

Datasheet

Circularly Polarized Active GPS Embedded Ceramic Patch Antenna

Model: AIGC058

PN: M01-0300400R0A

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: 15 x 15 x 4 mm

PCB Board: 15 x 15 x 0.6 mm

Ground Plane Dependent

RoHS & Reach Compliant



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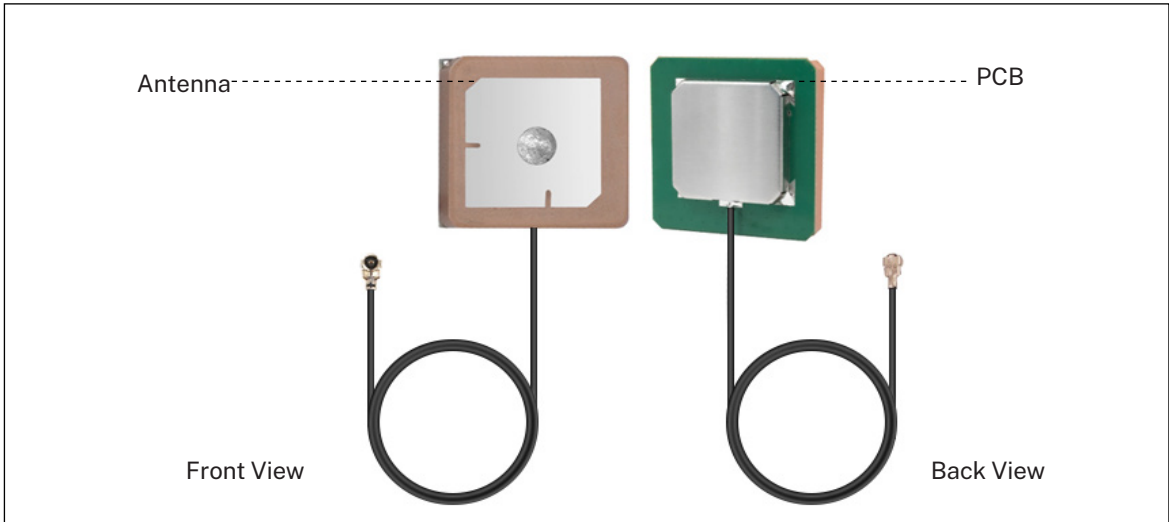
FEATURES & BENEFITS

- 15x15x4mm 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

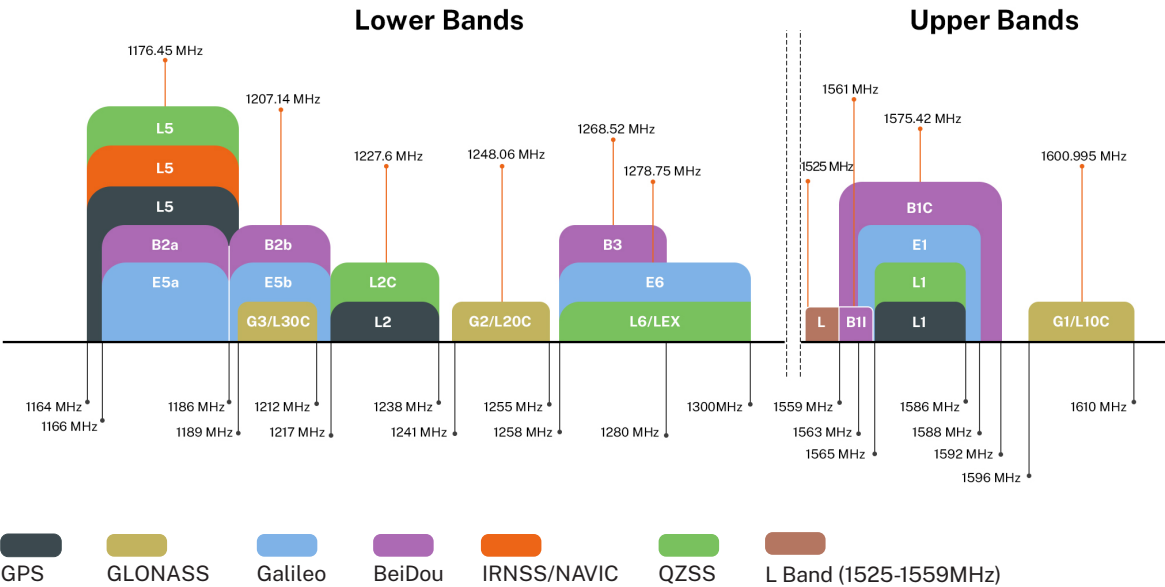
Product Name	Circularly Polarized Active GPS Embedded Ceramic Patch Antenna
Model	AIGC058
Part Number	M01-0300400R0A
Dimensions	15 x 15 x 4 mm (PCB Board: 15 x 15 x 0.6 mm)
Weight	5.8 g
Mounting	Internal/Embedded/Adhesive mount
Cable Length	90mm
Cable and Connector	IPEX 1, RF 1.13 (Ø 1.13 mm) coaxial 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) OZSS(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 90-mm long RF 1.13 cable. Application data might vary.				

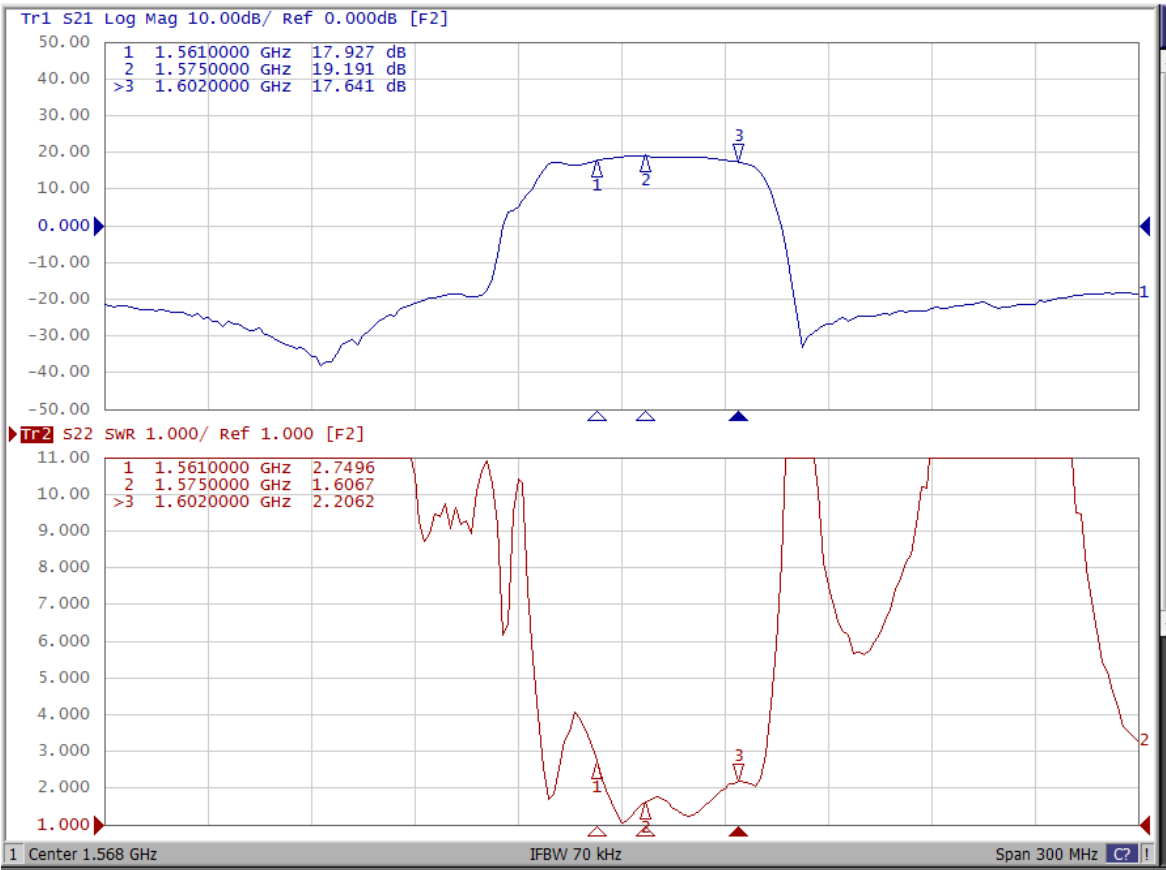


ELECTRICAL PERFORMANCE

⦿ Note

All data displayed in "ELECTRICAL PERFORMANCE" were measured with a 90-mm-long RF 1.13 cable.

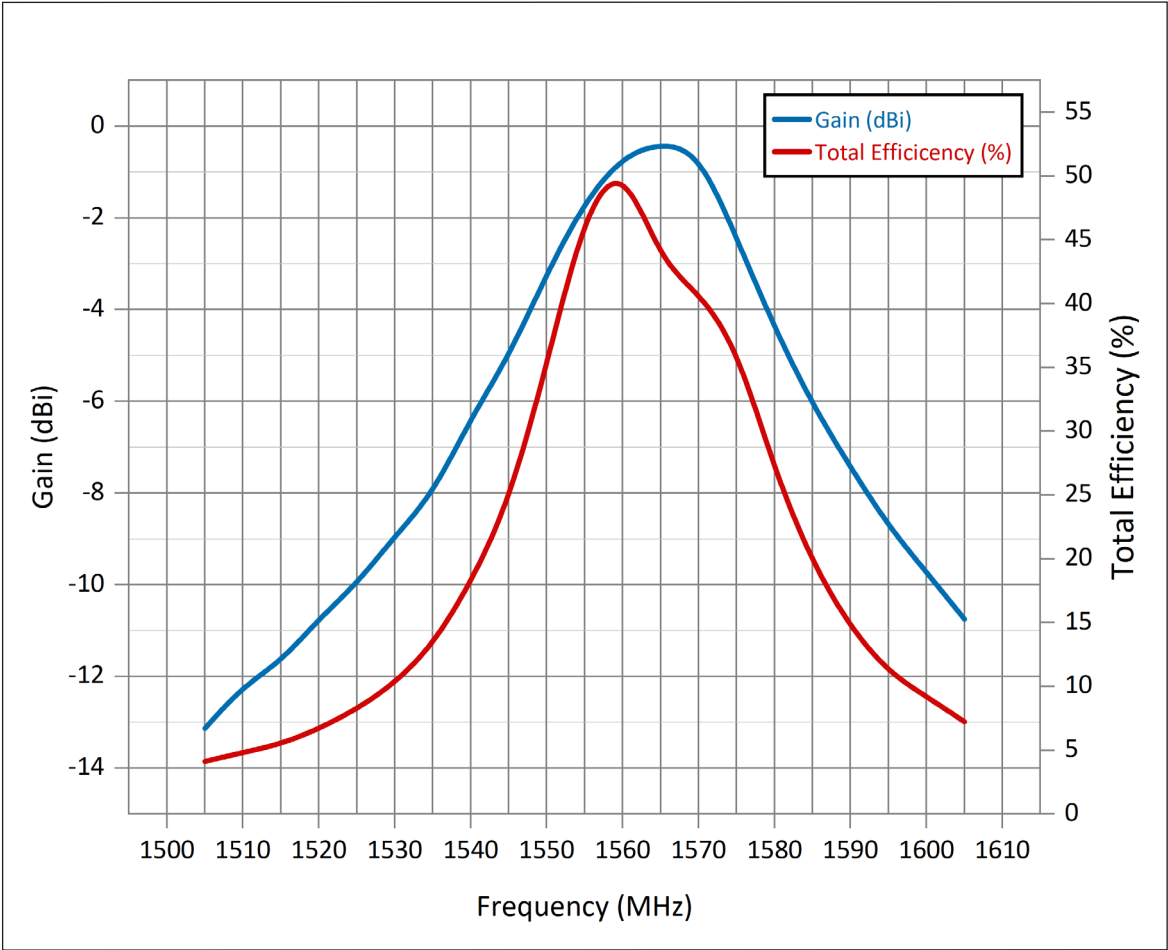
S21 (dB) and S22



(Note: Data were tested with a 90 mm of RF 1.13 cable.)



Passive Gain (dBi) and Total Efficiency (%)

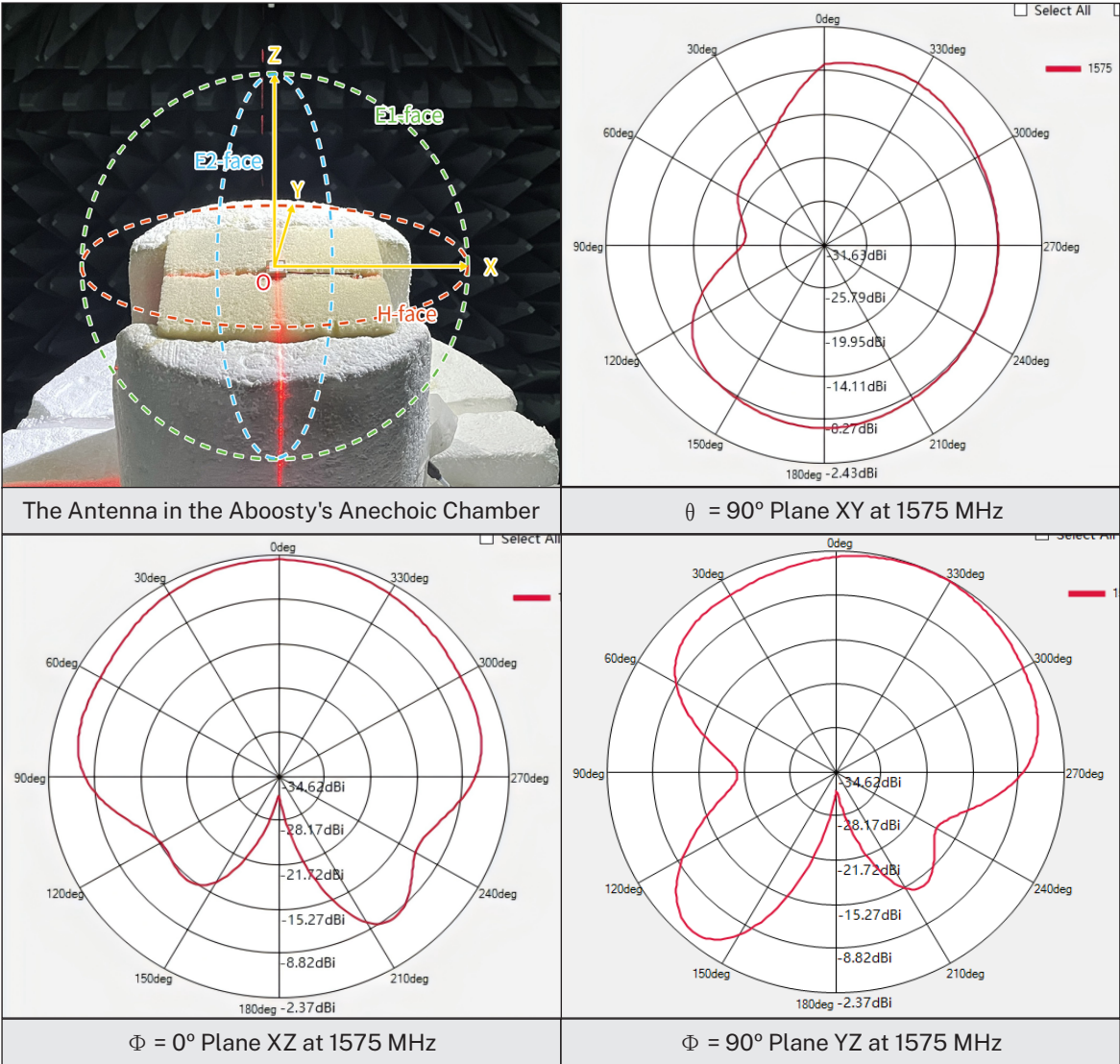


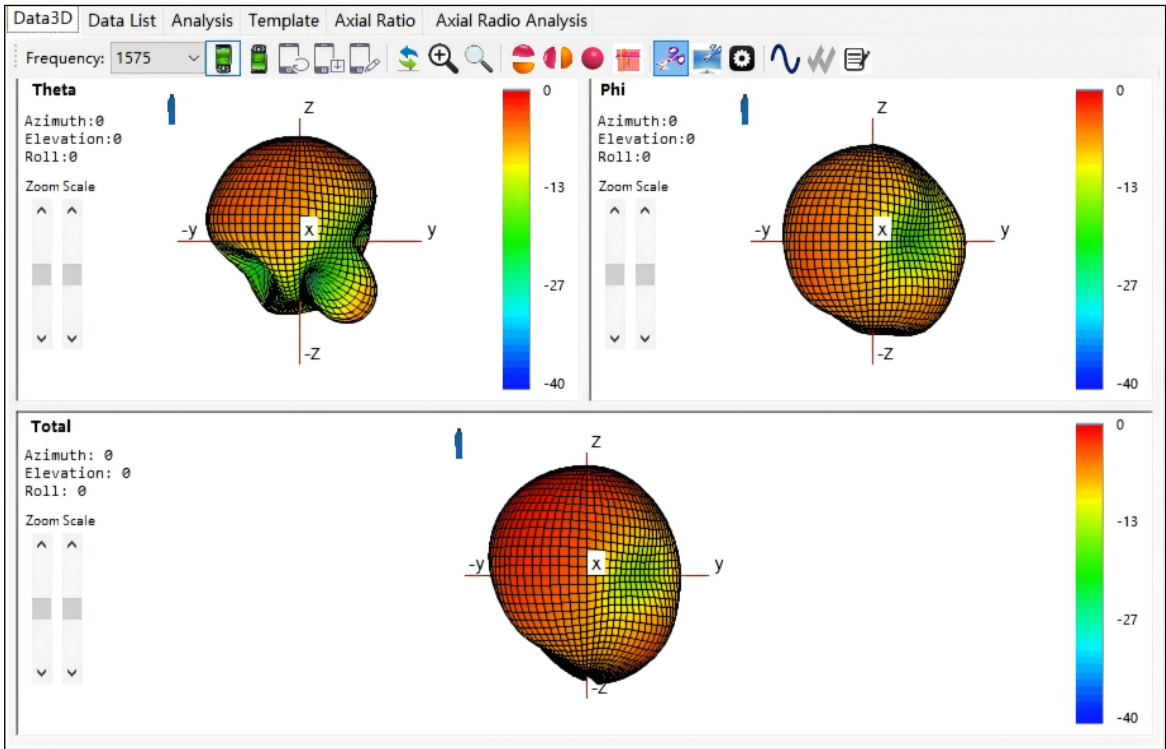
(Note: Data were tested with a 90 mm of RF 1.13 cable.)



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)

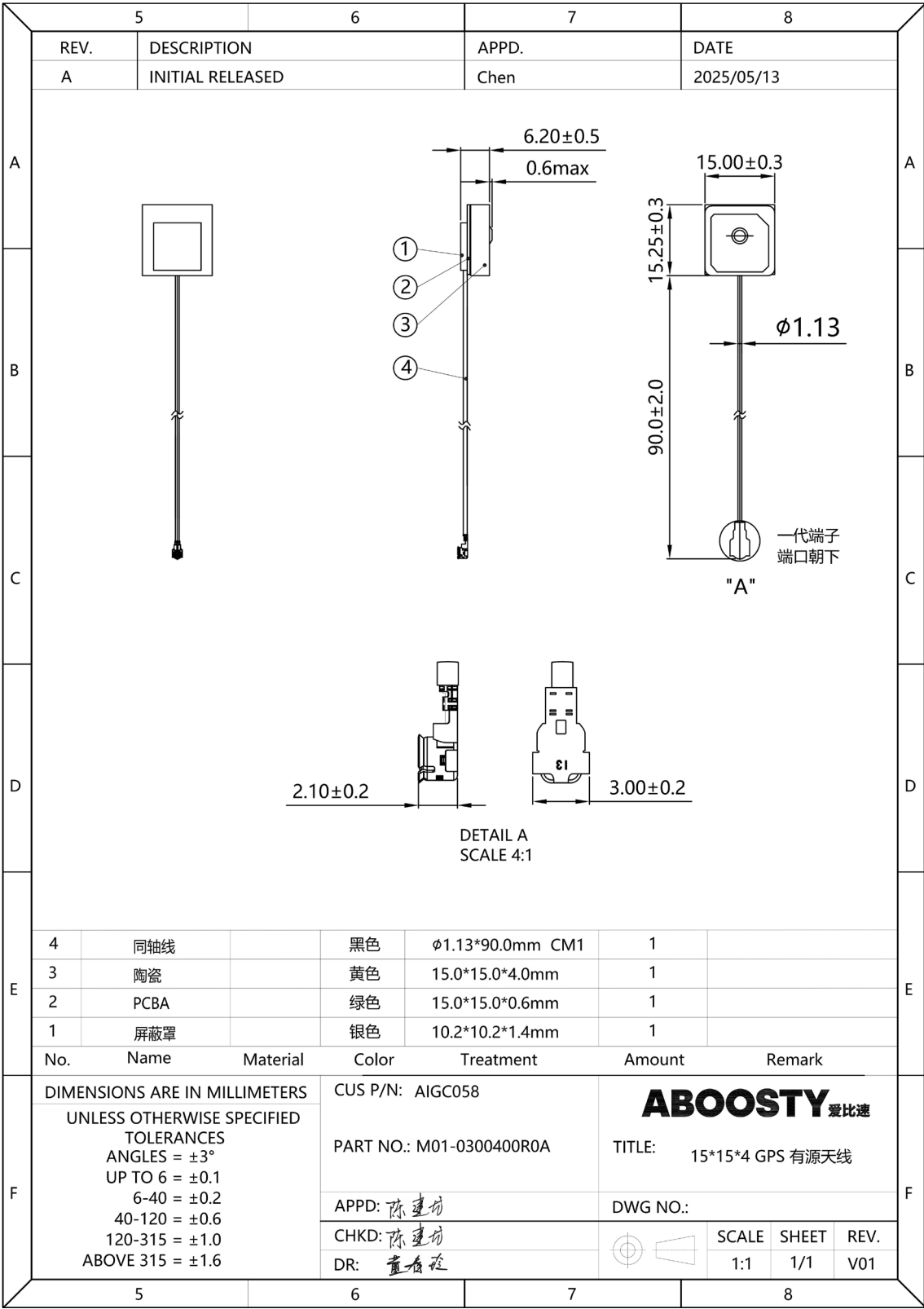




3D at 1575 MHz, Gain=-2.43 dBi



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



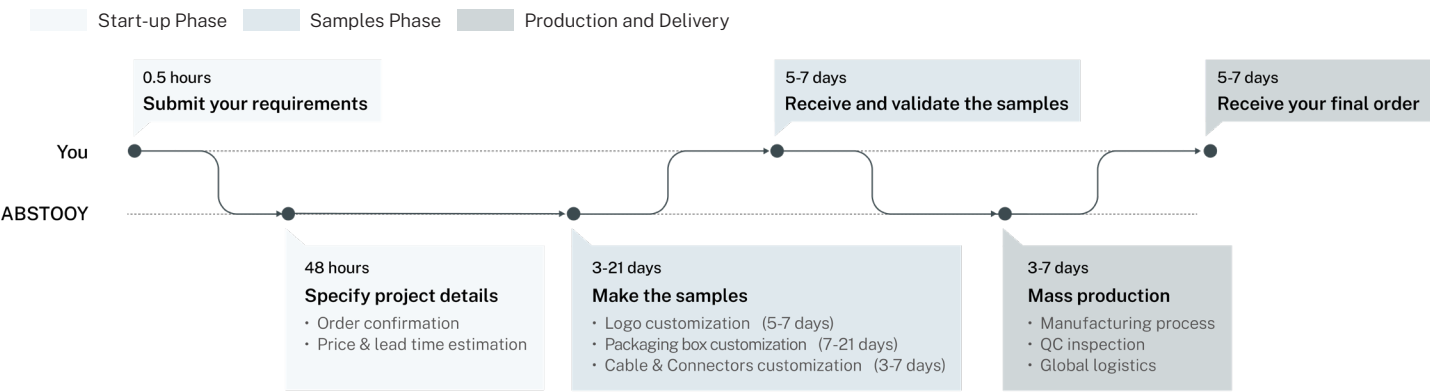
Professional team support & prompt reply within 24h

What We Provide

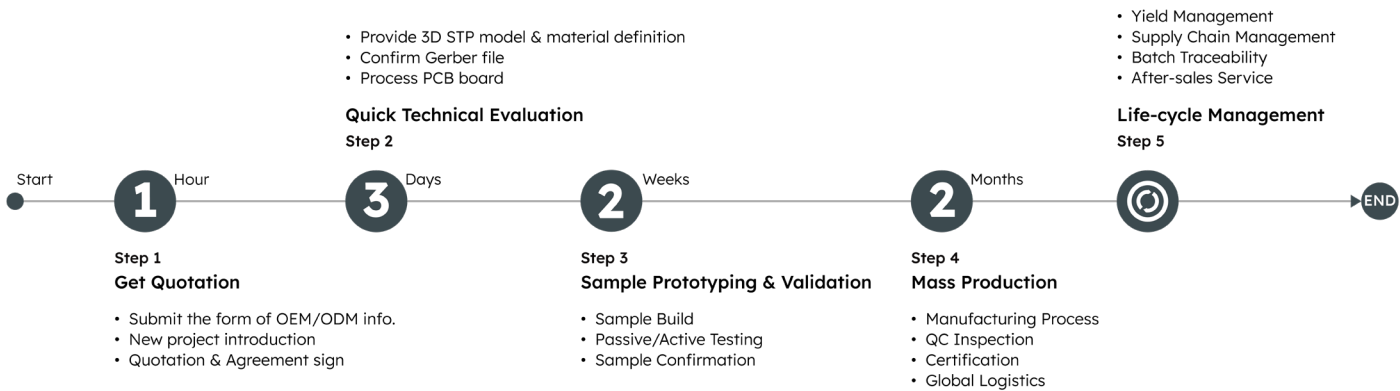
OEM/ODM Services	Light Customization	Deep Customization
	• Logo • Packaging • Cables & Connectors	• In-depth tailoring for specific applications • Functional enhancements • Environmental adaptations • Vertical certifications • ...

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

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Multi-band Combination Antennas

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