Nova846

Outdoor eNodeB Datasheet

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INTRODUCTION

The Baicells Nova846 is an advanced two-carrier outdoor eNodeB (eNB) compliant with 3GPP LTE TDD technology. This 8x5W eNB operates in either Carrier Aggregation (CA) mode or Dual Carrier (DC) mode.

In CA mode, Nova846 supports 2CC (2 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 2x512 users with each cell supporting 5, 10, 15, or 20 MHz bandwidth. Using a Nova846 in DC mode simplifies and streamlines the deployment of split sectors.

In addition, HaloB (an embedded EPC option) is available on the Nova846 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 Bands 41/48
  - 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
- Suitable for private and public deployments; any IP-based backhaul can be used, including public transmission protected by Internet Protocol Security (IPsec)
- Peak rate: Up to DL 580 Mbps and UL 70 Mbps with 4x4 MIMO CA mode
- Supports 512 RRC connected users per cell, 2x512 RRC connected users in DC mode
- Supports up to 2x4T4R cells or 3x2T2R cells*
- Supports downlink of 256 QAM
- 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 standard LTE Evolved Packet Core (EPC)
- Highly secured with equipment certification against potential intrusion risk
- Supports TR-069 network management interface protocol
- Lower power consumption, which reduces OPEX, can be powered easily by Baicells compact outdoor SmartUPS

** Planned for future release*

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TECHNOLOGY

Standard	LTE TDD RAN (3GPP Release 15 compliant)
TDD UL/DL Configuration	1, 2, 6 (with Special Subframe Configuration 7)
Frequency Band	B41 (2496 MHz–2690 MHz) B48 (3550 MHz–3700 MHz)
Channel Bandwidth	SC: 5/10/15/20 MHz CA: 40 MHz as maximum aggregated bandwidth
Multiplexing	4x4 MIMO (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	-40 VDC to -57 VDC, nominal -48 VDC AC adaptor (multi-national standards)
Protocols Used	IPv4/IPv6 (Dual Stack), UDP, TCP, ICMP, NTP, SSH, IPsec, TR-069, HTTP/HTTPs, 1588v2, DHCP
Network Management	IPv4/IPv6, HTTP/HTTPs, TR-069, SSH, Embedded EPC
VLAN/VxLAN	802.IQ/VxLAN
LED Indicators	5 x status LED RUN/ACT/ALM/ETH0/ETH1

PERFORMANCE

	2x20 MHz		**DL (Mbps) 256 QAM**	**DL (Mbps) 64 QAM**	**UL (Mbps) 64 QAM**
Peak Data Rate (DC)	UL/DL Config 1	DL 2x2 MIMO	2x105	2x80	2x28
		DL 4x4 MIMO	2x210	2x160	2x28
	UL/DL Config 2	DL 2x2 MIMO	2x145	2x110	2x14
		DL 4x4 MIMO	2x290	2x220	2x14
	UL/DL Config 6	DL 2x2 MIMO	2x85	2x65	2x35
		DL 4x4 MIMO	2x174	2x132	2x35
	2x10 MHz		**DL (Mbps) 256 QAM**	**DL (Mbps) 64 QAM**	**UL (Mbps) 64 QAM**
	UL/DL Config 1	DL 2x2 MIMO	2x51	2x38	2x14
		DL 4x4 MIMO	2x103	2x77	2x14
	UL/DL Config 2	DL 2x2 MIMO	2x70	2x52	2x7
		DL 4x4 MIMO	2x141	2x106	2x7
	UL/DL Config 6	DL 2x2 MIMO	2x42	2x31	2x17
		DL 4x4 MIMO	2x84	2x63	2x17

Peak Data Rate (CA)	**2x20 MHz**		**DL (Mbps) 256 QAM**	**DL (Mbps) 64 QAM**	**UL (Mbps) 64 QAM**
	UL/DL Config 1	DL 2x2 MIMO	210	160	56
		DL 4x4 MIMO	420	320	56
	UL/DL Config 2	DL 2x2 MIMO	290	220	28
		DL 4x4 MIMO	580	440	28
	UL/DL Config 6	DL 2x2 MIMO	170	130	70
		DL 4x4 MIMO	348	264	70
	2x10 MHz		**DL (Mbps) 256 QAM**	**DL (Mbps) 64 QAM**	**UL (Mbps) 64 QAM**
	UL/DL Config 1	DL 2x2 MIMO	102	76	28
		DL 4x4 MIMO	206	154	28
	UL/DL Config 2	DL 2x2 MIMO	140	104	14
		DL 4x4 MIMO	282	212	14
	UL/DL Config 6	DL 2x2 MIMO	84	62	34
		DL 4x4 MIMO	168	126	34
	20 MHz + 10 MHz		**DL (Mbps) 256 QAM**	**DL (Mbps) 64 QAM**	**UL (Mbps) 64 QAM**
	UL/DL Config 1	DL 2x2 MIMO	156	118	42
		DL 4x4 MIMO	313	237	42
	UL/DL Config 2	DL 2x2 MIMO	215	162	21
		DL 4x4 MIMO	431	326	21
	UL/DL Config 6	DL 2x2 MIMO	127	96	52
		DL 4x4 MIMO	258	195	52
User Capacity	Up to 512 RRC connected users per cell • SC/CA: 512 RRC connected users • DC: 512+512 RRC connected users				
Maximum Deployment Range	60 kilometers				
Latency	30 milliseconds				
Receive Sensitivity	-102 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 37 dBm per channel (combined +46 dBm, configurable) (1 dB interval)				
Quality of Service	Nine-level priority indicated by QoS Class Identifiers (QCI)				
ARQ/HARQ	Supported				
Synchronization	GPS				

MODULATION LEVELS (ADAPTIVE)

MCS	Modulation Scheme	RSRP (dBm)	Coverage Distance (km)
0–4	QPSK	-120 ≤ RSRP < -110	40 < D ≤ 60
5–10	16 QAM	-110 ≤ RSRP < -100	10 < D ≤40
11–19	64 QAM	-100 ≤ RSRP < -85	4 < D ≤ 10
20–27	256 QAM	RSRP ≥ -85	D ≤ 4

NOTE: The information provided is for reference only as the environment can impact modulation levels.
Scenario: Base Station height is 98 feet (30 meters); Customer User Equipment (CPE) height is 6.5 feet (two meters).

FEATURES

Voice	VoLTE, Circuit Switched Fallback (CSFB)*
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

* Planned for future release.

LINK BUDGET

Antenna Connection	N-Type connectors for external high-gain antenna
GPS Antenna	External GPS antenna, N-Type connector
VSWR	< 1.5
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	2% to 95% RH
Atmospheric Pressure	70 kPa to 106 kPa
Power Consumption	Typical 240 W, maximum 300 W
Weight	With pre-installed bracket: 27.8 lb/12.6 kg Without bracket: 26.5 lb/12 kg
Dimensions (HxWxD)	17.0 x 11.0 x 4.6 inches 432 x 280 x 118 millimeters
Installation	Pole or wall mount

MODEL NUMBERS

sBS71010	Nova846 Outdoor TDD eNB, B48 (3550 MHz–3700 MHz), 8T8R, 8x5 W, 48 VDC, external antenna, 1*RJ45+1*OPT • FCC certification: 2AG32SBS71010 • IC certification: 20982-SBS71010
sBS71040	Nova846 Outdoor TDD eNB, B41 (2496 MHz–2690 MHz), 8T8R, 8x5 W, 48 VDC, external antenna, 1*RJ45+1*OPT • FCC certification: 2AG32SBS71040 • IC certification: TBD

NOTE: Customized versions can be requested.