

6.1-8.5GHZ UWB

ONBOARD SMD STAMPED METAL ANTENNA

 6100-8500 MHz

Dimensions: 12.0 x 10.46 x 3.0 mm

Clearance Area: 45.0 x 15.7 mm



Model: ADUM002
PN: M01-X01210U231





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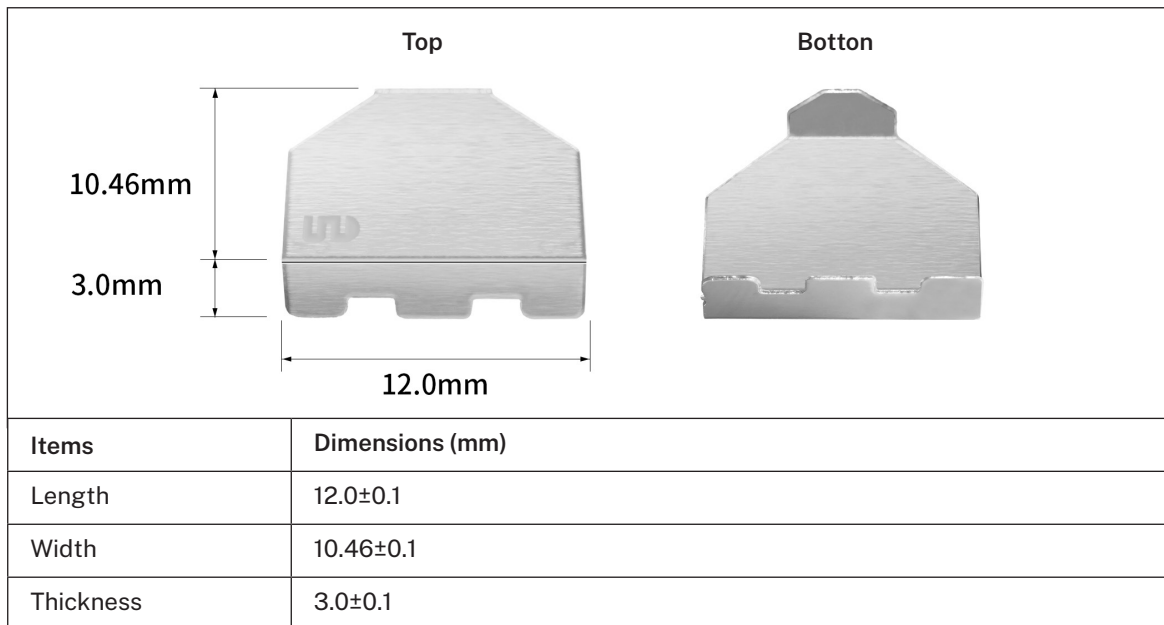


1 FEATURES & BENEFITS

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

2 APPLICATIONS

- Wireless Routers and Modems
- Internet of Things (IoT) Devices, M2M
- Indoor Location Tracking and Positioning
- Consumer Tracking
- Smart Metering
- Virtual Reality (VR) and Augmented Reality (AR)



3 ORDER INFORMATION

Product Name	6.1-8.5GHz UWB OnBoard SMD Stamped Metal Antenna
Model	ADUM002
Part Number	M01-X01210U231
Dimensions	12.0 x 10.46 x 3.0 mm
Weight	0.35 g
Mounting	SMT
Packaging	Tape & Reel
MOQ	1200 pcs/reel

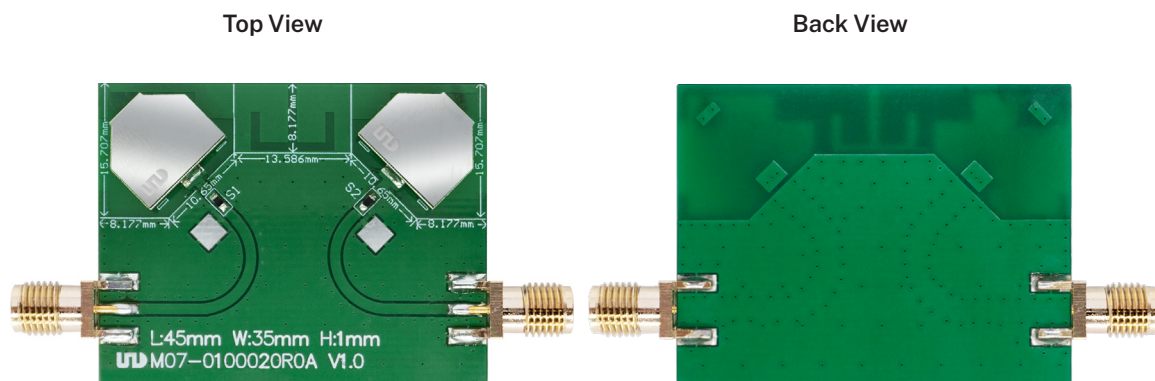
4 REFERENCE GUIDE

Antenna	Antenna-Left (ANT 1)	Antenna-Right (ANT 2)
Technical Features (MHz)	6100-8500	6100-8500
Max VSWR	2.29:1	2.53:1
Max Efficiency	88.43%	92.17%
Peak Gain	Up to 4.49 dBi (Typ)	Up to 5.64 dBi (Typ)
Max Return Loss	-7.90 dB	-8.71 dB
Max Input Power	2 Watts CW	
Polarization	Linear	
Input Impedance	50 Ω	
Operating Temperature	-40°C to +80°C	
Relative Humidity	10 to 70%	
Dimensions (L x W x H)	12.0 x 10.46 x 3.0 mm	

All data were measured in free space and on a reference wground plane of 45 mm length, 35 mm width, and 1.0 mm thickness. Application data might vary.

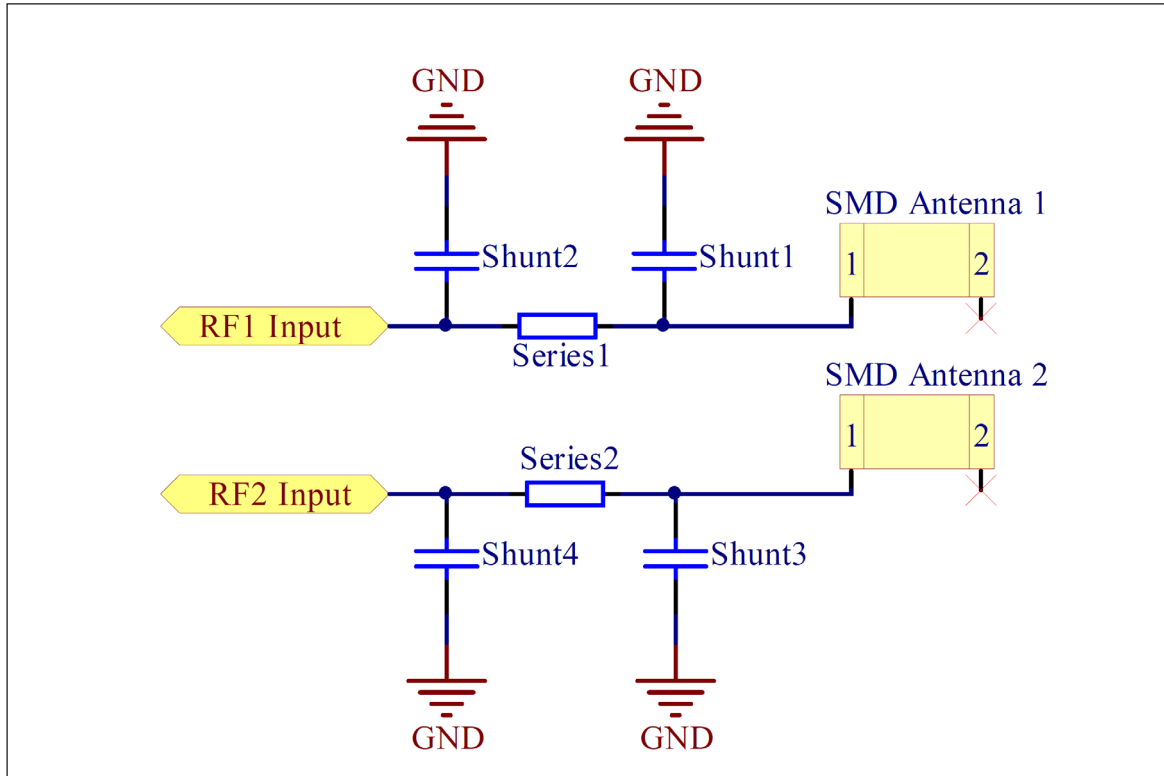
5 EVALUATION BOARD WITH ANTENNA

The evaluation board provides operation at 2.2-8.5 GHz.
Evaluation Board dimension: 45.0 x 35.0 x 1.0 mm



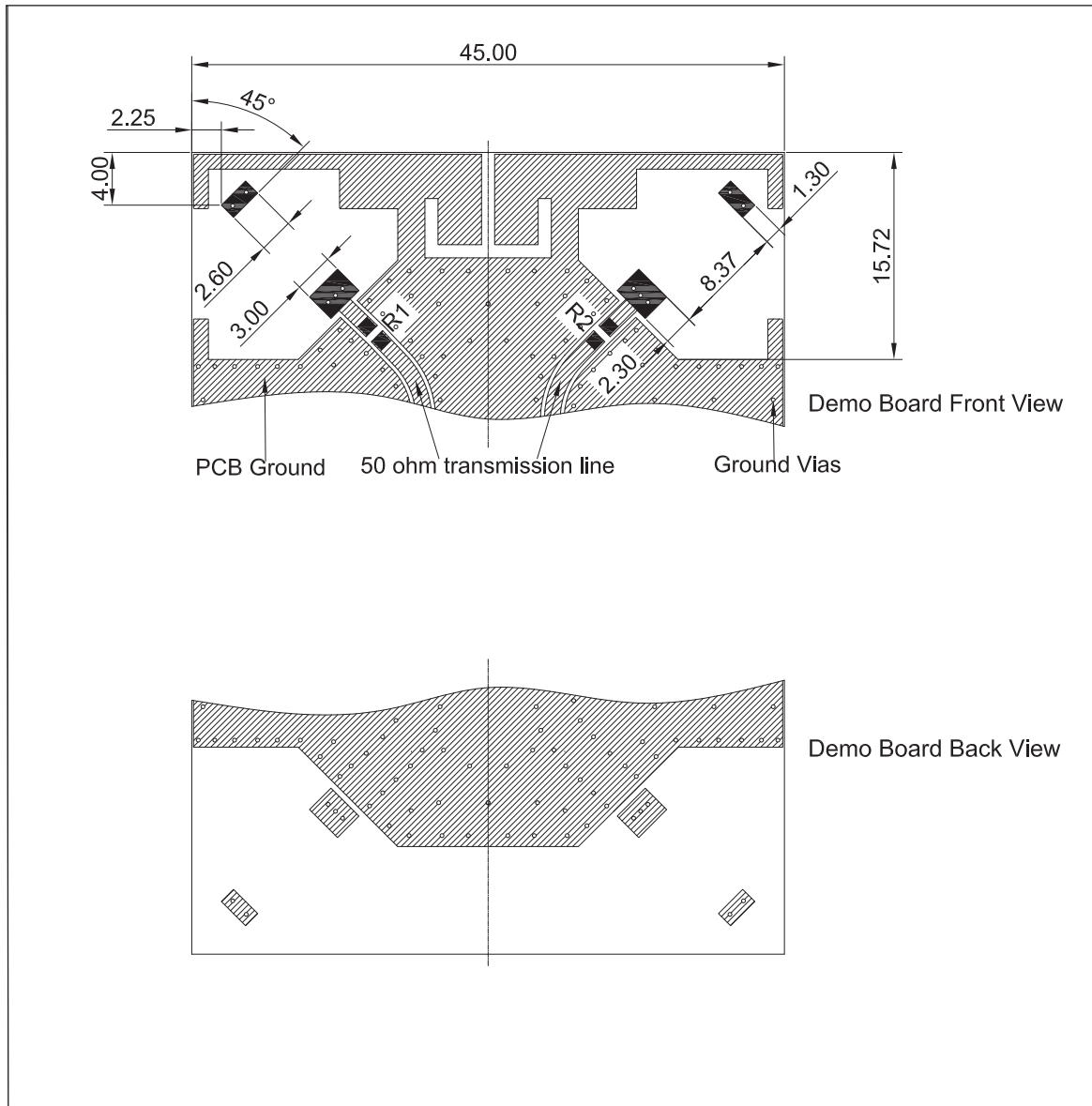
Clearance Area: 45.0 x 15.7 mm

6 MATCHING NETWORK



Tag Number	Value	Brand	PN
Series1	RES SMD 0603 package OR $\pm 1\%$	YAGEO	D03-0100450000
Series2	RES SMD 0603 package OR $\pm 1\%$	YAGEO	D03-0100450000
Shunt1	NC		
Shunt2	NC		
Shunt3	NC		
Shunt4	NC		

7 RECOMMENDED FOOTPRINT AND LAYOUT

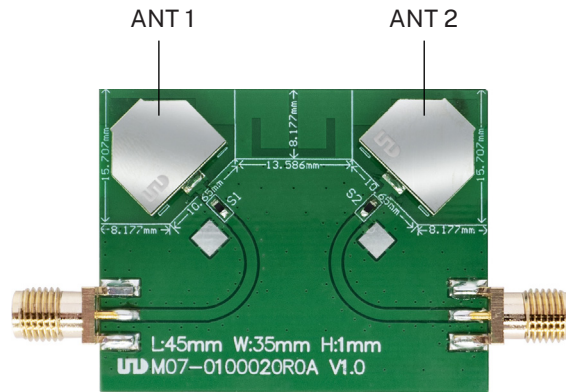


Tag Number	Value	Brand	PN
R1	RES SMD 0603 package 0R \pm 1%	YAGEO	D03-0100450000
R2	RES SMD 0603 package 0R \pm 1%	YAGEO	D03-0100450000

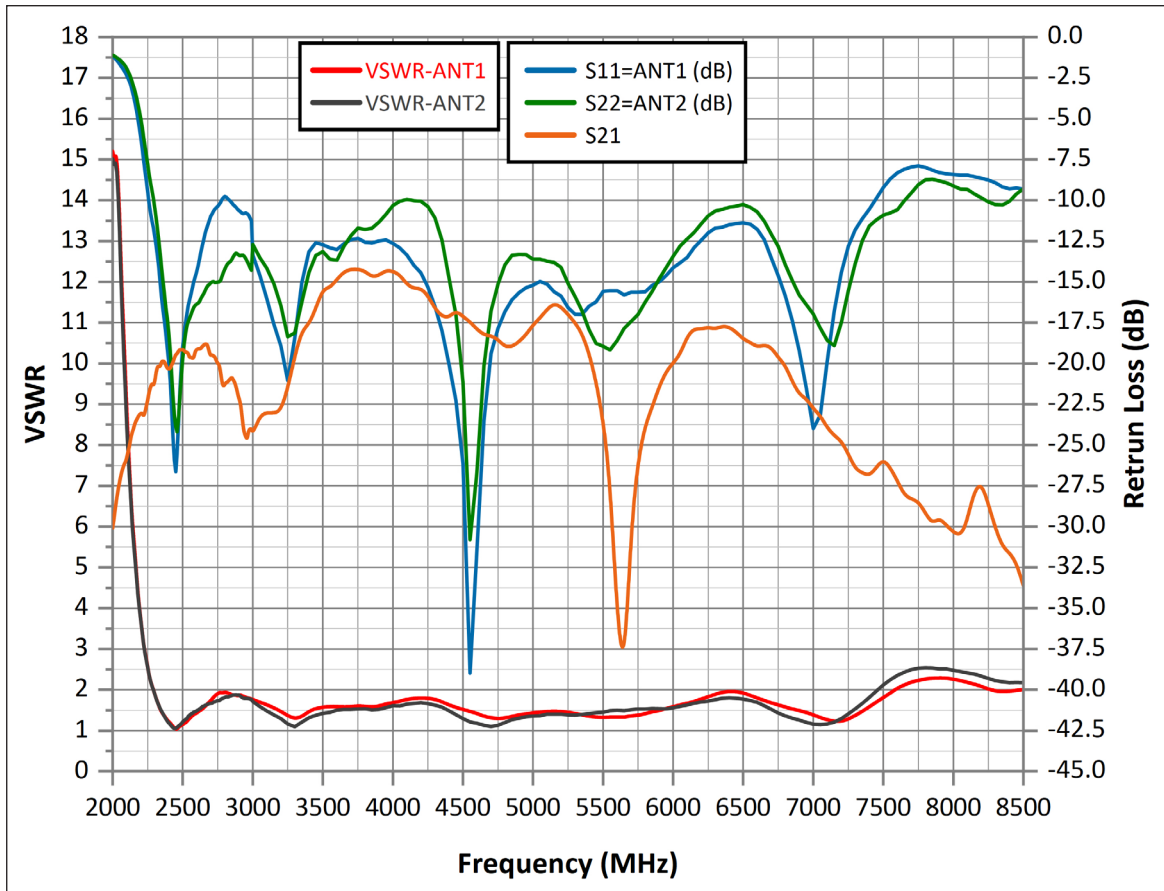
8 ELECTRICAL PERFORMANCE

© Note

All data displayed in Chapter 8 were measured in free space and on a reference ground plane of 45 mm length, 35 mm width, and 1.0 mm thickness.

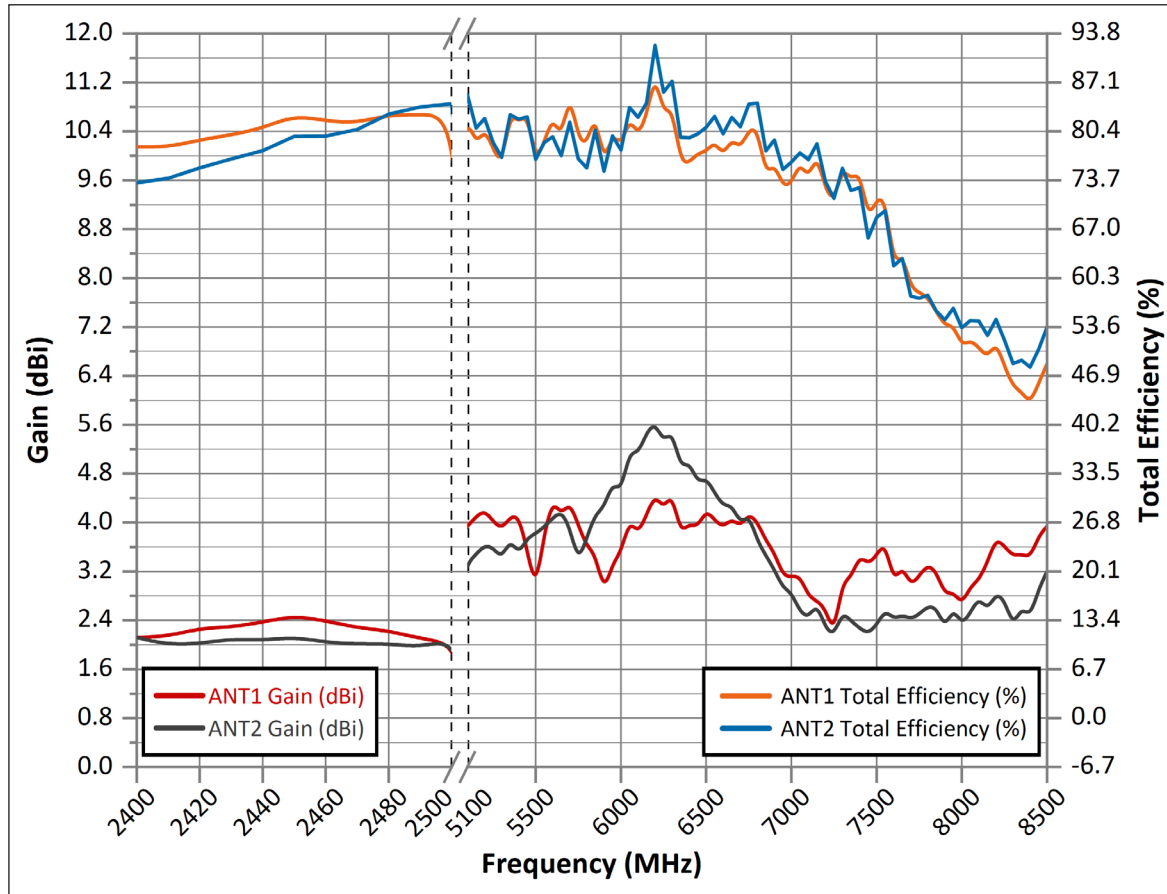


8.1 VSWR, Return Loss(S11, S22) and Isolation(S21)





8.2 Gain and Total Efficiency

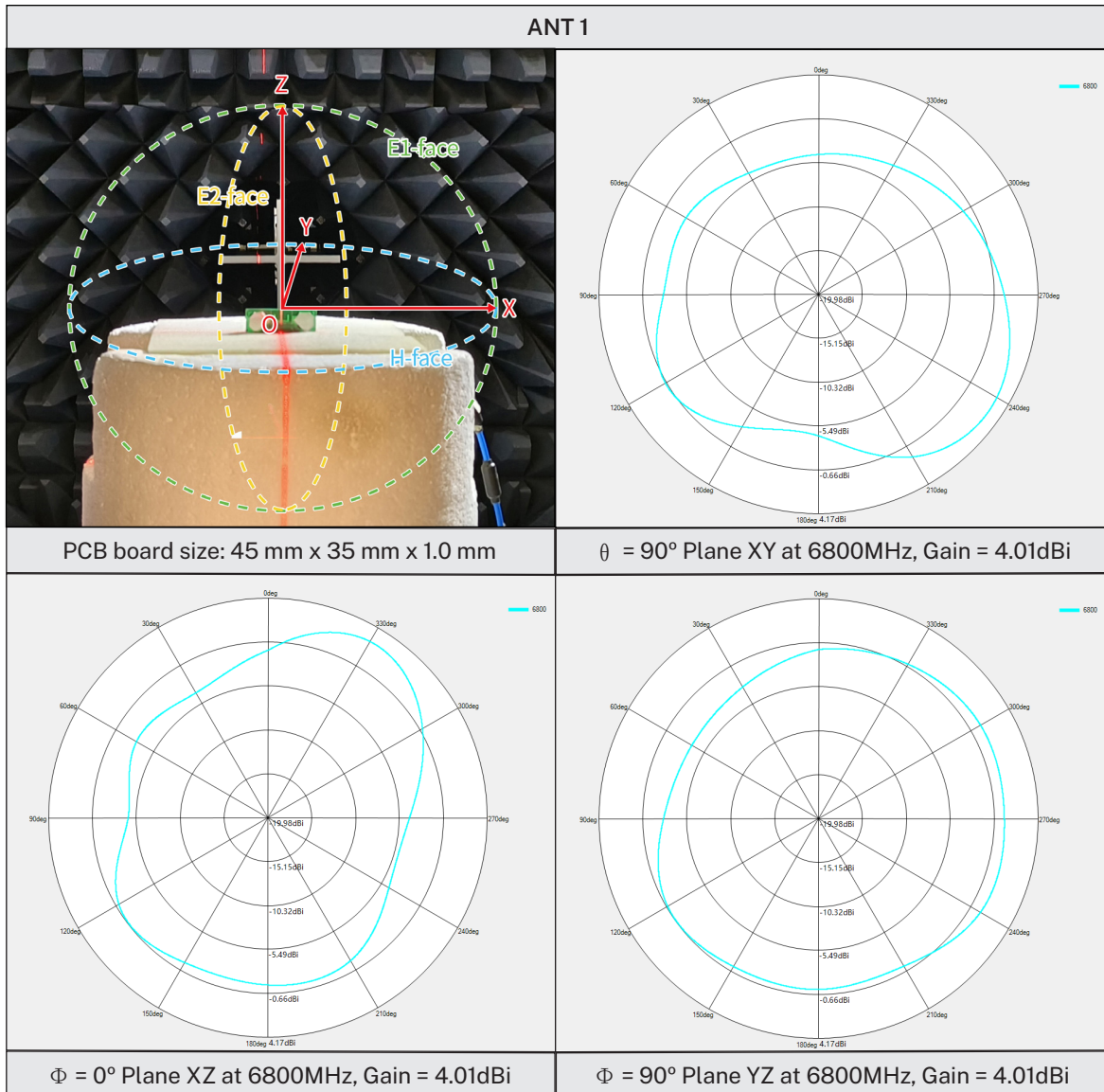


Freq (MHz)	Gain (dBi)	Efficiency (%)	Freq (MHz)	Gain (dBi)	Efficiency (%)
5100	3.94	82.21	6900	3.51	76.09
5300	3.89	75.65	7100	2.79	73.9
5500	2.89	76.31	7300	3.04	75.54
5700	4.34	85.81	7500	3.47	71.16
5900	2.85	75.76	7700	2.96	58.95
6100	3.81	79.77	7900	2.82	53.78
6300	4.49	83.84	8100	3.06	50.8
6500	4.21	77.63	8300	3.45	45.45
6700	3.93	78.05	8500	3.94	48.55

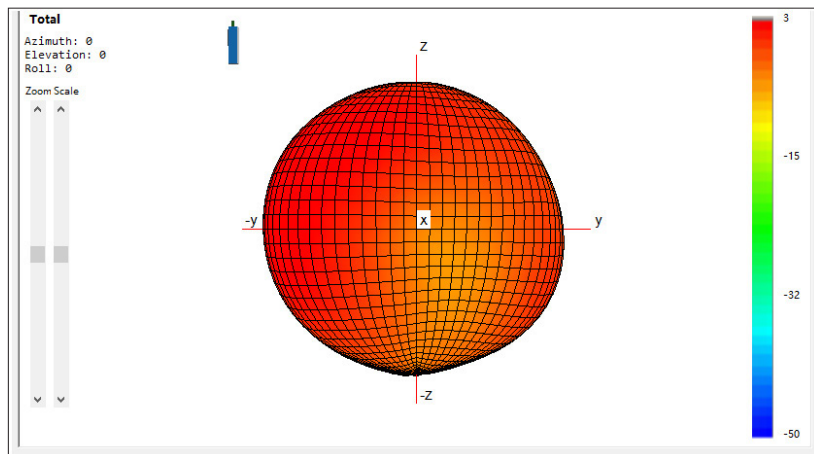


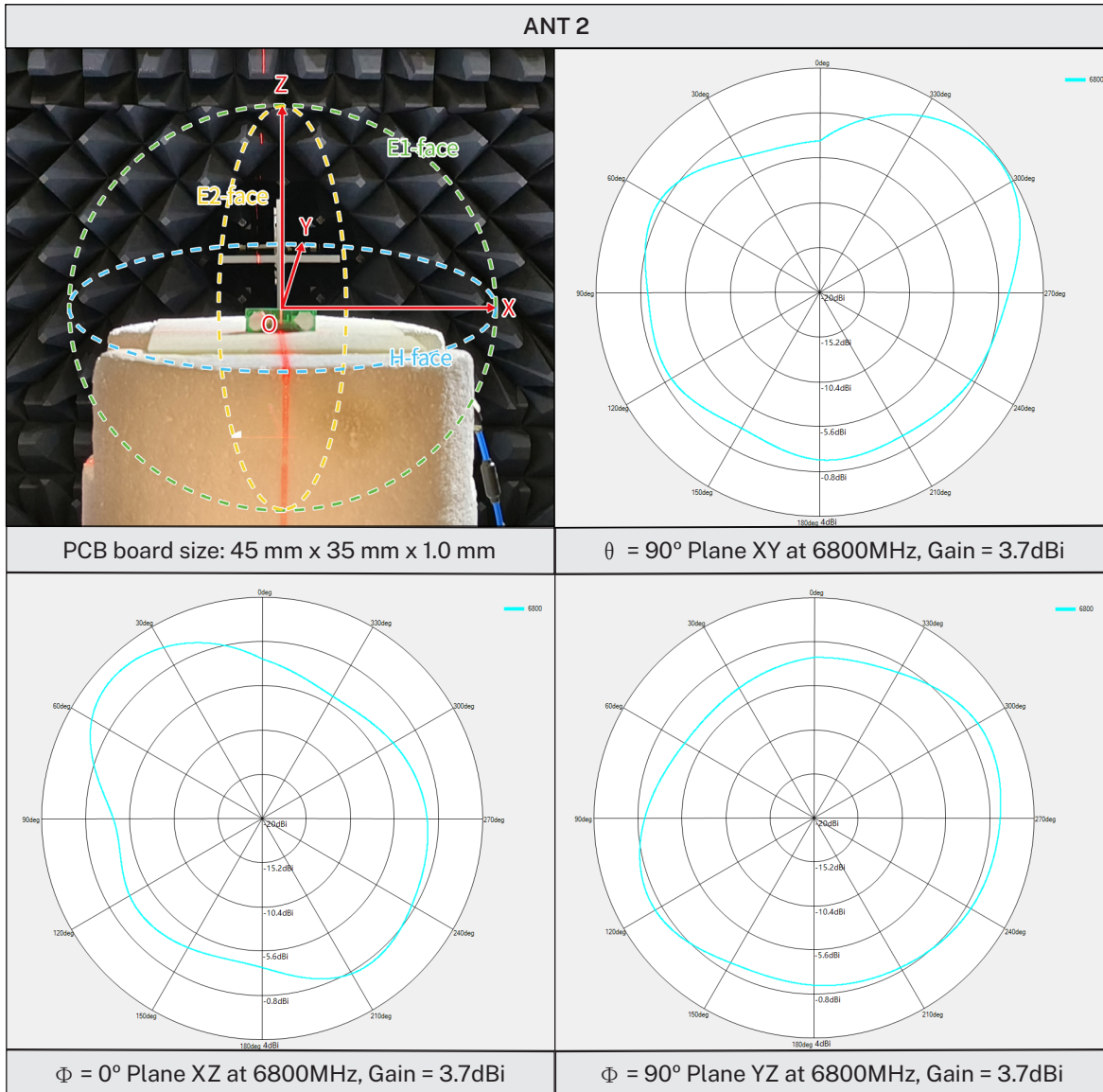
ANT 2 Data					
Freq (MHz)	Gain (dBi)	Efficiency (%)	Freq (MHz)	Gain (dBi)	Efficiency (%)
5100	3.34	85.42	6900	3.23	79.21
5300	3.41	76.84	7100	2.44	76.55
5500	3.82	76.56	7300	2.54	75.35
5700	3.92	81.66	7500	2.33	68.64
5900	4.24	74.95	7700	2.42	57.84
6100	5.12	82.33	7900	2.27	54.57
6300	5.51	87.26	8100	2.78	54.42
6500	4.73	80.94	8300	2.3	48.59
6700	3.98	81.04	8500	3.2	53.58

8.3 2D and 3D Radiation Patterns (6100-6900 MHz)

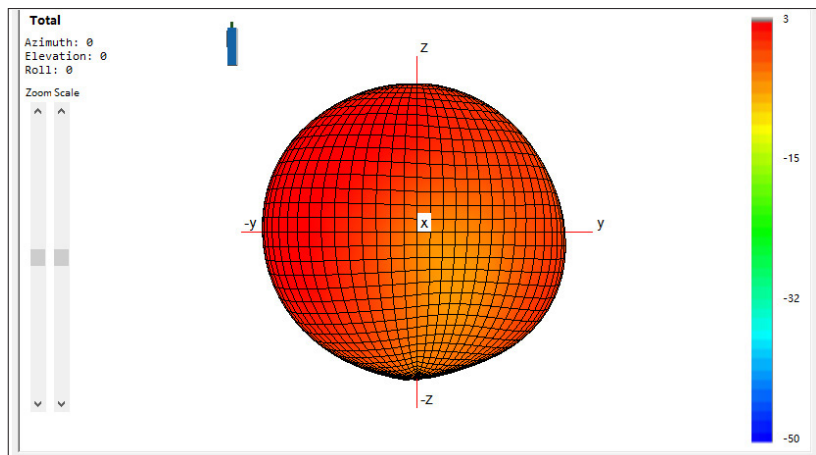


ANT 1 3D radiation patterns
@ 6800 MHz

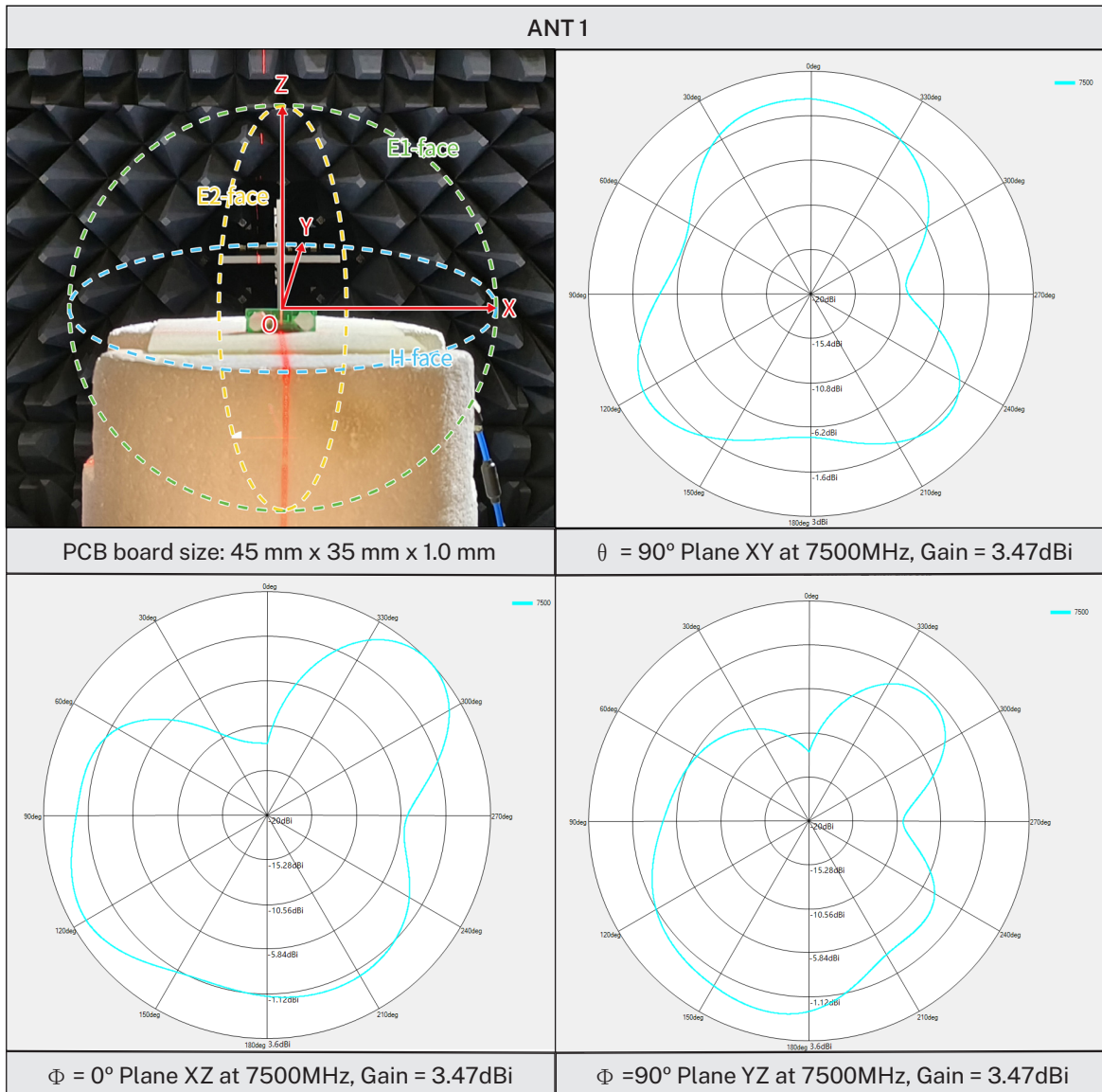




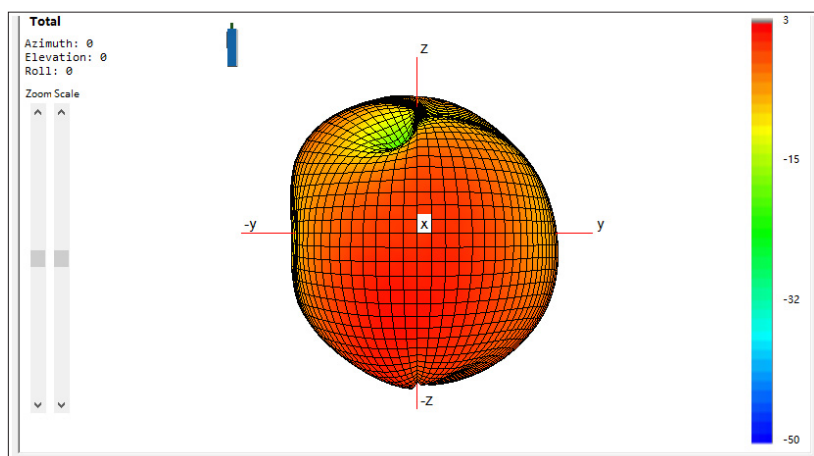
ANT 2 3D radiation patterns
@ 6800 MHz

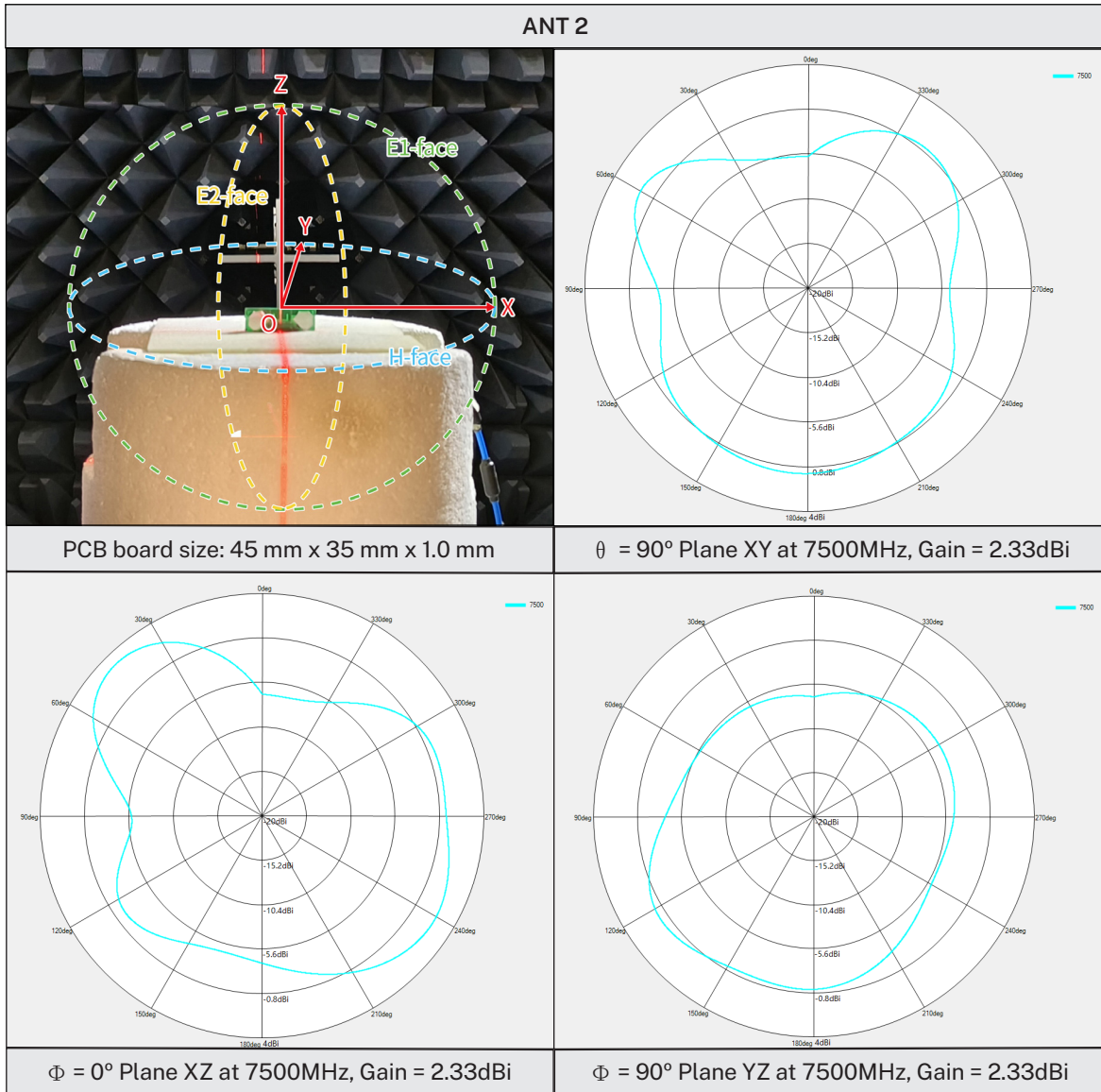


8.4 2D and 3D Radiation Patterns (7100-8500 MHz)

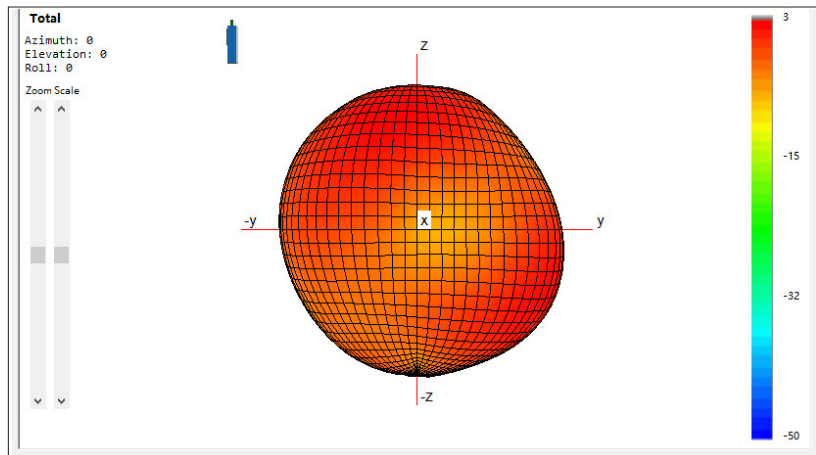


ANT 1 3D radiation patterns
@ 7500 MHz





ANT 2 3D radiation patterns
@ 7500 MHz

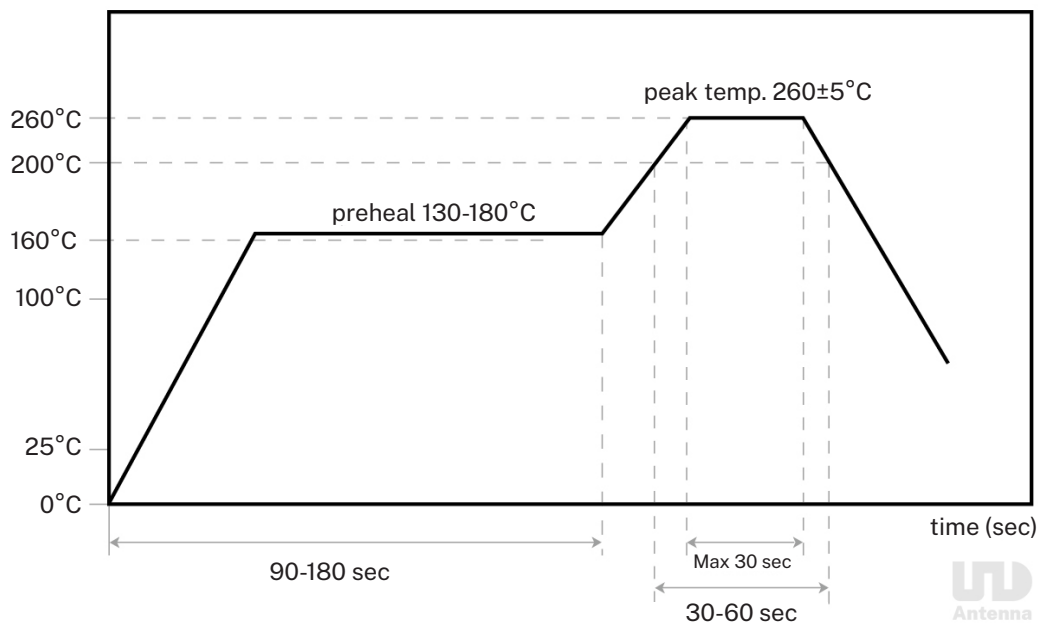


9 SOLDERING CONDITIONS

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 260°C.

The figure below shows the temperature profile for soldering.



10 PACKAGING

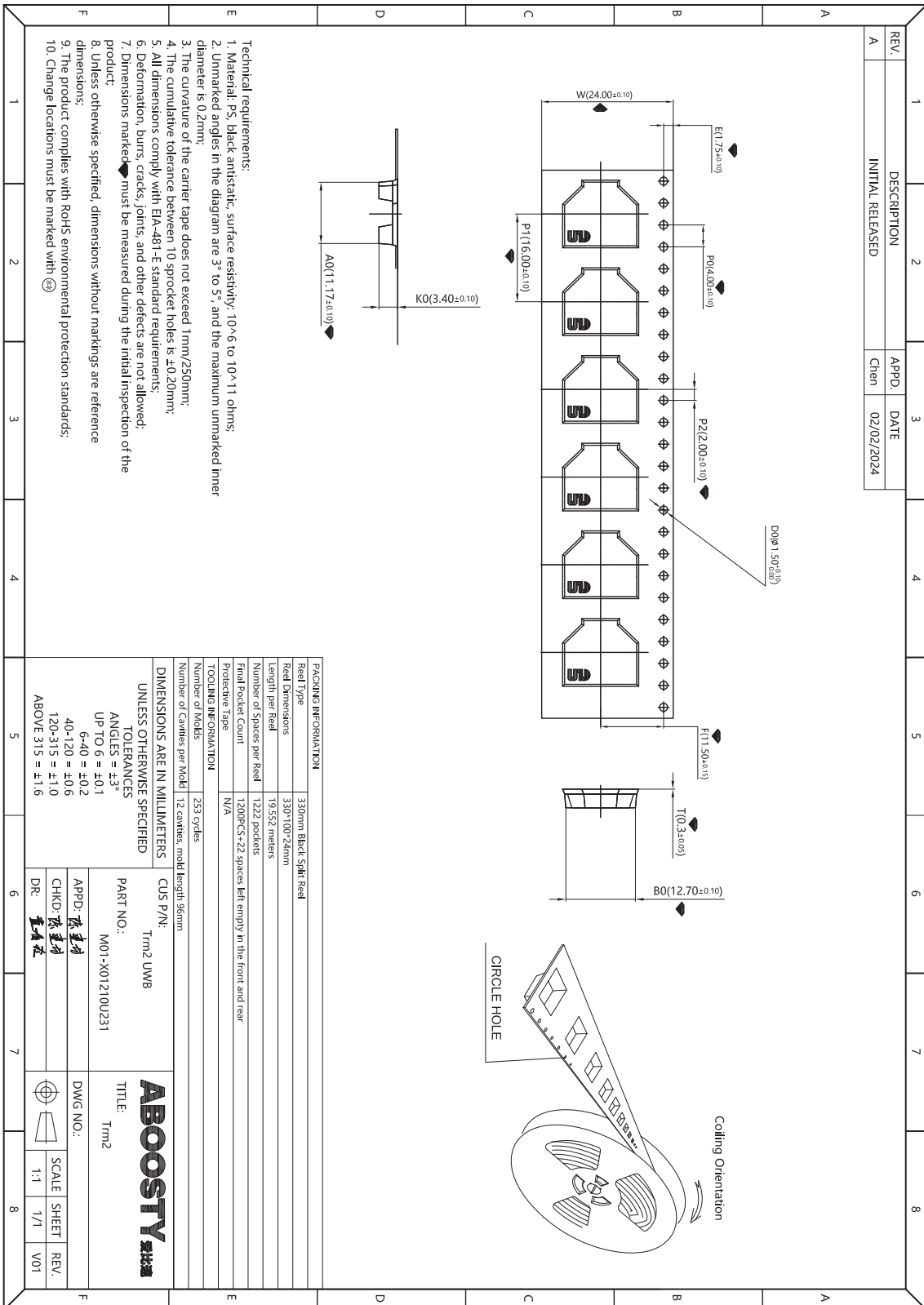
10.1 Optimal Storage Conditions for Packaged Reels

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.	

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Why Choose ABOOSTY

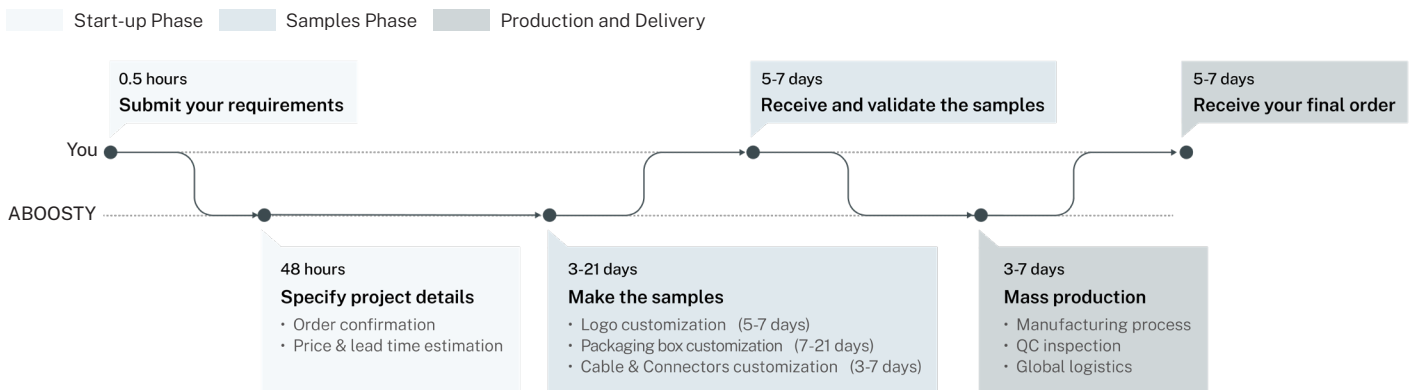
					
10+ years in antenna R&D, production, and OEM/ODM	MES system supported factory; 50M+ units annual output capacity	Factory directly competitive price	Quick price and lead time estimate	Innovative and patented design solutions	Professional team support & prompt reply within 24h

What We Provide

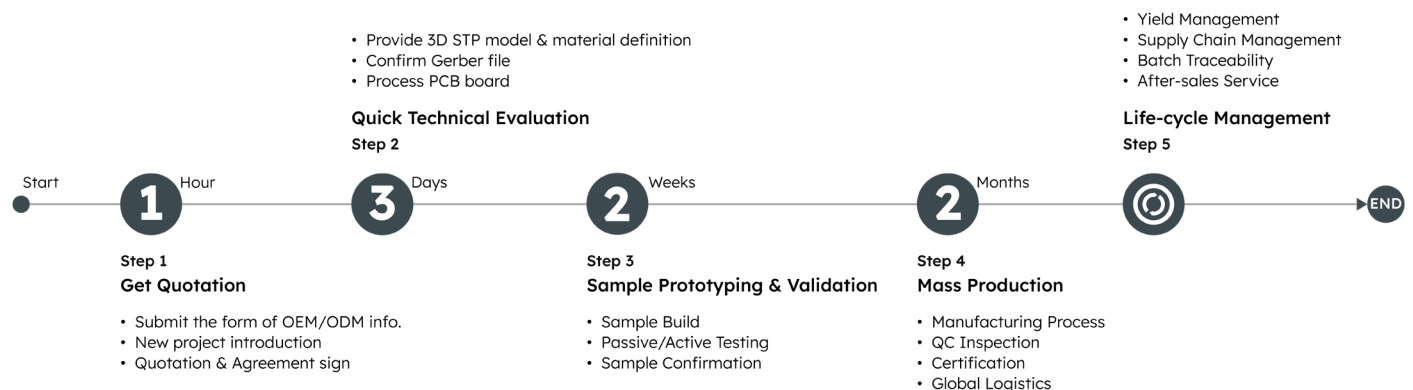
OEM/ODM Services	Light Customization	Deep Customization
	<ul style="list-style-type: none"> • Logo • Packaging • Cables&Connectors 	<ul style="list-style-type: none"> • In-depth tailoring for specific applications • Functional enhancements • Environmental adaptations • Vertical certifications • ...

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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