



# Datasheet

Circularly Polarized Active GPS Embedded Ceramic Patch Antenna

**Model:** AIGC055

**PN:** M01-0300280R0A

**Description:**

Active B1/L1/E1 Band BDS/GPS/Galileo Antenna  
for Meshtastic Handle

Operating Frequency: 1550 -1580 MHz

**Features:**

Ceramic Patch Element

Low Axial Ratio

Dimensions: 18 x 18 x 4 mm

PCB Board: 18 x 18 x 0.6 mm

Ground Plane Dependent

RoHS & Reach Compliant



# ABOOSTY



# Table of Contents

|                                                    |   |
|----------------------------------------------------|---|
| FEATURES & BENEFITS .....                          | 1 |
| ANTENNA IMAGE .....                                | 1 |
| ORDER INFORMATION .....                            | 1 |
| APPLICATIONS .....                                 | 1 |
| GNSS FREQUENCY BANDS .....                         | 2 |
| REFERENCE GUIDE .....                              | 3 |
| ELECTRICAL PERFORMANCE .....                       | 4 |
| S21 (dB) and S22 .....                             | 4 |
| Passive Gain (dBi) and Total Efficiency (%) .....  | 5 |
| 2D and 3D Radiation Patterns (1550-1580 MHz) ..... | 7 |
| MECHANICAL DIMENSIONS .....                        | 8 |

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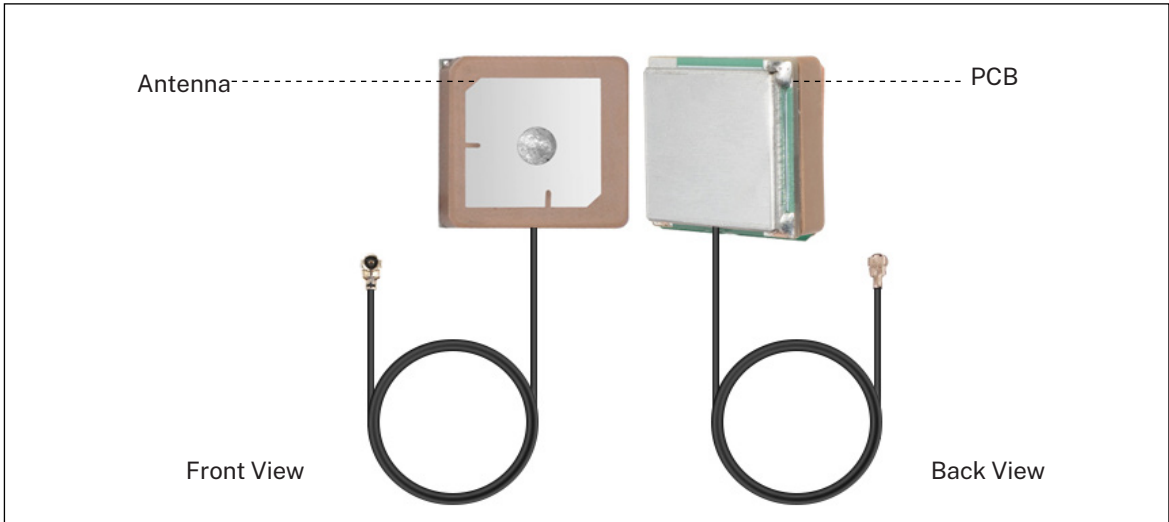
FEATURES & BENEFITS

- 18x18x4mm Embedded Ceramic Patch Element
- Miniaturized, Multi-system Compatible
- Low Axial Ratio
- Ground Plane Dependent
- RoHS & Reach Compliant
- Covering Bands: GPS (L1) / Galileo (E1) / BeiDou (B1)

APPLICATIONS

- Hand-held/Portable Devices
- Asset and Fleet Tracking
- Scientific Instrumentations
- Oil, Gas, and Mining Industries
- M2M Applications
- Precision Agriculture

ANTENNA IMAGE



ORDER INFORMATION

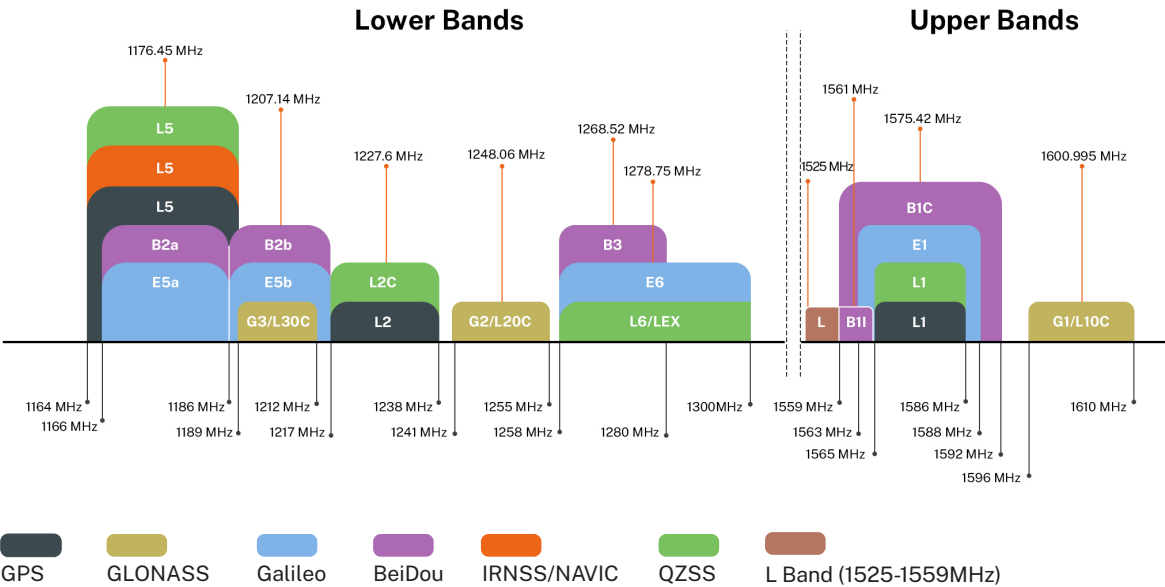
|                     |                                                                |
|---------------------|----------------------------------------------------------------|
| Product Name        | Circularly Polarized Active GPS Embedded Ceramic Patch Antenna |
| Model               | AIGC055                                                        |
| Part Number         | M01-0300280R0A                                                 |
| Dimensions          | 18 x 18 x 4 mm (PCB Board: 18 x 18 x 0.6 mm)                   |
| Weight              | 5.8 g                                                          |
| Mounting            | Internal/Embedded/Adhesive mount                               |
| Cable Length        | 160mm                                                          |
| Cable and Connector | IPEX 1, RF 1.13 (Ø 1.13 mm) coaxial cable, customizable.       |



## GNSS FREQUENCY BANDS

| GNSS Frequency Bands Covered |          |            |     |     |    |
|------------------------------|----------|------------|-----|-----|----|
| GPS                          | L1       | L2         | L5  |     |    |
|                              | ●        | ○          | ○   |     |    |
| GLONASS                      | G1       | G2         | G3  |     |    |
|                              | ○        | ○          | ○   |     |    |
| Galileo                      | E1       | E5a        | E5b | E6  |    |
|                              | ●        | ○          | ○   | ○   |    |
| Bei Dou                      | B1I      | B1C        | B2a | B2b | B3 |
|                              | ●        | ●          | ○   | ○   | ○  |
| QZSS (Regional)              | L1       | L2C        | L5  | L6  |    |
|                              | ●        | ○          | ○   | ○   |    |
| IRNSS(Regional)              | L5       |            |     |     |    |
|                              | ○        |            |     |     |    |
| SBAS                         | L1/E1/B1 | L5/B2a/E5a | G1  | G2  | G3 |
|                              | ●        | ○          | ○   | ○   | ○  |

\*SBAS systems: WASS(L1/L5), EGNOS(E1/E5a), SDCM(G1/G2/G3), SNAS(B1,B2a), GAGAN(L1/L5), QZSS(L1/L5), KAZZ(L1/L5).





## REFERENCE GUIDE

| Antenna                   |                   |             |             |         |
|---------------------------|-------------------|-------------|-------------|---------|
| Frequency                 | 1550-1580 MHz     |             |             |         |
| Technical Features (MHz)  | BeiDou            | Galileo     | GPS         | GLONASS |
|                           | 1561 ± 2          | 1575.42 ± 2 | 1575.42 ± 2 | /       |
| Frequency Bands           | B1 Band           | E1 Band     | L1 Band     | G1 Band |
| VSWR                      | <1.8              |             |             |         |
| Peak Gain (dBi)           | -0.55             |             |             |         |
| Efficiency (%)            | 51.25             |             |             |         |
| Axial Ratio (dB)          | <3                |             |             |         |
| Noise Figure (dB)         | <1.8              |             |             |         |
| Polarization              | RHCP              |             |             |         |
| Radiation Pattern         | Directional       |             |             |         |
| Input Impedance           | 50 Ω              |             |             |         |
| LNA                       |                   |             |             |         |
| Frequency Bands           | B1 Band           | E1 Band     | L1 Band     | G1 Band |
| LNA Gain (dB)             | 17.9              | 19.1        | 19.1        | 17.6    |
| Input Voltage             | 3.3 ± 0.3 V       |             |             |         |
| Current Consumption @3.0V | 8 ± 1 mA (@3.3 V) |             |             |         |

| Environmental         |                                     |                           |         |         |
|-----------------------|-------------------------------------|---------------------------|---------|---------|
| Operating Temperature | -40°C to +85°C                      |                           |         |         |
| Storage Temperature   | -40°C to +90°C                      |                           |         |         |
| Relative Humidity     | Non-condensing 65°C 95% RH          |                           |         |         |
| Vibration             | Wave Form: Random Vibration         |                           |         |         |
|                       | Test Time: 30min/Axis               |                           |         |         |
|                       | Direction: X, Y, Z Axis             |                           |         |         |
|                       | PSD Break Points for 9.8 RMS (m/s²) | Frequency (Hz)            | 50      | 300     |
|                       |                                     | Acceleration ((m/s²)²/Hz) | 0.38416 | 0.38416 |
| RoHS Compliant        | Yes                                 |                           |         |         |

All data were measured with a 160-mm long RF 1.13 cable. Application data might vary.

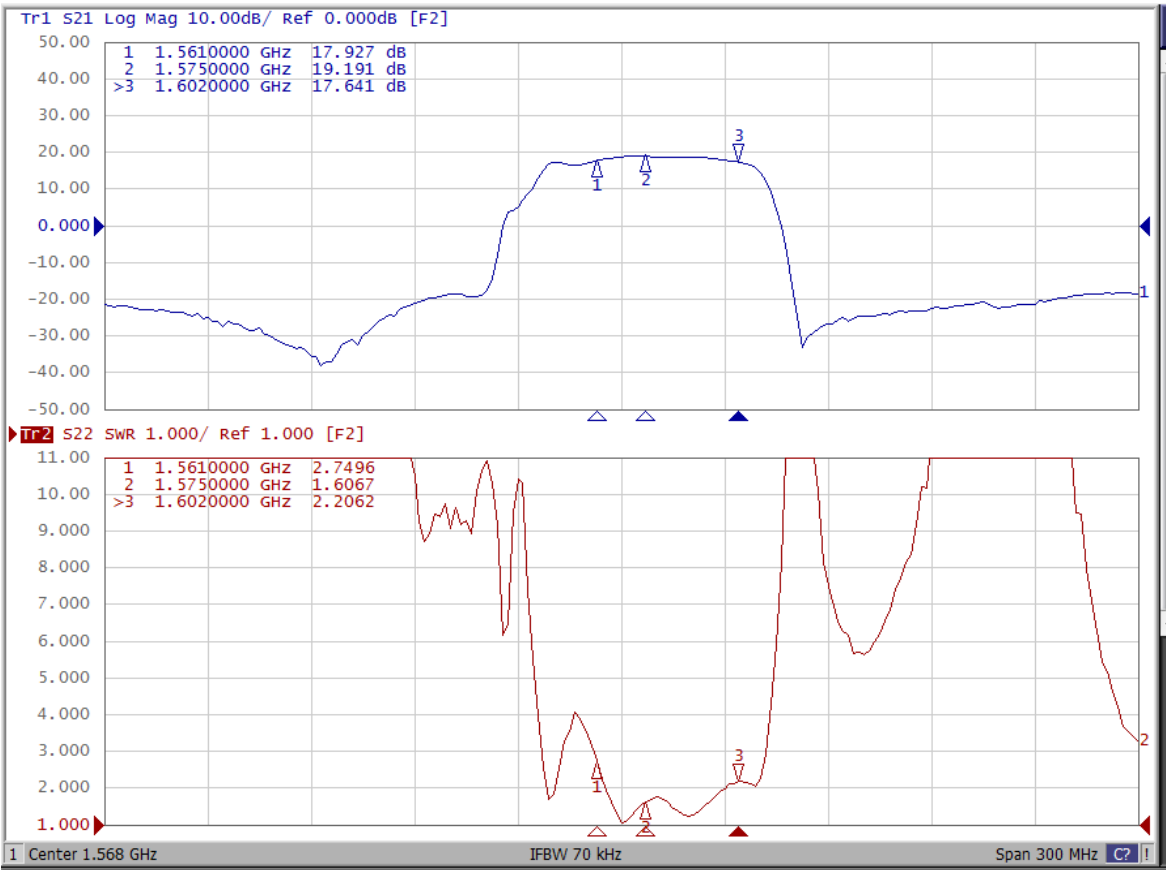


# ELECTRICAL PERFORMANCE

⦿ Note

All data displayed in "ELECTRICAL PERFORMANCE" were measured with a 160-mm-long RF 1.13 cable.

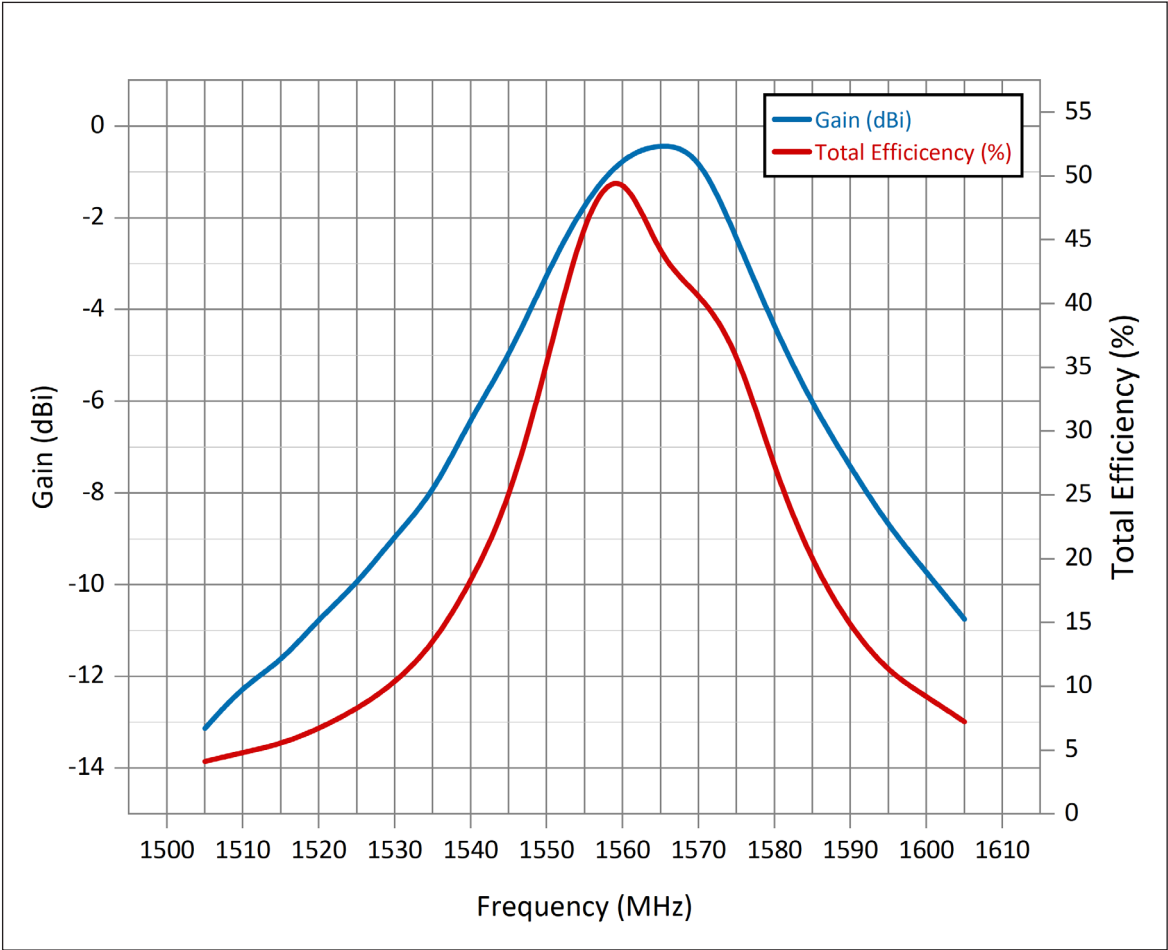
## S21 (dB) and S22



(Note: Data were tested with a 160 mm of RF 1.13 cable.)



Passive Gain (dBi) and Total Efficiency (%)

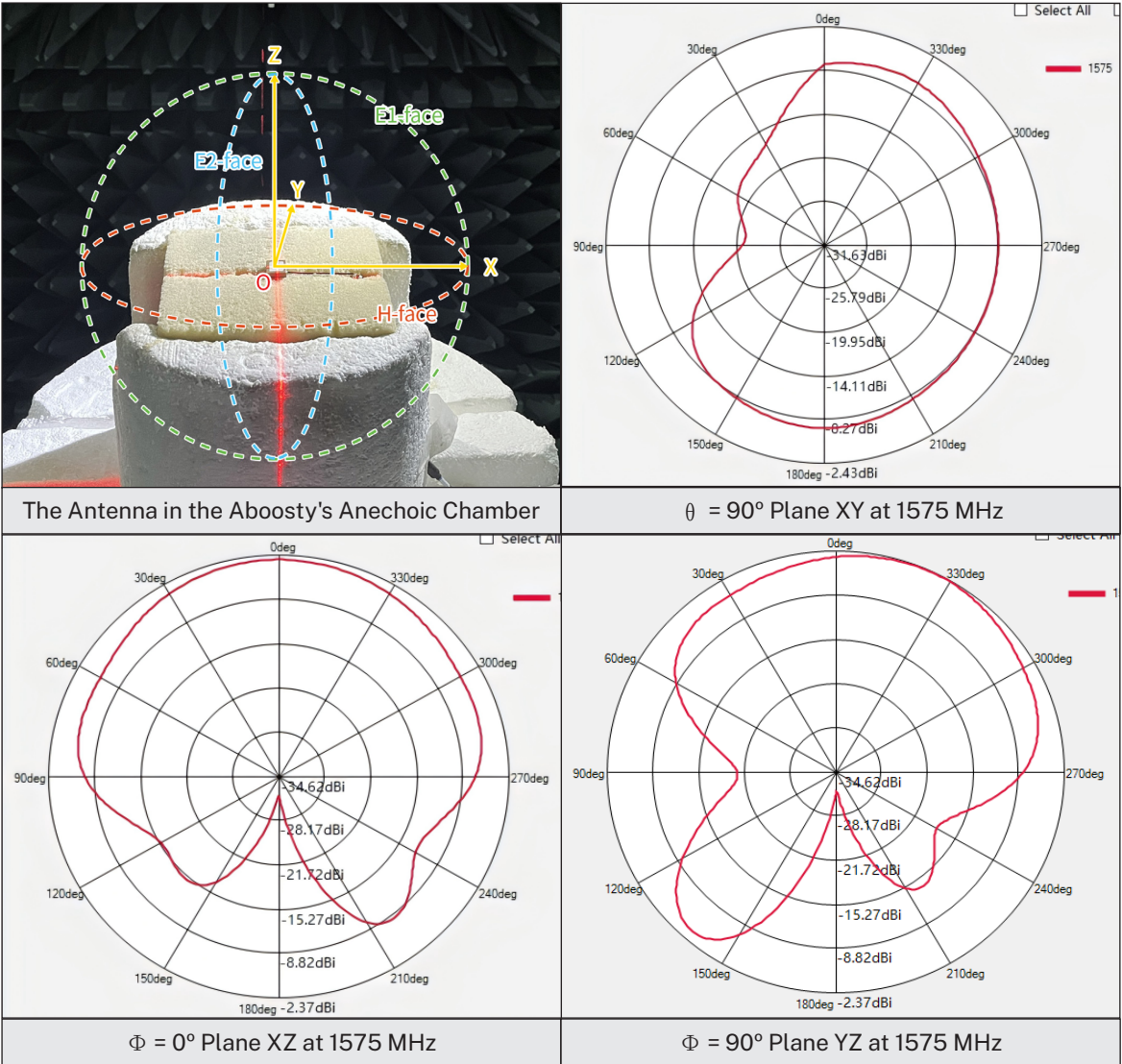


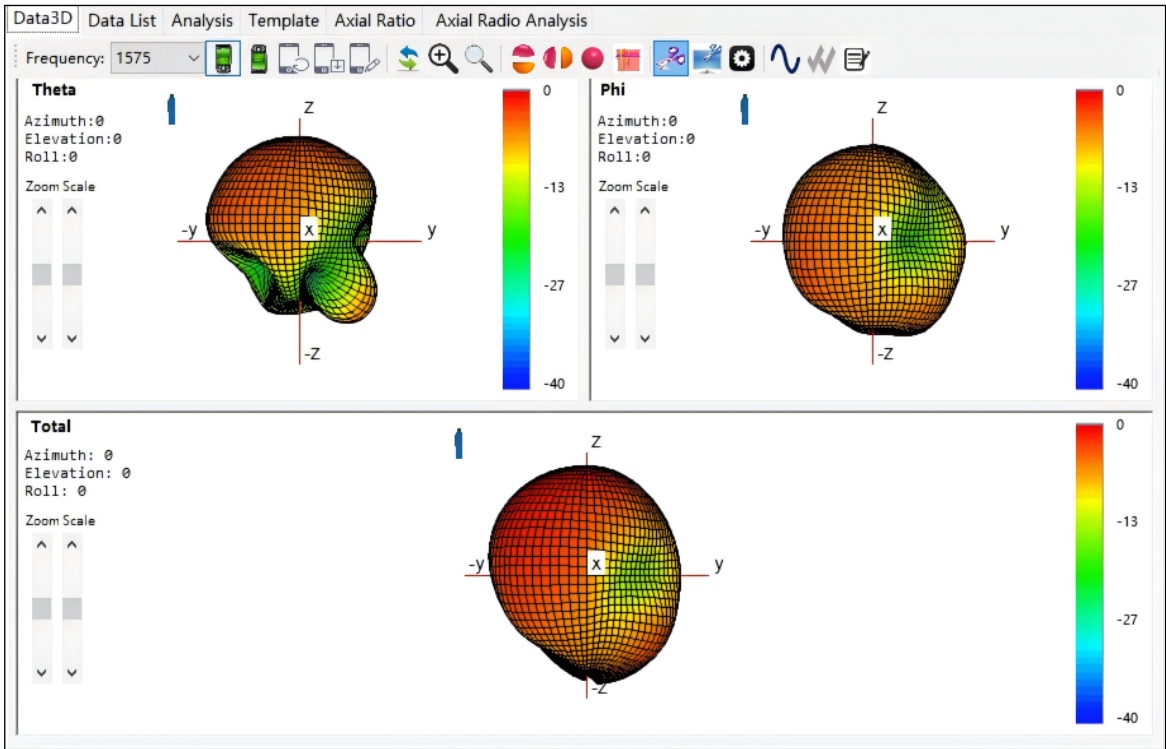
(Note: Data were tested with a 160 mm of RF 1.13 cable.)



| Antenna Data |            |                |
|--------------|------------|----------------|
| Freq (MHz)   | Gain (dBi) | Efficiency (%) |
| 1505         | -13.13     | 4.14           |
| 1510         | -12.21     | 4.83           |
| 1515         | -11.68     | 5.49           |
| 1520         | -10.74     | 6.69           |
| 1525         | -9.98      | 8.23           |
| 1530         | -8.94      | 10.25          |
| 1535         | -8.03      | 13.22          |
| 1540         | -6.36      | 18.13          |
| 1545         | -5.03      | 24.37          |
| 1550         | -3.22      | 35.12          |
| 1555         | -1.64      | 47.28          |
| 1560         | -0.65      | 51.25          |
| 1565         | -0.36      | 43.25          |
| 1570         | -0.54      | 40.91          |
| 1575         | -2.43      | 36.71          |
| 1580         | -4.4       | 26.89          |
| 1585         | -6.07      | 19.66          |
| 1590         | -7.43      | 14.62          |
| 1595         | -8.72      | 11.11          |
| 1600         | -9.72      | 9.23           |
| 1605         | -10.75     | 7.24           |

## 2D and 3D Radiation Patterns (1550-1580 MHz)

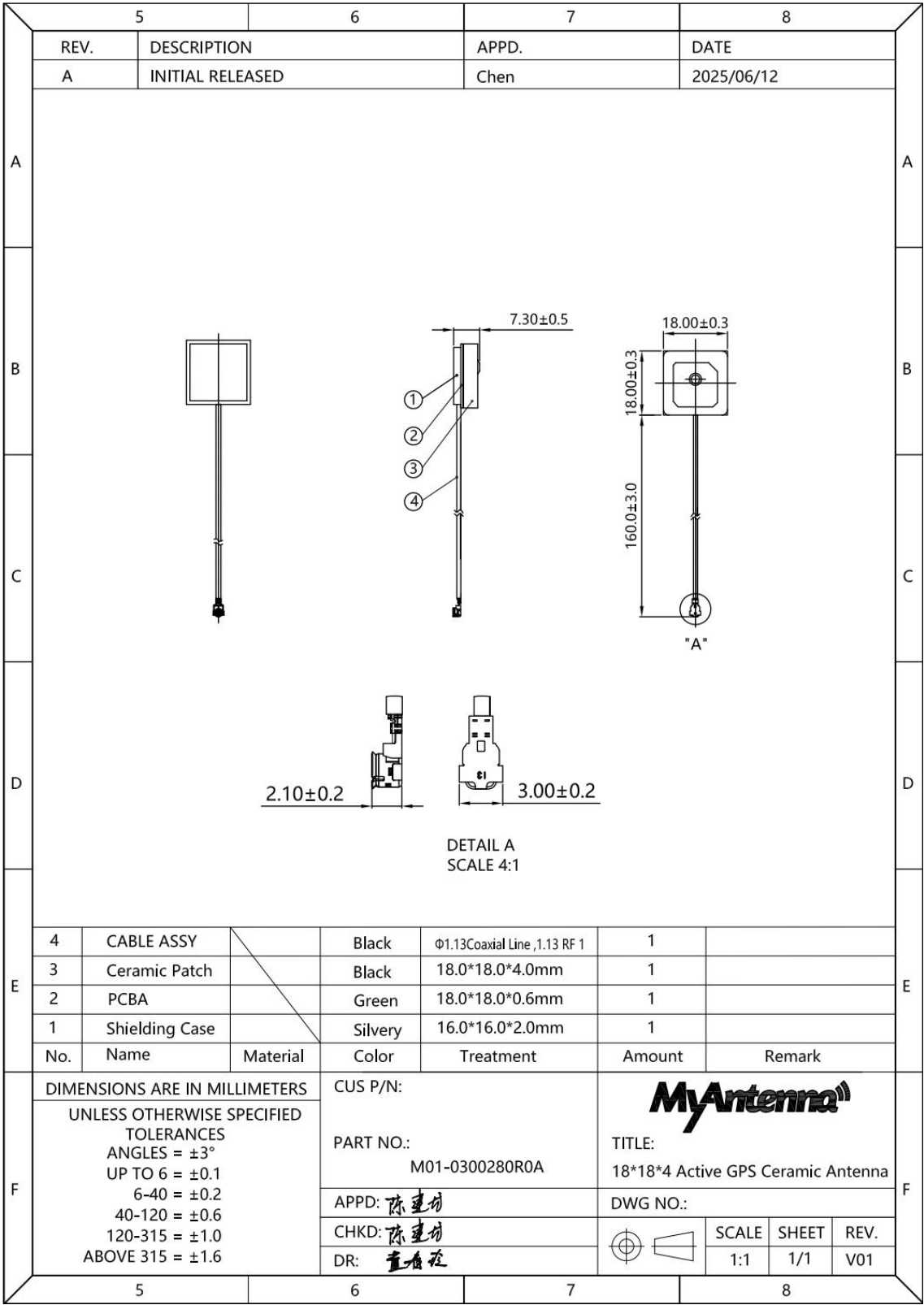




3D at 1575 MHz, Gain=-2.43 dBi



# MECHANICAL DIMENSIONS



# ABOOSTY WELCOME ALL ANTENNA OEM/ODM PROJECTS

## Why Choose ABOOSTY



10+ years in antenna R&D, production, and OEM/ODM



MES system supported factory; 50M+ units annual output capacity



Factory directly competitive price



Quick price and lead time estimate



Innovative and patented design solutions



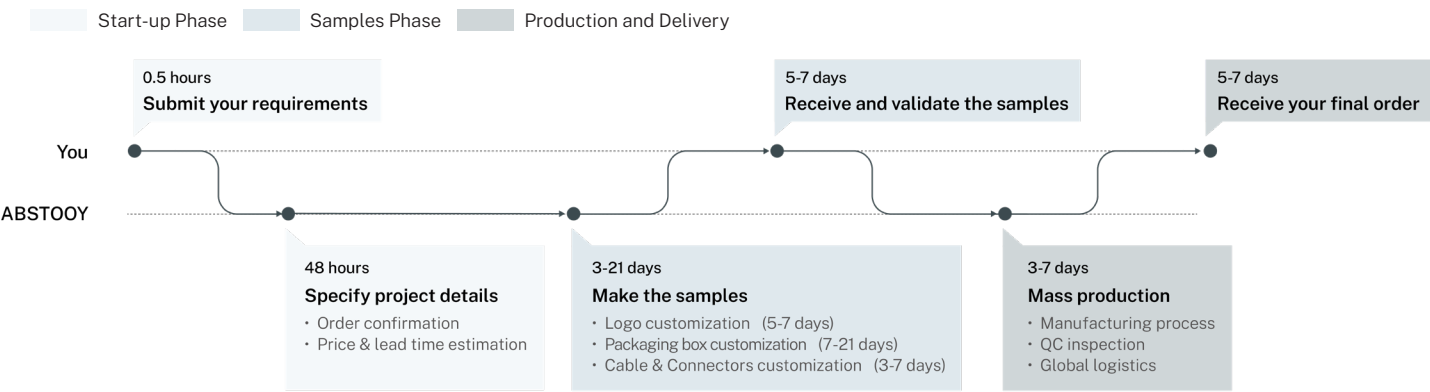
Professional team support & prompt reply within 24h

## What We Provide

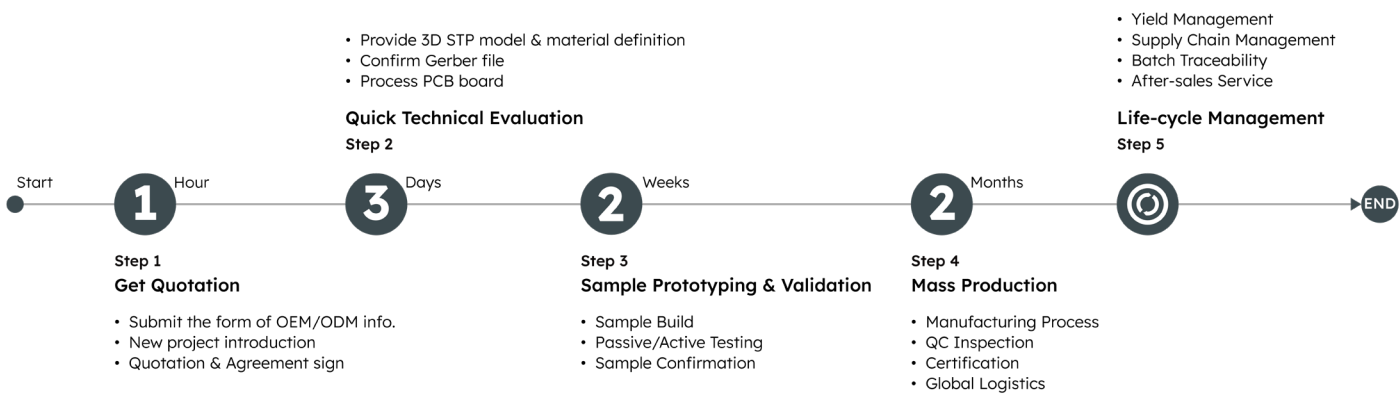
| OEM/ODM Services | Light Customization                                                                                          | Deep Customization                                                                                                                                                                                                   |
|------------------|--------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                  | <ul style="list-style-type: none"><li>• Logo</li><li>• Packaging</li><li>• Cables &amp; Connectors</li></ul> | <ul style="list-style-type: none"><li>• In-depth tailoring for specific applications</li><li>• Functional enhancements</li><li>• Environmental adaptations</li><li>• Vertical certifications</li><li>• ...</li></ul> |

## Custom Process

### Light Customization Process



### Deep Customization Process



**Note:** You can let us handle the PCB prototyping or do it yourself. Choosing self-prototyping may add 2 to 5 weeks to the timeline.

Boost Your Signal  
with Our Antennas

# ABOOSTY

A Globally Leading Manufacturer and Supplier of  
Multi-band Combination Antennas

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