Nova-436Q Outdoor TDD eNodeB

INTRODUCTION

The Baicells Nova-436Q is an advanced two-carrier outdoor eNodeB (eNB) that is compliant with 3GPP LTE TDD technology. This 4x1W eNB is capable of operating in Carrier Aggregation (CA) mode or Dual Carrier (DC) / split mode[a].

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 436Q is used with all CAT6/7 user equipment. Nova-436Q will support CBRS 3.55-3.7 GHz frequencies including bands 42, 43, and 48.

In DC mode, each carrier is treated as an independent cell, each supporting 5, 10, 15, or 20 MHz bandwidth. The Nova-436Q simplifies and streamlines the deployment of split sectors.

In addition to having the option to operate Nova-436Q in either CA or DC mode, HaloB (an embedded EPC option) comes as a default feature in the base software. Baicells's patented HaloB solution migrates the necessary core network functions to the eNB so that it operates independently, with no connection through an S1 link to the EPC (core network).

This product comes with a standard product warranty; extended warranty is available.

FEATURES

Note: Features may vary based on model or region.

Easy Deployment

- Suitable for private and public deployments; any IP based backhaul can be used, including public transmission
- Integrated small cell form factor for quick and easy installation
- Configured out of the box to work with Baicells CloudCore
- Embedded HaloB ("lite" EPC) solution
- Supports GPS synchronization
- CBRS ready
- Plug-and-play with future self-organizing network (SON)[a] capabilities
- IoT with most EPC vendors

Better Performance

- Standard LTE TDD Bands 42/43/48
  - Customization may be requested; contact sales_na@baicells.com.
- Complies with 3GPP Release 13 standards
- Supports 5/10/15/20 MHz bandwidth per carrier
- Excellent non-line-of-sight (NLOS) coverage
- Aggregate peak rate: (up to) DL 220 Mbps, UL 56 Mbps[b] with 2x20 MHz and using all Cat6/7 UEs
- 32 concurrent users; upgradeable to higher capacity in future software releases
- Lower power consumption, which reduces OPEX
- Supports 4-port antenna or 2 antennas with 2 ports

Easy Management

- GUI-based local and remote Web management
- TR069 network management interface support
- Flexible cloud or local NMS/EMS management using Baicells Operations Management Console (OMC)

Flexible Operating Mode Options

- HaloB (embedded "lite" EPC)
- Carrier Aggregation license available
- Dual Carrier[a] license available

HARDWARE SPECIFICATIONS

LTE Mode	TDD
Frequency Bands	42/43/48
Channel Bandwidth	5/10/15/20 MHz per carrier
Max Output Power	30 dBm / antenna
Power Supply	+/- 48VDC, AC adaptor (multi-national standards)
Power Consumption	< 60W
Receive Sensitivity	-100 dBm
Synchronization	GPS
Interfaces	1 optical (SFP) and 1 RJ-45 Ethernet interface (1 GE)
MIMO	DL: 2x2 on each carrier
Installation	Pole or wall mount
Antenna	eNB has N-Type connectors and supports external high-gain antenna(s), either (2) 2-port antennas or (1) 4-port antenna
Dimensions (HxWxD)	12.2 x 9.4 x 4.1 inches 310 x 239 x 105 millimeters
Weight	12.1 lbs / 5.5 kgs

NOTES:

[a] Future software upgrade

[b] Future software release will support uplink CA, which can double the single carrier 28 Mbps UL capacity, depending on operating mode

SOFTWARE SPECIFICATIONS

LTE Standard	3GPP Release 13		
Peak Rate (up to) Rates based on using all Cat6/7 UEs SA - Special Subframe Assignment (configurable parm)	**2x20 MHz:**	DL (Mbps)	UL (Mbps)
	SA1 :	2x80 (160)	2x28 (56)[b]
	SA2 :	2x110 (220)	2x14 (28)
	2x10 MHz:	DL (Mbps)	UL (Mbps)
	SA1 :	2x40 (80)	2x14 (28)
	SA2 :	2x55 (110)	2x7 (14)
User Capacity	32 concurrent Future: 64[a] and 96[a]		
QoS Control	3GPP standard Quality of Service Class Identifier (QCI)		
Modulation	DL: QPSK, 16QAM, 64QAM, 256QAM[a] UL: QPSK, 16QAM, 64QAM		
Traffic Offload	Local IP Access (LIPA) Selected IP Traffic Offload (SIPTO)		
Voice	VoLTE[a]		
SON	Self-organizing network[a]: • Automatic setup • Automatic Neighbor Relation (ANR) • PCI confliction detection		
RAN Sharing	Supported		
Network Mgmt	TR069		
MTBF	≥ 150000 hours		
MTTR	≤ 1 hour		
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 • KPI recording • User information tracing • Signaling Trace[a]		

ENVIRONMENTAL SPECIFICATIONS

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
Ingress Protection Rating	IP66
Power Interface Lightning Protection	Differential mode: ±10 KA Common mode: ±20 KA

GLOBAL PART NUMBER

mBS31001-CA	Nova-436Q outdoor TDD eNodeB - LTE Release 13, 4x1W (30 dBm), 4 port, 3.5 GHz (3550-3700 MHz), B42/43/48. Includes Carrier Aggregation. • FCC certification: 2AG32MBS3100190
mBS31001-DC	Nova-436Q outdoor TDD eNodeB - LTE Release 13, 4x1W (30 dBm), 4 port, 3.5 GHz (3550-3700 MHz), B42/43/48. Includes Dual Carrier (Split Mode). • FCC certification: 2AG32MBS3100190

Notes:

1 - Other models available for other regions. Contact sales_na@baicells.com.

2 - Customized versions may be requested.

Atom OD06 Outdoor Low-Gain UE

INTRODUCTION

The Baicells Atom OD06 Outdoor Low-Gain User Equipment (UE) provides superior wireless access performance and routing capabilities to bring broadband data and voice services to end-users. The UE operates with standardized Long-Term Evolution (LTE) Time Division Duplexing (TDD) to enable high-speed, wireless communcations.

Wireless and wired devices, including mobile phones, laptops, tablets, and other smart devices, can access the UE simultaneously. The product comes with a standard one-year warranty.

FEATURES

Note: Features may vary based on model or region.

- Supports LTE TDD Bands 38/40/41/42/43/48
  - Customization may be requested; contact sales_na@baicells.com.
- 2.5 GHz or 3.5 GHz models
- Complies with 3GPP Release 10 Cat6/7 standards
- 1000 Mbps Ethernet interface
- GUI-based local and remote Web management
- TR069 network management protocol support
- Cell lock, SIM lock, and pin lock
- User-friendly LED status indicators
- Built-in bipolar, directional, high-gain LTE antenna
- Power supply with PoE
- Pole or wall mount
- Supports Wi-Fi alignment

BASIC SPECIFICATIONS

LTE Standard	3GPP Release 10, Cat6/7
ETH LAN Port	One RJ-45 port 10/100/1000 auto-sensing, auto-MDX, PoE
LED Indicators	LTE, SIM, LAN, PWR, LTE Signal
USIM	1.8V/3V 2FF
Restore Button	Press for 10 seconds to restore the UE to its factory settings
Power Supply	Input: Universal range 100V to 240V AC Output: PoE (24VDC, 0.5A)
Dimensions (HxWxD)	9.5 x 6 x 2 inches 241 x 154 x 50 millimeters
Weight	2 lbs / 900 g

RF SPECIFICATIONS

LTE Mode	TDD
Channel Bandwidth	5/10/15/20 MHz
Carrier Aggregation	2CC CA
MAX Output Power	23 dBm (±2) / TX antenna
Frequency Bands	38/40/41/42/43/48 and customized
Peak Rate (20 MHz)	DL: 220 Mbps, UL: 15 Mbps (2:7)
Modulation	DL: QPSK, 16QAM, 64QAM UL: QPSK, 16QAM, 64QAM

Receive Sensitivity	-94 dBm @ QPSK, 20 MHz, 25°C
Antenna Type	Internal directional, 2T4R (uplink enhanced)
Antenna Gain	11 dBi @ 3.x GHz, 4 ports 8 dBi @ 2.x GHz, 4 ports
Antenna Polarization	±45
Antenna Efficiency	> 70%
Isolation	≤ -25dB
VSWR	≤ 2
Horizontal Beamwidth (3 dB)	70 ±5° @ 3.x GHz, 4 ports
Vertical Beamwidth (3 dB)	30 ±5° @ 3.x GHz, 4 ports

SOFTWARE SPECIFICATIONS

Network Mode	NAT, Bridge, Router, Tunnel
IP Protocol	IPv4/IPv6
SIM	PIN management, SIM lock
Network Connection	Auto or Manual
LTE Scan Mode	Full band scan, frequency lock
WLAN	Wi-Fi for UE alignment
VPN	L2TP L2/L3, GRE L2/L3
NAT	Port forwarding, port trigger, DMZ, ALG
Firewall	IP/MAC/URL filter; access control; block port scanner/SYN flood; SPI filter
Network Mtmt	TR069, SNMP*
Diagnostics	TCP dump, ping, traceroute
Statistics	LTE status; connection/system up time; device status; DHCP client list; Wi-Fi station list; firewall status
Maintenance	Date and time setting; reboot; restore factory settings; restore or back up configuration file; firmware upgrade locally or OTA
System Logs	Operating; run-time; filter/ select / display / export

*Future software release

WI-FI SPECIFICATIONS

Standard	IEEE 802.11b/g/n
Channel Bandwidth	20/40 MHz
Frequency	2.4 GHz
Peak Rate	• 802.11b: 11 Mbps • 802.11g: 54 Mbps • 802.11n: 300 Mbps
Modulation	DSSS/CCK, OFDM
Receive Sensitivity	• -64 dBm @ 65 Mbps, typical for 802.11n • -65 dBm @ 54 Mbps, typical for 802.11g • -76 dBm @ 11 Mbps, typical for 802.11b
Max Output Power	10 ± 3 dBm
Antenna Type	Internal omni, 1T1R
Antenna Gain	0 dBi

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	-40°F to 131°F / -40°C to 55°C
Storage Temperature	-40°F to 158°F / -40°C to 70°C
Operating Humidity	5% to 95%
Ingress Protection Rating	IP65

GLOBAL PART NUMBERS

EG7010C-M19	Atom Outdoor Cat6, 2T4R, 2.5 GHz, 8 dBi, B38/40/41 UE • FCC certification: 2AG32EG7010C (2412-2462 MHz) • IC certification: 20982-EG7010C (2412-2462 MHz)
EG7010C-M11	Atom Outdoor Cat6, 2T4R, 3.5 GHz, 11 dBi, B42/43/48 UE • FCC certification: 2AG32EG7010C (3652.5-3697.5 MHz) • IC certification: 20982-EG7010C (3650-3700 MHz)

Notes:
1 - Other models available for other regions. Contact sales_na@baicells.com.
2 - Customized versions may be requested.

Atom OD06 Outdoor High-Gain UE

INTRODUCTION

The Baicells Atom OD06 Outdoor High-Gain User Equipment (UE) provides superior wireless access performance and routing capabilities to bring broadband data and voice services to end-users. The UE operates with standardized Long-Term Evolution (LTE) Time Division Duplexing (TDD) to enable high-speed, wireless communcations.

The Atom OD06 high-gain UE is designed exclusively for the fixed wireless market, featuring a spring-locked gasketed door for protecting the SIM slot and eliminating the need to weatherproof the power and Ethernet connections. Wireless and wired devices, including mobile phones, laptops, tablets, and other smart devices, can access the UE simultaneously. The product comes with a standard one-year warranty.

FEATURES

Note: Features may vary based on model or region.

- Supports LTE TDD Bands 40/41/42/43/48
  - Customization may be requested; contact sales_na@baicells.com.
- 2.5 GHz or 3.6 GHz models
- Complies with 3GPP Release 10 Cat6/7 standards
- 1000 Mbps Ethernet interface
- GUI-based local and remote Web management
- TR069 network management protocol support
- Cell lock, SIM lock, and pin lock
- User-friendly LED status indicators
- Built-in LTE bipolar, directional, high-gain antenna
- Power supply with PoE
- Pole or wall mount
- Supports Wi-Fi alignment

BASIC SPECIFICATIONS

LTE Standard	3GPP Release 10, Cat6/7
ETH LAN Port	One RJ-45 port 10/100/1000 auto-sensing, auto-MDX, PoE
LED Indicators	LTE, SIM, LAN, PWR, LTE Signal
USIM	1.8V/3V 2FF
Restore Button	Press for 10 seconds to restore the UE to its factory settings
Power Supply	Input: Universal range 100V-240V AC Output: PoE (24VDC, 0.5A)
Dimensions (HxWxD)	9.8 x 9.8 x 3.2 inches 248 x 248 x 80 millimeters
Weight	4 lbs / 1800 g

RF SPECIFICATIONS

LTE Mode	TDD
Channel Bandwidth	5/10/15/20 MHz
Carrier Aggregation	2CC CA
MAX Output Power	23 ± 2dBm / TX Ant
Frequency Bands	40/41/42/43/48 and customized
Peak Rate (20 MHz)	DL 220 Mbps, UL 15 Mbps (2:7)
Modulation	DL: QPSK, 16QAM, 64QAM UL: QPSK, 16QAM, 64QAM
Receive Sensitivity	-94 dBm @ QPSK, 20 MHz, 25°C
Antenna Type	Internal directional, 2T4R (uplink enhanced)
Antenna Gain	14 dBi @ 3.x GHz, 4 ports 11 dBi @ 2.x GHz, 4 ports
Antenna Polarization	±45°
Antenna Efficiency	> 70%
Isolation	≤- 20dB
VSWR	≤ 2.5
Horizontal Beamwidth (3 dB)	60 ±5° @ 2.x GHz, 4 ports 25 ±5° @ 3.x GHz, 4 ports
Vertical Beamwidth (3 dB)	35 ±5° @ 2.x GHz, 4 ports 25 ±5° @ 3.x GHz, 4 ports

SOFTWARE SPECIFICATIONS

Network Mode	NAT, Bridge, Router, Tunnel
IP Protocol	IPv4/IPv6
SIM	PIN management, SIM lock
Network Connection	Auto or Manual
LTE Scan Mode	Full band scan, frequency lock
WLAN	Wi-Fi for UE alignment
VPN	L2TP L2/L3, GRE L2/L3
NAT	Port forward/trigger, DMZ, ALG
Firewall	IP/MAC/URL filter; access control; block port scanner/SYN flood; SPI filter
Network Mgmt	TR069, TR104, SNMP*
Diagnostics	TCP dump, ping, traceroute
Statistics	LTE status; connection/system up time; device status; DHCP client list; Wi-Fi station list; firewall status
Maintenance	Date and time setting; reboot; restore factory settings; restore or back up configuration file; firmware upgrade locally or OTA
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*Future software release

WI-FI SPECIFICATIONS

Standard	IEEE 802.11b/g/n
Channel Bandwidth	20/40 MHz
Frequency	2.4 GHz
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Modulation	DSSS/CCK, OFDM
Receive Sensitivity	• -64 dBm @ 65 Mbps, typical for 802.11n • -65 dBm @ 54 Mbps, typical for 802.11g • -76 dBm @ 11 Mbps, typical for 802.11b
Max Output Power	10 ± 3dBm
Antenna Type	Internal omni, 1T1R
Antenna Gain	0 dBi

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	-40°F to 131°F / -40°C to 55°C
Storage Temperature	-40°F to 158°F / -40°C to 70°C
Operating Humidity	5% to 95%
Ingress Protection Rating	IP67

GLOBAL PART NUMBERS

EG7010A-M11	Atom Outdoor Cat6, 2T4R, 3.5 GHz, 14 dBi, B42/43/48 UE • FCC certification: 2AG32EG7010A (3650-3700 MHz) • IC certification: 20982-EG7010A (3650-3700 MHz)

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