Nova442i

Outdoor eNodeB Datasheet

INTRODUCTION

The Baicells Nova442i is an advanced two-carrier outdoor eNodeB (eNB) compliant with 3GPP LTE TDD technology. This 4x4 W eNB operates in Carrier Aggregation (CA) mode or Dual Carrier (DC) mode.

In CA mode, Nova442i supports 2CC (two Component Carriers) DL/UL CA. 2CC DL/UL CA doubles DL/UL peak throughput compared to a single carrier by aggregating two separate spectrum resources into a virtual contiguous spectrum resource.

In DC mode, each carrier is treated as an independent cell, supporting 96+96 users, with each cell supporting 5, 10, 15, or 20 MHz bandwidth. Using a Nova442i in DC mode simplifies and streamlines the deployment of split sectors.

In addition, HaloB (an embedded EPC option) is available on the Nova442i as part of the base software. The Baicells patented HaloB solution migrates the necessary core network functions to the eNB.

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

HIGHLIGHTS

NOTE: Features can vary based on model or region.

- Standard LTE TDD Band 48
  - Customization can be requested:
    - Email sales_na@baicells.com for North America.
    - Email contact@baicells.com for all other regions.
- GUI-based local and remote Web management
- Excellent Non-Line-of-Sight (NLOS) coverage
- Peak rate for DL: Up to 290 Mbps with 2x20 MHz bandwidth
- Peak rate for UL: Up to 70 Mbps with 2x20 MHz 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)
- 96 RRC connected users per carrier (96+96 in DC mode); upgradeable to higher capacity in future releases
- Built-in RF antenna and GPS antenna
- Integrated small cell form factor for quick and easy installation
- Configured out of the box to work with Baicells CloudCore
- HaloB as embedded EPC solution
- Supports Transparent Bridge Mode
- Supports Citizens Broadband Radio Service (CBRS)
- Plug-and-play with Self-Organizing Network (SON) capabilities
- Interoperable with all standard LTE Evolved Packet Core (EPC)
- Supports TR-069 network management interface
- Lower power consumption, which reduces OPEX

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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	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 RJ-45 Ethernet interface (1 GE)
Power Supply	PoE++, IEEE 802.3bt standard
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 LEDs: 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

	20 MHz + 10 MHz	**DL (Mbps)**	**UL (Mbps)**
	UL/DL Config 1	156	42
	UL/DL Config 2	215	21
	UL/DL Config 6	127	52
	20 MHz + 15 MHz	**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 96 RRC connected users per cell (4 users per TTI) • SC/CA: 96 RRC connected users • DC: 96+96 RRC connected users		
Maximum Deployment Range	12 kilometers		
Latency	30 milliseconds		
Receive Sensitivity	-100 dBm (per channel)		
Modulation	MCS0 (QPSK) to MCS27 (256 QAM) DL: QPSK, 16 QAM, 64 QAM, 256 QAM UL: QPSK, 16 QAM, 64 QAM		
Transmit Power Range	0 to 36 dBm per channel (combined +42 dBm, configurable) (1 dB interval)		
Quality of Service	Nine-level priority indicated by QoS Class Identifiers (QCI)		
ARQ/HARQ	Supported		
Synchronization	GPS, 1588v2		

MODULATION LEVELS (TDD 2:7)

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

RF Antenna	Internal 4T4R omni high-gain antenna • Horizontal Beamwidth 360° • Vertical Beamwidth 7.5° • Polarization: ±45°
GPS Antenna	Internal GPS antenna
Antenna Gain	12 dBi
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	IP55
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 70 W, maximum 90 W
Weight	21.2 lb/9.6 kg

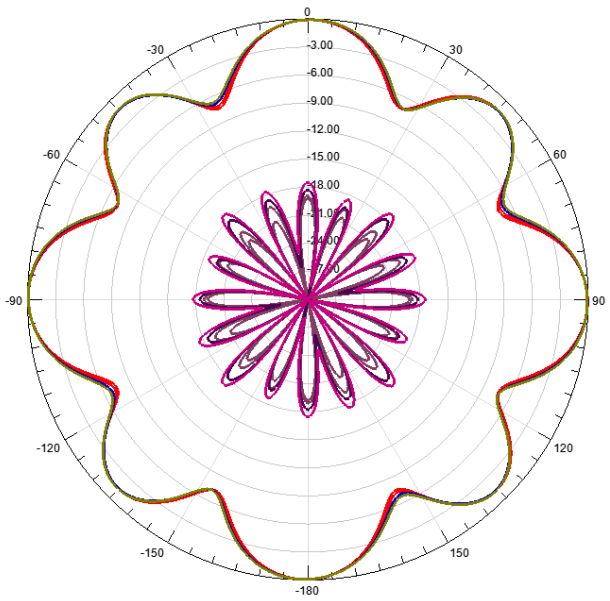
Dimensions	Diameter: 7.9 in/200 mm Height: • With lightning rod: 33.7 in/857 mm • Without lightning rod: 23.9 in/608 mm
Installation	Pole mount

MODEL NUMBER

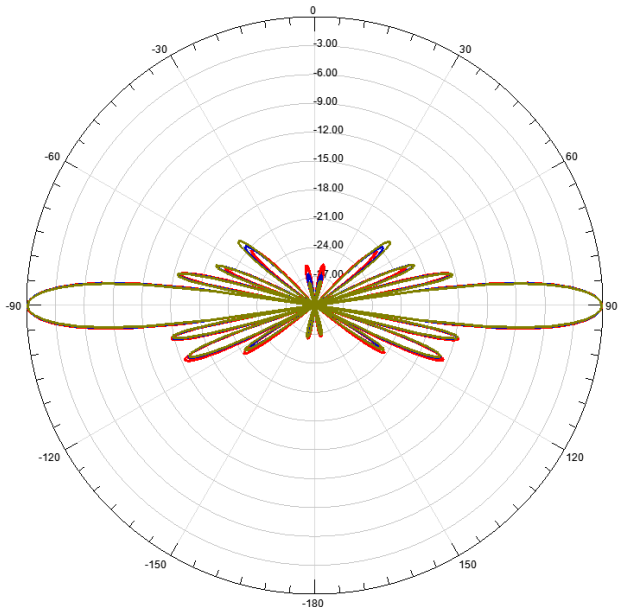
mBS31010	Nova442i Outdoor TDD eNB – LTE Release 15, 4x4 W (36 dBm), 1 GE, 3.5 GHz (3550 MHz–3700 MHz), B48, built-in antenna • FCC Certification: 2AG32MBS31010

NOTE: Customized versions can be requested.

ANTENNA PATTERN



H-Pattern



V-Pattern