

The title of the document, 'SIM Alliance LTE UICC profile', is written in a large, orange, sans-serif font. The background of the page is decorated with several faint, circular icons representing various concepts like a dollar sign, a book, a globe, a person, a leaf, a padlock, and a double-headed arrow.

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## Summary

This document is a collection of requirements for optimal support of LTE/EPS networks by UICC

This document contains information that is proprietary to SIMalliance.

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## ▶ Introduction

### ▶ Document Purpose

This document is a collection of requirements for optimal support of LTE/EPS networks by UICC. The document uses ETSI SCP and 3GPP Release 8 as the baseline release and it clarifies the optional parts and some implementation issues.

It also refers to relevant documents provided by OMA, OMTP and GSMA SmartSIM. The document defines two main sets of requirements:

#### **SIMalliance UICC0: Fundamental** profile

This profile defines the basic features which are needed in order for the users to enjoy minimum benefit of LTE network. Fundamental doesn't mean Mandatory on a standard point of view but defines key features to start with LTE technology.

#### **SIMalliance UICC1: Recommended** profile

This profile defines the optimum features which are needed in order for the users to enjoy fully the services provided by High capacity networks.

#### **SIMalliance UICC2: Premium** profile

This profile defines the enhanced features which can improve the end user experience with for example mass storage capability in the UICC.

In addition, operators might desire to implement services which require features which aren't covered in this document:

- Proximity transaction services using the NFC technology.
- Mobile-TV channels with encryption.



## ➤ Document scope

This document classifies fundamental, recommended and premium features depending on the network operator need. Some fundamental features could become mandatory based on the LTE deployment strategy of the MNO.

Feature	UICC0 (Fundamental)	UICC1 (Recommended)	UICC2 (Premium)
EPS network authentication	X	X	X
UMTS authentication / GSM full backward compatibility	X	X	X
IMS network access	X	X	X
i-WLAN access	-	X	X
3GPP / 3GPP2 interworking (*)	X	X	X
USIM Toolkit enhancement	X	X	X
Smart Card Web Server	-	X	X
OTA features	X	X	X
High Capacity Storage	-	-	X
Generic bootstrapping architecture (GBA)	-	X	X
Extended Authentication protocol (EAP)	-	X	X
High Speed Protocol	-	X	X
NFC		X	X
Femtocell provisioning information	X	X	X
Extension of PLMN list with Access Technology	X	X	X
Others features	-	-	X

(\*) Apply to 3GPP2 Operators



## ▶ EPS network Authentication

Access to EPS network can be managed in two different ways:

A Release 8 USIM (or LTE USIM) is an USIM which includes LTE files specified in the Release 8 of the 3GPP 31.102 specification. The USIM files system supports:

- EMM parameters storage,
- And EPS Location Information

A Legacy USIM is an USIM used for UTRAN technology, where the EMM Parameter Storage and EPS Location Information files are not present in the file structure.

The recommendation is to use a Release 8 USIM to store EPS security context instead of ME storage. UICC keeps security context, allows fast reconnection to LTE network and avoid regular or systematic key derivation.

### ▶ LTE Authentication with a LTE USIM

The TS 31.102 Release 8 and TS 33.401 specifications describe a new set of files dedicated for LTE authentication.

UICC usage requirements	Parameter/Comment	Support	
		Optional	Mandatory
Features			
USIM Service Table Service N <sup>85</sup>	Informs the ME that the UICC is able to store the E-UTRAN Security Context.		X
ADF USIM /EF EPSNSC	Contains EPS NAS Security Context information. K_ASME (Access Security Management Entity) is master key derived from CK IK, and used to derive subsequent keys		X
ADF USIM/ EF EPSLOC1	Contains EPS location information: Globally Unique Temporary Identifier (GUTI) Last visited registered Tracking Area Identity (TAI) EPS update status.		X
EPS AKA is the authentication and key agreement procedure that shall be used for E-UTRAN network access.	3GPP TS 33.401 release 8 minimum		X



## ▶ GSM/UMTS Authentication

As UMTS also provides a solution to the weaknesses of GSM security and adds security features for new 3G radio access networks and services, with the LTE USIM it is possible to have GSM and UMTS authenticated access. This maximizes the compatibility between GSM and UMTS for the cases that LTE subscribers roaming in a GSM or UMTS network.

The full backward compatibility feature of the LTE UICC offers a GSM secure access to the subscribers. Allowing authentication to UMTS networks, the USIM is a mandatory secure element of the LTE environment, ensuring safe and protected access to mobile LTE and IMS networks.

USIM Commands for Authentication can be used in contexts like:

- 3G security context, when 3G authentication vectors (RAND, XRES, CK, IK, AUTN) are available (i.e. the UE is located in the UTRAN, or in a GSM radio access network which is connected to a 3G or 3G capable VLR/SGSN).
- GSM security context, when GSM authentication data are available only (i.e. the UE is located in the GSM radio access network which is connected to a non-3G capable VLR/SGSN).

### ▶ GSM and UMTS Authentication within the LTE USIM

In the 3GPP TS 31.102 specifications, the EFs regarding the GSM Access level are required for the USIM application to be able to access service through a GSM network.

To gain GSM access, the USIM provides GSM c2 and c3 conversion functions. These functions derive the required GSM parameters (SRES, cipher key Kc) from available 3G parameters.

UICC usage requirements	Parameter/Comment	Support	
		Optional	Mandatory
Features			
ADF USIM	Stores USIM file system		X
GSM Access through: Service N°27 of the USIM Service Table.	This service indicates the presence of this DF and thus the support of a GSM access.		X
GSM Security Context through the Service N° 38 of the USIM Service Table.	USIM calculates the GSM response parameters SRES and KC, using the defined conversion functions.		X
Location Information: EF <sub>LocI</sub>	Containing: - TMSI: Temporary Mobile Subscriber Identity; - LAI: Location Area Information; - Location update status.		X



UMTS AKA: Authentication and Key Agreement	TS 31.102 release 6.		X
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## ▶ IMS network access

To take the benefit of LTE bandwidth, more and more Web based applications will be deployed. IMS is the most convenient way to deploy/access/maintain and control applications in an interoperable way.

The TS 31.103 & TS 31.101 defines the ISIM application on UICC for access to IMS services. A UICC can hold several ISIMs.

Depending on the ISIM configuration, USIM credentials can be shared with the ISIM using File Sharing mechanism.

### ▶ ISIM

Depending on standard specification release the ISIM implements some features more relevant for LTE. A UICC embedding at least an ISIM release 6 should be the minimum requirement.

UICC usage requirements	Parameter/Comment	Support	
		Optional	Mandatory
Features			
<b>ISIM Release 5</b>			X
ADF ISIM	Stores ISIM file system		X
ADF ISIM\EF IMPI (IMS private user identity)	contains the private user identity of the user.		X
ADF ISIM\EF Domain (Home Network Domain Name)	contains the home operator's network domain name		X
ADF ISIM\EF IMPU	contains one or more public user identity of the user		X
ADF ISIM\EF AD	mode of operation (normal, type approval ...)		X
ADF ISIM\EF ARR	contains the access rules for files located under the ISIM ADF		X
Mutual Authenticate 3G in IMS context	ISIM perform a AKA scheme to access IMS services		X
<b>ISIM Release 6</b>			X
ADF ISIM\EF IST (ISIM Service Table)	Table of ISIM related services		X



ADF ISIM\ EFP-CSCF (P-CSCF Address)	for non 3GPP devices, not able to get the IMS proxy address from the access network procedures (GRPS PDP context activation or DHCP)		X
ADF ISIM\ EF GBABP (GBA Bootstrapping parameters)	contains the AKA Random challenge (RAND) and Bootstrapping Transaction Identifier (B-TID) associated with a GBA bootstrapping procedure.		X
ADF ISIM\ EF GBANL (GBA NAF list)	Contains the list of NAF_ID (Network Application Function – i.e: web service) and B-TID associated to a GBA NAF derivation procedure.		X
Mutual Authenticate in GBA (Bootstrapping mode) security context	ISIM performs a dedicated AKA for GBA.		X
Mutual Authenticate in GBA (NAF derivation) security context	ISIM derives results of the bootstrap using IMPI value.		X
Mutual Authentication HTTP Digest security context	ISIM furnishes response/session key to a realm/nonce/cnonce challenge according RFC2617	X	
<b>ISIM Release 7</b>		X	
ADF ISIM\ EF IST (ISIM Service Table)	Service n°4: GBA-based Local Key Establishment Mechanism	X	
ADF ISIM\ EF NAFKCA (NAF Key Center Address)	Contains one or more NAF Key Center Addresses.	X	
Mutual Authenticate with security context Local Key Establishment (Key derivation mode)” and “(Key availability check mode)” for GBA new key establishment procedure.		X	
<b>ISIM Release 8</b>		X	
ADF ISIM\ EF IST (ISIM Service Table)	Service n°5: Support of P-CSCF discovery for IMS Local Break Out. A 3gPP device can now use EFP-CSCF in case of IMS local break Out	X	





## I-WLAN Access

Wireless LAN may interact with LTE as an untrusted non 3GPP network. In this case, the following requirements regarding files structure and USAT commands shall be considered.

### I-WLAN file system

This clause describes the additional files that are used for WLAN purposes: TS 31.102

$DF_{WLAN}$  shall be present at the  $ADF_{USIM}$  level if either of the services n°59, n°60, n°61, n°62, n°63, n°66, n°81, n°82, n°83, n°84 or n°88 are "available" in the corresponding  $EF_{UST}$  (USIM Service Table).

UICC usage requirements	Parameter/Comment	Support	
		Optional	Mandatory
Features			
ADF USIM\DF WLAN			X
ADF USIM\DF WLAN\EF Pseudo	Pseudonym		X
ADF USIM\DF WLAN\EF UPLMNWLAN	User Controlled PLMN Selector for WLAN Access		X
ADF USIM\DF WLAN\EF OPLMNWLAN	Operator Controlled PLMN Selector for WLAN Access		X
ADF USIM\DF WLAN\EF UWSIDL	User Controlled WLAN Specific identifier List		X
ADF USIM\DF WLAN\EF OWSIDL	Operator Controlled WLAN Specific identifier List		X
ADF USIM\DF WLAN\EF WRI	WLAN Re-authentication Identity		X
ADF USIM\DF WLAN\EF HWSIDL	Home I-WLAN Specific Identifier List		X
ADF USIM\DF WLAN\EF WEHPLMNPI	I-WLAN Equivalent HPLMN Presentation Indication		X
ADF USIM\DF WLAN\EF WHPI	I-WLAN HPLMN Priority Indication		X
ADF USIM\DF WLAN\EF WLRPLMN	I-WLAN Last Registered PLMN		X
ADF USIM\DF WLAN\EF HPLMNDAI	HPLMN Direct Access Indicator		X



## ▶ 3GPP/3GPP2 interworking

Some 3GPP2 Mobile Network Operators require a UICC capable to support LTE and CDMA. In this case, the requirements below shall be taken into account.

The UICC shall be CSIM compatible as described in 3GPP2 C.S0065-B and support OTASP/PA stack to interact with CSIM for PRL and NAM parameters download as described in 3GPP2 C.S0016-C

The CSIM application is a Network Access Application similar to the USIM hosted by the UICC providing access to CDMA2000/EVDO networks. The CSIM application supplies an extensive list of features and functionalities required to operate independently on legacy CDMA and EVDO networks.

Overview of the CDMA features supported :

- Roaming, SID/NID Lists
- Algorithms such as CAVE, Diffie-Hellman, CHAP, etc.
- OTA mechanisms
- Akey and SSD (Shared Subscriber Data)
- AKA related functionalities
- Broadcast and MMS
- Simple IP and Mobile IP functions
- Location Control Services

All the following CSIM fields & procedures shall be supported :

EF LI Language Indication  
EF SMS Short Messages  
EF SMSP Short Messages Services Parameters  
EF SSFC Supplementary Services Features Code Table  
EF SPN CDMA Home Service Provider Home Name  
EF MDN Mobile Directory Number  
EF PUZL Preferred User Zone List  
EF HRPDCAP HRPD Access Authentication Capability Parameters  
EF HRPDUPP HRPD Access Authentication User Profile Parameters  
EF CSSPR Current SSPR P\_Rev  
EF EPRL Extended Preferred Roaming List  
EF 3GCIK 3G Cipher and Integrity Keys  
EF ICI Incoming Call Information  
EF OCI Outgoing Call Information

Open Market Handset (OMH) support in CSIM: while specifications are still being developed in 3GPP2, support for OMH files should be considered for future evolution and roaming to OMH enabled networks.

In order to manage the interworking between 3GPP and 3GPP2 networks the 3GPP2 C.S0074 and 3GPP TS31.102 specifications define a set of files allowing the UICC to store information about the management of devices supporting both technologies.

### ▶ Multi Mode Device Detection and 3GPP/3GPP2 System Selection

The following UICC parameters take precedence over the one present in the terminal. When multiple systems are available, MM device shall be able to automatically select the most preferred system.

UICC usage requirements	Parameter/Comment	Support
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Features		Optional	Mandatory
DF MMSS			<b>X</b>
EF MLPL (MMSS Location Associated Priority List)	List of grouping based on location specific information. PLML allows the base station to specify the MSPL to be used in a location grouping.		<b>X</b>
EF MSPL (MMSS System Priority List)	List of prioritized cellular systems that assist the device in selecting one		<b>X</b>
EF MMSSMODE (MMSS Mode Settings)	Defines the selection mode: Automatic, Semi-Automatic or Manual		<b>X</b>



## ▶ USIM Toolkit enhancement

The UICC shall support the Toolkit as described in:

- Card Application Toolkit ETSI TS 102 223
- USIM Application Toolkit 3GPP TS 31.111
- CDMA Card Application Toolkit 3GPP2 C.S0035

With LTE introduction some SIM Toolkit proactive commands and events have been improved or created to take into account this new technology. These new features allow the evolution of existing applications managing Roaming over network and technologies, access to new devices such as Femtocells and localization of the end user.

### ▶ Enhanced event and proactive command

UICC usage requirements	Parameter/Comment	Support	
		Optional	Mandatory
Features			
CSG cell selection Event	From Release 9, CSG Cell Selection Event to inform the UICC on leaving or entering into CSG cell coverage or detecting a change in its current CSG cell selection status.		X
Discovery of surrounding CSG cells in Provide Local Information	From Release 9		X
Call control on EPS PDN connection by USIM	From Release 8 Call control by USIM extended in LTE for EPS PDN connection activation. Before any EPS PDN connection activation, the ME shall first pass the corresponding data to USIM		X
Service n°87 in the EF UST	related to the procedures and commands for Call control on EPS PDN connection by USIM are defined in 3GPP TS 31.111		X
Network Rejection Event	From Release 8, Network Rejection Event UTRAN in the event list: the envelope is different from the GERAN/UTRAN network to the E-UTRAN.		X



Steering of Roaming for I-WLAN	From Release 8, Extension of Refresh command, to allow steering of roaming for I-WLAN. It is a mechanism that allows MNO to remotely "force" a handset to run a network selection procedure, with appropriate parameters		X
Geographical Location Request	From Release 8 Geographical Location Request provides a solution to acquire GPS localization information from the device.		X
EPS support for OPEN CHANNEL BIP command	Bearer Type eUTRAN must be supported in addition to legacy modes (GPRS, UTRAN, etc...)		X
Provide Local information extended to support LTE.	Location Information : ME provides to UICC information on MNC, MCC, LAC/TAC, Cell ID, extended cell ID E-UTRAN cell ID Network measurement result: extended to E-UTRAN Current access technology: extended to E-UTRAN		X



## Smart Card Web Server

The Smart Card Web Server (SCWS) is a possibility for a network operator to offer value added services based on the UICC in a sophisticated and user friendly way. The SCWS relies in principle on browser technologies and re-uses the browser functionality of the mobile handset to enable UICC applications to interact with the user. This allows to present UICC based applications in a rich graphical and user friendly environment.

### SCWS V1.1

The current version of the SCWS is V1.1 which includes improvements of functionalities and feature already specified in version 1.0. There have been no new features added. The main changes have been made to clarify and optimize the remote administration of the SCWS

UICC usage requirements	Parameter/Comment	Support	
		Optional	Mandatory
Features			
BIP transport protocol			X
	UICC in server mode: HTTP support		X
	UICC in server mode: HTTP over PSK-TLS support		X
	UICC in client mode for remote administration		X
TCP/IP protocol		X	
	HTTP support (in case TCP/IP implemented, HTTP support is mandatory)	X	
	HTTP over TLS support	X	
Transport Layer Security			X
	Symmetric Keys (PSK-TLS)		X
	Public Key pair and device certificate	X	
SCWS remote administration			X
	lightweight administration protocol		X
	full administration protocol		X
User or principal authentication to the SCWS			
	Basic authentication (RFC2617)		X
	Digest authentication (RFC 2617)	X	



Access Policy Control Enforcer	APC enforcer is an optional access control feature that can especially be used in terminals with open OS to protect against attacks from malicious downloaded software.	<b>X</b>	
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## ▶ OTA features

With LTE technology and the introduction of the all IP environment now OTA exchanges for administration between the UICC and Server are done through HTTP. Each card acts as an HTTP client and the OTA platform as an HTTP server.

Now the OTA success rate and efficiency of massive updates is maximized by combining TCP/IP reliability with pull mode from the UICC.

LTE provides a high potential of OTA applications in line with the new expectations of subscribers:

- automatic and immediate access to LTE voice and multimedia services (ISIM personalization with end user public identities)
- SCWS services personalization and administration
- access (IMS subscription) and
- traffic preferences
- Remote applet and file management

## ▶ OTA over HTTP

UICC usage requirements	Parameter/Comment	Support	
		Optional	Mandatory
Features			
OTA over HTTP(S) for RAM / RFM	The UICC shall support ETSI TS 102 225 and ETSI TS 102 226 Release 9		X
Indefinite length coding for remote command and response structures	The UICC shall support ETSI TS 102 226 Release 9		X
Bearer interface transport level	The UICC shall support interface transport level: - '01' for UDP/CAT-TP for backward compatibility purpose. - '02' for TCP	X	X





## ▶ Generic Bootstrapping Architecture (GBA)

Generic Bootstrapping Architecture (GBA) enables the authentication of a user with a valid identity on a Home Location Register (HLR) or a Home Subscriber Server (HSS).

The user authentication is instantiated by a shared secret between the smartcard inside the mobile phone and the HLR/HSS, all by making a network component challenge the SIM card and verify that the answer is similar by the one predicted by the HLR/HSS.

### ▶ Generic Bootstrapping Architecture within a LTE USIM

The 3GPP TS 33.220 specifications describe a set of features to enable Generic Bootstrapping Architecture in the UICC.

UICC usage requirements	Parameter/Comment	Support	
		Optional	Mandatory
Features			
USIM Service Table: Service N°68	Informs the ME that the UICC supports GBA authentication.		X
EF <sub>IST</sub> : ISIM Service Table	If the ME supports ISIM applications, the ME SHALL be able to manage the security contexts described in 3GPP TS 31.103 [12]: IMS AKA, HTTP Digest, GBA.		X
EF <sub>GBABP</sub> : GBA Bootstrapping parameters	This EF contains the AKA Random challenge (RAND) and Bootstrapping Transaction Identifier (B-TID) associated with a GBA bootstrapping procedure.		X
EF <sub>GBANL</sub> : GBA NAF List	This EF contains the list of NAF_ID and B-TID associated to a GBA NAF derivation procedure.		X

## ▶ Extended Authentication protocol (EAP)

EAP (Extensible Authentication Protocol) is a framework for transporting authentication protocols suitable for identifying mobile subscribers over IP networks (ADSL and Wi-Fi).

The peer is composed of several components:

- The UICC EAP Framework provides information to the terminal about the existing UICC applications that provide UICC EAP clients.
- A UICC application provides one or more UICC EAP clients.
- A UICC EAP client implements one specific EAP method.



The use of EAP applications provides an enhanced confidentiality and authentication of the user. In addition, this application permits operators to benefit from roaming management and unified billing.

➤ **EAP authentication capabilities in the LTE USIM**

The ETSI TS 102 310 specifications document defines additional features that shall be provided by the UICC to support EAP authentication capabilities.

The goal of these features is to adapt the UICC to provide support of different EAP methods, ensuring interoperability between the UICC and any terminal independently of their respective manufacturers.

UICC usage requirements	Parameter/Comment	Support	
		Optional	Mandatory
Features			
EAP Clients Discovery	When a UICC application implements one or more EAP clients, EF <sub>DIR</sub> corresponding record shall contain EAP related Data Objects.		X
EAP-capable-application selection	The terminal shall use the information in EF <sub>DIR</sub> file if available to present the list of EAP-capable applications to the user or to any application that may request an EAP authentication.		X
EAP Derived Keys: EF <sub>EAPKEYS</sub>	Containing the key material derived after a successful EAP authentication: - Master Session Key (MSK) - Extended Master Session Key (EMSK)		X
EAP Authentication STATUS: EF <sub>EAPSTATUS</sub>	Authentication status related to the EAP client supported by the application.		X

EAP AKA shall be implemented according to 3GPPTS 33.234



## ▶ High Capacity Storage

In former UICCs (SIM/USIM/CSIM), the typical range of free Non Volatile Memory (NVM) available for data storage (i.e. file system and applications) was up to 1 MB. Now, with the new features added by LTE-and the capability of the UICC to provide more storage capacity, the UICC can be transformed into a real service enabler device.

The size we are talking about will depend on the use case; we can summarize them in:

- LTE-enabled UICC cards with mandatory features and, eventually, some of the recommended ones
- UICC cards with SCWS-based services
- UICC cards with multimedia content – USB token

### ▶ Ranges of Capacity Storage

The following table gives an overview of feasible ranges of free NVM in the UICC depending on the use case

UICC usage requirements	Parameter/Comment	Support	
		Optional	Mandatory
Features			
1MB-8MB	The UICC is able to store more content to enable new services based on USIM Toolkit or, specially, based on the SCWS		X
From 16 MB to GBytes	The UICC becomes a Mass Storage device, so the user can use it to store his personal multimedia content (pictures, music, etc.). Also, the MNO can pre-store multimedia content in the UICC for information or Marketing purposes.	X	



## ▶ High Speed protocol

The High Speed Protocol - USB IC as defined in ETSI TS 102 600 - allows to overcome the speed limitations of ISO to access the SCWS or the high density memory in the card.

There are three classes defined for USB IC, which address the following functionalities:

1. *ICCD (Integrate Circuit Card Devices)*: required for standard APDU exchange with the UICC
2. *EEM (Ethernet Emulation Mode)*: Required for SCWS support, and to provide remote connectivity to the UICC via HTTP(s) for administration purposes (SCWS, large files management or application management).
3. *Mass Storage*: Required to access the high density memory in the UICC. Via this class, the UICC will be recognized by the device as a USB memory token.

### ▶ High Speed Protocol classes

The table below defines the priority of the USB IC classes defined in ETSI TS 102 600.

UICC usage requirements	Parameter/Comment	Support	
		Optional	Mandatory
Features			
ICCD (Integrate Circuit Card Devices)	When USB IC is supported in the UICC, this class will substitute the regular ISO/ APDU communication in former UICCs		X
EEM (Ethernet Emulation Mode)	Required to improve the user experience with the SCWS. It will imply a significant increase in the SCWS performance compared to the ISO/BIP approach.		X
Mass Storage	Required to make available the multimedia content in the UICC	X	
ADF USIM \ EF NCP-IP	This EF contains the network activation parameters to be used by the ME for establishing a data channel for UICC remote IP connectivity, using High Speed Protocol (see ETSI TS 102 483)		X



## ▶ NFC

Near Field Communications (NFC) moves the game on yet further. Often running in tandem with LTE roll-outs, NFC's ability to allow a mobile device to securely 'talk' to a similarly connected device within four or five centimeters of one another has opened up a host of contactless payment opportunities that have already found their way onto the high street.

Also by integrating NFC and Smart Card Web Server (SCWS) technologies in the UICC, the operator is able to offer its subscriber a seamless experience between the virtual and real worlds. The Smart Card Web Server technology allows the instant display of web look & feel, secure and standard NFC value-added services. It provides enhanced security between the local web site (located in the UICC)

NFC technology transforms the mobile phone into a universal and secure remote control to access multiple localized and contextualized services. Without doubt, NFC will revolutionize the way we interact with our environment. And with LTE migration and NFC roll-outs coinciding in many markets, it makes business sense to examine the possibilities of the technologies together.

## ▶ Femtocell (HeNB) provisioning Information

A Release 8 TS 31.102 UICC shall implement the storage of user H(e)NB parameters.

A Release 9 TS 31.102 UICC shall implement the storage of operator H(e)NB parameters.

UICC information take precedence over the ones store in the Mobile Equipment:

- Allowed Closed Subscriber Group lists
- Close Subscriber Group Type
- Home NodeB Name

### ▶ H(e)NodeB provisioning in TS 31.102 Release 8

UICC usage requirements	Parameter/Comment	Support	
		Optional	Mandatory
Features			
H(e)NB related files in USIM TS 31.102 Release 8	Definition of H(e)NB parameters		X
EF UST Service N <sup>86</sup> Allowed CSG Lists and corresponding indications	DF_HNB must be present under ADF USIM if service is activated.		X
ADF USIM/DF_HNB id 5F50	DF H(e)NB		X
EFACSGL (Allowed CSG Lists) id 4F81	Allowed CSG Lists		X
EFCSGT (CSG Type) id 4F82	CSG Type		X
EFHNB (Home NodeB Name) id 4F83	Home NodeB Name		X



## ➤ H(e)NodeB provisioning in TS 31.102 Release 9

In addition to User H(e)B parameters the TS 31.102 Release 9 defines the same parameters for the Mobile Network Operator.

UICC usage requirements	Parameter/Comment	Support	
		Optional	Mandatory
Features			
H(e)NB related files in USIM TS 31.102 Release 9	Definition of Operator H(e)NB parameters		X
EF UST Service N°90 Operator CSG List and corresponding indications	DF_HNB must be present under ADF USIM if service is activated.		X
ADF USIM/DF_HNB id 5F50	DF H(e)NB		X
EFACSGL (Operator CSG List) id 4F84	Operator CSG List		X
EFCSGT (Operator CSG Type) id 4F85	Operator CSG Type		X
EFHNBN (Operator Home NodeB Name) id 4F86	Operator Home NodeB Name		X



## ▶ Extension of PLMN List with Access Technology to LTE

As per 3GPP TS 23.122, the device shall check the content of the right PLMN to attach the network. LTE has been introduced in the list of reachable radio technology of those files.

The PLMN with Access Technologies are given in a preferred order so the first ones shall be selected (if available) before the last ones.

### ▶ PLMN List with Access Technology

EF PLMNwAct, EF OPLMNwAct, EF HPLMNwAct are defined in the TS 31.102 Access Technology Identifier in PLMN files is extended to support E-UTRAN radio access technology.

UICC usage requirements	Parameter/Comment	Support	
		Optional	Mandatory
Features			
ADF USIM/EFPLMNwAct	This information is determined by the user and defines the preferred PLMNs of the user in priority order (See Note1)		X
ADF USIM/EFOPLMNwAct	This information is determined by the operator and defines the preferred PLMNs in priority order (See Note1)		X
ADF USIM/EFHPLMNwAct	The HPLMN Selector with access technology data field contains the HPLMN code, or codes together with the respected access technology in priority order		X

Note 1: EFPLMNwAct and EFOPLMNwAct shall manage at least 80 networks and preferably 100 in their list of networks



## Appendix

### Other useful features

UICC usage requirements	Parameter/Comment	Support	
		Optional	Mandatory
Features			
DF Telecom \ EF <sub>ICE_DN</sub> (In Case of Emergency – Dialling Number)	This EF contains one or several call numbers (family, doctor, hospital, etc...)	X	
DF Telecom \ EF <sub>ICE_FF</sub> (In Case of Emergency – Free Format)	This EF contains ICE information (for instance: blood type, specific medication, etc...)	X	
eCall (Emergency Call) support indicated in EF UST.	eCall mode. Described in TS 31.102 Release 8	X	
eCall procedures as described in TS 31.102 Release 8	UE in eCall only mode: - FDN service enabled (numbers are provided here) UE in eCall + normal mode: - 2 last entries of EF SDN (numbers are provided here)	X	





## ▣ Abbreviations

For the purposes of the present document, the following abbreviations apply:

ADF	Application Dedicated File
APDU	Application Protocol Data Unit
ATR	Answer To Reset
BIP	Bearer Independent Protocol
CAT	Card Application Toolkit
CCAT	CDMA Card Application Toolkit
CLK	Clock signal
CSFB	Circuit Switch Fallback
CSIM	CDMA Subscriber Identity Module
EAP	Extensible Authentication Protocol
EF	Elementary File
eMBMS	evolved Multicast Broadcast Multimedia Service
EPC	Evolved Packet Core
EPS	EPC + E-UTRAN
GND	Ground
GSM	Global System for Mobile communications
IMEI	International Mobile Station Equipment Identity
IMEISV	International Mobile Station Equipment Identity Software Version
IMS	IP Multimedia Subsystem
ISIM	IP Multimedia Services Identity Module
ISO	International Organization for Standardization
LAC	Location Area Code
LTE	Long Term Evolution
MCC	Mobile Country Code
ME	Mobile Equipment
MEID	Mobile Equipment Identifier
MNC	Mobile Network Code
MS	Mobile Station
NAA	Network Access Application
NAS	Non Access Stratum
NFC	Near Field Communication
NVM	Non Volatile Memory
OMH	Open Market Handset
PPS	Protocol and Parameter Selection
RAM	Remote Applet Management
RFM	Remote File Management
SAC	Secure Authenticated Channel
SCWS	Smart Card Web Server
SIM	Subscriber Identity Module
SIP	Session Initiation Protocol
SMS	Short Message Service
SMS-PP	Short Message Service – Point to Point
SWP	Single Wire Protocol
UICC	Universal Integrated Circuit Card
USIM	Universal Subscriber Identity Module
VCC	Voice Call Continuity

