

# BlueWave Broadband™ 311+ Mbps Ethernet Radio

## 6 Ghz Licensed Band with up to 32 T1/E1 Circuits



**Front Panel of 311+ Mbps In-Door Unit with optional 2<sup>nd</sup> modem/IF and GigE Interface**

BlueWave Broadband™ is offering the SDR Series™ of interference-free Licensed Ethernet Radios for the backhaul market. This line provides exactly the right mix of Ethernet and T1/E1 for Internet Service Providers, cellular carriers, utility companies, government, schools, universities, and hospitals. This radio is optimized for Ethernet with ultra-low latency, with either 100BaseT or GigE Ethernet interfaces. Using a split-system design, the critical digital modem is indoors where it is accessible year round, safe from temperature extremes and tampering, while the hardened outdoor radio unit is mounted to the back of the antenna so as to eliminate the costs associated with waveguides. Designed as a Carrier-Class product for +99.999% availability, this radio will provide many years of reliable performance. The IDU can be economically upgraded to support a second link for hot standby or loop protection, with the addition of the second modem/IF & power modules.



**Rear View of Out-Door Unit with 2 ft HP Dish**

Base model is 100 Mbps 100BaseT, with 16 T1s

No software keys, w/full hardware throughput

- Ultra Low End-to-End Latency, under 500 us
- 1 Year Limited Warranty w/ Extension Options
- Expansion 16 x T1/E1 Circuit Module Available
- Programmable Bandwidths and Modulation
- Optional STM-1, OC-3, DS-3 interfaces
- Web Interface or Serial CLI for Management
- Low Power -48 Volt DC Operation
- SNMP Remote Management and Reporting
- Optional Hot-Standby (1+1) or Loop Protection
- 99.999% availability using mesh or ring support

# BlueWave Broadband™ 311+ Mbps Ethernet Radio

## General Specifications – SDR Series™

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Frequency Band:	<b>6 Ghz Band</b> (5.925 - 6.425 Ghz) covered in several sub-band splits
Overall System Gain, 100 Mbps:	<b>103 dB</b> (16QAM), 99 dB (32QAM default)
200 Mbps, and 300 Mbps:	92 dB (64QAM), 89 dB (128QAM)
Programmable:	
Modulation Modes:	<b>16QAM, 32QAM, 64QAM, 128QAM</b> (32QAM default)
FCC Channel Bandwidths:	<b>10, 20, 30 MHz</b> (30 MHz default)
T/R Spacing:	<b>252.04 MHz</b>
IF Cable Specs and Freq:	<b>50-Ohm Cable at 350 MHz.</b> (Use up to 1000. of LMR400)
Emission Designator:	<b>30M0D7W</b> (32QAM) 150 Mbps (default) or 200+ Mbps (128QAM) <b>30M0D7W</b> (16QAM) 95 Mbps, (32QAM) 106Mbps, (128QAM) 155 Mbps Narrow channel modems are available on special order
Frequency Stability:	<b>0.001%</b>
Line Interfaces:	<b>T1/E1, RJ-45C, plus dual 100BaseT or GigE</b>
Latency:	<b>From 133 to 560 microseconds, depending upon bit-rate</b>
Antenna Interface:	<b>Circular Waveguide</b> (industry standard)
Craft Interface:	<b>Web Interface</b> and/or <b>RS-232 Serial (Command Line)</b>
Network Management:	<b>Embedded SNMP agent</b>

## Transmitter

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Power Output	<b>+26 dBm</b> (QPSK - 32QAM), <b>+21 dBm</b> (64 - 128QAM) Approx.bw*
Spurious & Out-of-Band Emissions:	<b>FCC Compliant, Part 101 &amp; 15</b> (Verified)
Interference Immunity:	<b>FCC Compliant, Part 101</b>

## Receiver

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Sensitivity, (BER 10 <sup>-6</sup> ):	<b>-77 dBm</b> (16QAM), <b>-73</b> (32QAM), <b>-70</b> (64QAM), <b>-67</b> (128QAM)
Maximum Receive Level:	<b>-24 dBm</b>

## Power

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Input Power & Consumption:	<b>-45 to -60 Volts DC @ 52 watts</b> (Optional AC adapter available)
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## Mechanical

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Modem . Rack Mountable IDU:	<b>1.7 in H x 14 in D x 17 in W, 9.5 lbs</b>
Radio ODU (without antenna):	<b>10.5 in diameter x 3.5 in thickness, 10.1 lbs</b>

## Temperature

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Modem . Indoor Unit:	<b>- 5°C to +50°C (+23°F to +122°F)</b>
Radio . Outdoor Unit:	<b>-33°C to +50°C ( -27°F to +122°F)</b>

Notes: The 6 Ghz band exhibits some attenuation from ground and wave reflections but almost no rain attenuation. The SDR Series™ is also available in 11 Ghz, 18 Ghz, and 23 Ghz bands. Other bands are special order. Due to FCC Regulations, the 6 Ghz band is limited to channels no larger than 30 Mhz, therefore, maximum throughput currently allowable is less than the 311 Mbps the system is capable of.