

**GNSS L1+L5 External Active Antenna
ATGGBL54138M-SMA-3**

1. Product Information

1.1 Product Description

This product can be used as various L1+L5 GPS/Beidou/Galileo/GLONASS receivers navigation, clock, positioning.

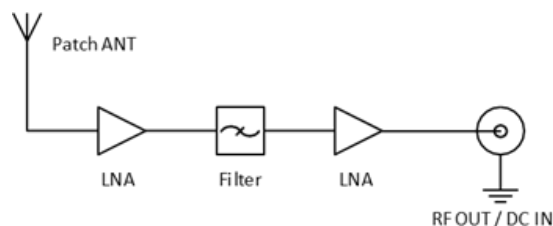
2. Part NO. : ATGGBL545138M-SMA-3

3. Overall Performance

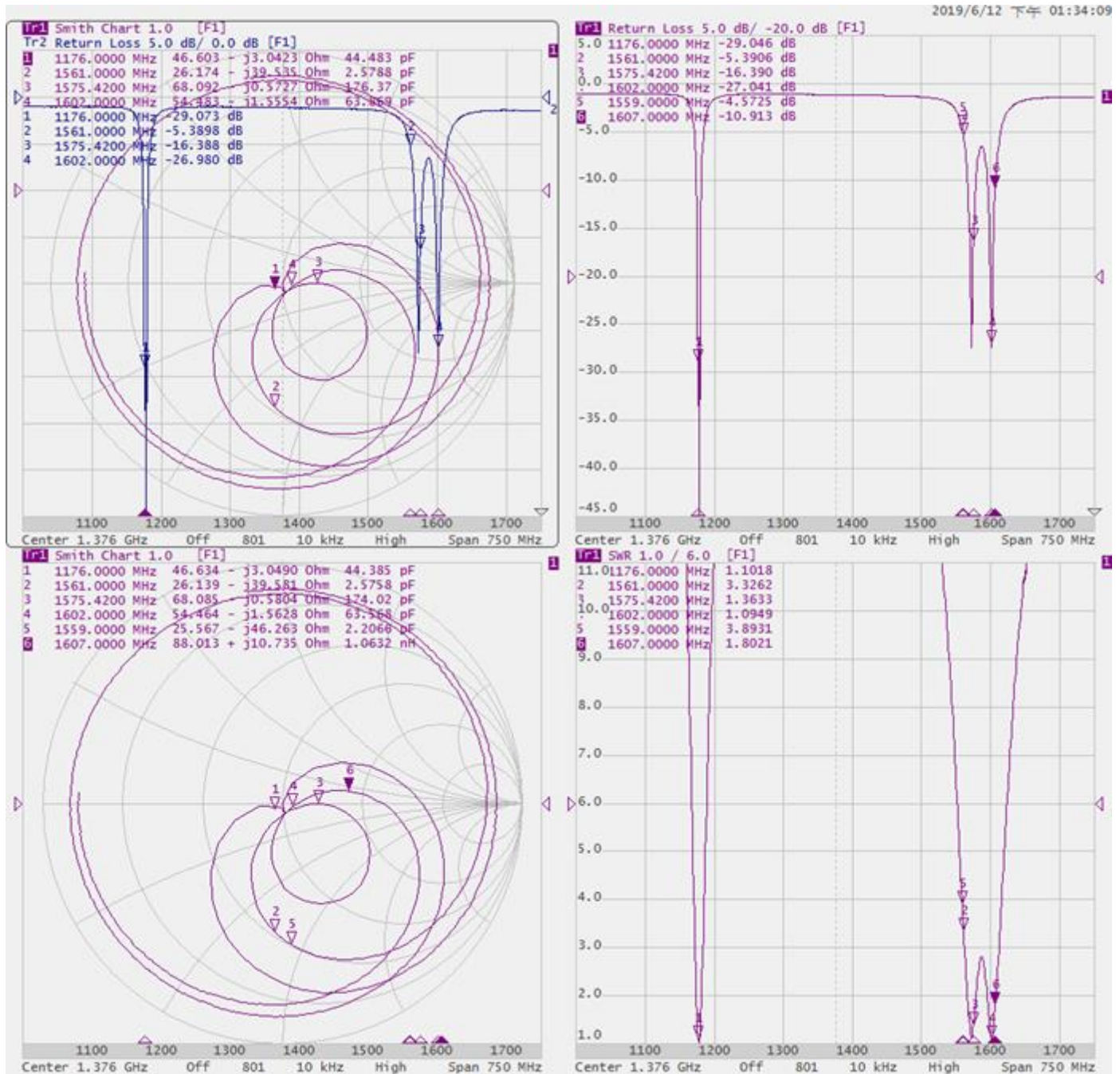
| Characteristics | SPEC |
|-------------------|---|
| Center Frequency | L1: 1575±1.023 MHz for GPS/Galileo L1: 1602±8 MHz for GLONASS L1: 1561±2.046 MHz for BeiDou L5: 1176 ±10 MHz |
| Voltage | Min: 2.7 V Typ.: 3.3 V Max: 5.0V |
| Current | Typ: 10mA Max: 15mA |
| Gain | 1561 MHz: 1 dBi Typ. @zenith 1575.42 MHz: 2 dBi Typ. @zenith 1602 MHz: 3.5 dBi Typ. @zenith 1176 MHz: 0 dBi Typ. @zenith |
| Output VSWR | 2.0 max |
| Output Impedance | 50ohm |
| Dimensions | 38±0.4mm(L)×40.5±0.4mm(W)×16.3±0.4mm(H) typ |
| Mount | Magnetic |
| Waterproof Rating | IP67 |
| Cable | RG174, $\varnothing 2.7 \pm 0.2$ mm, COLOR: Black, 80 braid L=3M \pm 50mm |
| Connector | SMA (Male) |
| Polarization | R.H.C.P |

3.1 Circuit Diagram

This antenna system consists of two functional blocks, the LNA portion and the patch antenna.



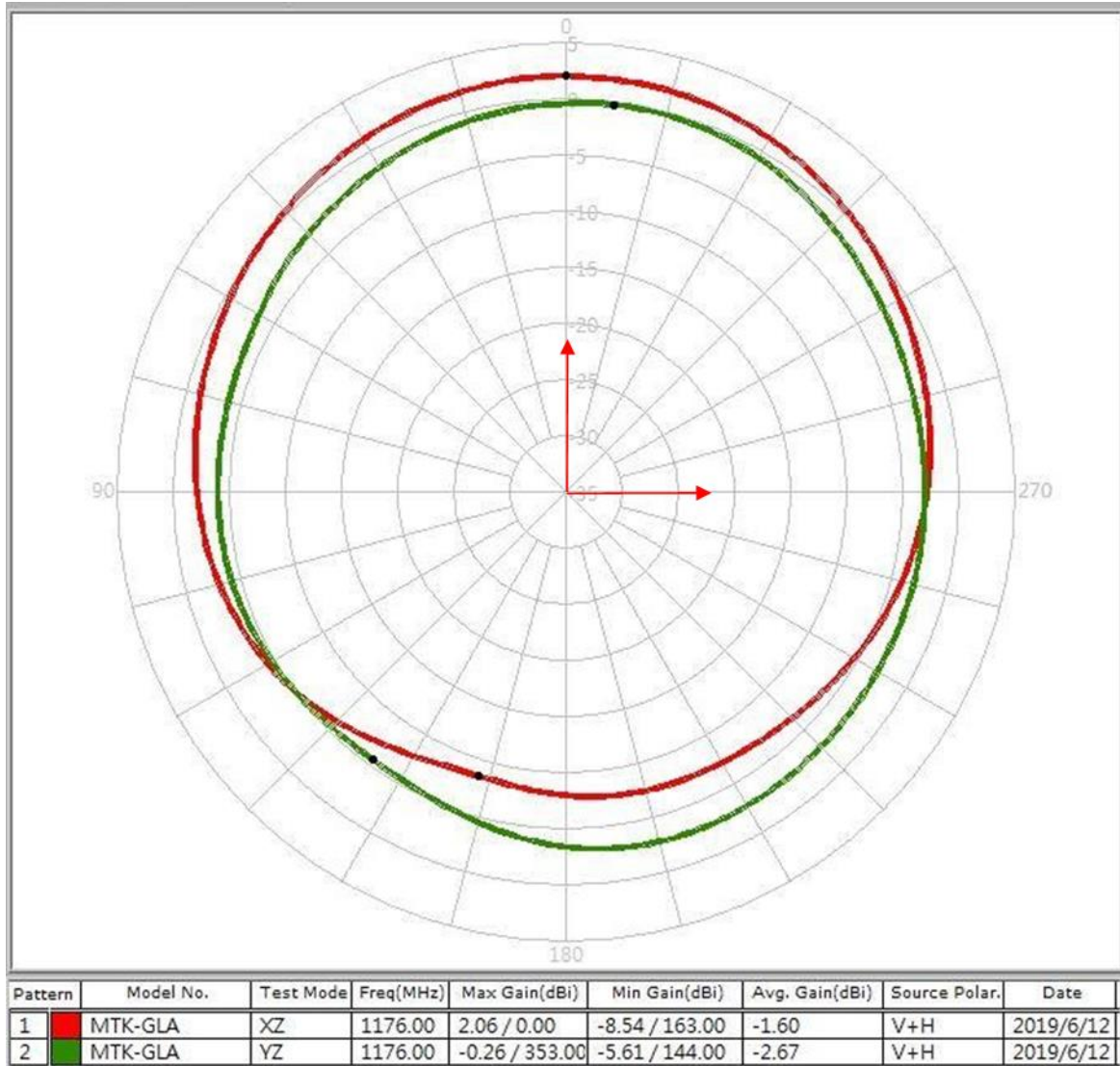
4. DA25/DA15 (stack) on L1+L5 Module Housing S11 Return Loss & Smith Chart Measure



| | Return Loss(dB) | Impedance(Ohm) | VSWR |
|------------|-----------------|----------------|------|
| 1176MHz | -29.04 | 46.63-j03.04 | 1.10 |
| 1559MHz | -4.57 | 25.56-j46.26 | 3.89 |
| 1561MHz | -5.39 | 26.13-j39.58 | 3.32 |
| 1575.42MHz | -16.39 | 68.08-j00.58 | 1.36 |
| 1602MHz | -27.04 | 54.46-j01.56 | 1.09 |
| 1607MHz | -10.91 | 88.01+j10.73 | 1.80 |

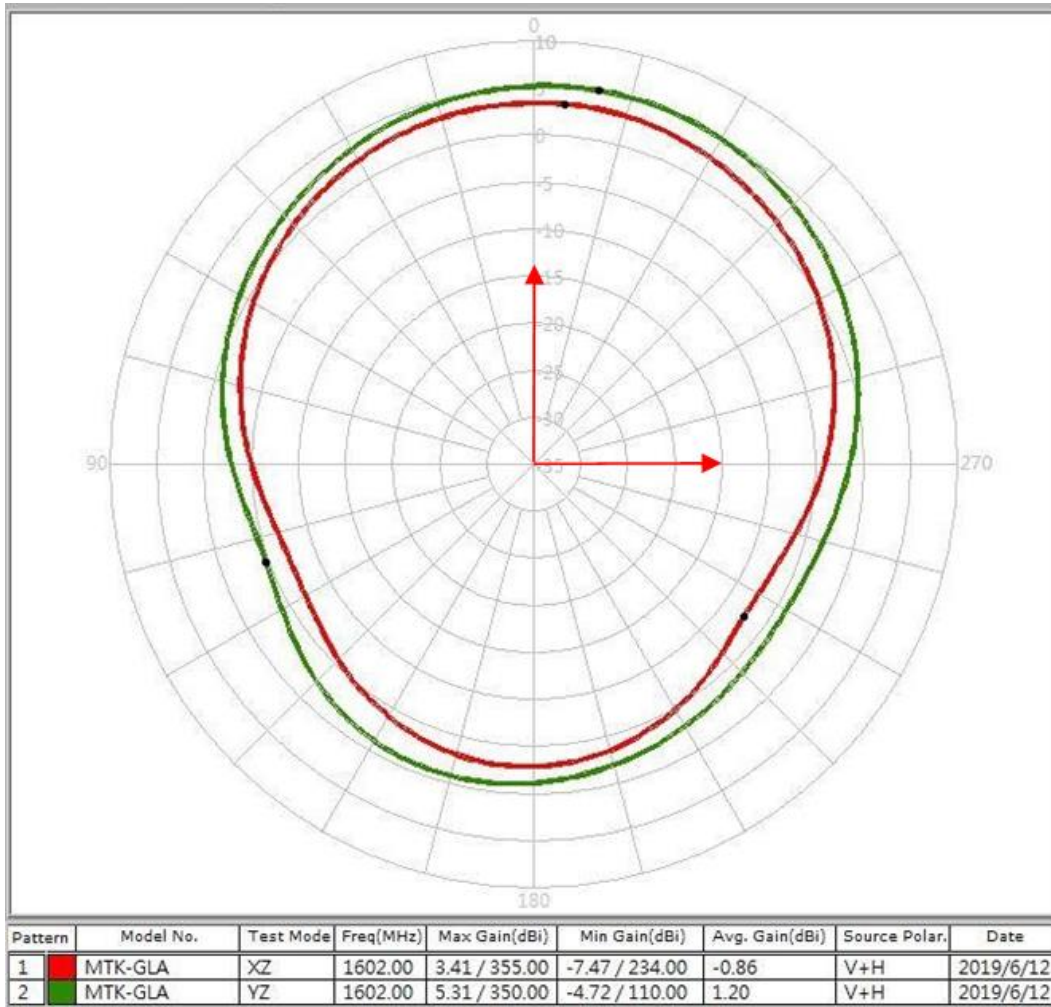
5. Gain Pattern Value

5.1 (1176MHz)



| | Peak Gain | Zenith Gain |
|----|-----------|-------------|
| XZ | 2.06 | 2.06 |
| YZ | -0.26 | -0.45 |

5.2 (1602 MHz)

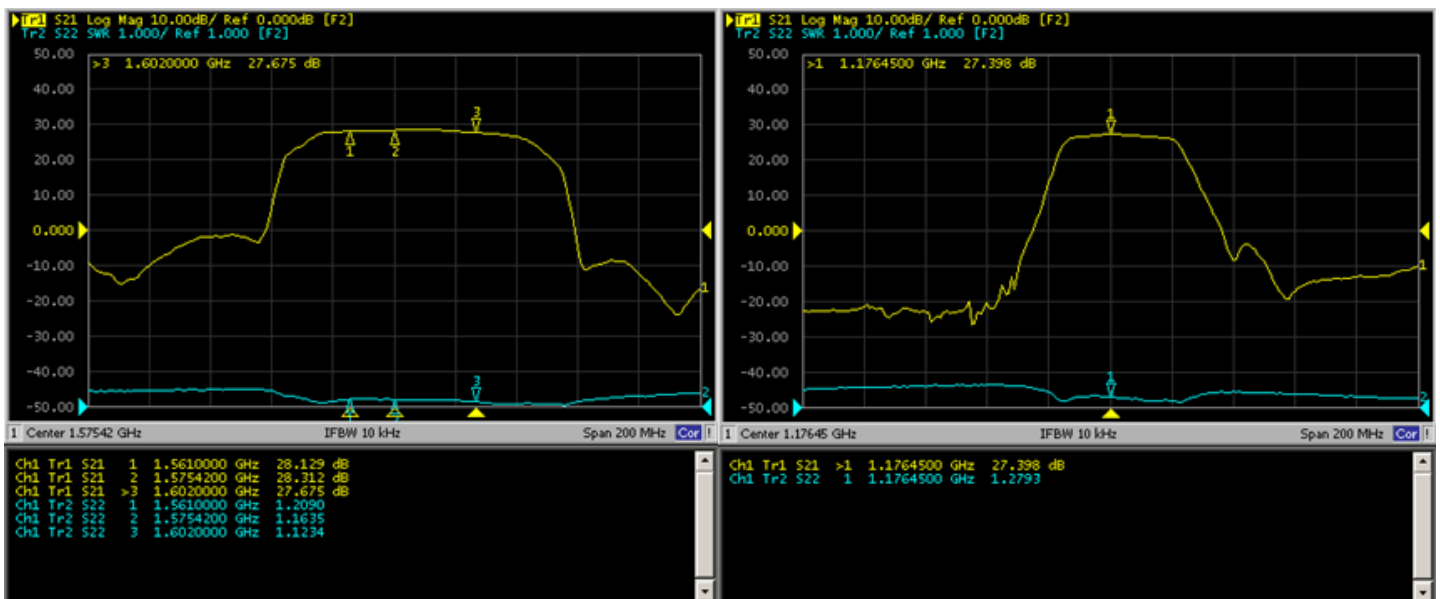


| | Peak Gain | Zenith Gain |
|----|-----------|-------------|
| XZ | 3.41 | 3.36 |
| YZ | 5.31 | 5.13 |

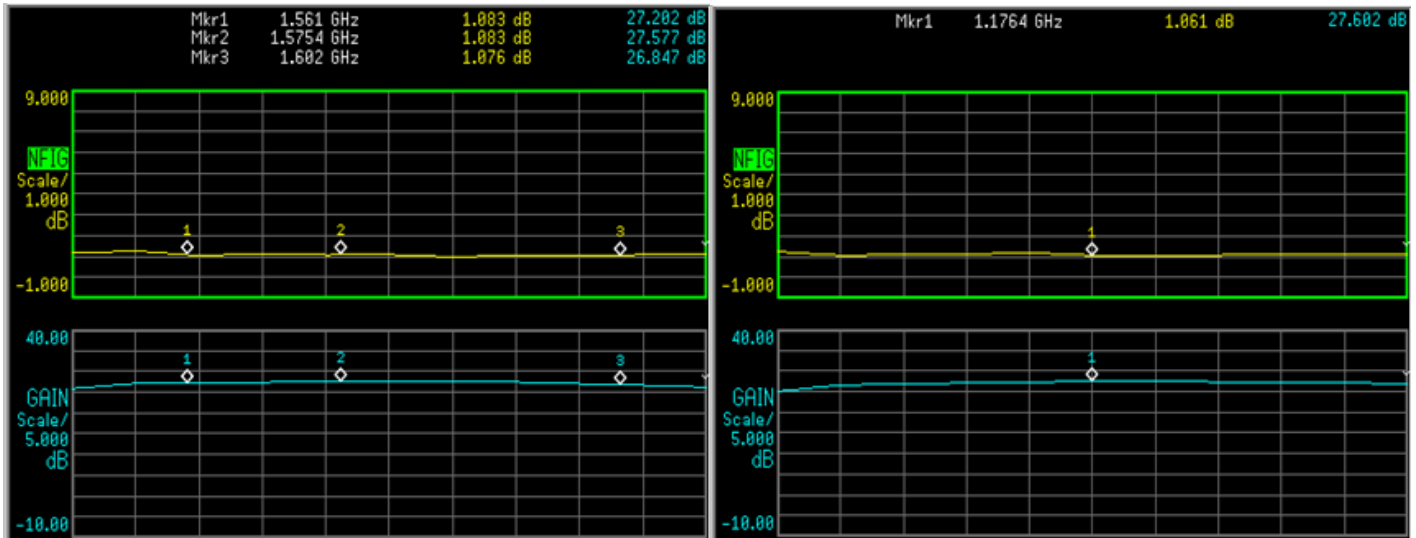
6. LNA

| Characteristics | SPEC |
|------------------|--|
| Frequency Range | L1: 1561±2.046 MHz for Beidou L1: 1575.42±1.023 MHz for GPS/Galileo L1: 1602±8 MHz for GLONASS L5: 1176.45 ±10 MHz |
| Gain | 1561 MHz: 28±3 dB Typ. (+ 25 °C±5°C) 1575.42 MHz: 28±3 dB Typ. (+ 25 °C±5°C) 1602 MHz: 27±3 dB Typ. (+ 25 °C±5°C) 1176.45 MHz: 27±3 dB Typ. (+ 25 °C±5°C) |
| Noise Figure | 1561 MHz: 1 dB Typ. (+ 25 °C±5°C) 1575.42 MHz: 1 dB Typ. (+ 25 °C±5°C) 1602 MHz: 1 dB Typ. (+ 25 °C±5°C) 1176.45 MHz: 1 dB Typ. (+ 25 °C±5°C) |
| Output Impedance | 50 Ω |
| Output VSWR | 2.0 Max |

LNA Gain @3.3V



LNA Noise Figure @3.3V



7. Total Specifications

| Characteristics | SPEC |
|------------------|--|
| Frequency Range | L1: 1561±2.046 MHz for Beidou L1: 1575.42±1.023 MHz for GPS/Galileo L1: 1602±8 MHz for GLONASS L5: 1176.45 ±10 MHz |
| Gain@3.3V | At 90° L1: 1561 MHz: 29 dBi @Zenith – Cable Loss(Note:1) L1: 1575.42 MHz: 30 dBi @Zenith – Cable Loss(Note:1) L1: 1602 MHz: 30.5 dBi @Zenith – Cable Loss(Note:1) L5: 1176.45 MHz: 27 dBi @Zenith – Cable Loss(Note:1) |
| Output Impedance | 50 Ω |

Note: 1 Cable Loss = Max. (-1.4dB/meter)

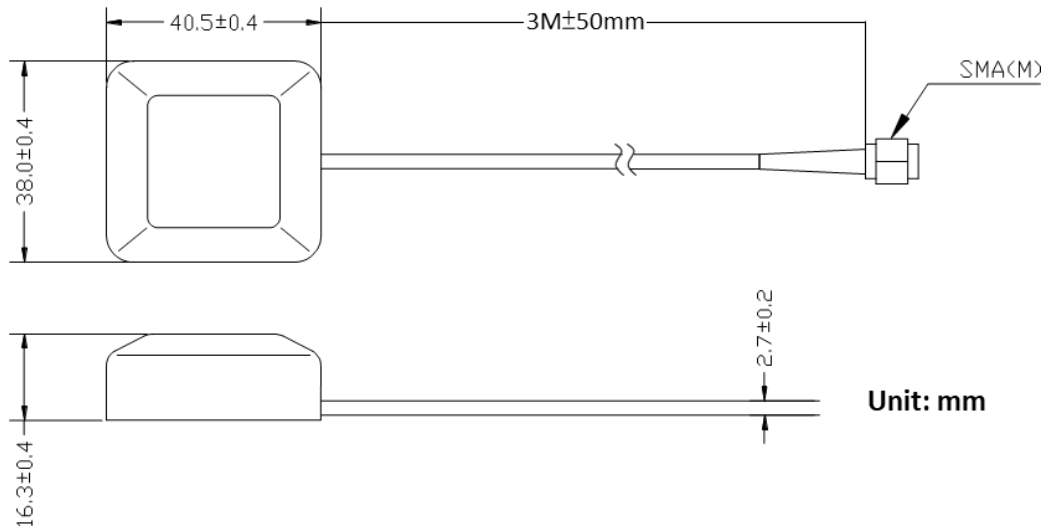
8. Operating Condition

| | |
|-------------|----------------|
| Temperature | -40°C to +85°C |
| Humidity | 10% to 95% RH |

9. Storage Condition

| | |
|-------------|----------------|
| Temperature | -40°C to +85°C |
| Humidity | 10% to 95% RH |

10. Outline



11. Note

1. This product specification guarantees the quality of our product as a single unit. Please make sure that your product is evaluated and confirmed against your specifications when our product is mounted to your product.
2. We cannot warrant against failure caused by any use of our product that deviates from the intended use as described in this product specification.
3. Electrostatic sensitive device Observe precautions for handling.