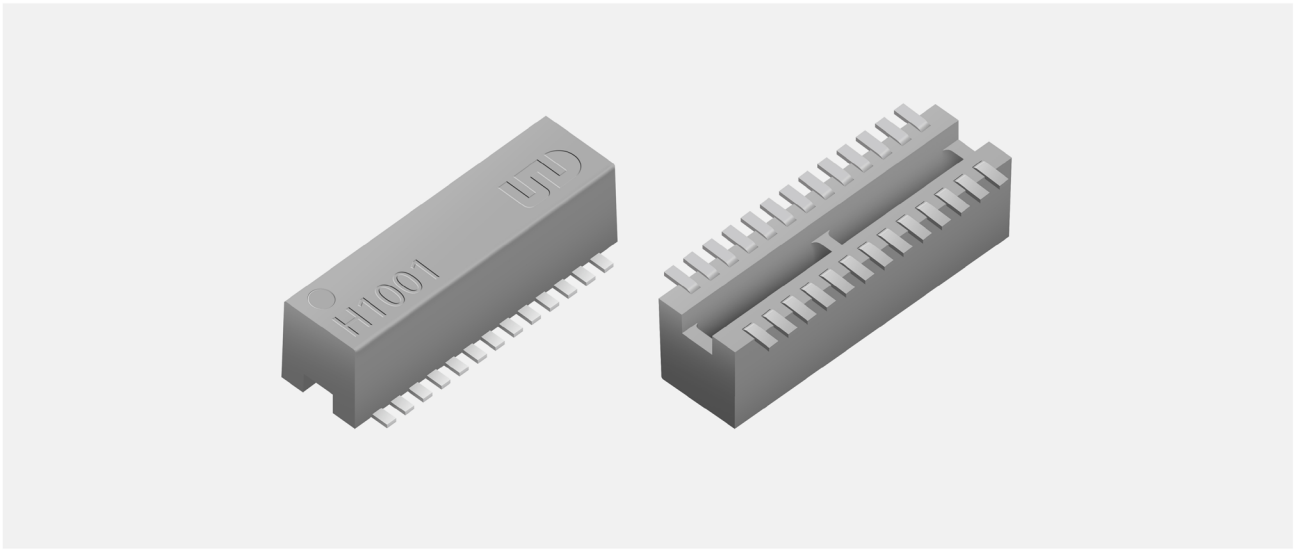
SYMMETRIC ANTENNA WITH MULTI-MODE FUNCTIONALITY

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

PN: M01-X21506UWB5

RoHS COMPLIANT

Reach COMPLIANT

Table of Contents

1 FEATURES & BENEFITS 1

2 APPLICATIONS 1

3 ORDER INFORMATION 1

4 MECHANICAL DIMENSIONS 2

5 REFERENCE GUIDE 3

6 EVALUATION BOARD WITH THE ANTENNA 3

7 MATCHING NETWORK 4

8 RECOMMENDED LAYOUT 5

9 ELECTRICAL PERFORMANCE 6

9.1 VSWR and Return Loss (dB) 6

9.2 Gain (dBi) and Total Efficiency (%) 7

9.3 2D and 3D Radiation Patterns (824-960 MHz) 9

9.4 2D and 3D Radiation Patterns (1710-2170 MHz) 10

9.5 2D and 3D Radiation Patterns (2300-2690 MHz) 11

10 SOLDERING CONDITIONS 12

11 PACKAGING 12

11.1 Optimal Storage Conditions for Packaged Reels 12

11.2 Packagings and Dimensions (Unit: mm) 13

12 ANTENNA CERTIFICATION 14

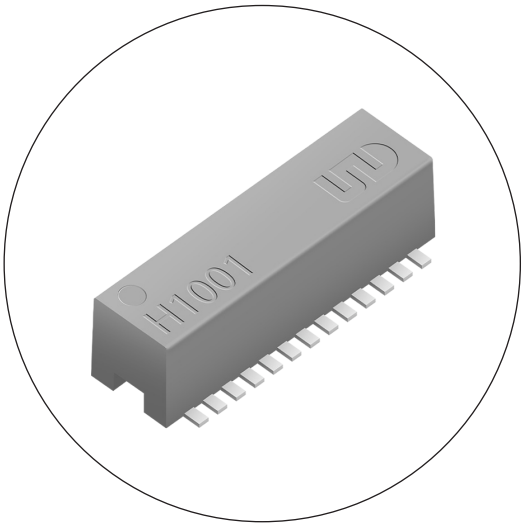
ABOOSTY WELCOME ALL ANTENNA OEM/ODM PROJECTS 15

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



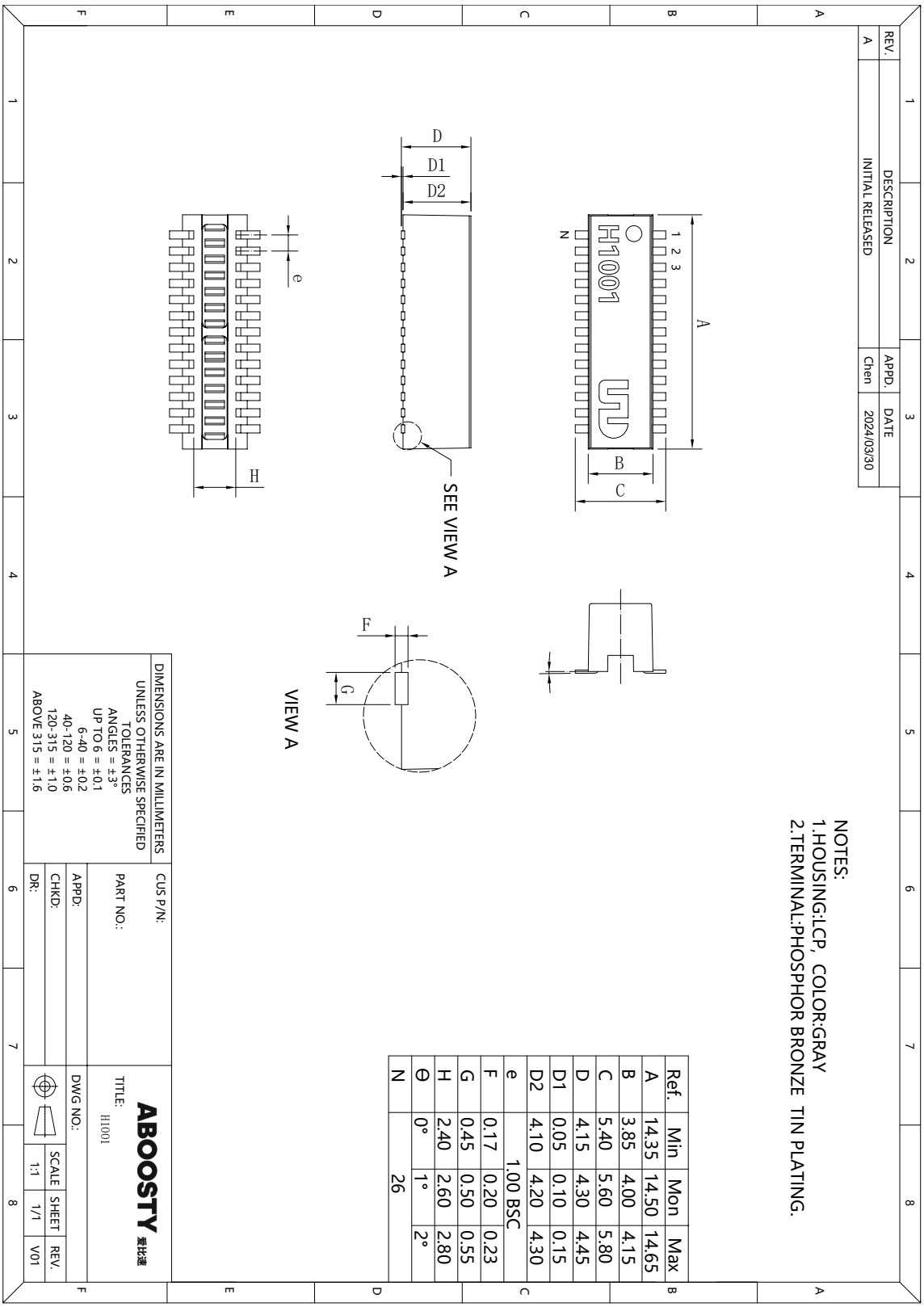
Antenna Image

3 ORDER INFORMATIONw

Product Name	H1001 4G LTE/Cellular Symmetric Antenna with Multi-Mode Functionality
Model	ADCH001
Part Number	M01-X21506UWB5
Dimensions	14.5 x 5.6 x 4.3 mm
Weight	0.4g
Mounting	SMT
Packaging	Tape & Reel
MOQ	1000 pcs/reel

www.aboosty.com
Tel: +86-0755-86503881 Email: support@aboosty.com
410, Building A, Phoenix Zhigu, No. 50 Tiezai Rd, Xixiang Street
Ofiice, Bao'an District, Shenzhen, Guangdong Province, China

4 MECHANICAL DIMENSIONS



Ref.	Min	Mon	Max
A	14.35	14.50	14.65
B	3.85	4.00	4.15
C	5.40	5.60	5.80
D	4.15	4.30	4.45
D1	0.05	0.10	0.15
D2	4.10	4.20	4.30
e		1.00 BSC	
F	0.17	0.20	0.23
G	0.45	0.50	0.55
H	2.40	2.60	2.80
Θ	0°	1°	2°
N		26	

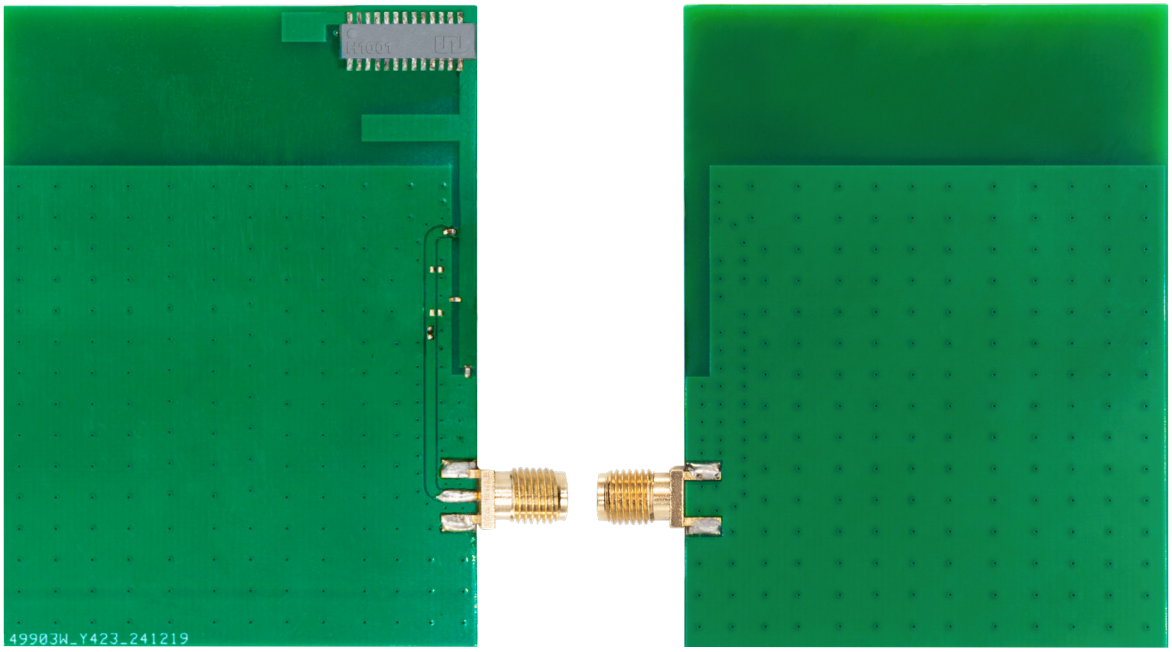
www.aboosty.com
Tel: +86-0755-86503881 Email: support@aboosty.com
410, Building A, Phoenix Zhigu, No. 50 Tiezai Rd, Xixiang Street
Ofiice, Bao'an District, Shenzhen, Guangdong Province, China

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



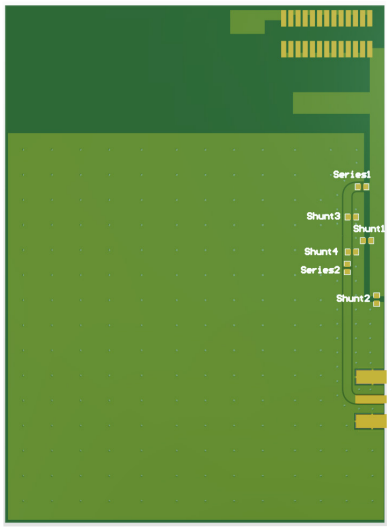
Top View

Back View

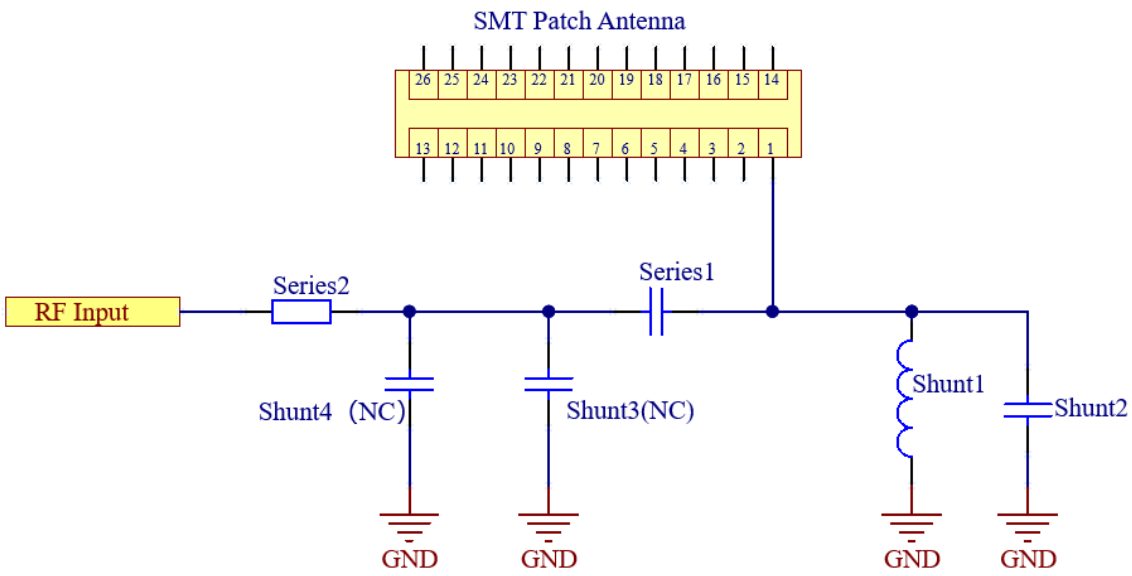
Clearance Area: 18.0 x 52.0 mm

www.aboosty.com
Tel: +86-0755-86503881 Email: support@aboosty.com
410, Building A, Phoenix Zhigu, No. 50 Tiezai Rd, Xixiang Street
Ofiice, Bao'an District, Shenzhen, Guangdong Province, China

7 MATCHING NETWORK



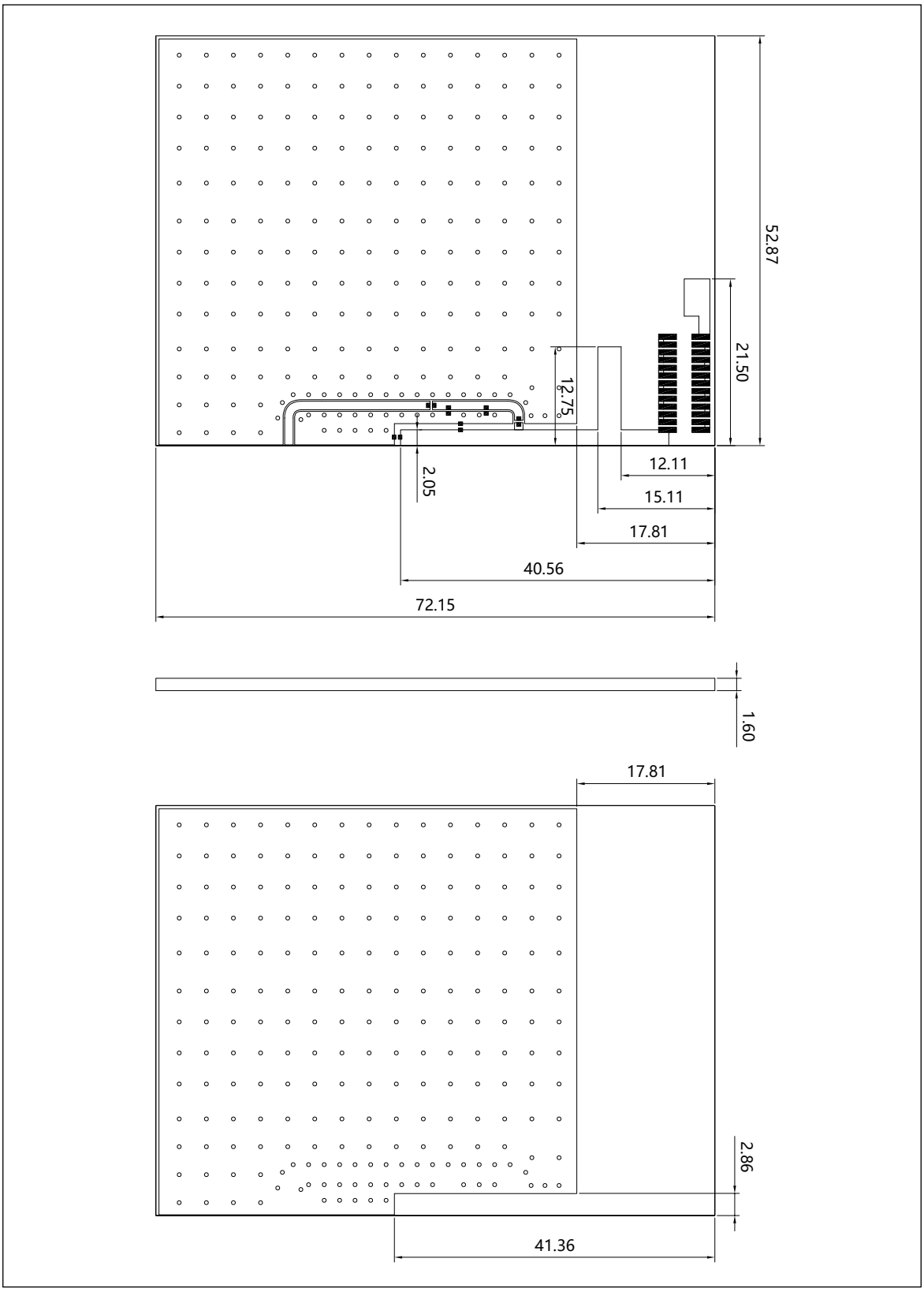
It's strongly recommended to place the antenna near the edge of the board. Maximum antenna performance is achieved by placing the antenna towards one of the corners of the PCB and with the feed point of the antenna as close to same corner of the PCB as possible.



Tag	Value
Series 1	10pf
Shunt 1	2.4nH
Series 2	0Ω
Shunt 2	2pF
Shunt 3	NC
Shunt 4	NC

www.aboosty.com
Tel: +86-0755-86503881 Email: support@aboosty.com
410, Building A, Phoenix Zhigu, No. 50 Tiezai Rd, Xixiang Street
Ofiice, Bao'an District, Shenzhen, Guangdong Province, China

8 RECOMMENDED LAYOUT



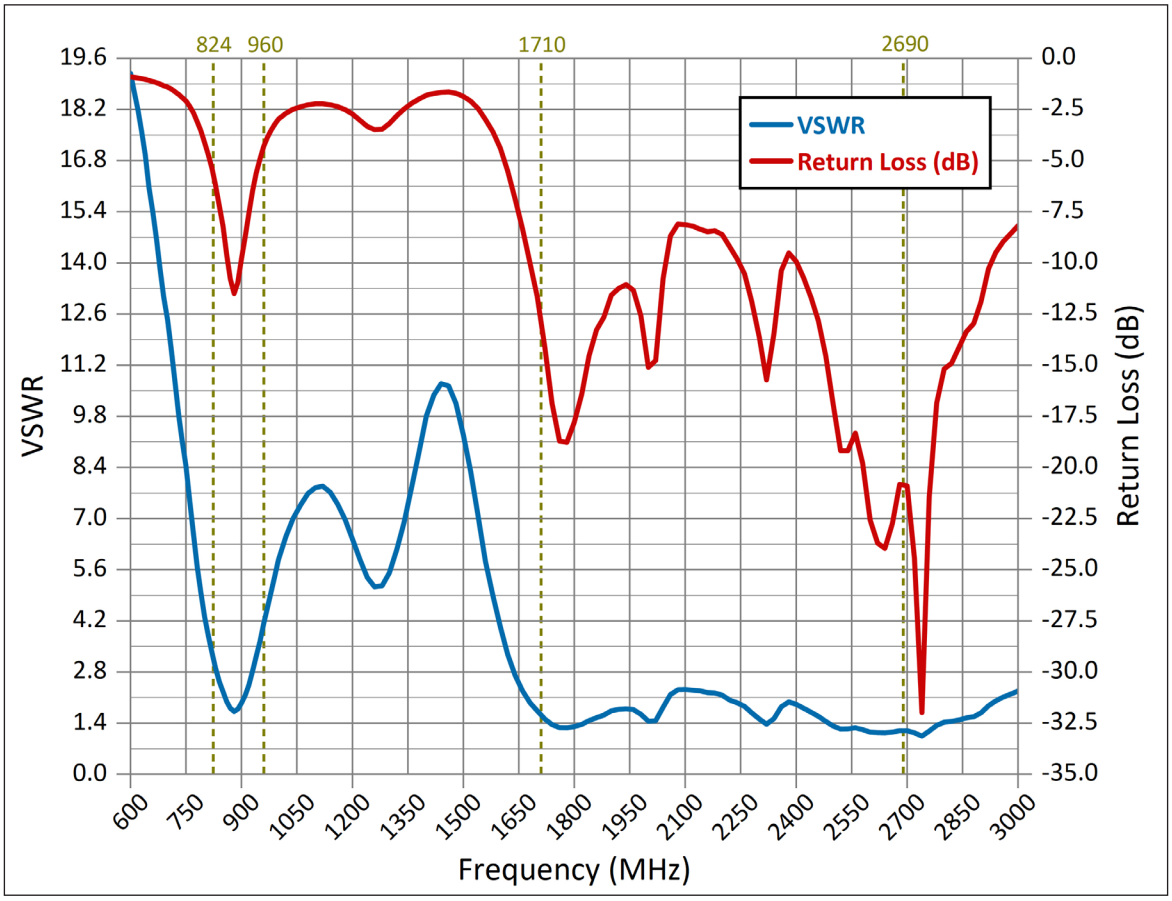
www.aboosty.com
Tel: +86-0755-86503881 Email: support@aboosty.com
410, Building A, Phoenix Zhigu, No. 50 Tiezai Rd, Xixiang Street
Ofiice, Bao'an District, Shenzhen, Guangdong Province, China

9 ELECTRICAL PERFORMANCE

Note

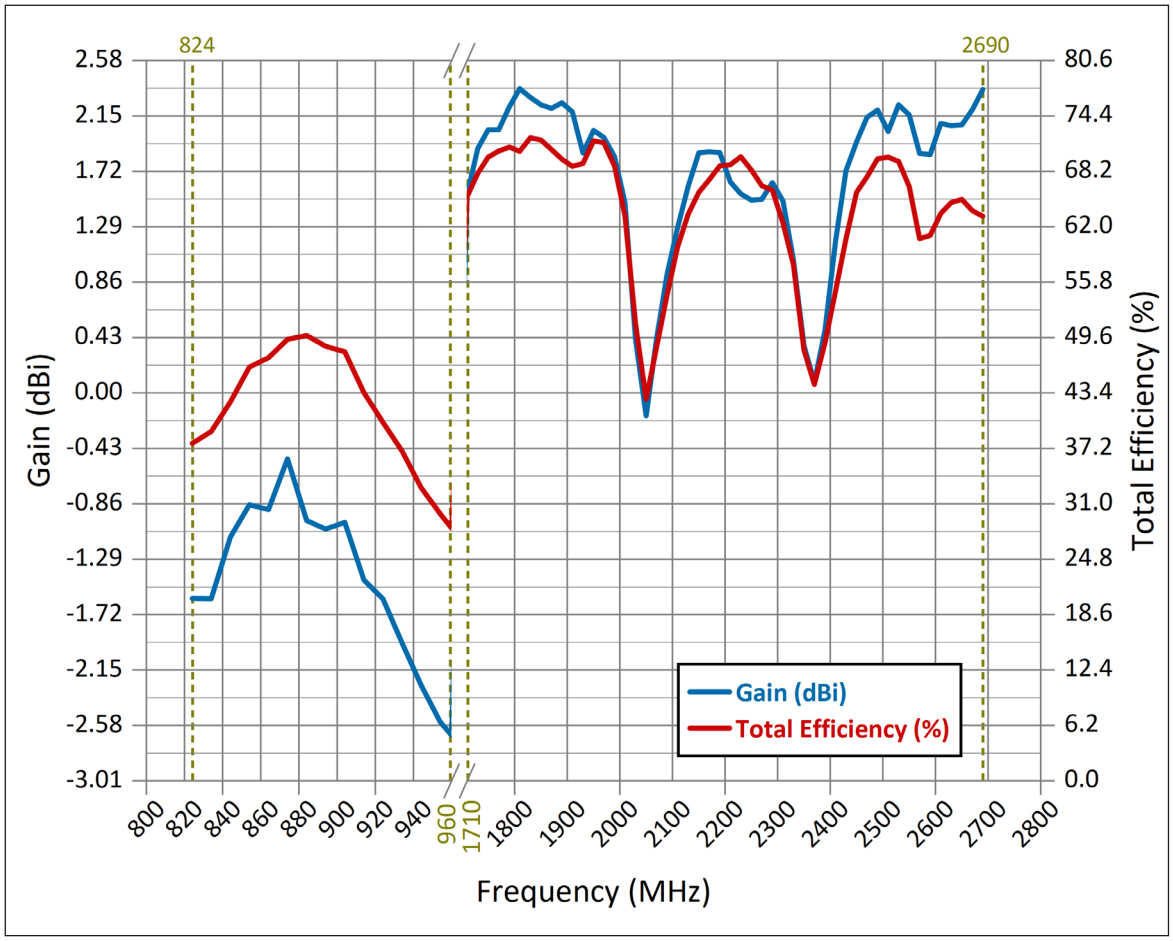
The data displayed in Chapter 10 were measured in free space and on a reference ground plane of 72mm length, 52 mm width, and 1.6 mm thickness.

9.1 VSWR and Return Loss (dB)



www.aboosty.com
Tel: +86-0755-86503881 Email: support@aboosty.com
410, Building A, Phoenix Zhigu, No. 50 Tiezai Rd, Xixiang Street
Ofiice, Bao'an District, Shenzhen, Guangdong Province, China

9.2 Gain (dBi) and Total Efficiency (%)



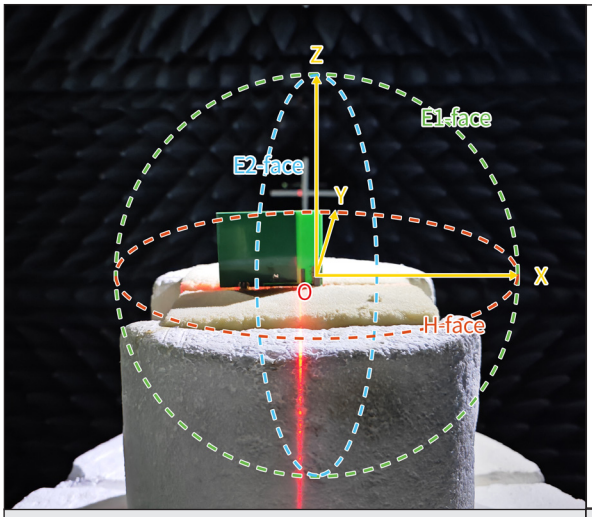
Antenna Data					
Freq (MHz)	Gain (dBi)	Efficiency (%)	**Freq (MHz)**	Gain (dBi)	Efficiency (%)
824	-1.59	71.96	**904**	-1.00	69.83
834	-1.60	71.70	**914**	-1.45	69.80
844	-1.12	71.61	**924**	-1.60	69.80
854	-0.87	71.38	**934**	-1.94	69.62
864	-0.90	70.91	**944**	-2.27	69.57
874	-0.51	70.66	**954**	-2.55	69.31
884	-0.99	70.48	**960**	-2.66	69.09
894	-1.06	70.45			

www.aboosty.com
Tel: +86-0755-86503881 Email: support@aboosty.com
410, Building A, Phoenix Zhigu, No. 50 Tiezai Rd, Xixiang Street
Ofiice, Bao'an District, Shenzhen, Guangdong Province, China

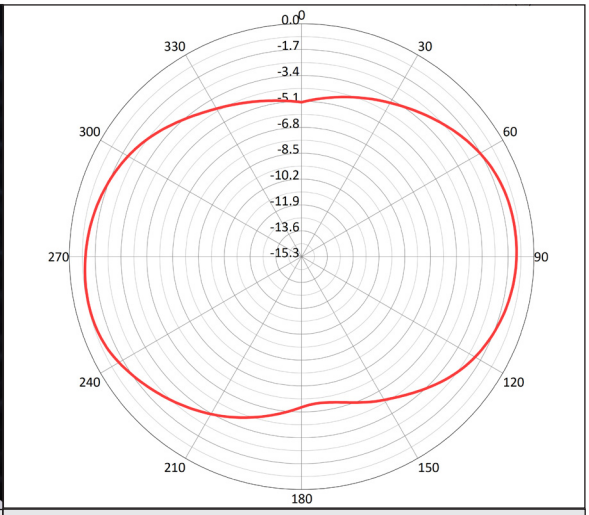
Freq (MHz)	Gain (dBi)	Efficiency (%)	Freq (MHz)	Gain (dBi)	Efficiency (%)
1710	1.54	68.94	**2210**	1.64	59.74
1730	1.90	68.82	**2230**	1.55	57.76
1750	2.04	68.79	**2250**	1.50	54.83
1770	2.04	68.76	**2270**	1.50	54.44
1790	2.22	68.34	**2290**	1.63	51.11
1810	2.36	67.96	**2310**	1.49	49.84
1830	2.29	67.57	**2330**	1.03	49.41
1850	2.24	67.25	**2350**	0.37	49.01
1870	2.21	66.60	**2370**	0.08	48.63
1890	2.25	66.49	**2390**	0.49	48.51
1910	2.18	66.09	**2410**	1.18	48.20
1930	1.86	65.87	**2430**	1.73	48.02
1950	2.04	65.85	**2450**	1.95	47.35
1970	1.98	65.38	**2470**	2.14	46.29
1990	1.83	65.06	**2490**	2.19	44.37
2010	1.48	64.69	**2510**	2.03	43.43
2030	0.41	63.80	**2530**	2.24	42.71
2050	-0.18	63.50	**2550**	2.16	42.40
2070	0.42	63.41	**2570**	1.86	40.11
2090	0.93	63.23	**2590**	1.85	39.09
2110	1.28	63.16	**2610**	2.09	37.77
2130	1.60	62.43	**2630**	2.07	36.91
2150	1.86	61.04	**2650**	2.08	32.81
2170	1.87	60.67	**2670**	2.20	29.87
2190	1.86	60.63	**2690**	2.36	28.27

www.aboosty.com
Tel: +86-0755-86503881 Email: support@aboosty.com
410, Building A, Phoenix Zhigu, No. 50 Tiezai Rd, Xixiang Street
Ofiice, Bao'an District, Shenzhen, Guangdong Province, China

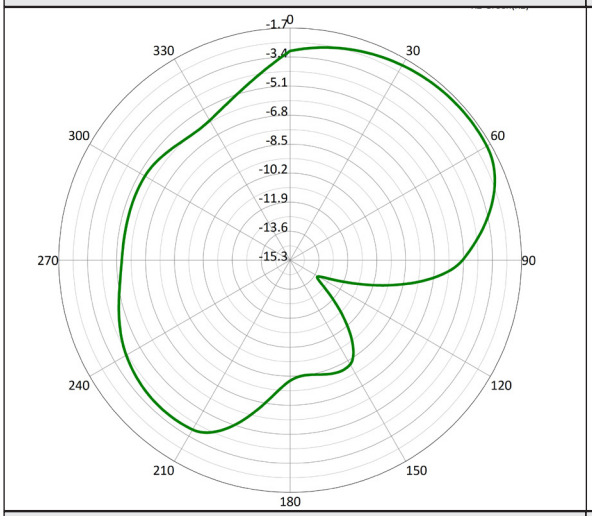
9.3 2D and 3D Radiation Patterns (824-960 MHz)



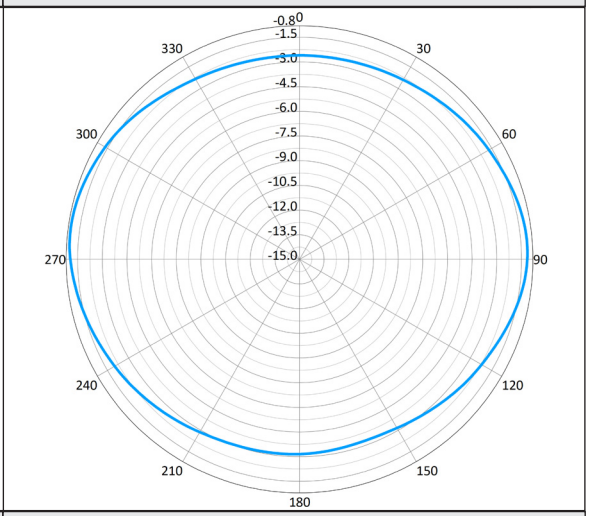
PCB board size: 72 mm x 52 mm x 1.6 mm



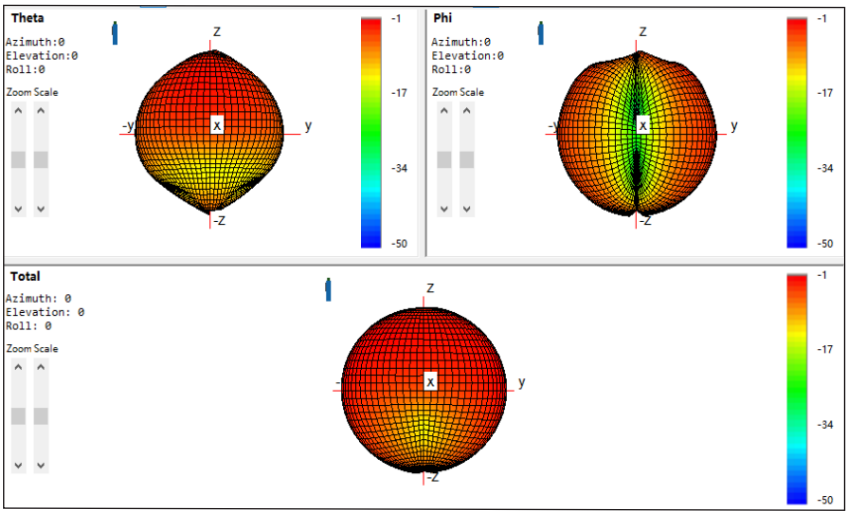
θ = 90° Plane XY at 894 MHz, Gain=-1.06 dBi



Φ = 0° Plane XZ at 894 MHz, Gain=-1.06 dBi



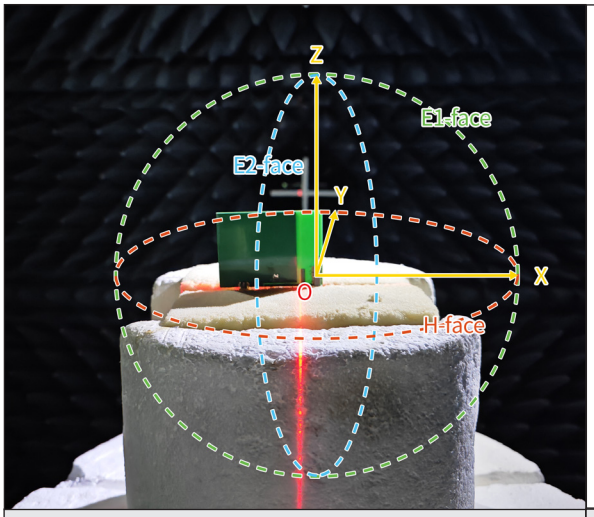
θ = 0° Plane YZ at 894 MHz, Gain=-1.06 dBi



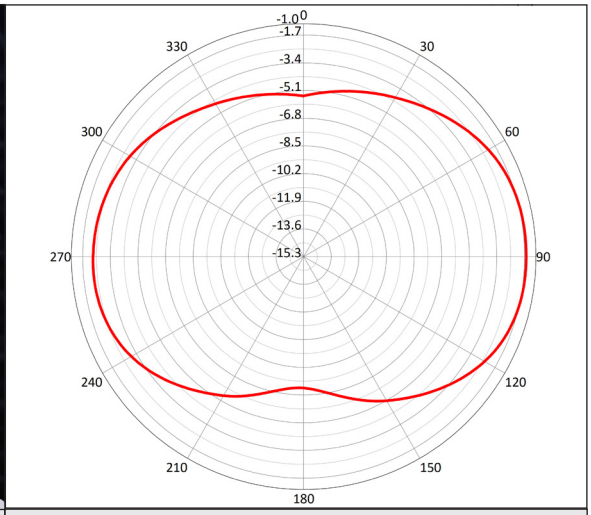
@ 894MHz, Gain= -1.06 dBi

www.aboosty.com
Tel: +86-0755-86503881 Email: support@aboosty.com
410, Building A, Phoenix Zhigu, No. 50 Tiezai Rd, Xixiang Street
Ofiice, Bao'an District, Shenzhen, Guangdong Province, China

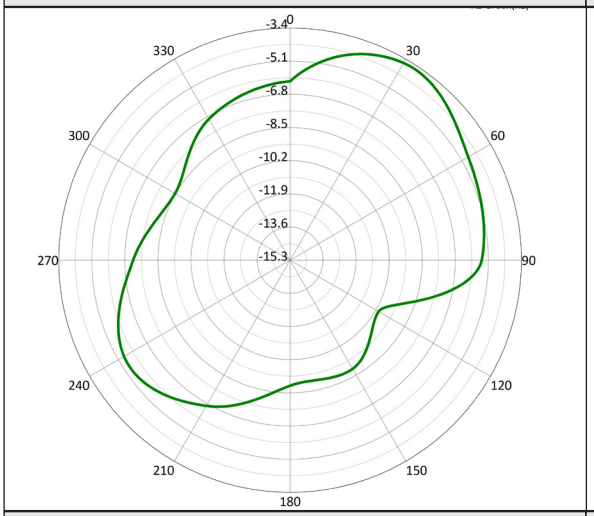
9.4 2D and 3D Radiation Patterns (1710-2170 MHz)



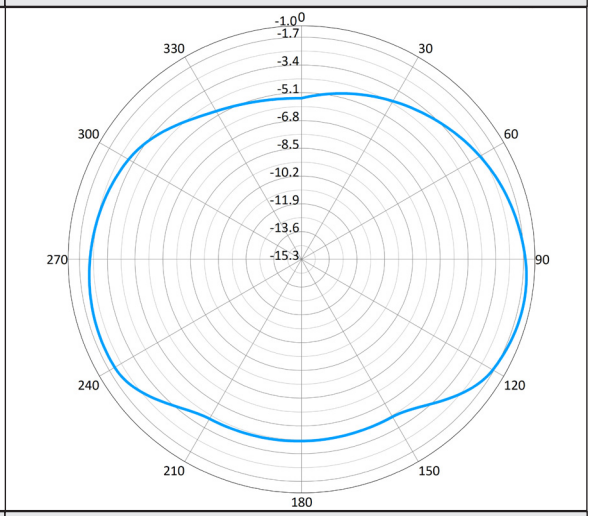
PCB board size: 72 mm x 52 mm x 1.6 mm



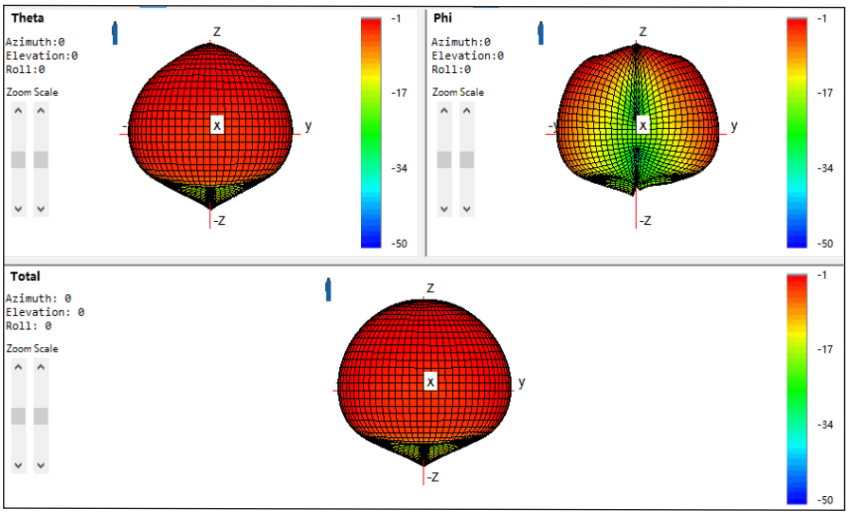
θ = 90° Plane XY at 1950 MHz, Gain =2.04 dBi



Φ = 0° Plane XZ at 1950 MHz, Gain=2.04 dBi



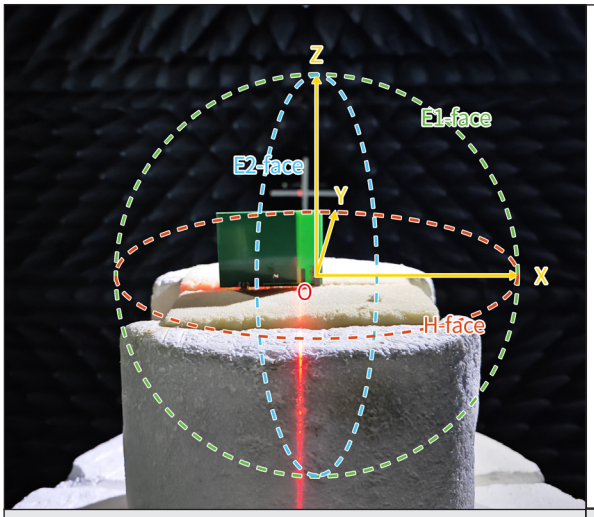
θ = 0° Plane YZ at 1950 MHz, Gain=2.04dBi



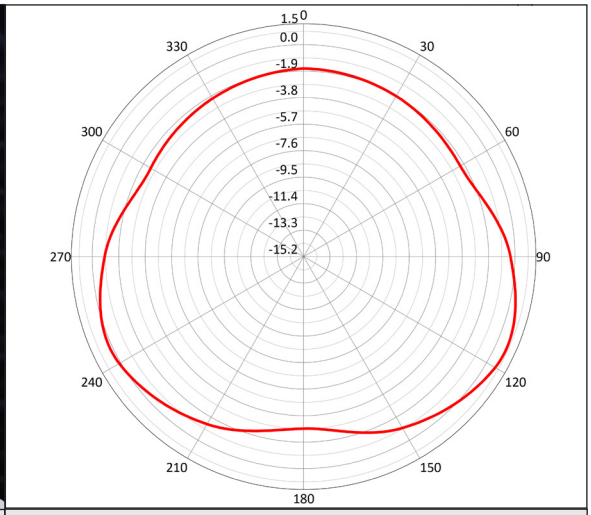
@ 1950MHz, Gain=2.04dBi

www.aboosty.com
Tel: +86-0755-86503881 Email: support@aboosty.com
410, Building A, Phoenix Zhigu, No. 50 Tiezai Rd, Xixiang Street
Ofiice, Bao'an District, Shenzhen, Guangdong Province, China

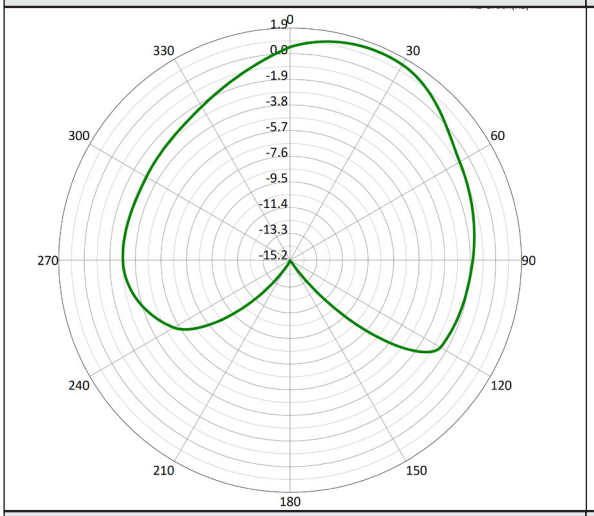
9.5 2D and 3D Radiation Patterns (2300-2690 MHz)



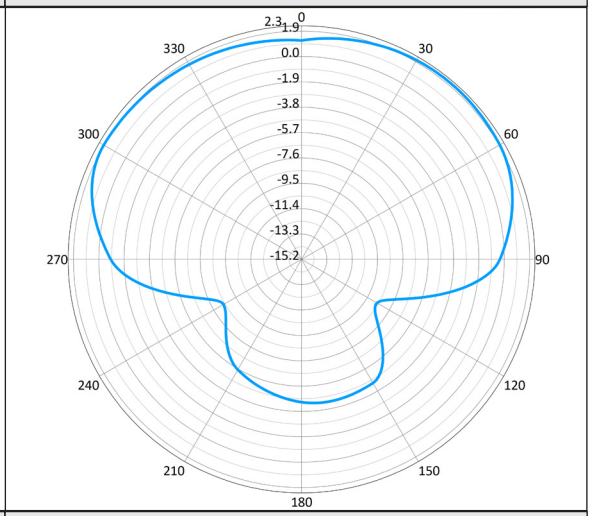
PCB board size: 72 mm x 52 mm x 1.6 mm



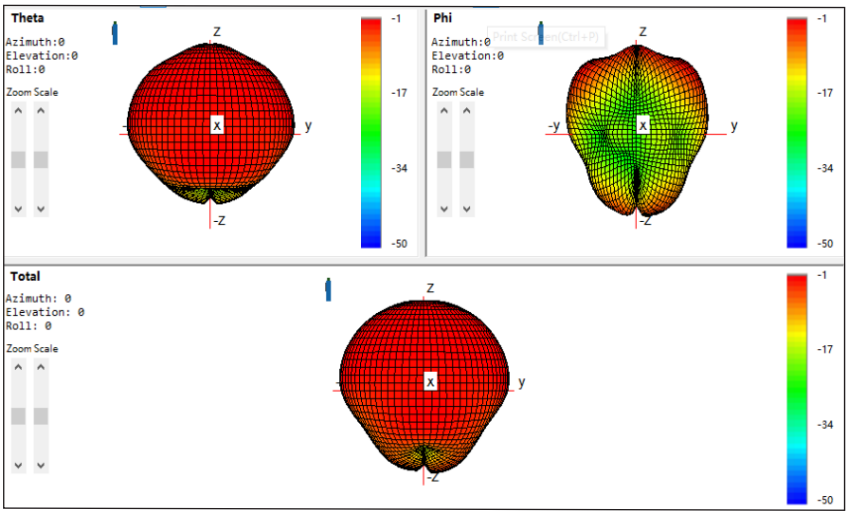
θ = 90° Plane XY at 2510 MHz, Gain=2.03 dBi



Φ = 0° Plane XZ at 2510 MHz, Gain=2.03 dBi



θ = 0° Plane YZ at 2510MHz, Gain=2.03 dBi

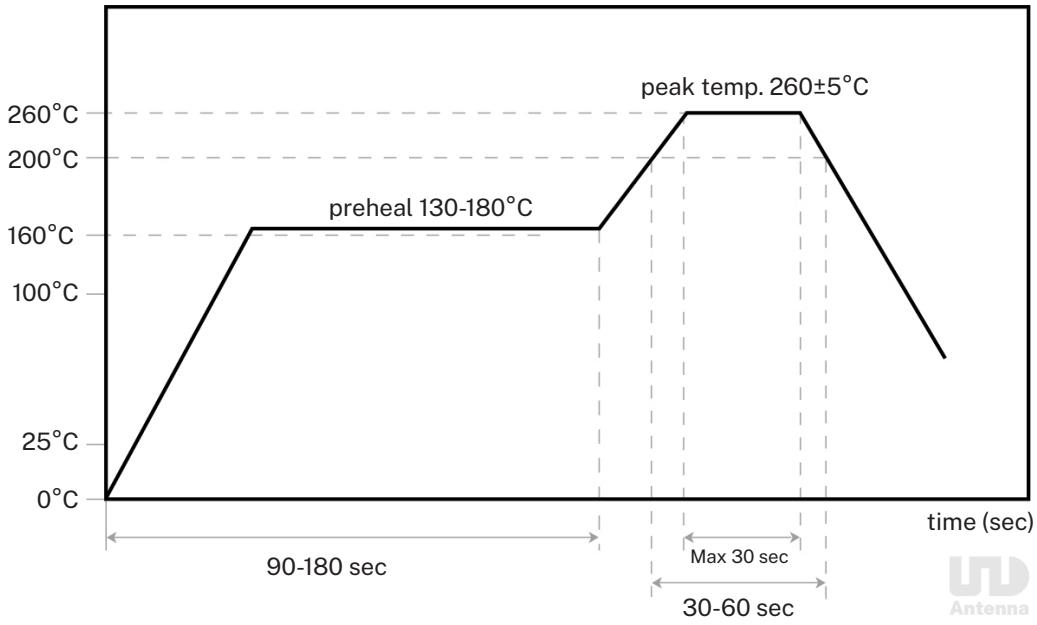


@ 2510MHz, Gain=2.03 dBi

www.aboosty.com
Tel: +86-0755-86503881 Email: support@aboosty.com
410, Building A, Phoenix Zhigu, No. 50 Tiezai Rd, Xixiang Street
Ofiice, Bao'an District, Shenzhen, Guangdong Province, China

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

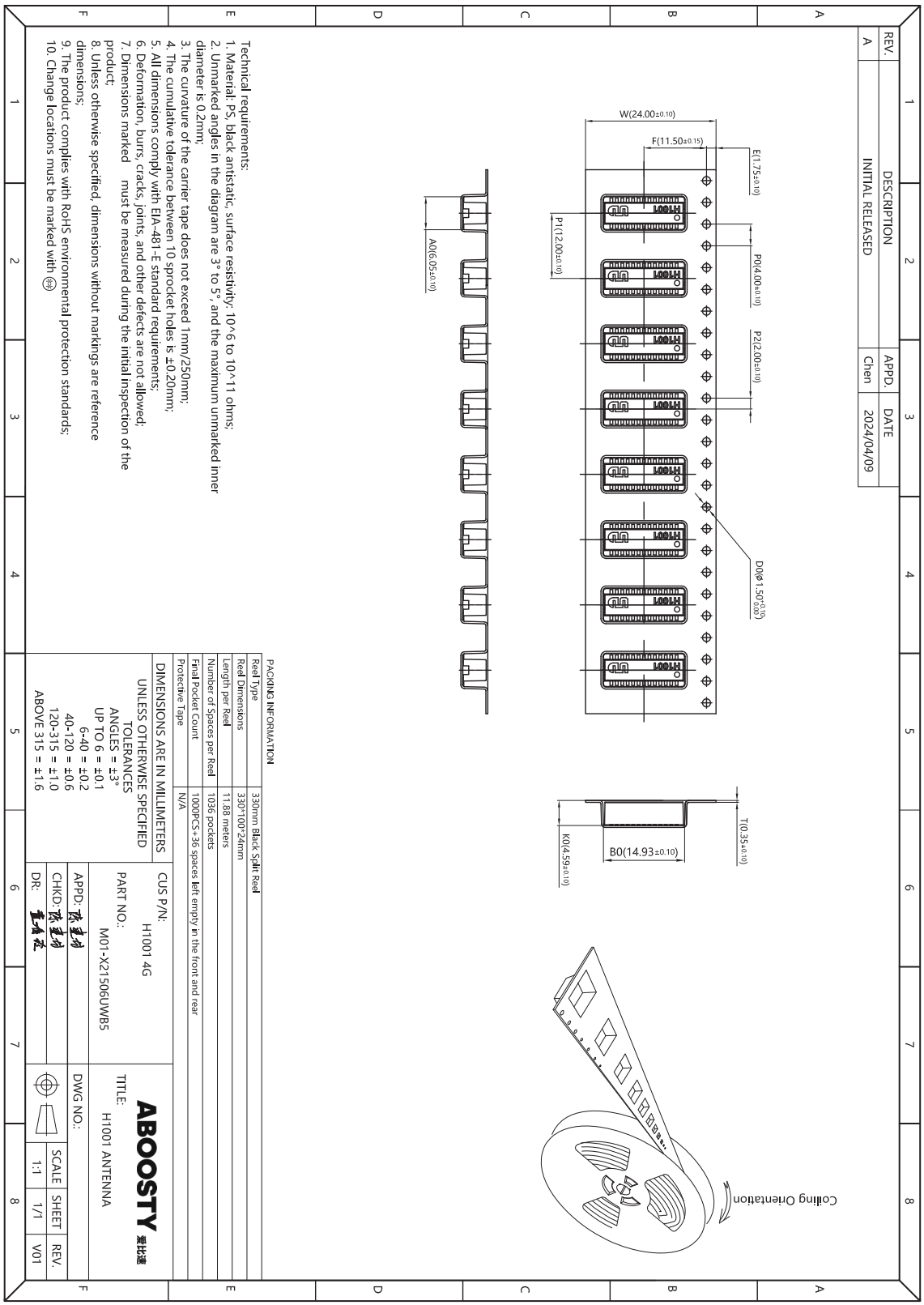
11.1 Optimal Storage Conditions for Packaged Reels

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.

www.aboosty.com
Tel: +86-0755-86503881 Email: support@aboosty.com
410, Building A, Phoenix Zhigu, No. 50 Tiezai Rd, Xixiang Street
Ofiice, Bao'an District, Shenzhen, Guangdong Province, China

11.2 Packagings and Dimensions (Unit: mm)



www.aboosty.com
Tel: +86-0755-86503881 Email: support@aboosty.com
410, Building A, Phoenix Zhigu, No. 50 Tiezai Rd, Xixiang Street
Ofiice, Bao'an District, Shenzhen, Guangdong Province, China

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 China Site: www.aboosty.cn

ABOOSTY WELCOME ALL ANTENNA OEM/ODM PROJECTS

Why Choose ABOOSTY

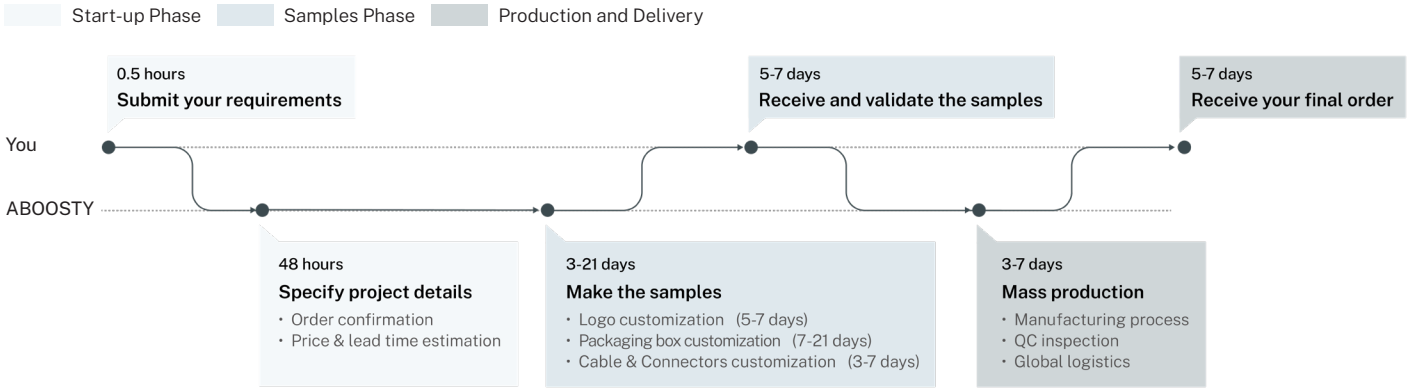
- 10+ years in antenna R&D, production, and OEM/ODM
- MES system supported factory; 50M+ units annual output capacity
- Factory directly competitive price
- Quick price and lead time estimate
- Innovative and patented design solutions
- Professional team support & prompt reply within 24h

What We Provide

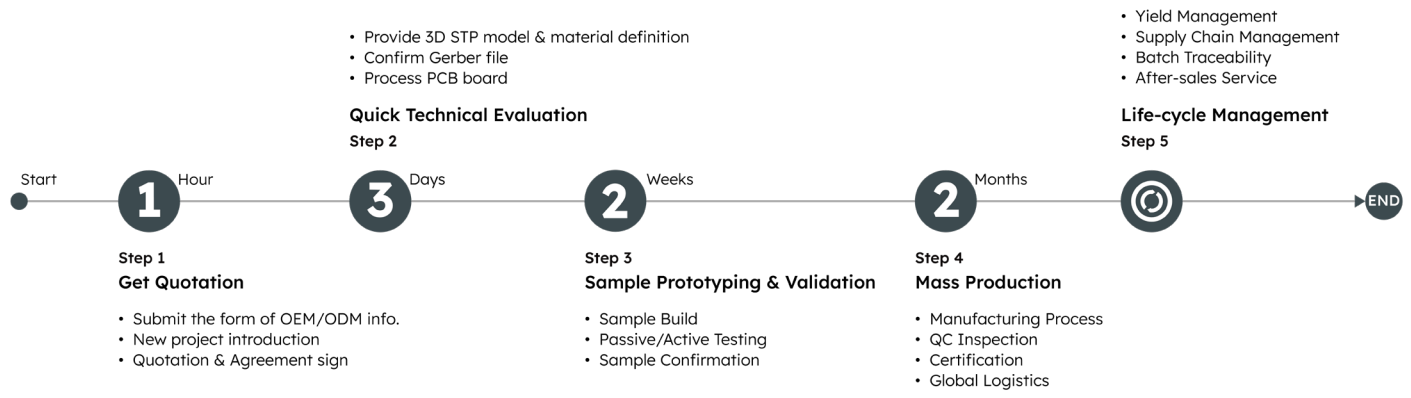
	Light Customization	Deep Customization
OEM/ODM Services	• Logo • Packaging • Cables & Connectors	• In-depth tailoring for specific applications • Functional enhancements • Environmental adaptations • Vertical certifications • ...

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.

Boost Your Signal
with Our Antennas

ABOOSTY

A Globally Leading Manufacturer and Supplier of Multi-band Combination Antennas

Contact us:

support@aboosty.com

+86-13924678201

Find us (Global):

www.aboosty.com

Search to follow us or to get technical support.

@Aboosty

Aboosty Antenna

Or click here to reach us directly.

国内官网: www.aboosty.cn

微信扫一扫以获取技术支持
Scan with WeChat App

微信扫一扫关注公众号
Scan with WeChat App