

Customer Name: Extreme Network

Date: 2019/10/21

|              |                                                       |
|--------------|-------------------------------------------------------|
| Customer P/N | ML-2452-APA2-02                                       |
| WNC P/N      | 81VEAD15.G02                                          |
| Description  | EXTERNAL WIFI ANTENNA, SMA CONNECTOR, WHITE, VEAD-ER1 |
| Version      | 2                                                     |

|                         |                       |                        |
|-------------------------|-----------------------|------------------------|
| MODEL<br>SPECIFICATIONS | Model Name: VEAD-ER1  | Issue Date: 2019/10/02 |
|                         | Project Code: E19P002 | Rev Date: 2019/10/21   |
|                         | Base Model:           | Rev: 2                 |

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## Revision History

| Rev. | History                                    | Date       | Author    |
|------|--------------------------------------------|------------|-----------|
| 1    | - New Release                              | 2019/10/02 | Elyse Lin |
| 2    | - Add Electrical/Mechanical specifications | 2019/10/21 | Elyse Lin |
|      | -                                          |            |           |
|      | -                                          |            |           |

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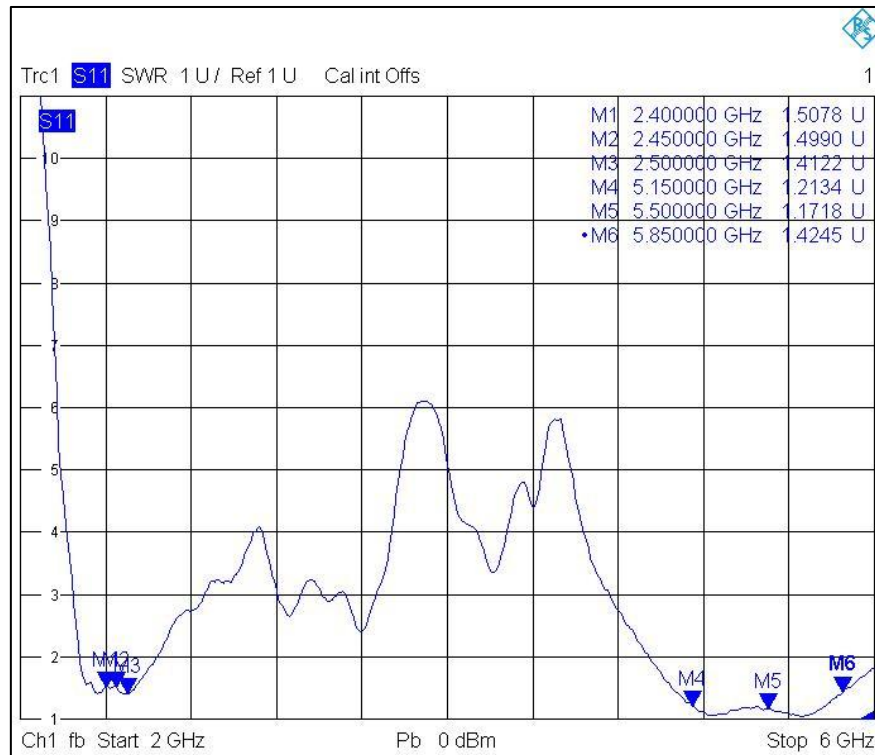
## 1. Product Specification

|                                          |                                                                                    |                 |                 |                 |
|------------------------------------------|------------------------------------------------------------------------------------|-----------------|-----------------|-----------------|
| Antenna photo                            |  |                 |                 |                 |
| A. Electrical Characteristics            |                                                                                    |                 |                 |                 |
| Frequency                                | 2400 ~ 2500 MHz<br>5150 ~ 5850 MHz                                                 |                 |                 |                 |
| V.S.W.R.                                 | <= 1.92 @ 2400 ~ 2500 MHz<br><= 1.92 @ 5150 ~ 5850 MHz                             |                 |                 |                 |
|                                          | 2400 ~ 2500 MHz                                                                    | 5150 ~ 5350 MHz | 5470 ~ 5725 MHz | 5725 ~ 5850 MHz |
| Antenna Gain<br>Max / Typ (dBi)          | 3.04 / 2.73                                                                        | 4.30 / 4.19     | 4.96 / 4.64     | 4.96 / 4.95     |
| Azimuth beam width (deg)                 | 360                                                                                | 360             | 360             | 360             |
| Elevation beam width (deg)               | 48 (typ)                                                                           | 28(typ)         | 28(typ)         | 28(typ)         |
| Antenna Efficiency                       | 80% @ 2400 ~ 2500 MHz<br>72% @ 5150 ~ 5850 MHz                                     |                 |                 |                 |
| Polarization                             | Linear, Vertical                                                                   |                 |                 |                 |
| Impedance                                | 50 Ohm                                                                             |                 |                 |                 |
| Max Power                                | 1 W                                                                                |                 |                 |                 |
| B. Material & Mechanical Characteristics |                                                                                    |                 |                 |                 |
| Material of Plastic                      | ABS                                                                                |                 |                 |                 |
| Radome Color                             | White                                                                              |                 |                 |                 |
| Connector Type                           | RP-SMA Male                                                                        |                 |                 |                 |
| Cable Type                               | RG-178 (internal)                                                                  |                 |                 |                 |
| Dimension                                | 157 x 17.6 x 5.8 mm                                                                |                 |                 |                 |
| Weight (grams)                           | 15                                                                                 |                 |                 |                 |
| C. Environmental                         |                                                                                    |                 |                 |                 |
| Storage Temp Range (°C)                  | -10 °C ~ 70 °C                                                                     |                 |                 |                 |
| Operation Temp Range (°C)                | -10 °C ~ 60 °C                                                                     |                 |                 |                 |

## 2. Antenna Performance

### A. VSWR

|             | 2400 MHz ~ 2500 MHz | 5150 MHz ~ 5850 MHz |
|-------------|---------------------|---------------------|
| VSWR        | < 1.92              | < 1.92              |
| Return Loss | > 10 dB             | > 10 dB             |



### B. Antenna Efficiency and Peak Gain

| Frequency (MHz)   | 2400  | 2450  | 2500  | Avg. | 5150  | 5350  | 5470  | 5550  | 5725  | 5750  | 5850  | Avg. |
|-------------------|-------|-------|-------|------|-------|-------|-------|-------|-------|-------|-------|------|
| Efficiency        | 81%   | 81%   | 78%   | 80%  | 73%   | 72%   | 73%   | 72%   | 72%   | 72%   | 69%   | 72%  |
| Average Gain (dB) | -0.94 | -0.93 | -1.07 |      | -1.38 | -1.42 | -1.38 | -1.43 | -1.42 | -1.44 | -1.60 |      |
| Peak Gain (dBi)   | 2.95  | 3.04  | 2.19  |      | 4.30  | 4.07  | 4.44  | 4.52  | 4.96  | 4.95  | 4.93  |      |

## C. Radiation Pattern

