



**WaveRider**  
**Technical Specifications for the EUM3000 Antenna**  
**Rev. 2 - February/01**

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## 2. References

1. EUM3000 Modem Development Specification, December 1999.
2. Minutes of March 10, 2000 meeting (EUM3000&CCU3000 Packaging).
3. Draft Technical Specification review at WaveRider, Mar 27, 2000.
4. Email from Ivan Rodrigues 8:23 PM Mar 30, 2000.

## 3. Revision Notes

16-May-00 - Creation date.

## 4. Introduction

WaveRider Inc. is developing a digital wireless Modem providing connectivity between an end-user's computer and an Internet Service Provider. The system consists of a Radio Section, a Digital Section, and an antenna unit.

The wireless link is based upon the Intersil PRISM-II chipset and operates at raw data rates of up to 2.75Mbps.

The modulation scheme is Complementary Code Keying (CCK) over a 5.5 MHz channel bandwidth, with a DPSK header which is at a lower data rate.

This document presents the Technical Specifications for the antenna unit, and, in conjunction with the EUM Antenna Acceptance Test Plan, forms the basis for determining whether or not the antenna meets the contractual obligations.

## 5. Technical Specifications

### 5.1 Physical

| Subject            | Specifications  | Ref. | Comments   |
|--------------------|---|------|--|
| Housings and Mount | <ul style="list-style-type: none"> <li>Window, desktop and/or wall mountable with min 1 axis swivel (azimuth)</li> <li>Injection molded</li> <li>Snap together clam shell</li> <li>6" x 6" x 2" max.</li> <li>Product label in a hidden location</li> </ul> | 2,3  | Any dimension may be modified $\pm 0.5"$ to accommodate design optimization or housing dimensions. |
| Weight             | Not Specified   | 3    | Based on Industrial Design.  |

### 5.2 Electrical

| Subject                                    | Specifications  | Ref. | Comments  |
|--|---|------|---|
| Peak Gain<br>(in-phase/phase-shifted mode) | 4.4 dBi / 0.7 dBi Total<br>6 dBi / 2.3 dBi Antenna Only<br>(typical, vertical polarization)                                 |      |   |
| Frequency Range                            | 902 – 928 MHz   |      |   |
| Cable                                      | <ul style="list-style-type: none"> <li>50 <math>\Omega</math></li> <li>1.6 dB typical loss</li> <li>10 feet max.</li> </ul> | 3    |   |
| Power handling                             | +30 dBm min.  |      |   |
| VSWR                                       | 2:1 min.  |      |   |
| Diversity Control Signal                   | 7.5 V for Pattern A (phase-shifted mode)<br>6.0 V for Pattern B (in-phase mode)   |      |   |
| Diversity                                  | < 0.5 Correlation Coefficient   |      | Pattern Diversity, switching between two high gain options. |

### 5.3 Environmental

| Subject                     | Specifications                            | Ref. | Comments       |
|-----------------------------|---|------|----------------|
| Operating Temperature       | 10 C to 40 C(EUM)                         | 3    |                |
| Storage Temperature         | -40 C to 70 C                             | 1    |                |
| Operating Relative Humidity | 0 to 95% non condensing                   | 1    |                |
| Shock (Packaged)            | 20 G @ 11 msec.<br>2 directions on 3 axis |      | Non operating. |
| Vibration (Packaged)        | 1 Gpp @ 5-500 Hz<br>swept sine on 3 axis  |      | Non operating. |

| Subject | Specifications | Ref. | Comments  |
|---------|----------------|------|---|
| ESD     | Not Specified  | 3,4  | Design practices consistent with other computer peripherals will be implemented |

#### 5.4 Other Requirements

| Subject      | Specifications        | Ref. | Comments |
|--------------|-----------------------|------|----------|
| MTBF         | At least 26,000 hours | 1    |          |
| Service Life | 3 years               | 1    |          |

### 6. Interface Specifications

#### 6.1 Diversity Antenna Connection

| Pin   | Name   | Description   |
|-------|--|---|
| Inner | 50 $\Omega$ RF Port (Bi-directional)<br><b>Antenna</b> | RF Input/Output and DC: <ul style="list-style-type: none"> <li>• 902 – 928 MHz</li> <li>• RF Input/Output</li> <li>• Nominal 50 <math>\Omega</math> (VSWR 2:1)</li> <li>• DC signal to switch between diversity antennas</li> <li>• Max torque equal to the connector manufacturer's specification</li> <li>• No special tools required for installation</li> <li>• Hand installable</li> <li>• Some open/short circuit protection will be provided by current limiting the PA</li> </ul> |
| Outer | RF Subsystem Ground (Bi-directional)<br><b>GND</b>     | Low impedance ground  |