Nova430i

Outdoor 4x250mW eNodeB

Quick Guide

P/N: 1701000170

Document version: 02

1. Product Overview

1.1   Introduction

Baicells Nova430i is an advanced two-carrier outdoor eNodeB based on LTE TDD technology, which is developed by Baicells. It is capable of operating in Carrier Aggregation (CA) or Dual Carrier (DC) mode.

In CA mode, contiguous or non-contiguous channels are aggregated to provide up to 40 MHz bandwidth. This essentially doubles the downlink capacity when the CA 430i is used with all CAT6/7 user equipment.

In DC mode, each carrier is treated as an independent cell, supporting 96+96 users, and each supporting 5, 10, 15, or 20 MHz bandwidth. Using a Nova430i in DC mode simplifies and streamlines the deployment of split sectors.

In addition to having the option to operate Nova430i in either CA or DC mode, HaloB (an embedded MME option) comes as a default feature in the base software. Baicells's patented HaloB solution migrates the necessary core network functions to the eNB.

1.2   Features

▫   Compact, all-in-one design of internal antenna and integrated GPS

▫   Citizens Broadband Radio Service (CBRS) band covers with dual carrier.

▫   Based on 3GPP international standard TDD LTE technology; provide high speed data service; support a maximum aggregation peak rate of DL: 220Mbit/s, UL: 14Mbit/s with 2x20MHz spectrum, using CAT 6/7 or higher users.

▫   Support flexible uplink and downlink time slot ratio: 1(2:2), 2(1:3), and high speed data transmission.

▫   Support 5MHz/10MHz/15MHz/20MHz operation bandwidth.

▫   96 concurrent users per carrier, 96+96 in DC mode.

▫   Support copper (RJ-45) backhaul, flexible to deploy.

▫   PoE++ power supply, only one Ethernet cable required for data transmission and power supply.

▫   Security services to provide timely protection against potential security risks and illegal intrusion.

▫   Support simple and convenient local and remote web management.

▫ Integration as required, easy to installation and deployment, accurate coverage and improved network capacity.

▫ Support network management functions, which includes the management, monitoring and maintenance.

1.3 Appearance
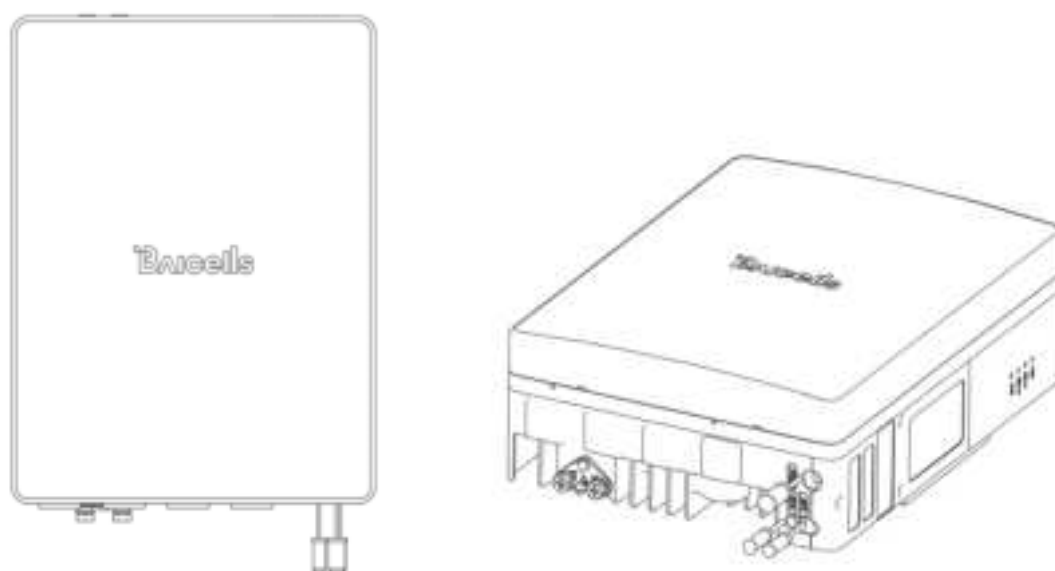
The Nova430i interfaces are described in Table 1-1.

Table 1-1 Nova430i Interface Description

Interface Name	Description
ETH	RJ-45 interface (FE/GE)
	Used for power supply, debug or data backhaul.
	PoE++, complied with IEEE 802.3bt standard
OPT	Reserved optical interface.

The Nova430i interface indicators are described in Table 1-2.

Table 1-2 Nova430i Interface Indicators

Identity	Color	Status	Description
PWR	Green	Steady On	Power on
		OFF	No power supply
CELL1	Green	OFF	CELL1 is in inactivated.
		Fast flash: 0.1s on,0.1s off	CELL1 is in deactivated.
		Slow flash: 1s on,1s off	CELL1 is in activated.
CELL2	Green	OFF	CELL2 is in inactivated.
		Fast flash: 0.1s on,0.1s off	CELL2 is in deactivated.

Identity	Color	Status	Description
		Slow flash: 1s on,1s off	CELL2 is in activated.
ALM	Red	Steady On	Hardware alarm
		OFF	No alarm

1.4 Technical Specification

1.4.1 Hardware Specification

Item	Description
LTE Mode	LTE TDD
LTE Frequency	Band48, and partial band42,band43
Channel Bandwidth	5MHz, 10MHz, 15MHz, 20MHz per carrier
Output Power	24 dBm per antenna
Receive Sensitivity	-100 dBm
Synchronization	GPS
Backhaul	1 RJ-45 Ethernet interface (1 FE/GE)
MIMO	DL 2 x 2 on each carrier, 2 carriers
Dimension	309mm(H) x 227mm(W) x 104mm(D)
Installation Type	Pole or wall mount
Antenna Type	Built-in 4 high-gain LTE antennas · Horizontal Beamwidth 65±10° · Vertical Beamwidth 17° · Polarization: ±45°
Antenna Gain	13.5 ± 0.8 dB
Power Consumption	Typical 20W, MAX 25W
Power Supply	PoE++, comply with IEEE 802.3bt standard
Weight	4.85kgs
MTBF	≥ 150000 hours
MTTR	≤ 1 hour

NOTE: The test method of receiving sensitivity is proposed by the 3GPP TS 36.104, which is based on 5MHz bandwidth, FRC A1-3 in Annex A.1 (QPSK, R=1/3, 25RB) standard.

1.4.2 Global Part Numbers

Model No.	Description
pBS3101S	Band48, 10MHz, 20MHz per carrier, DL 2 x 2 on each carrier, 2 carriers, Built-in antenna.

1.4.3 Software Specification

Item	Description	
LTE Standard	3GPP Release 15	
Peak Rate	DC	• 2x20 MHz: SA1: DL 2x80 (160)Mbps, UL 2x28 (56)Mbps SA2: DL 2x110 (220)Mbps, UL 2x14 (28)Mbps • 2x10MHz: SA1: DL 2x40 (80)Mbps, UL 2x14 (28)Mbps SA2: DL 2x55 (110)Mbps, UL 2x7 (14)Mbps
	CA	• 2x20 MHz: SA1: DL 160Mbps, UL 28Mbps SA2: DL 220Mbps, UL 14Mbps • 2x10MHz: SA1: DL 80Mbps, UL 14Mbps SA2: DL 110Mbps, UL 7Mbps
User Capacity	96 concurrent users in single carrier mode 96+96 concurrent users in DC mode 96 concurrent users in CA mode	
QoS Control	3GPP standard Quality of Service Class Identifier (QCI), support SC1	
Modulation	UL: QPSK, 16QAM, 64QAM DL: QPSK, 16QAM, 64QAM	
Voice Solution	VoLTE	
Traffic Offload	Local breakout	
SON	Self-organizing network: • Automatic setup • Automatic Neighbor Relation (ANR) • PCI confliction detection	
Network Mgmt	TR-069,SNMP	
Maintenance	Support remote/local maintenance, based on SSH protocol	
	Support online status management	
	Support performance statistics	
	Support failure management	
	Support configuration management	
	Support local or remote software upgrading and loading	
	Support log	
	Support connectivity diagnosis	
	Support automatic start and configuration	
	Support alarm reporting	
	Support user information tracing	
	Support signaling trace	

1.4.4 Environment Specification

Item	Description
Operating Temperature	-40°C to 55°C
Storage Temperature	-50°C to 65°C
Humidity	5% to 95%
Atmospheric Pressure	70 kPa to 106 kPa
Ingress Protection Rating	IP66
Power Interface Lightning Protection	Differential mode: ±10KA Common mode: ±20KA

1.4.5 Regulatory Compliance

FCC Compliance

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.

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

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.

Warning:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 40cm between the radiator & your body.
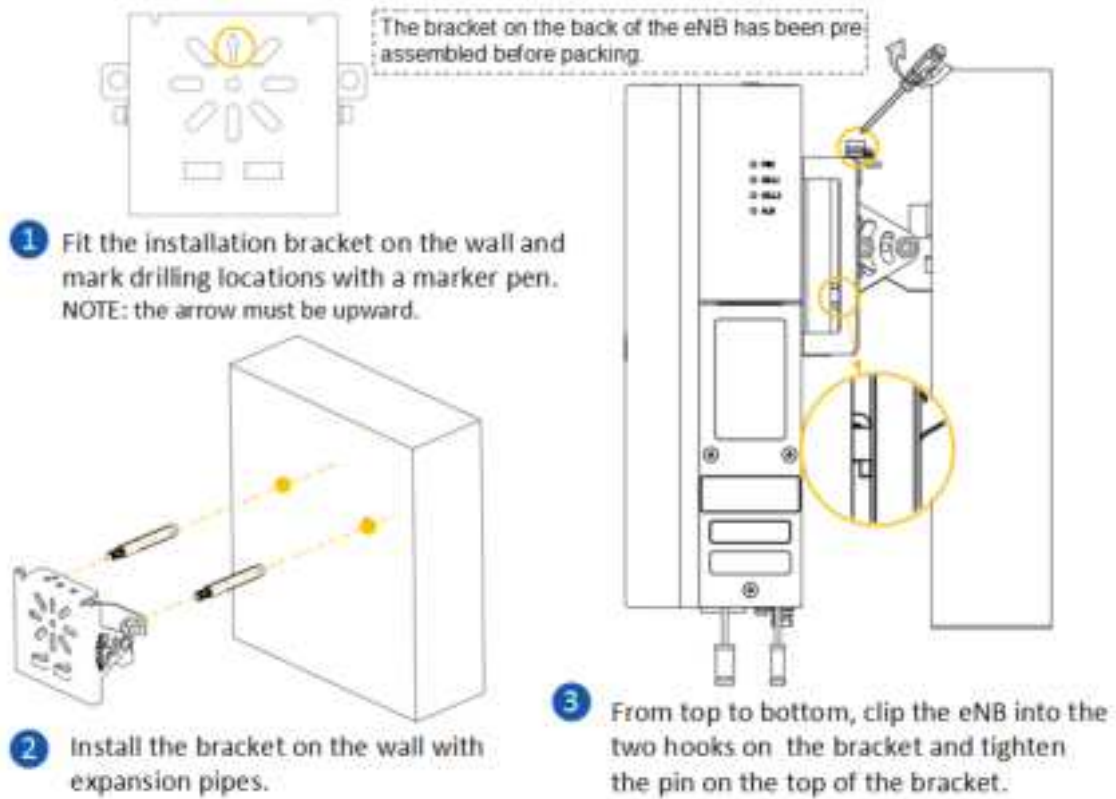
2. Installation

2.1 Install on Pole

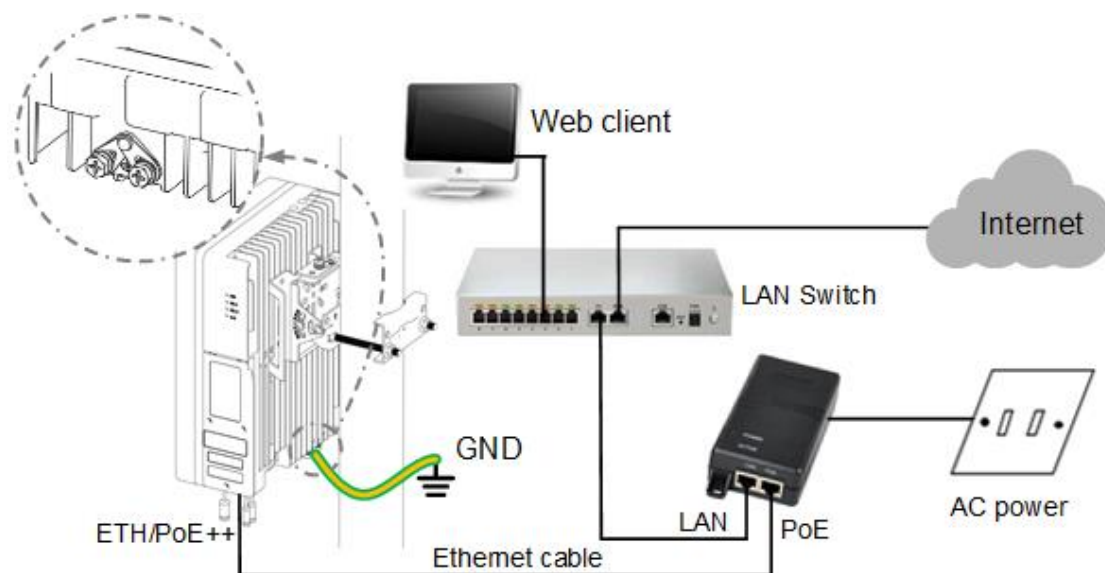The position of the eNB on the pole should be at least 47 inches (120 cm) in height.
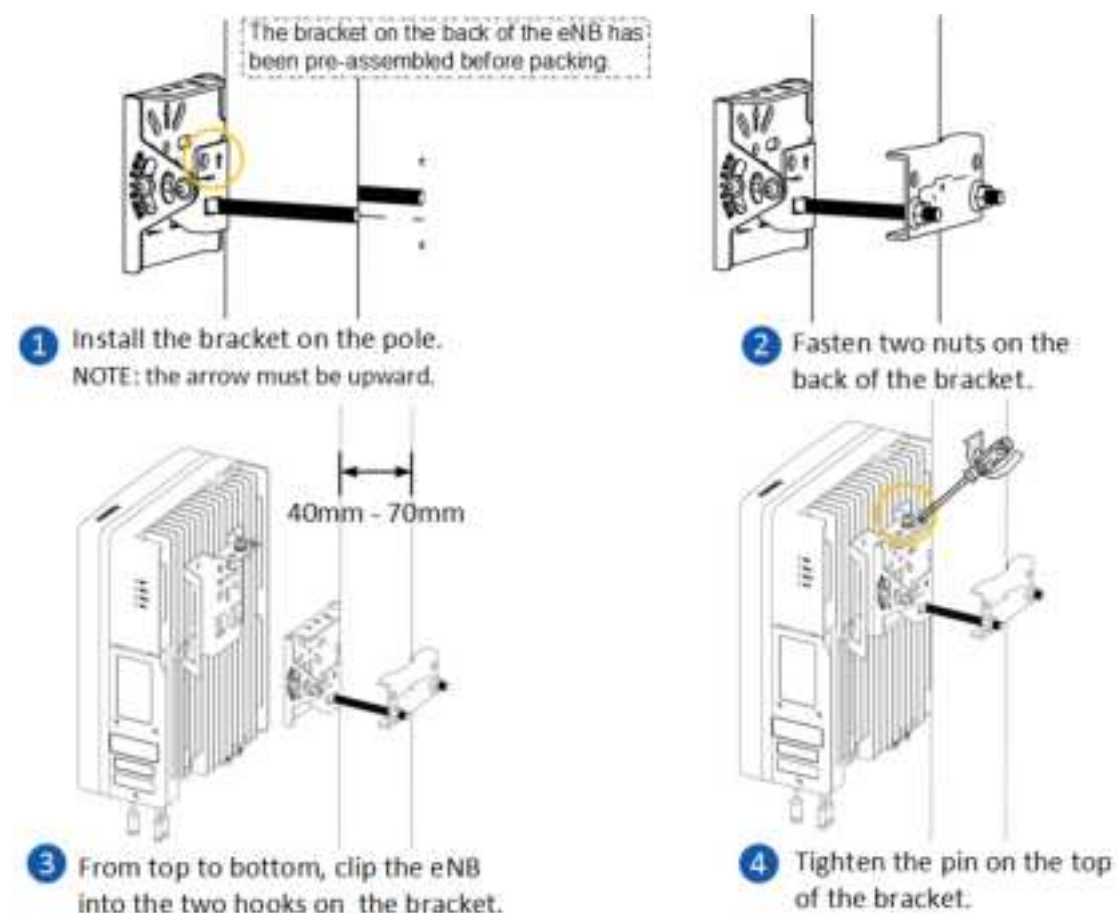
After installation, adjust the eNB to a proper angle by adjusting the adjustable bracket.

2.2 Install on Wall

NOTE: The wall must bear at least 4 times the weight of the eNB.

① Fit the installation bracket on the wall and mark drilling locations with a marker pen. NOTE: the arrow must be upward.

② Install the bracket on the wall with expansion pipes.

③ From top to bottom, clip the eNB into the two hooks on the bracket and tighten the pin on the top of the bracket.

2.3　Connect Cables

Power on the eNB, and wait a few minutes while the eNB boots up. Per the previous Table 1-1 and Table 1-2 in "1.3 Appearance", check that the LED indicators are lighting as expected.