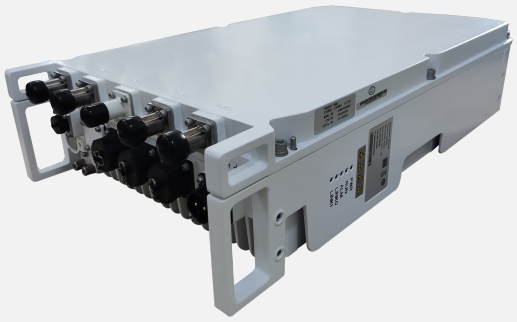
Nova452

FDD Outdoor Base Station Datasheet

Baicells
Connect More with Less



INTRODUCTION

The Baicells Nova452 is an advanced two-carrier outdoor eNodeB (eNB) compliant with 3GPP LTE Long-Term Evolution (LTE) and hardware-ready for NR 5G technology. This 4*40W eNB comes in two forms: FDD and TDD.

This 4x40W eNB operates (FDD & TDD) in Dual Carrier (DC) mode.

In DC mode, each carrier is treated as an independent cell, supporting 512+512(FDD) and 256+256(TDD) users with each cell supporting 5, 10, 15, 20MHz bandwidth. Using a Nova452 in DC mode simplifies and streamlines the deployment of split sectors.

This 4x40W eNB(TDD) also operates in Carrier Aggregation (CA) mode.

In CA mode, Nova452 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.

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 FDD Band 1/3/7/8/20/28
- Standard LTE TDD Band 38/40/41/42
- 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 (FDD): Up to DL 540Mbps with 4x4MIMO in Dual Carrier (DC) mode and up to UL 150Mbps
- Peak rate (TDD): Up to DL 440Mbps with 4x4 MIMO and DL64QAM in Carrier Aggregation (CA) mode and up to UL 56Mbps in CA mode
- User Capacity (FDD): Supports 512 users per cell, 512+512 users in DC mode.
- User Capacity (TDD): Supports 256 users per cell, 256+256 users in DC mode
- Supports downlink of 256QAM
- Integrated small cell form factor for quick and easy installation

- Configured out-of-the-box to work with the Cloud Core
- 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 the compact outdoor smart UPS
- Supports software update to 5G or 4G+5G RRU
- Supports RET function AISG 2.0

* Planned for future release

TECHNOLOGY

Standard	LTE FDD/TDD RAN (3GPP R15 compliant)
TDD UL/DL Configuration	1, 2, 6 (with Special Subframe Configuration 7)
Frequency Band - FDD	Band1 (UL 1920MHz– 1980 MHz, DL 2110 MHz– 2170 MHz) Band3 (UL 1710 MHz– 1785 MHz, DL 1805 MHz– 1880 MHz) Band7 (UL 2500MHz– 2570 MHz, DL 2620 MHz– 2690 MHz) Band8 (UL 880MHz– 915 MHz, DL 925 MHz– 960 MHz) Band20 (UL 832MHz– 862 MHz, DL 791 MHz– 821 MHz) Band28 (UL 703MHz– 748 MHz, DL 758 MHz– 803 MHz)
Frequency Band - TDD	Band38 (2575 MHz – 2615 MHz) Band40 (2300 MHz – 2400 MHz) Band41(2496 MHz – 2690 MHz) Band42(3400 MHz – 3600MHz)
Channel Bandwidth	SC: 5/10/15/20 MHz DC/CA: maximum 40 MHz bandwidth
Multiplexing	4x4 MIMO (DL)
Security	Radio: SNOW 3G/AES-128 Backhaul: IPsec (AES-128, AES-256, SHA-128, SHA-256)
Voice	VoLTE, Circuit Switched Fallback (CSFB)
SON	Self-Organizing Network • Automatic setup • Automatic Neighbor Relation (ANR) • PCI confliction detection

Standard	**LTE FDD/TDD RAN (3GPP R15 compliant)**
VSWR	Supported
RET support	AISG2.0, 20VDC ~30VDC, RS-485, 3GPP TS 25.461
Traffic Offload	Local breakout
Layer 2 Support	Transparent Bridge Mode
Daisy Chain	2 level cascading
Maintenance	• Local/Remote Web maintenance • Online status management • Performance statistics • Fault management • Local/Remote software upgrade • Logging • Connectivity diagnosis
Network Management	IPv4/IPv6, HTTP/HTTPs, TR-069, SSH
VLAN/VxLAN	802.IQ/VxLAN
Power Control	UL Open-loop/Closed-loop Power Control, DL Power Allocation (3GPP TS 36.213 compliant)
Quality of Service	Nine-level priority indicated by QoS Class Identifiers (QCI)
ARQ/HARQ	Supported
Synchronization	GPS, 1588v2

* Planned for future release

PERFORMANCE

Peak Data Rate (FDD DC)	20MHz	DL256QAM (Mbps)		DL64QAM (Mbps)	UL64QAM (Mbps)
	DL 4x4 MIMO	390(SC) -		300(SC) 540(DC)	75(SC) 150(DC)
	DL 2x2 MIMO	195(SC) 390(DC)		150(SC) 300(DC)	75(SC) 150(DC)
	10MHz	DL256QAM (Mbps)		DL64QAM (Mbps)	UL64QAM (Mbps)
	DL 4x4 MIMO	195(SC) -		150(SC) 300(DC)	37(SC) 75(DC)
	DL 2x2 MIMO	97(SC) 195(DC)		75(SC) 150(DC)	37(SC) 75(DC)
Peak Data Rate (TDD DC)	2x20 MHz	DL256QAM (Mbps)		DL64QAM (Mbps)	UL64QAM (Mbps)
	UL/DL Config 1	DL 2x2 MIMO	2x105	2x80	2x28

		DL 4x4 MIMO	-	2x160	2x28
	UL/DL Config 2	DL 2x2 MIMO	2x145	2x110	2x14
		DL 4x4 MIMO	-	2x220	2x14
	UL/DL Config 6	DL 2x2 MIMO	2x85	2x65	2x35
		DL 4x4 MIMO	-	2x132	2x35
	2x10 MHz	DL256QAM (Mbps)		DL64QAM (Mbps)	UL64QAM (Mbps)
	UL/DL Config 1	DL 2x2 MIMO	2x51	2x38	2x14
		DL 4x4 MIMO	-	2x77	2x14
	UL/DL Config 2	DL 2x2 MIMO	2x70	2x52	2x7
		DL 4x4 MIMO	-	2x106	2x7
	UL/DL Config 6	DL 2x2 MIMO	2x42	2x31	2x17
		DL 4x4 MIMO	-	2x63	2x17
Peak Data Rate (FDD CA)	2x20 MHz		DL256QAM (Mbps)	DL64QAM (Mbps)	UL64QAM (Mbps)
	UL/DL Config 1	DL 2x2 MIMO	210	160	56
		DL 4x4 MIMO	-	320	56
	UL/DL Config 2	DL 2x2 MIMO	290	220	28
		DL 4x4 MIMO	-	440	28
	UL/DL Config 6	DL 2x2 MIMO	170	130	70
		DL 4x4 MIMO	-	264	70
	2x10 MHz		DL256QAM (Mbps)	DL64QAM (Mbps)	UL64QAM (Mbps)
	UL/DL Config 1	DL 2x2 MIMO	102	76	28
		DL 4x4 MIMO	-	154	28
	UL/DL Config 2	DL 2x2 MIMO	140	104	14
		DL 4x4 MIMO	-	212	14
	UL/DL Config 6	DL 2x2 MIMO	84	62	34
		DL 4x4 MIMO	-	126	34
User Capacity	FDD, Up to 512 users per cell				

	• SC: 512 users • DC: 512+512 users TDD, Up to 256 users per cell • SC/CA: 256 users • DC: 256+256 users
Maximum Deployment Range	60 kilometers
Latency	30 milliseconds
Receive Sensitivity	Band1/3/7: -105.0dBm (per channel) Band8/20/28: -105.5dBm (per channel) Band38/40/41/42: -104.5dBm (per channel)
Modulation	MCS0 (QPSK) to MCS27 (256QAM) DL: QPSK, 16QAM, 64QAM, 256QAM UL: QPSK, 16QAM, 64QAM
Transmit Power Range	36dBm to 46dBm per channel (combined +52dBm, configurable with 1 dB interval)

* Planned for future release

MODULATION LEVELS (ADAPTIVE)

MCS	Modulation Scheme	RSRP (dBm)
0 - 4	QPSK	-120 ≤ RSRP < -110
5 - 10	16QAM	-110 ≤ RSRP < -100
11-19	64QAM	-100≤RSRP< -85
20 - 27	256QAM	RSRP ≥ -85（SINR ≥ 30）

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.

INTERFACE

Ethernet Interface	2 x optical interface (SFP+) 1 x RJ-45 Ethernet interface (GE)
Power Supply	-38VDC ~ -57VDC, nominal -48VDC AC adaptor (multi-national standards)
LED Indicators	5 x status LED PWR/RUN/ALM/LINK0/LINK1

Antenna Connection	4T4R external high gain antenna with mini-DIN connectors
GPS Antenna	External GPS antenna, N-Type connector

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	FDD: Typical 400W, maximum 600W TDD: Typical 360W, maximum 480W
Weight	Without bracket: 40.6lbs/18.4kg@Band1/3/7 47.2lbs/21.4kg@Band8/20/28 38.4lbs / 17.4kg@Band38/40/41/42 With pre-installed bracket: 41.9lbs/19.0kg@Band1/3/7 48.5lbs /22.0kg@Band8/20/28 39.7lbs / 18.0kg@Band38/40/41/42
Dimensions (HxWxD)	Band1/3/7: 20.7 x 12.1 x 4.7 inches/527 X 308 X 120 millimeters Band8/20/28: 20.7 x 12.1 x 5.3 inches/527 X 308 X 135 millimeters Band38/40/41/42: 20.7 x 12.1 x 4.7 inches/527 X 308 X 120 millimeters
Installation	Pole or wall mount

MODEL NUMBERS

sBS72010	Nova452 outdoor FDD eNB – Band1(UL1920MHz-1980MHz/DL2110MHz-2170MHz), 4T4R, 4*40W, -48VDC, external antenna, 2*OPT +1*RJ45)
sBS72030	Nova452 outdoor FDD eNB – Band3(UL1710MHz-1785MHz/DL1805MHz-1880MHz), 4T4R, 4*40W, 48VDC, external antenna, 2*OPT +1*RJ45)
sBS72070	Nova452 outdoor FDD eNB – Band7(UL2500MHz-2570MHz/DL2620MHz-2690MHz), 4T4R, 4*40W, -48VDC, external antenna, 2*OPT +1*RJ45)

sBS72080	Nova452 outdoor FDD eNB – Band8(UL880MHz-915MHz/DL925MHz-960MHz), 4T4R, 4*40W, -48VDC, external antenna, 2*OPT +1*RJ45)
sBS72200	Nova452 outdoor FDD eNB – Band20(UL832MHz-862MHz/DL791MHz-821MHz), 4T4R, 4*40W, -48VDC, external antenna, 2*OPT +1*RJ45)
sBS72280	Nova452 outdoor FDD eNB – Band28(UL703MHz-748MHz/DL758MHz-803MHz), 4T4R, 4*40W, -48VDC, external antenna, 2*OPT +1*RJ45)
sBS71380	Nova452 outdoor TDD eNB – B38(2575MHz-2615MHz),4T4R,4*40W,48VDC, external antenna, 2*OPT +1*RJ45) CE compliance
sBS71400	Nova452 outdoor TDD eNB - B40(2300MHz-2400MHz),4T4R,4*40W,48VDC, external antenna, 2*OPT +1*RJ45) CE compliance
sBS71410	Nova452 outdoor TDD eNB - B41(2496MHz-2690MHz),4T4R,4*40W,48VDC, external antenna, 2*OPT +1*RJ45)
sBS71420	Nova452 outdoor TDD eNB - B42(3400MHz-3600MHz),4T4R,4*40W,48VDC, external antenna, 2*OPT +1*RJ45)

NOTE: Customized versions can be requested. (AC version will be ready in the future)

* Planned for future release