



**MS-A2-302-A**  
**Mid I-BAR\_3 in 1 Antenna**  
**4G LTE MIMO / GNSS**

### Electrical Specifications

#### 4G LTE MIMO-1 Antenna Characteristics

|                      |          |           |
|----------------------|----------|-----------|
| Frequency Range, MHz | 698-960  | 1710-2690 |
| VSWR                 | 2.5 Max. | 2.5 Max.  |
| Peak Gain, dBi       | 6.0 Typ. | 4.0 Typ.  |
| Efficiency, %        | 70       | 67        |
| Polarization         | Linear   |           |
| Impedance            | 50Ω      |           |

#### 4G LTE MIMO-2 Antenna Characteristics

|                      |          |           |
|----------------------|----------|-----------|
| Frequency Range, MHz | 698-960  | 1710-2690 |
| VSWR                 | 2.5 Max. | 2.5 Max.  |
| Peak Gain, dBi       | 5.0 Typ. | 2.5 Typ.  |
| Efficiency, %        | 82       | 64        |
| Polarization         | Linear   |           |
| Impedance            | 50Ω      |           |

4G LTE test cable length : 1m (CFD-200)

#### GNSS Antenna Characteristics

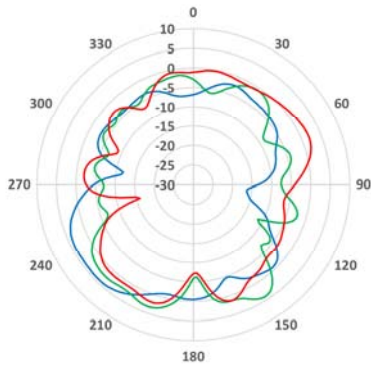
|                       |          |           |          |
|-----------------------|----------|-----------|----------|
| Center Frequency, MHz | 1561±2   | 1575.42±3 | 1602±4   |
| VSWR                  | 3.0 Max. |           |          |
| Gain@ Zenith, dBi     | 1.0 Typ. | 1.0 Typ.  | 3.0 Typ. |
| Efficiency, %         | 50       | 50        | 60       |
| Polarization          | Linear   |           |          |
| Impedance             | 50Ω      |           |          |

GNSS test cable length : 10cm

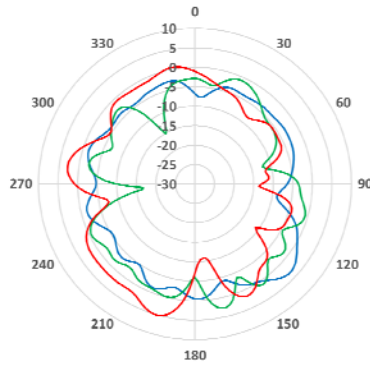
### GNSS LNA Properties

|  |                     |
|--|---------------------|
| Frequency Range, MHz                       | 1559-1608           |
| Impedance                                  | 50Ω                 |
| Output Return Loss( S <sub>11</sub>  ), dB | 10 Min.             |
| Gain@ 3.3V, dB                             | 28±3                |
| Noise Figure@ 3.3V, dB                     | 1.5 Typ.            |
| DC Power Input , V                         | 3.3                 |
| Power Consumption@ 3.3V, mA                | 9±2.5               |
| ESD Withstand Voltage, KV                  | ±8 contact; ±15 air |

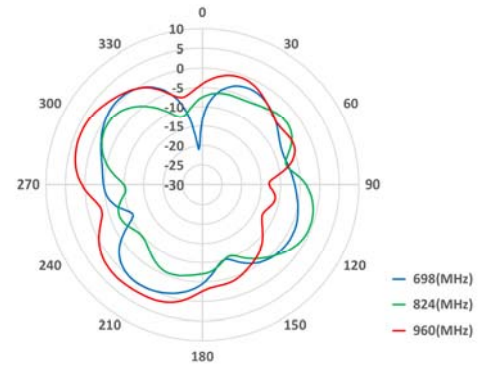
### 4G LTE MIMO-1 Antenna 2D Patterns



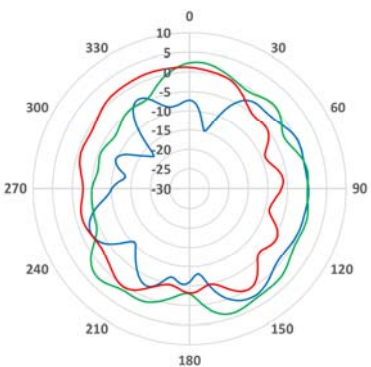
X-Z



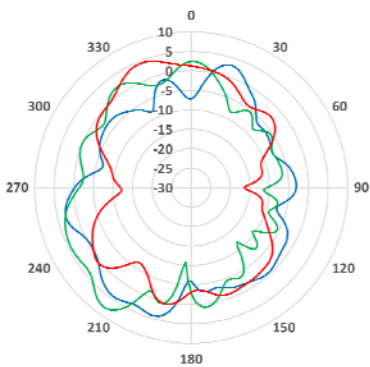
Y-Z



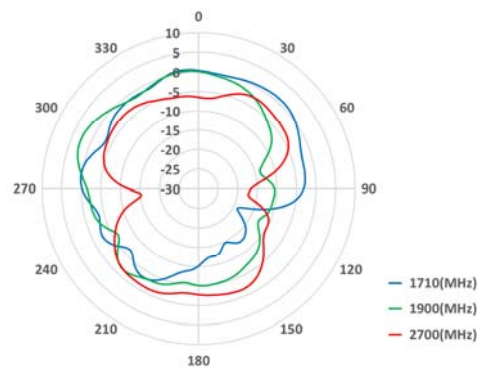
X-Y



X-Z

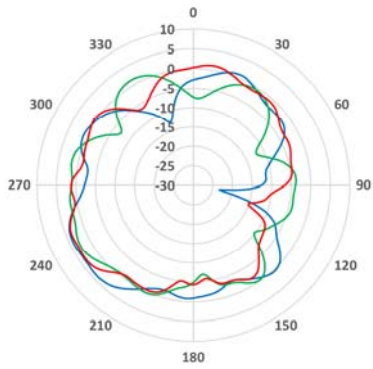


Y-Z

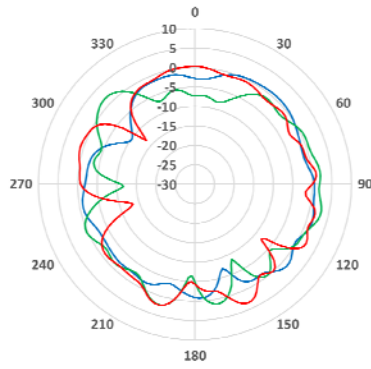


X-Y

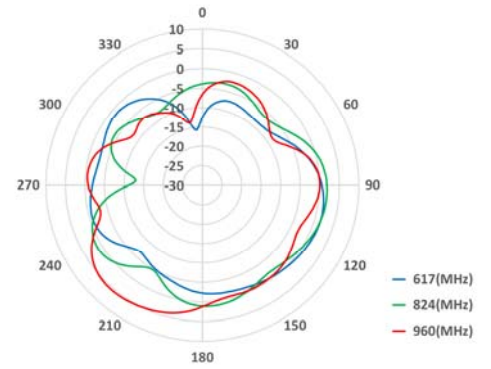
## 4G LTE MIMO-2 Antenna 2D Patterns



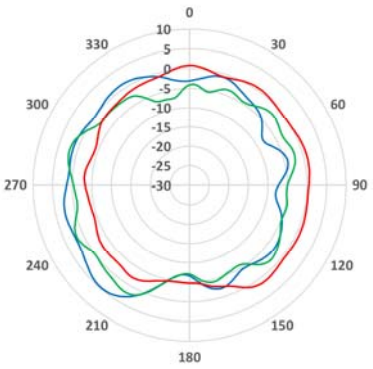
X-Z



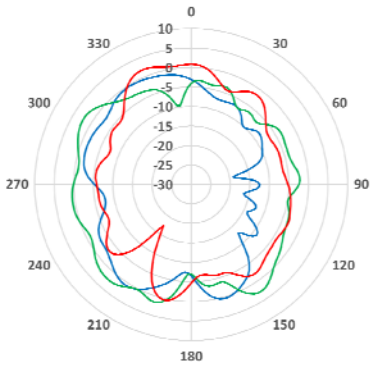
Y-Z



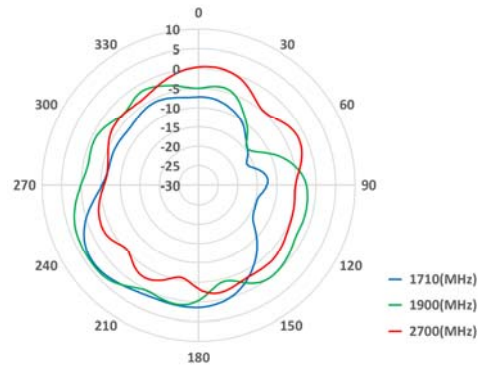
X-Y



X-Z

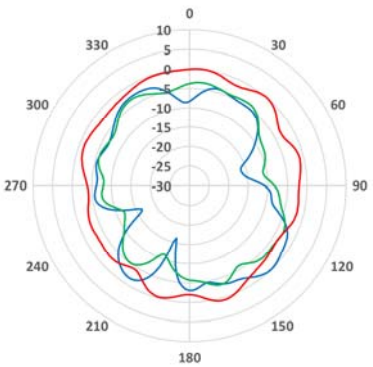


Y-Z

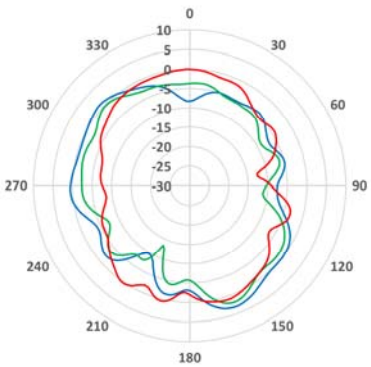


X-Y

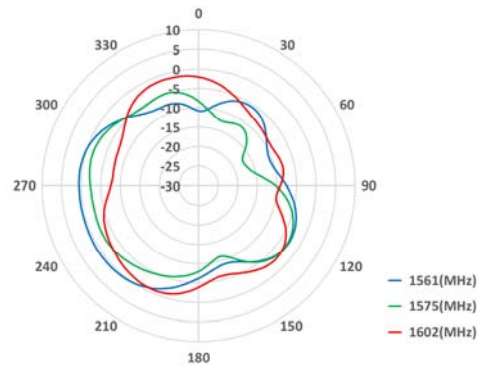
## GNSS Antenna 2D Patterns



X-Z



Y-Z



X-Y

## Mechanical Specifications

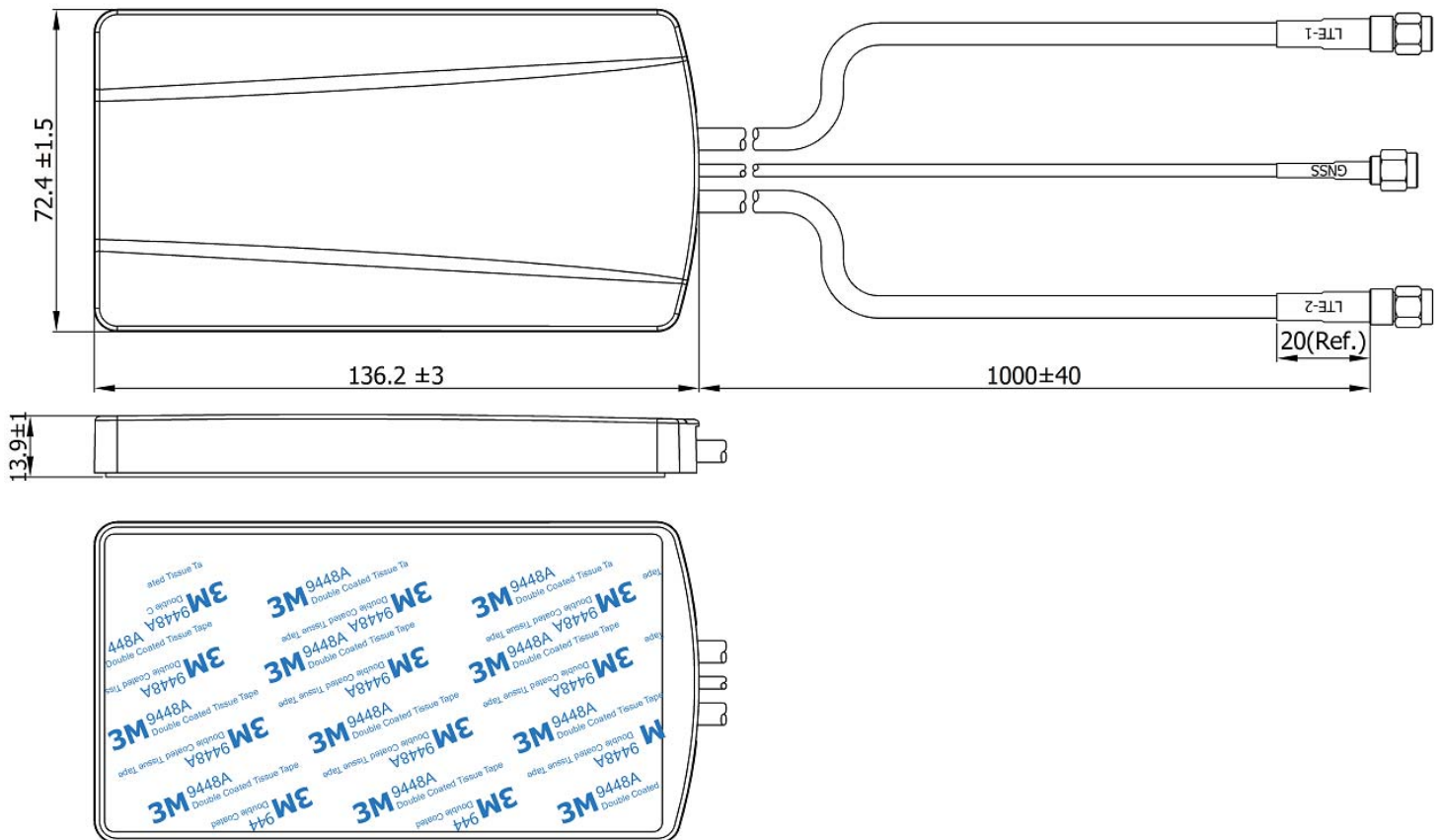
### Environmental

|                          |   |
|--------------------------|---|
| Antenna Dimensions       | (L)136.2×(W)72.4×(H)13.9 mm <sup>3</sup>                            |
| Weight                   | 186g  |
| Mounting Function        | Adhesive Mount  |
| Operating Temperature    | -40~ + 85°C   |
| Housing Material & Color | PC+ABS & Black  |
| Cable                    | 4G LTE MIMO-1 : CFD-200<br>4G LTE MIMO-2 : CFD-200<br>GNSS : RG-174 |
| Connector                | SMA or your specification   |
| Waterproof               | IPX7  |

### Reliability Test

|                  |            |
|------------------|------------|
| Cold Temperature | -40°C,24Hr |
| High Temperature | +85°C,48Hr |

### Mechanical Drawing



Unit : mm