

4G LTE/CELLULAR

ONBOARD SMD SHRAPNEL ANTENNA

 824-960 MHz | 1710-2690 MHz

Dimensions: 26.00 x 14.78 x 4.50 mm

Clearance Area: 30.5 x 30.5 mm



ADCM001





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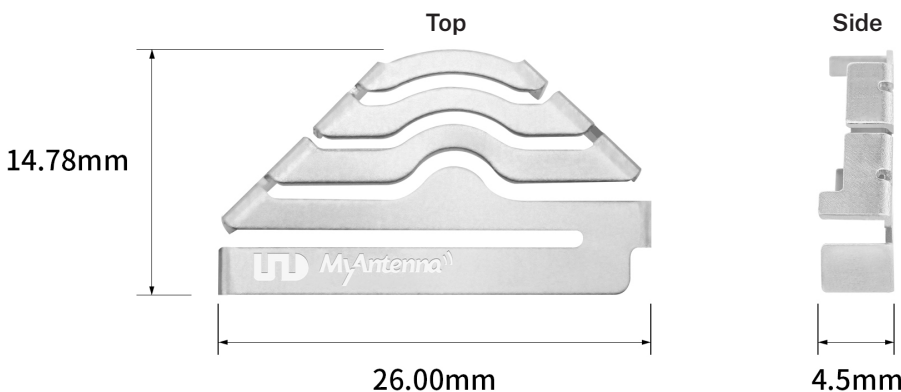


1 FEATURES & BENEFITS

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

2 APPLICATIONS

- 4G LTE network connectivity for smartphones and tablets
- Wireless Payment Terminals like POS machines
- Internet of Things (IoT) Devices
- Wearable Devices
- Industrial and Commercial Equipment
- Routers and Gateway Devices

	
Items	Dimensions (mm)
Length	26.00±0.1
Width	14.78±0.1
Thickness	4.50±0.1

3 ORDER INFORMATION

Product Name	4G LTE/CELLULAR OnBoard SMD Shrapnel Antenna
Model	ADCM001
Dimensions	26.00 x 14.78 x 4.50 mm
Weight	1.1 g
Mounting	SMT
Packaging	Tape & Reel
MOQ	500 pcs/reel

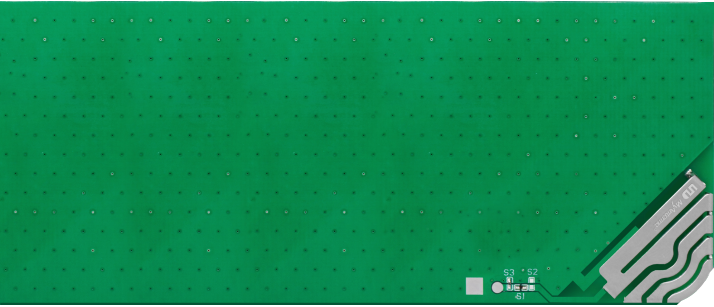


4 REFERENCE GUIDE

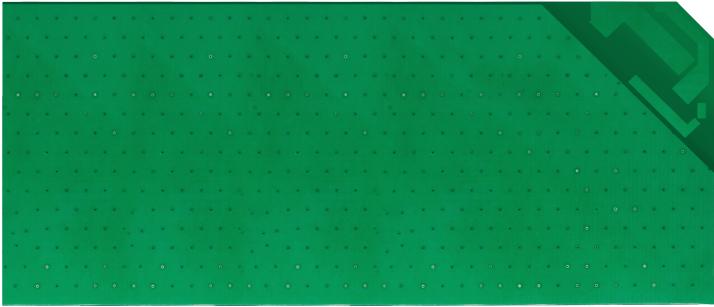
Technical Features	824-960 MHz	1710-2690 MHz
Max VSWR	3.69:1	2.49:1
Max Efficiency	77.58%	
Max Return Loss	-0.20 dB	
Peak Gain	Up to 2.24 dBi (Typ)	
Max Input Power	2 Watts CW	
Polarization	Linear	
Input Impedance	50 Ω	
Operating Temperature	-40°C to +80°C	
Relative Humidity	10 to 70%	
All data were measured in free space and on a reference wground plane of 130 mm length, 55 mm width, and 1.0 mm thickness. Application data might vary.		

5 EVALUATION BOARD WITH ANTENNA

The evaluation board provides operation at 600-3000 MHz.
Evaluation Board dimension: 133.0 x55.0 x 1.0 mm
Clearance Area: 30.5 x 30.5 mm



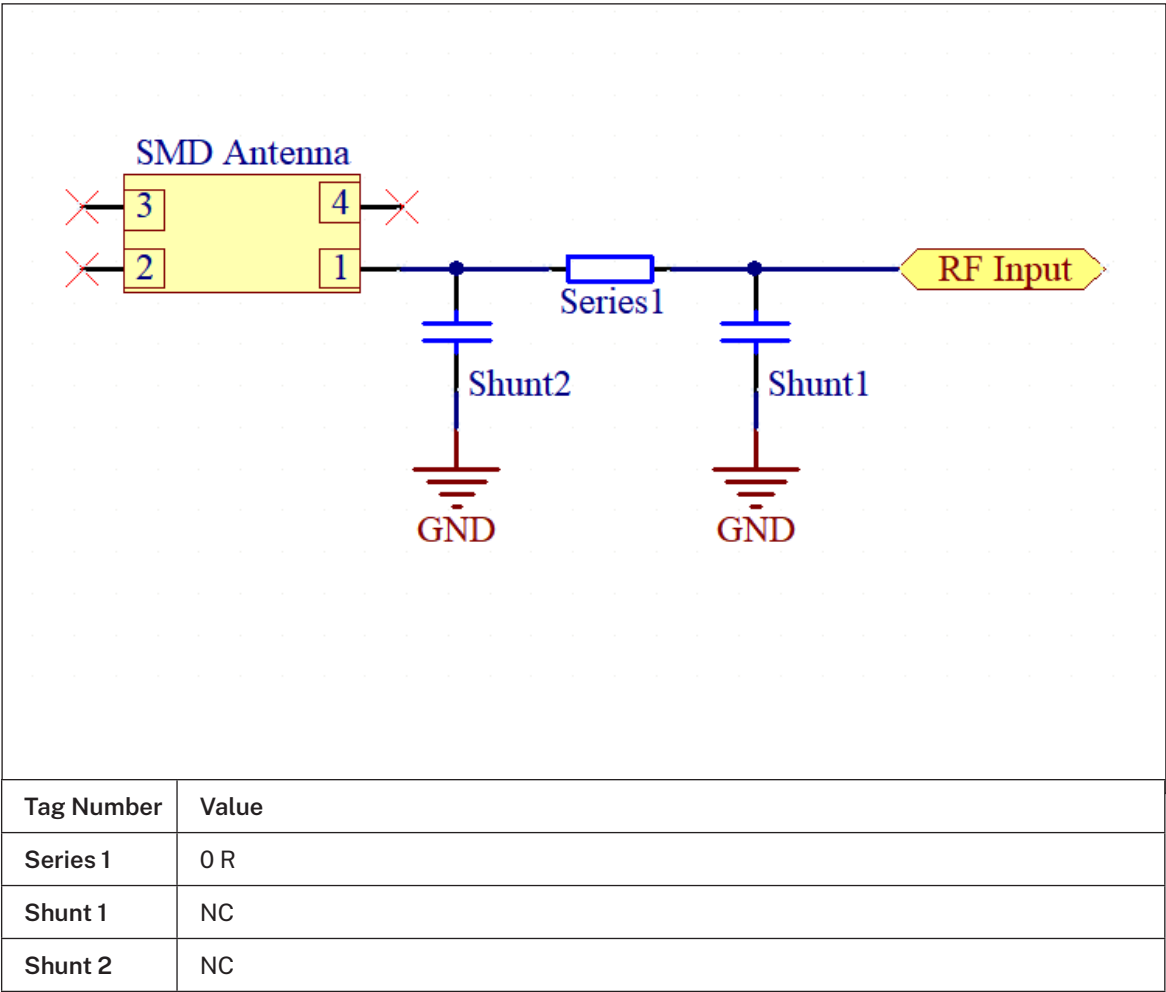
Top View



Back View

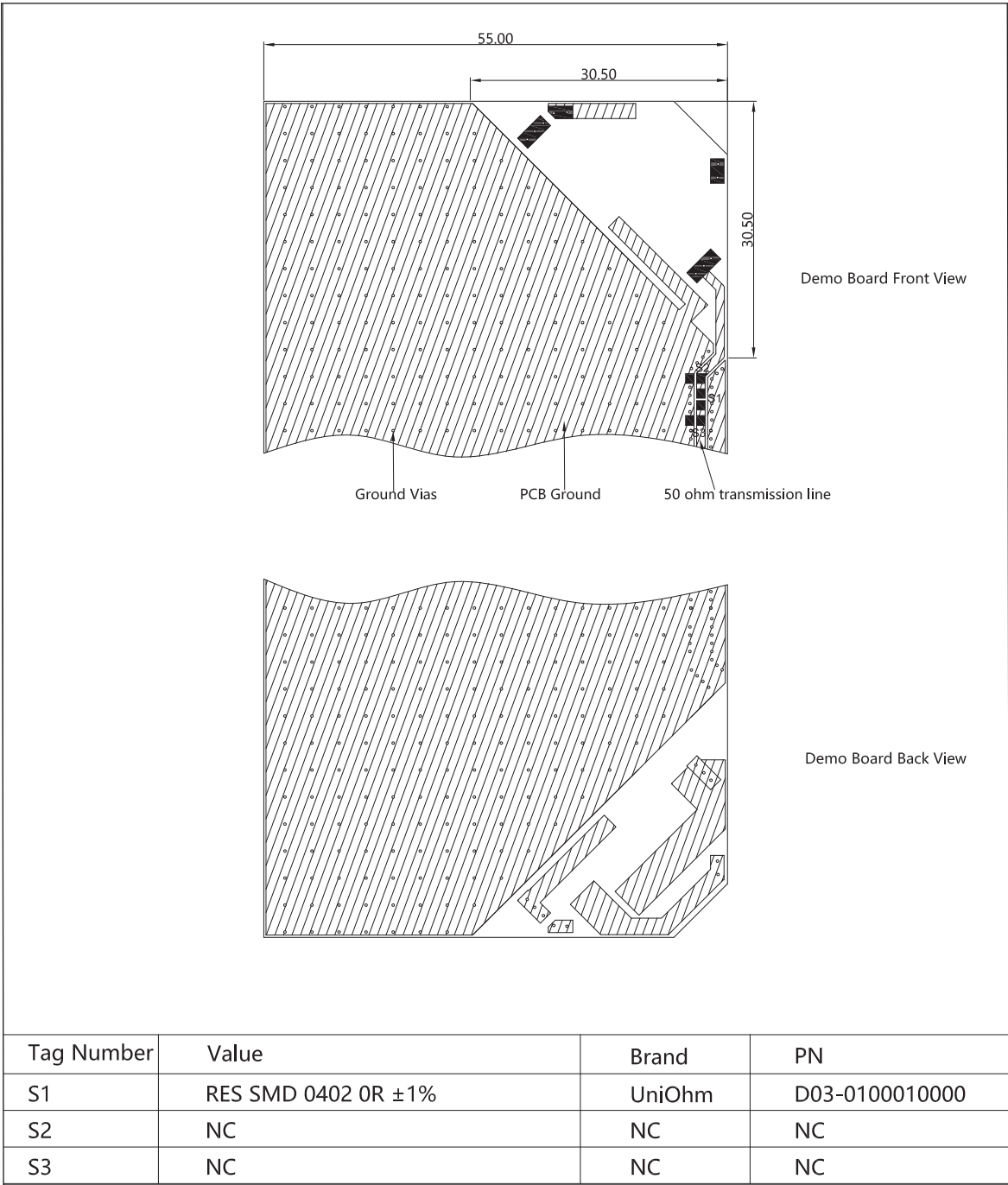


6 MATCHING NETWORK





7 RECOMMENDED FOOTPRINT AND LAYOUT

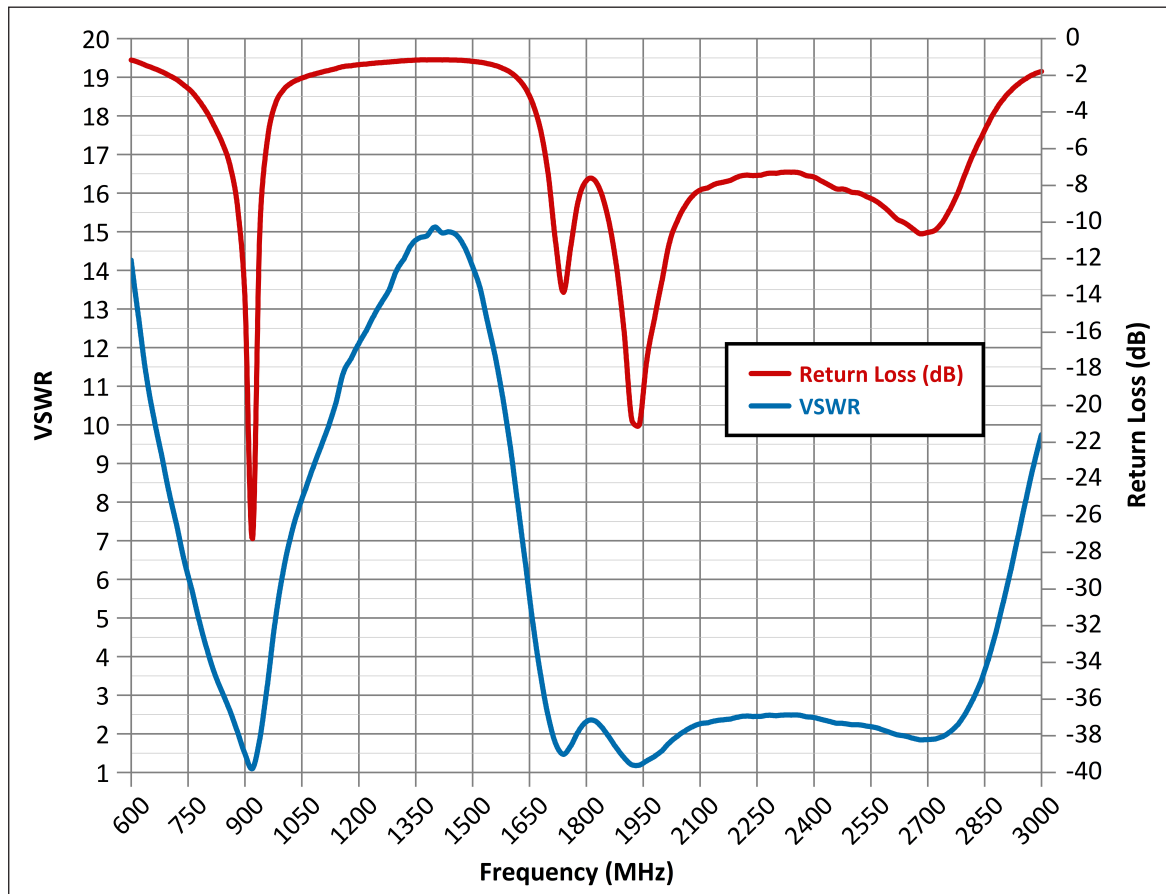


8 ELECTRICAL PERFORMANCE

© Note

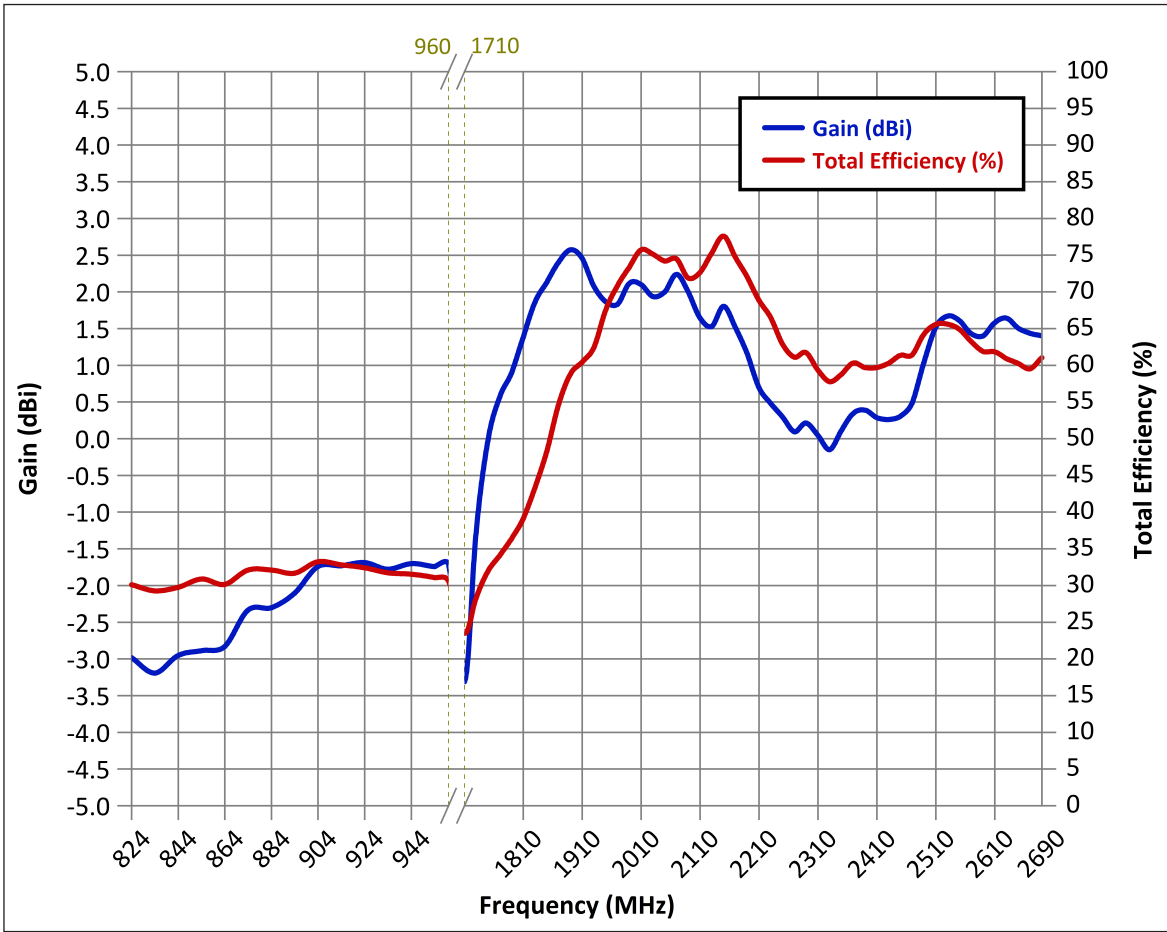
All data displayed in Chapter 8 were measured in free space and on a reference ground plane of 130 mm length, 55 mm width, and 1.0 mm thickness.

8.1 VSWR and Return Loss (dB)





8.2 Gain (dBi) and Total Efficiency (%)



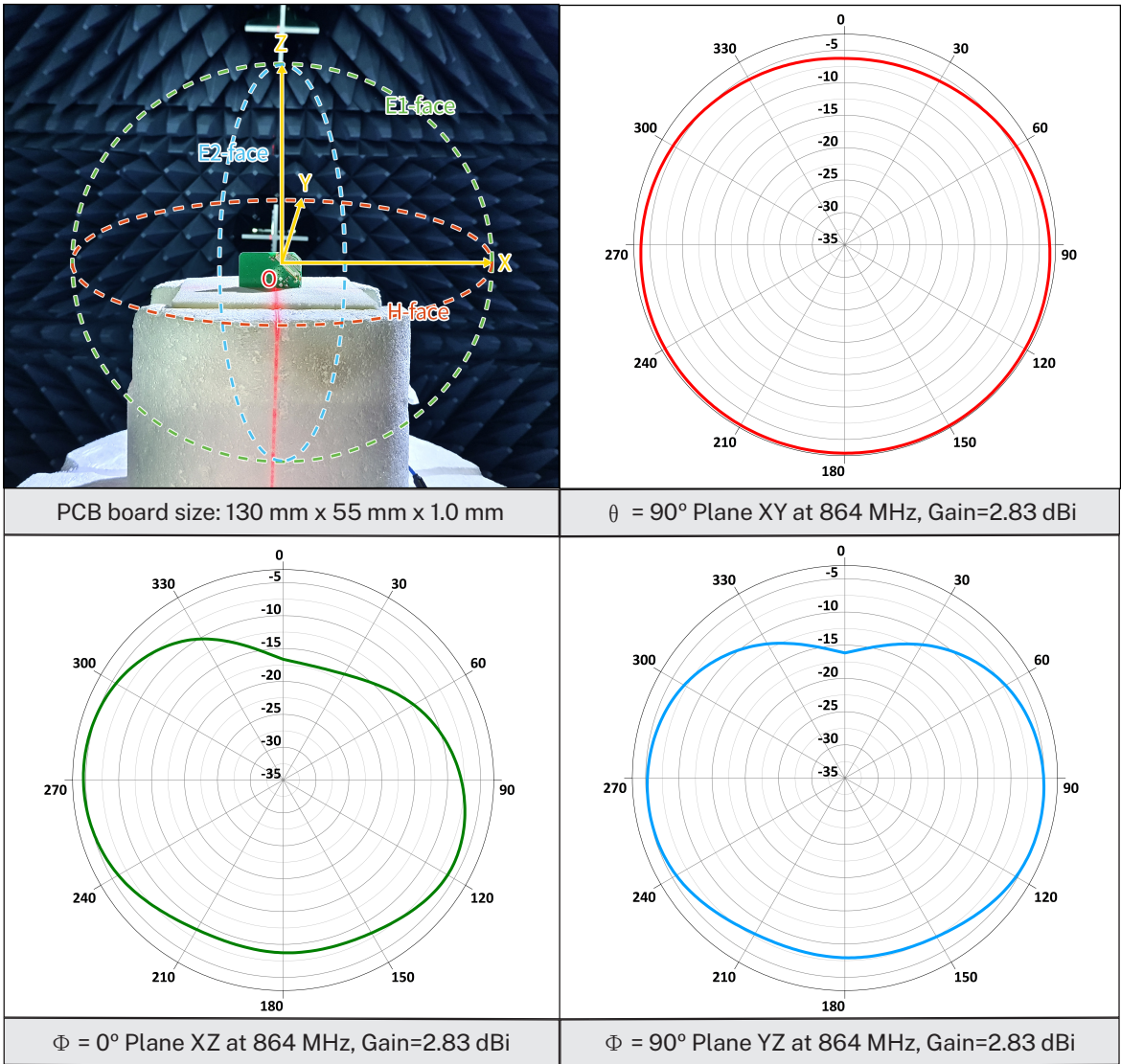
Antenna Data					
Freq (MHz)	Gain (dBi)	Efficiency (%)	Freq (MHz)	Gain (dBi)	Efficiency (%)
824	-2.98	30.12	904	-1.74	33.23
834	-3.20	29.25	914	-1.73	32.79
844	-2.95	29.74	924	-1.69	32.41
854	-2.89	30.86	934	-1.78	31.73
864	-2.83	30.15	944	-1.70	31.53
874	-2.34	32.09	954	-1.74	31.08
884	-2.30	32.09	960	-1.71	30.62
894	-2.10	31.66			



Freq (MHz)	Gain (dBi)	Efficiency (%)	Freq (MHz)	Gain (dBi)	Efficiency (%)
1710	-3.31	23.52	2230	0.48	66.47
1750	-0.03	31.91	2270	0.09	61.08
1790	0.89	36.36	2310	0.05	59.35
1830	1.86	43.31	2350	0.11	58.77
1870	2.41	54.66	2390	0.39	59.69
1910	2.46	60.41	2430	0.26	60.27
1950	1.87	67.53	2470	0.48	61.39
1990	2.12	73.36	2510	1.52	65.57
2030	1.94	75.13	2550	1.61	64.90
2070	2.24	74.47	2590	1.40	61.89
2110	1.65	72.63	2630	1.64	60.89
2150	1.80	77.58	2670	1.43	59.50
2190	1.16	72.04	2690	1.40	61.03

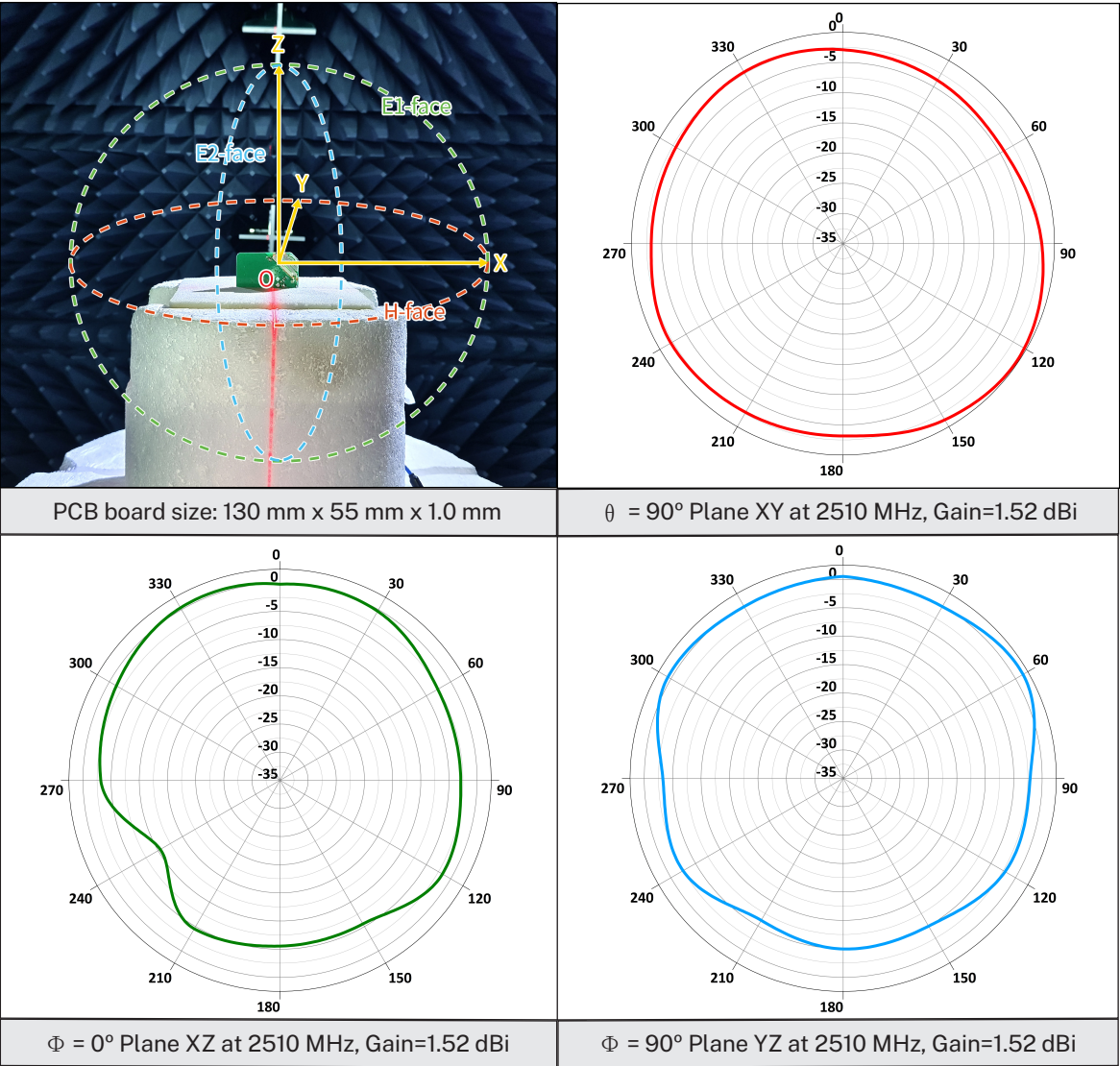


8.3 2D Radiation Patterns (824-960 MHz)





8.4 2D Radiation Patterns (1710-2690 MHz)

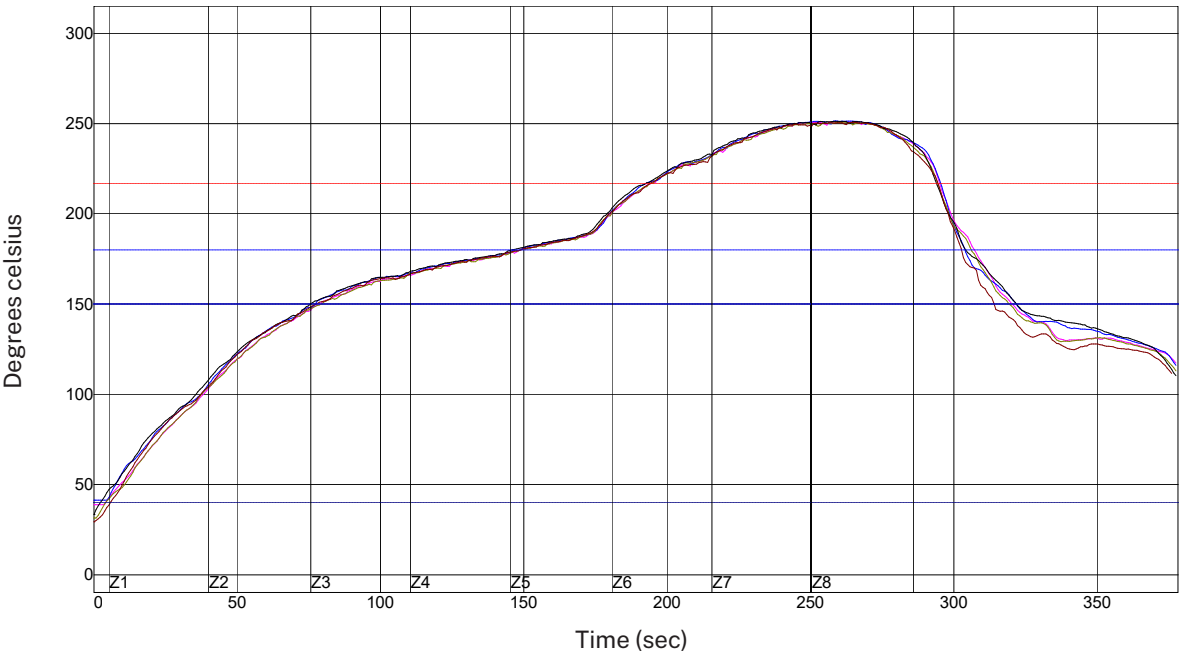




9 SOLDERING CONDITIONS

This antenna is suitable for lead free soldering.
Below shows the temperature profile for soldering.

Setpoints (Celsius degree)								
Temperature Zones	1	2	3	4	5	6	7	8
Upper-Temperature Zone	120	160	175	180	190	250	255	250
Lower Temperature Zone	120	160	175	180	190	250	255	250
Conveyor Speed (cm/min): 65.00								



PWI= 142%	Preheat 40 to 150 °C		Soak Time 150 to 180°C		Reflow Time /217°C		Peak Temperature		Slope 2 (150-217°C)		Slope 3 (217-250°C)	
	74.78	-51%	69.58	-26%	100.01	133%	251.15	107%	1.37	37%	0.77	-39%
	76.94	-44%	70.75	-23%	102.55	142%	251.56	109%	1.41	41%	0.81	-35%
	75.26	-49%	69.53	-26%	99.40	131%	250.66	104%	1.37	37%	0.75	-40%
	73.18	-56%	70.44	-24%	101.64	139%	251.34	108%	1.37	37%	0.76	-39%
	71.55	-61%	71.62	-21%	100.41	135%	250.73	104%	1.34	34%	0.86	-31%
Temperature Differences	5.39		2.09		3.15		0.90		0.07		0.11	

Process Limits:			
Solder Paste:	Lead-Free		
Statistical Name	Lower Limit	Upper Limit	Unit
Slope 2 (Target=1.0) Between 150.0 and 217.0 (Time interval for slope calculation = 20 seconds)	0	2	°C/sec
Slope 3 (Target=1.3) Between 217.0 and 250.0 (Time interval for slope calculation = 20 seconds)	0	2.5	°C/sec
Preheat Time 40-150°C	60	120	sec
Soak Time 150-180°C	40	120	sec
Time Above Reflow -217°C	30	90	sec
Peak Temperature	217	250	°C

© **Note**

Please select a nozzle from No.500 to 509 according to the shape and size of the mounted component.

No.	500	501	502	503	504	505	506	507	508C	509
Shape										
Inner Diameter	1.0x0.5mm	0.7x0.4mm	0.7mm	1.0mm	1.5mm	3.5mm	5.0mm	8.5mm	9.5mm	0.4x0.2mm
Outside Diameter	2x0.4mm	0.25mm	0.4mm	0.6mm	1.0mm	1.7mm	3.2mm	5.0mm	8.0mm	0.1mm

1. The recommended SMT nozzle size is larger than 505#;
2. The recommended solder paste thickness is above 0.12mm.



10 PACKAGING

10.1 Optimal Storage Conditions for Packaged Reels

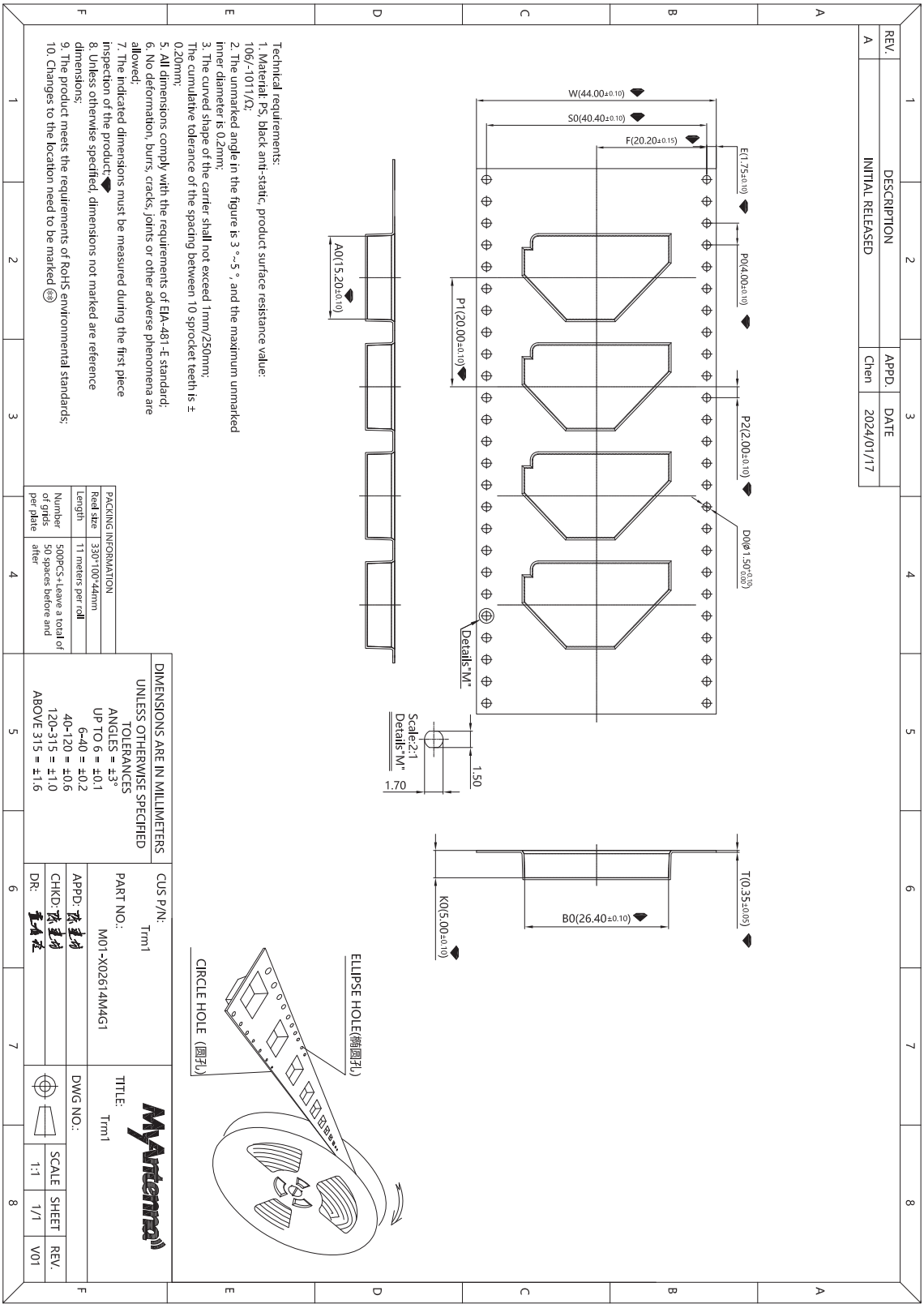
Temperature	-5°C to 40°C
Humidity	Less than 70% RH
Shelf life	18 months
Storage place	Away from corrosive gas and direct sunlight
Packaging	Reels should be stored in unopened sealed manufacturer's plastic packaging.

© **Note**

Storage of open reels of antennas is not recommended due to possible oxidation 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.



10.2 Packagings and Dimensions (Unit: mm)





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.	



12 WELCOME ALL ANTENNA OEM/ODM PROJECTS

About ABOOSTY



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



House of Aboosty: 450,000 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



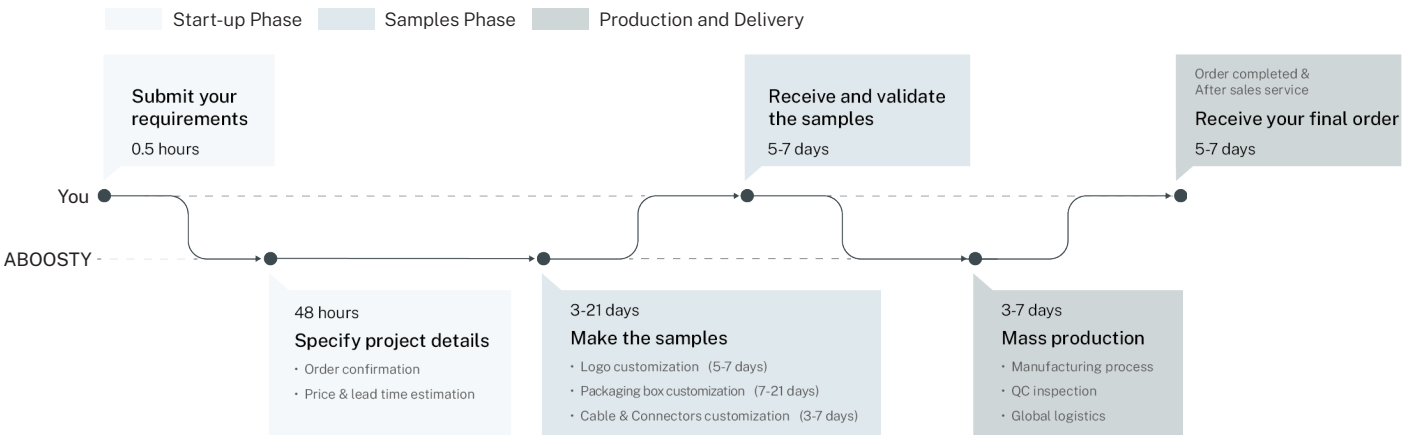
Prompt reply within 24h

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 • ...

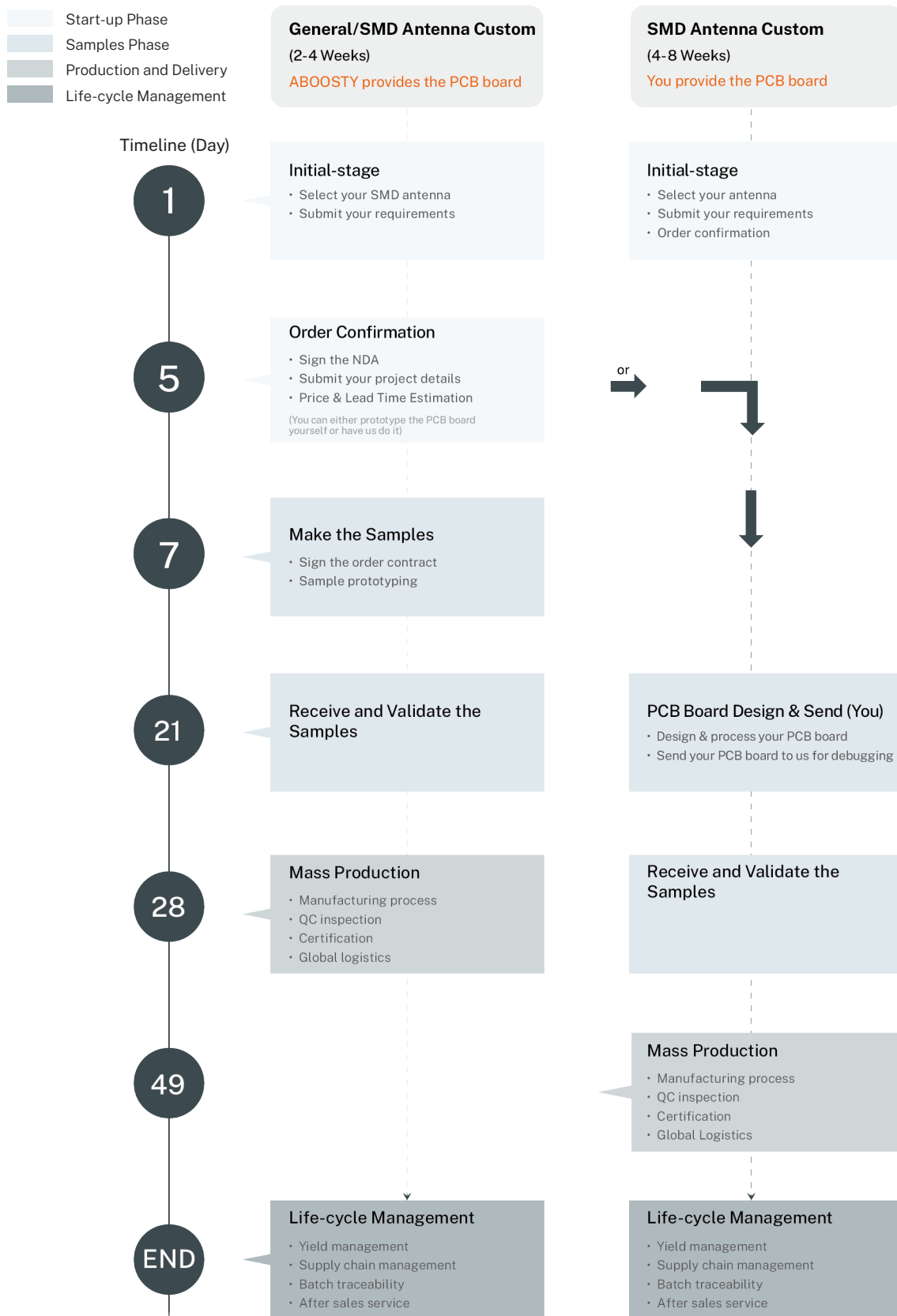
Custom Process

Light Customization Process





Deep Customization Process





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Multi-band Combination Antennas

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