# Xeta9 Emancipator
## *900 MHz ISM*
## *Software Defined Industrial Radio*

The **Xeta9 Emancipator** is an extremely capable, flexible, low cost industrial Frequency Hopping Spread Spectrum (FHSS) and Digital Transmission System (DTS) 900 MHz software defined radio (SDR). The module utilizes a XetaWave patent pending **Dual Decode Digital Architecture™** that offers superior receiver performance.

The **Xeta9 Emancipator** supports multiple modulation schemes and features and selectively switches modulation schemes to achieve the optimal data throughput given the available channel size and environmental noise. The **MultiSpeed MultiPoint™** mode enables Endpoints operating at different over-the-air data transfer rates to communicate with an Access Point over the same network.

To eliminate self-interference, transmission timing within networks with multiple Access Points is precisely control using **Multi-Master Synchronization**.  The **Xeta9 Emancipator** is available as a serial only radio or an Ethernet radio with one Ethernet and one Serial port.

## Key Features

**High Speed**  Over-the-air data transfer rates from 57 kbps to 2.6 Mbps.

**Selectable Modulation**  Multiple MSK, FSK, PSK, and QAM modulations.

**Adjustable RF Output**  RF power output from 50 mW to 1 Watts (+17 dBm to +30 dBm).

**Dual Mode**  Frequency hopping and single channel operations.

**MultiSpeed Multipoint**  Access Points communicate with Endpoints operating at different RF Data Rates.

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

**OPTIONS**  Available as a serial only or Ethernet with the Ethernet version available with three digital input signals.

**Compatibility** the 9710 options the mas licensed frequency band with the ability to communicate with MDS 9710 TransNET repeaters and master radios.

# Xeta9x Emancipator Specifications

## Transmitter

| | |
|---|---|
| Frequency Range | 902 to 928 MHz |
| RF Output Power | 50 mW to 1 Watt |
| Modulation | MSK, 2FSK, BPSK, QPSK, 8PSK, 16QAM, 32QAM |
| RF Data Rate | 57 kbps to 2.6 Mbps |
| Occupied Bandwidth | 76 kHz to 1.2 MHz |
| Frequency Stability | 1.0 ppm |

## Receiver (subset)

| Channel Size | Sensitivity | Data Rate | Modulation |
|---|---|---|---|
| 76 kHz | -110 dBm | 57 kbps | MSK |
| 154 kHz | -107 dBm | 114 kbps | MSK |
| 207 kHz | -106 dBm | 153 kbps | MSK |
| 310 kHz | -103 dBm | 229 kbps | MSK |
| 600 kHz | -99 dBm | 530 kbps | BPSK |
| | -91 dBm | 1.59 Mbps | 8PSK |
| | -87 dBm | 2.12 Mbps | 16QAM |
| 900 kHz | -98 dBm | 663 kbps | 2FSK |
| 1.2 MHz | -98 dBm | 884 kbps | BPSK |
| | -95 dBm | 1.76 Mbps | QPSK |
| | -90 dBm | 2.65 Mbps | 8PSK |
| RF Selectivity | 50 dB | | |

## Data Transmission

| | |
|---|---|
| Data Interface | Serial RS232 or RS232&Ethernet |
| Data Connector | 10-pin Header or 2 RJ45 |
| Data Interface Rate | 10/100 Mbps (Ethernet) Up to 230.4 kbps (RS232) |
| Error Detection | 32-bit CRC, Retransmit on error |
| Data Encryption | 128 & 256-bit AES |
| RF Connector | SMA |
| RF Impedance | 50 Ohms |

## Power

| | |
|---|---|
| Input Voltage | +10 to +32 Vdc |
| Transmit Current | < 204 mA @ +12 Vdc |
| Receive Current | < 141 mA @ +12 Vdc |
| Idle Current | < 103 mA @ +12 Vdc |

## Environmental / Physical

| | |
|---|---|
| Operating Temperature | -40$^o$C to +85$^o$C |
| Humidity | 95% @ +40$^o$C non-condensing |
| Safety | UL Class 1 Div 2 |
| Dimensions | 5.1" x 3.7" x 1.0" (L x W x H) |
| Weight | 170 grams |

*Specifications subject to change without notice.*

4.2019

## Ordering (contact XetaWave for other available models)

| | |
|---|---|
| XETA9X-11INLFC | Board level, 1 Ethernet & 1 Serial, Linux |
| XETA9X-11INUFC | Board level, 1 Ethernet & 1 Serial, uTasker |
| XETA9X-10INNFC | Board level, 1 Serial & 1 Diagnostic |
| XETA9X-10DNNFC-SE | Board level, 1 Serial & Diagnostic, ISM/MAS, 9710 A/B |

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