ETSI TS 131 102 V17.9.0 (2023-04)

Universal Mobile Telecommunications System (UMTS);
LTE;
5G;
Characteristics of the Universal Subscriber Identity Module (USIM) application
(3GPP TS 31.102 version 17.9.0 Release 17)

iTeh STANDARD PREVIEW
(standards.iteh.ai)
https://standards.iteh.ai/catalog/standards/sist/45b75531-d843-4925-905a-

Reference
RTS/TSGC-0631102vh90

Keywords
5G,LTE,UMTS

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 - APE 7112B
Association à but non lucratif enregistrée à la
Sous-Préfecture de Grasse (06) N° w061004871

Important notice

The present document can be downloaded from:
https://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.

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

If you find a security vulnerability in the present document, please report it through our
Coordinated Vulnerability Disclosure Program:
https://www.etsi.org/standards/coordinated-vulnerability-disclosure

Notice of disclaimer & limitation of liability

The information provided in the present deliverable is directed solely to professionals who have the appropriate degree of experience to understand and interpret its content in accordance with generally accepted engineering or other professional standard and applicable regulations.
No recommendation as to products and services or vendors is made or should be implied.
No representation or warranty is made that this deliverable is technically accurate or sufficient or conforms to any law and/or governmental rule and/or regulation and further, no representation or warranty is made of merchantability or fitness for any particular purpose or against infringement of intellectual property rights.
In no event shall ETSI be held liable for loss of profits or any other incidental or consequential damages.

Any software contained in this deliverable is provided "AS IS" with no warranties, express or implied, including but not limited to, the warranties of merchantability, fitness for a particular purpose and non-infringement of intellectual property rights and ETSI shall not be held liable in any event for any damages whatsoever (including, without limitation, damages for loss of profits, business interruption, loss of information, or any other pecuniary loss) arising out of or related to the use of or inability to use the software.

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 2023.
All rights reserved.

Intellectual Property Rights

Essential patents

IPRs essential or potentially essential to normative deliverables may have been declared to ETSI. The declarations pertaining to these essential IPRs, if any, are 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 Directives including the ETSI IPR Policy, no investigation regarding the essentiality of IPRs, 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.

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.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

Legal Notice

This Technical Specification (TS) has been produced by ETSI 3rd Generation Partnership Project (3GPP).

https://standards.iteh.ai/catalog/standards/sist/45b27c31-d843-4925-995a-

The present document may refer to technical specifications or reports using their 3GPP identities. These shall be interpreted as being references to the corresponding ETSI deliverables.

ts-131-102-v17.9.0-2023-04

The cross reference between 3GPP and ETSI identities can be found under https://webapp.etsi.org/key/queryform.asp.

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.

Contents

Intellectual Property Rights 2
Legal Notice 2
Modal verbs terminology 2
Foreword 13
Introduction 14
1 Scope 15
2 References 15
3 Definitions, symbols, abbreviations and coding conventions 20
3.1 Definitions 20
3.2 Symbols 20
3.3 Abbreviations 20
3.4 Coding Conventions 23
4 Contents of the Files 23
4.1 Contents of the EFs at the MF level 23
4.2 Contents of files at the USIM ADF (Application DF) level 23
4.2.1 EF_{LI} (Language Indication) 24
4.2.2 EF_{IMSI} (IMSI) 24
4.2.3 EF_{Keys} (Ciphering and Integrity Keys) 25
4.2.4 EF_{KeysPS} (Ciphering and Integrity Keys for Packet Switched domain) 26
4.2.5 $EF_{PLMNwAcT}$ (User controlled PLMN selector with Access Technology) 26
4.2.6 EF_{HPPLMN} (Higher Priority PLMN search period) 28
4.2.7 EF_{ACMmax} (ACM maximum value) 29
4.2.8 EF_{UST} (USIM Service Table) 30
4.2.9 EF_{ACM} (Accumulated Call Meter) 34
4.2.10 EF_{GID1} (Group Identifier Level 1) 34
4.2.11 EF_{GID2} (Group Identifier Level 2) 34
4.2.12 EF_{SPN} (Service Provider Name) 35
4.2.13 EF_{PUCT} (Price per Unit and Currency Table) 36
4.2.14 EF_{CBMI} (Cell Broadcast Message identifier selection) 37
4.2.15 EF_{ACC} (Access Control Class) 37
4.2.16 EF_{FPLMN} (Forbidden PLMNs) 38
4.2.17 EF_{LOCI} (Location Information) 38
4.2.18 EF_{AD} (Administrative Data) 39
4.2.19 Void 42
4.2.20 EF_{CBMID} (Cell Broadcast Message Identifier for Data Download) 42
4.2.21 EF_{ECC} (Emergency Call Codes) 42
4.2.22 EF_{CBMIR} (Cell Broadcast Message Identifier Range selection) 43
4.2.23 EF_{PSLOCI} (Packet Switched location information) 44
4.2.24 EF_{FDN} (Fixed Dialling Numbers) 45
4.2.25 EF_{SMS} (Short messages) 46
4.2.26 EF_{MSISDN} (MSISDN) 47
4.2.27 EF_{SMSP} (Short message service parameters) 48
4.2.28 EF_{SMSS} (SMS status) 49
4.2.29 EF_{SDN} (Service Dialling Numbers) 50
4.2.30 EF_{EXT2} (Extension2) 51
4.2.31 EF_{EXT3} (Extension3) 51
4.2.32 EF_{SMSR} (Short message status reports) 51
4.2.33 EF_{ICI} (Incoming Call Information) 52
4.2.34 EF_{OCI} (Outgoing Call Information) 55
4.2.35 EF_{ICT} (Incoming Call Timer) 56
4.2.36 EF_{OCT} (Outgoing Call Timer) 57
4.2.37 EF_{EXT5} (Extension5) 57
4.2.38 EF_{CCP2} (Capability Configuration Parameters 2) 58

iTeh Standards (https://standards.iteh.ai) Document Preview
ETSI TS 131 102 V17.9.0 (2023-04)
https://standards.iteh.ai/catalog/standards/sist/45027c51-d845-4923-993a-e5e5b9a1c6aa/etsi-ts-131-102-v17-9-0-2023-04

4.2.39 EF_{eMLPP} (enhanced Multi Level Precedence and Pre-emption) 58
4.2.40 EF_{AaeM} (Automatic Answer for eMLPP Service) 59
4.2.41 Void 60
4.2.42 $EF_{Hiddenkey}$ (Key for hidden phone book entries) 60
4.2.43 Void 61
4.2.44 EF_{BDN} (Barred Dialling Numbers) 61
4.2.45 EF_{EXT4} (Extension4) 61
4.2.46 EF_{CMI} (Comparison Method Information) 62
4.2.47 EF_{EST} (Enabled Services Table) 62
4.2.48 EF_{ACL} (Access Point Name Control List) 63
4.2.49 EF_{DCK} (Depersonalisation Control Keys) 63
4.2.50 EF_{CNL} (Co-operative Network List) 64
4.2.51 $EF_{START-HFN}$ (Initialisation values for Hyperframe number) 65
4.2.52 $EF_{THRESHOLD}$ (Maximum value of START) 66
4.2.53 $EF_{OPLMNwACT}$ (Operator controlled PLMN selector with Access Technology) 66
4.2.54 $EF_{HPLMNwAcT}$ (HPLMN selector with Access Technology) 67
4.2.55 EF_{ARR} (Access Rule Reference) 67
4.2.56 Void 68
4.2.57 EF_{NETPAR} (Network Parameters) 68
4.2.58 EF_{PNN} (PLMN Network Name) 70
4.2.59 EF_{OPL} (Operator PLMN List) 71
4.2.60 EF_{MBDN} (Mailbox Dialling Numbers) 72
4.2.61 EF_{EXT6} (Extension6) 73
4.2.62 EF_{MBI} (Mailbox Identifier) 73
4.2.63 EF_{MWIS} (Message Waiting Indication Status) 74
4.2.64 EF_{CFIS} (Call Forwarding Indication Status) 75
4.2.65 EF_{EXT7} (Extension7) 76
4.2.66 EF_{SPDI} (Service Provider Display Information) 77
4.2.67 EF_{MMSN} (MMS Notification) 78
4.2.68 EF_{EXT8} (Extension 8) 79
4.2.69 EF_{MMSICP} (MMS Issuer Connectivity Parameters) 80
4.2.70 EF_{MMSUP} (MMS User Preferences) 82
4.2.71 EF_{MMSUCP} (MMS User Connectivity Parameters) 83
4.2.72 EF_{NIA} (Network's Indication of Alerting) 83
4.2.73 EF_{VGCS} (Voice Group Call Service) 84
4.2.74 EF_{VGCSS} (Voice Group Call Service Status) 86
4.2.75 EF_{VBS} (Voice Broadcast Service) 86
4.2.76 EF_{VBSS} (Voice Broadcast Service Status) 88
4.2.77 EF_{VGCSCA} (Voice Group Call Service Ciphering Algorithm) 89
4.2.78 EF_{VBSCA} (Voice Broadcast Service Ciphering Algorithm) 90
4.2.79 EF_{GBABP} (GBA Bootstrapping parameters) 90
4.2.80 EF_{MSK} (MBMS Service Keys List) 91
4.2.81 EF_{MUK} (MBMS User Key) 92
4.2.82 Void 93
4.2.83 EF_{GBANL} (GBA NAF List) 93
4.2.84 EF_{EHPLMN} (Equivalent HPLMN) 94
4.2.85 $EF_{EHPLMNPI}$ (Equivalent HPLMN Presentation Indication) 94
4.2.86 $EF_{LRPLMNSI}$ (Last RPLMN Selection Indication) 95
4.2.87 EF_{NAFKCA} (NAF Key Centre Address) 95
4.2.88 EF_{SPNI} (Service Provider Name Icon) 96
4.2.89 EF_{PNNI} (PLMN Network Name Icon) 97
4.2.90 EF_{NCP-IP} (Network Connectivity Parameters for USIM IP connections) 97
4.2.91 $EF_{EPSLOCI}$ (EPS location information) 100
4.2.92 EF_{EPSNSC} (EPS NAS Security Context) 103
4.2.93 EF_{UFC} (USAT Facility Control) 104
4.2.94 $EF_{NASCONFIG}$ (Non Access Stratum Configuration) 105
4.2.95 $EF_{UICCIARI}$ (UICC IARI) 110
4.2.96 EF_{PWS} (Public Warning System) 111
4.2.97 EF_{FDNURI} (Fixed Dialling Numbers URI) 111
4.2.98 EF_{BDNURI} (Barred Dialling Numbers URI) 112
4.2.99 EF_{SDNURI} (Service Dialling Numbers URI) 113

ETSI STANDARD PREVIEW
(standards.iteh.ai)
ETSI TS 131 102 V17.9.0 (2023-04)
https://standards.iteh.ai/catalog/standards/sist/45b27c31-4843-4925-995a-...sist-ts-131-102-v17.9.0-2023-04

4.2.101 EF_{IPS} (IMEI(SV) Pairing Status) 115
4.2.102 EF_{IPD} (IMEI(SV) of Pairing Device) 116
4.2.103 EF_{ePDGId} (Home ePDG Identifier) 117
4.2.104 $EF_{ePDGSelection}$ (ePDG Selection Information) 118
4.2.104a $EF_{ePDGIdEm}$ (Emergency ePDG Identifier) 120
4.2.105 $EF_{ePDGSelectionEm}$ (ePDG Selection Information for Emergency Services) 120
4.2.106 $EF_{FromPreferred}$ (From Preferred) 120
4.2.107 $EF_{IMSConfigData}$ (IMS Configuration Data) 121
4.2.108 $EF_{TVCONFIG}$ (TV Configuration) 121
4.2.109 $EF_{3GPPPSDATAOFF}$ (3GPP PS Data Off) 123
4.2.110 $EF_{3GPPPSDATAOFFservicelist}$ (3GPP PS Data Off Service List) 124
4.2.111 $EF_{XCAPConfigData}$ (XCAP Configuration Data) 124
4.2.112 $EF_{EARFCNList}$ (EARFCN list for MTC/NB-IOT UEs) 125
4.2.113 $EF_{MuDMiDConfigData}$ (MuD and MiD Configuration Data) 126
4.3 DFs at the USIM ADF (Application DF) Level 126
4.4 Contents of DFs at the USIM ADF (Application DF) level 127
4.4.1 Contents of files at the DF SoLSA level 127
4.4.1.1 EF_{SAI} (SoLSA Access Indicator) 127
4.4.1.2 EF_{SLL} (SoLSA LSA List) 128
4.4.1.3 LSA Descriptor files 130
4.4.2 Contents of files at the DF PHONEBOOK level 131
4.4.2.1 EF_{PBR} (Phone Book Reference file) 132
4.4.2.2 EF_{IAP} (Index Administration Phone book) 134
4.4.2.3 EF_{ADN} (Abbreviated dialling numbers) 134
4.4.2.4 EF_{EXT1} (Extension1) 137
4.4.2.5 EF_{PBC} (Phone Book Control) 139
4.4.2.6 EF_{GRP} (Grouping file) 140
4.4.2.7 EF_{AAS} (Additional number Alpha String) 140
4.4.2.8 EF_{GAS} (Grouping information Alpha String) 141
4.4.2.9 EF_{ANR} (Additional Number) 141
4.4.2.10 EF_{SNE} (Second Name Entry) 143
4.4.2.11 EF_{CCP1} (Capability Configuration Parameters 1) 144
4.4.2.12 Phone Book Synchronisation 144
4.4.2.12.1 EF_{UID} (Unique Identifier) 144
4.4.2.12.2 EF_{PSC} (Phone book Synchronisation Counter) 145
4.4.2.12.3 EF_{CC} (Change Counter) 146
4.4.2.12.4 EF_{PUID} (Previous Unique Identifier) 147
4.4.2.13 EF_{EMAIL} (e-mail address) 147
4.4.2.14 Phonebook restrictions 148
4.4.2.15 EF_{PURI} (Phonebook URIs) 148
4.4.3 Contents of files at the DF GSM-ACCESS level (Files required for GSM Access) 149
4.4.3.1 EF_{Kc} (GSM Ciphering key Kc) 150
4.4.3.2 EF_{KcGPRS} (GPRS Ciphering key KcGPRS) 150
4.4.3.3 Void 151
4.4.3.4 EF_{CPBCCH} (CPBCCH Information) 151
4.4.3.5 $EF_{InvScan}$ (Investigation Scan) 152
4.4.4 Contents of files at the MexE level 152
4.4.4.1 $EF_{MexE-ST}$ (MexE Service table) 153
4.4.4.2 EF_{ORPK} (Operator Root Public Key) 153
4.4.4.3 EF_{ARPK} (Administrator Root Public Key) 155
4.4.4.4 EF_{TPRPK} (Third Party Root Public Key) 156
4.4.4.5 EF_{TKCDF} (Trusted Key/Certificates Data Files) 156
4.4.5 Contents of files at the DF WLAN level 157
4.4.5.1 EF_{Pseudo} (Pseudonym) 157
4.4.5.2 $EF_{UPLMNWLAN}$ (User controlled PLMN selector for I-WLAN Access) 158
4.4.5.3 $EF_{OPLMNWLAN}$ (Operator controlled PLMN selector for I-WLAN Access) 158
4.4.5.4 EF_{UWSIDL} (User controlled WLAN Specific Identifier List) 159
4.4.5.5 EF_{OWSIDL} (Operator controlled WLAN Specific IdentifierList) 160
4.4.5.6 EF_{WRI} (WLAN Reauthentication Identity) 160
4.4.5.7 EF_{HWSIDL} (Home I-WLAN Specific Identifier List) 161
4.4.5.8 $EF_{WEHPLMNPI}$ (I-WLAN Equivalent HPLMN Presentation Indication) 162
4.4.5.9 EF_{WHPI} (I-WLAN HPLMN Priority Indication) 162

iTeh STANDARD PREVIEW
(standards.iteh.ai)
ETSI TS 131 102 V17.9.0 (2023-04)
https://standards.iteh.ai/catalog/standards/sist/45b27c31-d843-4925-995a-...
ETSI TS 131 102 V17.9.0 2023-04

4.4.5.10 $EF_{WLRPLMN}$ (I-WLAN Last Registered PLMN) 163
4.4.5.11 $EF_{HPLMNDAI}$ (HPLMN Direct Access Indicator) 163
4.4.6 Contents of files at the DF HNB level 164
4.4.6.1 Introduction 164
4.4.6.2 EF_{ACSGL} (Allowed CSG Lists) 164
4.4.6.3 EF_{CSGT} (CSG Type) 167
4.4.6.4 EF_{HNBN} (Home NodeB Name) 169
4.4.6.5 EF_{OCSGL} (Operator CSG Lists) 169
4.4.6.6 EF_{OCSGT} (Operator CSG Type) 171
4.4.6.7 EF_{OHNBN} (Operator Home NodeB Name) 172
4.4.7 Void 172
4.4.8 Contents of files at the DF ProSe level 172
4.4.8.1 Introduction 172
4.4.8.2 EF_{PROSE_MON} (ProSe Monitoring Parameters) 172
4.4.8.3 EF_{PROSE_ANN} (ProSe Announcing Parameters) 173
4.4.8.4 $EF_{PROSEFUNC}$ (HPLMN ProSe Function) 174
4.4.8.5 $EF_{PROSE_RADIO_COM}$ (ProSe Direct Communication Radio Parameters) 175
4.4.8.6 $EF_{PROSE_RADIO_MON}$ (ProSe Direct Discovery Monitoring Radio Parameters) 177
4.4.8.7 $EF_{PROSE_RADIO_ANN}$ (ProSe Direct Discovery Announcing Radio Parameters) 178
4.4.8.8 EF_{PROSE_POLICY} (ProSe Policy Parameters) 179
4.4.8.9 EF_{PROSE_PLMN} (ProSe PLMN Parameters) 181
4.4.8.10 EF_{PROSE_GC} (ProSe Group Counter) 182
4.4.8.11 EF_{PST} (ProSe Service Table) 184
4.4.8.12 EF_{PROSE_UIRC} (ProSe UsageInformationReportingConfiguration) 184
4.4.8.12 $EF_{PROSE_GM_DISCOVERY}$ (ProSe Group Member Discovery Parameters) 188
4.4.8.13 EF_{PROSE_RELAY} (ProSe Relay Parameters) 189
4.4.8.14 $EF_{PROSE_RELAY_DISCOVERY}$ (ProSe Relay Discovery Parameters) 190
4.4.9 Contents of files at the DF ACDC level 193
4.4.9.1 Introduction 193
4.4.9.2 EF_{ACDC_LIST} (ACDC List) 193
4.4.9.3 $EF_{ACDC_OS_CONFIG}$ (ACDC OS configuration) 194
4.4.10 Contents of files at the DF TV level 195
4.4.10.1 Introduction 195
4.4.10.2 EF_{TVUSD} (TV User Service Description) 195
4.4.11 Contents of files at the DF_{5GS} level 196
4.4.11.1 Introduction 196
4.4.11.2 $EF_{5GS3GPPLOCI}$ (5GS 3GPP location information) 197
4.4.11.3 $EF_{5GSN3GPPLOCI}$ (5GS non-3GPP location information) 198
4.4.11.4 $EF_{5GS3GPPNSC}$ (5GS 3GPP Access NAS Security Context) 199
4.4.11.5 $EF_{5GSN3GPPNSC}$ (5GS non-3GPP Access NAS Security Context) 202
4.4.11.6 $EF_{5GAUTHKEYS}$ (5G authentication keys) 202
4.4.11.7 EF_{UAC_AIC} (UAC Access Identities Configuration) 204
4.4.11.8 $EF_{SUCI_Calc_Info}$ (Subscription Concealed Identifier Calculation Information EF) 205
4.4.11.9 EF_{OPL5G} (5GS Operator PLMN List) 207
4.4.11.10 EF_{SUPI_NAI} (SUPI as Network Access Identifier) 208
4.4.11.11 $EF_{Routing_Indicator}$ (Routing Indicator EF) 209
4.4.11.12 EF_{URSP} (URSP) 210
4.4.11.13 $EF_{TN3GPPSNN}$ (Trusted non-3GPP Serving network names list) 211
4.4.11.14 EF_{CAG} (Pre-configured CAG information list EF) 212
4.4.11.15 $EF_{SOR\text{-}CMCI}$ (Steering Of Roaming - Connected Mode Control Information) 213
4.4.11.16 Void 214
4.4.11.16.1 Void 214
4.4.11.16.2 Void 214
4.4.11.16.3 Void 214
4.4.11.16.4 Void 214
4.4.11.16.5 Void 214
4.4.11.16.6 Void 214
4.4.11.17 EF_{DRI} (Disaster roaming information EF) 214
4.4.11.18 $EF_{5GSEDRX}$ (5GS eDRX Parameters) 215
4.4.11.19 EF_{5GNSWO_CONF} (5G Non-Seamless WLAN Offload configuration) 216
4.4.11.20 $EF_{MCHPPLMN}$ (Multiplier Coefficient for Higher Priority PLMN search) 217
4.4.11.21 $EF_{KAUSF_DERIVATION}$ (K_{AUSF} derivation configuration) 218

ETSI STANDARD PREVIEW
(standards.iteh.ai)
ETSI TS 131 102 V17.9.0 (2023-04)
https://standards.iteh.ai/catalog/standards/sist/45b27c31-d843-4925-995a-...

4.4.12 Contents of files at the DF SNPN level 218
4.4.12.1 Introduction 218
4.4.12.2 EF_{PWS_SNPN} (Public Warning System in SNPNs) 218
4.4.12.3 EF_{NID} (Network Identifier for SNPN) 219
4.4.13 Contents of files at the DF 5G ProSe level 220
4.4.13.1 Introduction 220
4.4.13.2 $EF_{5G_PROSE_ST}$ (5G ProSe Service Table) 220
4.4.13.3 $EF_{5G_PROSE_DD}$ (5G ProSe configuration data for direct discovery) 220
4.4.13.4 $EF_{5G_PROSE_DC}$ (5G ProSe configuration data for direct communication) 224
4.4.13.5 $EF_{5G_PROSE_U2NRU}$ (5G ProSe configuration data for UE-to-network relay UE) 226
4.4.13.6 $EF_{5G_PROSE_RU}$ (5G ProSe configuration data for remote UE) 230
4.4.13.7 $EF_{5G_PROSE_UIR}$ (5G ProSe configuration data for usage information reporting) 233
4.5 Contents of Efs at the TELECOM level 235
4.5.1 EF_{ADN} (Abbreviated dialling numbers) 235
4.5.2 EF_{EXT1} (Extension1) 235
4.5.3 EF_{ECCP} (Extended Capability Configuration Parameter) 236
4.5.4 EF_{SUME} (SetUpMenu Elements) 236
4.5.5 EF_{ARR} (Access Rule Reference) 236
4.5.6 EF_{ICE_DN} (In Case of Emergency – Dialling Number) 236
4.5.7 EF_{ICE_FF} (In Case of Emergency – Free Format) 237
4.5.8 EF_{RMA} (Remote Management Actions) 238
4.5.9 $EF_{PSISMSC}$ (Public Service Identity of the SM-SC) 238
4.6 Contents of DFs at the TELECOM level 238
4.6.0 List of DFs at the TELECOM level 238
4.6.1 Contents of files at the $DF_{GRAPHICS}$ level 239
4.6.1.1 EF_{IMG} (Image) 239
4.6.1.2 EF_{IIDF} (Image Instance Data Files) 240
4.6.1.3 $EF_{ICE_graphics}$ (In Case of Emergency – Graphics) 241
4.6.1.4 Void 242
4.6.1.5 Void 242
4.6.2 Contents of files at the $DF_{PHONEBOOK}$ under the $DF_{TELECOM}$ 242
4.6.3 Contents of files at the $DF_{MULTIMEDIA}$ level 242
4.6.3.1 EF_{MML} (Multimedia Messages List) 242
4.6.3.2 EF_{MMDF} (Multimedia Messages Data File) 244
4.6.4 Contents of files at the DF_{MCS} level 245
4.6.4.1 EF_{MST} (MCS Service Table) 245
4.6.4.2 EF_{MCS_CONFIG} (MCS configuration data) 246
4.6.4.3 Void 247
4.6.4.4 Void 247
4.6.4.5 Void 247
4.6.5 Contents of files at the DF_{V2X} level 247
4.6.5.1 V2X configuration data related files 247
4.6.5.2 EF_{VST} (V2X Service Table) 247
4.6.5.3 EF_{V2X_CONFIG} (V2X configuration data) 248
4.6.5.4 EF_{V2XP_PC5} (V2X data policy over PC5) 248
4.6.5.5 EF_{V2XP_Uu} (V2X data policy over Uu) 250
4.7 Files of USIM 253

5 Application protocol 260
5.1 USIM management procedures 260
5.1.1 Initialisation 261
5.1.1.1 USIM application selection 261
5.1.1.2 USIM initialisation 261
5.1.1.3 GSM related initialisation procedures 262
5.1.2 Session termination 262
5.1.2.1 3G session termination 262
5.1.2.1.1 GSM termination procedures 263
5.1.2.2 3G session reset 263
5.1.3 USIM application closure 263
5.1.4 Emergency call codes 263
5.1.5 Language indication 263
5.1.6 Administrative information request 263

iTeh STANDARD PREVIEW
(standards.iteh.ai)
ETSI TS 131 102 V17.9.0 (2023-04)
https://standards.iteh.ai/catalog/standards/sist/45b27c31-d843-4975-995a-...
SIST-TS-ETSI-TS-131-102-V17-9-0-2023-04

5.1.7 USIM service table request 263
5.1.8 Void 263
5.1.9 UICC presence detection 263
5.1.10 UICC interface in PSM 264
5.1.11 UICC interface during eDRX 264
5.1.12 UICC interface during MICO 265
5.2 USIM security related procedures 265
5.2.1 Authentication algorithms computation 265
5.2.2 IMSI request 265
5.2.3 Access control information request 265
5.2.4 Higher Priority PLMN search period request 266
5.2.5 Location information 266
5.2.6 Cipher and Integrity key 266
5.2.7 Forbidden PLMN 266
5.2.8 Void 266
5.2.9 User Identity Request 266
5.2.10 GSM Cipher key 266
5.2.11 GPRS Cipher key 266
5.2.12 Initialisation value for Hyperframe number 266
5.2.13 Maximum value of START 267
5.2.14 HPLMN selector with Access Technology request 267
5.2.15 Packet Switched Location information 267
5.2.16 Cipher and Integrity key for Packet Switched domain 267
5.2.17 LSA information 267
5.2.18 Voice Group Call Services 267
5.2.19 Voice Broadcast Services 267
5.2.20 Generic Bootstrapping architecture (Bootstrap) 267
5.2.21 Generic Bootstrapping architecture (NAF Derivation) 268
5.2.22 MSK MIKEY Message Reception 268
5.2.23 MTK MIKEY Message Reception 268
5.2.24 Void 268
5.2.25 EHPLMN request 268
5.2.26 Last RPLMN Selection Indication request 268
5.2.29 Non Access Stratum Configuration 268
5.2.30 PWS Configuration 269
5.2.33 SUPI_NAI request 269
5.2.34 URSP request 269
5.2.35 Trusted non-3GPP Serving network name list request 269
5.2.36 Steering of roaming connected mode control information request 269
5.3 Subscription related procedures 270
5.3.1 Phone book procedures 270
5.3.1.1 Initialisation 270
5.3.1.2 Creation/Deletion of information 270
5.3.1.3 Hidden phone book entries 270
5.3.2 Dialling numbers 270
5.3.3 Short messages 272
5.3.4 Advice of charge 272
5.3.5 Capability configuration parameters 273
5.3.6 User controlled PLMN selector with Access Technology 273
5.3.7 Cell broadcast message identifier 273
5.3.8 Group identifier level 1 273
5.3.9 Group identifier level 2 273
5.3.10 Service provider name 273
5.3.11 Enhanced multi level precedence and pre-emption service 274
5.3.12 Cell broadcast message identifier ranges 274
5.3.13 Short message status report 274
5.3.14 APN Control List 274
5.3.15 Depersonalisation Control Keys 275
5.3.16 Co-operative Network List 275
5.3.17 CPBCCH information 275
5.3.18 Investigation Scan 275
5.3.19 Enabled Services Table Request 275

ETSI GS NGP 022 V0.0.1 (2021-04) PRE-PUBLISHED PREVIEW
(https://standards.iteh.ai)
ETSI TS 131 102 V17.9.0 (2023-04)
https://standards.iteh.ai/catalog/standards/sist/45b27c31-4843-4925-995a-...
sist-0216e76e-e6ca-4e31-a102-v17.9.0-2023-04

5.3.20 Operator controlled PLMN selector with Access Technology 275
5.3.21 HPLMN selector with Access Technology 275
5.3.22 Automatic Answer on eMLPP service 276
5.3.23 Network Parameter information 276
5.3.24 PLMN network name 276
5.3.25 Operator PLMN List 276
5.3.26 Message Waiting Indication 276
5.3.27 Call Forwarding Indication Status 276
5.3.28 Service Provider Display Information 276
5.3.29 MMS Notifications 276
5.3.30 MMS Issuer Connectivity Parameters 277
5.3.31 MMS User Preferences 277
5.3.32 MMS User Connectivity Parameters 277
5.3.33 Network's indication of alerting 277
5.3.34 Multimedia Messages Storage 277
5.3.35 Equivalent HPLMN Presentation Indication request 278
5.3.36 NAF Key Centre Address request 278
5.3.37 Service provider name Icon 278
5.3.38 PLMN network name Icon 278
5.3.39 ICE Information request 278
5.3.40 eCall Related Procedures 279
5.3.40.1 eCall Only support 279
5.3.40.2 eCall and Normal call support 279
5.3.40.3 Change of eCall mode 280
5.3.41 SM-over-IP 280
5.3.42 UICC access to IMS 280
5.3.43 TV Configuration 280
5.3.44 3GPP PS Data Off related procedures 280
5.3.45 3GPP PS Data Off service list related procedures 280
5.3.46 EARFCN list for MTC/NB-IOT UEs 280
5.3.47 SUCI Calculation information procedure 281
5.3.48 SUCI Calculation by the USIM procedure 281
5.3.49 Control plane-based Steering of Roaming related procedures 281
5.3.50 5GS Operator PLMN List 281
5.3.51 Routing Indicator procedure for ME 281
5.3.52 5GS eDRX procedure for ME 281
5.3.53 5G NSWO procedure 282
5.4 USAT related procedures 282
5.4.1 Data Download via SMS-PP 282
5.4.2 Image Request 282
5.4.3 Data Download via SMS-CB 282
5.4.4 Call Control by USIM 282
5.4.5 MO-SMS control by USIM 282
5.4.6 Data Download via USSD and USSD application mode 282
5.4.7 Additional TERMINAL PROFILE after UICC activation 282
5.4.8 Terminal Applications 283
5.4.9 Call control on EPS PDN connection by USIM 283
5.4.10 Communication Control for IMS by USIM 283
5.4.11 USAT Facility Control 283
5.4.12 Extended Terminal Applications 283
5.4.13 USAT application pairing procedure 283
5.4.14 Call control on PDU Session by USIM 284
5.5 MexE related procedures 284
5.5.1 MexE ST 284
5.5.2 Operator root public key 284
5.5.3 Administrator root public key 284
5.5.4 Third Party root public key(s) 284
5.5.5 Trusted Key/Certificates Data Files 284
5.6 WLAN related procedures 285
5.6.1 WLAN Selection related Procedures 285
5.6.2 WLAN PLMN Selection related procedures 285
5.6.3 WLAN access authentication related procedures 285

iTeh STANDARD PREVIEW
(standards.iteh.ai)
ETSI TS 131 102 V17.9.0 (2023-04)
https://standards.iteh.ai/catalog/standards/sist/45b27c31-d843-4925-995a-...
ETSI TS 131 102 V17.9.0 (2023-04)

5.6.4 WLAN access re-authentication related procedures 285
5.7 Network Connectivity Parameters for UICC IP connections related procedures 285
5.8 H(e)NB related procedures 285
5.8.1 CSG Access Control procedures 285
5.8.2 CSG Type related procedures 286
5.8.3 HNB name display related procedures 286
5.9 ProSe related procedures 287
5.9.1 ProSe Direct Discovery Provisioning parameters 287
5.9.2 HPLMN ProSe Function address 287
5.9.3 ProSe direct communication related Procedures 287
5.9.4 ProSe direct discovery related Procedures 287
5.9.5 ProSe direct communication related Procedures 287
5.9.6 ProSe direct communication related Procedures 287
5.9.7 ProSe Group Counter related Procedures 287
5.9.8 ProSe Usage Information Reporting Configuration related Procedures 288
5.9.9 ProSe Group Member Discovery related Procedures 288
5.9.10 ProSe Relay related Procedures 288
5.10 ePDG Selection related procedures 288
5.10.1 Home ePDG Identifier 288
5.10.2 ePDG Selection Information 288
5.10.3 ePDG configuration information configured but empty 288
5.11 ACDC related procedures 289
5.11.1 ACDC Configuration 289
5.12 MCS related procedures 289
5.12.1 MCS configuration 289
5.12.2 Void 289
5.12.3 Void 289
5.12.4 Void 289
5.13 ePDG Selection for Emergency Services related procedures 289
5.13.1 Emergency ePDG Identifier 289
5.13.2 ePDG Selection Information for Emergency Services 289
5.13.3 ePDG configuration information for Emergency Services configured but empty 290
5.13.4 From Preferred related procedures 290
5.13.5 IMS Configuration Data related procedures 290
5.13.6 XCAP Configuration Data related procedures 290
5.13.7 Multi-device and multi-identity related procedures 290
5.14 V2X related procedures 290
5.14.1 V2X configuration 290
5.14.2 V2X data policy over PC5 290
5.14.3 V2X data policy over Uu 290
5.15 UAC Access Identities related procedures 291
5.15.1 UAC Access Identities Configuration 291
5.16 CAG selection related procedures 291
5.16.1 Pre-configured CAG information list reading procedure for ME 291
5.17 5G ProSe related procedures 291
5.17.1 5G ProSe configuration data for direct discovery 291
5.17.2 5G ProSe configuration data for direct communication 291
5.17.3 5G ProSe configuration data for UE-to-network relay UE 291
5.17.4 5G ProSe configuration data for remote UE 291
5.17.5 5G ProSe configuration data for usage information reporting 291
5.18 Disaster roaming related procedures 292
5.18.1 Disaster roaming information reading procedure for ME 292
5.19 SNPN (Standalone NPN) related procedures 292
5.19.1 PWS configuration in SNPN. 292
5.19.2 K_{AUSF} derivation configuration 292
5.20 NG-RAN satellite access related procedures 292
5.20.1 Multiplier coefficient for Higher Priority PLMN search via NG-RAN satellite access for ME 292

6 Security features 292
6.1 Authentication and key agreement procedure 292
6.2 Cryptographic Functions 293
6.3 GSM Conversion Functions 293

iTeh STANDARD PREVIEW
(standards.iteh.ai)
ETSI TS 131 102 V17.9.0 (2023-04)
https://standards.iteh.ai/catalog/standards/sist/45b27c31-d843-4925-995a-...
ETSI TS 131 102 V17.9.0 (2023-04)

6.4 User verification and file access conditions 293
7 USIM Commands 294
7.1 AUTHENTICATE 294
7.1.1 Command description 294
7.1.1.1 3G/EPS/5G security context 294
7.1.1.2 GSM security context 295
7.1.1.3 VGCS/VBS security context 295
7.1.1.4 GBA security context (Bootstrapping Mode) 296
7.1.1.5 GBA security context (NAF Derivation Mode) 297
7.1.1.6 MBMS security context (MSK Update Mode) 297
7.1.1.7 Void 299
7.1.1.8 MBMS security context (MTK Generation Mode) 299
7.1.1.9 MBMS security context (MSK Deletion Mode) 299
7.1.1.10 MBMS security context (MUK Deletion Mode) 300
7.1.1.11 Local Key Establishment security context (Key Derivation mode) 300
7.1.1.12 Local Key Establishment security context (Key Availability Check mode) 301
7.1.2 Command parameters and data 301
7.1.2.1 GSM/3G/EPS/5G security context 303
7.1.2.2 VGCS/VBS security context 304
7.1.2.3 GBA security context (Bootstrapping Mode) 304
7.1.2.4 GBA security context (NAF Derivation Mode) 305
7.1.2.5 MBMS security context (All Modes) 305
7.1.2.6 Local Key Establishment security context (All Modes) 306
7.1.2.6.1 Local Key Establishment security context (Key Derivation mode) 306
7.1.2.6.2 Local Key Establishment security context (Key Availability Check mode) 308
7.2 Void 309
7.3 Status Conditions Returned by the USIM 309
7.3.1 Security management 309
7.3.2 Status Words of the Commands 310
7.4 Optional commands 311
7.5 GET IDENTITY 311
7.5.1 Command description 311
7.5.1.1 SUCI context 311
7.5.1.2 SUCI 5G NSWO context 312
7.5.2 Command parameters and data 313
7.5.2.1 SUCI context 313
7.5.2.2 SUCI 5G NSWO context 315
8 Void 316
Annex A (informative): EF changes via Data Download or USAT applications 317
Annex B (normative): Image Coding Schemes 322
B.1 Basic Image Coding Scheme 322
B.2 Colour Image Coding Scheme 323
B.3 Colour Image Coding Scheme with Transparency 324
Annex C (informative): Structure of the Network parameters TLV objects 325
Annex D (informative): Tags defined in 31.102 326
Annex E (informative): Suggested contents of the EFs at pre-personalization 334
Annex F (informative): Examples of coding of LSA Descriptor files for SoLSA 339
Annex G (informative): Phonebook Example 340
Annex H (normative): List of SFI Values 344
H.1 List of SFI Values at the USIM ADF Level 344

iTeh STANDARD PREVIEW
(standards.iteh.ai)
ETSI TS 131 102 V17.9.0 (2023-04)
https://standards.iteh.ai/catalog/standards/sist/45027c51-d845-4925-995a-e5de92aba75e/etsi-ts-131-102-v17-9-0-2023-04

H.2 List of SFI Values at the DF GSM-ACCESS Level....344
H.3 List of SFI Values at the DF WLAN Level....345
H.4 List of SFI Values at the DF HNB Level....345
H.5 List of SFI Values at the DF ProSe Level....345
H.6 List of SFI Values at the DF ACDC Level....345
H.7 List of SFI Values at the DF MCS Level....346
H.8 List of SFI Values at the DF V2X Level....346
H.9 List of SFI Values at the DF 5GS Level....346
H.10 List of SFI Values at the DF 5G ProSe Level....347
H.11 List of SFI Values at the DF SNPN Level....347

Annex I (informative): USIM Application Session Activation/Termination....348

Annex J (informative): Example of MMS coding....349
J.1 Coding example for MMS User Preferences....349
J.2 Coding Example for MMS Issuer/User Connectivity Parameters....349

Annex K (informative): Examples of VService_Id coding....351

Annex L (normative): USIM-INI and USIM-RN for Relay Nodes....352
L.1 Introduction....352
L.2 Application selection procedure....352
L.3 Secure channel operation....353
L.4 Support of commands....353
L.5 Storage of certificates....353
L.6 Relay Node files support....353
L.6.1 USIM-INI Files....353
L.6.1.1 EF_{CERT} (UICC Certificate)....353
L.6.2 USIM-RN Files....354
L.6.2.1 eF_{RNid} (Relay Node identifier)....354
L.6.2.2 EF_{SCCmax} (maximum value of Secure Channel Counter)....355

Annex M (normative): USIM application dedicated for IOPS....356
M.1 Introduction....356
M.2 Features of the USIM dedicated for IOPS....356
M.3 Selection mechanisms....356

Annex N (normative): USIM supporting non-IMSI SUPI Type....357
N.1 Introduction....357
N.2 Features of USIM supporting non-IMSI SUPI type....357
N.3 Application selection procedure....357

Annex O (informative): Examples of NAS security contexts management in multiple registrations....358

Annex P (informative): Change history....360

History....367

iTeh STANDARD PREVIEW
(standards.iteh.ai)
ETSI TS 131 102 V17.9.0 (2023-04)
https://standards.iteh.ai/catalog/standards/sist/45b27c31-d843-4925-995a-e5de9216a75e/etsi-ts-131-102-v17-9-0-2023-04

Foreword

This Technical Specification has been produced by the 3rd Generation Partnership Project (3GPP).

The contents of the present document are subject to continuing work within the TSG and may change following formal TSG approval. Should the TSG modify the contents of the present document, it will be re-released by the TSG with an identifying change of release date and an increase in version number as follows:

Version x.y.z

where:

- x the first digit:
  - 1 presented to TSG for information;
  - 2 presented to TSG for approval;
  - 3 or greater indicates TSG 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.

In the present document, modal verbs have the following meanings:

shall indicates a mandatory requirement to do something

shall not indicates an interdiction (prohibition) to do something

iTeh STANDARD PREVIEW
(standards.iteh.ai)

The constructions "shall" and "shall not" are confined to the context of normative provisions, and do not appear in Technical Reports.

ETSI TS 131 102 V17.9.0 (2023-04)

The constructions "must" and "must not" are not used as substitutes for "shall" and "shall not". Their use is avoided insofar as possible, and they are not used in a normative context except in a direct citation from an external, referenced, non-3GPP document, or so as to maintain continuity of style when extending or modifying the provisions of such a referenced document.

should indicates a recommendation to do something

should not indicates a recommendation not to do something

may indicates permission to do something

need not indicates permission not to do something

The construction "may not" is ambiguous and is not used in normative elements. The unambiguous constructions "might not" or "shall not" are used instead, depending upon the meaning intended.

can indicates that something is possible

cannot indicates that something is impossible

The constructions "can" and "cannot" are not substitutes for "may" and "need not".

will indicates that something is certain or expected to happen as a result of action taken by an agency the behaviour of which is outside the scope of the present document

will not indicates that something is certain or expected not to happen as a result of action taken by an agency the behaviour of which is outside the scope of the present document

might indicates a likelihood that something will happen as a result of action taken by some agency the behaviour of which is outside the scope of the present document

might not indicates a likelihood that something will not happen as a result of action taken by some agency the behaviour of which is outside the scope of the present document

In addition:

is (or any other verb in the indicative mood) indicates a statement of fact

is not (or any other negative verb in the indicative mood) indicates a statement of fact

The constructions "is" and "is not" do not indicate requirements.

Introduction

The present document defines the Universal Subscriber Identity Module (USIM) application. This application resides on the UICC, an IC card specified in TS 31.101 [11]. In particular, TS 31.101 [11] specifies the application independent properties of the UICC/terminal interface such as the physical characteristics and the logical structure.

TS 31.101 [11] is one of the core documents for this specification and is therefore referenced in many places in the present document.

iTeh STANDARD PREVIEW
(standards.iteh.ai)
ETSI TS 131 102 V17.9.0 (2023-04)
https://standards.iteh.ai/catalog/standards/sist/45b27c31-d843-4925-995a-e5de9216a75e/etsi-ts-131-102-v17-9-0-2023-04