		Do not send ANY_GET_PARAMETER(SESSION_IDENTITY),	RQ7
6	HUT → HCS	ADM_CLEAR_ALL_PIPE or	
		ANY_SET_PARAMETER(SESSION_IDENTITY).	

5.5.4.7 Test case 6: subsequent activation, ACT_POWER_MODE with FR=1, no session initialization

5.5.4.7.1 Test execution

Run this test procedure in full power mode only.

5.5.4.7.2 Initial conditions

- HCI session initialization has been performed and the SWP interface is DEACTIVATED.
- The UICC has opened at least one card emulation pipe and set the MODE parameter to '02'.

5.5.4.7.3 Test procedure

Step	Direction	Description	RQ
1	HCS → HUT	Activate SWIO.	
2	HUT → HCS	Send ACT_SYNC frame.	
3	HCS → HUT	Send ACT_POWER_MODE frame with FR=1 and full power mode indication.	
4	HUT → HCS	Send ACT_SYNC frame.	
5	HCS → HUT	Perform SHDLC link establishment.	
		Do not send ANY_GET_PARAMETER(SESSION_IDENTITY),	RQ7
6	HUT → HCS	ADM_CLEAR_ALL_PIPE or	
		ANY_SET_PARAMETER(SESSION_IDENTITY).	

5.5.5 Loop back testing

5.5.5.1 Conformance requirements

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

RQ1	A host shall accept the creation of a pipe to its loop back gate from any gate in another host.
RQ2	When a host 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.
RQ3	The loopback gate shall support at least all messages with size up to 250 bytes.

5.5.5.2 Test case 1: pipe creation from host controller

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
		Send ADM_NOTIFY_PIPE_CREATED on PIPE ₁ , with source G _{ID} as	
1	HCS → HUT	specified and destination $G_{ID} = G_{ID}$ of loop back gate.	
2	HUT → HCS	Send ANY_OK (parameters are not checked).	RQ1

5.5.5.3 Test case 2: pipe creation from another host

5.5.5.3.1 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'.

5.5.5.3.2 Initial conditions

- The HCI interface is idle; i.e. no further communication is expected.
- PIPE₁ is open.

5.5.5.3.3 Test procedure

Step	Direction	Description	RQ
		Send ADM_NOTIFY_PIPE_CREATED on PIPE ₁ , with source H _{ID} equal to	
1	HCS → HUT	the H_{ID} contained in the host's WHITELIST, source G_{ID} as specified and	
		destination G _{ID} = G _{ID} of loop back gate.	
2	HUT → HCS	Send ANY_OK (parameters are not checked).	RQ1

5.5.5.4 Test case 3: processing of EVT_POST_DATA

5.5.5.4.1 Test execution

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

• EVT_POST_DATA data sizes of: 1 byte, 100 bytes, 250 bytes.

5.5.5.4.2 Initial conditions

- The HCI interface is idle; i.e. no further communication is expected.
- A pipe (PIPE_LOOP_BACK) has been created to the host's loop back gate, and is open.

5.5.5.4.3 Test procedure

Step	Direction	Description	RQ
1	$H(S) \rightarrow H(I)$	Send EVT_POST_DATA on PIPE_LOOP_BACK containing data of the specified size.	
2	$HUI \rightarrow HCS$	Send EVT_POST_DATA on PIPE_LOOP_BACK containing the same data as in step 1.	RQ2, RQ3

5.6 Contactless card emulation

5.6.1 Overview

5.6.1.1 Conformance requirements

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

RQ1	For each card RF gate it wants to use, the host has one card application gate.
RQ2	For the contactless platform for card emulation mode the pipes to card RF gates shall be created,
	opened, closed and deleted by the host.
RQ3	The host shall not create more than one pipe to each RF gate.
NOTE 1	I: RQ1 and RQ2 are implicitly tested in clause 5.6.4.
NOTE 2	2: RQ3 is a non-occurrence RQ.

5.6.2 Void

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

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

5.6.3 Gates

5.6.3.1 Void

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

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

5.6.3.2 Identity management gate

5.6.3.2.1 Conformance requirements

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

RQ1	The host shall adhere to the access condition of RO for LOW_POWER_SUPPORT.
NOTE:	RQ1 is a non-occurrence RQ.

5.6.3.3 Card RF gates

5.6.3.3.1 Overview

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

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

5.6.3.3.2 Commands

5.6.3.3.2.1 Conformance requirements

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

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

5.6.3.3.3 Events and subclauses

5.6.3.3.3.1 Events

5.6.3.3.1.1 Conformance requirements

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

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

5.6.3.3.3.2 EVT_SEND_DATA

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

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

5.6.3.3.4 Registry and subclauses

5.6.3.3.4.1 Registry

Void.

5.6.3.3.4.1.1 Conformance requirements

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

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

5.6.3.3.4.2 RF technology type A

5.6.3.3.4.2.1 Conformance requirements

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

RQ1	The host shall only set values of MODE of 'FF' and '02'.
RQ2	The host shall only set values of UID_REG with length 0, 4, 7 or 10.
RQ3	The host shall adhere to the access condition of WO for UID_REG.
RQ4	The host shall only set values of CID_SUPPORT with value '00' or '01'.
RQ5	The host shall adhere to the access condition of RO for CLT_SUPPORT.
RQ6	The host shall only set values of DATARATE_MAX which codes maximum divisor supported with coding
	as specified in ETSI TS 102 622 [1].
NOTE:	The conformance to ISO/IEC 14443-3 [4] and ISO/IEC 14443-4 [5] of the values written by the host is
	out of scope of the present document.

5.6.3.3.4.2.2 Test case 1: Type A registry values

5.6.3.3.4.2.2.1 Test execution

Run this test procedure in full power mode only.

5.6.3.3.4.2.2.2 Initial conditions

• The host is not powered up.

5.6.3.3.4.2.2.3 Test procedure

Step	Direction	Description	
1	HCS → HUT	Power up host; behave as if lower layer identity check has failed (i.e. enter inhibited state).	
2	HUT ← → HCS	Perform HCl session initialization, up to the point of setting a new value of SESSION_IDENTITY. The HCl session initialization shall meet the following requirements for registry parameters for type A: • For all writeable registry parameters (i.e. RW or WO), any values which the host sets shall be set in accordance with the RQs. • For all non-writeable registry parameters (i.e. RO), the host shall not attempt to write a value.	RQ1, RQ2, RQ3, RQ4, RQ5, RQ6

5.6.3.3.4.3 RF technology type B

5.6.3.3.4.3.1 Conformance requirements

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

RQ1	The host shall only set values of MODE of 'FF' and '02'.
RQ2	The host shall only set values of PUPI_REG with length 0 or 4.
RQ3	The host shall adhere to the access condition of WO for PUPI_REG.
RQ4	The host shall only set values of ATQB with length 4.
RQ5	The host shall only set values of DATARATE_MAX which codes maximum bit rates supported with
	coding as specified in ETSI TS 102 622 [1].
NOTE:	The conformance to ISO/IEC 14443-3 [4] and ISO/IEC 14443-4 [5] of the values written by the host is
	out of scope of the present document.

5.6.3.3.4.3.2 Test case 1: Type B registry values

5.6.3.3.4.3.2.1 Test execution

Run this test procedure in full power mode only.

5.6.3.3.4.3.2.2 Initial conditions

• The host is not powered up.

5.6.3.3.4.3.2.3 Test procedure

Step	Direction	Description	
1 HCS → HUT		Power up host; behave as if lower layer identity check has failed (i.e. enter inhibited state).	
2	HUI ← → HCS	Perform HCI session initialization, up to the point of setting a new value of SESSION_IDENTITY. During the HCI session initialization, for all writeable registry parameters (i.e. RW or WO) for type B, any values which the host sets shall be set in accordance with the RQs.	RQ1, RQ2, RQ3, RQ4, RQ5

5.6.3.3.4.4 RF technology type B'

5.6.3.3.4.4.1 Conformance requirements

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

NOTE: Since this technology is not publicly disclosed, no conformance requirements have been established.

5.6.3.3.4.5 RF technology Type F (ISO 18092 212 kbps/424 kbps card emulation only)

5.6.3.3.4.5.1 Conformance requirements

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

RQ1	The host shall only set values of MODE of 'FF' and '02'.
RQ2	The host shall adhere to the access condition of RO for SPEED_CAP.
RQ3	The host shall adhere to the access condition of RO for CLT_SUPPORT.

5.6.3.3.4.5.2 Test case 1: Type F registry values

5.6.3.3.4.5.2.1 Test execution

Run this test procedure in full power mode only.

5.6.3.3.4.5.2.2 Initial conditions

• The host is not powered up.

5.6.3.3.4.5.2.3 Test procedure

Step	Direction	Description	
1	HCS → HUT	Power up host; behave as if lower layer identity check has failed (i.e. enter inhibited state).	
2	HUT ← → HCS	Perform HCl session initialization, up to the point of setting a new value of SESSION_IDENTITY. The HCl session initialization shall meet the following requirements for registry parameters for type F: • For all writeable registry parameters (i.e. RW), any values which the host sets shall be set in accordance with the RQs. • For all non-writeable registry parameters (i.e. RO), the host shall not attempt to write a value.	RQ1, RQ2, RQ3

5.6.3.4 Card application gates

5.6.3.4.1 Overview

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

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

5.6.3.4.2 Commands

5.6.3.4.2.1 Conformance requirements

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

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

5.6.3.4.3 Events and subclauses

5.6.3.4.3.1 Events

5.6.3.4.3.1.1 Conformance requirements

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

RQ1 Each card application gate shall support all events as listed.

NOTE: This RQ is not tested in this clause, as it is tested in clause 5.6.4.

5.6.3.4.3.2 EVT_FIELD_ON

5.6.3.4.3.2.1 Conformance requirements

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

There are no conformance requirements for the UICC for the referenced clause (usage of this event is described in clause 9.4 of ETSI TS 102 622 [1]).

5.6.3.4.3.3 EVT CARD DEACTIVATED

5.6.3.4.3.3.1 Conformance requirements

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

There are no conformance requirements for the UICC for the referenced clause (usage of this event is described in clause 9.4 of ETSI TS 102 622 [1]).

5.6.3.4.3.4 EVT_CARD_ACTIVATED

5.6.3.4.3.4.1 Conformance requirements

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

There are no conformance requirements for the UICC for the referenced clause (usage of this event is described in clause 9.4 of ETSI TS 102 622 [1]).

5.6.3.4.3.5 EVT_FIELD_OFF

5.6.3.4.3.5.1 Conformance requirements

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

There are no conformance requirements for the UICC for the referenced clause (usage of this event is described in clause 9.4 of ETSI TS 102 622 [1]).

5.6.3.4.3.6 EVT_SEND_DATA

5.6.3.4.3.6.1 Conformance requirements

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

RQ1	On receiving EVT_SEND_DATA the host shall interpret the last parameter byte as RF error indicator.
RQ2	EVT_SEND_DATA shall be discarded by the host when the error indicator is set to '01'.
NOTE:	These RQs are not tested in this clause, as they are tested in clause 5.6.4.

5.6.3.4.4 Registry

5.6.3.4.4.1 Conformance requirements

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

RQ1	Registry parameters which are in the range reserved for usage by ETSI TS 102 622 [1] but which are not
	defined in ETSI TS 102 622 [1] shall not be present in the registry.
NOTE:	Development of test cases for above listed RQs is FFS.

5.6.4 Procedures

5.6.4.1 Use of contactless card application

5.6.4.1.1 Conformance requirements

Reference: ETSI TS 102 622 [1], clauses 9.4.1, 9.3.4.3 and 9.3.4.3.5.

DO4	0.4.4	l. th		
RQ1	9.4.1	In the context of a valid contactless card application sequence as specified in		
		ETSI TS 102 622 [1], the host shall reply to received C-APDUs contained in EVT_SEND_DATAs		
		by sending the R-APDUs contained in EVT_SEND_DATAs to the card RF gate.		
RQ2	9.4.1	The host shall accept an EVT_FIELD_OFF which is received at any time during the sequence.		
RQ3	9.3.4.3	Each card application gate shall support all events as listed.		
RQ4	9.3.4.3.5	On receiving EVT_SEND_DATA the host shall interpret the last parameter byte as RF error		
		indicator.		
RQ5	9.3.4.3.5	EVT_SEND_DATA shall be discarded by the host when the error indicator is set to '01'.		
RQ6	9.4.1	In the context of a valid contactless card application sequence as specified in		
	ETSI TS 102 622 [1], if the host receives an empty C-APDU, it shall reply to this with either an			
		empty R-APDU or an R-APDU containing an error code.		
NOTE 1	1: RQ2 is on	y partially tested since the reaction of the UICC upon reception of EVT_FIELD_OFF is not		
	specified.			
NOTE 2	NOTE 2: For RF error indicator = "no error", RQ4 is implicitly tested in all test cases. For RF error indicator = "error",			
	RQ5 applies.			
NOTE 3	NOTE 3: Development of test cases for RQ5 is FFS.			

5.6.4.1.2 Test case 1: full power mode

5.6.4.1.2.1 Test execution

Run this test procedure in full power mode only. The test procedure shall be executed once for each of following parameters.

- Type A (if supported, and the UICC sets a value of SAK indicating support of ISO/IEC 14443-4 [5]).
- Type B (if supported).

5.6.4.1.2.2 Initial conditions

- The host controller simulator is configured to support only the RF gate for the RF technology specified in the Test execution clause.
- HCI session initialization has been performed, the HCI interface is idle and the SWP interface is not DEACTIVATED.
- The UICC has opened the card emulation pipe and set the MODE parameter to '02'.

5.6.4.1.2.3 Test procedure

Step	Direction	Description	RQ
1	HCS→HUT	Send EVT_FIELD_ON event.	
2	HCS→HUT	Send EVT_CARD_ACTIVATED event.	
3	HCS→HUT	Send C-APDU with EVT_SEND_DATA event.	
4	HUT→HCS	Send R-APDU with EVT_SEND_DATA event.	RQ1, RQ3
5	HCS→HUT	Send EVT_CARD_DEACTIVATED event.	
6	HCS→HUT	Send EVT_FIELD_OFF event.	
7	HCS→HUT	Send EVT_FIELD_ON event.	
8	HCS→HUT	Send EVT_CARD_ACTIVATED event.	
9	HCS→HUT	Send C-APDU with EVT_SEND_DATA event.	
10	HUT→HCS	Send R-APDU with EVT_SEND_DATA event.	RQ1, RQ2
11	HCS→HUT	Send EVT_CARD_DEACTIVATED event.	
12	HCS→HUT	Send EVT_FIELD_OFF event.	

5.6.4.1.3 Test case 2: full power mode, no EVT_CARD_ACTIVATED and EVT_CARD_DEACTIVATED

5.6.4.1.3.1 Test execution

Run this test procedure in full power mode only. The test procedure shall be executed once for each of following parameters.

- Type A (if supported, and the UICC sets a value of SAK indicating support of ISO/IEC 14443-4 [5]).
- Type B (if supported).

5.6.4.1.3.2 Initial conditions

- The host controller simulator is configured to support only the RF gate for the RF technology specified in the Test execution clause.
- HCI session initialization has been performed, the HCI interface is idle and the SWP interface is not DEACTIVATED.
- The UICC has opened the card emulation pipe and set the MODE parameter to '02'.

5.6.4.1.3.3 Test procedure

NOTE: Sending of EVT_CARD_ACTIVATED was optional for the CLF in Rel-9 and earlier, so this test case tests UICCs against that scenario.

Step	Direction	Description	RQ
1	HCS→HUT	Send EVT_FIELD_ON event.	
2	HCS→HUT	Send C-APDU with EVT_SEND_DATA event.	
3	HUT→HCS	Send R-APDU with EVT_SEND_DATA event.	RQ1, RQ3
4	HCS→HUT	Send EVT_FIELD_OFF event.	
5	HCS→HUT	Send EVT_FIELD_ON event.	
6	HCS→HUT	Send EVT_CARD_ACTIVATED event.	
7	HCS→HUT	Send C-APDU with EVT_SEND_DATA event.	
8	HUT→HCS	Send R-APDU with EVT_SEND_DATA event.	RQ1, RQ2
9	HCS→HUT	Send EVT_CARD_DEACTIVATED event.	
10	HCS→HUT	Send EVT_FIELD_OFF event.	

5.6.4.1.4 Test case 3: sequence from DEACTIVATED state

5.6.4.1.4.1 Test execution

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

- Type A (if supported, and the UICC sets a value of SAK indicating support of ISO/IEC 14443-4 [5]).
- Type B (if supported).

5.6.4.1.4.2 Initial conditions

- The host controller simulator is configured to support only the RF gate for the RF technology specified in the Test execution clause.
- For full power mode execution: SWP interface is deactivated.
- For low power mode execution: the Host is not powered up.
- At the end of the previous activation, the state of the card emulation pipe was open, and the MODE parameter was '02' (as set by the UICC).

5.6.4.1.4.3 Test procedure

Step	Direction	Description	RQ
1	HCS→HUT	For low power mode execution: power up Host.	
2	HCS→HUT	Activate SWP interface and establish SHDLC link.	
3	HCS→HUT	Send EVT_CARD_ACTIVATED event.	
4	HCS→HUT	Send C-APDU with EVT_SEND_DATA event.	
5	HUT→HCS	Send R-APDU with EVT_SEND_DATA event.	RQ1, RQ3
6	HCS→HUT	Send EVT_CARD_DEACTIVATED event.	
7	HCS→HUT	Send EVT_FIELD_OFF event.	
8	HCS→HUT	Send EVT_FIELD_ON event.	
9	HCS→HUT	Send EVT_CARD_ACTIVATED event.	
10	HCS→HUT	Send C-APDU with EVT_SEND_DATA event.	
11	HUT→HCS	Send R-APDU with EVT_SEND_DATA event.	RQ1, RQ2
12	HCS→HUT	Send EVT_CARD_DEACTIVATED event.	
13	HCS→HUT	Send EVT_FIELD_OFF event.	

5.6.4.1.5 Test case 4: sequence from DEACTIVATED state, no EVT_CARD_ACTIVATED or EVT_CARD_DEACTIVATED

5.6.4.1.5.1 Test execution

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

- Type A (if supported, and the UICC sets a value of SAK indicating support of ISO/IEC 14443-4 [5]).
- Type B (if supported).

5.6.4.1.5.2 Initial conditions

- The host controller simulator is configured to support only the RF gate for the RF technology specified in the Test execution clause.
- For full power mode execution: SWP interface is deactivated.
- For low power mode execution: the Host is not powered up.

• At the end of the previous activation, the state of the card emulation pipe was open, and the MODE parameter was '02' (as set by the UICC).

5.6.4.1.5.3 Test procedure

NOTE: Sending of EVT_CARD_ACTIVATED was optional for the CLF in Rel-9 and earlier, so this test case tests UICCs against that scenario.

Step	Direction	Description	RQ
1	HCS→HUT	For low power mode execution: power up Host.	
2	HCS→HUT	Activate SWP interface and establish SHDLC link	
3	HCS→HUT	Send C-APDU with EVT_SEND_DATA event.	
4	HUT→HCS	Send R-APDU with EVT_SEND_DATA event.	RQ1, RQ3
5	HCS→HUT	Send EVT_FIELD_OFF event.	
6	HCS→HUT	Send EVT_FIELD_ON event.	
7	HCS→HUT	Send EVT_CARD_ACTIVATED event.	
8	HCS→HUT	Send C-APDU with EVT_SEND_DATA event.	
9	HUT→HCS	Send R-APDU with EVT_SEND_DATA event.	RQ1, RQ2
10	HCS→HUT	Send EVT_CARD_DEACTIVATED event.	
11	HCS→HUT	Send EVT_FIELD_OFF event.	

5.6.4.1.6 Test case 5: low power, power down instead of EVT_FIELD_OFF

5.6.4.1.6.1 Test execution

Run this test procedure in low power mode only.

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

- Type A (if supported, and the UICC sets a value of SAK indicating support of ISO/IEC 14443-4 [5]).
- Type B (if supported).

5.6.4.1.6.2 Initial conditions

- The host controller simulator is configured to support only the RF gate for the RF technology specified in the Test execution clause.
- The Host is not powered up.
- At the end of the previous activation, the state of the card emulation pipe was open, and the MODE parameter was '02' (as set by the UICC).

5.6.4.1.6.3 Test procedure

Step	Direction	Description	RQ
1	HCS	Power on Host.	
2	HCS→HUT	Activate SWP interface in low power mode and establish SHDLC link.	
3	HCS→HUT	Send EVT_CARD_ACTIVATED event.	
4	HCS→HUT	Send C-APDU with EVT_SEND_DATA event.	
5	HUT→HCS	Send R-APDU with EVT_SEND_DATA event.	RQ1, RQ3
6	HCS→HUT	Send EVT_CARD_DEACTIVATED event.	
7	HCS	Power down Host.	
8	HCS	Power on Host.	
9	HCS→HUT	Activate SWP interface in low power mode and establish SHDLC link	
10	HCS→HUT	Send EVT_CARD_ACTIVATED event.	
11	HCS→HUT	Send C-APDU with EVT_SEND_DATA event.	
12	HUT→HCS	Send R-APDU with EVT_SEND_DATA event.	RQ1, RQ2
13	HCS→HUT	Send EVT_CARD_DEACTIVATED event.	
14	HCS	Power down Host.	

5.6.4.1.7 Test case 6: EVT_FIELD_OFF after EVT_FIELD_ON / SWP interface activation

5.6.4.1.7.1 Test execution

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

- Type A (if supported, and the UICC sets a value of SAK indicating support of ISO/IEC 14443-4 [5]).
- Type B (if supported).

5.6.4.1.7.2 Initial conditions

- The host controller simulator is configured to support only the RF gate for the RF technology specified in the Test execution clause.
- For full power mode execution: HCI session initialization has been performed and the HCI interface is idle.
- For low power mode execution: the Host is not powered up.
- The UICC has opened the card emulation pipe and set the MODE parameter to '02'.

5.6.4.1.7.3 Test procedure

Step	Direction	Description	RQ
		For full power mode execution: send EVT_FIELD_ON event.	
1	HCS→HUT	For low power mode execution: power up Host, activate SWP	
		interface and establish SHDLC link.	
2	HCS→HUT	Send EVT_FIELD_OFF event.	
3	HCS→HUT	Send EVT_FIELD_ON event.	
4	HCS→HUT	Send EVT_CARD_ACTIVATED event.	
5	HCS→HUT	Send C-APDU with EVT_SEND_DATA event.	
6	HUT→HCS	Send R-APDU with EVT_SEND_DATA event.	RQ1, RQ2
7	HCS→HUT	Send EVT_CARD_DEACTIVATED event.	
8	HCS→HUT	Send EVT_FIELD_OFF event.	

5.6.4.1.8 Test case 7: EVT_FIELD_OFF after EVT_CARD_ACTIVATED

5.6.4.1.8.1 Test execution

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

Type A (if supported, and the UICC sets a value of SAK indicating support of ISO/IEC 14443-4 [5]).

Type B (if supported).

5.6.4.1.8.2 Initial conditions

- The host controller simulator is configured to support only the RF gate for the RF technology specified in the Test execution clause.
- For full power mode execution: HCI session initialization has been performed and the HCI interface is idle.
- For low power mode execution: the Host is not powered up.
- The UICC has opened the card emulation pipe and set the MODE parameter to '02'.

5.6.4.1.8.3 Test procedure

Step	Direction	Description	RQ
1	HCS→HUT	For full power mode execution: send EVT_FIELD_ON event. For low power mode execution: power up Host, activate SWP	
	1.0071.01	interface and establish SHDLC link.	
2	HCS→HUT	Send EVT_CARD_ACTIVATED event.	
3	HCS→HUT	Send EVT_FIELD_OFF event.	
4	HCS→HUT	Send EVT_FIELD_ON event.	
5	HCS→HUT	Send EVT_CARD_ACTIVATED event.	
6	HCS→HUT	Send C-APDU with EVT_SEND_DATA event.	
7	HUT→HCS	Send R-APDU with EVT_SEND_DATA event.	RQ1, RQ2
8	HCS→HUT	Send EVT_CARD_DEACTIVATED event.	
9	HCS→HUT	Send EVT_FIELD_OFF event.	

5.6.4.1.9 Test case 8: EVT_FIELD_OFF after EVT_SEND_DATA

5.6.4.1.9.1 Test execution

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

- Type A (if supported, and the UICC sets a value of SAK indicating support of ISO/IEC 14443-4 [5]).
- Type B (if supported).

5.6.4.1.9.2 Initial conditions

- The host controller simulator is configured to support only the RF gate for the RF technology specified in the Test execution clause.
- For full power mode execution: HCI session initialization has been performed and the HCI interface is idle.
- For low power mode execution: the Host is not powered up.
- The UICC has opened the card emulation pipe and set the MODE parameter to '02'.

5.6.4.1.9.3 Test procedure

Step	Direction	Description	RQ
1	HCS→HUT	For full power mode execution: send EVT_FIELD_ON event. For low power mode execution: power up Host, activate SWP interface and establish SHDLC link.	
2	HCS→HUT	Send EVT_CARD_ACTIVATED event.	
3	HCS→HUT	Send C-APDU with EVT_SEND_DATA event.	
4	HCS→HUT	Send EVT_FIELD_OFF event as soon as possible after event in step 3 (see note).	
5	HCS→HUT	Send EVT_FIELD_ON event after delay of at least 100 ms.	
6	HCS→HUT	Send EVT_CARD_ACTIVATED event.	
7	HCS→HUT	Send C-APDU with EVT_SEND_DATA event.	
8	HUT→HCS	Send R-APDU with EVT_SEND_DATA event.	RQ1, RQ2
9	HCS→HUT	Send EVT_CARD_DEACTIVATED event.	
10	HCS→HUT	Send EVT_FIELD_OFF event.	
NOTE:	UICC may send R	-APDU with EVT_SEND_DATA which may overlap with EVT_FIELD_0	DFF.

5.6.4.1.10 Test case 9: multiple open card gates

5.6.4.1.10.1 Test execution

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

- Type A (if supported, and the UICC sets a value of SAK indicating support of ISO/IEC 14443-4 [5]).
- Type B (if supported).

5.6.4.1.10.2 Initial conditions

- The host controller simulator is configured to support RF gates for all RF technologies.
- For full power mode execution: HCI session initialization has been performed and the HCI interface is idle.
- For low power mode execution: the Host is not powered up.
- The UICC has opened the card emulation pipe specified in test execution clause and set the MODE parameter to '02'.
- At least one further card application gate is open.

5.6.4.1.10.3 Test procedure

Step	Direction	Description	RQ
1	HCS→HUT	For full power mode execution: send EVT_FIELD_ON event to the open card application gate with the lowest Gid. For low power mode execution: power up Host, activate SWP interface and establish SHDLC link.	
2	HCS→HUT	Send EVT_CARD_ACTIVATED event.	
3	HCS→HUT	Send C-APDU with EVT_SEND_DATA event.	
4	HUT→HCS	Send R-APDU with EVT_SEND_DATA event.	RQ1, RQ3
5	HCS→HUT	Send EVT_CARD_DEACTIVATED event.	
6	HCS→HUT	Send EVT_FIELD_OFF event to the open card application gate with the lowest Gid.	
7	HCS→HUT	Send EVT_FIELD_ON event to the open card application gate with the lowest G _{ID} .	
8	HCS→HUT	Send EVT_CARD_ACTIVATED event.	
9	HCS→HUT	Send C-APDU with EVT_SEND_DATA event.	
10	HUT→HCS	Send R-APDU with EVT_SEND_DATA event.	RQ1, RQ2
11	HCS→HUT	Send EVT_CARD_DEACTIVATED event.	
12	HCS→HUT	Send EVT_FIELD_OFF event to the open card application gate used during transaction.	
13	HCS→HUT	Send EVT_FIELD_ON event to the open card application gate with the lowest Gid.	
14	HCS→HUT	Send EVT_CARD_ACTIVATED event.	
15	HCS→HUT	Send C-APDU with EVT_SEND_DATA event.	
16	HUT→HCS	Send R-APDU with EVT_SEND_DATA event.	RQ1, RQ2
17	HCS→HUT	Send EVT_CARD_DEACTIVATED event.	
18	HCS→HUT	Send EVT_FIELD_OFF event to the open card application gate used during transaction.	

5.6.4.1.11 Test case 10: empty C-APDU

5.6.4.1.11.1 Test execution

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

- Type A (if supported, and the UICC sets a value of SAK indicating support of ISO/IEC 14443-4 [5]).
- Type B (if supported).

5.6.4.1.11.2 Initial conditions

- The host controller simulator is configured to support only the RF gate for the RF technology specified in the Test execution clause.
- For full power mode execution: HCI session initialization has been performed and the HCI interface is idle.
- For low power mode execution: The Host is not powered up.
- The UICC has opened the card emulation pipe and set the MODE parameter to '02'.

5.6.4.1.11.3 Test procedure

Step	Direction	Description	RQ
1	HCS→HUT	For full power mode execution: Send EVT_FIELD_ON event. For low power mode execution: Power up Host, activate SWP interface and establish SHDLC link.	
2	HCS→HUT	Send EVT_CARD_ACTIVATED event.	
3	HCS→HUT	Send C-APDU with EVT_SEND_DATA event.	
4	HUT→HCS	Send R-APDU with EVT_SEND_DATA event.	RQ1, RQ3
5	HCS→HUT	Send empty C-APDU with EVT_SEND_DATA event, parameters N=0, RF error indicator set to '00'.	
6	HUT→HCS	Send empty R-APDU or an R-APDU containing an error code as specified in ISO/IEC 7816-4 [9] with EVT_SEND_DATA event.	RQ6, RQ3
7	HCS→HUT	Send C-APDU with EVT_SEND_DATA event.	
8	HUT→HCS	Send R-APDU with EVT_SEND_DATA event.	RQ1, RQ3
9	HCS→HUT	Send EVT_CARD_DEACTIVATED event.	
10	HCS→HUT	Send EVT_FIELD_OFF event.	

5.6.4.2 Non ISO/IEC 14443-4 type A

5.6.4.2.1 Conformance requirements

Reference: ETSI TS 102 622 [1], clauses 9.4.2 and clause 9.3.4.3.

RQ1		In the context of a valid contactless card application sequence as specified in ETSI TS 102 622 [1], the host shall support communications using the CLT mode as defined in ETSI TS 102 613 [2].
RQ2	9.4.2	The host shall accept an EVT_FIELD_OFF which is received at any time during the sequence.
RQ3	9.3.4.3	Each card application gate shall support all events as listed (see note 1).
NOTE 1		ext of a non ISO/IEC 14443-4 [5] type A transaction only EVT_FIELD_ON and D_OFF are used.
NOTE 2	: RQ2 is onl specified.	y partially tested since the reaction of the UICC upon reception of EVT_FIELD_OFF is not

5.6.4.2.2 Test case 1: full power mode

5.6.4.2.2.1 Test execution

Run this test procedure in full power mode only.

5.6.4.2.2.2 Initial conditions

- The host controller simulator is configured to support only the Type A card RF gate, with CLT_SUPPORT set to '01' (CLT supported).
- HCI session initialization has been performed and the HCI interface is idle.
- The UICC has opened the card emulation pipe and set the MODE parameter to '02'.

5.6.4.2.2.3 Test procedure

Step	Direction	Description	RQ
1	HCS→HUT	Send EVT_FIELD_ON event.	
2	HCS→HUT	Send CLT frame with CL_PROTO_INF(A) in the ADMIN_FIELD, indicating byte aligned structure and with the DATA_FIELD set to '3000'.	
3	HUT→HCS	Respond CLT frame with CLT_CMD field set to 00000 and at least 1 byte of data in the CLT PAYLOAD field.	RQ1
4	HCS→HUT	Send CLT frame with CLT_CMD field set to 00000 and the DATA_FIELD set to '30010A4005'.	
5	HUT→HCS	Respond CLT frame with CLT_CMD field set to 00000 and at least 1 byte of data in the CLT PAYLOAD field.	RQ1
6	HCS→HUT	Send EVT_FIELD_OFF event.	
7	HCS→HUT	Send EVT_FIELD_ON event.	
8	HCS→HUT	Send CLT frame with CL_PROTO_INF(A) in the ADMIN_FIELD, indicating byte aligned structure and with the DATA_FIELD set to '3000'.	
9	HUT→HCS	Respond CLT frame with CLT_CMD field set to 00000 and at least 1 byte of data in the CLT PAYLOAD field.	RQ1, RQ2, RQ3
10	HCS→HUT	Send EVT_FIELD_OFF event.	

5.6.4.2.3 Test case 2: sequence from DEACTIVATED state

5.6.4.2.3.1 Test execution

Void.

5.6.4.2.3.2 Initial conditions

- The host controller simulator is configured to support only the Type A card RF gate, with CLT_SUPPORT set to '01' (CLT supported).
- For full power mode execution: SWP interface is deactivated.
- For low power mode execution: the Host is not powered up.
- The UICC has opened the card emulation pipe and set the MODE parameter to '02'.

5.6.4.2.3.3 Test procedure

Step	Direction	Description	RQ
1	HCS→HUT	For low power mode execution: power up Host.	
2	HCS→HUT	Activate SWP interface and establish SHDLC link.	
3	HCS→HUT	Send CLT frame with CL_PROTO_INF(A) in the ADMIN_FIELD, indicating byte aligned structure and with the DATA_FIELD set to '3000'.	
4	HUT→HCS	Respond CLT frame with CLT_CMD field set to 00000 and at least 1 byte of data in the CLT PAYLOAD field.	RQ1
5	HCS→HUT	Send CLT frame with CLT_CMD field set to 00000 and the DATA_FIELD set to '30010A4005'.	
6	HUT→HCS	Respond CLT frame with CLT_CMD field set to 00000 and at least 1 byte of data in the CLT PAYLOAD field.	RQ1
7	HCS→HUT	Send EVT_FIELD_OFF event.	
8	HCS→HUT	Send EVT_FIELD_ON event.	
9	HCS→HUT	Send CLT frame with CL_PROTO_INF(A) in the ADMIN_FIELD, indicating byte aligned structure and with the DATA_FIELD set to '3000'.	
10	HUT→HCS	Respond CLT frame with CLT_CMD field set to 00000 and at least 1 byte of data in the CLT PAYLOAD field.	RQ1, RQ2, RQ3
11	HCS→HUT	Send EVT_FIELD_OFF event.	

5.6.4.2.4 Test case 3: low power mode, power down instead EVT_FIELD_OFF

5.6.4.2.4.1 Test execution

Run this test procedure in low power mode only.

5.6.4.2.4.2 Initial conditions

- The host controller simulator is configured to support only the Type A card RF gate, with CLT_SUPPORT set to '01' (CLT supported).
- The Host is not powered up.
- At the end of the previous activation, the state of the card emulation pipe was open, and the MODE parameter was '02' (as set by the UICC).

5.6.4.2.4.3 Test procedure

Step	Direction	Description	RQ
1	HCS	Power on Host.	
2	HCS→HUT	Activate SWP interface in low power mode and establish SHDLC link.	
3	HCS→HUT	Send CLT frame with CL_PROTO_INF(A) in the ADMIN_FIELD, indicating byte aligned structure and with the DATA_FIELD set to '3000'.	
4	HUT→HCS	Respond CLT frame with CLT_CMD field set to 00000 and at least 1 byte of data in the CLT PAYLOAD field.	RQ1
5	HCS→HUT	Send CLT frame with CLT_CMD field set to 00000 and the DATA_FIELD set to '30010A4005'.	
6	HUT→HCS	Respond CLT frame with CLT_CMD field set to 00000 and at least 1 byte of data in the CLT PAYLOAD field.	RQ1
7	HCS	Power down Host.	
8	HCS	Power on Host.	
9	HCS→HUT	Activate SWP interface in low power mode and establish SHDLC link.	
10	HCS→HUT	Send CLT frame with CL_PROTO_INF(A) in the ADMIN_FIELD, indicating byte aligned structure and with the DATA_FIELD set to '3000'.	
11	HUT→HCS	Respond CLT frame with CLT_CMD field set to 00000 and at least 1 byte of data in the CLT PAYLOAD field.	RQ1, RQ2, RQ3
12	HCS→HUT	Send EVT_FIELD_OFF event.	

5.6.4.2.5 Test case 4: EVT_FIELD_OFF after EVT_FIELD_ON / SWP interface activation

5.6.4.2.5.1 Test execution

Void.

5.6.4.2.5.2 Initial conditions

- The host controller simulator is configured to support only the Type A card RF gate, with CLT_SUPPORT set to '01' (CLT supported).
- For full power mode execution: HCI session initialization has been performed and the HCI interface is idle.
- For low power mode execution: the Host is not powered up.
- The UICC has opened the card emulation pipe and set the MODE parameter to '02'.

5.6.4.2.5.3 Test procedure

Step	Direction	Description	RQ
1	HCS→HUT	For full power mode execution: send EVT_FIELD_ON event. For low power mode execution: power up Host, activate SWP interface and establish SHDLC link.	
2	HCS→HUT	Send EVT_FIELD_OFF event.	
3	HCS→HUT	Send EVT_FIELD_ON event.	
4	HCS→HUT	Send CLT frame with CL_PROTO_INF(A) in the ADMIN_FIELD, indicating byte aligned structure and with the DATA_FIELD set to '3000'.	
5	HUT→HCS	Respond CLT frame with CLT_CMD field set to 00000 and at least 1 byte of data in the CLT PAYLOAD field.	RQ1
6	HCS→HUT	Send EVT_FIELD_OFF event.	

5.6.4.2.6 Test case 5: EVT_FIELD_OFF during CLT frames exchange

5.6.4.2.6.1 Test execution

Void.

5.6.4.2.6.2 Initial conditions

- The host controller simulator is configured to support only the Type A card RF gate, with CLT_SUPPORT set to '01' (CLT supported).
- For full power mode execution: HCI session initialization has been performed and the HCI interface is idle.
- For low power mode execution: the Host is not powered up.
- The UICC has opened the card emulation pipe and set the MODE parameter to '02'.

5.6.4.2.6.3 Test procedure

Step	Direction	Description	RQ
1	HCS→HUT	For full power mode execution: send EVT_FIELD_ON event. For low power mode execution: power up Host, activate SWP interface and establish SHDLC link.	
2	HCS→HUT	Send CLT frame with CL_PROTO_INF(A) in the ADMIN_FIELD, indicating byte aligned structure and with the DATA_FIELD set to '3000'.	
3	HUT→HCS	Respond CLT frame with CLT_CMD field set to 00000 and at least 1 byte of data in the CLT PAYLOAD field.	RQ1
4	HCS→HUT	Send CLT frame with CLT_CMD field set to 00000 and the DATA_FIELD set to '30010A4005'.	
5	HCS→HUT	Send EVT_FIELD_OFF event (see note).	RQ1
6	HCS→HUT	Send EVT_FIELD_ON event after delay of at least 100 ms.	
7	HCS→HUT	Send CLT frame with CL_PROTO_INF(A) in the ADMIN_FIELD, indicating byte aligned structure and with the DATA_FIELD set to '3000'.	
8	HUT→HCS	Respond CLT frame with CLT_CMD field set to 00000 and at least 1 byte of data in the CLT PAYLOAD field.	RQ1, RQ2, RQ3
9	HCS→HUT	Send EVT_FIELD_OFF event.	
NOTE	: UICC may send C	LT response which may overlap with EVT_FIELD_OFF.	

5.6.4.2.7 Test case 6: multiple open card gates

5.6.4.2.7.1 Test execution

Void.

5.6.4.2.7.2 Initial conditions

- The host controller simulator is configured to support RF gates for all RF technologies, with CLT_SUPPORT for the Type A card RF gate set to '01' (CLT supported).
- For full power mode execution: HCI session initialization has been performed and the HCI interface is idle.
- For low power mode execution: the Host is not powered up.
- The UICC has opened the card emulation pipe specified in test execution clause and set the MODE parameter to '02'.
- At least one further card application gate is open.

5.6.4.2.7.3 Test procedure

Step	Direction	Description	RQ
1	HCS→HUT	For full power mode execution: send EVT_FIELD_ON event to the open card application gate with the lowest G _{ID} . For low power mode execution: power up Host, activate SWP interface and establish SHDLC link.	
2	HCS→HUT	Send CLT frame with CL_PROTO_INF(A) in the ADMIN_FIELD, indicating byte aligned structure and with the DATA_FIELD set to '3000'.	
3	HUT→HCS	Respond CLT frame with CLT_CMD field set to 00000 and at least 1 byte of data in the CLT PAYLOAD field.	RQ1
4	HCS→HUT	Send CLT frame with CLT_CMD field set to 00000 and the DATA_FIELD set to '30010A4005'.	
5	HUT→HCS	Respond CLT frame with CLT_CMD field set to 00000 and at least 1 byte of data in the CLT PAYLOAD field.	RQ1
6	HCS→HUT	Send EVT_FIELD_OFF event to the open card application gate with the lowest Gib.	
7	HCS→HUT	Send EVT_FIELD_ON event to the open card application gate with the lowest Gip.	
8	HCS→HUT	Send CLT frame with CL_PROTO_INF(A) in the ADMIN_FIELD, indicating byte aligned structure and with the DATA_FIELD set to '3000'.	
9	HUT→HCS	Respond CLT frame with CLT_CMD field set to 00000 and at least 1 byte of data in the CLT PAYLOAD field.	RQ1, RQ2, RQ3
10	HCS→HUT	Send EVT_FIELD_OFF event to the open card application gate used during transaction.	
11	HCS→HUT	Send EVT_FIELD_ON event to the open card application gate with the lowest Gid.	
12	HCS→HUT	Send CLT frame with CL_PROTO_INF(A) in the ADMIN_FIELD, indicating byte aligned structure and with the DATA_FIELD set to '3000'.	
13	HUT→HCS	Respond CLT frame with CLT_CMD field set to 00000 and at least 1 byte of data in the CLT PAYLOAD field.	RQ1, RQ2, RQ3
14	HCS→HUT	Send EVT_FIELD_OFF event to the open card application gate used during transaction.	

5.6.4.3 Type B' RF technology

5.6.4.3.1 Conformance requirements

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

NOTE: Since this technology is not publicly disclosed, no conformance requirements have been established.

5.6.4.4 Type F RF technology

5.6.4.4.1 Conformance requirements

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

RQ1	9.4.4	In the context of a valid contactless card application sequence as specified in ETSI TS 102 622 [1], and In case SWP as defined in ETSI TS 102 613 [2] is used as a data link layer, the initialization data exchange is performed using CLT as defined in ETSI TS 102 613 [2].		
RQ2	9.4.4	In the context of a valid contactless card application sequence as specified in ETSI TS 102 622 [1], the host shall reply to received ISO/IEC 18092 [3] 212 kbps/424 kbps frames contained in EVT_SEND_DATAs by sending the ISO/IEC 18092 [3] 212 kbps/424 kbps frames contained in EVT_SEND_DATAs to the card RF gate.		
RQ3	9.4.4	The host shall accept an EVT_FIELD_OFF which is received at any time during the sequence.		
RQ4	9.3.4.3	Each card application gate shall support all events as listed (see note 2).		
RQ5	9.3.4.3.5	On receiving EVT_SEND_DATA the host shall interpret the last parameter byte as RF error indicator.		
RQ6	9.3.4.3.5	EVT_SEND_DATA shall be discarded by the host when the error indicator is set to '01'.		
NOTE 1	NOTE 1: RQ3 is only partially tested since the reaction of the UICC upon reception of EVT_FIELD_OFF is not specified.			
NOTE 2	NOTE 2: In the context of a type F transaction only EVT_SEND_DATA, EVT_FIELD_ON and EVT_FIELD_OFF are used.			
NOTE 3	NOTE 3: For RF error indicator = "no error", RQ5 is implicitly tested in all test cases. For RF error indicator = "error", RQ6 applies.			

5.6.4.4.2 Test case 1: RF error indicator

5.6.4.4.2.1 Test execution

Void.

5.6.4.4.2.2 Initial conditions

- The host controller simulator is configured to support only the Type F RF gate.
- For full power mode execution: HCI session initialization has been performed, the HCI interface is idle and the SWP interface is not DEACTIVATED.
- For low power mode execution: the Host is not powered up.
- At the end of the previous activation, the state of the card emulation pipe was open, and the MODE parameter was '02' (as set by the UICC).

5.6.4.4.2.3 Test procedure

Step	Direction	Description	RQ
1	HCS→HUT	For full power mode execution: send EVT_FIELD_ON event. For low power mode execution: power up Host, activate SWP interface and establish SHDLC link.	
2		Send the ISO/IEC 18092 [3] 212 kbps/424 kbps frames, where LEN is set to '37', CMD0 to 'D8', CMD1 to '00', and Byte 0 to Byte 51 to '02FE00000000000000060708090A0B0C0D0E0F101112131415 161718191A1B1C1D1E1F202122232425262728292A2B2C2D2E2F3031', with EVT_SEND_DATA event in which RF error indicator is set to '01'.	
3	HCS	Wait 1 s from the end of sending EOF in SWP frame in step 2. During this time HUT shall not send any ISO/IEC 18092 [3] 212 kbps/424 kbps frames.	RQ6
4		Send the ISO/IEC 18092 [3] 212 kbps/424 kbps frames, where LEN is set to '37', CMD0 to 'D8', CMD1 to '00', and Byte 0 to Byte 51 to '02FE00000000000000060708090A0B0C0D0E0F101112131415 161718191A1B1C1D1E1F202122232425262728292A2B2C2D2E2F3031', with EVT_SEND_DATA event in which RF error indicator is set to '00'.	
5		Send the ISO/IEC 18092 [3] 212 kbps/424 kbps frames, where LEN is set to '37', CMD0 to 'D9', CMD1 to '01', and Byte 0 to Byte 51 to '02FE00000000000000060708090A0B0C0D0E0F101112131415 161718191A1B1C1D1E1F202122232425262728292A2B2C2D2E2F3031', with EVT_SEND_DATA event.	RQ2, RQ4
6	HCS→HUT	Send EVT_FIELD_OFF event.	

5.6.4.4.3 Test case 2: full power mode

5.6.4.4.3.1 Test execution

Run this test procedure in full power mode only.

5.6.4.4.3.2 Initial conditions

- The host controller simulator is configured to support only the Type F RF gate.
- HCI session initialization has been performed, the HCI interface is idle and the SWP interface is not DEACTIVATED.
- The state of the card emulation pipe is open, and the MODE parameter is '02' (as set by the UICC).

5.6.4.4.3.3 Test procedure

Step	Direction	Description	RQ
1	HCS→HUT	Send EVT_FIELD_ON event.	
2	HCS→HUT	Send the ISO/IEC 18092 [3] 212 kbps/424 kbps frames, where LEN is set to '37', CMD0 to 'D8', CMD1 to '00', and Byte 0 to Byte 51 to 02FE0000000000000060708090A0B0C0D0E0F101112131415 161718191A1B1C1D1E1F202122232425262728292A2B2C2D2E2F3031', with EVT_SEND_DATA event.	
3	HUT→HCS	Send the ISO/IEC 18092 [3] 212 kbps/424 kbps frames, where LEN is set to '37', CMD0 to 'D9', CMD1 to '01', and Byte 0 to Byte 51 to '02FE000000000000000060708090A0B0C0D0E0F101112131415 161718191A1B1C1D1E1F202122232425262728292A2B2C2D2E2F3031', with EVT_SEND_DATA event.	RQ2, RQ4
4	HCS→HUT	Send EVT_FIELD_OFF event.	
5	HCS	Wait over 5 ms from the beginning of sending SOF in SWP frame in step 4.	
6	HCS→HUT	Send EVT_FIELD_ON event.	
7	HCS→HUT	Send the ISO/IEC 18092 [3] 212 kbps/424 kbps frames, where LEN is set to '37', CMD0 to 'D8', CMD1 to '00', and Byte 0 to Byte 51 to '02FE00000000000000000000000000000000000	
8	HUT→HCS	Send the ISO/IEC 18092 [3] 212 kbps/424 kbps frames, where LEN is set to '37', CMD0 to 'D9', CMD1 to '01', and Byte 0 to Byte 51 to '02FE00000000000000000000000000000000000	RQ2, RQ3
9	HCS→HUT	Send EVT_FIELD_OFF event.	

5.6.4.4.4 Test case 3: sequence from DEACTIVATED state

5.6.4.4.4.1 Test execution

Void.

5.6.4.4.4.2 Initial conditions

- The host controller simulator is configured to support only the Type F RF gate.
- For full power mode execution: HCI session initialization has been performed and SWP interface is deactivated.
- For low power mode execution: the Host is not powered up.
- At the end of the previous activation, the state of the card emulation pipe was open, and the MODE parameter was '02' (as set by the UICC).

5.6.4.4.3 Test procedure

Step	Direction	Description	RQ
1	HCS→HUT	For low power mode execution: power up Host.	
2	HCS→HUT	Activate SWP interface and establish SHDLC link.	
3	HCS→HUT	Send the ISO/IEC 18092 [3] 212 kbps/424 kbps frames, where LEN is set to '37', CMD0 to 'D8', CMD1 to '00', and Byte 0 to Byte 51 to '02FE00000000000000000000000000000000000	
4	HUT→HCS	Send the ISO/IEC 18092 [3] 212 kbps/424 kbps frames, where LEN is set to '37', CMD0 to 'D9', CMD1 to '01', and Byte 0 to Byte 51 to '02FE00000000000000000000000000000000000	RQ2, RQ4
5	HCS→HUT	Send EVT_FIELD_OFF event.	
6	HCS	Wait over 5 ms from the beginning of sending SOF in SWP frame in step 5.	
7	HCS→HUT	Send EVT_FIELD_ON event.	
8	HCS→HUT	Send the ISO/IEC 18092 [3] 212 kbps/424 kbps frames, where LEN is set to '37', CMD0 to 'D8', CMD1 to '00', and Byte 0 to Byte 51 to '02FE00000000000000000000000000000000000	
9	HUT→HCS	Send the ISO/IEC 18092 [3] 212 kbps/424 kbps frames, where LEN is set to '37', CMD0 to 'D9', CMD1 to '01', and Byte 0 to Byte 51 to '02FE00000000000000060708090A0B0C0D0E0F101112131415 161718191A1B1C1D1E1F202122232425262728292A2B2C2D2E2F3031', with EVT_SEND_DATA event.	RQ2, RQ3
10	HCS→HUT	Send EVT_FIELD_OFF event.	

5.6.4.4.5 Test case 4: low power, power down instead of EVT_FIELD_OFF

5.6.4.4.5.1 Test execution

Run this test procedure in low power mode only.

5.6.4.4.5.2 Initial conditions

- The host controller simulator is configured to support only the Type F RF gate.
- The Host is not powered up.
- At the end of the previous activation, the state of the card emulation pipe was open, and the MODE parameter was '02' (as set by the UICC).

5.6.4.4.5.3 Test procedure

Step	Direction	Description	RQ
1	HCS	Power up Host.	
2	HCS→HUT	Activate SWP interface in low power mode and establish SHDLC link.	
3	HCS→HUT	Send the ISO/IEC 18092 [3] 212 kbps/424 kbps frames, where LEN is set to '37', CMD0 to 'D8', CMD1 to '00', and Byte 0 to Byte 51 to '02FE00000000000000000000000000000000000	
4	HUT→HCS	Send the ISO/IEC 18092 [3] 212 kbps/424 kbps frames, where LEN is set to '37', CMD0 to 'D9', CMD1 to '01', and Byte 0 to Byte 51 to '02FE00000000000000000000000000000000000	RQ2, RQ4
5	HCS	Power down Host.	
6	HCS	Power on Host.	
7	HCS→HUT	Activate SWP interface in low power mode and establish SHDLC link.	
8	HCS→HUT	Send the ISO/IEC 18092 [3] 212 kbps/424 kbps frames, where LEN is set to '37', CMD0 to 'D8', CMD1 to '00', and Byte 0 to Byte 51 to '02FE00000000000000060708090A0B0C0D0E0F101112131415 161718191A1B1C1D1E1F202122232425262728292A2B2C2D2E2F3031', with EVT_SEND_DATA event.	
9	HUT→HCS	Send the ISO/IEC 18092 [3] 212 kbps/424 kbps frames, where LEN is set to '37', CMD0 to 'D9', CMD1 to '01', and Byte 0 to Byte 51 to '02FE000000000000000060708090A0B0C0D0E0F101112131415 161718191A1B1C1D1E1F202122232425262728292A2B2C2D2E2F3031', with EVT_SEND_DATA event.	RQ2
10	HCS	Power down Host.	

5.6.4.4.6 Test case 5: EVT_FIELD_OFF after EVT_FIELD_ON / SWP interface activation

5.6.4.4.6.1 Test execution

Void.

5.6.4.4.6.2 Initial conditions

- The host controller simulator is configured to support only the Type F RF gate.
- For full power mode execution: HCI session initialization has been performed, the HCI interface is idle and the SWP interface is not DEACTIVATED.
- For low power mode execution: the Host is not powered up.
- At the end of the previous activation, the state of the card emulation pipe was open, and the MODE parameter was '02' (as set by the UICC).

5.6.4.4.6.3 Test procedure

Step	Direction	Description	RQ
1	HCS→HUT	For full power mode execution: send EVT_FIELD_ON event. For low power mode execution: power up Host, activate SWP interface and establish SHDLC link.	
2	HCS→HUT	Send EVT_FIELD_OFF event.	
3	HCS	Wait over 5 ms from the beginning of sending SOF in SWP frame in step 2.	
4	HCS→HUT	Send EVT_FIELD_ON event.	
5	HCS→HUT	Send the ISO/IEC 18092 [3] 212 kbps/424 kbps frames, where LEN is set to '37', CMD0 to 'D8', CMD1 to '00', and Byte 0 to Byte 51 to '02FE00000000000000000000000000000000000	
6	HUT→HCS	Send the ISO/IEC 18092 [3] 212 kbps/424 kbps frames, where LEN is set to '37', CMD0 to 'D9', CMD1 to '01', and Byte 0 to Byte 51 to '02FE00000000000000000000000000000000000	RQ2, RQ3
7	HCS→HUT	Send EVT_FIELD_OFF event.	

5.6.4.4.7 Test case 6: EVT_FIELD_OFF after EVT_SEND_DATA

5.6.4.4.7.1 Test execution

Void.

5.6.4.4.7.2 Initial conditions

- The host controller simulator is configured to support only the Type F RF gate.
- For full power mode execution: HCI session initialization has been performed, the HCI interface is idle and the SWP interface is not DEACTIVATED.
- For low power mode execution: the Host is not powered up.
- At the end of the previous activation, the state of the card emulation pipe was open, and the MODE parameter was '02' (as set by the UICC).

5.6.4.4.7.3 Test procedure

Step	Direction	Description	RQ
1	HCS→HUT	For full power mode execution: send EVT_FIELD_ON event. For low power mode execution: power up Host, activate SWP interface and establish SHDLC link.	
2	HCS→HUT	Send the ISO/IEC 18092 [3] 212 kbps/424 kbps frames, where LEN is set to '37', CMD0 to 'D8', CMD1 to '00', and Byte 0 to Byte 51 to '02FE000000000000000060708090A0B0C0D0E0F101112131415 161718191A1B1C1D1E1F202122232425262728292A2B2C2D2E2F3031', with EVT_SEND_DATA event.	
3	нсѕ→нит	Send EVT_FIELD_OFF event as soon as possible after event in step 2 (see note).	
4	HCS→HUT	Send EVT_FIELD_ON event after delay of at least 100 ms.	
5	HCS→HUT	Send the ISO/IEC 18092 [3] 212 kbps/424 kbps frames, where LEN is set to '37', CMD0 to 'D8', CMD1 to '00', and Byte 0 to Byte 51 to '02FE00000000000000060708090A0B0C0D0E0F101112131415 161718191A1B1C1D1E1F202122232425262728292A2B2C2D2E2F3031', with EVT_SEND_DATA event.	
6	HUT→HCS	Send the ISO/IEC 18092 [3] 212 kbps/424 kbps frames, where LEN is set to '37', CMD0 to 'D9', CMD1 to '01', and Byte 0 to Byte 51 to '02FE00000000000000060708090A0B0C0D0E0F101112131415 161718191A1B1C1D1E1F202122232425262728292A2B2C2D2E2F3031', with EVT_SEND_DATA event.	RQ2, RQ3
7	HCS→HUT	Send EVT_FIELD_OFF event.	
NOTE		ay send ISO/IEC 18092 [3] 212 kbps/424 kbps frames with EVT_SEND_DATA ay overlap with EVT_FIELD_OFF.	A

5.6.4.4.8 Test case 7: multiple open card gates

5.6.4.4.8.1 Test execution

Void.

5.6.4.4.8.2 Initial conditions

- The host controller simulator is configured to support RF gates for all RF technologies.
- For full power mode execution: HCI session initialization has been performed, the HCI interface is idle and the SWP interface is not DEACTIVATED.
- For low power mode execution: the Host is not powered up.
- At the end of the previous activation, the state of the card emulation pipe was open, and the MODE parameter was '02' (as set by the UICC).
- At least one further card application gate is open.

5.6.4.4.8.3 Test procedure

Step	Direction	Description	RQ
1	HCS→HUT	For full power mode execution: send EVT_FIELD_ON event to the open card application gate with the lowest G _{ID} . For low power mode execution: power up Host, activate SWP interface and establish SHDLC link.	
2	HCS→HUT	Send the ISO/IEC 18092 [3] 212 kbps/424 kbps frames, where LEN is set to '37', CMD0 to 'D8', CMD1 to '00', and Byte 0 to Byte 51 to '02FE00000000000000000000000000000000000	
3	HUT→HCS	Send the ISO/IEC 18092 [3] 212 kbps/424 kbps frames, where LEN is set to '37', CMD0 to 'D9', CMD1 to '01', and Byte 0 to Byte 51 to '02FE00000000000000000000000000000000000	RQ2, RQ4
4	HCS→HUT	Send EVT_FIELD_OFF event to the open card application gate with the lowest Gid.	
5	HCS	Wait over 5 ms from the beginning of sending SOF in SWP frame in step 4.	
6	HCS→HUT	Send EVT_FIELD_ON event to the open card application gate with the lowest Gid.	
7	HCS→HUT	Send the ISO/IEC 18092 [3] 212 kbps/424 kbps frames, where LEN is set to '37', CMD0 to 'D8', CMD1 to '00', and Byte 0 to Byte 51 to '02FE00000000000000060708090A0B0C0D0E0F101112131415 161718191A1B1C1D1E1F202122232425262728292A2B2C2D2E2F3031', with EVT_SEND_DATA event.	
8	HUT→HCS	Send the ISO/IEC 18092 [3] 212 kbps/424 kbps frames, where LEN is set to '37', CMD0 to 'D9', CMD1 to '01', and Byte 0 to Byte 51 to '02FE00000000000000000000000000000000000	RQ2, RQ3
9	HCS→HUT	Send EVT_FIELD_OFF event to the open card application gate used during transaction.	
10	HCS	Wait over 5 ms from the beginning of sending SOF in SWP frame in step 9.	
11	HCS→HUT	Send EVT_FIELD_ON event to the open card application gate with the lowest Gid.	
12	HCS→HUT	Send the ISO/IEC 18092 [3] 212 kbps/424 kbps frames, where LEN is set to '37', CMD0 to 'D8', CMD1 to '00', and Byte 0 to Byte 51 to '02FE00000000000000000000000000000000000	
13	HUT→HCS	Send the ISO/IEC 18092 [3] 212 kbps/424 kbps frames, where LEN is set to '37', CMD0 to 'D9', CMD1 to '01', and Byte 0 to Byte 51 to '02FE000000000000000060708090A0B0C0D0E0F101112131415 161718191A1B1C1D1E1F202122232425262728292A2B2C2D2E2F3031', with EVT_SEND_DATA event.	RQ2, RQ3
14	HCS→HUT	Send EVT_FIELD_OFF event to the open card application gate used during transaction.	

5.6.4.4.9 Test case 8: EVT_FIELD_OFF during CLT frames exchange

5.6.4.4.9.1 Test execution

Void.

5.6.4.4.9.2 Initial conditions

- The host controller simulator is configured to support only the Type F RF gate.
- For full power mode execution: HCI session initialization has been performed, the HCI interface is idle and the SWP interface is not DEACTIVATED.

- For low power mode execution: the HUT is not powered up.
- At the end of the previous activation of the HUT, the state of the card emulation pipe was open, and the MODE parameter was '02'.
- Only one Type F Application shall be activated in the HUT.

5.6.4.4.9.3 Test procedure

Step	Direction	Description	RQ
1	HCS→HUT	For full power mode execution: send EVT_FIELD_ON event. For low power mode execution: power up Host, activate SWP interface and establish SHDLC link.	
2	HCS→HUT	Send CLT frame with CL_PROTO_INF(F) in the ADMIN_FIELD and the RF data representing the initialization command 'POLLING REQUEST' where the Length is set to '06', 1st byte to '00', 2nd and 3rd bytes to 'FFFF', 4th byte to '00', 5th byte to '00', and RF CRC to '0921', which matches the application available on the UICC in the DATA_FIELD.	
3	HCS→HUT	Send EVT_FIELD_OFF event within 100µs after the end of CLT frame in step 2 (see note).	
4	HCS	Wait over 5 ms from the beginning of sending SOF in SWP frame in step 3.	
5	HCS→HUT	Send EVT_FIELD_ON.	
6	HCS→HUT	Send CLT frame with CL_PROTO_INF(F) in the ADMIN_FIELD and the RF data representing the initialization command 'POLLING REQUEST' which has the same data as step2.	
7	HUT→HCS	Respond CLT frame with CLT_CMD field set to 10000 and RF data representing the initialization response 'POLLING RESPONSE' where the Length is set to '12', 1st byte to '01', 2nd to 9th bytes to '02FE00000000000000',10th to 17th byte to 'FFFFFFFFFFFFFFF, and RF CRC to 'A87D'.	RQ1, RQ3
8	HCS→HUT	Send EVT_FIELD_OFF event.	
NOTE		send CLT response which may overlap with EVT_FIELD_OFF or after recess is not a failure of the UICC and the test procedure is not stopped.	eiving this

5.6.4.5 Update RF technology settings

5.6.4.5.1 Conformance requirements

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

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

5.6.4.6 Identity check

5.6.4.6.1 Conformance requirements

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

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

5.7 Contactless reader

5.7.1 Overview

5.7.1.1 Conformance requirements

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

RQ1	For each reader RF gate it wants to use, the host has one reader application gate.
RQ2	The host shall not create more than one pipe to each reader RF gate.
NOTE:	Development of test cases for above listed RQs is FFS.

5.7.2 Reader RF gates

5.7.2.1 Overview

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

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

5.7.2.2 Command

5.7.2.2.1 WR_XCHG_DATA

5.7.2.2.1.1 Conformance requirements

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

RQ1	The host shall have at least one byte in parameter of WR_XCHG_DATA.
RQ2	In the CTR field of WR_XCHG_DATA, bit b8 to b6 shall set to 0.
RQ3	In the CTR field of WR_XCHG_DATA, if bit b5 is set to one, the host shall use timeout value
	between 0 and 14.
RQ4	On receiving value '00' of RF error indicator, the host shall interpret the received data having no
	error.
RQ5	On receiving value '01' of RF error indicator, the host shall interpret the received data having an
	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: ETSI TS 102 622 [1], clause 10.2.3.1.

RQ1	The host shall adhere to the access condition of RO for UID.
RQ2	The host shall adhere to the access condition of RO for ATQA.
RQ3	The host shall adhere to the access condition of RO for APPLICATION_DATA.
RQ4	The host shall adhere to the access condition of RO for SAK.
RQ5	The host shall adhere to the access condition of RO for FWI, SFGT.
RQ6	The host shall only set values of DATARATE_MAX as specified in ETSI TS 102 622 [1].
NOTE 1	1: Conformance to ISO/IEC 14443-3 [4] and ISO/IEC 14443-4 [5] of the values written by the host is
	out of scope of the present document.
NOTE 2	2: 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: ETSI TS 102 622 [1], clause 10.2.3.2.

RQ1	The host shall adhere to the access condition of RO for PUPI.
RQ2	The host shall adhere to the access condition of RO for APPICATION_DATA.
RQ3	The host shall adhere to the access condition of RO for HIGHER_LAYER_RESPONSE.
NOTE 1	I: Conformance to ISO/IEC 14443-3 [4] and ISO/IEC 14443-4 [5] of the values written by the host is out of scope of the present document.
NOTE 2	2: 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: ETSI TS 102 622 [1], clause 10.2.4.

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

5.7.2.4.2 EVT_READER_REQUESTED

5.7.2.4.2.1 Conformance requirements

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

RQ1	When the host sends EVT_READER_REQUESTED, it shall contain no parameters.
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: ETSI TS 102 622 [1], clause 10.2.4.2.

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

5.7.2.5 Responses

5.7.2.5.1 Conformance requirements

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

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

5.7.3 Reader application gates

5.7.3.1 Overview

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

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

5.7.3.2 Command

5.7.3.2.1 Conformance requirements

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

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

5.7.3.3 Registry

5.7.3.3.1 Conformance requirements

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

RQ1	Registry parameters which are in the range reserved for usage by ETSI TS 102 622 [1] but which are not
	defined in ETSI TS 102 622 [1] shall not be present in the registry.
NOTE:	Development of test cases for above listed RQs is FFS.

5.7.3.4 Events and subclauses

5.7.3.4.1 Events

5.7.3.4.1.1 Conformance requirements

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

RQ1	The reader application gates support the event name EVT_TARGET_DISCOVERED.
NOTE:	Development of test cases for above listed RQs is FFS.

5.7.3.4.2 EVT_TARGET_DISCOVERED

5.7.3.4.2.1 Conformance requirements

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

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

5.7.4 Procedures

5.7.4.1 Use of contactless reader application

5.7.4.1.1 Conformance requirements

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

RQ1	The host shall send the EVT_READER_REQUESTED event on a single pipe only.
RQ2	In the context of a valid contactless reader application sequence as specified in ETSI TS 102 622 [1], the
	host shall only send WR_XCHG_DATA commands after receiving an EVT_TARGET_DISCOVERED
	event which indicates that there is a single target in the reader field.
RQ3	In the context of a valid contactless reader application sequence as specified in ETSI TS 102 622 [1], if
	the host receives an EVT_TARGET_DISCOVERED event which indicates that there are several targets
	in the field, the host shall not send WR_XCHG_DATA commands.
RQ4	The host shall send the EVT_END_OPERATION event on a single pipe only.
RQ5	In the context of a valid contactless reader application sequence as specified in ETSI TS 102 622 [1], if
	the host sends an EVT_END_OPERATION event, it shall not send further WR_XCHG_DATA commands
	until it has received a further EVT_TARGET_DISCOVERED event.
RQ6	In the context of a valid contactless reader application sequence as specified in ETSI TS 102 622 [1], the
	host shall send the EVT_END_OPERATION.
NOTE:	Development of test cases for above listed RQs is FFS.

5.8 Connectivity

5.8.1 Overview

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

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

5.8.2 Connectivity gate and subclauses

5.8.2.1 Connectivity gate

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

There are no conformance requirements for the 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: ETSI TS 102 622 [1], clause 11.2.1.1.

RQ1	The Host shall not try to interact with any other host except the host controller before receiving the response of PRO_HOST_REQUEST.
RQ2	The Host shall not try to interact with another host if the response of PRO_HOST_REQUEST is not ANY_OK.
RQ3	The Host shall not try to interact with the host after the expired activation duration time.
RQ4	The Host shall not put the host controller or the terminal host in the list of host identifiers.
RQ5	When the Host sends a PRO_HOST_REQUEST, it shall use at least 3 bytes parameters.
NOTE:	Development of test cases for above listed RQs is FFS.

5.8.2.3 Events and subclauses

5.8.2.3.1 Events

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

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

5.8.2.3.2 EVT CONNECTIVITY

5.8.2.3.2.1 Conformance requirements

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

RQ1	When the Host sends EVT_CONNECTIVITY, it shall contain no parameters.	
NOTE:	TE: Development of test cases for above listed RQs is FFS.	

5.8.2.3.3 Void

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

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

5.8.2.3.4 EVT_OPERATION_ENDED

5.8.2.3.4.1 Conformance requirements

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

RQ1	When the Host send EVT_OPERATION_ENDED, it shall not contain parameters.
RQ2	The Host shall only EVT_OPERATION_ENDED in the context of a PRO_HOST_REQUEST command.
NOTE:	Development of test cases for above listed RQs is FFS.

5.8.2.3.5 EVT_TRANSACTION

5.8.2.3.5.1 Conformance requirements

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

	When the Host sends the EVT_TRANSACTION, it shall use BER-TLV parameters as defined in ETSI TS 102 622 [1].
NOTE:	Development of test cases for above listed RQs is FFS.

5.8.2.4 Registry

5.8.2.4.1 Conformance requirements

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

RQ1	Registry parameters which are in the range reserved for usage by ETSI TS 102 622 [1] but which are not
	defined in ETSI TS 102 622 [1] shall not be present in the registry.
NOTE:	Development of test cases for above listed RQs is FFS.

5.8.3 Connectivity application gate and subclauses

5.8.3.1 Connectivity application gate

5.8.3.1.1 Conformance requirements

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

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

5.8.3.2 Commands

5.8.3.2.1 Conformance requirements

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

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

5.8.3.3 Events and subclauses

5.8.3.3.1 Events

5.8.3.3.1.1 Conformance requirements

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

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

5.8.3.3.2 EVT STANDBY

5.8.3.3.2.1 Conformance requirements

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

RQ1	When the Host receives the EVT_STANDBY, it shall stop any ongoing communication with the other	
	hosts and the host controller within 100 ms.	
NOTE:	Development of test cases for above listed ROs is FES	

5.8.3.4 Registry

5.8.3.4.1 Conformance requirements

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

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

5.8.4 Procedures

5.8.4.1 Use of connectivity gate

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

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

Annex A (normative): Additional test cases

A.1 Overview

The annex provides test cases that can only be implemented in a standardized way if the information in table A.3 is provided. As this information is proprietary, the execution of these tests is optional.

A.2 Applicability table

Table A.1 specifies the applicability of each test case introduced in this annex. See clause 3A for the format of tables 4.2 and A.1.

Table A.1: Applicability of tests

Clause	Test case number and description	Release	Execution requirements	Rel-7 UICC	Rel-8 UICC	Rel-9 UICC	Rel-10 UICC	Support
A.4.1	Test case 1: registry creation	Rel-7	SR901	М	М	М	М	
A.4.2	Test case 2: registry deletion	Rel-7	SR902	М	М	М	М	
A.4.3	Test case 3: ANY_GET_PARAMETER reception - WO registry parameter	Rel-7	SR903	М	М	М	М	
A.4.4	Test case 4: ANY_OPEN_PIPE transmission	Rel-7	TR901	М	М	М	М	
A.4.5	Test case 5: ANY_CLOSE_PIPE transmission	Rel-7	TR902	М	М	М	М	
A.4.6	Test case 6: responses received out of order, previous command sent by host	Rel-7	TR901	М	М	М	М	
A.4.7	Test case 7: WHITELIST	Rel-7	TR903	М	М	М	М	
A.4.8	Test case 8: REC_ERROR	Rel-7	TR904	C901	C901	C901	C901	
A.4.9	Test case 9: REC_ERROR after HCI session initialization	Rel-7	ICR901	C901	C901	C901	C901	
A.4.10	Test case 10: ADM_CREATE_PIPE	Rel-7	TR905	М	М	М	М	
A.4.11	Test case 11: sending ADM_DELETE_PIPE	Rel-7	TR906	М	М	М	М	
A.4.12	Test case 12: ADM_CLEAR_ALL_PIPE - registry parameters	Rel-7	ICR901	C901	C901	C901	C901	

Table A.2: Conditional items referenced by table A.1

Conditional item	Condition	Description
C901	IF 4.1/1 THEN M ELSE N/A	O LINK MAN

Table A.3: Execution requirements referenced by table A.1

Execution	Description			
requirement				
SR901	A gate which accepts multiple dynamic pipes and has a RW registry parameter; the default value of the registry parameter shall be known.			
SR902	A gate which has a RW registry parameter; the default value of the registry parameter shall be known.			
SR903	A gate which contains at least one WO registry parameter.			
TR901	Trigger the host to open PIPE_ID_MAN.			
TR902	Trigger the host to close PIPE_ID_MAN.			
TR903	Trigger the host to write its value of WHITELIST into the registry of the host controller's administration			
	gate.			
TR904	Trigger the host 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.			
TR905	Trigger the host to create a pipe.			
TR906	Trigger the host to send ADM_DELETE_PIPE on PIPE ₁ to delete PIPE_LOOP_BACK.			
ICR901	The last value of REC_ERROR in the host's registry for PIPE ₀ is not '0000'.			

NOTE: Clause 4.5.2 should be referenced for the meaning and usage of the execution requirements which are described in table A.3.

A.3 Conformance requirements

Reference: ETSI TS 102 622 [1], clause 4.5, 6.1.2.2, 6.1.2.3, 6.1.2.4, 6.1.3.1, 6.1.3.3, 6.1.3.5, 6.2, 7.1.1.1 and 7.1.2.1.

RQ1	4.5	A new instance of the registry is created for every pipe that connects to the gate.
RQ2	4.5	When a pipe is deleted its registry instance is also deleted.
RQ3	6.1.2.2	A host 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).
RQ5	6.1.2.3	When a host sends an ANY_OPEN_PIPE command, it shall contain no command parameters.
RQ6	6.1.2.3	When a host receives ANY_OK in response to an ANY_OPEN_PIPE command, it shall open the pipe.
RQ7	6.1.2.4	When a host sends an ANY_CLOSE_PIPE command, it shall contain no command parameters.
RQ8	6.1.2.4	When a host receives ANY_OK in response to an ANY_CLOSE_PIPE command, it shall close the pipe.
RQ9	6.2	Responses received out of order (i.e. if no command was sent previously) shall be discarded.
RQ10	7.1.1.1	The host shall only set values of WHITELIST containing valid host identifiers (including proprietary host
		identifiers but excluding RFU host identifiers) as specified in table 1 in ETSI TS 102 622 [1], and not
		containing the host controller's host identifier and the host's own host identifier; an empty array is
		allowed.
RQ11	7.1.2.1	The host shall only set values of REC_ERROR with length 2 bytes.
RQ12	7.1.2.1	The host shall use a default value for REC_ERROR of '0000'.
RQ13	7.1.2.1	The host shall apply the access condition of RW to REC_ERROR.
RQ14	7.1.2.1	The host shall only accept values of REC_ERROR of length 2 bytes.
RQ15	6.1.3.1	When a host sends an ADM_CREATE_PIPE command, the command parameters shall be 3 bytes long,
		and contain valid G _{ID} s and H _{ID} .
RQ16	6.1.3.3	When a host sends an ADM_DELETE_PIPE command, the command parameters shall be 1 byte long.
RQ17	6.1.3.5	When the host receives ANY_OK in response to an ADM_CLEAR_ALL_PIPE command, it shall consider
		that all dynamic pipes connected to it are deleted, all static pipes connected to it are closed, and all
		registry values related to static pipes connected to it are set to their default values.

A.4 Test cases

A.4.1 Test case 1: registry creation

A.4.1.1 Test execution

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

A.4.1.2 Initial conditions

- The HCI interface is idle; i.e. no further communication is expected.
- PIPE₁ is open.

A.4.1.3 Test procedure

Step	Direction	Description	RQ
	1100 > 1111	Send ADM_NOTIFY_PIPE_CREATED on PIPE ₁ , with source G _{ID} = '01' and	
1	HCS → HUT	destination G_{ID} = GATE_X; designate the created pipe PIPEa.	
2	HUT → HCS	Send ANY_OK (parameters are not checked).	
3	HCS → HUT	Send ANY_OPEN_PIPE on PIPEa.	
4	HUT → HCS	Send ANY_OK (parameters are not checked)	
5	HCS → HUT	Send ANY_SET_PARAMETER(REG_PARAM) on PIPEa, with a value different from the default value.	
6	HUT → HCS	Send ANY_OK (parameters are not checked).	
_	HCS → HUT	Send ADM_NOTIFY_PIPE_CREATE on PIPE ₁ , with source G _{ID} = '01' and	
7		destination G _{ID} = GATE_X; designate the created pipe PIPEb.	
8	HUT → HCS	Send ANY_OK (parameters are not checked).	
9	HCS → HUT	Send ANY_OPEN_PIPE on PIPEb.	
10	HUT → HCS	Send ANY_OK (parameters are not checked)	
11	HCS → HUT	Send ANY_GET_PARAMETER(REG_PARAM) on PIPEb.	
12	HUT → HCS	Send ANY_OK with parameter value equal to the default value of REG_PARAM.	RQ1
40		Send ANY SET PARAMETER(REG PARAM) on PIPEb, with a value	
13	HCS → HUT	different from the default value, and different to the value set in step 5.	
14	HUT → HCS	Send ANY_OK (parameters are not checked).	
15	HCS → HUT	Send ANY_GET_PARAMETER(REG_PARAM) on PIPEa.	_
16	HUT → HCS	Send ANY_OK with parameter value equal to the value set in step 5.	RQ1

A.4.2 Test case 2: registry deletion

A.4.2.1 Test execution

Assignment of terms to entities referenced in SR2: G_{ID} of gate = GATE_X, registry parameter identifier = REG_PARAM.

A.4.2.2 Initial conditions

- The HCI interface is idle; i.e. no further communication is expected.
- PIPE₁ is open.

A.4.2.3 Test procedure

Step	Direction	Description	RQ
		Send ADM_NOTIFY_PIPE_CREATED on PIPE ₁ , with source G _{ID} = '01' and	
1	HCS → HUT	destination G _{ID} = GATE_X; designate the created pipe PIPEa.	
2	HUT → HCS	Send ANY_OK (parameters are not checked).	
3	HCS → HUT	Send ANY_OPEN_PIPE on PIPEa.	
4	HUT → HCS	Send ANY_OK (parameters are not checked).	
5	HCS → HUT	Send ANY_SET_PARAMETER(REG_PARAM) on PIPEa, with a value	
3	1103 7 1101	different from the default value.	
6	HUT → HCS	Send ANY_OK (parameters are not checked).	
7	HCS → HUT	Send ADM_NOTIFY_PIPE_DELETED(PIPEa) on PIPE ₁ .	
8	HUT → HCS	Send ANY_OK (parameters are not checked).	
9	HCS → HUT	Send ADM_NOTIFY_PIPE_CREATED on PIPE ₁ , with G _{ID} = GATE_X;	
9	1103 71101	designate the created pipe PIPEb.	
10	HUT → HCS	Send ANY_OK (parameters are not checked).	
11	HCS → HUT	Send ANY_OPEN_PIPE on PIPEb.	
12	HUT → HCS	Send ANY_OK (parameters are not checked).	
13	HCS → HUT	Send ANY_GET_PARAMETER(REG_PARAM) on PIPEb.	
14	HUT → HCS	Send ANY_OK with parameter value equal to the default value of REG_PARAM.	RQ2

A.4.3 Test case 3: ANY_GET_PARAMETER reception - WO registry parameter

A.4.3.1 Test execution

Assignment of terms to entities referenced in SR4: G_{ID} of gate = GATE_X, registry parameter identifier = REG_PARAM.

A.4.3.2 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.

A.4.3.3 Test procedure

Step	Direction	Description	RQ
1	HCS → HUT	Send ANY_GET_PARAMETER(REG_PARAM) on PIPE_X.	
2	HUT → HCS	Send response containing an allowed error response code for the command.	RQ3

A.4.4 Test case 4: ANY_OPEN_PIPE transmission

A.4.4.1 Test execution

Void.

A.4.4.2 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's identity management gate, and is open.

A.4.4.3 Test procedure

Step	Direction	Description	RQ
1	HCS → HUT	Send ANY_CLOSE_PIPE on PIPE_ID_MAN.	
2	HUT → HCS	Send ANY_OK (parameters are not checked).	
3	User → HUT	Trigger the host to open PIPE_ID_MAN.	
4	HUT → HCS	Send ANY_OPEN_PIPE on PIPE_ID_MAN.	RQ5
5	HCS → HUT	Send ANY_OK with no parameters.	
6	HCS → HUT	Send ANY_GET_PARAMETER(GATES_LIST) on PIPE_ID_MAN.	
7	HUT → HCS	Send ANY OK (parameters are not checked).	RQ6

A.4.5 Test case 5: ANY_CLOSE_PIPE transmission

A.4.5.1 Test execution

Void.

A.4.5.2 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's identity management gate, and is open.

A.4.5.3 Test procedure

Step	Direction	Description	RQ
1	User → HUT	Trigger the host to close PIPE_ID_MAN.	
2	HUT → HCS	Send ANY_CLOSE_PIPE on PIPE_ID_MAN.	RQ7
3	HCS → HUT	Send ANY_OK with no parameters.	
4	HCS → HUT	Send ANY_GET_PARAMETER(GATES_LIST) on PIPE_ID_MAN.	
5	HUT → HCS	Send response containing an allowed error response code for the command.	RQ8

A.4.6 Test case 6: responses received out of order, previous command sent by host

A.4.6.1 Test execution

Void.

A.4.6.2 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's identity management gate, and is open.

A.4.6.3 Test procedure

Step	Direction	Description	RQ
1	HCS → HUT	Send ANY_CLOSE_PIPE on PIPE_ID_MAN.	
2	HUT → HCS	Send ANY_OK (parameters are not checked).	
3	User → HUT	Trigger the host to open PIPE_ID_MAN.	
4	HUT → HCS	Send ANY_OPEN_PIPE on PIPE_ID_MAN.	
5	HCS → HUT	Send ANY_OK on PIPE_ID_MAN.	
6	HCS → HUT	Send ANY_E_NOK on PIPE_ID_MAN.	
7	HUT	No message on PIPE_ID_MAN.	RQ9
8	HCS → HUT	Send ANY_GET_PARAMETER(GATES_LIST) on PIPE_ID_MAN.	
9	HUT → HCS	Send response with ANY_OK and value of GATES_LIST on PIPE_ID_MAN.	RQ9

A.4.7 Test case 7: WHITELIST

A.4.7.1 Test execution

Void.

A.4.7.2 Initial conditions

- The HCI interface is idle; i.e. no further communication is expected.
- PIPE₁ is open.

A.4.7.3 Test procedure

Step	Direction	Description	RQ
1	User → HUT	Trigger the host to write its value of WHITELIST into the registry of the host controller's administration gate.	
2	HUT → HCS	Send ANY_SET_PARAMETER(WHITELIST) on PIPE ₁ .	RQ10
3	HCS → HUT	Send ANY_OK with no parameters.	

A.4.8 Test case 8: REC_ERROR

A.4.8.1 Test execution

Void.

A.4.8.2 Initial conditions

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

A.4.8.3 Test procedure

Step	Direction	Description	RQ
1	User → HUT	Trigger the host 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.	
2	HUT → HCS	Send ANY_SET_PARAMETER(REC_ERROR) on PIPE ₀ .	RQ11
3	HCS → HUT	Send ANY OK with no parameters.	

A.4.9 Test case 9: REC_ERROR after HCI session initialization

A.4.9.1 Test execution

Run this test procedure in full power mode only.

A.4.9.2 Initial conditions

- The last value of REC_ERROR in the host's registry for $PIPE_0$ is not '0000'.
- The interface is powered down.

A.4.9.3 Test procedure

Step	Direction	Description	RQ	
1	HCS → HUT	Power up host; behave as if lower layer identity check has failed (i.e. enter inhibited state).		
2	HUT ← → HCS	Perform HCl session initialization, up to and including setting new value of SESSION_IDENTITY.		
3	HCS	Wait until the HCl interface is idle; i.e. no further communication is expected.		
4	HCS → HUT	Send ANY_OPEN_PIPE on PIPE ₀ .		
5	HUT → HCS	Send response (contents are not checked)		
6	HCS → HUT	Send ANY_GET_PARAMETER(REC_ERROR) on PIPE ₀ .		
7	HUT → HCS	Send ANY_OK with parameter value '0000' (see note).	RQ12, RQ13	
8	HCS → HUT	Send ANY_SET_PARAMETER(REC_ERROR, '0000') on PIPE ₀ .		
9	HUT → HCS	Send ANY_OK (parameters are not checked).	RQ13	
10	HCS → HUT	Send ANY_SET_PARAMETER(REC_ERROR, '000000') on PIPE ₀ .		
11	HUT → HCS	Send response containing an allowed error response code for the command.	RQ14	
NOTE	NOTE: This assumes that the HCl session initialization procedure has not resulted in any errors at the data link layer which would result in the incrementing of REC_ERROR.			

A.4.10 Test case 10: ADM_CREATE_PIPE

A.4.10.1 Test execution

Void.

A.4.10.2 Initial conditions

- The HCI interface is idle; i.e. no further communication is expected.
- PIPE₁ is open.

A.4.10.3 Test procedure

Step	Direction	Description	RQ
1	User → HUT	Trigger the host to create a pipe.	
2	HUT → HCS	Send ADM_CREATE_PIPE on PIPE ₁ ; designate the created pipe PIPE_ID_MAN.	RQ15
3	HCS → HUT	Send ANY_OK with valid response parameters.	
4	HCS → HUT	Send ANY_OPEN_PIPE on PIPE_ID_MAN.	
5	HUT → HCS	Send ANY OK (parameters are not checked).	RQ15

A.4.11 Test case 11: sending ADM_DELETE_PIPE

A.4.11.1 Test execution

Void.

A.4.11.2 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's loop back gate, and is open.

A.4.11.3 Test procedure

Step	Direction	Description	RQ
1	User → HUT	Trigger the host to send ADM_DELETE_PIPE on PIPE ₁ to delete	
'		PIPE_LOOP_BACK.	
2	HUT → HCS	Send ADM_DELETE_PIPE on PIPE ₁ , with parameter value of length 1 and	RQ16
		equal to PIPE_LOOP_BACK.	KQIO
3	HCS → HUT	Send ANY_OK with no parameters.	
4	HCS → HUT	Send EVT_POST_DATA containing '01 02 03 04' on PIPE_LOOP_BACK.	
5	HUT → HCS	No messages on PIPE_LOOP_BACK.	RQ16
6	HCS → HUT	Send ANY_OPEN_PIPE on PIPE_LOOP_BACK.	
7	HUT → HCS	Send no response, or a response containing an allowed error response code	RQ16
	1101 71100	for the command.	110

A.4.12 Test case 12: ADM_CLEAR_ALL_PIPE - registry parameters

A.4.12.1 Test execution

Run this test procedure in full power mode only.

A.4.12.2 Initial conditions

- REC_ERROR in the registry of the host for PIPE₀ has a value which is different from the default value.
- The host is not powered up.

A.4.12.3 Test procedure

Step	Direction	Description				
1	HCS → HUT	Power up host; behave as if lower layer identity check has failed (i.e. enter inhibited state).				
2	HUT → HCS	Send ADM_CLEAR_ALL_PIPE on PIPE ₁ ; parameter value is not checked (see note 1).				
3	HCS → HUT	Send ANY_OK with no parameters.				
4	HCS → HUT	Send ANY_OPEN_PIPE on PIPE ₀ .				
5	HUT → HCS	Send ANY_OK (parameters are not checked).				
6	HCS → HUT	Send ANY_GET_PARAMETER(REC_ERROR) on PIPE ₀ .				
7	HUT → HCS	Send ANY_OK with parameter value '0000' (see note 2).	RQ17			

NOTE 1: Other commands may be sent prior to the ADM_CLEAR_ALL_PIPE command.

NOTE 2: This assumes that the HCl session initialization procedure has not resulted in any errors at the data link layer which would result in the incrementing of REC_ERROR.

Annex B (informative): Core specification version information

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

Release	Latest version from which conformance requirements have been extracted
7	V7.10.0
8	V8.4.0
9	V9.4.0
10	V10.3.0

Annex C (informative): Change history

This annex lists all Changes Requests (CR) applied to the present document.

						Change history		
Date	Meeting	Plenary Doc	CR	Rev	Cat	Subject/Comment	Old	New
		SCP-090256				Creation of the specification	2.2.0	7.0.0
2010-03	SCP #44	SCP(10)0012	001	-	F	Change of allowed response to command on deleted pipe	7.0.0	7.1.0
		SCP(10)0012	002	-	F	Change of response to ANY_OPEN_PIPE after pipe created	7.0.0	7.1.0
		SCP(10)0012	003	-	F	Change of response to ANY_OPEN_PIPE after pipe created	7.0.0	7.1.0
		SCP(10)0012	004	-	F	Correction of UICC reaction to event sent on closed pipe	7.0.0	7.1.0
		SCP(10)0012	005	-	F	Remove the step " Change locally stored value of	7.0.0	7.1.0
						SESSION_IDENTITY" from the related test cases.		
2010-07		SCP(10)0121	006	-	F	Correction of test cases 5.4.1.2 applicability	7.1.0	7.2.0
		SCP(10)0193	007	1	F	Definition of the network's initial state	7.1.0	7.2.0
		SCP(10)0225	800	-	F	Deletion of RFU Gates test procedure 5.1.3.3	7.2.0	7.3.0
2011-03		SCP(11)0116	009	-	F	Editorial corrections	7.2.0	7.3.0
		SCP(11)0117	010	-	F	Essential corrections	7.2.0	7.3.0
		SCP(11)0118	011	-	F	Addition of test cases for contactless card emulation	7.2.0	7.3.0
		SCP(11)0119	012	-	F	Update of conformance requirements to latest Rel-7 version of ETSI TS 102 622	7.2.0	7.3.0
		SCP(11)0120	013	-	F	Creation of Rel-8 specification	7.4.0	8.0.0
2012-03	SCP #54	SCP(12)000041	015	-	F	Modification of session id test procedure	8.0.0	8.1.0
		SCP(12)000042r1	016	1	F	Correction of test case 5.3.1.2.3.2	8.0.0	8.1.0
		SCP(12)000113	017	-	F	Introduction of new Execution Requirements	8.0.0	8.1.0
2012-09	SCP #56	SCP(12)000186	018	-	F	Execution requirement for the verification of the Host's	8.0.0	8.1.0
						settings of registry parameters		
		SCP(12)000189	021	-	F	Correction of SAK requirement for CLT test cases	8.0.0	8.1.0
		SCP(12)000190	022	-	F	Test cases from DEACTIVATED state - correction of low	8.0.0	8.1.0
						power mode execution to start from UICC powered down		
		SCP(12)000191	023	-	F	Low power mode test cases - making low power mode more explicit	8.0.0	8.1.0
		SCP(12)000192	024	-	F	Addition of CLT_SUPPORT='01' for CLT test cases	8.0.0	8.1.0
		SCP(12)000193	025		F	Correction of registry name	8.0.0	8.1.0
		SCP(12)000194	026	-	F	Modify the applicability of test case 5.3.1.2.1.2	8.0.0	8.1.0
		SCP(12)000195	027	-	F	Corrections of test cases to only run in full power mode	8.0.0	8.1.0
		SCP(12)000187	019	-	В	Creation of Rel-9 specification, and addition of latest conformance requirements	8.1.0	9.0.0
2013-02	SCP #58	SCP(13)000033	028	-	F	Correction of invalid EVT_FIELD_ON in low power mode test cases	9.0.0	9.1.0
2013-07	SCP #60	SCP(13)000136	029	-	F	Addition of testing of SYNC ID value	9.1.0	9.2.0
			030	1	F	Definition of time to wait for no response	9.2.0	9.3.0
			031	1	В	Addition of test procedures for Type F	9.3.0	10.0.0
2014-06	SCP #64	SCP(14)000157r1	032	1	В	Addition of test procedures for Type F (EVT_FIELD_OFF during CLT frames exchange)	9.3.0	10.0.0
2014-12	SCP #66	SCP(14)000314	033	-	F	Modification for the test data of Type-F	10.0.0	10.1.0
		SCP(14)000315	034	-	В	Add test case on empty C-APDU reception.		10.1.0
2015-02		SCP(15)000025	035	-	F	Clarification of SR2	10.0.0	10.1.0
		SCP(15)000026	036	-	F	Test case 5.5.1.3.2: update to allow HCI session initialization to complete		
2015-04	SCP #68	SCP(15)000101r1	038	1	F	Moving of un-implementable test cases from clause 5 to Annex X	10.1.0	10.2.0
2015-10	SCP #70	SCP(15)000230	039		В	Addition of Rel-10 requirements and test cases	10.1.0	10.2.0
2016-02	SCP #72	SCP(16)000034	037	1		Addition of explicit CLT_A command sequence for non-		10.2.0
	-: "· -	(,2000.			-	ISO/IEC 14443-4 type A test cases		
2016-10	SCP #75	SCP(16)000179r1	041	1	В	Addition of test cases 5.5.4.6 and 5.5.4.7	10.1.0	10.2.0
		SCP(16)000180	042		F	Clarification of meaning of "Send ANY_OK."		10.2.0
2016-12			044		F	Correction of test procedure in 5.6.4.4.2.3	10.1.0	10.2.0

History

Document history							
V10.0.0	September 2014	Publication					
V10.1.0	March 2015	Publication					
V10.2.0	August 2019	Publication					