Stellar227

Indoor 5G Base Station Datasheet

Baicells
Connect More with Less

INTRODUCTION

The Baicells Stellar227 is an advanced indoor 5G Sub-6G integrated base station (gNB), which is designed and developed based on Qualcomm 5G SoC solution. This 2x250mW gNB is low power, subminiature and easy to maintenance.

This product helps operators to enhance the coverage performance of 5G networks effectively, improve the capacity of 5G networks and eliminate the blind district, meanwhile it also can help to reduce the system power consumption.

This product comes with a standard one-year warranty; an extended warranty is available.s

HIGHLIGHTS

NOTE: Features can vary based on model or region.

- Standard NR Band n78/n41/n48
- Comply with 3GPP Release 15 and Release 16
- GUI-based local and remote Web management
- Supports 100MHz bandwidth per cell
- Peak rate: Up to DL 850Mbps* and UL 600Mbps
- Supports 128 RRC connected users per cell
- Supports Stand Alone (SA) mode
- Supports F1 setting*
- Supports SCTP control (IKE SCTP)
- Supports embedded 5G core network (HaloB)
- 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 R15 & R16 compliant)
TDD UL/DL Configuration	5ms periodicity (μ=1): DDDDD+DDSUU 5ms periodicity (μ=1): DDDDD+SUUUU* 2.5ms dual periodicity (μ=1): DDDSU+DDSUU 2.5ms single periodicity (μ=1): DDDSU*, DSUUU
Frequency Band	n41 (2496 MHz – 2690 MHz) n48 (3550 MHz – 3700 MHz) n78 (3300 MHz – 3800 MHz)
Channel Bandwidth	n41: 100MHz n48: 10/20/30/40MHz n78: 10/20/30/40/50/60/80/90/100MHz
Multiplexing	2x2 MIMO (DL)
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 x RJ-45 Ethernet interface (1 GE) 1 x 1GE optical interface (SFP) or 10GE optical interface (SFP+)
Power Supply	12VDC/POE++
Protocols Used	IPv4, UDP, TCP, ICMP, NTP, SSH, IPsec, TR-069, HTTP/HTTPs, DHCP
Network Management	IPv4, HTTP/HTTPs, TR-069, SSH, Embedded EPC
VLAN/VxLAN*	802.IQ/VxLAN
LED Indicators	4 x status LED PWR/ACT/RUN/ALM
RF Antenna	Embedded omni antenna or 2T2R external high gain antenna with SMA connectors
GPS Antenna	External GPS antenna, SMA connector

* Planned for future release

PERFORMANCE

Peak Data Rate	100 MHz	DL (Mbps)	UL (Mbps) with UL256QAM
	5ms periodicity (DDDDD+DDSUU, 6:4:4)	850	210

	5ms periodicity (DDDDD+SUUUU, 6:4:4)*	525	400
	2.5ms dual periodicity (DDDSU+DDSUU, 10:2:2)	720	330
	2.5ms single periodicity (DDDSU, 10:2:2)*	850	210
	2.5ms single periodicity (DSUUU, 10:2:2)	380	600
User Capacity	Up to 128 RRC connected users		
Maximum Deployment Range	$2000m^2$		
Latency	Round-trip delay (RTD) less than 10 milliseconds		
Receive Sensitivity	-92 dBm (per channel)		
Modulation	UL: MCS0 (QPSK) to MCS27 (256QAM) DL: MCS0 (QPSK) to MCS27 (256QAM)		
Transmit Power Range	0 to 24 dBm per channel (combined 27dBm, configurable) (1 dB interval)		
Quality of Service	Nine-level priority indicated by QoS Class Identifiers (QCI)		
ARQ/HARQ	Supported		
Synchronization	GPS/NL/1588v2		

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 = 4 dBi EIRP= (27+4)dBm/100MHz
Power Control	UL Open-loop/Closed-loop Power Control, DL Power Allocation (3GPP TS 38.213 compliant)*

* Planned for future release

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	IP30
Operating Temperature	-5°C to 45°C
Storage Temperature	-20°C to 65°C
Humidity	15% to 85% RH
Atmospheric Pressure	70 kPa to 106 kPa
Power Consumption	Maximum 30W
Weight	< 2.4 lbs/ 1.1kg
Dimensions (HxWxD)	7.9 X 7.9 X 1.9 inches / 200 X 200 X 49 millimeters
Installation	Ceiling, wall or T-bar mount

GLOBAL PART NUMBERS

BSC7078A227	Stellar227 indoor 5G NR TDD gNB – n78(3300MHz-3800MHz),2T2R,2*250mW, 12VDC/POE++, internal antenna, 1*RJ45+1*(GE/10GE)OPT)
BSC7041A227	Stellar227 indoor 5G NR TDD gNB – n41(2496 MHz-2690 MHz),2T2R,2*250mW, 12VDC/POE++, internal antenna, 1*RJ45+1*(GE/10GE)OPT)
BSC7048A227	Stellar227 indoor 5G NR TDD gNB – n48(3550 MHz -3700 MHz),2T2R,2*250mW, 12VDC/POE++, internal antenna, 1*RJ45+1*(GE/10GE)OPT)

NOTE: Customized versions can be requested.