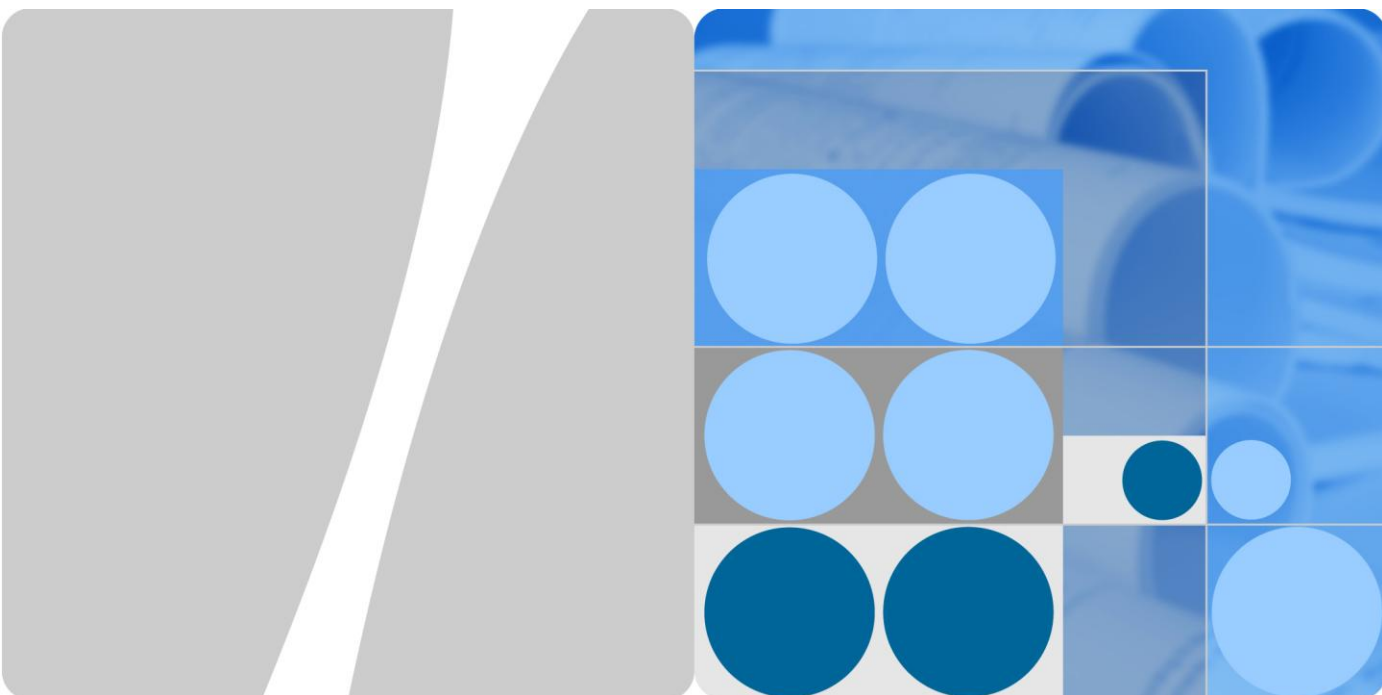


Product Description



HUAWEI E5776s-420 Mobile WiFi
V100R001

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Date 2013-09-14

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About This Document

Summary

This document provides information about the major functions, supported services and system architecture.

The following table lists the contents of this document.

Chapter	Details
1 Overview	The supported network modes, basic services and functions, and the appearance of the product.
2 Features	The supported features and technical specifications of the product.
3 Services and Applications	The services and applications of the product.
4 System Architecture	The architecture of the product.
5 Mobile Network Features	Describes the mobile network feature of product.
7 Packing List	The items contained in the package of the product.

History

Issue	Details	Date
01	First release	2013-02-26
02	● Change “LTE-FDD: 2600 MHz” to “LTE-FDD: 2600/1800 MHz”; ● Add the description of Windows 8; ● Modify the profile of the E5776s-420; ● Add the description of the microSD card; ● Modify the Internal memory from “256 MB NAND flash and 128 MB SRAM” to “256 MB NAND Flash and 128 MB DDR SDRAM”; ● Modify the Maximum power consumption from “7 W” to “6W”; ● Add a new chapter “Mobile Network Features”.	2013-05-03
03	● Modify the Maximum standby time from “400 hours” to “200 hours”; ● Add the description of “IPv6/IPv4 dual stack”.	2013-09-14

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1 Overview

HUAWEI E5776s-420 Mobile WiFi (hereinafter referred to as the E5776s-420) is a high-speed packet access mobile hotspot. It is a multi-mode wireless terminal for SOHO (Small Office and Home Office) and business professionals. It supports:

- LTE-FDD: 2600/1800 MHz
- LTE-TDD: 3700/3500 MHz
- DC-HSPA+/HSPA+/HSPA/UMTS: 2100/1900/900/850 MHz

The E5776s-420 supports the following standards:

- Long Term Evolution (LTE)
- Dual Carrier High Speed Packet Access Plus (DC-HSPA+)
- High Speed Packet Access Plus (HSPA+)
- High Speed Uplink Packet Access (HSUPA)
- High Speed Downlink Packet Access (HSDPA)
- Universal Mobile Telecommunications System (UMTS)

The E5776s-420 provides the following services:

- High-speed LTE-FDD packet data service of up to 150 Mbit/s
- High-speed LTE-TDD packet data service of up to 112 Mbit/s of configuration 2 (DL: 3/UL: 1)
- High-speed DC-HSPA+ packet data service of up to 43.2 Mbit/s
- High-speed HSPA+ packet data service of up to 21.6 Mbit/s
- High-speed HSPA (HSUPA/HSDPA)/UMTS packet data service of up to 14.4 Mbit/s

You can connect the E5776s-420 with the USB interface of a computer, or connect the E5776s-420 with the Wi-Fi. In the service area of the LTE-TDD/LTE-FDD/UMTS network, you can surf the Internet and send/receive messages/emails cordlessly. The E5776s-420 is fast, reliable, and easy to operate. Thus, mobile users can experience many new features and services with the E5776s-420. These features and services will enable a large number of users to use the E5776s-420 and the average revenue per user (ARPU) of operators will increase substantially.

Figure 1-1 shows the profile of the E5776s-420.

Figure 1-1 E5776s-420 profile



2 Features

2.1 Main Features

The E5776s-420 mainly supports the following features:

- LTE-FDD (DL) data service of up to 150 Mbit/s
- LTE-FDD (UL) data service of up to 50 Mbit/s
- LTE-TDD (DL) data service of up to 112 Mbit/s of configuration 2 (DL: 3/UL: 1)
- LTE-TDD (UL) data service of up to 10 Mbit/s of configuration 2 (DL: 3/UL: 1)
- DC-HSPA+ (DL) data service of up to 43.2 Mbit/s
- HSPA+ (DL) data service of up to 21.6 Mbit/s
- HSDPA (DL) data service of up to 14.4 Mbit/s
- DC-HSPA+/HSPA+/HSUPA (UL) data service of up to 5.76 Mbit/s
- UMTS data service of up to 384 kbit/s
- PS domain data service based on LTE and UMTS
- Wi-Fi and WPS
- IPv6 /IPv4 dual stack
- Built-in DHCP Server, DNS RELAY and NAT
- Plug and Play (PnP)
- USB Extension Cable, easy to connect
- Standard Micro USB interface
- Thin film transistor liquid crystal display (TFT-LCD)
- Built-in high gain antenna
- Micro Secure Digital (microSD) memory card
- Windows XP, Windows Vista, Windows 7, Windows 8, MAC OS X 10.5, 10.6 and 10.7

2.2 Technical Specifications

2.2.1 Hardware Specifications

Table 2-1 lists the hardware specifications.

Table 2-1 Hardware specifications

Item	Specifications	
Technical standard	WAN: LTE/DC-HSPA+/HSPA+/HSPA/UMTS	
	WLAN: IEEE 802.11b/g/n	
Operating frequency	LTE-FDD: 2600/1800 MHz	
	LTE-TDD: 3700/3500 MHz	
	DC-HSPA+/HSPA+/HSPA/UMTS: 2100/1900/900/850 MHz	
	WLAN: 2400–2483.5 MHz	
Internal memory	256 MB NAND Flash and 128 MB DDR SDRAM	
Maximum transmitter power	LTE: Conform to Power Class 3 Definition	
	WLAN	802.11b: 13 dBm
		802.11g: 11 dBm
		802.11n: 8 dBm
Receiver sensitivity	LTE: Confirm to 3GPP Requirements	
	UMTS: Confirm to 3GPP Requirements	
	WLAN 802.11b: -76 dBm@11 Mbit/s	
	WLAN 802.11g: -65 dBm@54 Mbit/s	
	WLAN 802.11n: -64 dBm@65 Mbit/s	
WLAN speed	802.11b: Up to 11 Mbit/s	
	802.11g: Up to 54 Mbit/s	
	802.11n	HT20: Support MCS0–MCS7; Up to 72.2 Mbit/s. Support MCS8–MCS15; Up to 144.4 Mbit/s.
		HT40: Support MCS0–MCS7; Up to 150 Mbit/s. Support MCS8–MCS15; Up to 300 Mbit/s.
Maximum power consumption	6 W	
Power supply	- AC: 100–240 V - DC: 5 V, 2 A	

Item	Specifications
Battery	• Type: Li (rechargeable and non-removable) • Capacity: 3.7 V, 3000 mAh • Maximum working time: 6 hours (depending on the network) • Maximum standby time: 200 hours (depending on the network)
External interfaces	USB interface: Micro USB
	Standard microSD card interface
	SIM card: standard 6-pin SIM card interface
Screen	TFT-LCD
key-press	Power switch, WPS switch, Reset switch
Antenna	Built-in LTE/UMTS main diversity antenna
	Built-in LTE/UMTS diversity antenna
	Built-in WLAN antenna
Dimensions (H × W × D)	15.5 mm×104.8 mm×66.0 mm
Weight	< 150 g
Temperature	Operating: 0℃ to +35℃
	Storage: -20℃ to +60℃
Humidity	5% to 95% (non-condensing)

2.2.2 Software Specifications

Table 2-2 lists the software specifications.

Table 2-2 software specifications

Item	Description
SMS	• Message writing/sending/receiving • Sending/Receiving extra-long messages • Storage: Up to 500 messages can be saved in the internal memory of the E5776s-420. • New message prompt
Network connection setup	• APN management: create, delete and edit. • Set up network connection
WLAN setup	• SSID broadcasting and hiding • Open system and shared key authentication • ASCII and HEX keys • 64/128-bit WEP encryption • 256-bit WPA-PSK and WPA2-PSK encryption • TKIP and AES encryption algorithm • TKIP and AES integrated encryption algorithm • Automatic adjustment of ratios • STA management • Wi-Fi automatically closes • WPS Settings
Firewall setup	• Firewall Switch • LAN IP Filter • Virtual Server • DMZ Service • UPnP Service • WAN Ping block
DHCP setup	• DHCP server enabling and disabling • Address pool of the DHCP server setup • DHCP lease time setup
Software installation	Automatic installation (PnP)
System requirement	• Windows XP, Windows Vista, Windows 7, Windows 8 • Mac OS X 10.5, 10.6 and 10.7 • Your computer's hardware system should meet or exceed the recommended system requirements for the installed version of OS

Item	Description
IPv6/IPv4 dual stack	• DHCPv6/v4 server and client • DNSv6/v4 server and client • Display IPv6/v4 WAN address
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: • LTE Only • 3G Only • Auto
	PIN management: activate/deactivate PIN, PIN lock, changing PIN, unblocking by using the PUK.

3 Services and Applications

3.1 Data Service

3.1.1 Wireless Modem

The E5776s-420 can be used as a wireless modem when the Wi-Fi is enabled. You can access the Internet service through setting up the wireless network connection with the E5776s-420.

A maximum of ten wireless users can access the E5776s-420 at the same time. You can set up the WLAN with the access point (AP) function.

Figure 3-1 Multi-device access via Wi-Fi

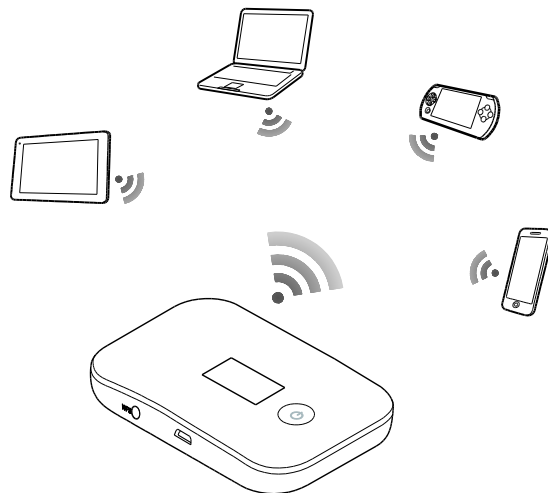
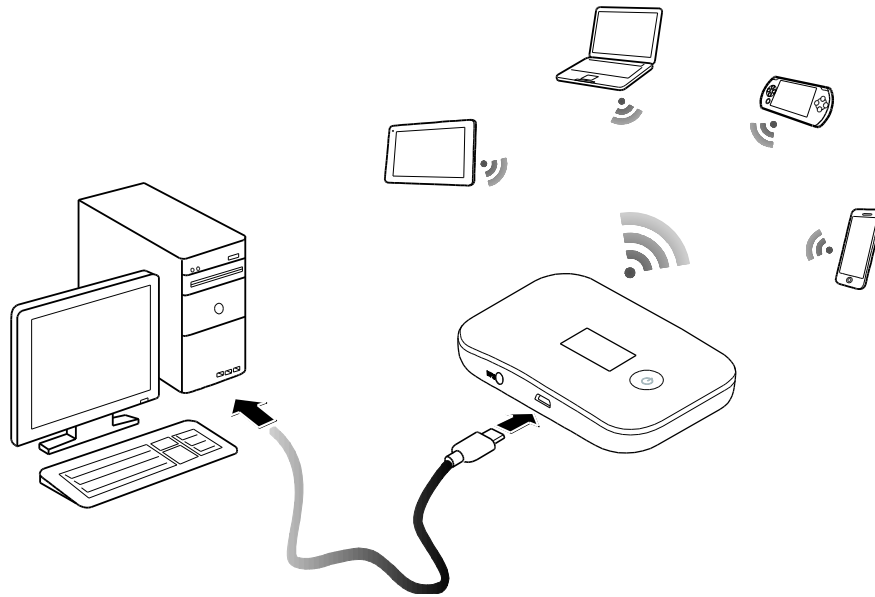
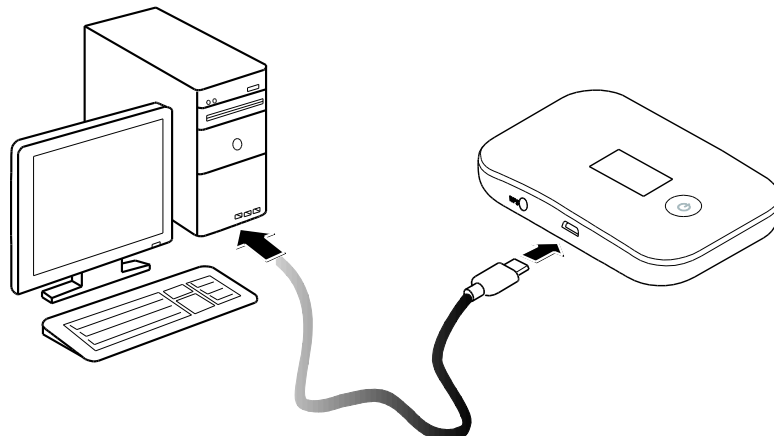


Figure 3-2 Multi-device access via Wi-Fi and USB at the same time

3.1.2 USB Modem

After you connect the E5776s-420 and PC with a USB data cable, the E5776s-420 driver is installed on the PC automatically and the shortcut of the web page is displayed on the PC desktops. You can configure APN on the E5776s-420 WEB page (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.

Figure 3-3 One-device access via USB

3.2 SMS

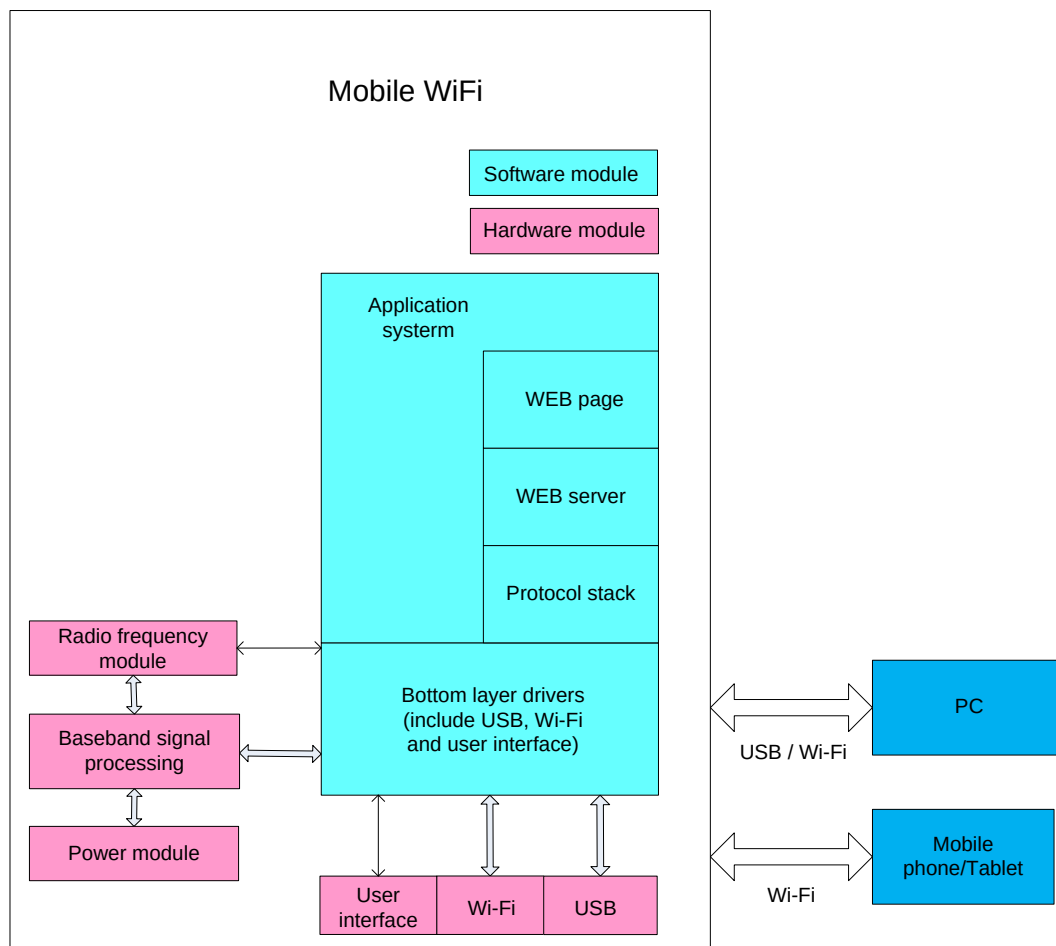
The E5776s-420 supports message writing/sending/receiving. You can manage messages through the WEB page, such as an inbox, an outbox and a draft.

4 System Architecture

4.1 System Architecture

Figure 4-1 shows the system architecture.

Figure 4-1 System architecture



4.2 Functional Modules

1. **Radio frequency module:** It sends/receives radio signals and modulates/demodulates the radio frequency (RF) signals and baseband signals.
2. **Baseband signal processing:** It processes LTE/DC-HSPA+/HSPA+/UMTS baseband digital signals, including:
 - Modulating/Demodulating LTE baseband signals
 - Modulating/Demodulating DC-HSPA+/HSPA+/UMTS baseband signals
 - Encoding/Decoding LTE channel
 - Encoding/Decoding DC-HSPA+/HSPA+/UMTS channel
3. **Bottom layer driver:** It drives peripherals, including a USB device, Wi-Fi devices, a screen, buttons and a SIM card.
4. **Protocol stack system:** It processes protocols of LTE/DC-HSPA+/HSPA+/UMTS and TCP/IP.
5. **Application system:** It provides a management system, including SMS, the PS domain service, Wi-Fi configuration, network service and WEB service, and the WEB page. The user can set management parameters by the WEB page.
6. **User interface:** It provides human-computer interaction, including a screen and buttons.

5 Mobile Network Features

5.1 LTE Category 4

The E5776s-420 supports LTE category 4 which means up to 150 Mbit/s downlink limit rate through LTE air interface is supported.

5.2 Inter-RAT Capability

The E5776s-420 supports following Inter-RAT capability:

LTE<->WCDMA PS handover, Cell resection and Redirection with/without measurements.

6 Appendix

6.1 Compliance Statement

The E5776s-420 complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device does not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired operation.

If this device is modified without authorization from Huawei, the device may no longer comply with FCC requirements for Class B digital devices. In that a case, your right to use the device may be limited by FCC regulations. Moreover, you may be required to correct any interference to radio or television communications at your own expense.

This device has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

However, there is no guarantee that interference will not occur in a particular installation. If this device does cause harmful interference to radio or television reception, which can be determined by turning the device off and on, the user may take one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Reinforce the separation between the device and receiver.
- Connect the device into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio or TV technician for assistance.

SAR tests are conducted using standard operating positions accepted by the FCC with the device transmitting at its highest certified power level in all tested frequency bands, although the SAR is determined at the highest certified power level, the actual SAR level of the device while operating can be well below the maximum value, in general, the closer you are to a wireless base station antenna, the lower the power output.

Before a new model device is available for sale to the public, it must be tested and certified to the FCC that it does not exceed the exposure limit established by the FCC,

Tests for each device are performed in positions and locations (e.g. at the ear and worn on the body) as required by the FCC.

For body worn operation, this device has been tested and meets the FCC RF exposure guidelines when used with an accessory designated for this product or when used with an accessory that contains no metal and that positions the handset a minimum of 1.0 cm from the body.

Non-compliance with the above restrictions may result in violation of RF exposure guidelines.



CONFORMS TO
UL STD. 60950-1
CERTIFIED TO CSA STD.
C22.2 NO. 60950-1

Intertek
4001377

7 Packing List

This chapter describes the items contained in the package of the E5776s-420.

Table 7-1 lists the items contained in the package of the E5776s-420.

Table 7-1 Packing list of the E5776s-420

Item	Quantity	Remarks
Mobile WiFi	1	Standard
USB Cable	1	Standard
Quick Start	1	Standard
Safety Information	1	Standard
Power Adapter	1	Standard
Warranty Card	1	Optional

A

Acronyms and Abbreviations

3G	The Third Generation
AES	Advanced Encryption Standard
APN	access point name
ARPU	average revenue per user
ASCII	American Standard Code for Information Interchange
DC-HSPA+	Dual Carrier High Speed Packet Access Plus
DHCP	Dynamic Host Configuration Protocol
DMZ	demilitarized zone
DNS	Domain Name Server
EDGE	Enhanced Data Rates for GSM Evolution
FDD	frequency division duplex
GPRS	General Packet Radio Service
GSM	Global System for Mobile Communications
HSPA+	High Speed Packet Access Plus
HSUPA	High Speed Uplink Packet Access
HSDPA	High Speed Downlink Packet Access
IEEE	Institute of Electrical and Electronics Engineers
IP	Internet Protocol
LED	light emitting diode
MAC	Medium Access Control
Modem	Modulator Demodulator
OS	Operating System
PC	personal computer

PIN	personal identification number
PS	packet switched
PUK	PIN unblocking key
SIM	subscriber identity module
SMS	short messaging service
SOHO	small office home office
SSID	Service Set Identifier
TD	time division
TKIP	Temporal Key Integrity Protocol
UMTS	Universal Mobile Telecommunications System
UPnP	Universal Plug and Play
USB	Universal Serial Bus
WAN	wireless area network
WEP	wired equivalent privacy
Wi-Fi	Wireless Fidelity
WLAN	wireless local area network
WPA	Wi-Fi Protected Access
WPS	Wi-Fi Protected Setup