

# nanoSDR™



RIVA Networks has designed a software defined 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 providing 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.



The **nanoSDR™** is a compact Small Cell Access Point that can be easily integrated into a complete cellular solution. The system can stand on its own or be used in conjunction with other **nanoSDR™** devices to provide comprehensive cellular solutions for various use cases.

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 5000 square feet. **nanoSDR™** utilizes 2x2 MIMO and is capable of supporting wide area connectivity with suitable external amplification, filtering, diplexers, and MIMO antennas at a suitable height.

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.



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The **nanoSDR™** is a self-contained, programmable cellular network targeted at forward deployed environments. The **nanoSDR™** delivers 3G and 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. Interoperability between the **nanoSDR™** and neighboring 2G, 3G and 4G cells, allows for seamless handover of calls and the capability of deploying multiple networks in any area of operation.

<b>Radio</b>
Connectorized Low band: 625MHz to 2.8GHz
Connectorized High band: 3.3GHz to 3.8GHz
Band Switching: < 5sec
Max TX power: +5dbm
<b>LTE</b>
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
<b>3G</b>
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 ...
<b>Environmental and Physical</b>
Dimensions: 9" long, 6.5" wide, 2.5" high
Temperature range: 0°C to 45°C
Operating: 10 to 70% non-condensing
Power input: 12V DC

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