



**Smart Cards;  
UICC-Terminal interface;  
Physical, electrical and logical test specification;  
Part 2: UICC features  
(Release 10)**

Standard-IT.com  
iTech Standards  
https://standards.iteh.ai/catalog/standards/si/483e69fb-9dd7-4c7c-aede-5a12d25f233d/etsi-ts-102-230-2-v10-0-2019-06

---

**Reference**RTS/SCP-00102230Uv1000

---

**Keywords**smart card, testing

---

**ETSI**

650 Route des Lucioles  
F-06921 Sophia Antipolis Cedex - FRANCE

---

Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Siret N° 348 623 562 00017 - NAF 742 C  
Association à but non lucratif enregistrée à la  
Sous-Préfecture de Grasse (06) N° 7803/88

---

**Important notice**

---

The present document can be downloaded from:

<http://www.etsi.org/standards-search>

The present document may be made available in electronic versions and/or in print. The content of any electronic and/or print versions of the present document shall not be modified without the prior written authorization of ETSI. In case of any existing or perceived difference in contents between such versions and/or in print, the prevailing version of an ETSI deliverable is the one made publicly available in PDF format at [www.etsi.org/deliver](http://www.etsi.org/deliver).

Users of the present document should be aware that the document may be subject to revision or change of status. Information on the current status of this and other ETSI documents is available at

<https://portal.etsi.org/TB/ETSIDeliverableStatus.aspx>

If you find errors in the present document, please send your comment to one of the following services:

<https://portal.etsi.org/People/CommiteeSupportStaff.aspx>

---

**Copyright Notification**

---

No part may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm except as authorized by written permission of ETSI.

The content of the PDF version shall not be modified without the written authorization of ETSI.

The copyright and the foregoing restriction extend to reproduction in all media.

© ETSI 2019.

All rights reserved.

**DECT™**, **PLUGTESTS™**, **UMTS™** and the ETSI logo are trademarks of ETSI registered for the benefit of its Members. **3GPP™** and **LTE™** are trademarks of ETSI registered for the benefit of its Members and of the 3GPP Organizational Partners.

**oneM2M™** logo is a trademark of ETSI registered for the benefit of its Members and of the oneM2M Partners.

**GSM®** and the GSM logo are trademarks registered and owned by the GSM Association.

# Contents

Intellectual Property Rights .....	11
Foreword.....	11
Modal verbs terminology.....	12
Introduction .....	12
1 Scope .....	13
2 References .....	13
2.1 Normative references .....	13
2.2 Informative references.....	14
3 Definition of terms, symbols, abbreviations and formats.....	15
3.1 Terms.....	15
3.2 Symbols.....	17
3.3 Abbreviations .....	17
3.4 Formats.....	18
3.4.1 Format of the table of optional features .....	18
3.4.2 Format of the applicability table .....	19
3.4.3 Status and Notations .....	19
3.4.4 Numbers and Strings.....	20
4 Test environment.....	20
4.1 Table of optional features.....	20
4.2 Applicability table .....	21
4.3 Information provided by the device supplier.....	24
4.4 Test equipment .....	24
4.4.1 Overview .....	24
4.4.2 Measurement/setting uncertainties.....	24
4.4.2.1 VCC .....	24
4.4.2.2 RST .....	25
4.4.2.3 CLK.....	25
4.4.2.4 I/O .....	25
4.4.3 Precision force-inducing contacting device .....	25
4.4.4 Temperature controllable environment.....	25
4.4.5 Temperature measuring device.....	26
4.4.6 Voltage measuring device.....	26
4.4.7 Precision measuring device.....	26
4.4.8 Current measuring device .....	26
4.4.9 Timing Measurements on contact I/O.....	26
4.4.10 Default conditions for DUT operation.....	26
4.5 Test execution .....	27
4.5.1 Parameter variations .....	27
4.5.2 Required application .....	27
4.5.2.1 Application requirements .....	27
4.5.2.2 Required application files .....	27
4.5.2.2.1 Requirements for file creation and update.....	27
4.5.2.2.2 EF <sub>TRANS16b</sub> .....	27
4.5.2.2.3 EF <sub>LF4R20b</sub> .....	28
4.5.2.2.4 EF <sub>LF4R10b</sub> .....	28
4.5.2.2.5 EF <sub>CYC4R3b</sub> .....	29
4.5.2.2.6 DF on ADF (Application DF) level.....	29
4.5.2.2.7 EF <sub>SUBTRANS</sub> .....	30
4.5.2.2.8 EF <sub>SUBLF</sub> .....	30
4.5.2.2.9 EF <sub>SUBCYC</sub> .....	31
4.6 Pass criterion .....	31

5	Conformance Requirements .....	31
5.1	Conformance requirement naming .....	31
5.2	Physical characteristics.....	32
5.3	Electrical specifications of the UICC - Terminal interface .....	32
5.4	Initial communication establishment procedures .....	34
5.5	Transmission protocols.....	35
5.6	Application and file structure .....	39
5.7	Security features .....	44
5.8	Structure of commands and responses.....	46
5.9	Commands.....	47
5.10	Transmission oriented commands .....	55
5.11	Application independent files.....	55
5.12	Application independent protocol .....	55
5.13	Support of APDU-based UICC applications over USB .....	56
6	Test cases.....	56
6.1	Introduction .....	56
6.2	Physical characteristic tests .....	57
6.2.1	Dimensions of the UICC card.....	57
6.2.1.1	Test execution .....	57
6.2.1.2	Initial conditions .....	57
6.2.1.3	Test procedure.....	57
6.2.2	Temperature range for card operation.....	57
6.2.2.1	Test execution .....	57
6.2.2.2	Initial conditions .....	57
6.2.2.3	Test procedure 1.....	58
6.2.2.4	Test procedure 2.....	58
6.3	Electrical specifications of the UICC - Terminal interface .....	58
6.3.1	Supply voltage $V_{CC}$ (contact C1).....	58
6.3.1.1	$V_{CC}$ - Voltage limits .....	58
6.3.1.1.1	Test execution.....	58
6.3.1.1.2	Initial conditions .....	58
6.3.1.1.3	Test procedure .....	58
6.3.1.2	$V_{CC}$ - Idle current limits .....	59
6.3.1.2.1	Test execution.....	59
6.3.1.2.2	Initial conditions .....	59
6.3.1.2.3	Test procedure .....	59
6.3.1.3	$V_{CC}$ - Current limits in clock-stop-mode.....	59
6.3.1.3.1	Test execution.....	59
6.3.1.3.2	Initial conditions .....	59
6.3.1.3.3	Test procedure .....	59
6.3.2	Reset RST (contact C2) .....	60
6.3.2.1	RST - Static operation.....	60
6.3.2.1.1	Test execution.....	60
6.3.2.1.2	Initial conditions .....	60
6.3.2.2	Test procedure.....	60
6.3.3	Programming voltage $V_{pp}$ (contact C6) .....	60
6.3.3.1	$V_{pp}$ - Static operation .....	60
6.3.3.1.1	Test execution.....	60
6.3.3.1.2	Initial conditions .....	60
6.3.3.1.3	Test procedure 1 .....	61
6.3.3.1.4	Test procedure 2 .....	61
6.3.4	Clock CLK (contact C3).....	61
6.3.4.1	Frequency and duty cycle.....	61
6.3.4.1.1	Test execution.....	61
6.3.4.1.2	Initial conditions .....	61
6.3.4.1.3	Test procedure .....	62
6.3.4.2	Voltage and current .....	62
6.3.4.2.1	Test execution.....	62
6.3.4.2.2	Initial conditions .....	62
6.3.4.2.3	Test procedure .....	62

6.3.5	I/O (contact C7) .....	63
6.3.5.1	Voltage and current .....	63
6.3.5.1.1	Test execution.....	63
6.3.5.1.2	Initial conditions .....	63
6.3.5.1.3	Test procedure 1 .....	63
6.3.5.1.4	Test procedure 2 .....	64
6.3.5.1.5	Test procedure 3 .....	64
6.4	Initial communication establishment procedure.....	65
6.4.1	Supply voltage switching.....	65
6.4.1.1	Supply voltage classes.....	65
6.4.1.2	Power consumption of the UICC during ATR.....	65
6.4.1.2.1	Test execution.....	65
6.4.1.2.2	Initial conditions.....	65
6.4.1.2.3	Test procedure .....	65
6.4.1.3	Application related electrical parameters .....	65
6.4.1.3.1	Test execution.....	65
6.4.1.3.2	Initial conditions.....	65
6.4.1.3.3	Test procedure .....	66
6.4.2	ATR content.....	66
6.4.2.1	ATR - Major capabilities .....	66
6.4.2.1.1	Test execution.....	66
6.4.2.1.2	Initial conditions .....	66
6.4.2.1.3	Test procedure .....	66
6.4.2.2	ATR - Speed enhancement.....	66
6.4.2.2.1	Test execution.....	66
6.4.2.2.2	Initial conditions .....	66
6.4.2.2.3	Test procedure .....	67
6.4.2.3	Global Interface bytes .....	67
6.4.2.3.1	Test execution.....	67
6.4.2.3.2	Initial conditions .....	67
6.4.2.3.3	Test procedure .....	67
6.4.3	PPS procedure.....	67
6.4.3.1	Test execution .....	67
6.4.3.2	Initial conditions .....	67
6.4.3.3	Test procedure.....	68
6.4.4	Reset procedures .....	68
6.4.4.1	Test execution .....	68
6.4.4.2	Initial conditions .....	68
6.4.4.3	Test procedure 1 .....	68
6.4.4.4	Test procedure 2 .....	69
6.4.4.5	Test procedure 3 .....	69
6.4.4.6	Test procedure 4.....	69
6.4.5	Clock stop mode .....	69
6.4.5.1	Test execution .....	69
6.4.5.2	Initial conditions .....	69
6.4.5.3	Test procedure.....	70
6.4.6	Bit/character duration and sampling time .....	70
6.4.7	Error handling .....	70
6.4.7.1	Test execution .....	70
6.4.7.2	Initial conditions .....	70
6.4.7.3	Test procedure.....	70
6.4.8	Compatibility .....	70
6.4.8.1	Test execution .....	70
6.5	Transmission Protocols .....	71
6.5.1	Physical Layer .....	71
6.5.1.1	Test execution .....	71
6.5.2	Data Link Layer.....	71
6.5.2.1	Character Frame .....	71
6.5.2.1.1	Test execution.....	71
6.5.2.1.2	Initial conditions .....	71
6.5.2.1.3	Test procedure .....	71
6.5.2.2	Transmission Protocol T = 0 .....	72

6.5.2.2.1	Test execution.....	72
6.5.2.2.2	Initial conditions.....	72
6.5.2.2.3	Test procedure.....	73
6.5.2.3	Transmission Protocol T = 1.....	73
6.5.2.3.1	Timing and specific options for blocks sent with T = 1.....	73
6.5.2.3.2	Block frame structure.....	76
6.5.2.3.3	Error free operation.....	78
6.5.2.3.4	Error Handling for T = 1.....	78
6.5.2.3.5	Chaining.....	79
6.5.3	Transport Layer.....	80
6.5.3.1	Transportation of an APDU using T = 0.....	80
6.5.3.1.1	Purpose.....	80
6.5.3.1.2	Case 1 command.....	80
6.5.3.1.3	Case 2 command.....	81
6.5.3.1.4	Case 3.....	81
6.5.3.1.5	Case 4.....	82
6.5.3.1.6	Use of Procedure Bytes '61xx' and '6Cxx'.....	83
6.5.3.2	Transportation of an APDU using T = 1.....	84
6.5.3.2.1	Purpose.....	84
6.5.3.2.2	Case 1.....	84
6.5.3.2.3	Case 2.....	84
6.5.3.2.4	Case 3.....	85
6.5.3.2.5	Case 4.....	85
6.5.4	Application Layer.....	86
6.6	Application and File structure.....	86
6.6.1	Purpose.....	86
6.6.2	UICC Application structure.....	86
6.6.2.1	Test execution.....	86
6.6.2.2	Initial conditions.....	86
6.6.2.3	Test procedure.....	86
6.6.3	File types.....	87
6.6.3.1	Dedicated files.....	87
6.6.3.2	Elementary files.....	87
6.6.3.2.1	Introduction.....	87
6.6.3.2.2	Transparent EF.....	87
6.6.3.2.3	Linear fixed EF.....	87
6.6.3.2.4	Cyclic EF.....	88
6.6.3.2.5	BER-TLV structure EF.....	90
6.6.4	File referencing.....	90
6.6.5	Methods for selecting a file.....	90
6.6.5.1	SELECT by File Identifier Referencing.....	90
6.6.5.1.1	Test execution.....	90
6.6.5.1.2	Initial conditions.....	90
6.6.5.1.3	Test procedure.....	90
6.6.5.2	SELECT by Path Referencing.....	91
6.6.5.2.1	Test execution.....	91
6.6.5.2.2	Initial conditions.....	91
6.6.5.2.3	Test procedure.....	91
6.6.5.3	Short File Identifier.....	91
6.6.5.3.1	Test execution.....	91
6.6.5.3.2	Initial conditions.....	91
6.6.5.3.3	Test procedure.....	91
6.6.6	Application characteristic.....	92
6.6.6.1	Explicit Application selection.....	92
6.6.6.1.1	SELECT by DF Name.....	92
6.6.6.1.2	SELECT by partial DF Name.....	92
6.6.6.2	Application session activation.....	93
6.6.6.2.1	Test execution.....	93
6.6.6.2.2	Initial conditions.....	93
6.6.6.2.3	Test procedure.....	94
6.6.6.3	Application session termination.....	94
6.6.6.3.1	Test execution.....	94

6.6.6.3.2	Initial conditions .....	94
6.6.6.3.3	Test procedure 1 .....	94
6.6.6.3.4	Test procedure 2 .....	94
6.6.6.3.5	Test procedure 3 .....	95
6.6.6.3.6	Test procedure 4 .....	95
6.6.6.3.7	Test procedure 5 .....	95
6.6.6.4	Application session reset .....	95
6.6.6.4.1	Test execution .....	95
6.6.6.4.2	Initial conditions .....	96
6.6.6.4.3	Test procedure .....	96
6.6.7	Reservation of file IDs .....	96
6.6.7.1	Test execution .....	96
6.6.7.2	Initial conditions .....	96
6.6.7.3	Test procedure 1 .....	96
6.6.7.4	Test procedure 2 .....	96
6.6.7.5	Test procedure 3 .....	97
6.6.8	Logical channels .....	97
6.6.8.1	No Logical Channel Support .....	97
6.6.8.1.1	Test execution .....	97
6.6.8.1.2	Initial conditions .....	97
6.6.8.1.3	Test procedure .....	97
6.6.8.2	Logical Channels - Basic Behaviour .....	97
6.6.8.2.1	Test execution .....	97
6.6.8.2.2	Initial conditions .....	97
6.6.8.2.3	Test procedure 1 .....	98
6.6.8.2.4	Test procedure 2 .....	99
6.6.8.3	Opening a Logical Channel from the Basic Channel .....	99
6.6.8.3.1	Test execution .....	99
6.6.8.3.2	Initial conditions .....	99
6.6.8.3.3	Test procedure .....	99
6.6.8.4	Opening a Logical Channel from a Non-Basic Channel .....	99
6.6.8.4.1	Test execution .....	99
6.6.8.4.2	Initial conditions .....	100
6.6.8.4.3	Test procedure .....	100
6.6.8.5	Opening a Logical Channel on Non-Shareable Files .....	100
6.6.8.5.1	Test execution .....	100
6.6.8.5.2	Initial conditions .....	100
6.6.8.5.3	Test procedure .....	101
6.6.8.6	Logical Channels and Shareable Files .....	101
6.6.8.6.1	Test execution .....	101
6.6.8.6.2	Initial conditions .....	101
6.6.8.6.3	Test procedure 1- (non-shareable files) .....	102
6.6.8.6.4	Test procedure 2 - (shareable files) .....	102
6.6.8.7	Command Interdependencies .....	103
6.6.8.7.1	Test execution .....	103
6.6.8.7.2	Initial conditions .....	103
6.6.8.7.3	Test procedure .....	103
6.6.8.8	Consistency of File Updates .....	104
6.6.8.8.1	Test execution .....	104
6.6.8.8.2	Initial conditions .....	104
6.6.8.8.3	Test procedure .....	104
6.7	Security features .....	105
6.7.1	Foreword .....	105
6.7.2	Supported security features .....	105
6.7.2.1	Test execution .....	105
6.7.2.2	Initial conditions .....	105
6.7.2.3	Test procedure 1 .....	106
6.7.2.4	Test procedure 2 .....	106
6.7.3	Security architecture .....	106
6.7.3.1	Test execution .....	106
6.7.3.2	Initial conditions .....	106
6.7.3.3	Test procedure 1 .....	107

6.7.3.4	Test procedure 2.....	107
6.7.4	Security environment.....	107
6.7.4.1	Test execution .....	107
6.7.4.2	Initial conditions .....	107
6.7.4.3	Test procedure.....	108
6.7.5	PIN definitions.....	109
6.7.5.1	Test execution .....	109
6.7.5.2	Initial conditions .....	109
6.7.5.3	Test procedure 1.....	110
6.7.5.4	Test procedure 2.....	110
6.7.5.5	Test procedure 3.....	110
6.7.6	PIN and key reference relationship.....	110
6.7.6.1	Test execution .....	110
6.7.6.2	Initial conditions .....	111
6.7.6.3	Test procedure 1.....	111
6.7.6.4	Test procedure 2.....	112
6.8	Structure of commands and responses.....	113
6.8.1	Purpose .....	113
6.8.2	Mapping principles .....	113
6.8.2.1	Test execution .....	113
6.8.2.2	Initial conditions .....	113
6.8.2.3	Test procedure.....	114
6.8.3	Response APDU Structure.....	115
6.8.3.1	Status Conditions Returned by the UICC.....	115
6.8.3.1.1	Test execution.....	115
6.8.3.1.2	Initial conditions .....	115
6.8.3.1.3	Test procedure .....	115
6.9	Commands.....	116
6.9.1	Generic Commands.....	116
6.9.1.1	SELECT.....	116
6.9.1.1.1	Test execution.....	116
6.9.1.1.2	Initial conditions .....	116
6.9.1.1.3	Test procedure 1 .....	117
6.9.1.1.4	Test procedure 2 .....	118
6.9.1.2	STATUS .....	118
6.9.1.2.1	Test execution.....	118
6.9.1.2.2	Initial conditions .....	118
6.9.1.2.3	Test procedure .....	119
6.9.1.3	READ BINARY .....	120
6.9.1.3.1	Test execution.....	120
6.9.1.3.2	Initial conditions .....	120
6.9.1.3.3	Test procedure .....	120
6.9.1.4	UPDATE BINARY.....	121
6.9.1.4.1	Test execution.....	121
6.9.1.4.2	Method of test Initial conditions.....	121
6.9.1.4.3	Test procedure .....	121
6.9.1.5	READ RECORD.....	122
6.9.1.5.1	Test execution.....	122
6.9.1.5.2	Initial conditions .....	122
6.9.1.5.3	Test procedure 1 (CURRENT and ABSOLUTE mode).....	122
6.9.1.5.4	Test procedure 2 (NEXT and PREVIOUS mode).....	123
6.9.1.5.5	Test procedure 3 (SFI referencing).....	124
6.9.1.6	UPDATE RECORD.....	124
6.9.1.6.1	Test execution.....	124
6.9.1.6.2	Initial conditions .....	125
6.9.1.6.3	Test procedure 1 (CURRENT and ABSOLUTE mode).....	125
6.9.1.6.4	Test procedure 2 (NEXT and PREVIOUS mode).....	126
6.9.1.6.5	Test procedure 3 (SFI referencing).....	127
6.9.1.7	SEARCH RECORD.....	127
6.9.1.7.1	Test execution.....	127
6.9.1.7.2	Initial condition .....	127
6.9.1.7.3	Test procedure 1 (simple search).....	127



6.9.1.7.4	Test procedure 2 (enhanced search) .....	129
6.9.1.7.5	Test procedure 3 (SFI).....	131
6.9.1.7.6	Test procedure 4 (Only applicable for T = 1 protocol).....	132
6.9.1.8	INCREASE .....	132
6.9.1.8.1	Test execution.....	132
6.9.1.8.2	Initial condition .....	132
6.9.1.8.3	Test procedure .....	132
6.9.1.9	VERIFY PIN.....	133
6.9.1.9.1	Test execution.....	133
6.9.1.9.2	Initial conditions .....	133
6.9.1.9.3	Test procedure 1 .....	133
6.9.1.9.4	Test procedure 2 .....	134
6.9.1.9.5	Test procedure 3 .....	135
6.9.1.10	CHANGE PIN.....	135
6.9.1.10.1	Test execution.....	135
6.9.1.10.2	Initial conditions .....	135
6.9.1.10.3	Test procedure 1 .....	135
6.9.1.10.4	Test procedure 2 .....	136
6.9.1.11	DISABLE PIN .....	136
6.9.1.11.1	Test execution.....	136
6.9.1.11.2	Initial conditions .....	136
6.9.1.11.3	Test procedure 1 .....	137
6.9.1.12	ENABLE PIN .....	138
6.9.1.12.1	Test execution.....	138
6.9.1.12.2	Initial conditions .....	138
6.9.1.12.3	Test procedure 1 .....	138
6.9.1.13	UNBLOCK PIN .....	139
6.9.1.13.1	Test execution.....	139
6.9.1.13.2	Initial conditions .....	139
6.9.1.13.3	Test procedure 1 .....	140
6.9.1.13.4	Test procedure 2 (Destructive test).....	141
6.9.1.13.5	Test procedure 3 .....	141
6.9.1.13.6	Test procedure 4 .....	142
6.9.1.14	DEACTIVATE FILE.....	142
6.9.1.14.1	Foreword .....	142
6.9.1.14.2	Test execution.....	142
6.9.1.14.3	Initial conditions .....	142
6.9.1.14.4	Test procedure 1 .....	142
6.9.1.15	ACTIVATE FILE .....	144
6.9.1.15.1	Foreword .....	144
6.9.1.15.2	Test execution.....	144
6.9.1.15.3	Initial conditions .....	144
6.9.1.15.4	Test procedure .....	144
6.9.1.16	AUTHENTICATE .....	145
6.9.1.17	MANAGE CHANNEL .....	146
6.9.1.18	GET CHALLENGE .....	146
6.9.1.18.1	Foreword .....	146
6.9.1.18.2	Test execution.....	146
6.9.1.18.3	Initial conditions .....	146
6.9.1.18.4	Test procedure .....	146
6.9.2	Data Oriented Commands.....	146
6.9.2.1	RETRIEVE DATA .....	146
6.9.2.1.1	Test execution.....	146
6.9.2.1.2	Initial conditions .....	147
6.9.2.1.3	Test procedure 1 (basic) .....	147
6.9.2.1.4	Test procedure 2 (interleaving and aborting).....	148
6.9.2.1.5	Test procedure 3 (retransmitting) .....	149
6.9.2.2	SET DATA .....	150
6.9.2.2.1	Test execution.....	150
6.9.2.2.2	Initial conditions .....	150
6.9.2.2.3	Test procedure 1 (basic) .....	150
6.9.2.2.4	Test procedure 2 (interleaving and aborting).....	152

6.9.2.2.5	Test procedure 3 (retransmitting) .....	154
6.9.2.2.6	Test procedure 4 (segmentation of data).....	154
6.9.2.3	BER-TLV structure files .....	155
6.9.2.3.1	Purpose .....	155
6.9.2.3.2	Test execution.....	155
6.9.2.3.3	Initial conditions .....	155
6.9.2.3.4	Initial conditions 1 (usage of '5C').....	155
6.9.2.3.5	Test procedure 2 (supported tag values) .....	156
6.9.2.3.6	Test procedure 3 (FCP) .....	156
6.9.2.4	Logical channel interactions.....	157
6.9.2.4.1	Purpose .....	157
6.9.2.4.2	Test execution.....	157
6.9.2.4.3	Initial conditions .....	157
6.9.2.4.4	Test procedure 1 (management of tag pointers) .....	158
6.9.2.4.5	Test procedure 2 (concurrent access to data object) .....	159
6.9.2.4.6	Test procedure 3 (usage of '5C') .....	160
6.10	Transmission Oriented Commands .....	161
6.10.1	T = 0 specific commands .....	161
6.10.1.1	GET RESPONSE.....	161
6.10.1.1.1	Test execution.....	161
6.10.1.1.2	Initial conditions .....	161
6.10.1.1.3	Test procedure .....	161
6.11	Application independent files.....	161
6.11.1	Purpose .....	161
6.11.2	Test execution .....	161
6.11.3	Initial conditions .....	162
6.11.4	Test procedure .....	162
<b>Annex A (informative):</b>	<b>List of test cases for each conformance requirement.....</b>	<b>163</b>
<b>Annex B (informative):</b>	<b>Bibliography .....</b>	<b>164</b>
<b>Annex C (informative):</b>	<b>Change history .....</b>	<b>165</b>
History .....		166

---

# Intellectual Property Rights

## Essential patents

IPRs essential or potentially essential to normative deliverables may have been declared to ETSI. The information pertaining to these essential IPRs, if any, is publicly available for **ETSI members and non-members**, and can be found in ETSI SR 000 314: "*Intellectual Property Rights (IPRs); Essential, or potentially Essential, IPRs notified to ETSI in respect of ETSI standards*", which is available from the ETSI Secretariat. Latest updates are available on the ETSI Web server (<https://ipr.etsi.org/>).

Pursuant to the ETSI IPR Policy, no investigation, including IPR searches, has been carried out by ETSI. No guarantee can be given as to the existence of other IPRs not referenced in ETSI SR 000 314 (or the updates on the ETSI Web server) which are, or may be, or may become, essential to the present document.

## Trademarks

The present document may include trademarks and/or tradenames which are asserted and/or registered by their owners. ETSI claims no ownership of these except for any which are indicated as being the property of ETSI, and conveys no right to use or reproduce any trademark and/or tradename. Mention of those trademarks in the present document does not constitute an endorsement by ETSI of products, services or organizations associated with those trademarks.

---

# Foreword

This Technical Specification (TS) has been produced by ETSI Technical Committee Smart Card Platform (SCP).

It is based on work originally done in the 3GPP in TSG-terminals WG3.

The contents of the present document are subject to continuing work within TC SCP and may change following formal TC SCP approval. If TC SCP modifies the contents of the present document, it will then be republished by ETSI with an identifying change of release date and an increase in version number as follows:

Version x.y.z

where:

- x the first digit:
  - 0 early working draft;
  - 1 presented to TC SCP for information;
  - 2 presented to TC SCP for approval;
  - 3 or greater indicates TC SCP approved document under change control.
- y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.
- z the third digit is incremented when editorial only changes have been incorporated in the document.

The present document is part 2 of a multi-part deliverable covering the Test specification for the Terminal/Integrated Circuit Card (ICC) interface, as identified below:

Part 1: "Terminal features";

**Part 2: "UICC 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).

"must" and "must not" are **NOT** allowed in ETSI deliverables except when used in direct citation.

---

## Introduction

The present document defines test cases for the UICC relating to the Terminal/UICC interface, as specified in ETSI TS 102 221 [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.

Application specific tests for applications residing on an UICC are specified in ETSI TS 131 121 [3].

**ITeH STANDARD PREVIEW**  
(standards.iteh.ai)  
Full standard:  
<https://standards.iteh.ai/catalog/standards/sist/d83e69fb-9dd7-4c7c-aede-5a12d25f233d/etsi-ts-102-230-2-v10.0.0-2019-06>

---

# 1 Scope

The present document covers the minimum characteristics which are considered necessary for the UICC in order to provide compliance to ETSI TS 102 221 [1].

The present document specifies the test cases for:

- the electrical characteristics of the UICC;
- the initial communication establishment and the transport protocols;
- the communication layers between the UICC and the UICC-enabled terminal.

Test cases for the USB ICC relating to ETSI TS 102 221 [1] interface as well as test cases for SWP/HCI relating to ETSI TS 102 613 [19] and ETSI TS 102 622 [i.1] are out of scope of the present document.

---

## 2 References

### 2.1 Normative references

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

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

Referenced documents which are not found to be publicly available in the expected location might be found at <https://docbox.etsi.org/Reference/>.

NOTE: While any hyperlinks included in this clause were valid at the time of publication, ETSI cannot guarantee their long term validity.

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

- [1] ETSI TS 102 221: "Smart Cards; UICC-Terminal interface; Physical and logical characteristics".
- [2] ETSI TS 121 111: "Universal Mobile Telecommunications System (UMTS); USIM and IC card requirements (3GPP TS 21.111 Release 5)".
- [3] ETSI TS 131 121: "Universal Mobile Telecommunications System (UMTS); LTE; UICC-terminal interface; Universal Subscriber Identity Module (USIM) application test specification (3GPP TS 31.121)".
- [4] ISO/IEC 9646-7: "Information technology -- Open Systems Interconnection -- Conformance testing methodology and framework -- Part 7: Implementation Conformance Statements".
- [5] ETSI TS 102 223: "Smart Cards; Card Application Toolkit (CAT)".
- [6] Void.
- [7] ISO/IEC 7810: "Identification cards -- Physical characteristics".
- [8] ISO/IEC 7811-1: "Identification cards -- Recording technique -- Part 1: Embossing".
- [9] ISO/IEC 7816-1: "Identification cards - Integrated circuit cards -- Part 1: Cards with contacts -- Physical characteristics".
- [10] ISO/IEC 7816-2: "Identification cards -- Integrated circuit cards -- Part 2: Cards with contacts -- Dimensions and location of the contacts".