Xeta2-E

8.75 kbps - 800 kbps Ethernet Radio
Broad/Narrowband 217-222 MHz

The **Xeta2-E** is a software defined radio that automatically optimizes parameters across three axes - power output, channel size and modulation. This dynamic modulation allows for data transfer rates from 8.75 kbps to 800 kbps, power output from 500mW to 5W, and channel sizing from 12.5 kHz to 500 kHz. The **Xeta2-E** selectively switches modulation schemes to ensure required throughput given available channel sizes and environmental noise. Based on its patent pending Dual Decode Digital Architecture™, XetaWave's technology platform offers performance second to none in the commercial market today.

With built-in support for **MultiSpeed MultiPoint**™ networks, the **Xeta2-E** enables both high and low speed remotes to operate on the same network with a single access point. This new capability empowers wireless network planners to add video cameras and other high data-rate monitoring systems to their SCADA infrastructure without the need to build separate radio networks for these devices. The ability to integrate serial-only sub networks allows for complete flexibility with network design.

Industry Applications

Oil & Gas

- Bandwidth for expanding IP-based control systems & video
- Unified serial and IP/Ethernet infrastructure
- Licensed product where 217-222 MHz licenses are available
- Channels size selectivity to meet various global frequency deployment criteria

Energy

- Sequential-relay mode provides optimal coverage for long-line distribution infrastructure
- 100% testing over full -40°C to +75°C operating range ensures reliable communications across the harshest environments.

Water & Wastewater

- Higher data throughput for a given channel size allows more frequent polling, the potential for Ethernet, and the ability to add video monitoring in critical locations.
- Standard AES 128 & 256 bit encryption with optional FIPS 140-2 (validation in progress) support secures critical communications channels from unauthorized use and interception.

Industrial Controls

- Optional I/O allows seamless integration of ModBus RTU, ModBus TCP, and DNP3 protocols into a unified wireless network.

Automated Maritime Telecommunication Systems

- Supports wideband operation under Part 80 (217-218/219-220 MHz)

Key Differentiators

Multi-Bandwidth 8.75 kbps – 800 kbps over-the-air throughput. XetaWave's proprietary DSM technology offers the industry's highest throughput in a 12.5 kHz channel at 45 kbps.

FCC Part 80 & Part 90 217–222 MHz frequency support enables licensed operation.

Dual Radio Support for optional 2nd RF Module (of any Xeta Series) in a single enclosure **(Xeta2x2-E)** provides enhanced repeater functionality, higher throughput rates and multi-band / multi-frequency operations.

Link Adaptation Dynamic data rate automatically adapts communication parameters to achieve optimal link performance.

Ethernet Switch Two independent Ethernet ports, each with full VLAN support and configurable as access ports, trunks, or mixed.

Serial Bridge Seamless integration for hybrid networks utilizing both Ethernet and legacy serial devices.

Programmable Channel Size Ability to adapt to regulations around the globe and maximize data throughput accordingly.

5 Watts Adjustable power output from 500mW to 5W (+27dBm to +37dBm).

ph: 303-447-2745 • www.xetawave.com

Xeta2-E *Performance Specifications*

Transmitter	
Frequency Range	217 – 222 MHz
Output Power	500mW to 5W, step size 10mW (limited 2W 217-220 MHz)
Range – Line of Sight	70+ miles
Modulation	MSK, QPSK, 8-PSK, 16 QAM, 32-QAM
RF Data Rate	8.75 kbps to 180 kbps
Occupied Bandwidth	9.0 kHz to 45 kHz, 217-220 MHz; 7.9 kHz to 36 kHz, 220-222 MHz
Frequency Stability	Better than 1.0 ppm
Duty Cycle	Continuous
Output Impedance	50 Ohms

Receiver Sensitivity (dBm) - Data Rate

217-220 MHz
Part 90

	12.5 kHz	25 kHz	50 kHz
MSK	9.6 kbps, -115	18 kbps, -114	43 kbps, -109
QPSK	17 kbps, -113	29 kbps, -112	72 kbps, -106
8 PSK	26 kbps, -107	44 kbps, -106	105 kbps, -103
16 QAM	36 kbps, -104	59 kbps, -103	144 kbps, -100
32 QAM	45 kbps, -102	76 kbps, -100	180 kbps, -97

220-222 MHz
Part 90, Subpart T

	15 kHz	50 kHz
MSK	8.75 kbps, -115	36 kbps, -105
QPSK	19 kbps, -100	59 kbps, -101
8 PSK	28 kbps, -95	88 kbps, -95
16 QAM	37 kbps, -90	117 kbps, -88
32 QAM	47 kbps, -88	146 kbps, -85

217-218 MHz / 219-220 MHz
Part 80

	500 kHz	250 kHz
MSK	-	194 kbps, -102
QPSK	320 kbps, -100	-
8 PSK	480 kbps, -89	-
16 QAM	640 kbps, -88	-
32 QAM	800 kbps, -86	-

Adjacent Channel Rejection	51 dB @ 12.5 kHz, 60 dB @ 25 kHz, 70 dB @ 50 kHz

Data Transmission	
Error Detection	Up to 32-bit CRC, X^2 ECC, Retransmit on error
Data Encryption	AES 128 / 256 *(FIPS 140-2 Validation in Progress)*
Data Interfaces	2x 10/100 Ethernet, 2x RS232/422/485 Serial
Data Connector	4x RJ45
Serial Interface Speed	Up to 921.6 kbps

Power / Physical	
Operating Voltage	12 – 32 VDC
Transmit Current	925 @ 15V for 1W
RF Connector	TNC
Dimensions (L x W x H)	6.625" x 3.45" x 1.835"
Weight	663 grams, 1.46 lbs enclosed

Specifications subject to change without notice. *2-2016*

Environmental

- -40°C to +75°C operating temperature range.
- 95% operating humidity @ 40°C non-condensing.
- UL Class 1 Div 2 & c UL us approved

Security

- AES 128/ 256-bit encryption
- Password authentication
- VLAN network segregation

Available Versions

Enclosed

Xeta2-E Single RF Module Enclosed Ethernet

Xeta2x2-E Dual RF Modules Enclosed Ethernet

Board-Level

Xeta2-SB Single RF Module Serial radio

Xeta2m-T OEM RF Module TTL interface

Xeta2m-R OEM RF Module RS232 interface

XETAWAVE
CUSTOM RF SOLUTIONS

258 South Taylor Avenue
Louisville, CO 80027
303-447-2745 · xetawave.com
sales@xetawave.com