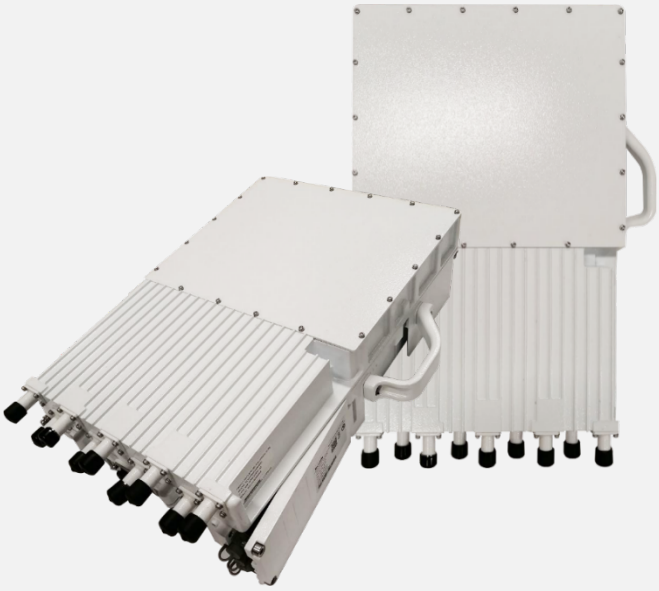
Nova846

Outdoor Base Station Datasheet



INTRODUCTION

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

In CA mode, Nova846 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 2x512 users with each cell supporting 5, 10, 15, or 20 MHz bandwidth. Similarly, in TC mode, it supports 3x512 users*. Using a Nova846 in DC or TC 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
- 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 580Mbps* with 4x4 MIMO Carrier Aggregation (CA) mode and UL 70Mbps with CA mode
- Supports 512 RRC connected users per cell, 3x512 RRC connected users* in TC mode
- Supports up to 3x2T2R cells or 2x4T4R cells
- Supports downlink of 256QAM
- 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 Citizens Broadband Radio Service (CBRS) with proxy/direct Spectrum Access System (SAS)
- Supports multi-PLMNs by the OMC
- Plug-and-play with Self-Organizing Network (SON) capabilities
- Inter operation with all standard LTE Evolved Packet Core (EPC)
- Highly secured with equipment certification against potential intrusion risk
- Supports TR-069 network management interface
- Lower power consumption, which reduces OPEX, can be powered easily by Baicells compact outdoor smart UPS

* Planned for future release

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Baicells
Connect More with Less

TECHNOLOGY

Standard	LTE TDD RAN (3GPP R15 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	-40VDC ~ -57VDC, nominal -48VDC 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

Peak Data Rate (DC)	2x20 MHz		DL256QAM (Mbps)	DL64QAM (Mbps)	UL64QAM (Mbps)
	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		DL256QAM (Mbps)	DL64QAM (Mbps)	UL64QAM (Mbps)
	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 (TC)	3x20 MHz		DL256QAM (Mbps)	DL64QAM (Mbps)	UL64QAM (Mbps)
	UL/DL Config 1	DL 2x2 MIMO	3x105	3x80	3x28
	UL/DL Config 2	DL 2x2 MIMO	3x145	3x110	3x14
	UL/DL Config 6	DL 2x2 MIMO	3x85	3x65	3x35
	3x10 MHz		DL256QAM (Mbps)	DL64QAM (Mbps)	UL64QAM (Mbps)
	UL/DL Config 1	DL 2x2 MIMO	3x51	3x38	3x14
	UL/DL Config 2	DL 2x2 MIMO	3x70	3x52	3x7
	UL/DL Config 6	DL 2x2 MIMO	3x42	3x31	3x17
Peak Data Rate (CA)	2x20 MHz		DL256QAM (Mbps)	DL64QAM (Mbps)	UL64QAM (Mbps)
	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		DL256QAM (Mbps)	DL64QAM (Mbps)	UL64QAM (Mbps)
	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
	20MHz + 10MHz		DL256QAM (Mbps)	DL64QAM (Mbps)	UL64QAM (Mbps)
	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 • TC: 3x512 RRC connected users*				
Maximum Deployment Range	60 kilometers				
Latency	30 milliseconds				
Receive Sensitivity	-102 dBm (per channel)				
Modulation	MCS0 (QPSK) to MCS27 (256QAM) DL: QPSK, 16QAM, 64QAM, 256QAM UL: QPSK, 16QAM, 64QAM				
Transmit Power Range	0 to 37 dBm per channel (combined +46dBm, configurable) (1 dB interval)				
Quality of Service	Nine-level priority indicated by QoS Class Identifiers (QCI)				
ARQ/HARQ	Supported				
Synchronization	GPS				

* Planned for future release

MODULATION LEVELS (ADAPTIVE)

MCS	Modulation Scheme	RSRP (dBm)	Coverage Distance (km)
0 - 4	QPSK	-120 ≤ RSRP < -110	40 < D ≤ 60

5 - 10	16QAM	-110 ≤ RSRP < -100	10 < D ≤40
11-19	64QAM	-100≤RSRP< -85	4 < D ≤10
20 - 27	256QAM	RSRP ≥ -85	D ≤ 4

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, 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 240W, maximum 300W
Weight	Without bracket: 26.5lbs / 12kg With pre-installed bracket: 27.8lbs / 12.6kg
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(3550MHz-3700MHz),8T8R,8*5W, 48VDC, external antenna, 1*RJ45+1*OPT) • FCC certification: 2AG32SBS71010 • IC certification: 20982- SBS71010
sBS71040	Nova846 **o**utdoor TDD eNB - B41(2496MHz-2690MHz),8T8R,8*5W, 48VDC, external antenna, 1*RJ45+1*OPT) • FCC certification: 2AG32SBS71040 • IC certification: TBD

NOTE: Customized versions can be requested.