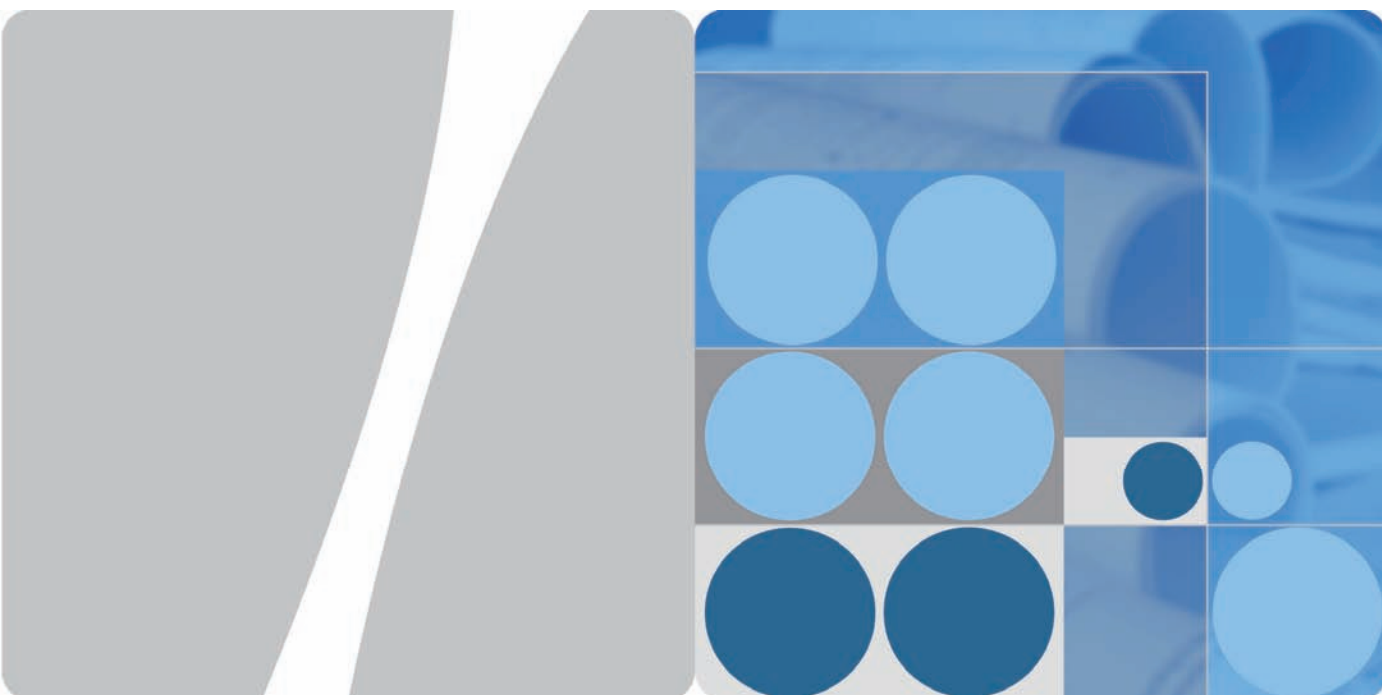


Product Description



HUAWEI ETS6630 Fixed Wireless Terminal
V100R001

Issue 02
Date 2008-05-06

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About This Document

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Summary

This document describes the HUAWEI ETS6630 Fixed Wireless Terminal (FWT).

This document consists of the following contents.

Chapter	Details
1 Product Overview	This chapter provides an overview of the product.
2 Product Features	This chapter describes the features of the product.
3 Services and Applications	This chapter describes the services and applications of the product.
4 System Structure	This chapter describes the system structure of the product.
5 Purchase Guide	This chapter describes the purchase guide to the product.
6 Technical References	This chapter provides the technical references to the product.
A Acronyms and Abbreviations	

History

Issue	Details	Date	Author	Approved by
01	First Release	2008-04-23	Wang Jiaxuan	Li Kun
02	Second Release	2008-05-06	Wang Jiaxuan	Li Kun

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1 Product Overview

1.1 Overview of the ETS6630

The HUAWEI ETS6630 FWT (hereinafter referred to as the ETS6630) is based on QUALCOMM's MSM6245 chipset. It is a low-end 3G fixed terminal developed by Huawei. The ETS6630 supports WCDMA, GSM, and GPRS. With the ETS6630, you can enjoy wireless services anywhere, anytime. You can make voice calls where there is coverage for WCDMA, GSM, and GPRS networks. Your wireless network experiences are enhanced with high speed, reliable performance, and convenient operation features of the ETS6630.

1.2 ID and MD of the ETS6630

The ETS6630 adopts the durable industry design (ID). Figure 1-1 shows the appearance of the ETS6630.



Figure 1-1 Appearance of the ETS6630

2 Product Features

2.1 Main Functions

The ETS6630 provides the following functions and features:

- Supports WCDMA 2100 MHz/900 MHz.
- Supports GSM/GPRS 900 MHz/1800 MHz/1900 MHz.
- Supports the seamless handover between WCDMA and GSM/GPRS.
- Supports the WCDMA packet switched (PS) domain data service with a maximum transmission rate of 384 Kbit/s.
- Supports the GPRS packet data service with a maximum transmission rate of 53.6 Kbit/s.
- Supports calling through the hands-free speaker or the handset.
- Supports emergency calls.
- Supports supplementary services: caller ID display (CID), call forwarding, call waiting, call hold, and three-way calling.
- Provides a standard TNC antenna interface connecting the indoor or outdoor antennas.
- Provides a meeting earphone interface.
- Supports the voice service, and extends the phone book and call register functions.
- Supports the short message service (SMS).
- Supports the communication between the USB interface of Type A and a PC, and software upgrade.
- Supports the plug-and-play function of the USB interface when the ETS6630 functions as a modem.
- Supports English and Spanish menus, text inputs, and fonts.
- Provides utilities such as the alarm clock, calendar, calculator, and world time.
- Supports 20 ringing tones in 72 chords.
- Supports 6 customized speed dialing keys.

2.2 Technical Specifications

2.2.1 Hardware Specifications

Table 2-1 shows the technical specifications of the ETS6630.

Table 2-1 Technical specifications of the ETS6630

Item	Description
Dimensions	211.7 mm (Length) x 167.3 mm (Width) x 65.9 mm (Thickness)
Weight	< 700 g (including the battery)
Technical standards	WCDMA: 3GPP R99 GSM/GPRS: 3GPP R99 GPRS: ETSI GSM Compliant GPRS Class 10
Working frequency	WCDMA 2100 MHz <ul style="list-style-type: none"> • Uplink: 1920 MHz to 1980 MHz • Downlink: 2110 MHz to 2170 MHz WCDMA 900 MHz <ul style="list-style-type: none"> • Uplink: 880 MHz to 915 MHz • Downlink: 925 MHz to 960 MHz GSM/GPRS 900 MHz <ul style="list-style-type: none"> • Uplink: 880 MHz to 915 MHz • Downlink: 925 MHz to 960 MHz DCS/GPRS 1800 MHz <ul style="list-style-type: none"> • Uplink: 1710 MHz to 1785 MHz • Downlink: 1805 MHz to 1880 MHz PCS/GPRS 1900 MHz <ul style="list-style-type: none"> • Uplink: 1850 MHz to 1910 MHz • Downlink: 1930 MHz to 1990 MHz
Data services	WCDMA CS domain: <ul style="list-style-type: none"> • Uplink or downlink: 64 Kbit/s WCDMA PS domain: <ul style="list-style-type: none"> • Uplink or downlink: 384 Kbit/s GPRS PS domain: <ul style="list-style-type: none"> • Uplink: 26.8 Kbit/s • Downlink: 53.6 Kbit/s
External interfaces	USB interface: Type A, USB Full Speed (USB 1.1) Earphone jack: It supports a customized earphone (616E Interface) .

Item	Description
	USIM card interface: It supports the 1.8/3 V USIM card.
Power supply adapter	AC: 100 V to 240 V; 50 Hz to 60 Hz DC: 5 V, 0.65 A Power supply interface: single core connector
Battery	<ul style="list-style-type: none"> Type: NiMH battery Capacity: 1000 mAh Standby time in theory: 200 hours Talk time in theory: 210 minutes
Screen	<ul style="list-style-type: none"> Type: STN Dimension: 2.8 inch Color: monochrome Resolution: 128 x 64 Backlight: yellow green
Antenna interface	Standard TNC interface
Maximum transmit power	WCDMA: 24 dBm (+1/-3 dBm)
	GSM: 33 dBm (+/-2 dBm)
	DCS: 30 dBm (+/-2 dBm)
	PCS: 30 dBm (+/-2 dBm)
Static sensitivity	WCDMA 2100 MHz: superior to -117 dBm/3.84 MHz
	GSM 900 MHz: superior to -102 dBm/200 kHz
	DCS 1800 MHz: superior to -100 dBm/200 kHz
	PCS 1900 MHz: superior to -100 dBm/200 kHz
Temperature	<ul style="list-style-type: none"> Working temperature: -10°C to +55°C Storage temperature: -20°C to +70°C
Working relative humidity	5% to 95%

2.2.2 Antenna Specifications

Table 2-2 shows the technical specifications of the ETS6630 indoor omni directional antenna.

Table 2-2 Technical specifications of the ETS6630 indoor omni directional antenna

Item	Description
Frequency	WCDMA 2100 MHz/900 MHz GSM 900 MHz/1800 MHz/1900 MHz
Standing wave ratio	≤ 3.0
Gains	H side gains: 1.0 dBi (non-circularity of H side gains ≤ 3.0 dB)
Power capacity	10 W
Input connector	TNC male
Length	About 200 mm
Weight	About 110 g
Element housing material	Plastic
Color	Black
Working temperature	−40°C to +55°C
Working relative humidity	5% to 95%

Table 2-3 shows the technical specifications of the ETS6630 outdoor directional antenna.

Table 2-3 Technical specifications of the ETS6630 outdoor directional antenna

Item	Description
Frequency	WCDMA 2100 MHz/900 MHz GSM 900 MHz/1800 MHz/1900 MHz
Standing wave ratio	≤1.5
Gains	9 dBi
Power capacity	100 W
Input connector	TNC male
Grounding	DC
Polarization	Vertical or horizontal
Beam width	≥ 50°
Cable insertion loss	3.9 dB (15 m in length) 7.8 dB (30 m in length)
Length	About 700 mm
Working temperature	−40°C to +60°C

Item	Description
Rated wind velocity	241 Km/h

Note: Certain values of the parameters mentioned in the preceding table may be different in case of different types of antennas.

2.2.3 Software Specifications

Table 2-4 shows the technical specifications of the ETS6630 software.

Table 2-4 Technical specifications of the ETS6630 software

Item	Description
Audio codec	<ul style="list-style-type: none"> • WCDMA: It supports the AMR codec. • GSM/GPRS: It supports the FR, EFR, and HR codec.
SMS	<ul style="list-style-type: none"> • Supports long SMSs. • Supports the storage of SMSs in the USIM card and FWT. • Supports voice calling from the number in an SMS. • Supports the storage of up to 100 SMSs in the FWT.
Phone book	<ul style="list-style-type: none"> • Supports quick query. • Supports the phone book management in the USIM card and FWT. • Supports the storage of up to 500 contacts in the FWT. • Supports speed dialing, groups, and caller ID display. • Supports the phone book backup between the USIM card and FWT.
Ringing tone	<ul style="list-style-type: none"> • Supports 72 chords. • Supports 20 ringing tones.
Voice call	<ul style="list-style-type: none"> • Supports voice calls in WCDMA and GSM.
Data service	<p>WCDMA CS domain:</p> <ul style="list-style-type: none"> • Uplink or downlink: 64 Kbit/s <p>WCDMA PS domain:</p> <ul style="list-style-type: none"> • Uplink or downlink: 384 Kbit/s <p>GPRS PS domain:</p> <ul style="list-style-type: none"> • Uplink: 26.8 Kbit/s • Downlink: 53.6 Kbit/s
Earphone (customized)	Headset (616E interface)
Concurrent processing	Supports the concurrent processing of the WCDMA AMR speech and the data service of uplink 384 Kbit/s and downlink 384 Kbit/s in the WCDMA PS domain.

Item	Description
Supplementary services	Supports call forwarding, call waiting, call holding, three-way calling, and other services.
Call register	<ul style="list-style-type: none">• Supports call register of up to 20 missed calls, received calls, and dialed calls respectively.• Supports the shortcut key Send to directly enter Call Register in the standby mode.
FWT modem function	<ul style="list-style-type: none">• Supports the modem function of the FWT that is implemented through the USB interface.• Supports the plug-and-play function on the USB interface.
Applications	Supports the calendar, alarm clock, calculator, and world time.
Language	English and Spanish
Text input and fonts	Supports the text input modes of T9 and ABC, and input of numbers and symbols.
	Supports English and Spanish fonts.
Settings	Supports the settings of local attributes, including FWT language, date and time, date format, backlight, network setting, security setting, switching on/off settings, and ringing tone settings.

3 Services and Applications

3.1 SMS

The ETS6630 supports SMS based on GSM, GPRS, WCDMA CS domain, and WCDMA PS domain. The ETS6630 supports the following SMS functions:

- Edits, sends, and receives text messages.
- Sends text messages to many recipients at the same time.
- Segments a long text message to short messages during the sending period and combines the short messages to form the original message during the receiving period.
- Makes a voice call directly from the number in a received message.

3.2 Phone Book

The phone book has three subdirectories, FWT, Smart card, and Groups, and supports several relevant functions.

- FWT

The FWT subdirectory displays contacts stored in the FWT. Up to 500 contacts can be stored in the FWT. You can save the name, mobile phone number, office number, home number, email address, and fax number for a contact, and also add a ringing tone for the contact.

- Smart card

The Smart card subdirectory displays contacts stored in the USIM card. The maximum number of contacts depends on the capacity of the card. You can save the name, phone number, and other information for a contact (depending on the USIM card).

- Contact groups

Contact groups are classified into predefined groups and customized groups. The names of predefined groups cannot be changed. The contacts in the FWT and card can be added to contact groups. You can select **Group message** on the **Group** menu, and then select a group. Thus, the message can be sent to the intended group. The phone book supports 10 groups with up to 100 contacts in each group.

The phone book supports the following functions:

- Quickly searches for a contact from the FWT subdirectory, smart card subdirectory, and search screen.
- Copies contacts between the USIM card and FWT (Certain data cannot be copied when you copy information from the FWT to the USIM card.)
- Inquires about the memory status of the contacts.
- Deletes all the contacts (the FWT and the USIM card.)

3.3 Call Register

The call register supports the following functions:

- Saves up to 20 missed calls, received calls, or dialed numbers, and displays the call duration, time, number, and name.
- Accumulates call information, such as the call duration.
- Saves numbers in the call register to the phone book, and sends messages and makes calls from the call register.
- In the standby mode, accesses the **Dialed Numbers** menu by pressing the **Send** key.

3.4 Settings of Supplementary Services

Supplementary services and call functions are described as follows:

- Call waiting: You can turn on and off call waiting, and query the status (at this time, only the voice service is supported).
- Selecting a calling line: You can select Line 1 or Line 2.
- Call barring:

A. Barring all outgoing calls

B. Barring outgoing international calls

C. Barring outgoing international calls except those to home PLMN

D. Barring all incoming calls

E. Barring incoming calls when roaming outside home PLMN country

F. Disabling all call barring services registered

The A, B, C, D, and E services support the functions of turning on and off the voice service, and querying the status of the voice service.

- Sending the host number: This includes presetting the network (the service status depends on the network), sending the calling number, and the calling line identification restriction (CLIR) service.
- Changing the call barring password
- Call forwarding

A. Call forwarding unconditional

- B. Call forwarding on mobile subscriber unreachable
- C. Call forwarding on mobile subscriber busy
- D. Call forwarding on no reply
- E. Disabling all call forwarding services registered

The A, B, C, and D services support the functions of turning on and off the voice service, and querying the status of the voice service.

3.5 Surfing the Internet Through the ETS6630

The ETS6630 can function as a modem to help a PC to surf the Internet. In the WCDMA network, the downlink and uplink speed can both reach 384 Kbit/s; in the GPRS network, Multi-slot Class 10 can be obtained. When functioning as a modem, the ETS6630 can receive and send voice calls and text messages. The ETS6630 has a built-in driver and supports the automatic installation of the driver. The USB interface on the ETS6630 supports the plug-and-play function.

3.6 Toolbox

The ETS6630 provides the following utilities:

- Alarm clock
- Calendar
- Calculator
- World time

These utilities bring about great convenience to your life and schedule.

3.7 Text Inputs and Languages Supported

The text inputs are as follows:

- Supports T9 English input, ABC input, and input of numbers and symbols.
- Supports T9 English predictive input that can memorize words frequently entered by users.
- Supports the switching between text inputs through shortcut keys.
- Supports the function of scrolling up and down through shortcut keys.
- Support inputs in multiple languages, including English and Spanish.

Fonts are as follows:

- Supports the fonts of English and Spanish.
- Supports the fonts in symbols and numbers.

4 System Structure

4.1 Logical Structure of Hardware

Figure 4-1 shows the logical structure of hardware.

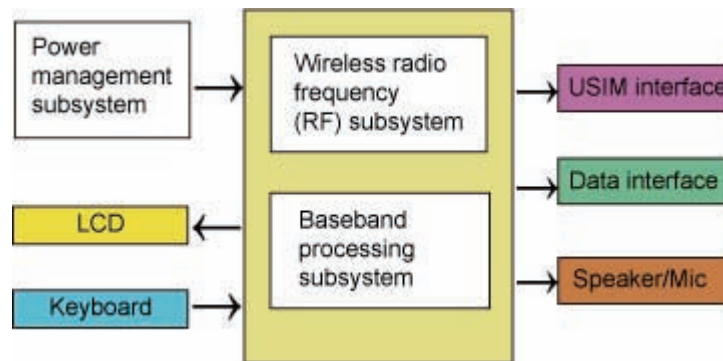


Figure 4-1 Diagram of the logical structure of hardware

The main modules in the preceding figure are described as follows:

- Base band processing subsystem: It processes applications, protocol stacks, lower layer drivers, and radio signals. It also controls and manages user interfaces.
- Wireless radio frequency (RF) subsystem: It helps the ETS6630 to send and receive WCDMA, GSM, and GPRS signals. It also performs the conversion between RF signals and base band signals.
- Power management subsystem: It manages the power supply of the base band management module and RF module.
- User interface subsystem: It manages the applications used by users, including the LCD screen, keyboard, speaker and microphone, USIM card, and headset interface. The user interface subsystem provides a single user interface, and the base band processing subsystem implements and processes the actual functions.

4.2 Logical Structure of Software

Figure 4-2 shows the logical structure of software.

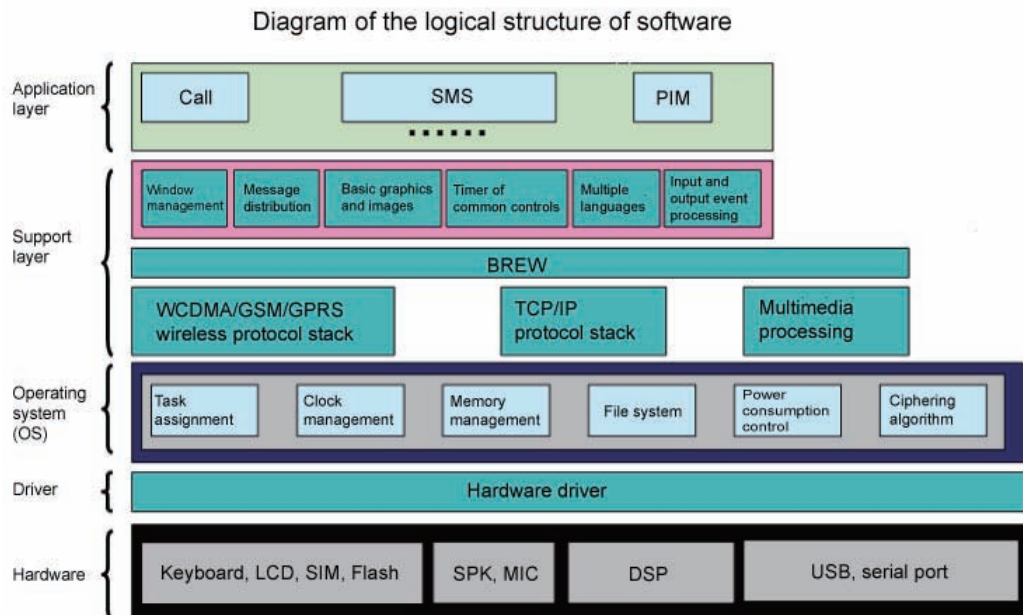


Figure 4-2 Diagram of the logical structure of software

The main modules in the preceding figure are described as follows:

- **Base band processing subsystem:** It processes the FWT keyboard, LCD screen, USIM card interface, Flash memory, speaker, earpiece (MIC), DSP (MDSP and ADSP), connecting interfaces, and serial port (connecting the conversion card used only for testing).
- **Driver:** hardware driver
- **Operating system (OS):** The ETS6630 uses the REX real-time OS of QUALCOMM. The OS supports the task assignment, clock management, memory management, file system, power consumption control, and ciphering algorithm.
- **Support layer:** This layer is divided into three sub layers, the protocol stack sub layer, BREW operation sub layer, and service sub layer. The protocol stack sub layer includes the WCDMA/GSM/GPRS wireless protocol stack, TCP/IP protocol stack, and multimedia processing. The BREW application sub layer is borne over the protocol stack sub layer and provides the upper sub layer with convenient and unified interface specifications. The service sub layer is borne over the BREW operation sub layer. The service sub layer supports the window management, message distribution, basic graphics and images, timer of common controls, multiple languages, and input and output event processing.
- **Application layer:** It supports the functions used by users on the ETS6630, including call control, message processing, and personal information management (PIM).

5 Purchase Guide

The ETS6630 has the following devices and accessories:

Table 5-1 Purchase list of the ETS6630

Description	Quantity	Remarks
FWT host (including handset and coiled handset cord)	1	Mandatory
Power supply adapter	1	Mandatory
Battery	1	Mandatory
User guide	1	Optional
Certificate of quality	1	Mandatory
USB data cable	1	Optional
Indoor/outdoor antenna	1	Optional
Warranty card	1	Optional

6 Technical References

6.1 GSM Protocol Specifications

Mobile Radio Interface Layer 3 Specification, Radio Resource Control Protocol TS 04.18

Mobile Station - Base Station System (MS - BSS) interface; Data Link (DL) Layer Specification TS 04.06

Digital Cellular Telecommunications System (Phase 2+); Multiplexing and Multiple Access on the Radio Path TS 05.02

Technical Specification Group GERAN; Channel coding TS 05.03

Digital Cellular Telecommunications System (Phase 2+); Radio Subsystem Link Control TS 05.08

Digital Cellular Telecommunications System (Phase 2+); Radio Subsystem Synchronization TS 05.10

6.2 GPRS Protocol Specifications

Overall Description of the GPRS Radio Interface; stage 2 TS 3.64

Mobile Radio Interface Layer 3 Specification TS 04.08

Mobile Radio Interface Layer 3 Specification: Radio Resource Control Protocol TS 04.18

General Packet Radio Service (GPRS): Mobile Station (MS) – Base Station System (BSS) interface; Radio Link Control / Medium Access Control (RLC/MAC) protocol TS 04.60

Mobile Station - Serving GPRS Support Node (MS-SGSN) Logical Link Control (LLC) Layer Specification TS 04.64

Mobile Station - Serving GPRS Support Node (MS-SGSN); Subnetwork Dependent Convergence Protocol (SNDCP) TS 04.65

Multiplexing and Multiple Access on the Radio Path TS 05.02

Channel Coding TS 05.03

Modulation TS 05.04
Radio Transmission and Reception TS 05.05
General Packet Radio Service (GPRS); Stage 1 TS 22.060
Mobile Execution Environment (MexE) TS 23.057
General Packet Radio Service (GPRS) Service description; stage 2 TS 23.060

6.3 General Specifications

UE Capability Requirements TR 21.904
UE Radio Access Capabilities TR 25.926
Vocabulary TR 25.990
Radio Interface Protocol Architecture TS 25.301
Services Provided by the Physical Layer TS 25.302
Synchronization in UTRAN Stage 2 TS 25.402

6.4 Performance/Test Specifications

UE Radio Transmission and Reception (FDD) TS 25.101
Common Test Environments for User Equipment (UE) TS 34.108
Special Conformance Testing Functions TS 34.109
Terminal Conformance Specification TS 34.121
User Equipment (UE) Conformance Specification; Part 1: Protocol Conformance TS 34.123-1
User Equipment (UE) Conformance Specification; Part 2: Protocol Conformance TS 34.123-2

6.5 USIM Specifications

USIM and IC Card Requirements TS 21.111
3rd Gen. Partnership Proj Tech. Spec. Group Terminals; SIM App. Toolkit (USAT) TS 31.111

A Acronyms and Abbreviations

A

AMR Adaptive Multi-rate Codec

C

CS Circuit Switched Domain

D

DCS Digital Cellular System

DC Direct Current

P

PIN Personal Identification Number

PS Packet Switched Domain

S

SMS Short Message Service

U

USIM UMTS Subscriber Identity Module

W

WCDMA Wideband Code Division Multiple Access