64T64R MASSIVE MIMO



Empowering 5G Connectivity
with Open RAN Innovation

AMPLITECH
5G
TRUE G SPEEDS

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The Massive MIMO 64T64R TDD Outdoor Macro Cell Radio Unit for Band N78 is an advanced solution designed to meet the growing demands of high-capacity 5G networks. With its 64T64R configuration, this radio unit delivers unparalleled spatial diversity and beam forming capabilities, enabling exceptional coverage, increased throughput, and efficient spectrum usage in densely populated areas. Amplitech Group's cutting-edge design integrates 64 transmit and 64receive channels with a powerful output, ensuring superior performance for high demand environments.

The unit features a modular two board architecture and optical radio interface, combined with low physical layer functionality to provide seamless integration into ORAN-compliant networks. Its rugged, weather proof enclosure ensures reliable operation in harsh outdoor conditions, while the compact form factor facilitates efficient deployment. Ideal for Massive MIMO applications, this radio unit supports scalable, high-speed 5G services, driving network capacity.



Targeted Applications

- Telecommunications
- Industrial 4.0
- Security & Surveillance
- Small and Medium-Sized Enterprises (SMEs)
- Healthcare
- Retail & Hospitality
- Ports and Campuses

Technical Specifications

Radio Specifications

- Band: n78 (3.55 – 3.7 GHz), 5G
- Carrier Bandwidth: 100 MHz
- Modulation: QPSK/AM 256/64/16
- Sub-Carrier Spacing: 30kHz
- DC Power: Single -48V,<1500W
- MIMO: 64T64R
- RF Output Power: 5W per Port
- EIRP: ≥ +80dBm (55 dBm + Antenna Gain of25dBi = 80dBm
- RX Sensitivity: 122dBm

Antenna Specification

- Max Gain Across Frequency: 25dBi +/- 1dB
- Azimuth Steering Range: 3dB +/- 60˚
- Elevation Steering Range: +/- 8˚
  (upper SLS > 6dB; +/- 6˚ (Upper SLS >10dB)
- Elevation Bandwidth: 3dB 5.5˚ +/- 1˚
- Optimized Elevation: Tilt Angle +6˚
- Cross Polar Discrimination: >15 dB
- First Upper Side Lobe Suppression: >15 dB
- Front to Back Ratio: >25 dB

Specification Compliance

- 3GPP Spec Compliance: Rel. 15+, Upgrading to V16
- ORAN Compliance: ORANWG4. CUS.0-v05.00 ORAN. WG4.MP.0-v07.00, ORANWG4. IOT.0- v02.00
- Duplex Mode: TDD

Power Specifications

- Powering: -48V
- Maximum Power: <1800W

Connectivity Specifications

- Physical: 2x 25G Base-T Eth Over SFP28
- Interface Protocol ORAN Split: 7.2x
- Time and Synchronization: IEEE 1588v2, IEEE 1914.1, ITU-T G.826x, G.8275.1

Enviromental Specifications

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About AmpliTech Group
AmpliTech Group, Inc. (NASDAQ: AMPG, AMPGW) designs, develops, and manufactures advanced RF and microwave signal-processing components and systems for satellite, 5G/6G telecom, quantum computing, defense, and space applications. Through five specialized divisions (AmpliTech Inc., Specialty Microwave, Spectrum Semiconductor Materials, AmpliTech Group Microwave Design Center, and AmpliTech Group 5G Division) the company operates with a unified purpose: enabling the next generation of connectivity and communication systems.

Backed by U.S.-based manufacturing and a relentless drive to innovate, AmpliTech delivers high-performance solutions that meet the demands of today's most advanced programs while building the foundation for tomorrow's critical communications infrastructure.

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