

BlueWave Broadband™ 311+ Mbps Ethernet Radio

11 Ghz Licensed Band with up to 32 T1/E1 Circuits



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

BlueWave Broadband™ has introduced the SDR Series™ of interference-free Licensed Ethernet Radios for the US 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
- Base model includes Free 2nd 100 Mbps channel
- No software keys, w/full hardware throughput
- Ultra Low End-to-End Latency, under 500 μ s
- 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

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General Specifications – SDR Series™

Frequency Band:	11 Ghz Band (10.7-11.7 Ghz) covered in 4 sub-band splits
Overall System Gain, 100 Mbps:	103 dB (16QAM), 99 dB (32QAM default),
200 Mbps, and 300 Mbps:	92 dB (64QAM), 89 dB (128QAM)
Programmable:	
Modulation Modes:	16QAM, 32QAM, 64QAM, 128QAM (32QAM default)
FCC Channel Bandwidths:	10, 20, 30, or 40 MHz (40 MHz default)
T/R Spacing:	490 MHz
IF Cable Specs and Freq:	50-Ohm Cable at 350 MHz. (Use up to 1000. of LMR400)
Emission Designator:	40M0D7W (32QAM) 150 Mbps (default) or 200+ Mbps (128QAM) 30M0D7W (16QAM) 95 Mbps, (32QAM) 106Mbps, (128QAM) 155 Mbps
Frequency Stability:	0.001%
Line Interfaces:	T1/E1, RJ-45C, plus dual 100BaseT or GigE
Latency:	From 133 to 560 microseconds, depending upon bit-rate
Antenna Interface:	Circular Waveguide (industry standard)
Craft Interface:	Web Interface and/or RS-232 Serial (Command Line)
Network Management:	Embedded SNMP agent

Transmitter

Power Output	+26 dBm (QPSK - 32QAM), +21 dBm (64 - 128QAM)
Spurious & Out-of-Band Emissions:	FCC Compliant, Part 101 & 15 (Verified)
Interference Immunity:	FCC Compliant, Part 101

Receiver

Sensitivity, (BER 10 ⁻⁶):	-77 dBm (16QAM), -73 (32QAM), -70 (64QAM), -67 (128QAM)
Maximum Receive Level:	-24 dBm

Power

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

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

Temperature

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

Performance

Sample Link with both antennas as:	2' HP	4' HP	6' HP
Calculated Fade Margin (100 Mbps):			
5 Mile Link	43 dB	48 dB	55 dB
10 Mile Link	37 dB	42 dB	49 dB
15 Mile Link	33 dB	39 dB	46 dB
20 Mile Link (not advisable in some regions)		36 dB	43 dB

Notes: The 11 Ghz band exhibits some attenuation from ground reflections, but little rain attenuation. The SDR Series™ is also available in 18 Ghz and 23 Ghz bands. Other bands are special order. Due to FCC Regulations, the 11 Ghz band is limited to channels no larger than 40 Mhz, therefore, maximum throughput currently allowable is 240 Mbps.