

# Xeta1 OEM

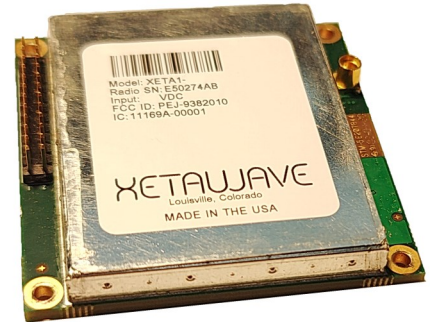
## 100 MHz MAS Serial

### Software Defined Industrial Radio

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The **Xeta1** OEM module is an extremely capable and flexible industrial software defined radio (SDR) supporting the licensed 135 to 174 MHz frequency band. The **Xeta1** utilizes a XetaWave **Dual Decode Digital Architecture** which offers significant receiver performance.

The **Xeta1** supports multiple modulation schemes and features. The **MultiSpeed** mode allows Endpoints operating at different RF data rates to communicate with a single Access Point to achieve optimal data throughput given the available channel size and RF environment. The **Enhanced Multipoint (EMP)** mode provides an increase in throughput and a decrease in latency over traditional modes and against competitive products.



All **Xeta1** OEM modules are backwards compatible and over-the-air compatible with the XetaWave uTasker, Linux, Debian, and XetaEdge families. XetaWave's seamless serial mode allows OEM, serial, and Ethernet Endpoints to simultaneously communicate with an Ethernet Access Point. The **Xeta1** OEM modules also support compatibility with the **MDS 1710** and **SD1** master radios.

## Key Features

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**Speeds** Over-the-air data rates from 5 kbps to 88 kbps plus higher throughput with **EMP**.

**Dual Mode** Duplex and simplex operation.

**Adjustable RF Output** Power output up to 5 Watts (+37 dBm).

**Network Types** Point to Point, Point to Multipoint, Enhanced MultiPoint, and Peer to Peer.

**Selective Modulation** Multiple MSK, PSK, and QAM modulations.

**Secure** Over-the-air data encryption using 128-bit and 256-bit AES.

**MultiSpeed** Endpoints communicate at different RF data rates with Access Point.

**EMP** An enhanced Point to MultiPoint protocol with higher throughput and lower latency.

# Xeta1 OEM Specifications

Transmitter	FCC	IC
Frequency Range	150.8 to 173.4 MHz	150.05 to 174 MHz
Output Power	10 to 5000 mW (10 to 37 dBm)	
Modulation	MSK, QSPK, 8PSK, 16QAM, 32QAM, 64QAM	
Data Rate	5 to 88 kbps	
Channel Bandwidth	6.25, 12.5 & 25 kHz	
Frequency Stability	1.0 ppm	
Range	70+ miles	

Receive sensitivity numbers are with FEC disabled. When enabled, sensitivity improves by 3 dBm.

Receiver	6.25 kHz Channel		12.5 kHz Channel		25 kHz Channel	
Modulation	Sensitivity	Data Rate	Sensitivity	Data Rate	Sensitivity	Data Rate
MSK		5 kbps	-113 dBm	10 kbps	-113 dBm	17 kbps
QPSK			-103 dBm	18 kbps	-109 dBm	29 kbps
8PSK			-97 dBm	27 kbps	-103 dBm	41 kbps
16QAM			-94 dBm	37 kbps	-100 dBm	56 kbps
32QAM			-91 dBm	45 kbps	-96 dBm	72 kbps
64QAM			-86 dBm	54 kbps	-90 dBm	88 kbps

# Xeta1 OEM Specifications

## Power

Input Voltage	+10 to +12 Vdc
Transmit Current	1000 mA @ +10 Vdc
Receive Current	103 mA @ +10 Vdc
Idle Current	51 mA @ +10 Vdc

## Interfaces

Connector	24-pin Samtec Header
Data	Serial TTL   Up to 2 Mbps
Control/Diag	Serial TTL   115.2 kbps
RF	MMCX   50 Ohms

## Environmental/Physical

Op. Temp.	-40°C to +60°C
Humidity	95% @ +40°C non-condensing
Safety	UL Class 1 Div 2
Dimensions	2.2" x 2.2" x 0.37"
Weight	42 grams

## Functionality

Operating Modes	Point to Point, Point to MultiPoint, Enhanced MultiPoint, Peer to Peer
Roles	Access Point, Endpoint, Repeater
Compatibility Modes	As an Endpoint compatible with MDS 1710 and SD1
Error Handling	CRC, FEC, Retransmit on error
Error Correction	Golay, Reed-Solomon
Data Encryption	128 & 256-bit AES Payload Data Encryption
RF Encryption	128-bit AES RF Overhead Encryption
Repeater	Store-and-forward
MultiMaster	Synchronization of Collocated Access Points or Multiple Access Points within a Network
MultiSpeed	Up to 4 Data Rates within the Same Channel Bandwidth
Diagnostics	Network Scan, RF Ping, RF Throughput, RF Statistics

## Ordering

XETA1-TMFA	Board Level, TTL Interface, Straight MMCX
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