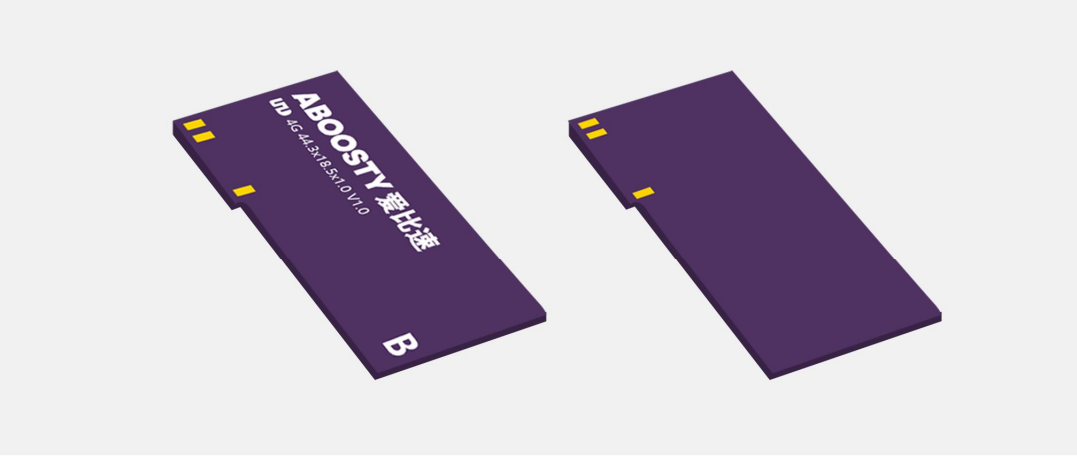
4G/3G/2G

CAT1 LORA COMBINATION SMD ANTENNA

698-960 MHz | 1710-2690 MHZ

Dimensions: 44.3x18.5x1.0mm
ClearanceArea: 70x25mm



Model: ADCP003

RoHS COMPLIANT

Reach COMPLIANT

Table of Contents

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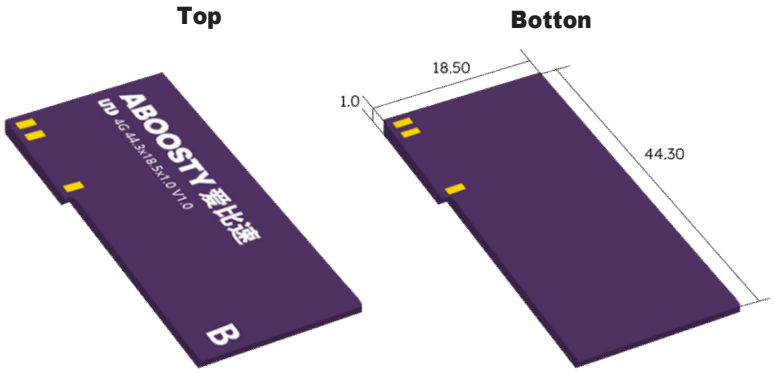
1 FEATURES & BENEFITS

- Low Profile
- Light Weight
- Easy to Integrate
- Intended for SMD Mounting
- Reduced Cost and Time-to-Market

2 APPLICATIONS

- 3G (UMTS) and 4G (LTE) Mobile Communication
- Networks
- Wireless Routers and Modems
- Internet of Things (IoT) Devices, M2M
- Remote Technology / Monitoring
- Consumer Tracking
- Smart Metering



Items	Dimensions (mm)
Length	44.3±0.2
Width	18.5±0.2
Thickness	1.0±0.1

3 ORDER INFORMATION

Product Name	4G/3G/2G, Cat 1, LoRa Combination SMD Antenna
Part Number	M01-X4G4418P01
Dimensions	44.3x 18.5 x 1.0mm
Mounting	SMT
Packaging	Tape & Reel
MOQ	1000 pcs/reel

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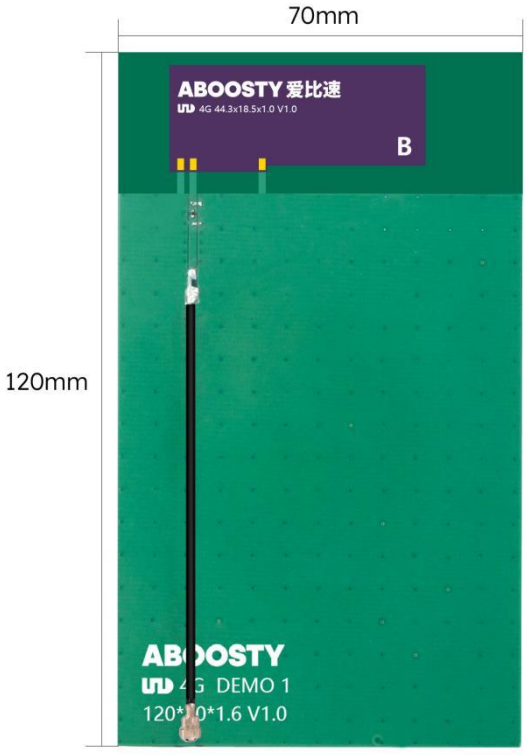
4 REFERENCE GUIDE

Technical Features	698-960 MHz	1710-2690 MHz
VSWR	5.1:1	3.5:1
Max Efficiency	69.29%	
Peak Gain	2.72 dBi	
Polarization	Linear	
Input Impedance	50Ω	
Peak Gain	1.28 dBi	
Operating Temperature	-40ºC to +85ºC	
Power Capacity	3W	
Dimensions (L x W x H)	44.3 x 18.5x 1.0 mm	
All data were measured in free space and on a reference ground plane of 120 mm length, 70 mm width, and 1.6 mm thickness. Application data might vary.		

5 EVALUATION BOARD WITH THE ANTENNA

The evaluation board provides operation at 698-960, 1710-2690 MHz.
Evaluation Board dimension: 120 x 70 x 1.6 mm
Clearance Area: 25.0 x 70.0 mm



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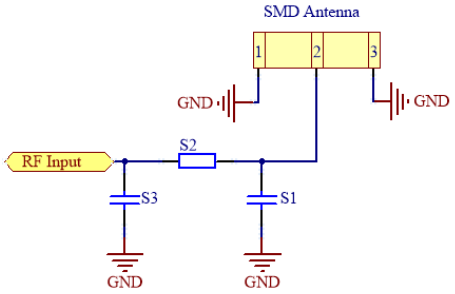
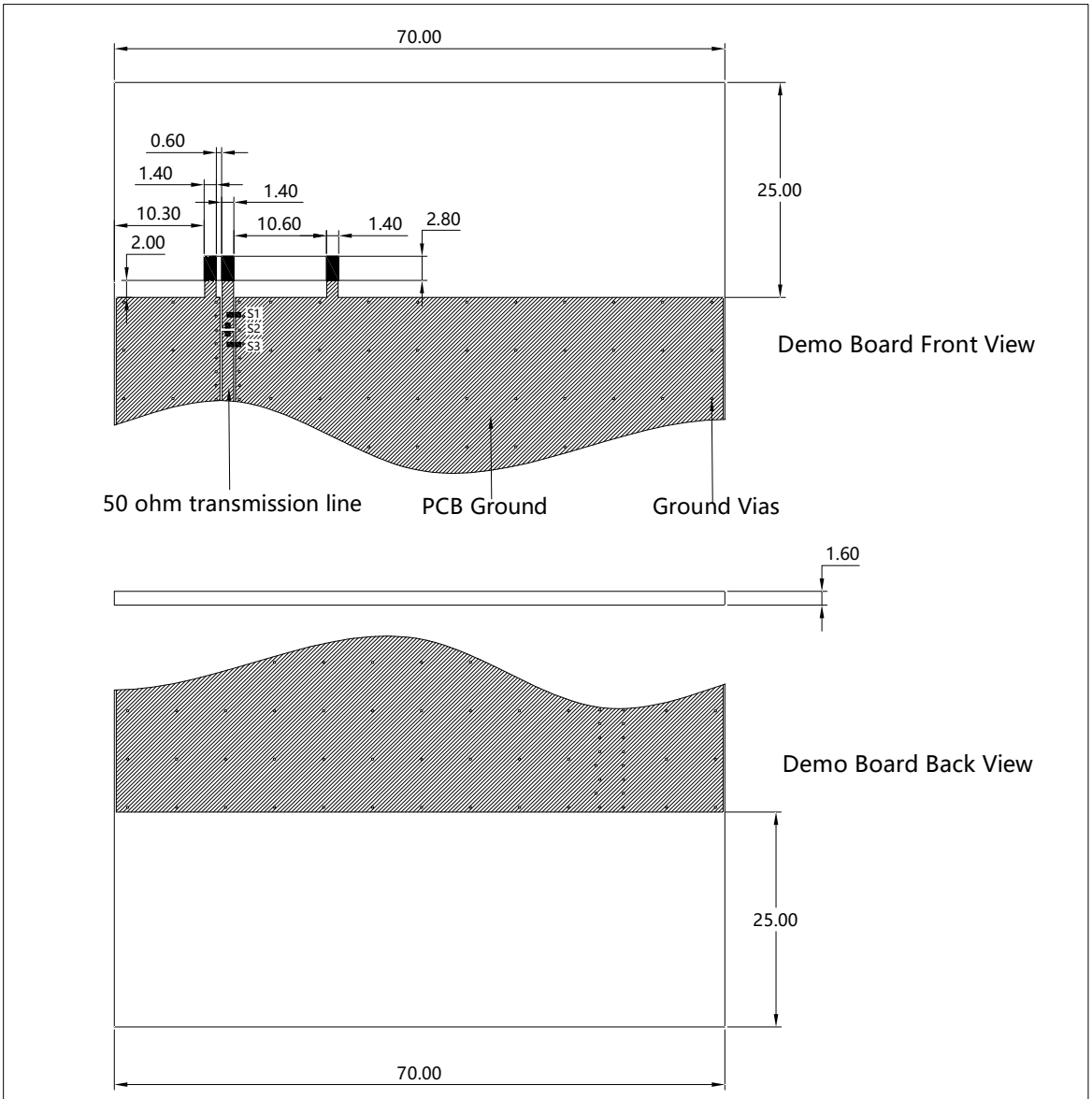
6 MATCHING NETWORK



7 RECOMMENDED LAYOUT



Tag Number	Value	Brand	PN
S1	NC	NC	NC
S2	RES SMD 0402 0R ±1%	UniOhm	D03-0100010000
S3	NC	NC	NC

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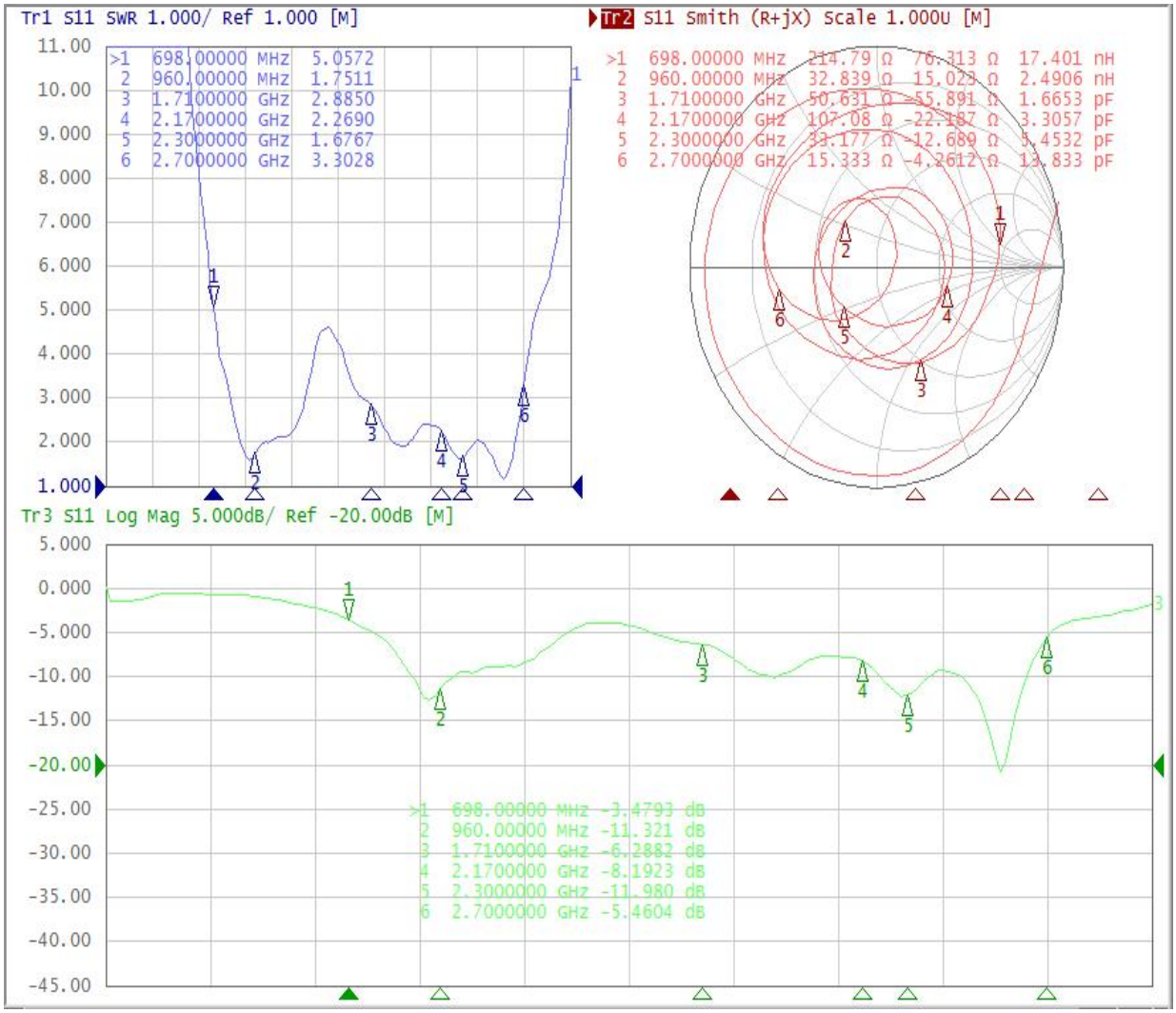
8 ELECTRICAL PERFORMANCE

◎ **Note**

The data displayed in Chapter 8 were measured in free space and on a reference ground plane of 120 mm length, 70 mm width, and 1.6 mm thickness.

8.1 VSWR and Return Loss (dB)



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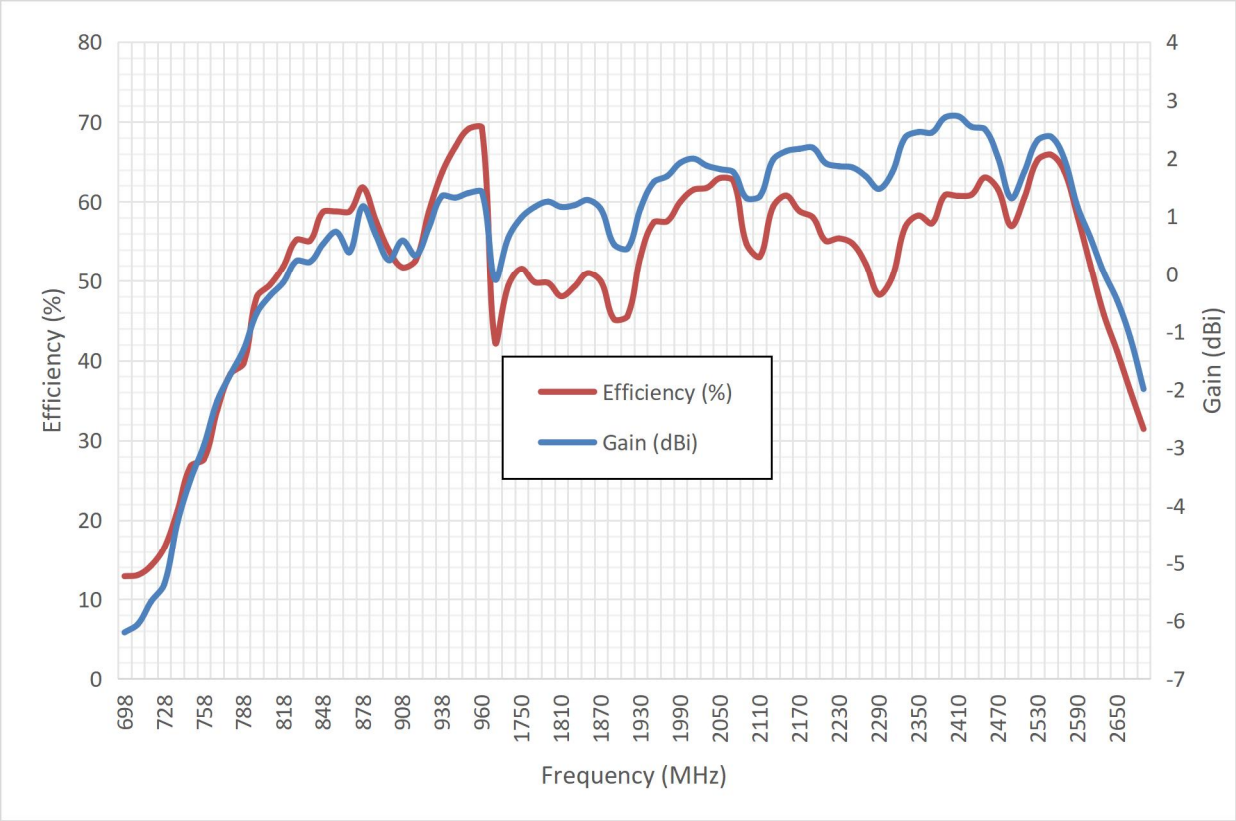
8.2 Gain (dBi) and Total Efficiency (%)



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Frequency (MHz)	Gain (dBi)	Efficiency (%)	**Frequency (MHz)**	Gain (dBi)	Efficiency (%)	**Frequency (MHz)**	Gain (dBi)	Efficiency (%)
698	-6.2	12.88	**958**	1.4	69.12	**2190**	2.18	58.06
708	-6.06	13.03	**960**	1.42	69.29	**2210**	1.91	55.07
718	-5.67	14.2	**1710**	-0.1	42.34	**2230**	1.86	55.4
728	-5.37	16.51	**1730**	0.63	49.41	**2250**	1.84	54.76
738	-4.29	21.17	**1750**	0.98	51.56	**2270**	1.69	52.2
748	-3.54	26.79	**1770**	1.16	49.82	**2290**	1.47	48.27
758	-2.96	27.64	**1790**	1.25	49.74	**2310**	1.75	50.46
768	-2.2	33.75	**1810**	1.16	48.06	**2330**	2.36	56.85
778	-1.74	38.31	**1830**	1.19	49.28	**2350**	2.45	58.27
788	-1.31	39.66	**1850**	1.28	51.01	**2370**	2.44	57.28
798	-0.68	47.99	**1870**	1.12	49.92	**2390**	2.7	60.83
808	-0.38	49.52	**1890**	0.51	45.15	**2410**	2.72	60.72
818	-0.15	51.86	**1910**	0.44	45.54	**2430**	2.54	60.88
828	0.23	55.23	**1930**	1.14	53.16	**2450**	2.5	63.03
838	0.21	55.08	**1950**	1.59	57.43	**2470**	2.01	61.55
848	0.52	58.72	**1970**	1.69	57.55	**2490**	1.31	56.95
858	0.73	58.78	**1990**	1.92	59.99	**2510**	1.77	60.53
868	0.38	58.77	**2010**	1.99	61.5	**2530**	2.31	65.23
878	1.17	61.78	**2030**	1.87	61.74	**2550**	2.37	65.88
888	0.67	57.58	**2050**	1.81	62.96	**2570**	1.99	63.86
898	0.24	53.84	**2070**	1.76	62.64	**2590**	1.17	58.23
908	0.58	51.74	**2090**	1.31	54.7	**2610**	0.62	51.92
918	0.32	52.64	**2110**	1.34	53.1	**2630**	0.02	45.76
928	0.81	58.77	**2130**	1.97	59.35	**2650**	-0.46	41.17
938	1.35	63.67	**2150**	2.12	60.76	**2670**	-1.11	36.19
948	1.32	66.87	**2170**	2.16	58.82	**2690**	-1.99	31.44

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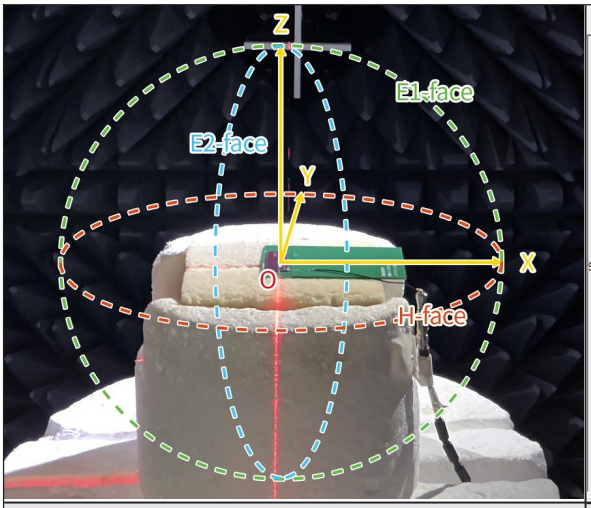
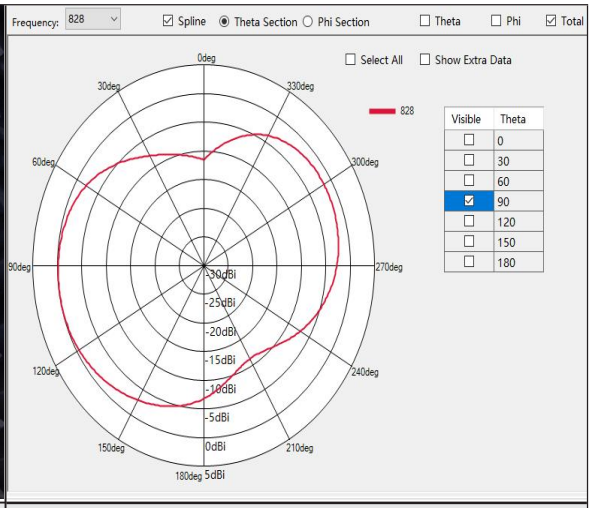
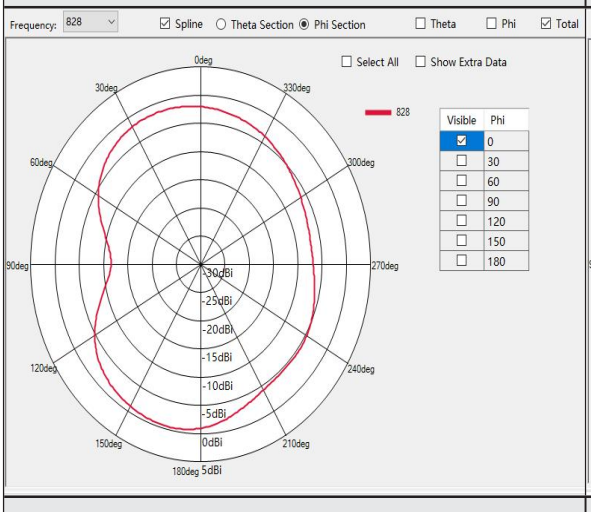
8.3 Radiation Patterns



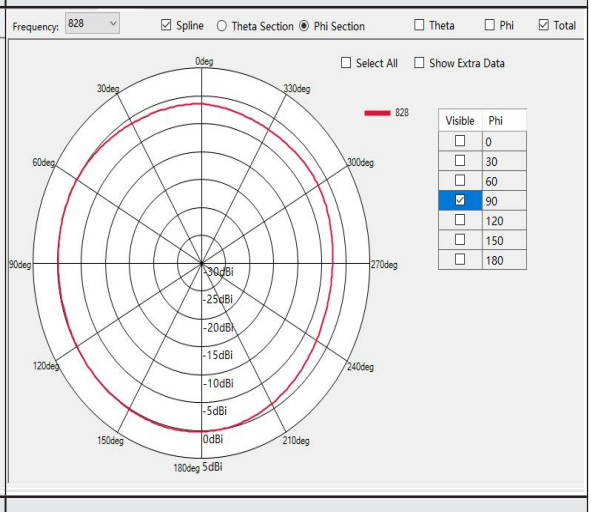
PCB board size: 120 mm x 70 mm x 1.6 mm



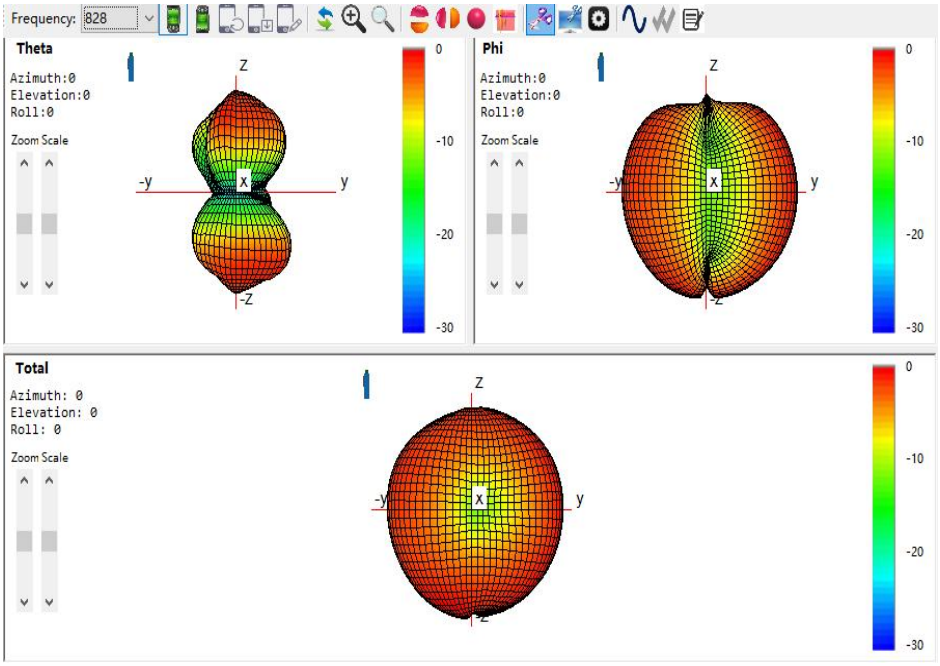
θ = 90° Plane XY at 828 MHz, Gain 0.23 dBi



ϕ = 0° Plane XZ at 828 MHz, Gain 0.23 dBi



ϕ = 90° Plane YZ at 828 MHz, Gain 0.23 dBi



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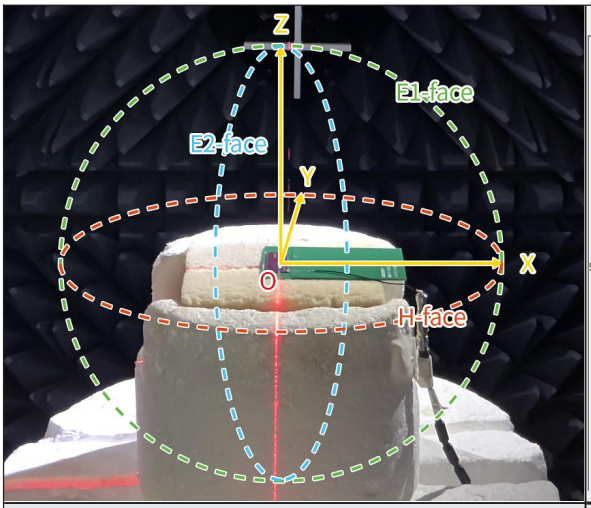
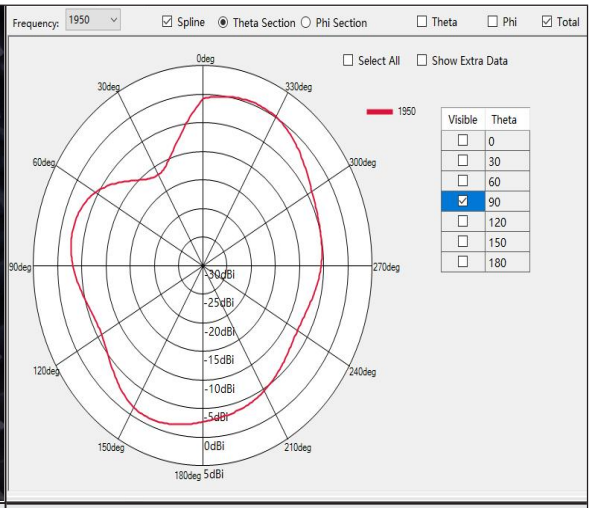
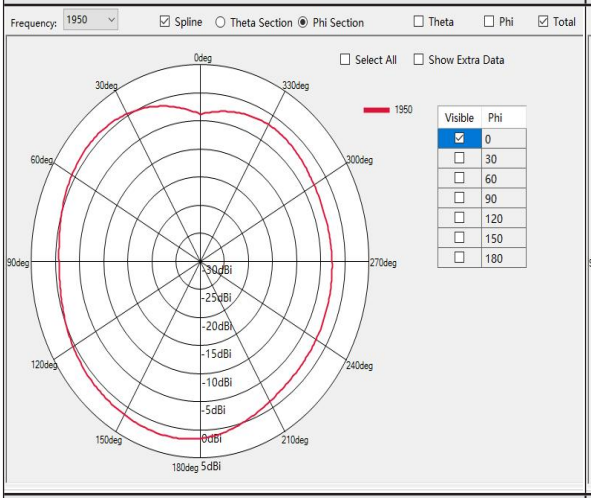


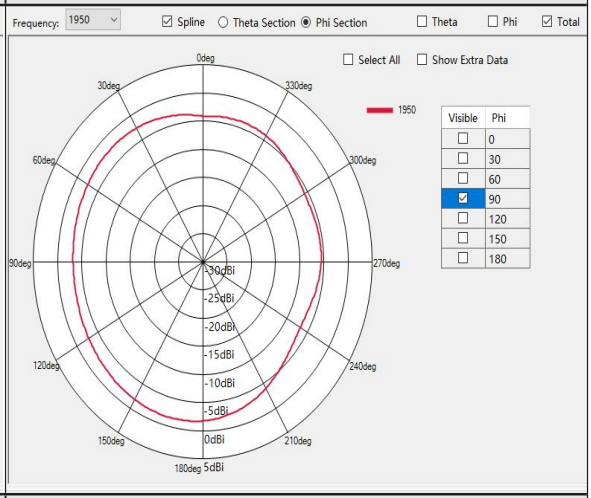
PCB board size: 120 mm x 70 mm x 1.6 mm



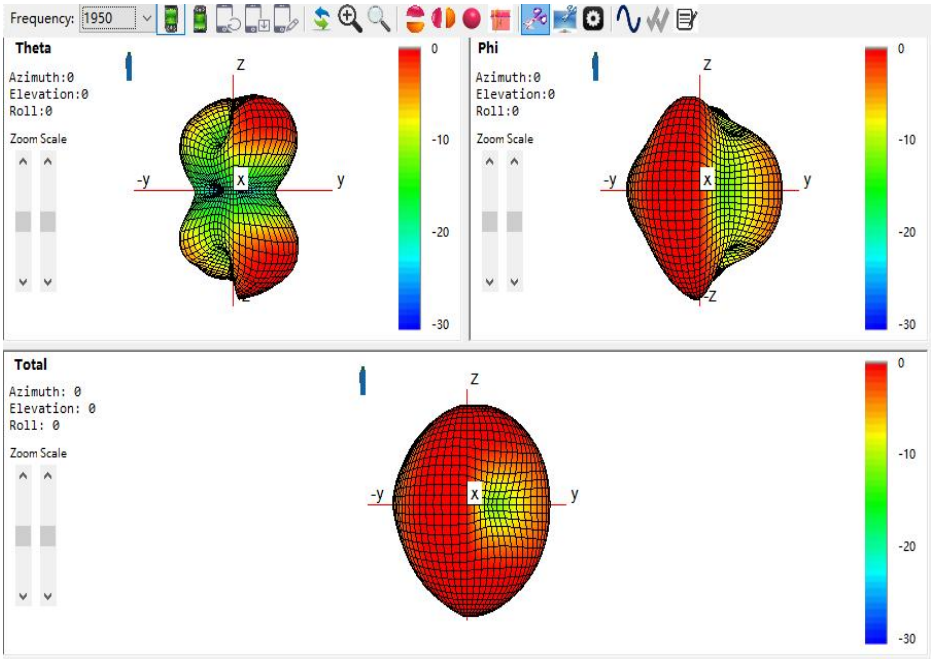
θ = 90º Plane XY at 1950 MHz, Gain 1.59 dBi



ϕ = 0º Plane XZ at 1950 MHz, Gain 1.59 dBi



ϕ = 90º Plane YZ at 1950 MHz, Gain 1.59 dBi



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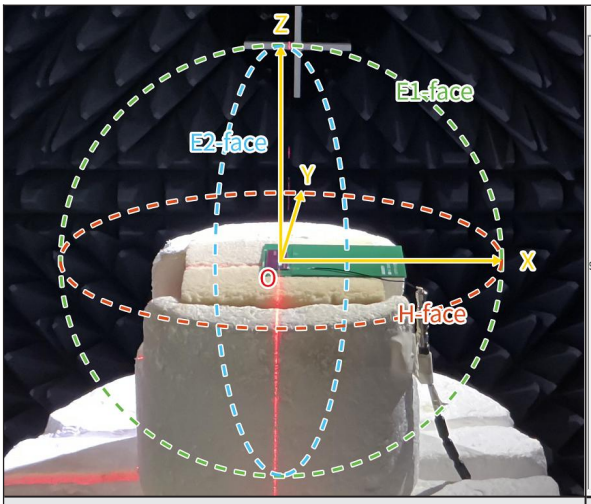
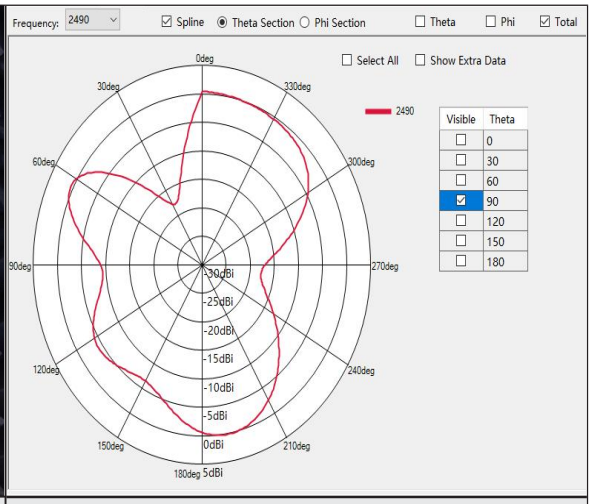
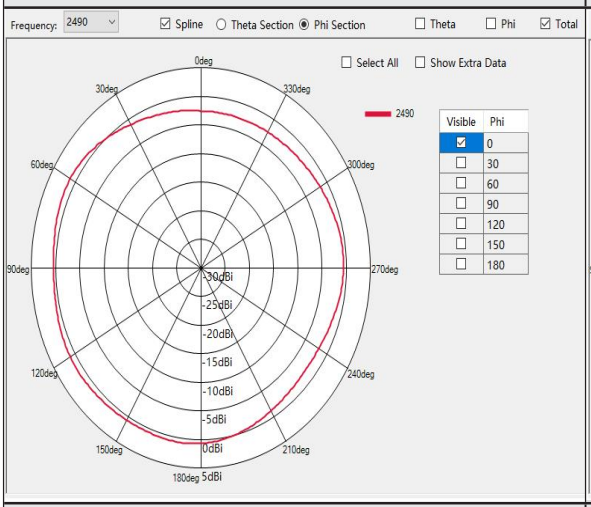


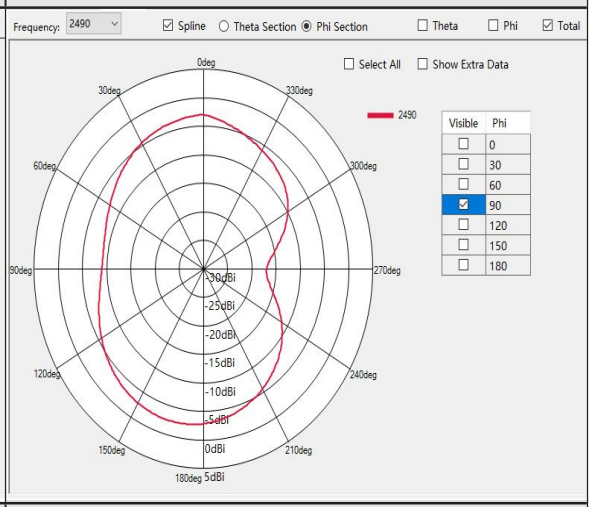
PCB board size: 120 mm x 70 mm x 1.6 mm



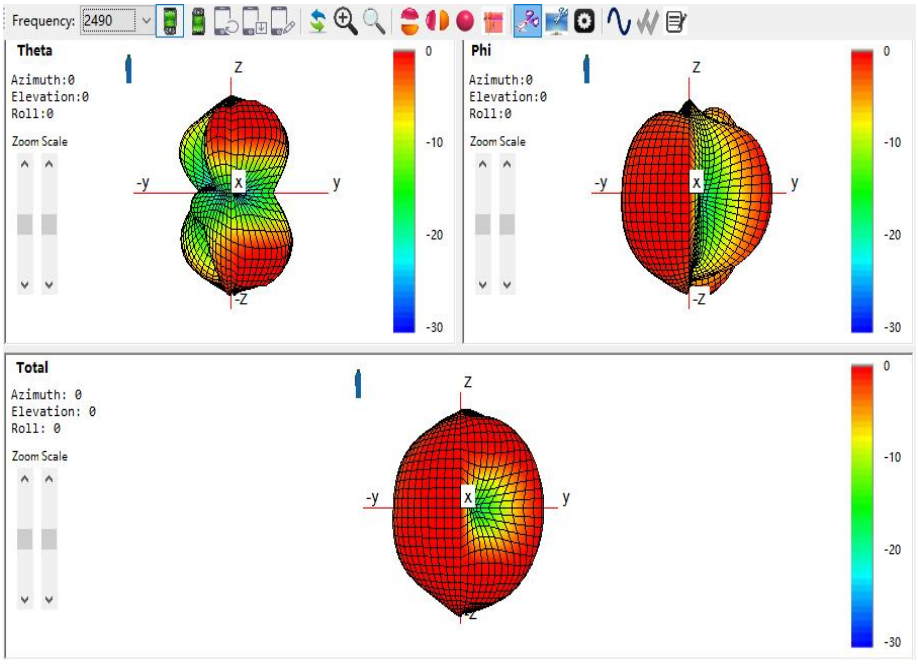
θ = 90° Plane XY at 2490 MHz, Gain 1.31 dBi



ϕ = 0° Plane XZ at 2490 MHz, Gain 1.31 dBi



ϕ = 90° Plane YZ at 2490 MHz, Gain 1.31 dBi



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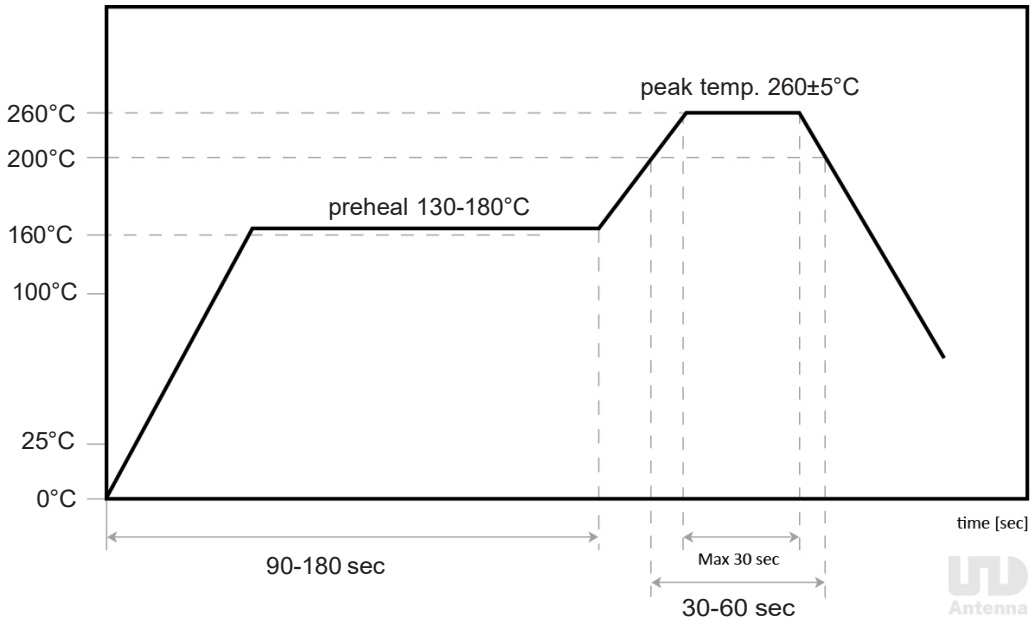
9 SOLDERING CONDITIONS

This antenna is suitable for lead free soldering.
The reflow duration should be adjusted to create good solder joints without raising the antenna temperature beyond the allowed maximum of 260ºC.
The figure below shows the temperature profile for soldering.



10 PACKAGING

10.1 Optimal Storage Conditions for Packaged Reels

Temperature	-5ºC to 40ºC
Humidity	Less than 70% RH
Shelf life	18 months
Storage place	Away from corrosive gas and direct sunlight
Packaging	Reels should be stored in unopened sealed manufacturer's plastic packaging.

◎ **Note**
Storage of open reels of antennas is not recommended due to possible oxidization of pads on antennas. If short-term storage is necessary, then it is highly recommended that the bag containing the antenna reel is re-sealed and stored in like storage conditions as in the above table.

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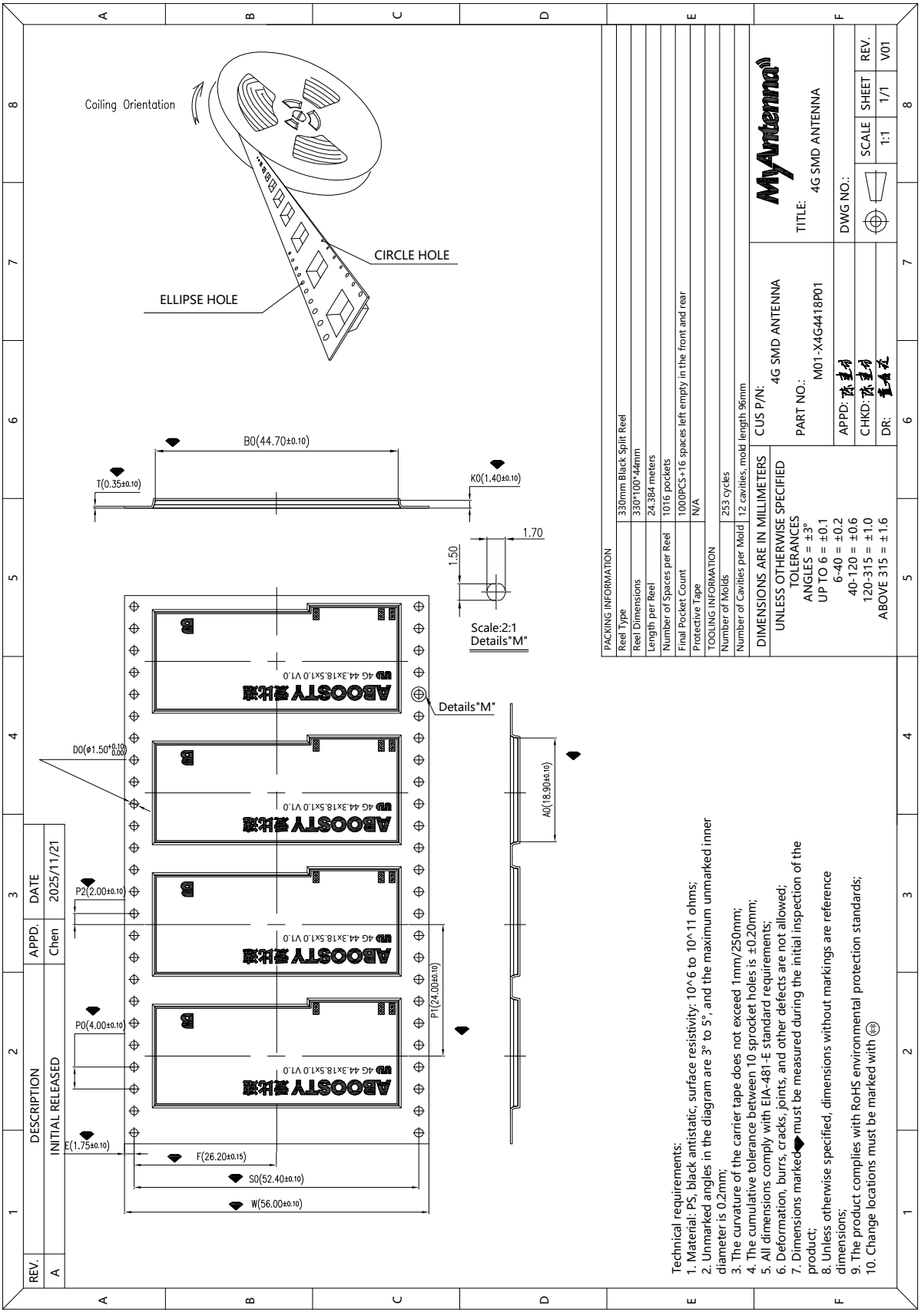
10.2Packagings and Dimensions (Unit: mm)



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11 ANTENNA CERTIFICATION

RoHS Approval	Compliant [2011/65/EU&2015/863]
REACH Approval	Conform or declared [(EC)1907/2006]
Hazardous material regulation conformance: A certificate of conformance is available upon request. Feel free to consult us for details.	

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12 WELCOME ALL ANTENNA OEM/ODM PROJECTS

About ABOOSTY

- 10+ years in antenna R&D, production, and OEM/ODM
- House of Aboosty: 1 M+ units annual output capacity
- Factory directly competitive price
- Industry-leading quality levels
- Professional team-work & support
- Quick price and lead time estimation

Why Choose ABOOSTY

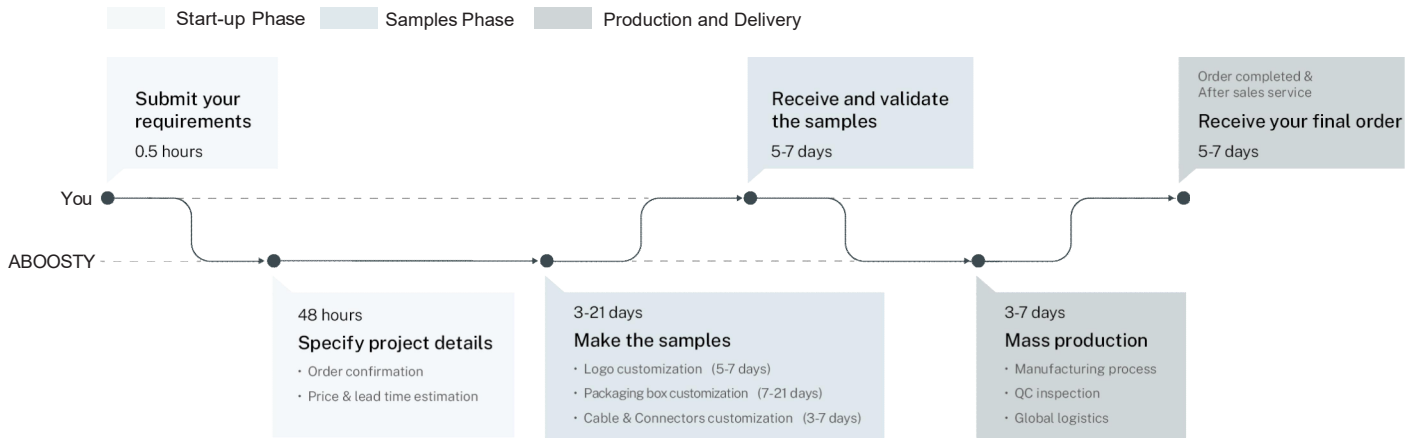
- Innovative and patented design solutions
- Full terminal devices anechoic chamber test
- Co-location with its custom
- Competitive price
- Strict inspection
- Prompt reply within 24h

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



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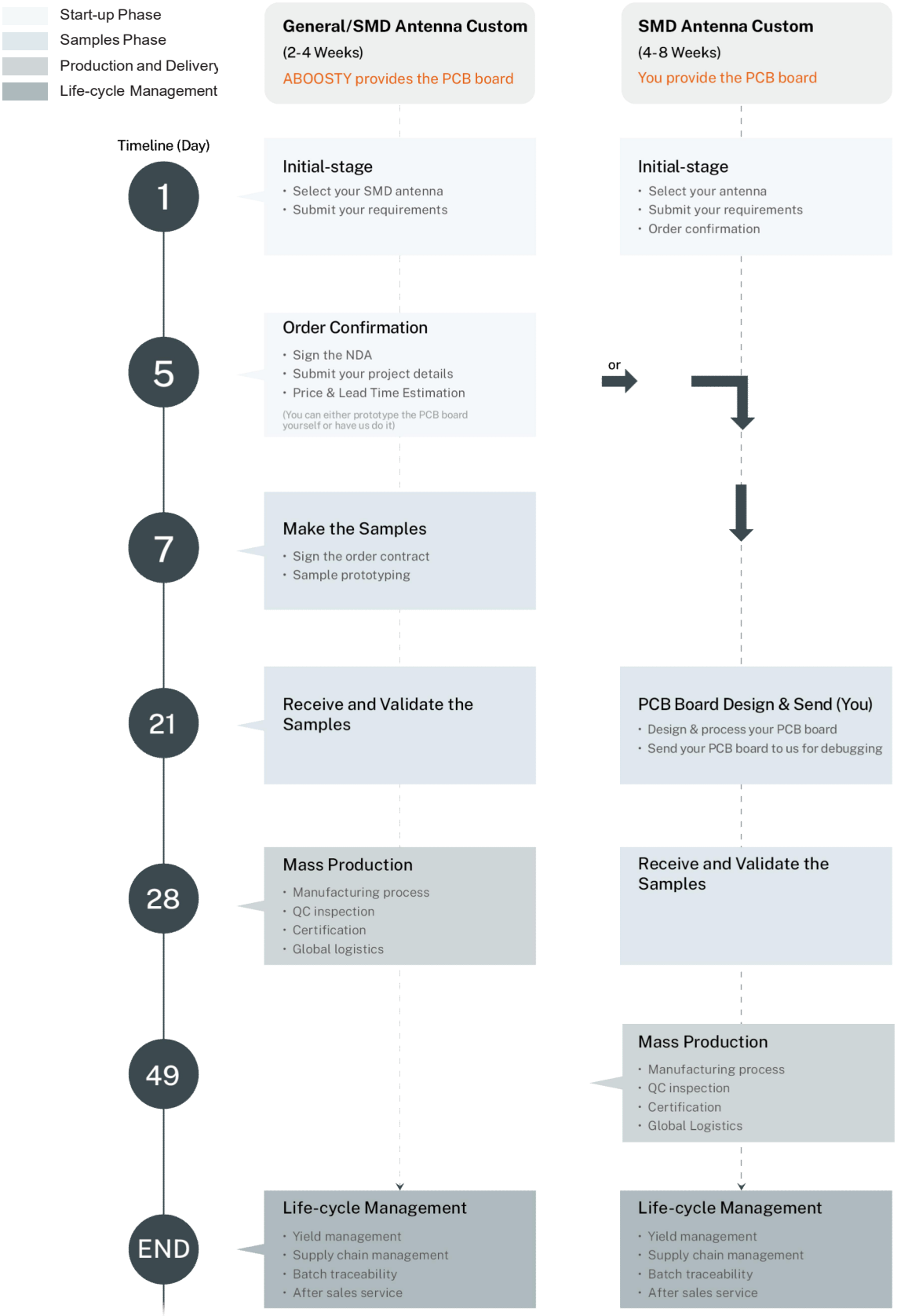
Deep Customization Process



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