

Datasheet

Circularly Polarized Active GPS Embedded Ceramic Patch Antenna

Model: AIGC057

PN: M01-0300300R0A

Description:

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

Operating Frequency: 1550 -1580 MHz

Features:

Ceramic Patch Element

Linear Polarization

Dimensions: 30 x 8.5 x 6.5 mm

PCB Board: 30 x 8.5 x 0.6 mm

Ground Plane Dependent

RoHS & Reach Compliant



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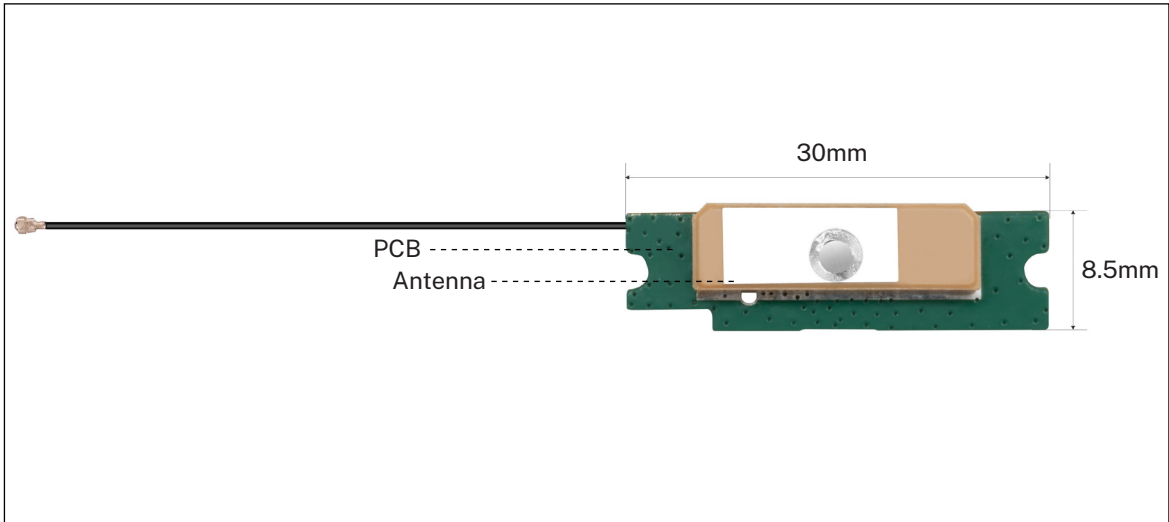
FEATURES & BENEFITS

- 30x8.5x6.5mm Embedded Ceramic Patch Element
- Miniaturized, Multi-system Compatible
- Linear Polarization
- 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

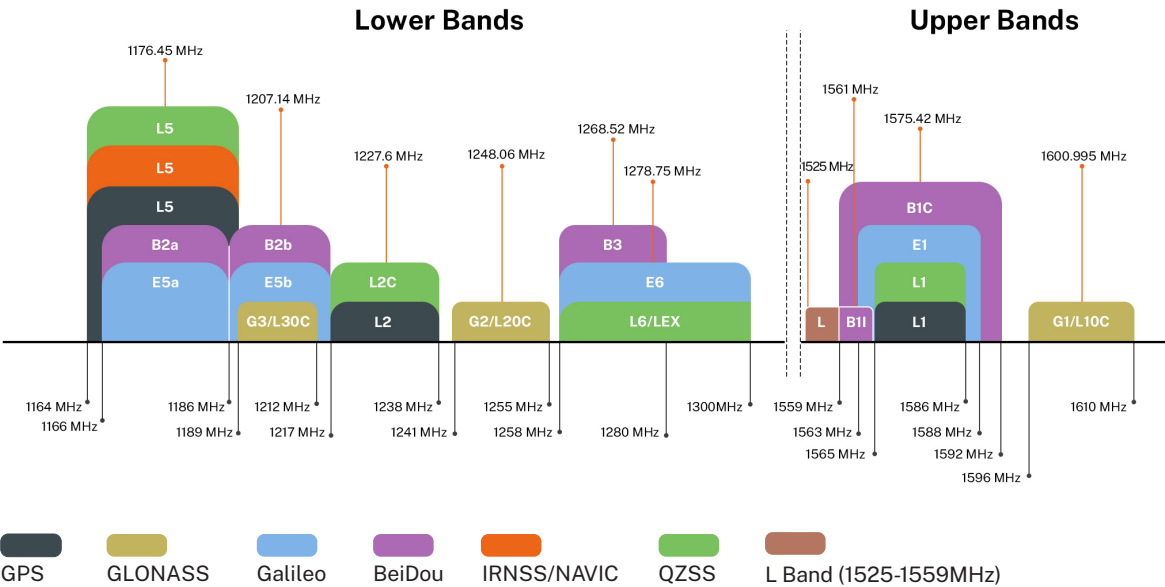
Product Name	Circularly Polarized Active GPS Embedded Ceramic Patch Antenna
Model	AIGC057
Part Number	M01-0300300R0A
Dimensions	30 x 8.5 x 6.5 mm (PCB Board: 30 x 8.5 x 0.6 mm)
Weight	3.1 g
Mounting	Internal/Embedded/Adhesive mount
Cable Length	40mm
Cable and Connector	IPEX 1, RF 1.13 (Ø 1.13 mm) coaxial 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)	-3.3			
Efficiency (%)	43.51			
Axial Ratio (dB)	<10			
Noise Figure (dB)	<1.5			
Polarization	Linear Polarization			
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 40-mm long RF 1.13 cable. Application data might vary.				

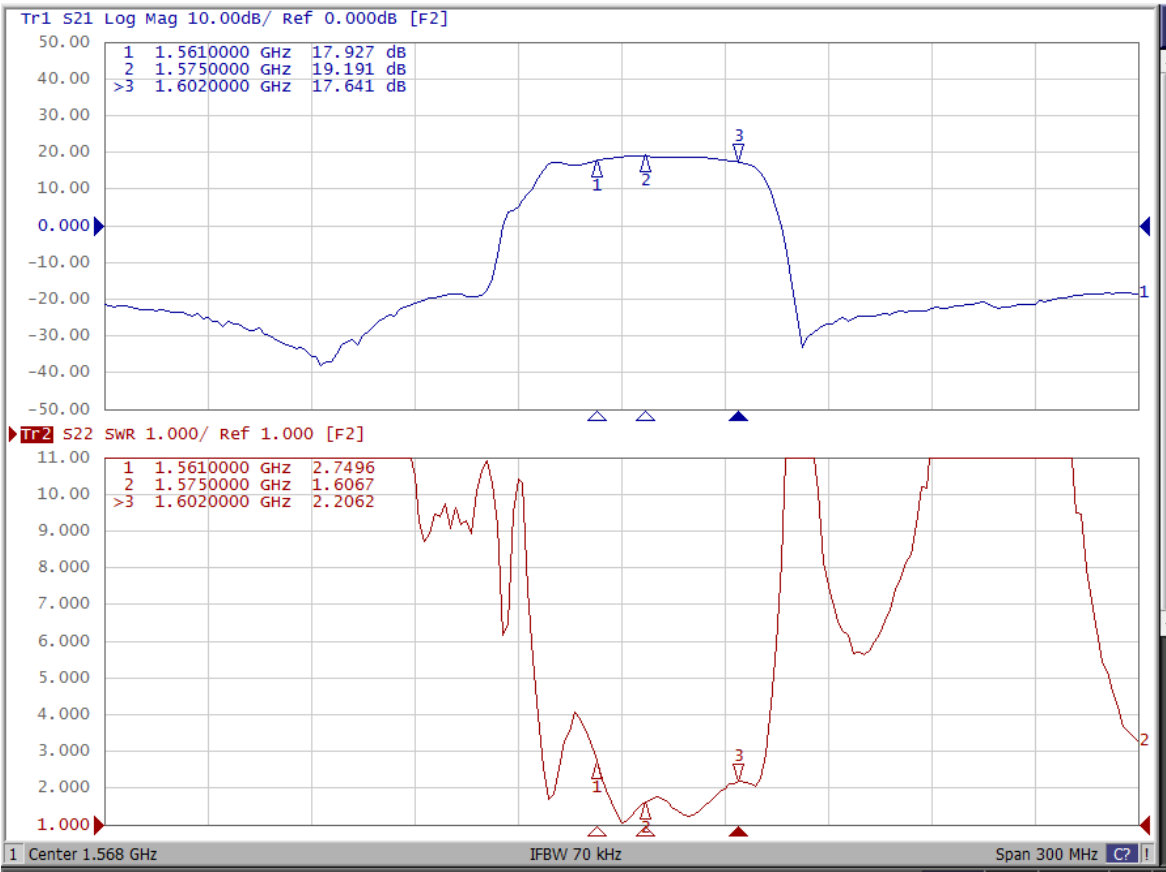


ELECTRICAL PERFORMANCE

⦿ Note

All data displayed in "ELECTRICAL PERFORMANCE" were measured with a 40-mm-long RF 1.13 cable.

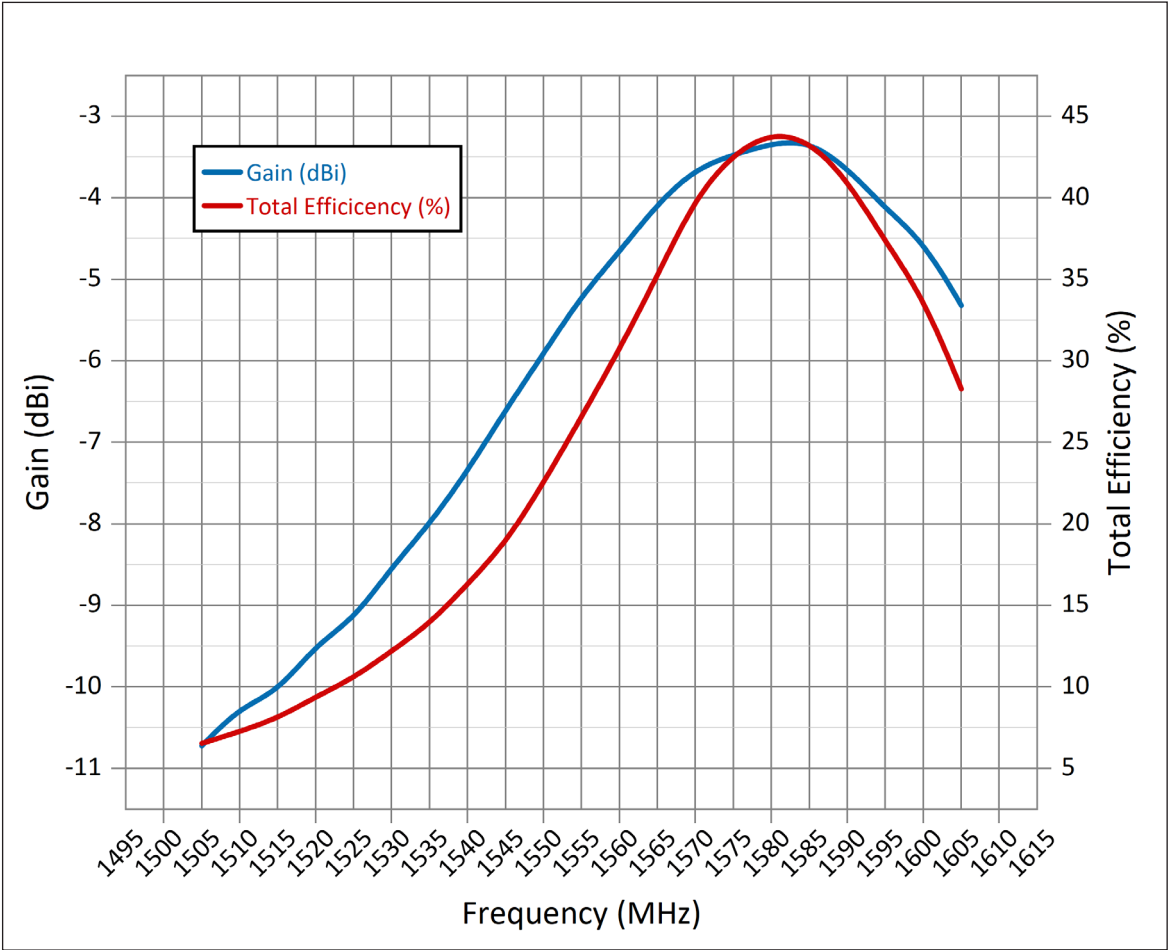
S21 (dB) and S22



(Note: Data were tested with a 40 mm of RF 1.13 cable.)



Passive Gain (dBi) and Total Efficiency (%)

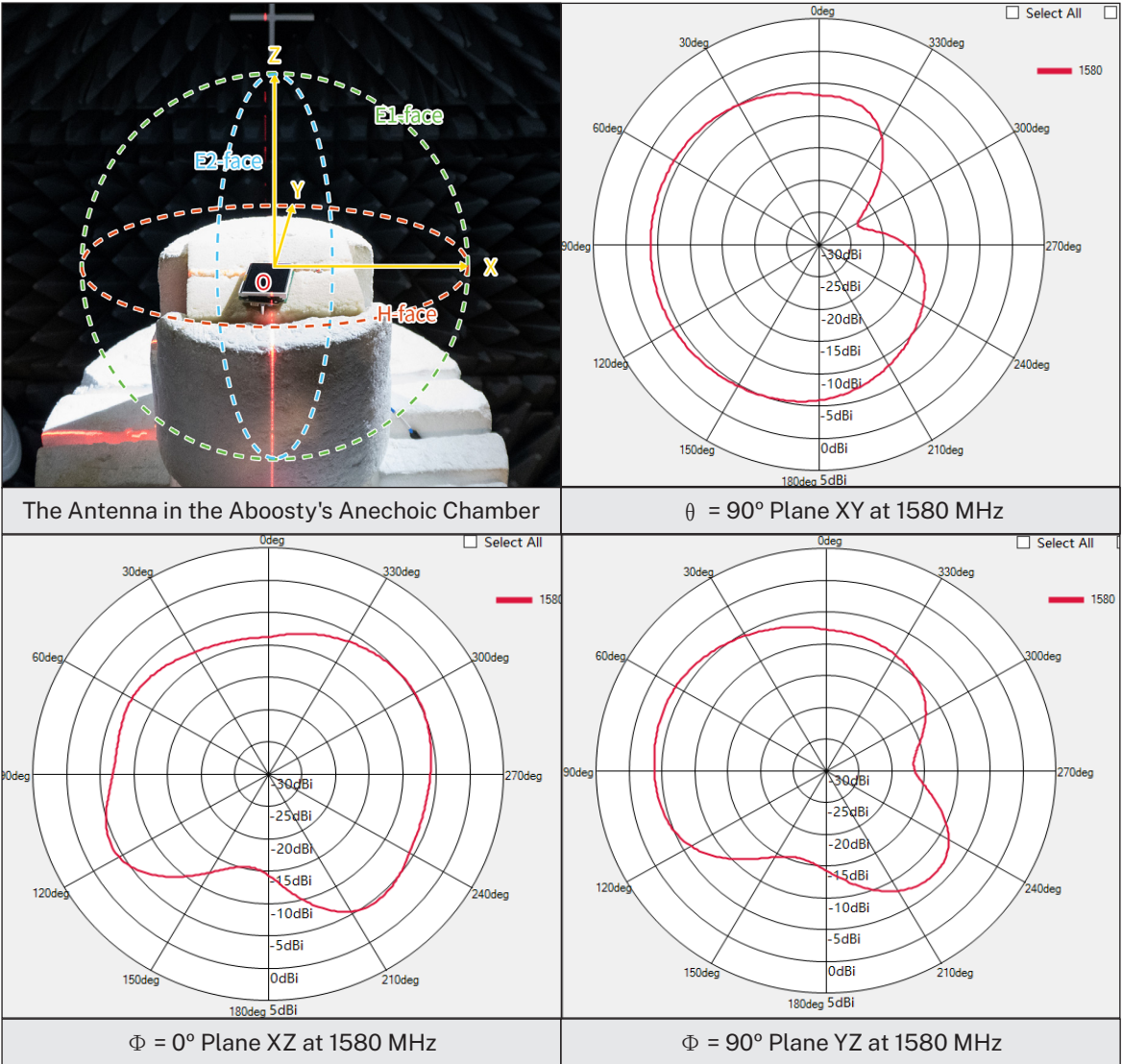


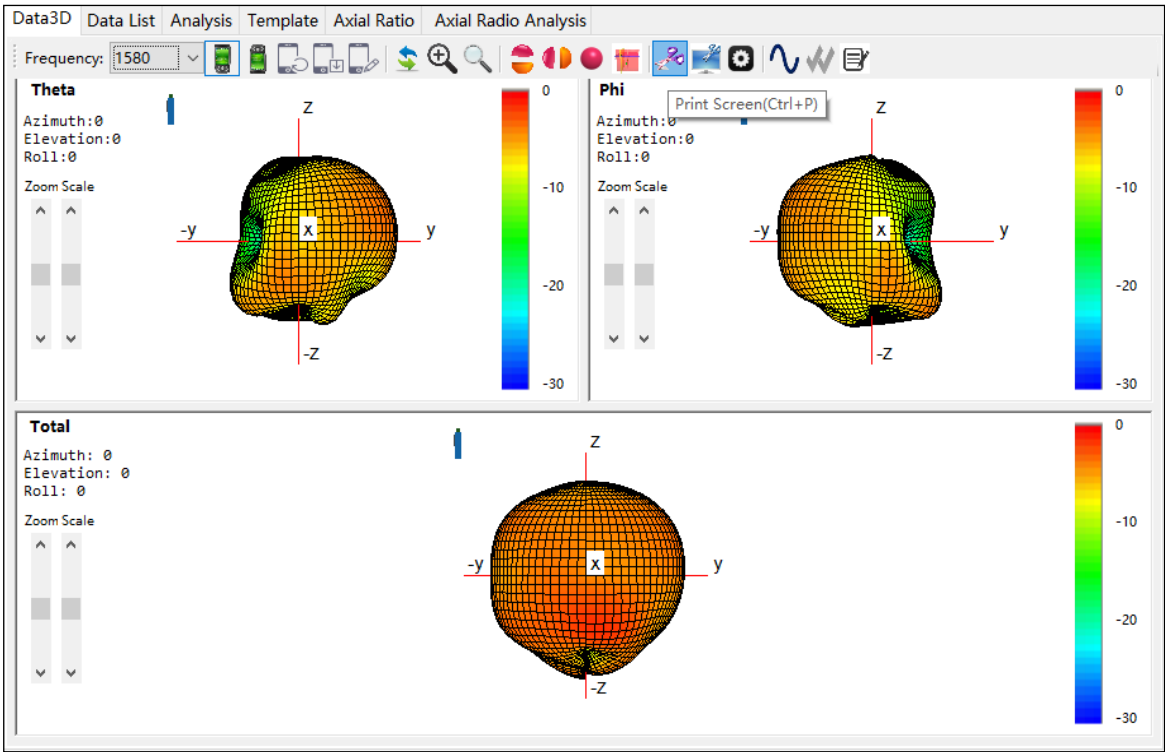
(Note: Data were tested with a 40 mm of RF 1.13 cable.)



Antenna Data		
Freq (MHz)	Gain (dBi)	Efficiency (%)
1505	-10.72	6.55
1510	-10.25	7.27
1515	-10.06	8.09
1520	-9.48	9.4
1525	-9.17	10.56
1530	-8.53	12.21
1535	-8	13.87
1540	-7.35	16.31
1545	-6.6	18.82
1550	-5.91	22.52
1555	-5.2	26.58
1560	-4.66	30.72
1565	-4.07	35.25
1570	-3.64	40.02
1575	-3.47	42.72
1580	-3.33	44.02
1585	-3.3	43.51
1590	-3.63	41.12
1595	-4.13	37.33
1600	-4.53	33.9
1605	-5.32	28.28

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

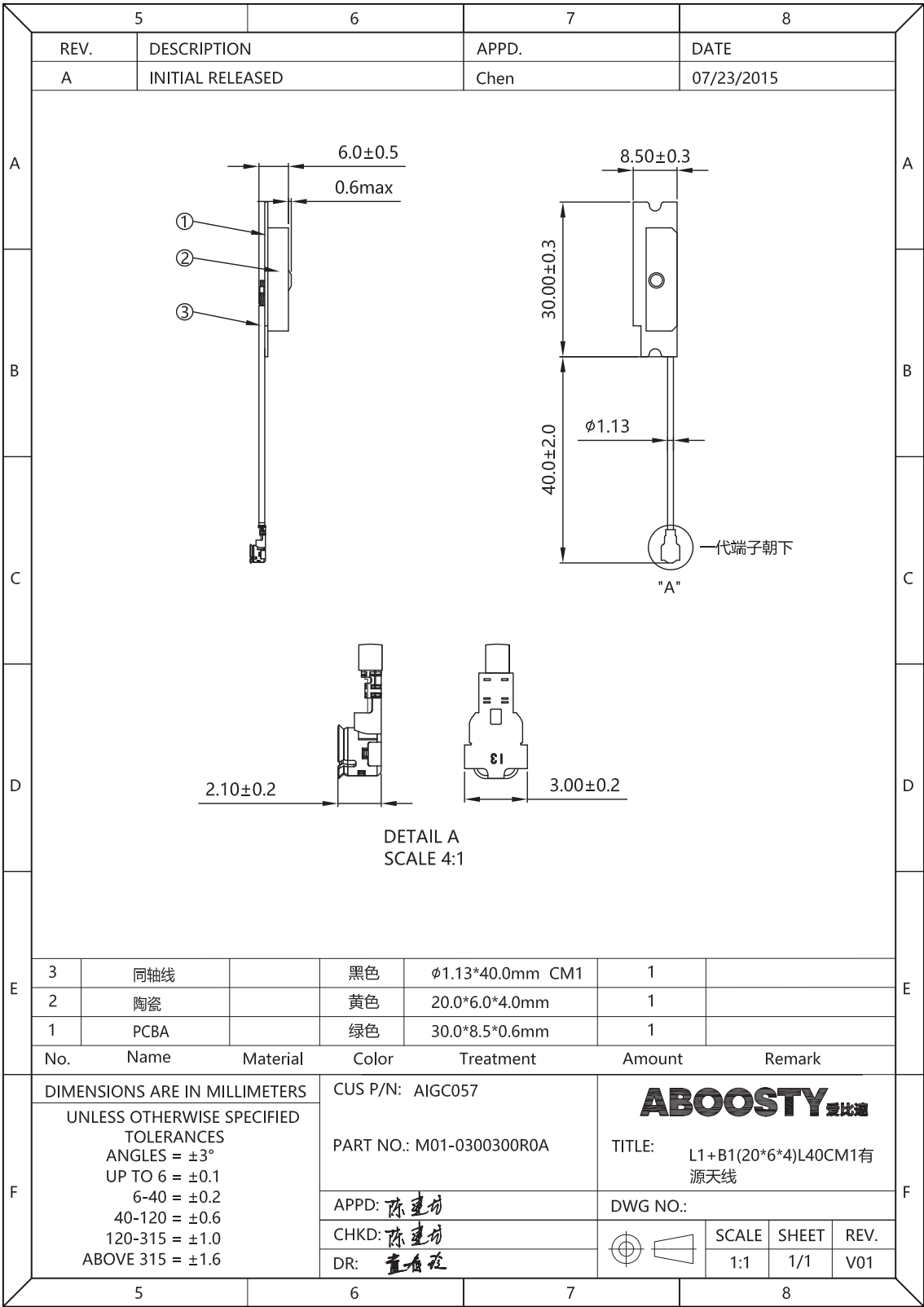




3D at 1580 MHz, Gain=-3.33 dBi



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



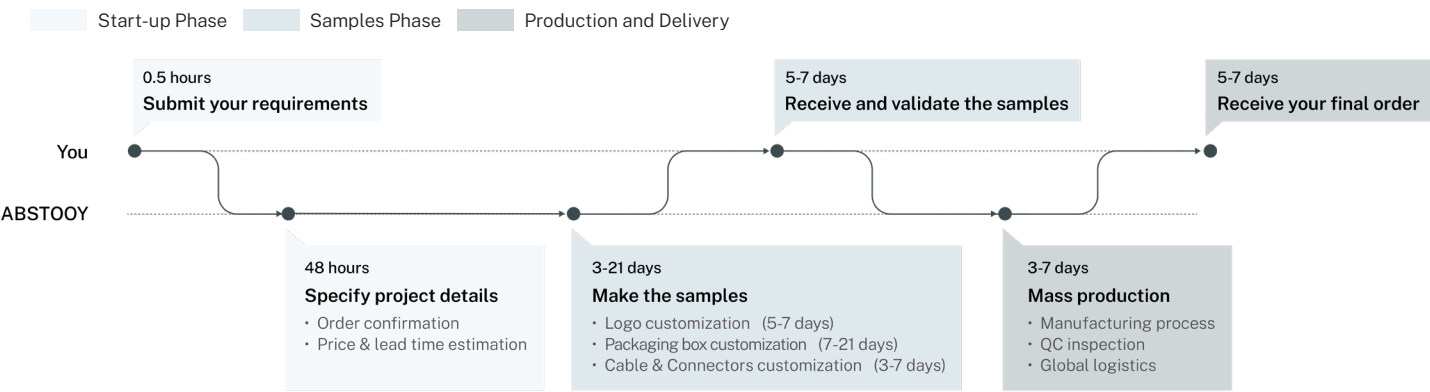
Professional team support & prompt reply within 24h

What We Provide

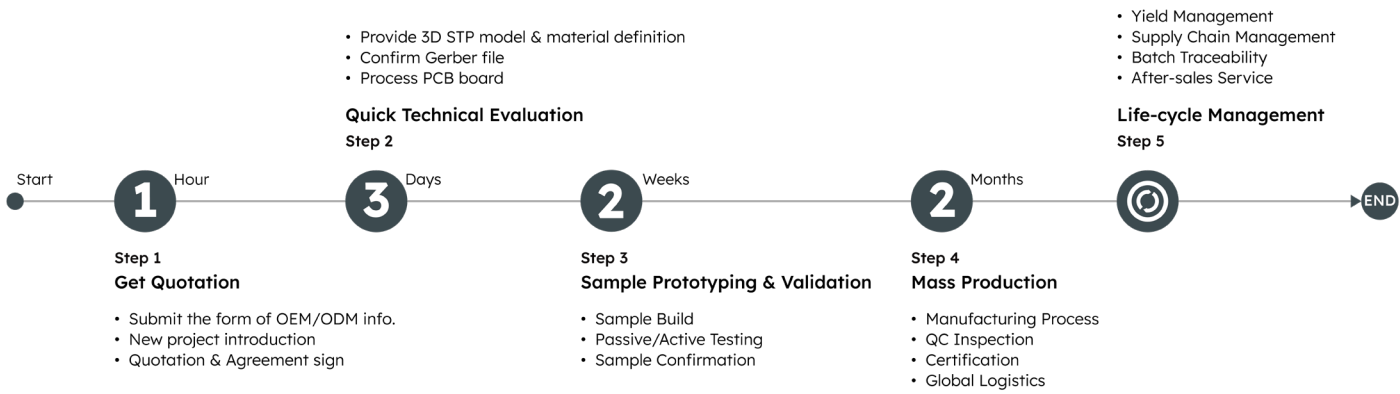
OEM/ODM Services	Light Customization	Deep Customization
	• Logo • Packaging • Cables & Connectors	• In-depth tailoring for specific applications • Functional enhancements • Environmental adaptations • Vertical certifications • ...

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.

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with Our Antennas

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Multi-band Combination Antennas

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