

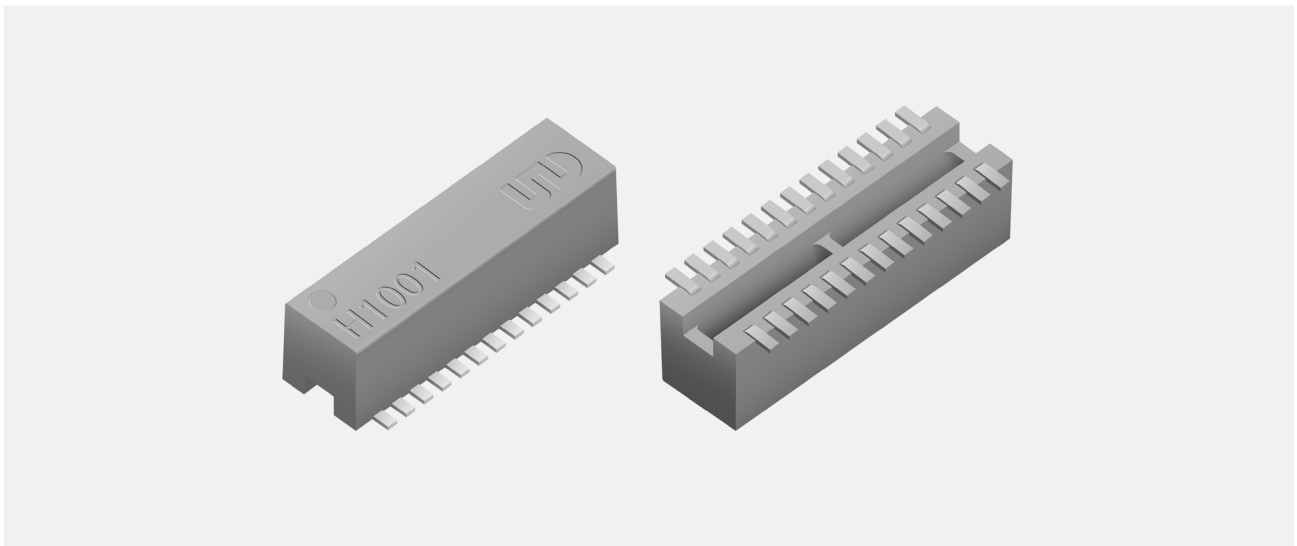
SYMMETRIC ANTENNA WITH MULTI-MODE FUNCTIONALITY

4G LTE-M 824-960 MHz | 1710-2690 MHz

© We support frequency customization.

Clearance Area: 18 x 52 mm

Dimensions: 14.5 x 5.6 x 4.3 mm (Tolerance: ± 0.15 mm)



Model: ADCH001





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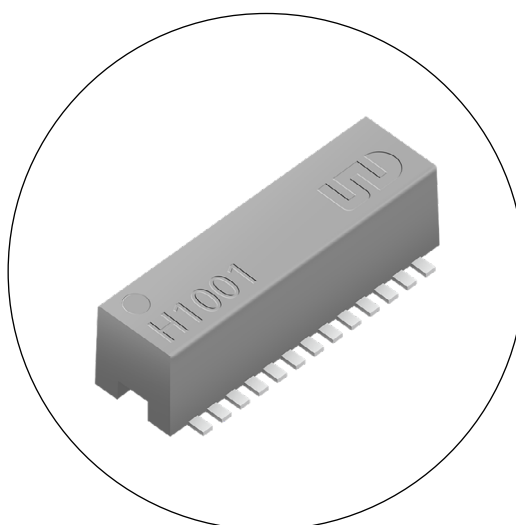
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1 FEATURES & BENEFITS

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

2 APPLICATIONS

- IoT Devices
- Smart Cities
- Smart Agriculture
- Consumer Tracking
- Smart Metering
- Smart Agriculture



Antenna Image

3 ORDER INFORMATIONw

Product Name	H1001 4G LTE/Cellular Symmetric Antenna with Multi-Mode Functionality
Model	ADCH001
Dimensions	14.5 x 5.6 x 4.3 mm
Weight	0.4g
Mounting	SMT
Packaging	Tape & Reel
MOQ	1000 pcs/reel



Last Update: April, 2025
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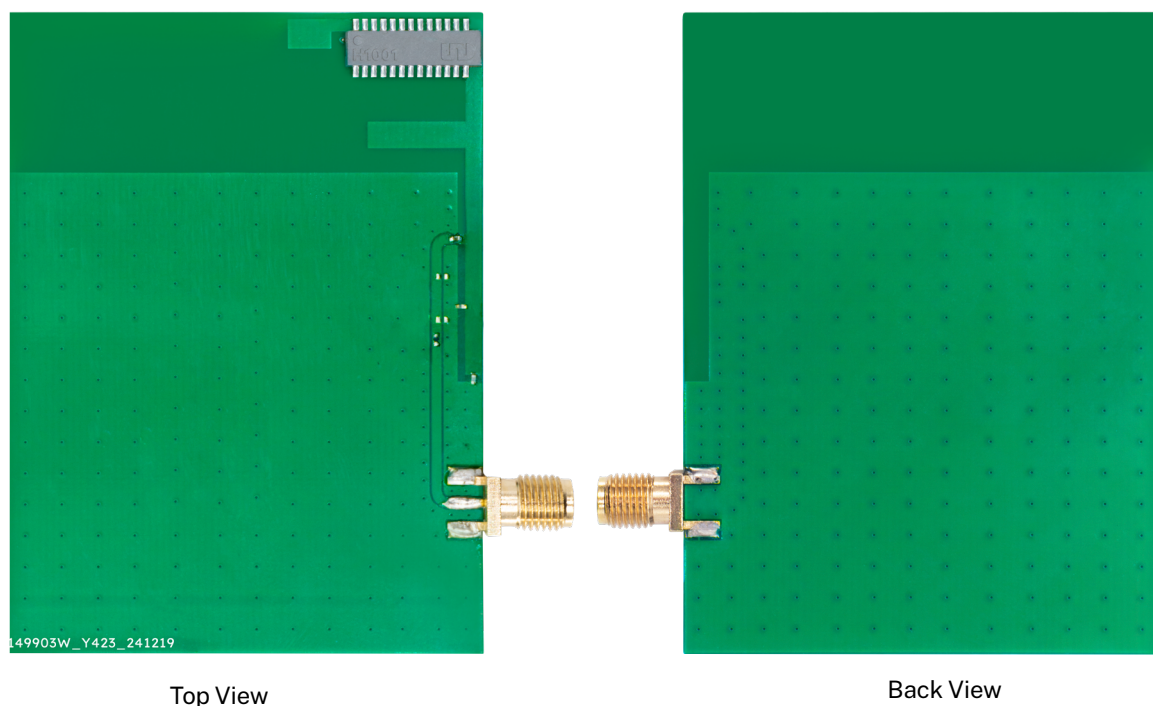
5 REFERENCE GUIDE

Technical Features	824-960 MHz	1710-2690 MHz
Max VSWR	4.12 : 1	2.32 : 1
Max Efficiency	71.96%	
Max Return Loss	-4.31 dB	
Peak Gain	Up to 2.36 dBi (Typ)	
Polarization	Linear	
Input Impedance	50 Ω	
Operating Temperature	-40°C to +85°C	
Relative Humidity	10 to 70%	
All data were measured in free space and on a reference ground plane of 72 mm length, 52 mm width, and 1.6 mm thickness. Application data might vary.		

6 EVALUATION BOARD WITH THE ANTENNA

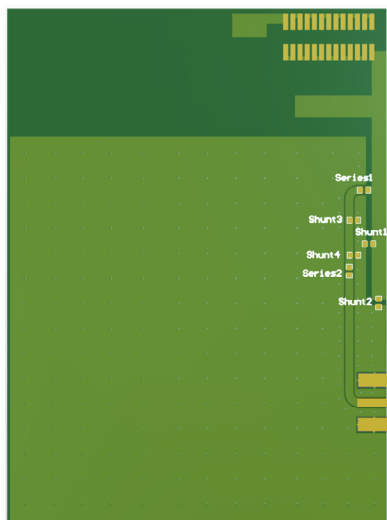
The evaluation board provides operation at 698-960, 1710-2690 MHz.

Evaluation Board dimension: 72 x 52 x 1.6 mm

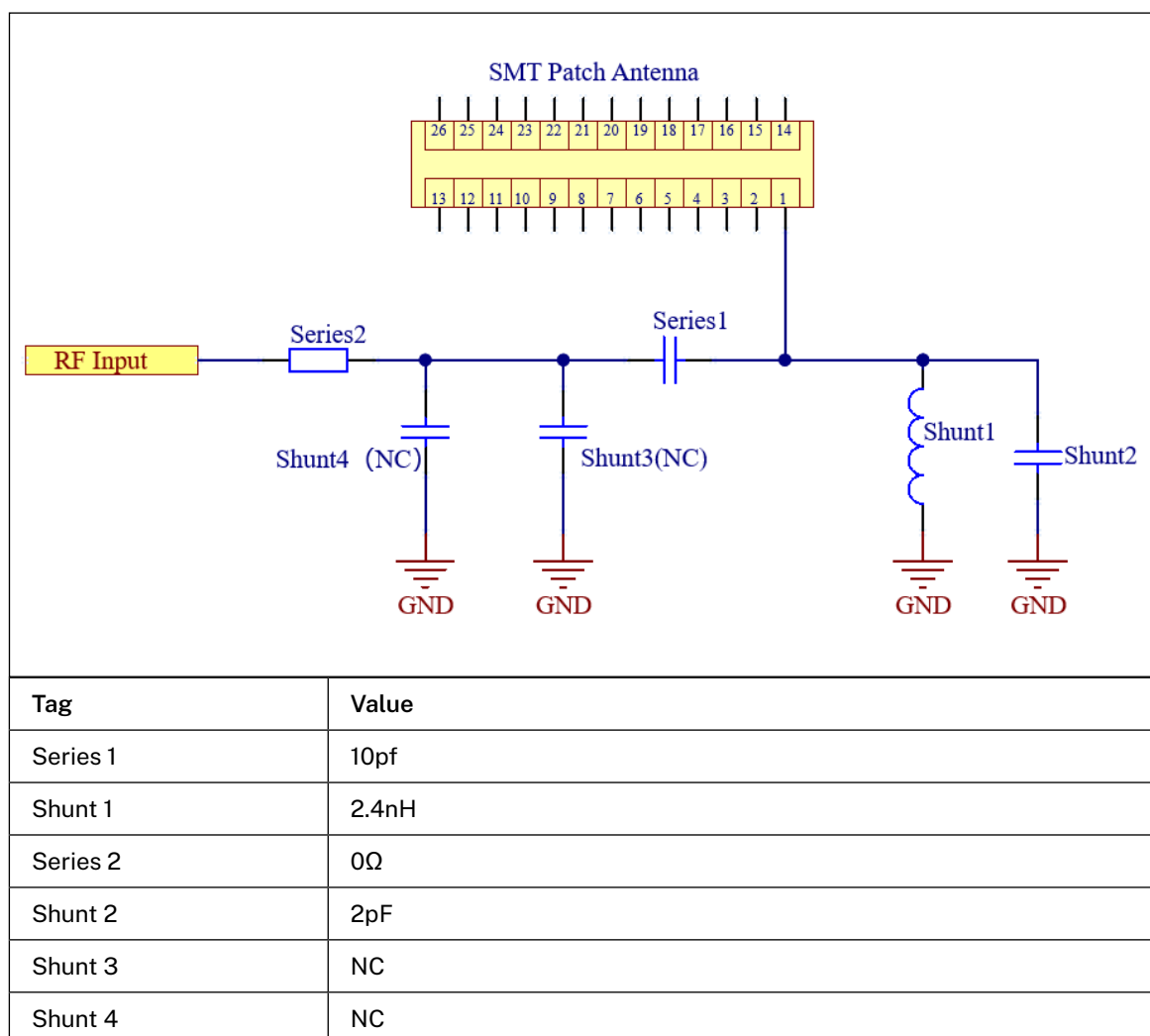


Clearance Area: 18.0 x 52.0 mm

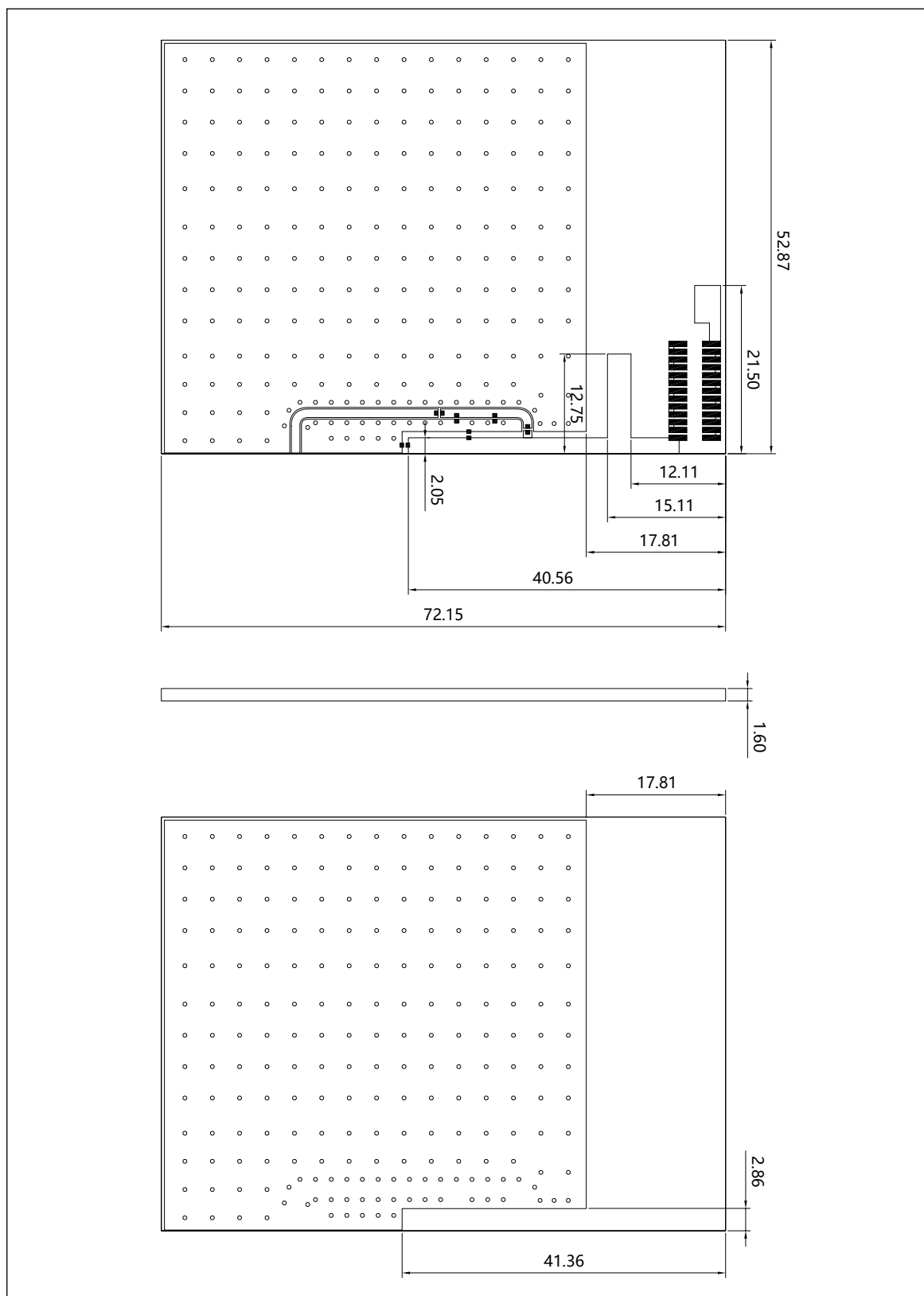
7 MATCHING NETWORK



It's strongly recommended to place the antenna near the edge of the board. Maximum antenna performance is achieved by placing the antenna towards one of the corners of the PCB and with the feed point of the antenna as close to same corner of the PCB as possible.



8 RECOMMENDED LAYOUT

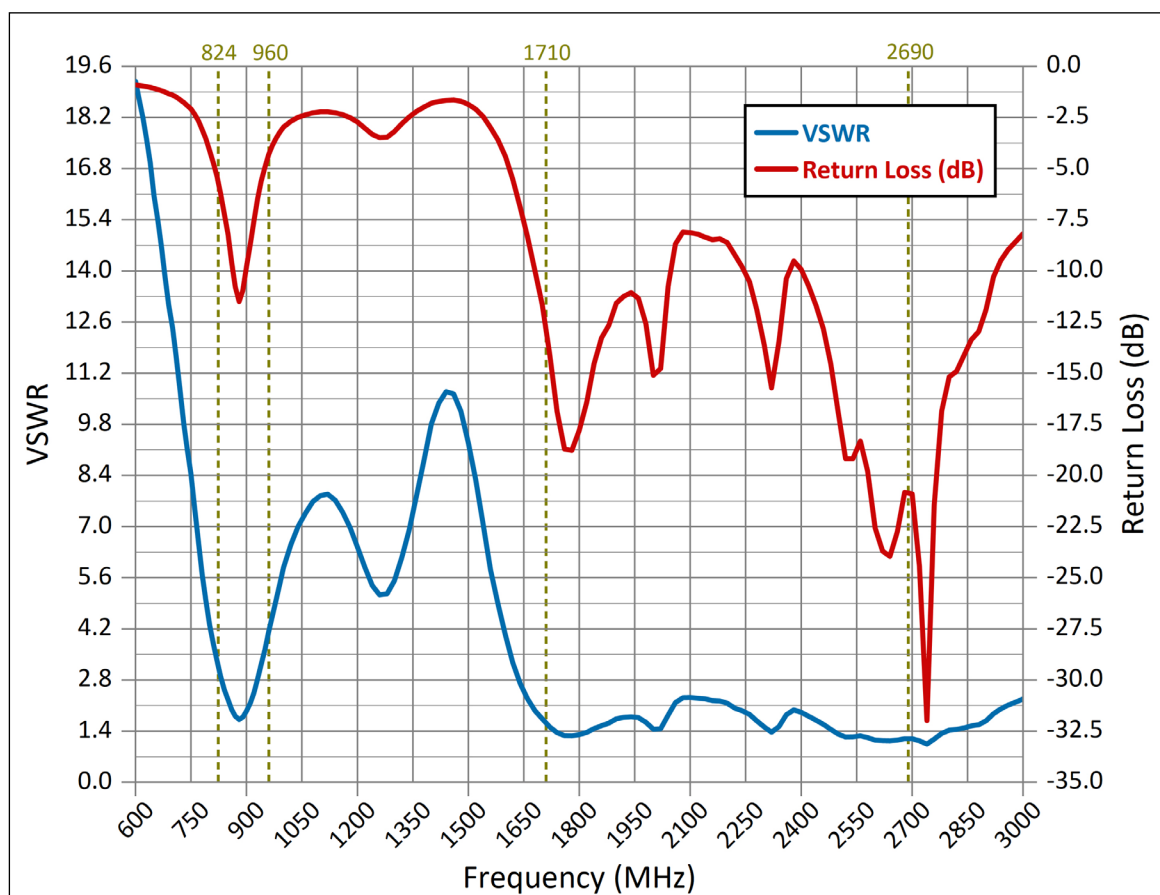


9 ELECTRICAL PERFORMANCE

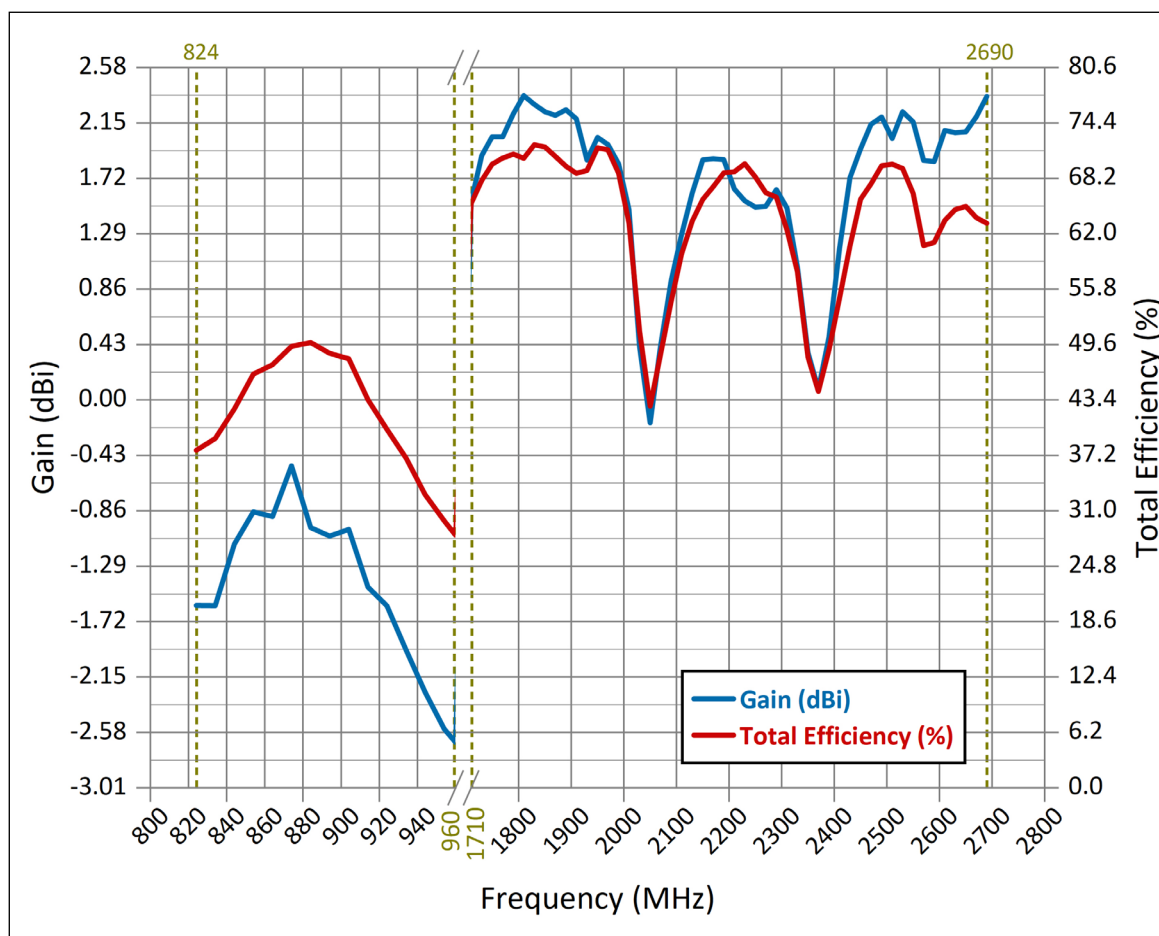
© Note

The data displayed in Chapter 10 were measured in free space and on a reference ground plane of 72mm length, 52 mm width, and 1.6 mm thickness.

9.1 VSWR and Return Loss (dB)



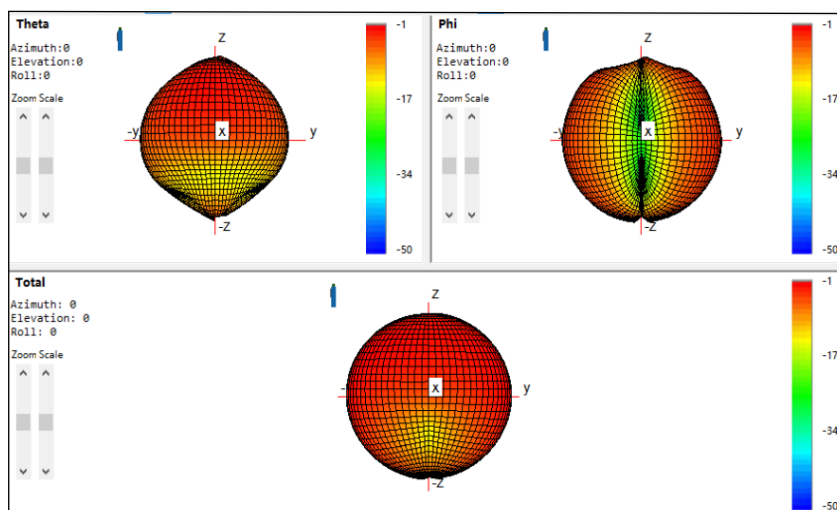
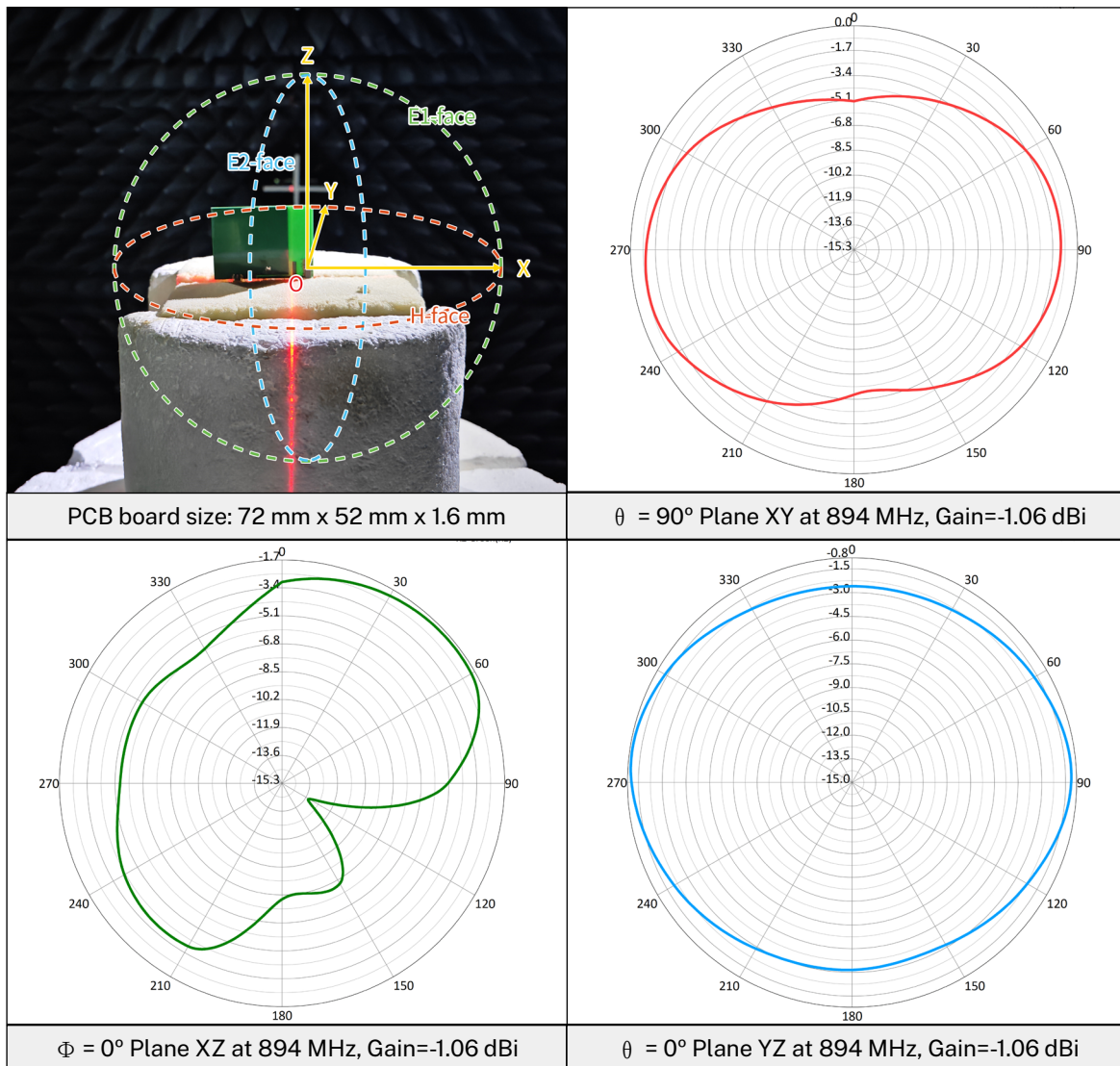
9.2 Gain (dBi) and Total Efficiency (%)



Antenna Data					
Freq (MHz)	Gain (dBi)	Efficiency (%)	Freq (MHz)	Gain (dBi)	Efficiency (%)
824	-1.59	37.77	904	-1.00	48.02
834	-1.60	39.09	914	-1.45	43.43
844	-1.12	42.40	924	-1.60	40.11
854	-0.87	46.29	934	-1.94	36.91
864	-0.90	47.35	944	-2.27	32.81
874	-0.51	49.41	954	-2.55	29.87
884	-0.99	49.84	960	-2.66	28.27
894	-1.06	48.63			

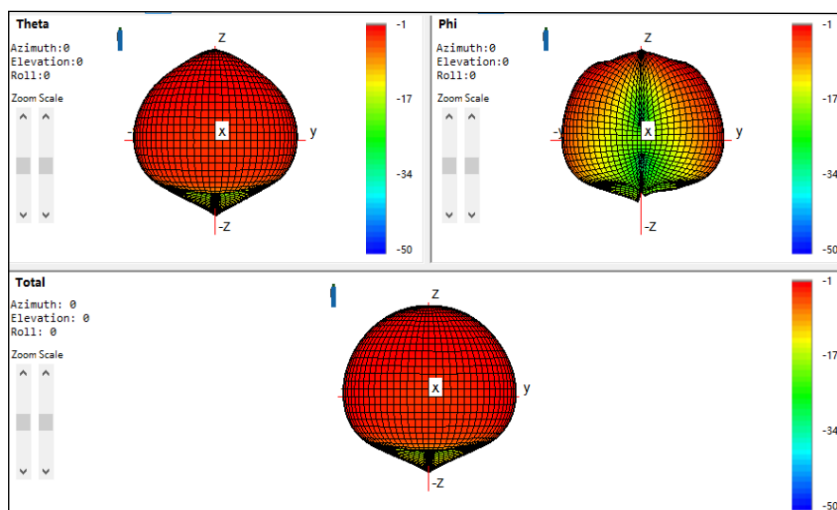
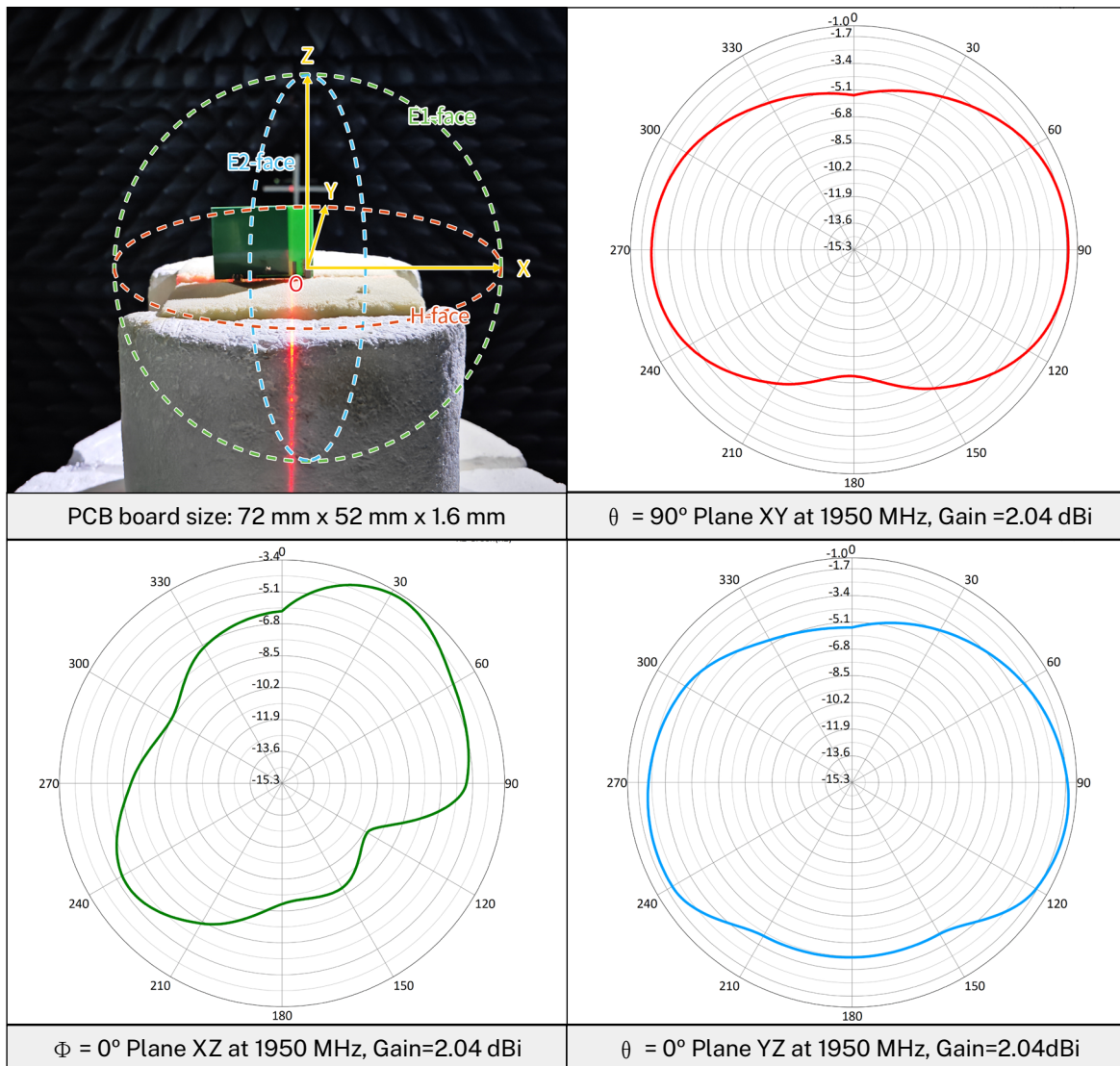
Freq (MHz)	Gain (dBi)	Efficiency (%)	Freq (MHz)	Gain (dBi)	Efficiency (%)
1710	1.54	65.38	2210	1.64	68.94
1730	1.90	67.96	2230	1.55	69.83
1750	2.04	69.80	2250	1.50	68.34
1770	2.04	70.48	2270	1.50	66.60
1790	2.22	70.91	2290	1.63	66.09
1810	2.36	70.45	2310	1.49	62.43
1830	2.29	71.96	2330	1.03	57.76
1850	2.24	71.70	2350	0.37	48.20
1870	2.21	70.66	2370	0.08	44.37
1890	2.25	69.57	2390	0.49	49.01
1910	2.18	68.76	2410	1.18	54.83
1930	1.86	69.09	2430	1.73	60.63
1950	2.04	71.61	2450	1.95	65.87
1970	1.98	71.38	2470	2.14	67.57
1990	1.83	68.79	2490	2.19	69.62
2010	1.48	63.23	2510	2.03	69.80
2030	0.41	51.11	2530	2.24	69.31
2050	-0.18	42.71	2550	2.16	66.49
2070	0.42	48.51	2570	1.86	60.67
2090	0.93	54.44	2590	1.85	61.04
2110	1.28	59.74	2610	2.09	63.50
2130	1.60	63.41	2630	2.07	64.69
2150	1.86	65.85	2650	2.08	65.06
2170	1.87	67.25	2670	2.20	63.80
2190	1.86	68.82	2690	2.36	63.16

9.3 2D and 3D Radiation Patterns (824-960 MHz)



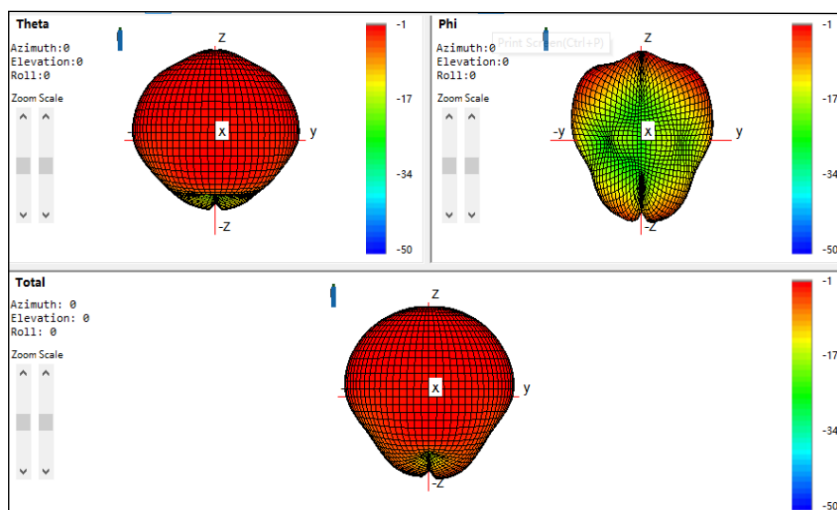
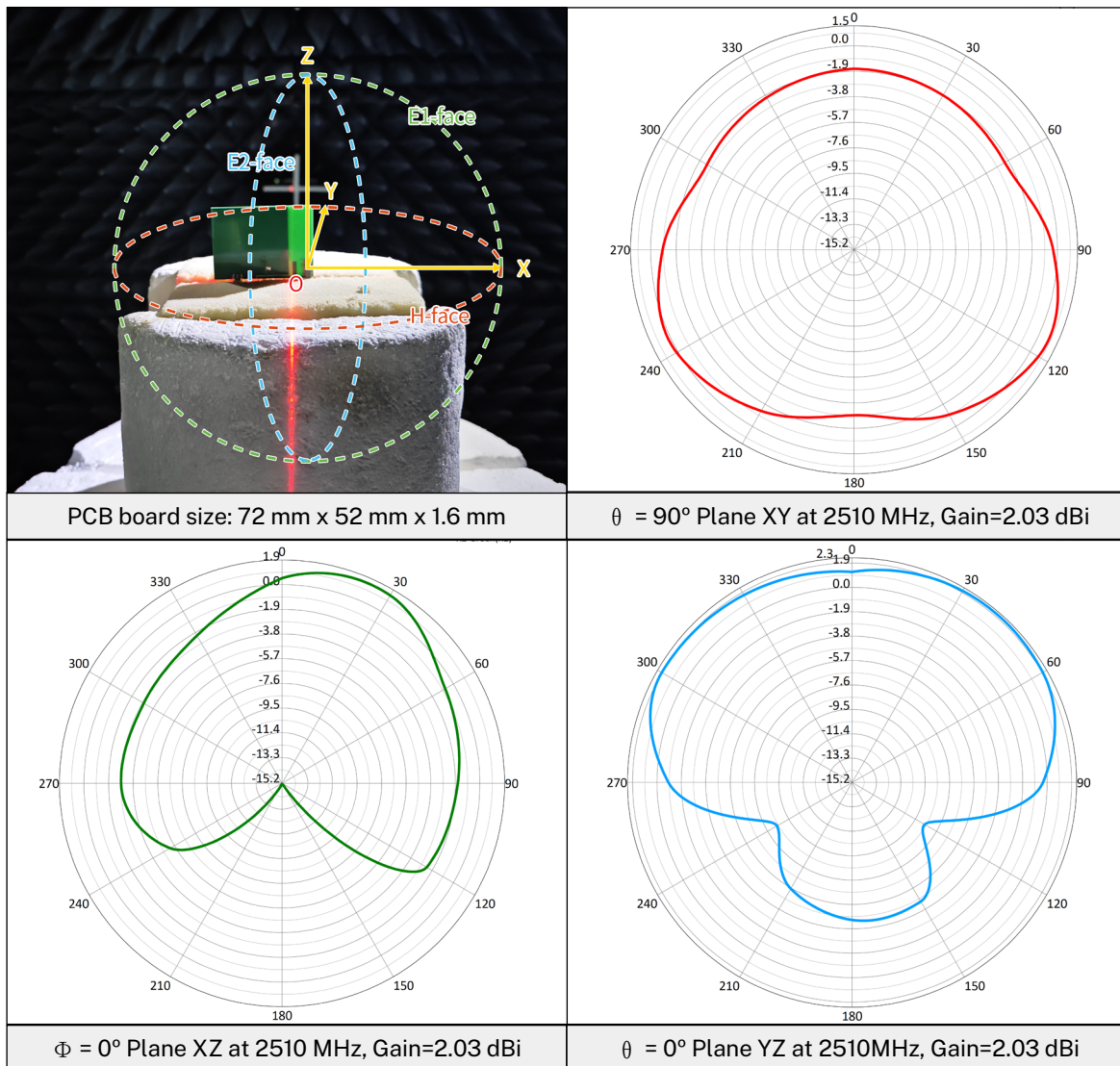
@ 894MHz, Gain=-1.06 dBi

9.4 2D and 3D Radiation Patterns (1710-2170 MHz)



@ 1950MHz, Gain=2.04dBi

9.5 2D and 3D Radiation Patterns (2300-2690 MHz)



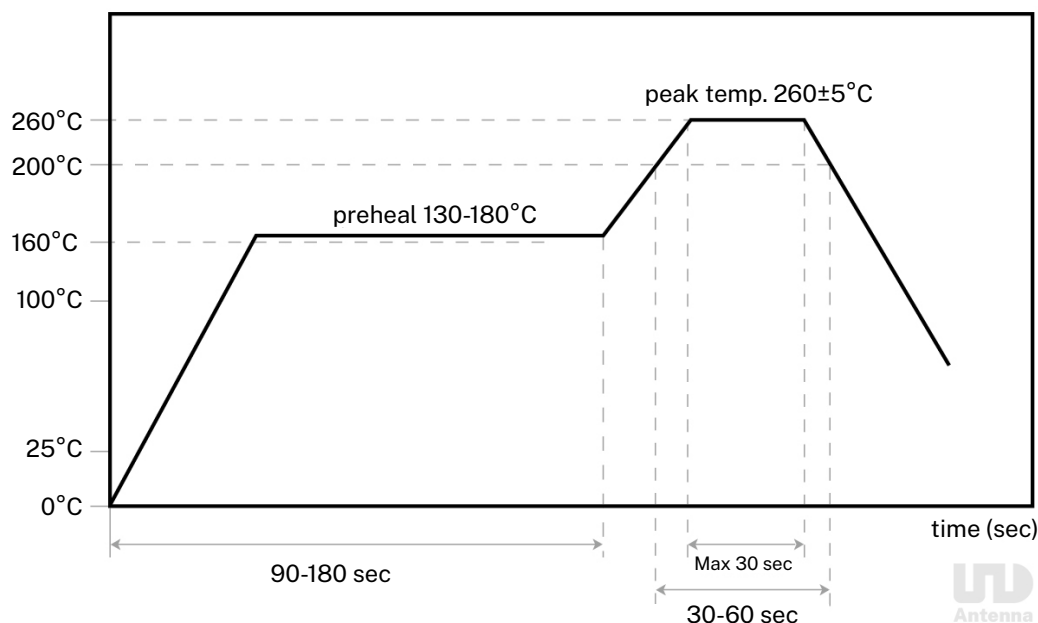
@ 2510MHz, Gain=2.03 dBi

10 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.



11 PACKAGING

11.1 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.

12 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.	

 Global Site: www.aboosty.com
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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



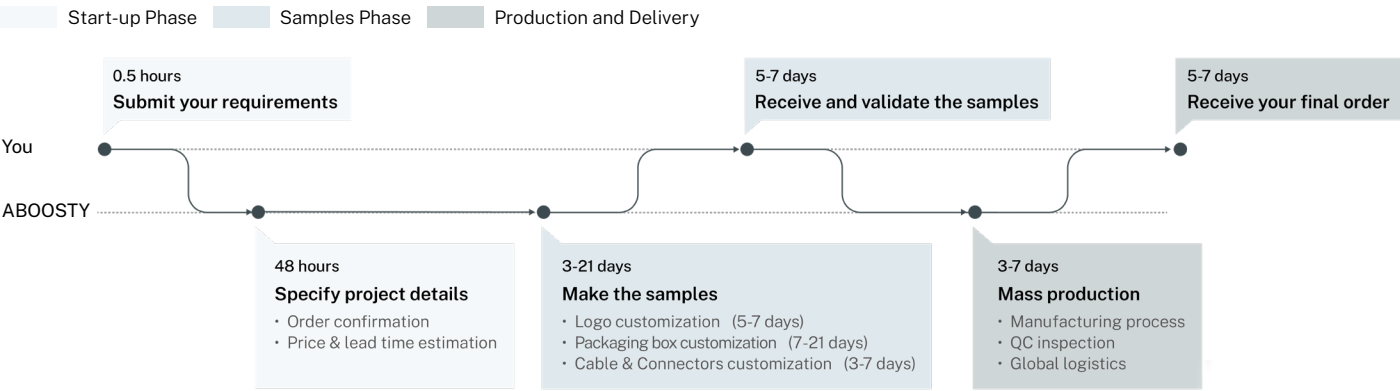
Professional team support & prompt reply within 24h

What We Provide

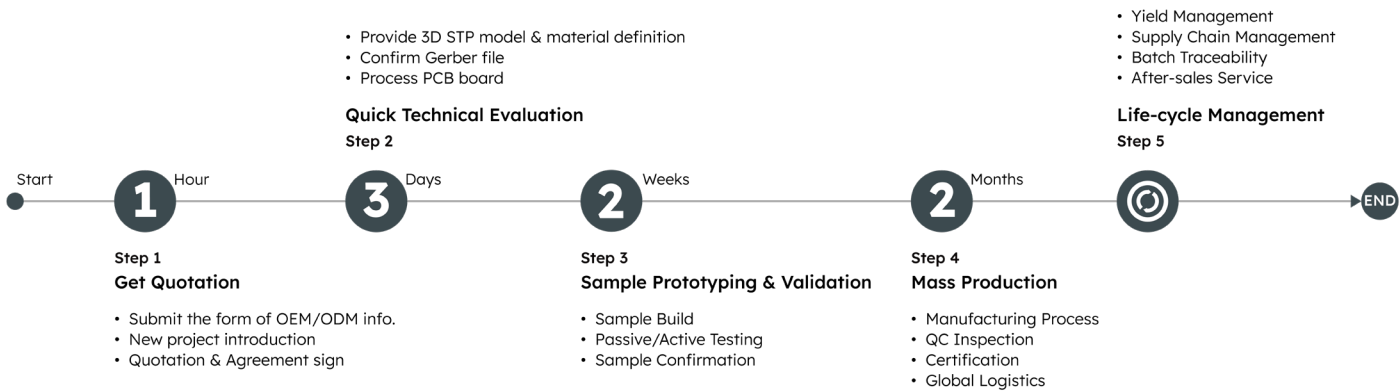
OEM/ODM Services	Light Customization	Deep Customization
	• Logo • Packaging • Cables & Connectors	• In-depth tailoring for specific applications • Functional enhancements • Environmental adaptations • Vertical certifications • ...

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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