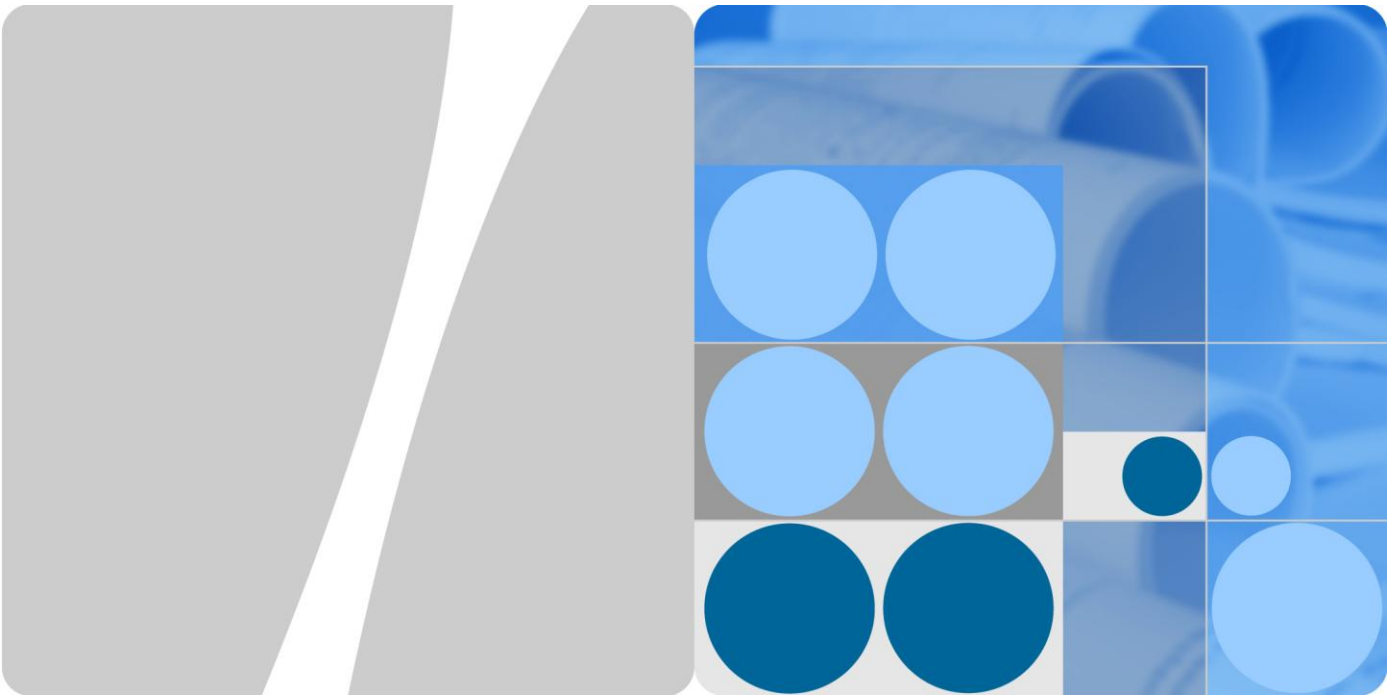
Product Description



HUAWEI E369 HSPA+ USB Stick
V400R001

Issue 01

Date 2011-7-4

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About This Document

Summary

This document provides information about the major functions, supported services, system architecture, and technical references of E369 HSPA+ USB Stick (hereinafter referred to as the E369).

The following table lists the contents of this document.

Chapter	Describes
1 Overview	The supported network modes, basic services and functions, and the appearance of the E369.
2 Features	The supported features and technical specifications of the E369.
3 Services and Applications	The services and applications of the E369.
4 System Architecture	The architecture of the E369.
5 Technical Reference	The technical references of the E369.
6 Packing List	The items contained in the package of the E369.
A Acronyms and Abbreviations	The acronyms and abbreviations mentioned in this document.

History

Issue	Details	Date
01	Initial draft completed.	2011-7-4

Contents

1 Overview

E369 HSPA+ USB Stick (hereinafter referred to as the E369) is a high-speed packet access plus (HSPA+) universal serial bus (USB) modem. It is a multi-mode wireless terminal for business professionals.

The E369 supports the following standards:

- High-speed packet access plus (HSPA+)
- Universal Mobile Telecommunications System (UMTS)
- Enhanced data rates for global evolution (EDGE)
- General packet radio service (GPRS)
- Global system for mobile communications (GSM)

The E369 provides the following services:

- HSPA+/UMTS packet data service of up to 21.6 Mbps
- EDGE/GPRS packet data service of up to 236.8 kbps
- WCDMA/GSM Short Message Service (SMS)

You can connect the E369 with the USB interface of a computer. In the service area of the HSPA+/UMTS/EDGE/GPRS/GSM network, you can surf the Internet and send/receive messages/emails cordlessly. The E369 is fast, reliable, and easy to operate. Thus, mobile users can experience many new features and services with the E369. These features and services will enable a large number of users to use the E369 and the average revenue per user (ARPU) of operators will increase substantially.

Figure 1-1 shows the profile of the E369.

Figure 1-1 E369 profile

2 Features

2.1 Main Features

The E369 mainly supports the following features:

- HSPA+/UMTS 2100MHz/1900MHz/AWS/900MHz/850MHz
- GSM/GPRS/EDGE 850MHz/900MHz/1800MHz/1900MHz
- Equalizer and receive diversity
- HSUPA data service of up to 5.76 Mbps
- HSDPA data service of up to 21.6 Mbps
- UMTS PS domain data service of up to 384 kbps
- EDGE packet data service of up to 236.8 kbps
- GPRS packet data service of up to 85.6 kbps
- SMS based on CS/PS domain of GSM and WCDMA
- Plug and play (PnP)
- USSD
- Personal computer/Smart card (PC/SC) Driver
- Standard USB interface（Type A）
- Supporting easy installation and uninstall of the driver on Windows XP SP2/SP3, Windows Vista SP1/SP2, Windows 7, Mac OS X 10.5 and 10.6 with latest upgrades
- Mini ID
- Support CPC，IC（Interference cancellation），APT
- Multiple shells available

  You can manually replace the shell with your favorite shells which are provided by HUAWEI.

2.2 Technical Specifications

2.2.1 Hardware

Table 2-1 lists the hardware specifications.

Table 2-1 Hardware specifications

Item	Specifications
Technical standard	WCDMA/HSDPA R5, HSUPA R6, HSPA+ R7 GSM/GPRS/EGPRS R99
Operating frequency	WCDMA/HSPA+ 2100MHz: 1920MHz~1980MHz (Uplink)/2110MHz~2170MHz (Downlink) WCDMA/HSPA+ 1900MHz: 1850MHz~1910MHz (Uplink)/1930MHz~1990MHz (Downlink) WCDMA/HSPA+ AWS: 1710MHz~1755MHz (Uplink)/2110MHz~2155MHz (Downlink) WCDMA/HSPA+ 900MHz: 880MHz~915MHz (Uplink)/925MHz~960MHz (Downlink) WCDMA/HSPA+ 850MHz: 824MHz~849MHz (Uplink)/869MHz~894MHz (Downlink) GSM/GPRS/EDGE 900MHz: 880MHz~915MHz (Uplink)/925MHz~960MHz (Downlink) GSM/GPRS/EDGE 850MHz: 880MHz~915MHz (Uplink)/925MHz~960MHz (Downlink) GSM/GPRS/EDGE 1800MHz: 1710MHz~1785MHz (Uplink)/1805MHz~1880MHz (Downlink) GSM/GPRS/EDGE 1900MHz: 1850MHz~1910MHz (Uplink)/1930MHz~1990MHz (Downlink)
External interfaces	USB interface: supporting USB 2.0 high speed
	SIM/USIM card: standard 6-pin SIM card interface
Maximum transmitter power	WCDMA/HSPA+ 2100MHz/1900MHz/AWS/900MHz/850MHz:+22dBm (Power Class 3)
	GSM/GPRS 850MHz/900MHz: +33dBm (Power Class 4)
	GSM/GPRS 1800MHz/1900MHz: +30dBm (Power Class 1)
	EDGE 850MHz/900MHz: +27dBm (Power Class E2)

Item	Specifications
	EDGE 1800MHz/1900MHz: +26dBm (Power Class E2)
Static receiver sensitivity	WCDMA/HSPA+ 2100MHz/1900MHz/AWS/900MHz/850MHz: Compliant with 3GPP TS 25.101(R7)
	EDGE/GPRS/GSM 850MHz/900MHz/1800MHz/1900MHz: compliant with 3GPP TS 05.05 (R99)
Maximum power consumption	2.5 W
Power supply	5 V/500 mA
LED	indicating the status of the E369
Dimensions (D × W × H)	65mm×24.5mm×8.5mm
Weight	<30g
Temperature	• Operating: –10℃to +45℃ • Storage: –20℃to +70℃
Humidity	5% to 95%
Notes: 3GPP = The 3rd Generation Partnership Project EGPRS = enhanced GPRS LED = light-emitting diode SIM = subscriber identity module TS = technical specification USIM = UMTS subscriber identity module	

2.2.2 Dashboard

Table 2-2 lists the dashboard specifications.

Table 2-2 Dashboard specifications

Item	Description
SMS	Writing/Sending/Receiving
	Sending/Receiving extra-long messages
	Group sending
	Storage: The messages are saved in the hard disk of the PC.
	Sorting

Item	Description
	Importing: You can import messages from the SIM/USIM card to a laptop.
	New message prompt (visual prompt/audio prompt)
Flow display and statistics (data services)	Current connection: • Duration • Send/Receive flow • Send/Receive rate
	Traffic statistics: You can view the traffic information of the day, the month, or the year.
Phonebook	Capacity: It depends on the SIM/USIM card capacity or the hard disk space.
	Messages can be sent from the phonebook.
	Importing/Exporting: Import/Export contacts between the SIM/USIM card and a laptop or a file of supported formats.
Network connection setup	• APN management: create, delete, edit, import, and export. • Set up network connection.
Software installation	Automatic installation (PNP)
Other	Network connection settings: • Automatic network selection and registration • Manual network selection and registration
	Network status display: signal, operator name, system mode, and so on.
	Selection of network connection types, for example: • 3G preferred • 2G preferred
	PIN management: activate/deactivate PIN, PIN lock, changing PIN, unblocking by using the PUK.
System requirement	• Windows XP SP2/SP3, Windows Vista SP1/SP2, Windows 7, • Mac OS X 10.5 and 10.6 with latest upgrades • Hardware system should meet or exceed the recommended system requirements for the installed version of OS. • Display resolution: 800×600 or above

Item	Description
Notes: PIN = personal identification number PUK = PIN unblocking key	

3 Services and Applications

3.1 Packet Data Service

The E369 supports the PS domain data service based on HSPA+/UMTS /EDGE/GPRS

After you connect the E369 to a PC with a USB interface, the E369 driver and the client software are installed on the PC automatically. You can configure APN through the E369 application (or directly use the default settings) and set up a network connection. Then you can send or receive E-mail, access the network through wireless connection, and download files through wireless data channels.

To use the data service, perform the following steps:

1. Enter ***99#** or ***98#** to launch the packet data service.
2. In the Choose Connection Type dropdown box, choose a network type, for example: 3G preferred, 2G preferred.

3.2 SMS

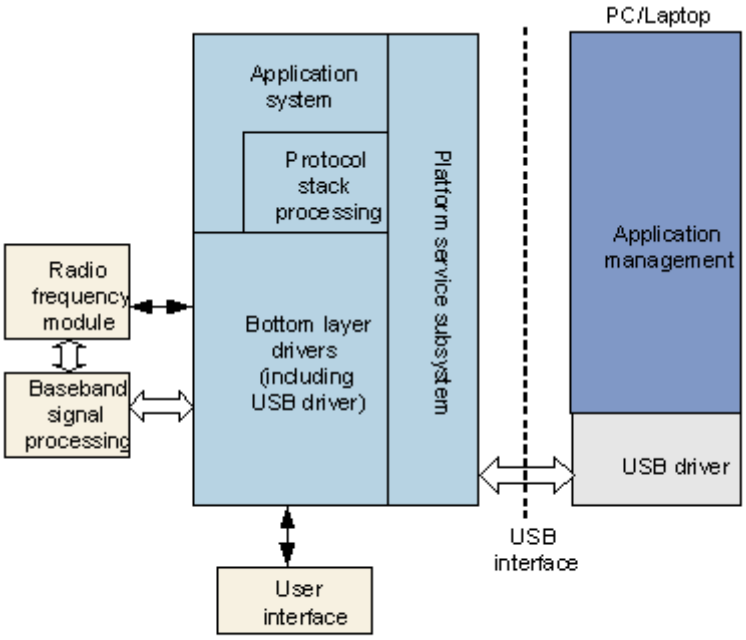
The E369 supports message writing/sending/receiving and group sending (up to 20 contacts at a time). You can manage messages through the dashboard, such as sorting the messages by telephone number or time. You can also import/export messages between the SIM/USIM card and a laptop.

4 System Architecture

4.1 System Architecture

Figure 4-1 shows the system architecture.

Figure 4-1 System architecture



4.2 Functional Modules

Radio Frequency Module

It sends/receives radio signals and modulates/demodulates the radio frequency (RF) signals and baseband signals.

Baseband Signal Processing

It processes HSDPA/UMTS/EDGE/GPRS/GSM baseband digital signals, including:

- Modulating/Demodulating HSPA+/UMTS baseband signals
- Modulating/Demodulating EDGE/GPRS/GSM baseband signals
- Encoding/Decoding HSPA+/UMTS channel
- Encoding/Decoding EDGE/GPRS/GSM channel

Bottom Layer Driver

It drives peripherals, including USB, LED, and SIM/USIM.

Platform Service Subsystem

It initializes programs, diagnoses the running of the system, downloads data and serves as a watchdog.

Protocol Stack System

It processes protocols of HSPA+/UMTS/EDGE/GPRS/GSM.

Application System

It sends laptop commands to the bottom layer protocol for processing and returns the value to the laptop.

Existing applications include the following:

- Call management
- Message management
- CS/PS domain service management

User Interface

It provides interfaces to connect peripherals. Interfaces are for LED and SIM/USIM.

Application Management

Through the application window, you can set the parameters of the E369 and operate the E369.

5 Technical Reference

5.1 Layer 1 Specifications (Physical)

- Examples of Channel Coding and Multiplexing TR 25.944
- Physical Layer–General Description TS 25.201
- Physical Channels and Mapping of Transport Channels onto Physical Channels (FDD) TS 25.211
- Multiplexing and Channel Coding (FDD) TS 25.212
- Spreading and Modulation (FDD) TS 25.213
- Physical Layer–Procedures (FDD) TS 25.214
- Physical Layer–Measurements (FDD) TS 25.215
- 3GPP HSDPA overall description 25.308
- 3GPP UE radio access capabilities 25.306

5.2 Layer 2 Specifications (MAC/RLC)

- MAC Protocol Specification TS 25.321
- RLC Protocol Specification TS 25.322

5.3 Layer 3 Specifications (RRC)

- UE Interlayer Procedures in Connected Mode TS 25.303
- UE Procedures in Idle Mode TS 25.304
- RRC Protocol Specification TS 25.331

5.4 Layer 3 NAS/Core Network (MM/CM)

- Architectural Requirements for Release 1999 TS 23.121
- NAS Functions Related to Mobile Station (MS) in Idle Mode TS 23.122
- Mobile Radio Interface Signaling Layer 3–General Aspects TS 24.007

- Mobile Radio Interface Layer 3 Specification–Core Network TS 24.008
- PP SMS Support on Mobile Radio Interface TS24.011

5.5 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

5.6 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

5.7 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

5.8 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

5.9 SIM Specifications

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

6 Packing List

This chapter describes the items contained in the package of the E369.

Table 6-1 lists the items contained in the package of the E369.

Table 6-1 Packing list of the E369

Item	Quantity	Remarks
E369 HSPA+ USB Stick	1	Standard
E369 HSPA+ USB Stick Quick Start	1	Standard
USB Extension Cable	1	Optional
Color shell	1	Optional

A Acronyms and Abbreviations

3G	The Third Generation
3GPP	3rd Generation Partnership Project
APN	Access Point Name
APT	Average Power Tracing
ARPU	Average Revenue Per User
BSS	Base Station Subsystem
CM	Connection Management
CPC	Continuous Packet Connectivity
CS domain	Circuit Switched domain
EDGE	Enhanced Data Rates for GSM Evolution
EGPRS	Enhanced GPRS
FDD	Frequency Division Duplex
GERAN	GSM/EDGE Radio Access Network
GPRS	General Packet Radio Service
GSM	Global System for Mobile Communications
HSDPA	High Speed Downlink Packet Access
IC	Integrated Circuit
LED	Light Emitting Diode
MAC	Medium Access Control
MexE	Mobile Execution Environment
MM	Mobility Management
Modem	Modulator Demodulator
MS	Mobile Station
MSC	Mobile Switching Center

NAS	Non-Access Stratum
OS	Operating System
PC/SC	Personal Computer/Smart Card
PIN	Personal Identification Number
PnP	Plug and Play
PP	Point-to-Point
PS domain	Packet Switched domain
PUK	PIN Unblocking Key
RF	Radio Frequency
RLC	Radio Link Control
RRC	Radio Resource Control
SGSN	Serving GPRS Support Node
SIM	Subscriber Identity Module
SMS	Short Messaging Service
SNDCP	Subnetwork Dependent Convergence Protocol
TR	Technical Report
TS	Technical Specification
UE	User Equipment
UMTS	Universal Mobile Telecommunications System
USAT	USIM Application Toolkit
USB	Universal Serial Bus
USIM	UMTS Subscriber Identity Module
UTRAN	UMTS Terrestrial Radio Access Network
WCDMA	Wideband Code Division Multiple Access