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LTE LiTE Indoor Modem

IF-250, equipped with high-gain built-in omni-antenna, serves as an affordable residential wireless broadband solution for 4G carriers operating on FDD-LTE Band 7.

DATASHEET
IF-250

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Simply connect IF-250 to PC with the factory-shipped USB cable, and then you are ready to go!

FDD-LTE Indoor Modem IF-250

DATASHEET

Highlight

As part of LTE LiTE portfolio, IF-250 features to provide FDD-LTE connectivity and deliver stable throughput in streamlined and affordable hardware design.

Cat-4 — **Category 4 configurable,** which facilitates the service and communications between CAT-4 eNodeB and IF-250.

High performance antenna, which helps to complement indoor service coverage.

Powered on by USB. True plug and play, without driver installation.
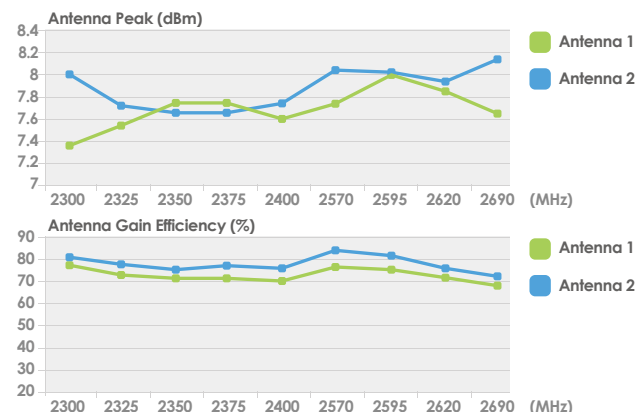
Benefits

Category-4 Proven Throughput

In conform with 3GPP Rel. 9 and being FDD-LTE Cat-4 configurable, IF-250 is competent to communicate with any Cat-4 eNodeB. This helps to make the most of eNodeB resources and increase communication efficiency.

	Hosted (w/t WCM)		Hostless (w/o WCM)	
	DL	UL	DL	UL
CAT-4 CPE configured as Cat.4 device	147Mbps	50Mbps	120Mbps	40Mbps
CAT-3 CPE configured as Cat.3 device	100Mbps	50Mbps	90Mbps	40Mbps

*Subject to optmized MCS config. and UL window size.

High Performance Built-in Antenna

Following Green Packet's wireless broadband solution design legacy, IF-250 is equipped with built-in omni- antennas with peak gain up to 8dBi, delivering more EIRP than other indoor units of the same category.

Antenna Peak (dBm)

- Antenna 1
- Antenna 2

8.4, 8.2, 8, 7.8, 7.6, 7.4, 7.2, 7 — 2300, 2325, 2350, 2375, 2400, 2570, 2595, 2620, 2690 (MHz)

Antenna Gain Efficiency (%)

- Antenna 1
- Antenna 2

90, 80, 70, 60, 50, 40, 30, 20 — 2300, 2325, 2350, 2375, 2400, 2570, 2595, 2620, 2690 (MHz)

Higher antenna efficiency suggests more percentage of transmitter power can be radiated out by antenans. IF-250 has the antenna efficiency over 70%, assuring to make the best of its built-in high-performance antenna.

Plug-and-Play

IF-250 is designed to power on via USB and does not require driver installation on subscribers' side.

Desktop
Laptop
USB
Laptop
IF-250
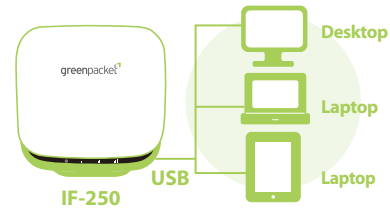
*Subject to the OS version that supports RNDIS or CDC.

On any CDC or RNDIS platform, IF-250 will get started to set up 4G connectivity and provide the Internet access once it is connected to the USB port. This takes no learning curve for subscribers getting familiar with how to use IF-250!

Auto Firmware Upgrade Mechanism

In addition to TR-069, a common device management practice, IF-250 allows operators to complete firmware upgrade via HTTP or FTP file server.

Once connected to the Internet, the mechanism inside CPE will automatically check with operators' remote file server and identify whether an upgrade is available.

With proper setting enabled, this makes eNodeB off-balance possible, avoiding overwhelming upgrade request or traffic directed to one single eNodeB at the same time.
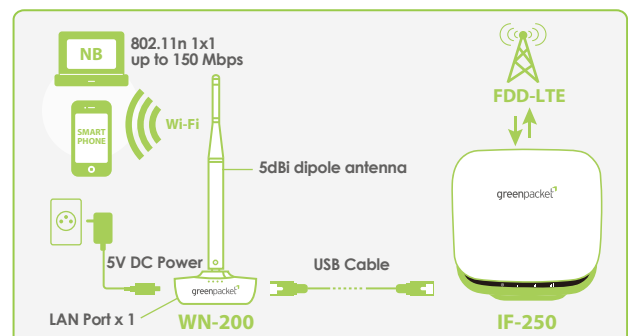
Log Analysis via WAN Traffic Mirroring

Particularly concocted for remote technical assistance, all the WAN, or FDD-LTE, packets may be redirected to LAN and saved to the local machine as log files for further interpretation. This does not involve techncial staff attending the filed and, thus, facilitates operators' troubleshooting process.

4G Broadband Share via Wi-Fi Router

Working with Green Packet WN-200* to enable broadband sharing is an **economic** approach to making the best of FDD-LTE connectivity.

*Not included in IF-250 package.

NB — 802.11n 1x1 up to 150 Mbps
SMART PHONE — Wi-Fi
FDD-LTE
5dBi dipole antenna
5V DC Power
USB Cable
LAN Port x 1
WN-200
IF-250

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$\mathcal{P}$ackage information

- IF-250 FDD-LTE indoor USB modem x 1
- Box dimension:

    184 x 182 x 60 (mm)
- USB 2.0 cable (2m) x 1
- Package weight: 300g

$\mathcal{T}$echnical Specification

User Interface

SIM Card	• SIM Slot x 1 Support 1.8V / 3.3V USIM
USB	• USB 2.0 x 1
LED Indication	• Power & Data x 1 (Blue) • LTE signal x 3 (Green)
Device Management	• Local FW update via Web GUI • OTA via HTTP / FTP update • TR-069* *Requires extra IOT effort*
Supported OS	• Windows OS / MAC OS / Ubuntu 13.04 / Fedora 19 / Chromebook / OTG-enabled Android Plug-and-play ; no driver installation required

LTE

Standard	• 3GPP Rel. 9

Frequency Range	• FDD-LTE Band 7
	   Uplink : 2500 MHz ~ 2570 MHz
	   Downlink : 2620 MHz ~ 2690 MHz

PDN	• Support Multiple PDN
Max. RF Transmit Power	• 23 +/- 1 dBm, 3GPP compliant
Rx Sensitivity (dBm)	• Comply with 3GPP TS 36.101

» 5MHz:

QPSK $1/3$ = -100	QPSK $1/2$ = -97
QPSK $3/4$ = -94	16QAM $1/2$ = -91
16QAM $3/4$ = -86	64QAM $2/3$ = -83
64QAM $3/4$ = -80	64QAM $4/5$ = -79

» 10MHz:

QPSK $1/3$ = -97	QPSK $1/2$ = -94
QPSK $3/4$ = -91	16QAM $1/2$ = -88
16QAM $3/4$ = -83	64QAM $2/3$ = -80
64QAM $3/4$ = -77	64QAM $4/5$ = -76

» 15MHz:

QPSK $1/3$ = -95.2	QPSK $1/2$ = -92.2
QPSK $3/4$ = -89.2	16QAM $1/2$ = -86.2
16QAM $3/4$ = -81.2	64QAM $2/3$ = -78.2
64QAM $3/4$ = -75.2	64QAM $4/5$ = -74.2

» 20MHz:

QPSK $1/3$ = -94	16QPSK $1/2$ = -91
QPSK $3/4$ = -88	16QAM $1/2$ = -85
16QAM $3/4$ = -80	64QAM $2/3$ = -77
64QAM $3/4$ = -74	64QAM $4/5$ = -73

Antenna	• 1Tx / 2Rx Built-in Omni-antenna up to 8dBi at peak gain

Networking

Internet Protocol	• IPv4 • IPv4-IPv6 dual stack • IPv6
IP Configuration Method	• DHCP • Static • MTU
Operation Mode	• NAT Mode (Up to 5 devices) • Bridge Mode via IP Pass-through
NAT	• NAT/NAPT • VPN Pass-through
NAT ALG	• FTP ALG • H.232 ALG • PPTP ALG • SIP ALG
DHCP	• DHCP Client • DHCP Server
Firewall	• Built-in Firewall
Port Forwarding	• Support

Electrical & Mechanical

Dimensions (H x W x D)	• 165 x 166 x 43 (mm)
Weight	• 250g (Device only)
Power Consumption	• < 3.3 W (23dBm+) • < 5 mW (LTE idle mode)
Temperature	• 0^{0}C ~ 40^{0}C (Operating) • -20^{0}C ~ 70^{0}C (Storage)
Humidity	• 10%~85% non-condensing (Operating) • 5%~95% non-condensing (Storage)
Material	• RoHS compliant
MTBF	• 400,000 hours

Regulation Compliance

CE	• RF
	   EN301908-1
	   EN301908-13
		• EMC
		   EN301489-1, -24
		   EN300386

	• Safety
	   EN60950-1
		• SAR
		   EN62311

FCC	• FCC Part 27M • FCC Part 15B • FCC 2.1091 (RF Exposure)	

* Note:
While in operating, the SIM slot cover shall be firmly closed.
IF series doesn't support SIM card hot swapping.

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FCC Regulations

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

FCC RF Exposure Compliance

This equipment complies with radio frequency (RF) exposure limits adopted by the Federal Communications Commission for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20 cm between the radiator & your body.

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This equipment 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. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

—Reorient or relocate the receiving antenna.
—Increase the separation between the equipment and receiver.
—Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
—Consult the dealer or an experienced radio/TV technician for help.

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For more information on Greenpacket's products and solutions, please contact us at marketing.gp@greenpacket.com

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