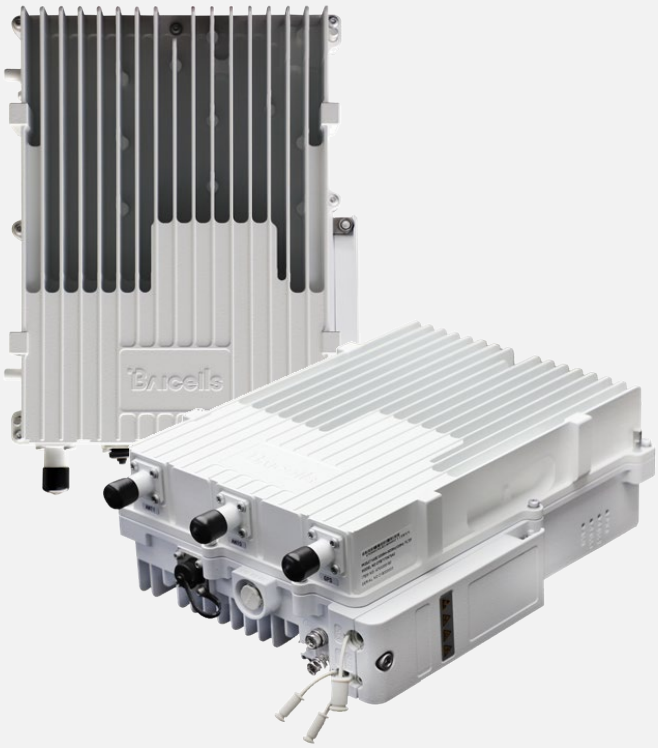
Aurora243

Outdoor 5G gNodeB Datasheet



INTRODUCTION

The Baicells Aurora243 is an advanced outdoor 5G Sub-6G integrated base station (gNodeB) designed and developed based on the Qualcomm 5G System on a Chip (SoC) solution. This 2x10 W gNB consumes low power, has a small form factor, and is easy to maintain.

The Aurora243 enables operators to enhance coverage performance, improve network capacity, and eliminate blind spots for their 5G networks while reducing overall system power consumption.

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

HIGHLIGHTS

NOTE: Features can vary based on model or region.

- Standard NR FR1 Bands N41/N48/N77/N78
  - Customization can be requested:
    - Email *sales_na@baicells.com* for North America.
    - Email *contact@baicells.com* for all other regions.
- Complies with 3GPP Release 15 and Release 16*
- GUI-based local and remote Web management
- Supports 100 MHz bandwidth
- Peak data rate of up to DL 850 Mbps
- Peak data rate of up to UL 330 Mbps
- Supports up to 600 RRC connected users and 200 RRC active users on 100 MHz channels, or 500 RRC connected users and 100 RRC active users on 40 MHz channels
- Supports Standalone (SA) mode
- Supports F1 interface setting*
- Supports Internet Key Exchange Stream Control Transmission Protocol (IKE SCTP)
- Supports embedded 5G core network (HaloB)
- Supports integrated antenna panel kit*
- Integrated small cell form factor for quick and easy installation
- Supports flexible xHaul
- Highly secured with equipment certification against potential intrusion risk
- Supports TR-069 network management interface
- Lower power consumption, which reduces OPEX

* Planned for future release

TECHNOLOGY

Standard	5G NR TDD (3GPP Release 15 and Release 16* compliant)
TDD UL/DL Configuration	• 5 ms periodicity (μ=1): DDDDD+DDSUU • 2.5 ms dual periodicity (μ=1): DDDSU+DDSUU • 2.5 ms single periodicity (μ=1): DSUUU* (With Special Subframe Configuration: 10:2:2)
Frequency Band	N41 (2515 MHz–2675 MHz) / (2600 MHz–2690 MHz) N48 (3550 MHz–3700 MHz) N77 (3800 MHz–4200 MHz) N78 (3300 MHz–3600 MHz) / (3600 MHz–3800 MHz)
Channel Bandwidth	N41: 90/100 MHz N48: 10/20/30/40 MHz N77: 100 MHz N78: 40/60/80/90/100 MHz NOTE: In HaloB scenario, 10/20/30/40 MHz are supported. Support for 50/60/70/80/90/100 MHz is planned for a future release.
Multiplexing	2x2 MIMO (DL: 2L, UL: 2L)
Security	Radio: SNOW 3G/AES-128 Backhaul: IPsec (X.509 AES-128, AES-256, SHA-128, SHA-256)

* Planned for future release

INTERFACE

Ethernet Interface	1 optical (SFP+) and 1 RJ-45 Ethernet interface (1 GE)
Power Supply	90 VAC to 264 VAC, 47 Hz to 63 Hz or -40 VDC to -57 VDC, nominal -48 VDC
Protocols Used	IPv4/IPv6, UDP, TCP, ICMP, NTP, SSH, IPsec, TR-069, HTTP/HTTPS, DHCP
Network Management	IPv4/IPv6, HTTP/HTTPs, TR-069, SSH, Embedded 5GC*
VLAN/VxLAN*	802.IQ/VxLAN
LED Indicators	4 x status LED PWR/ACT/RUN/ALM
Antenna Connection	2T2R N-Type connectors for external high-gain antenna
GPS Antenna	External GPS antenna, N-Type connector

* Planned for future release

PERFORMANCE

Peak Data Rate	**100 MHz**	**DL (Mbps) 256 QAM**	**UL (Mbps) 256 QAM**
	7D2U	850	230
	5D3U	720	330
	1D3U*	380	660
	40 MHz	**DL (Mbps) 256 QAM**	**UL (Mbps) 256 QAM**
	7D2U	325	88
	5D3U	279	132
User Capacity	Supports up to 600 RRC connected users and 200 RRC active users on 100 MHz channels or 500 RRC connected users and 100 RRC active users on 40 MHz channels.		
Maximum Deployment Range	1.5 km		
Latency	Round-Trip Delay (RTD) less than 10 milliseconds		
Receive Sensitivity	-95 dBm (per channel)		
Modulation	UL: MCS0 (QPSK) to MCS28 (256 QAM) DL: MCS0 (QPSK) to MCS27 (256 QAM)		
Transmit Power Range	0 to 40 dBm per channel (combined +43 dBm, configurable) (1 dB interval)		
Quality of Service	Complies with 3GPP standard 5G QoS Identifier (5QI)		
ARQ/HARQ	Supported		
Synchronization	GPS		

* Planned for future release

FEATURES

Voice	VoNR/EPS-FB
SON	Self-Organizing Network • Automatic Neighbor Relation (ANR) • PCI confliction detection
Traffic Offload	Local breakout
Maintenance	• Local/Remote Web maintenance • Online status management • Performance statistics • Fault management • Local/Remote software upgrade • Logging • Connectivity diagnosis • Auto startup

LINK BUDGET

VSWR	<= 1.5
EIRP	Antenna gain = G EIRP = (43+G) dBm
Power Control	UL Open-loop/Closed-loop Power Control, DL Power Allocation (3GPP TS 38.213 compliant)*

* Planned for future release

PHYSICAL

Surge Suppression	Network interface: 1 KV Power Interface: • Differential mode: 2 KA • Common mode: 4 KA
Lightning Protection	Power Interface: • Differential mode: ±10 KA • Common mode: ±20 KA
MTBF	≥ 150000 hours
MTTR	≤ 1 hour
Ingress Protection Rating	IP65
Operating Temperature	-22°F to 131°F / -30°C to 55°C
Storage Temperature	-40°F to 149°F / -40°C to 65°C
Humidity	2% to 95% RH
Atmospheric Pressure	70 kPa to 106 kPa
Power Consumption	Maximum 150 W
Weight	With bracket: 16.5 lb/7.5 kg Without bracket: 15.9 lb/7.2 kg
Dimensions (HxWxD)	13.1 x 9.4 x 4.3 inches 333 X 240 X 109 millimeters
Installation	Pole or wall mount

MODEL NUMBERS

TBD	Aurora243 Outdoor 5G NR integrated TDD gNB – N78 (3300 MHz–3600 MHz), 2T2R, 2x10 W, 90 VAC–264 VAC, external antenna, 1 RJ45+1 OPT)
BSC7078L243	Aurora243 Outdoor 5G NR integrated TDD gNB – N78 (3300 MHz–3600 MHz), 2T2R, 2x10 W, -48 VDC, external antenna, 1 RJ45+1 OPT) • UL certification: E518236-A6003-UL
TBD	Aurora243 Outdoor 5G NR integrated TDD gNB – N78 (3600 MHz–3800 MHz), 2T2R, 2x10 W, 90 VAC–260 VAC, external antenna, 1 RJ45+1 OPT)
BSC7078H243	Aurora243 Outdoor 5G NR integrated TDD gNB – N78 (3600 MHz–3800 MHz), 2T2R, 2x10 W, -48 VDC, external antenna, 1 RJ45+1 OPT) • CE certification: NB2906.2023.000036 • UL certification: E518236-A6003-UL
TBD	Aurora243 Outdoor 5G NR integrated TDD gNB – N48 (3550 MHz–3700 MHz), 2T2R, 2x10 W, 90 VAC–260 VAC, external antenna, 1 RJ45+1 OPT)
BSC7048C243	Aurora243 Outdoor 5G NR integrated TDD gNB – N48 (3550 MHz–3700 MHz), 2T2R, 2x10 W, -48 VDC, external antenna, 1 RJ45+1 OPT) • FCC certification: 2AG32BSC7048A243 • UL certification: E518236-A6003-UL
TBD	Aurora243 Outdoor 5G NR integrated TDD gNB – N41 (2515 MHz–2675 MHz), 2T2R, 2x10 W, 90 VAC–264 VAC, external antenna, 1 RJ45+1 OPT)
BSC7041C243	Aurora243 Outdoor 5G NR integrated TDD gNB – N41 (2515 MHz–2675 MHz), 2T2R, 2x10 W, -48 VDC, external antenna, 1 RJ45+1 OPT) • UL certification: E518236-A6003-UL
BSC7077H243	Aurora243 Outdoor 5G NR integrated TDD gNB – N77H (3800 MHz–4200 MHz), 2T2R, 2x10 W, -48 VDC, external antenna, 1 RJ45+1 OPT) • CE certification: NB2906.2023.000097 • UL certification: E518236-A6003-UL

NOTE: Customized versions can be requested.