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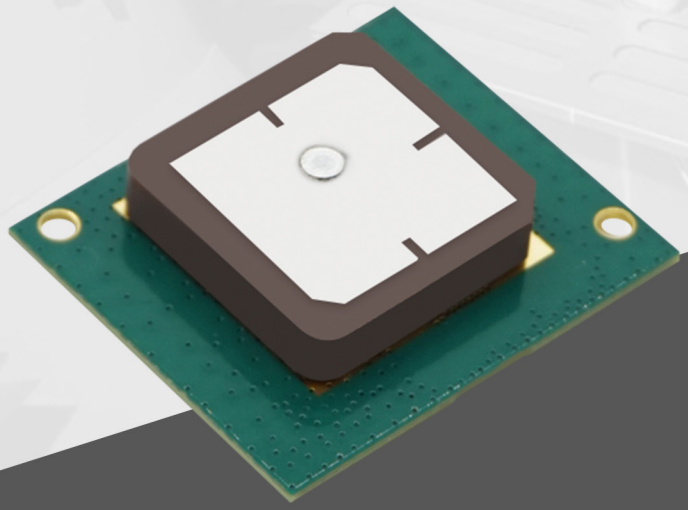

Datasheet

Circularly Polarized Active GPS Embedded Ceramic Patch Antenna

Model: AIGC051

PN: M01-0300210R0A

Description:

Active B1/L1/E1/G1 Band BDS/GPS/Galileo/GLONASS Antenna for GPS Dog Collars and Pet Trackers

Operating Frequency: 1550 - 1620 MHz

Features:

Ceramic Patch Element

Low Axial Ratio

Dimensions: 18 x 18 x 4 mm

PCB Board: 30.0 x 25.2 x 0.8 mm

Ground Plane Dependent

RoHS & Reach Compliant

ABOOSTY

Table of Contents

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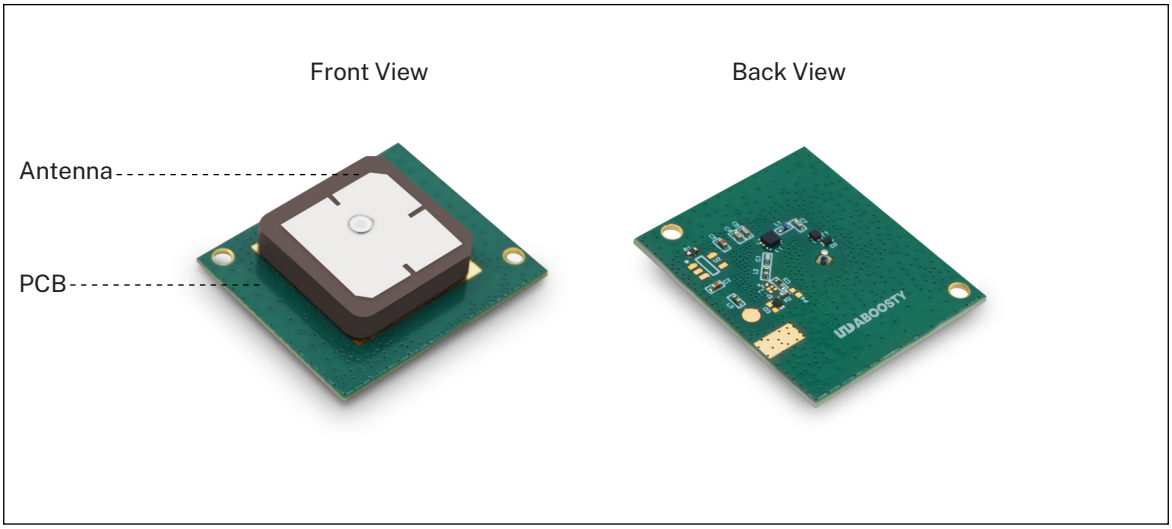
FEATURES & BENEFITS

- 18x18x4mm Embedded Ceramic Patch Element
- Miniaturized, Multi-system Compatible
- Low Axial Ratio
- Ground Plane Dependent
- RoHS & Reach Compliant
- Covering Bands: GPS (L1) / Galileo (E1) / GLONASS (G1) / BeiDou (B1)

APPLICATIONS

- GPS Dog Collars and Pet Trackers
- 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	AIGC051
Part Number	M01-0300210R0A
Dimensions	18 x 18 x 4 mm (PCB Board: 30.0 x 25.2 x 0.8 mm)
Weight	7.2 g
Mounting	Internal/Embedded/Welding mount
MOQ	500 pcs
Custom Options	Logo, Packaging, Cable and Connectors

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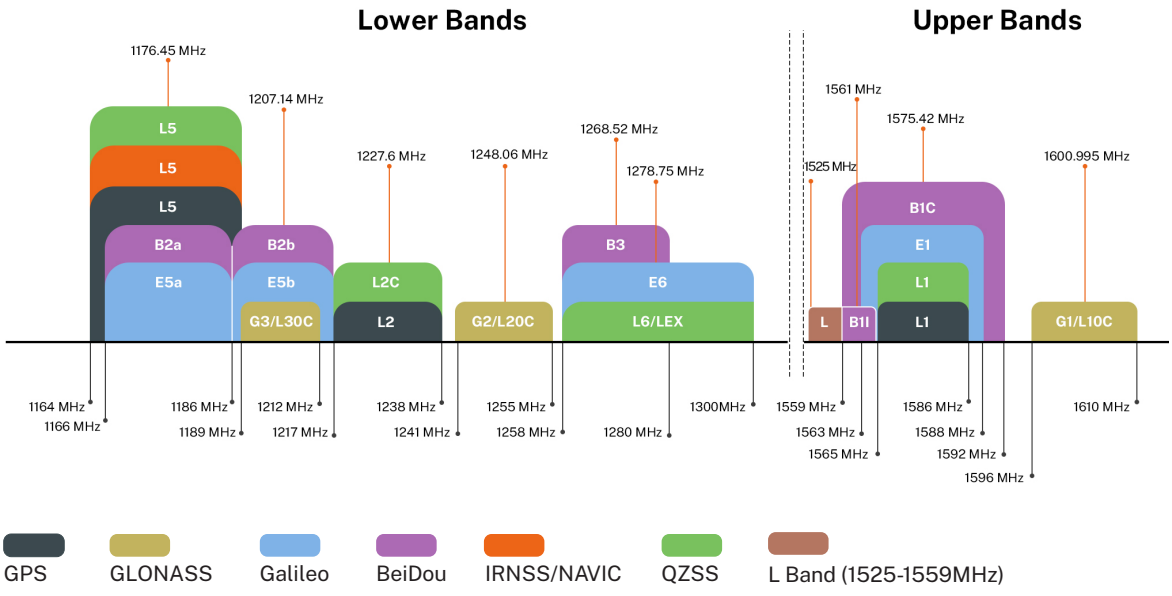
GNSS FREQUENCY BANDS

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), EGNOSS(E1/E5a), SDCM(G1/G2/G3), SNAS(B1,B2a), GAGAN(L1/L5), QZSS(L1/L5), KAZZ(L1/L5).



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REFERENCE GUIDE

Antenna				
Frequency	1550-1620 MHz			
Technical Features (MHz)	BeiDou	Galileo	GPS	GLONASS
	1561 ± 2	1575.42 ± 2	1575.42 ± 2	1602 ± 5
Frequency Bands	B1 Band	E1 Band	L1 Band	G1 Band
VSWR	<1.8			
Peak Gain (dBi)	-2.5			
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)	23.1	23.4	23.4	22.2
Input Voltage	3.3 ± 0.3 V			
Current Consumption @3.0V	8 ± 2 mA (@3.0 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/s^2)	Frequency (Hz)	50	300
		Acceleration $((m/s^2)^2/Hz)$	0.38416	0.38416
RoHS Compliant	Yes			

All data were measured with a 50-mm long RF 1.13 cable. Application data might vary.

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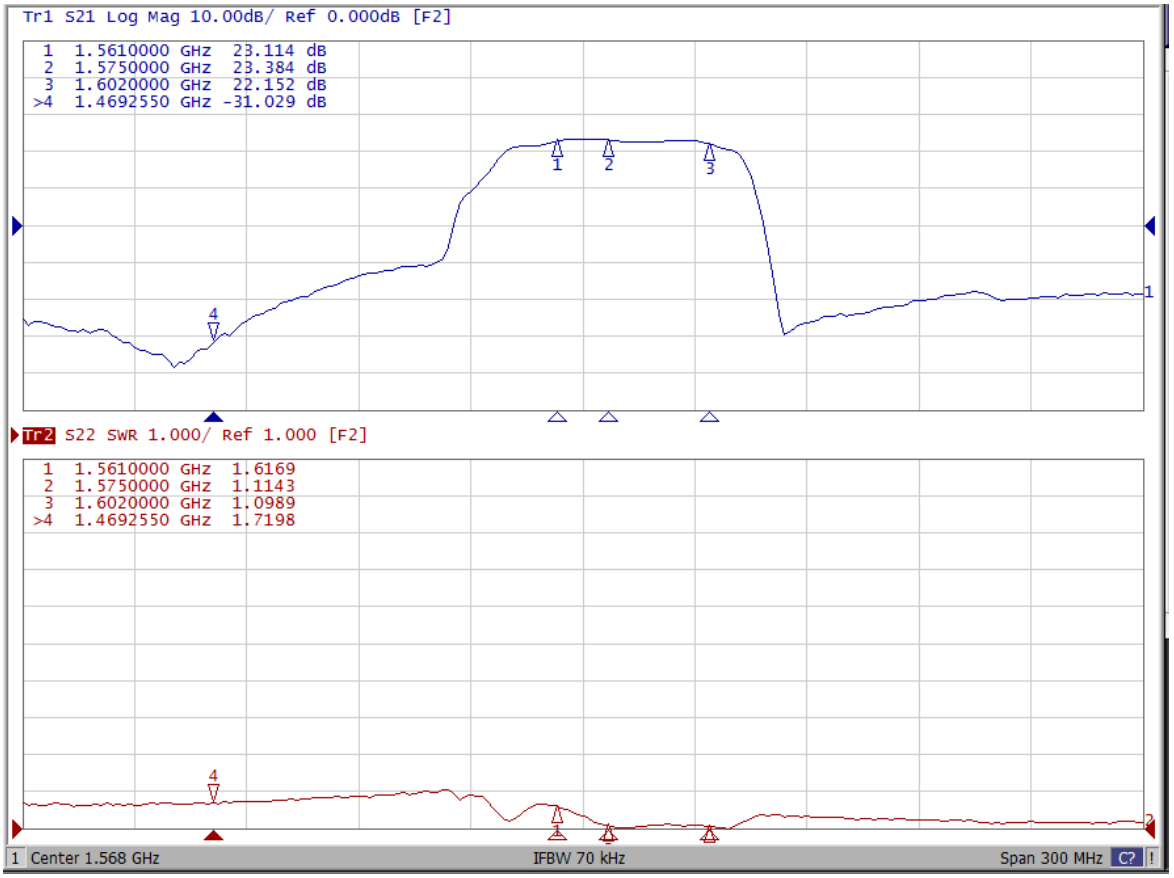
ELECTRICAL PERFORMANCE

◎ **Note**
All data displayed in "ELECTRICAL PERFORMANCE" were measured with a 50-mm-long RF 1.13 cable.

S21 (dB) and S22



(Note: Data were tested with a 50 mm of RF 1.13 cable.)

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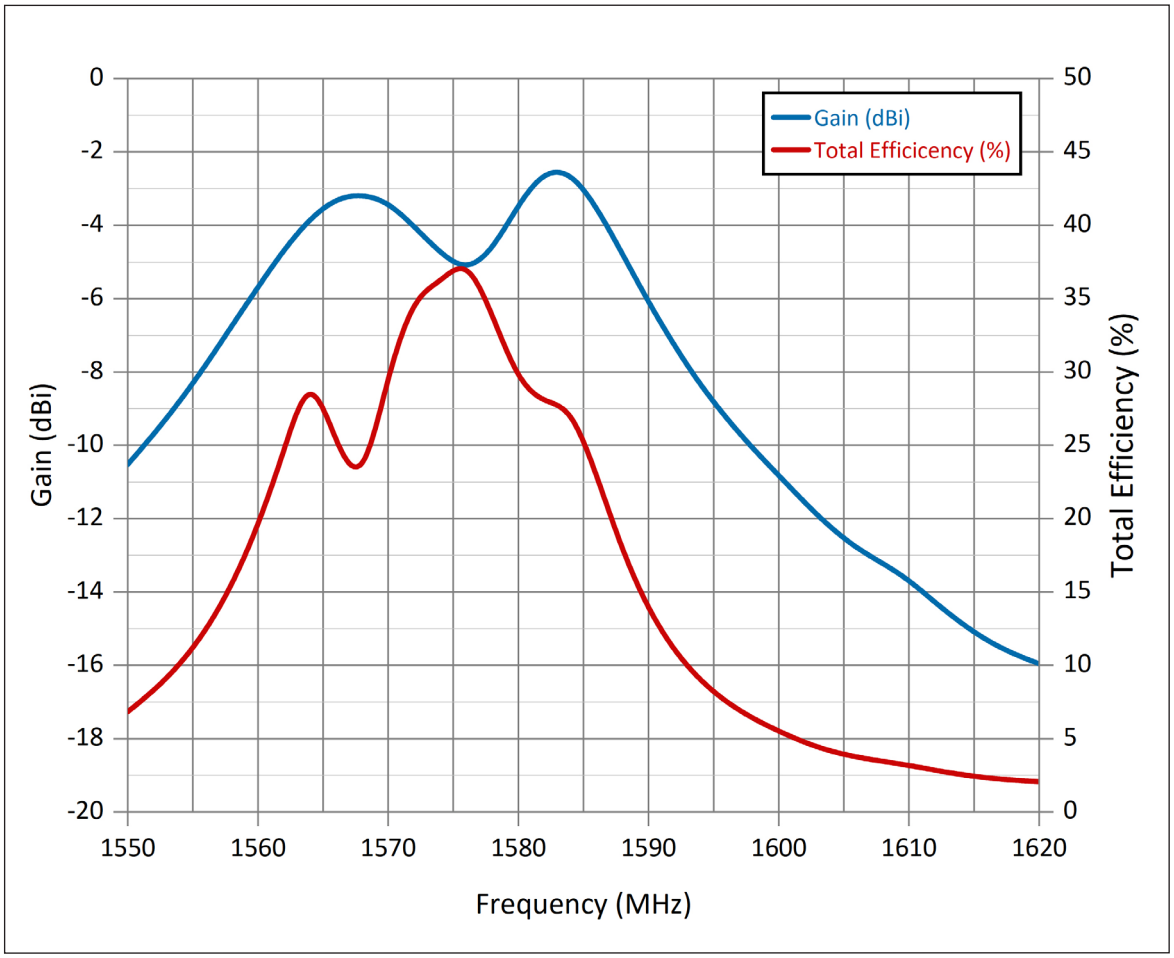
Passive Gain (dBi) and Total Efficiency (%)



(Note: Data were tested with a 50 mm of RF 1.13 cable.)

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Antenna Data					
Freq (MHz)	Gain (dBi)	Efficiency (%)	**Freq (MHz)**	Gain (dBi)	Efficiency (%)
1550	-10.52	6.83	**1586**	-3.49	23
1552	-9.7	8.26	**1588**	-4.79	17.74
1554	-8.8	10.04	**1590**	-6.1	13.76
1556	-7.81	12.35	**1592**	-7.3	10.93
1558	-6.74	15.43	**1594**	-8.37	8.93
1560	-5.68	19.5	**1596**	-9.27	7.47
1562	-4.66	24.61	**1598**	-10.09	6.37
1564	-3.81	30.31	**1600**	-10.82	5.5
1566	-3.26	25.01	**1602**	-11.57	4.72
1568	-3.14	21.99	**1604**	-12.25	4.13
1570	-3.37	29.93	**1606**	-12.81	3.73
1572	-4.03	35.19	**1608**	-13.22	3.45
1574	-4.76	36.12	**1610**	-13.67	3.19
1576	-5.26	37.88	**1612**	-14.29	2.85
1578	-4.69	33.93	**1614**	-14.85	2.55
1580	-3.42	29.3	**1616**	-15.33	2.32
1582	-2.5	27.9	**1618**	-15.69	2.18
1584	-2.53	27.68	**1620**	-15.96	2.07

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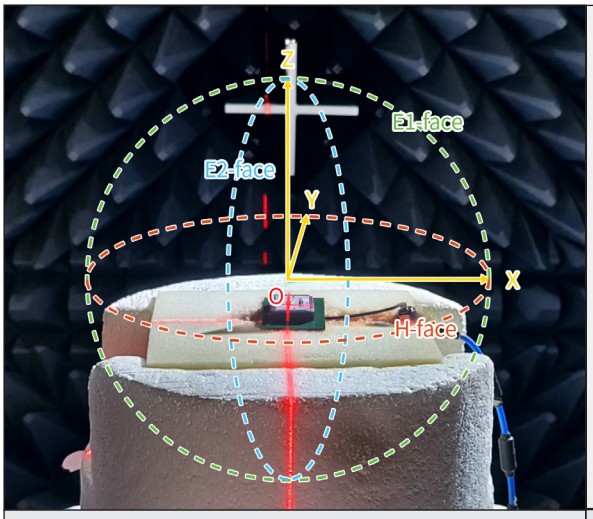
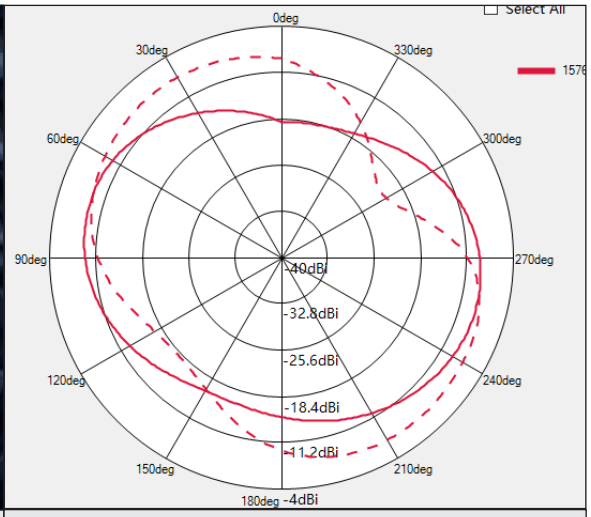
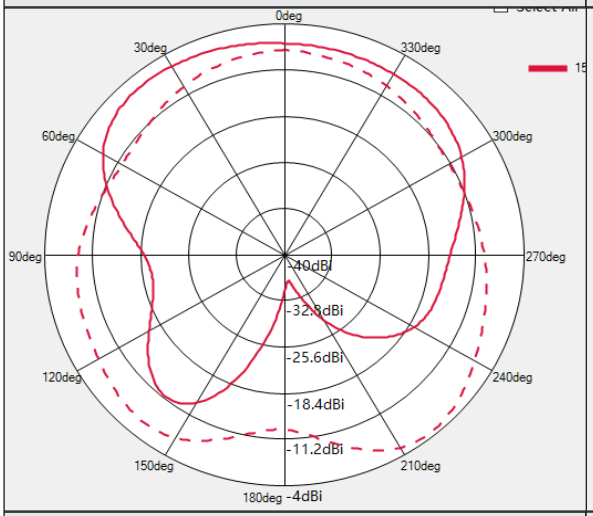
2D and 3D Radiation Patterns (1550-1620 MHz)



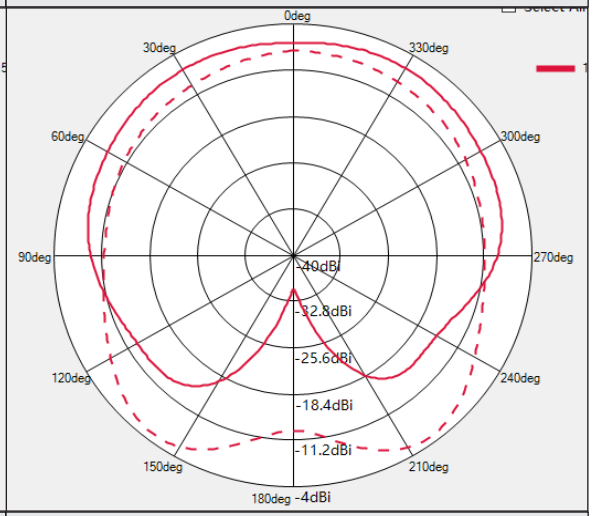
The Antenna in the Aboosty's Anechoic Chamber



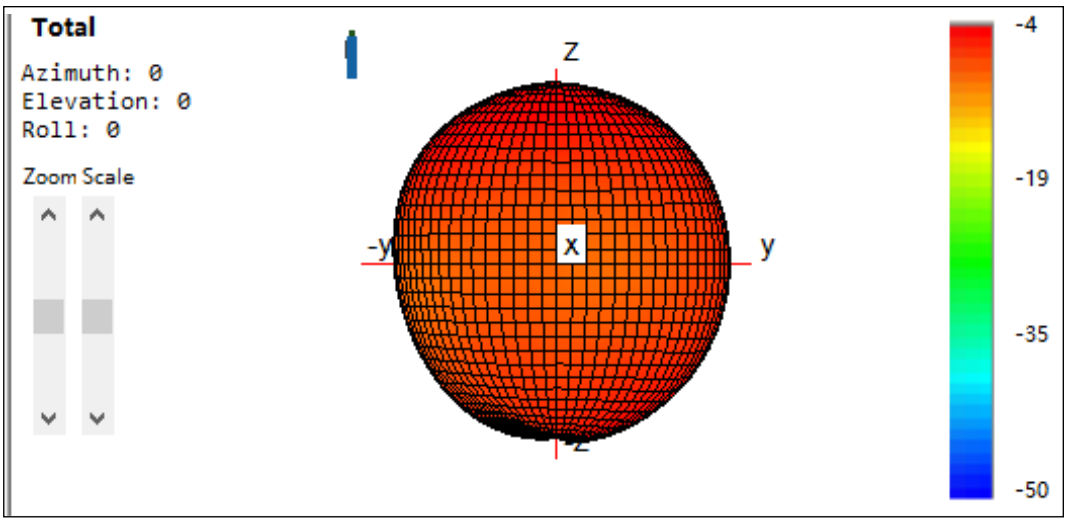
θ = 90° Plane XY at 1576 MHz, Gain=-5.3 dBi



Φ = 0° Plane XZ at 1576 MHz, Gain=-5.3 dBi



Φ = 90° Plane YZ at 1576 MHz, Gain=-5.3 dBi



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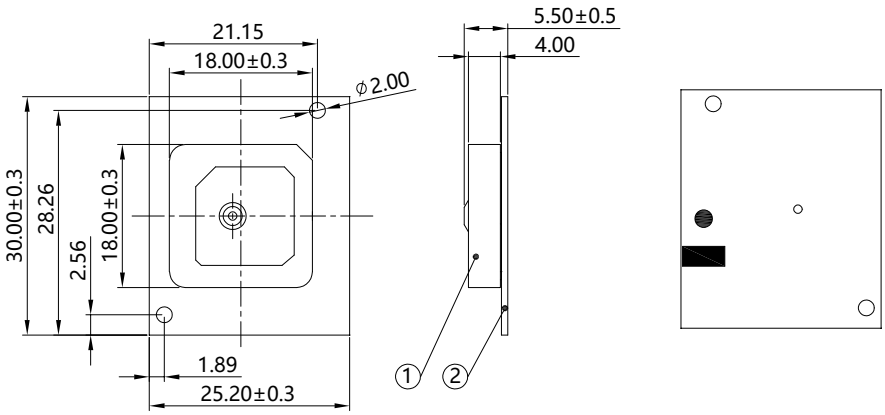
MECHANICAL DIMENSIONS

REV.	DESCRIPTION	APPD.	DATE
A	INITIAL RELEASED	Chen	2025/03/24



No.	Name	Material	Color	Treatment	Amount	Remark
2	Ceramic Patch		Black	18.0*18.0*4.0mm	1	
1	PCBA		Green	30.0*25.2*0.8mm	1	

DIMENSIONS ARE IN MILLIMETERS

UNLESS OTHERWISE SPECIFIED
TOLERANCES
ANGLES = ±3°
UP TO 6 = ±0.1
6-40 = ±0.2
40-120 = ±0.6
120-315 = ±1.0
ABOVE 315 = ±1.6

CUS P/N:

PART NO.:

APPD: 陈建功

CHKD: 陈建功

DR: 董福旺

ABOOSTY 爱比速

TITLE:
18*18*4 Active GPS Ceramic Antenna

DWG NO.:

SCALE	SHEET	REV.
1:1	1/1	V01

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ABOOSTY WELCOME ALL ANTENNA OEM/ODM PROJECTS

Why Choose ABOOSTY

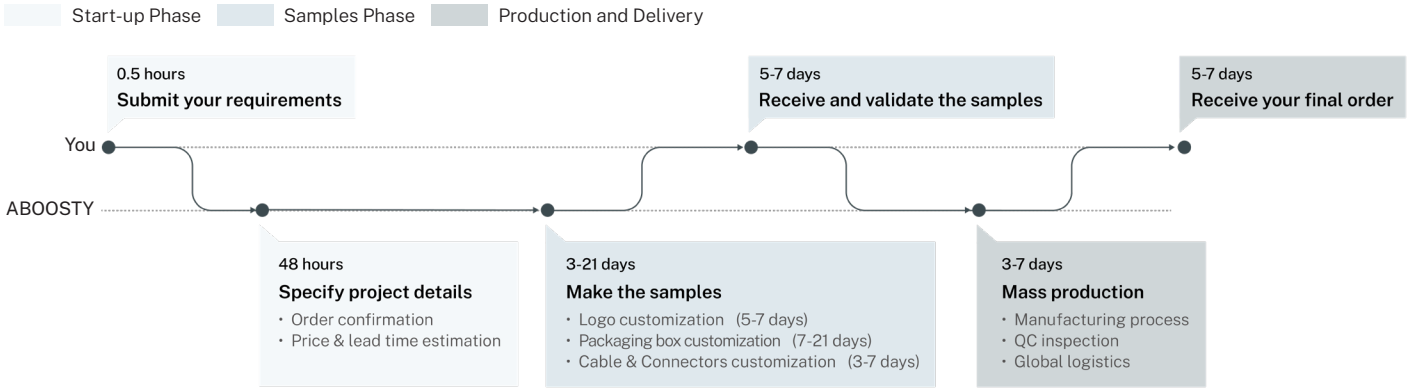
- 10+ years in antenna R&D, production, and OEM/ODM
- MES system supported factory; 50M+ units annual output capacity
- Factory directly competitive price
- Quick price and lead time estimate
- Innovative and patented design solutions
- Professional team support & prompt reply within 24h

What We Provide

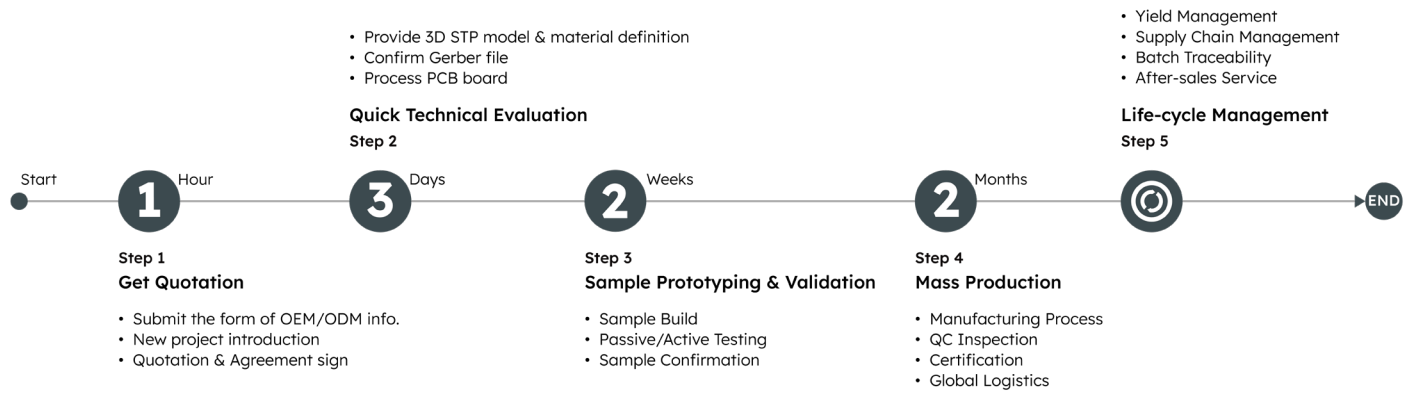
	Light Customization	Deep Customization
OEM/ODM Services	• Logo • Packaging • Cables & Connectors	• In-depth tailoring for specific applications • Functional enhancements • Environmental adaptations • Vertical certifications • ...

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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