T99B132.00
User Manual

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- Revision History

Date	Author	Revision	Remark
2018/09/05	Fabio Chen	0.1	Initial Version
2020/03/20	Fabio Chen	1.0	Addition the production spec and for FCC regulation.

Federal Communication Commission Interference Statement

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 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.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

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.

Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Country Code selection feature to be disabled for products marketed to the US/CANADA

1 Purpose

This document is a brief introduction on Femtocell Installation and setup.

Table 1 Product Specification

Radio	LTE TDD	
	Frequency	B46(5150~5250MHz, 5725~5850MHz)
	TX Power	EIRP 30dBm (whole system)
	Sensitivity	-93.5dBm
Hardware Configuration	MU-MIMO	2T x 2R
	LAN	10/100/1000 Base-T Ethernet RJ45
	RESET	External Access
	Antenna	2 * external LTE Antenna
	Power	12V DC/1.5A input
	Memory	EMMC (DDR3 512MB, NAND 256MB)
	LED	3 Single-Color Status LEDs
	IO Port	Ethernet RJ45
Antenna	Type	External LTE Antenna
	Gain	6dBi
	Isolation	20dB
Throughput	TDD Configuration 1 70Mbps(DL), 20Mbps(UL)	
Power	<22W	
Dimension	220mm x 220mm x 48 mm	
Weight	>1kg	
Environmental	Working temperature	-20˚C ~ +55˚C, Storage humidity: 5% ~ 95%
	IP rating	IP3x
	Mounting	Wall, cell mount

2 Appearance introduction

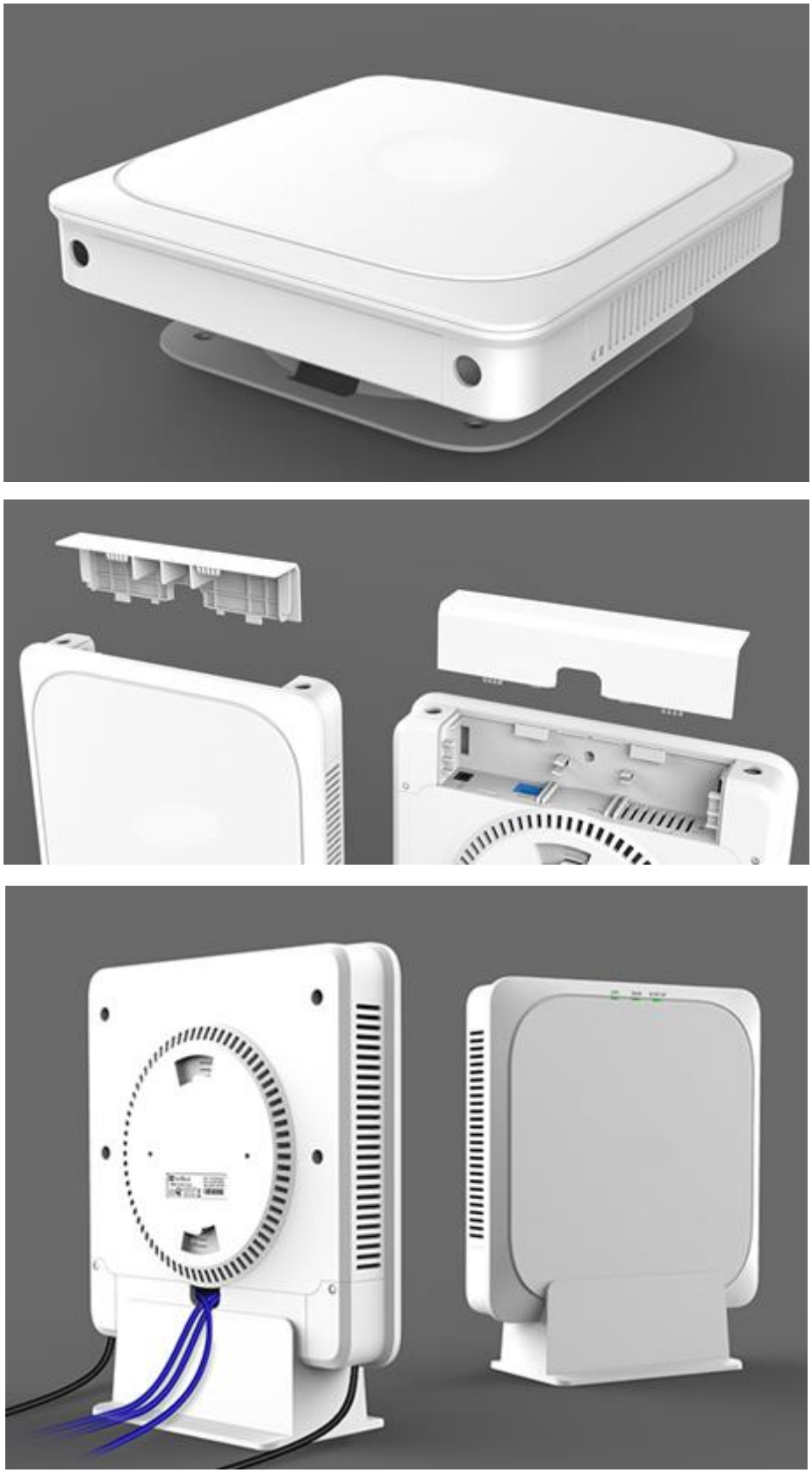

Figure 1 Appearance

3 Overview

3.1 Setup steps

The installation and setup of the HeNB is easy, it adopts zero-touch configuration. User does not need any manual configuration on the HeNB. All configuration data will be provisioned from remote management system.

Steps for complete installation is as below

Step1. Connect the ADSL router to the ADSL line

Step2. Connect HeNB's WAN port to ADSL router's LAN port

Step3. Power on ADSL router and wait for the READY LED turns on

Step4. Power HeNB and wait for the STATUS and LTE LED turns solid green

3.2 Femtocell FT setup illustration

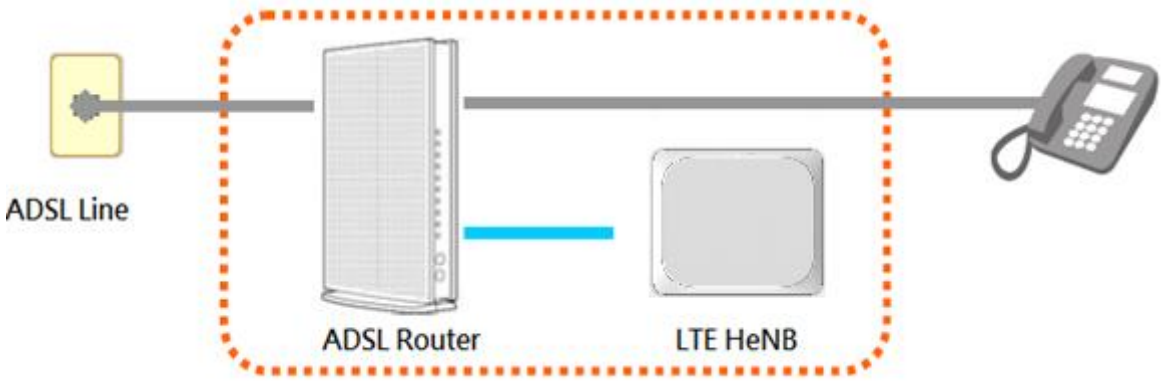

Figure 2 Composition of setup

4 LED

4.1 LED indication definition and color

●	Power Off
●	Green Solid
★	Green blink(SLOW) 1 sec ON/OFF
☆	Green blink(FAST) 0.5 sec ON/OFF
●	Red Solid
★	Red blink(SLOW) 1 sec ON/OFF
☆	Red blink(FAST) 0.5 sec ON/OFF
★	Blue blink(SLOW) 1 sec ON/OFF

4.2 STATUS LED indication

The Status LED indicates the information of Power and Alarm

The power information is in green color.

The alarm information is in red color.

Item	Description	LED
Power off	Power off	●
Power on	Power on	●
Initialization - H/W boot	H/W startup	●
Initialization - Location Locking	GPS under location service	★
Alarm	For the LED patern and priority of each alarm please refer to the AlarmList file.	

4.3 WAN LED indication

The WAN LED indicates the link status of Ethernet ports.

Item	Description	LED
Off or Link Down	Power off or WAN Port is not connected	●
Link up	Ethernet port is connected	●
Active	Traffic is transmitting or receiving	☆

4.4 LTE LED indication

The LTE LED indicates the HeNB service status, and the events of attach/detach of UEs.

Item	Description	LED
Off or Link Down	Power off or LAN Port is not connected	●
Initialization - S/W boot	S/W startup	☆
Initialization - Provisioning	Downloading parameter	☆
Initialization - Listening mode	Surveying RF environment	☆
Initialization - Connecting	Applying configuration	☆
Initialization - Location Locking	GPS under location service	★
In Service	Normal operation	●
In Service, UE attach/detach	First UE attach blink 7 times then solid. After that, any UE attach will blink 2 times then solid. Any UE detach will blink 2 times then solid. The latest UE detach will blink 7 times then solid.	★→●

Figure 3 LED indication

Cautions:

- Do not place the device in an environment which is with high humidity. Damped device may make humans in danger.
- When the thunder or storms, do not touch cable in case of short.
- Do not plug the cables or adaptors which are not defined in the package.
- Do not bend the LAN cable or AC Adaptor cable.
- Do not strongly knock the device.
- Do not place the device on the top of paper materials.
- Do not place the device where is unstable. Device maybe broken due to falling or striking.
- Do not lay down the device or pile with other electronic devices.
- Do not place the device in a high temperature environment or near windows.

Professional installation instruction

1. Installation personal

   This product is designed for specific application and needs to be installed by a qualified personal who has RF and related rule knowledge. The general user shall not attempt to install or change the setting.

2. Installation location

   The product shall be installed at a location where the radiating antenna can be kept 20cm from nearby person in normal operation condition to meet regulatory RF exposure requirement.

3. External antenna

   Use only the antennas which have been approved by the applicant. The non-approved antenna(s) may produce unwanted spurious or excessive RF transmitting power which may lead to the violation of FCC limit and is prohibited.

4. Installation procedure

   Please refer to user's manual for the detail.

5. Warning

   Please carefully select the installation position and make sure that the final output power does not exceed the limit set force in relevant rules. The violation of the rule could lead to serious federal penalty.