

nanoSDR™



RIVA Networks has designed a Software Defined Radio cellular access point that can be programmed to broadcast most standard 3G and 4G bands. **nanoSDR™** is the smallest, most versatile deployable cellular network solution available today. The solution delivers a private, anywhere-anytime cellular network secure communications for forward deployed operations. **nanoSDR™** performs the role of a tactical cellular bubble with software defined multi band support. It securely long-hauls voice and data to another cellular bubble or back to a headquarters location.

nanoSDR™ systems include a Single Board Computer (SBC) and RIVA's mature call control software already in use by hundreds of customers.

The system can stand on its own or be used in combination with additional **nanoSDR™** devices to provide additional bandwidth as needed. **The nanoSDR™ is extremely helpful for testing and training in lab applications, as it can be set to one band one day and a different band the next.**



nanoSDR rear view

The **nanoSDR™** includes integrated GPS and IEEE1588 support, providing a redundant and resilient synchronization mechanism for robust and accurate timing in both LTE FDD and TDD modes.

The maximum RF output power is +5dBm which is suitable for laboratory/short range private cellular network use cases covering approximately 5,000 square feet.

nanoSDR™ utilizes 2x2 MIMO and can be matched with external amplification, filtering, diplexers, and MIMO antennas to improve coverage range.

RIVA Networks can provide several amplification and antenna solutions, both dedicated and wide band, optimized to achieve maximum performance. Power levels for the amplification systems range from 15w to 100w.



nanoSDR front view

nanoSDR™



The **nanoSDR™** is a self-contained, programmable cellular network targeted at labs and forward deployed environments. The **nanoSDR™** delivers 3G or 4G coverage and capacity to remote operating environments with up to 150/50Mbps LTE FDD performance. The **nanoSDR™** simply requires power and Ethernet to be connected for a plug-and-play installation experience.

Radio
Connectorized Low band: 625MHz to 2.8GHz
Connectorized High band: 3.3GHz to 3.8GHz
Band Switching: < 5sec
Max TX power: +5dbm
LTE
Supports all standard EARFCNs up to 3.8GHz
2x2 MIMO
3/5/10/15/20 MHz channel bandwidths
Up to 32 active users
Up to 150/50 Mbps (bandwidth dependent)
VoLTE or CSFB to GERAN/UTRAN for voice
3G/4G Cellular
Warning system broadcast – CMAS and ETWS supported
Full GBR and non GBR support with QoS aware scheduler
3G
Supports all standard ARFCNs up to 2.8GHz
Up to 24 active users (option for 30)
HSPA 21/5.75 Mbps
CS voice: AMR and WB-AMR
Multi-RAB to each UE, any combination of CS voice ...
Environmental and Physical
Dimensions: 9" long, 6.5" wide, 2.5" high
Temperature range: 0°C to 45°C
Operating: 10 to 70% non-condensing
Power input: 9-36V DC

LTE and 3G Mobility
Reselection to/from macro layer and APs intra-frequency, inter-frequency, inter-RAT
Handover to/from macro layer and between Aps intra-frequency, inter-frequency, inter-RAT
Interfaces
LTE S1 (S1-Flex via gateway), X2
3G Uu
Uu LTE and 3G air interfaces to standard LTE and 3G UEs
2x2 MIMO
Network Listen
LTE Network listen to support radio synchronization and RF planning
LTE: Scans LTE and 3G neighbors
3G: Scans 3G and 2G neighbors
Synchronization
High stability OCXO
NTP support
IEEE 1588v2 support
1PPS port
Network Listen
GPS
Physical Interfaces
Ethernet port: 1Gbps
MCX connectors: TX1, TX2, RX1/Network Listen, RX2, GPS Antenna, 1 PPS input, External Clock
I/O port: Control signaling