Nova436Q

Outdoor Base Station Datasheet

INTRODUCTION

The Baicells Nova436Q is an advanced two-carrier outdoor eNodeB (eNB) compliant with 3GPP LTE TDD technology. This 4x1W eNB operates in Carrier Aggregation (CA) mode or Dual Carrier (DC) mode.

In CA mode, Nova436Q supports 2CC (2 component carriers) DL/UL CA. 2CC DL/UL CA doubles DL/UL peak throughput comparing to that of a single carrier. By aggregating 2 separated spectrum resources into a virtual contiguous spectrum resource. In DC mode, each carrier is treated as an independent cell, supporting 128+128 users, with each cell supporting 5, 10, 15, or 20 MHz bandwidth. Using a Nova436Q in DC mode simplifies and streamlines the deployment of split sectors.

In addition, HaloB (an embedded EPC option) is available on the Nova436Q as part of the base software. The Baicells patented HaloB solution migrates the necessary core network functions to the eNB.

This product comes with a standard one-year warranty; an extended warranty is available.

HIGHLIGHTS

NOTE: Features can vary based on model or region.

- Standard LTE TDD Band 42/48
- GUI-based local and remote Web management
- Excellent Non-Line-of-Sight (NLOS) coverage
- Peak rate: Up to DL 290Mbps and UL 70Mbps with 2x20MHz bandwidth
- 2CC DL/UL CA improves the spectrum efficiency of fragmented spectrum resources.
- Suitable for private and public deployments; any IP based backhaul can be used, including public transmission protected by Internet Protocol Security (IPsec)
- 128 RRC connected users per carrier, 128+128 in DC mode; upgradeable to higher capacity in future releases
- Supports 4-port antenna or 2 antennas with 2 ports
- Integrated small cell form factor for quick and easy installation
- Configured out of the box to work with Baicells Cloud Core
- HaloB as embedded EPC solution
- Supports Transparent Bridge Mode
- Supports Citizens Broadband Radio Service (CBRS) with proxy/direct Spectrum Access System (SAS)
- Supports Multi Operator Radio Access Network (MORAN)
- Support Inter Cell Interference Coordination (ICIC) with static
- Plug-and-play with Self-Organizing Network (SON) capabilities
- Inter operation with all standard LTE Evolved Packet Core (EPC)
- Supports TR-069 network management interface
- Lower power consumption, which reduces OPEX, can be powered easily by Baicells compact outdoor smart UPS

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TECHNOLOGY

Standard	LTE TDD RAN (3GPP R15 compliant)
TDD UL/DL Configuration	1, 2, 6 (with Special Subframe Configuration 7)
Frequency Band	B42 (3400 MHz – 3600 MHz) B48 (3550 MHz – 3700 MHz)
Channel Bandwidth	SC: 5/10/15/20 MHz CA: 40 MHz as maximum aggregated bandwidth
Multiplexing	MIMO: 2x2 (DL)
Security	Radio: SNOW 3G/AES-128 Backhaul: IPsec (X.509 AES-128, AES-256, SHA-128, SHA-256)

INTERFACE

Ethernet Interface	1 optical (SFP) and 1 RJ-45 Ethernet interface (1 GE)
Power Supply	-40VDC ~ -57VDC, nominal -48VDC AC adaptor (multi-national standards)
Protocols Used	IPv4/IPv6 (Dual Stack), UDP, TCP, ICMP, SNMPv2c, NTP, SSH, IPsec, TR-069, HTTP/HTTPs, 1588v2, DHCP
Network Management	IPv4/IPv6, HTTP/HTTPs, SNMPv2c, TR-069, SSH, Embedded EPC
VLAN/VxLAN	802.IQ/VxLAN
LED Indicators	4 X STATUS LED CELL1/CELL2/ALM/PWR

PERFORMANCE

Peak Data Rate (DC)	2x20 MHz	DL (Mbps)	UL (Mbps)
	UL/DL Config 1	2x105	2x28
	UL/DL Config 2	2x145	2x14
	UL/DL Config 6	2x85	2x35
	2x10 MHz	DL (Mbps)	UL (Mbps)
	UL/DL Config 1	2x51	2x14
	UL/DL Config 2	2x70	2x7
	UL/DL Config 6	2x42	2x17

Peak Data Rate (CA)	2x20 MHz	DL (Mbps)	UL (Mbps)
	UL/DL Config 1	210	56
	UL/DL Config 2	290	28
	UL/DL Config 6	170	70
	2x10 MHz	DL (Mbps)	UL (Mbps)
	UL/DL Config 1	102	28
	UL/DL Config 2	140	14
	UL/DL Config 6	84	34
	20MHz + 10MHz	DL (Mbps)	UL (Mbps)
	UL/DL Config 1	156	42
	UL/DL Config 2	215	21
	UL/DL Config 6	127	52
	20MHz + 15MHz	DL (Mbps)	UL (Mbps)
	UL/DL Config 1	182	49
	UL/DL Config 2	250	24
	UL/DL Config 6	148	61
User Capacity	Up to 128 RRC connected users per cell (4 users per TTI) • SC/CA: 128 RRC connected users • DC: 128+128 RRC connected users		
Maximum Deployment Range	12 kilometers		
Latency	30 milliseconds		
Receive Sensitivity	-100 dBm (per channel)		
Modulation	MCS0 (QPSK) to MCS27 (256QAM) DL: QPSK, 16QAM, 64QAM, 256QAM UL: QPSK, 16QAM, 64QAM		
Transmit Power Range	0 to 30 dBm per channel (combined +36dBm, configurable) (1 dB interval)		
Quality of Service	Nine-level priority indicated by QoS Class Identifiers (QCI)		
ARQ/HARQ	Supported		
Synchronization	GPS, 1588v2		

MODULATION LEVELS (ADAPTIVE)

MCS	Modulation Scheme	RSRP (dBm)	Coverage Distance (km)
0 - 4	QPSK	-120 ≤ RSRP < -110	9 < D ≤ 12
5- 9	16QAM	-110 ≤ RSRP < -100	4 < D ≤9
10 - 19	64QAM	-100 ≤RSRP < -85	2 < D ≤ 4
20 - 27	256QAM	RSRP ≥ -85	D ≤ 2

NOTE: The information provided is for reference only as the environment can impact modulation levels.
Scenario: Base Station height is 30 meters; Customer User Equipment (CPE) height is two meters.

FEATURES

Voice	VoLTE*
NSA	Supported
SON	Self-Organizing Network • Automatic setup • Automatic Neighbor Relation (ANR) • PCI confliction detection
EPC	HaloB (Embedded EPC)
Traffic Offload	Local breakout
Layer 2 Support	Transparent Bridge Mode
Maintenance	• Local/Remote Web maintenance • Online status management • Performance statistics • Fault management • Local/Remote software upgrade • Logging • Connectivity diagnosis • Automatic start and configuration • Alarm reporting • User information tracing • Signaling trace

* Planned for future release

LINK BUDGET

Antenna Connection	External high-gain antenna with N-Type connectors, either (2) 2-port antennas or (1) 4-port antenna
GPS Antenna	External GPS antenna, N-Type connector
Power Control	UL Open-loop/Closed-loop Power Control, DL Power Allocation (3GPP TS 36.213 compliant)

PHYSICAL

Surge Suppression	Yes
Power Interface Lightning Protection	Differential mode: ±10 KA Common mode: ±20 KA
MTBF	≥ 150000 hours
MTTR	≤ 1 hour
Ingress Protection Rating	IP66
Operating Temperature	-40°F to 131°F / -40°C to 55°C
Storage Temperature	-49°F to 158°F / -45°C to 70°C
Humidity	5% to 95% RH
Atmospheric Pressure	70 kPa to 106 kPa
Power Consumption	Typical 60W, maximum 100W
Weight	16.5 lbs / 7.5 kg
Dimensions (HxWxD)	With joint: 13.1 x 9.4 x 4.1 inches 333 x 240 x 105 millimeters Without joint and handle: 11.8 x 9.4 x 4.1 inches 300 x 240 x 105 millimeters
Installation	Pole or wall mount

MODEL NUMBERS

mBS31001B	Nova436Q outdoor TDD eNB - LTE Release 15, 4x1W (30 dBm), 1GE+1OPT, 3.5 GHz (3550 MHz -3700 MHz), B48, external antenna. • FCC certification: 2AG32MBS3100196N • IC certification: 20982-MBS31001
mBS31004	Nova436Q outdoor TDD eNB - LTE Release 15, 4x1W (30 dBm), 1GE+1OPT, 3.5 GHz (3400 MHz -3600 MHz), B42, external antenna.

NOTE: Customized versions can be requested.