**Ethernet Radio Module Technical Specifications**

**Transmitter**
- Frequency Range: 902 to 928 MHz
- Output Power: 5 mW to 1 Watt
- Data Link Range: 60 miles, Clear Line of Sight
- Modulation: 2 level GFSK
- RF Data Rate: 115.2 kbps Standard Speed, 153.6 kbps High Speed
- Occupied Bandwidth: 230.4 kHz
- Hopping Patterns: 15 per band, 105 total, user selectable
- Hopping Channels: 112
- Frequency Zones: 16 zones, 7-8 channels per zone

**Receiver**
- Sensitivity: -108 dBm, at Standard Speed, 1x10^-4 BER
- Sensitivity: -104 dBm, at High Speed, 1x10^-4 BER
- IF Selectivity: 20 dB at fc ±230 kHz

**Data Transmission**
- Error Detection: 32 bit CRC, retransmit on error
- Data Security: AES 128 bit encryption and FHSS Technology
- Data Throughput: 80 kbps Standard Speed, 115.2 kbps High Speed
- Serial Data Interface: RS232/RS422/RS485 Programmable
  - 2x 9-pin D-sub (DE-9) male connectors
- Ethernet Data Interface: 802.3, TCP, UDP, DHCP, ICMP, ARP, Multicast, TFTP, DNP3 over TCP
  - 1x RJ-45, 10/100 Base T, Auto Crossover

**Power Requirements**

<table>
<thead>
<tr>
<th>Operating Voltage</th>
<th>+6 to +30 VDC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typical Current</td>
<td>+6 VDC</td>
</tr>
<tr>
<td>Transmit</td>
<td>1.1 A</td>
</tr>
<tr>
<td>Receive</td>
<td>252 mA</td>
</tr>
<tr>
<td>Idle</td>
<td>140 mA</td>
</tr>
</tbody>
</table>

**General Information**
- Operating Temperature: -40° C to +75° C (-40° F to +167° F)
- Dimensions: 7.0 L x 3.25 W x 1.25 H (in)
- RF Connector: SMA, female
- Certifications: FCC Part 15.247 / IC RSS-210 / UL Class 1, Division 2
Radio Network Specifications
- Maximum number of radios in a network:
  One Gateway radio and up to 34 Endpoint radios, for a total of 35 radios
  If a Repeater is required in the network topology, the maximum number of radios is 15, including Repeaters
- Maximum number of Repeaters between a Gateway and an Endpoint: 1
- Maximum distance between radios: 1 mile
- Required Noise Margin: The Signal must be at least 20 dB higher than the Noise (Delta)
- Each radio unit must have a unique static IP (internet protocol) address assigned to it.

Radio Installation Specifications
- Have a Radio Site Survey performed by a certified Baseline surveyor before ordering or installing radio equipment.
- Require installation contractors to demonstrate that the installation and radio network performance meets or exceeds all specifications and site survey results.

High Gain Antenna Installation Specifications
- Provide 10 feet of vertical separation from other antennas.
- Polarization matters. All antennas must be polarized the same.
- Install a lightning arrester and ground appropriately following all manufacturer installation guidelines and precautions.
- Use LMR400 low loss cables or better.
- Weatherproof all antenna connections.
- Provide strain relief on all connections.
- Use tie wraps to secure cables.