

Antenna Specification

Customer Name:	EARLY LIGHT INDUSTRIAL CO., LTD
Project Name:	JMD003
New Material Model:	M02-0200010ROA
Old Material Model:	M12.0261-ROA
Product Name:	2.4&5.8G Dual-frequency external rod antenna
Customer Number:	
Antenna Type:	Monopole
Version:	B

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Contents

1. Cover	1
2. Contents	2
3. Version information.....	3
4. The performance parameters.....	4
5. Engineering Drawing.....	5
6. AntennaTest.....	6
6.1 Processing Mode	6
6.1.1 Matching Circuit.....	6
6.1.2 Environmental Treatmen.....	6
6.2 Antenna Performance Test.....	6
6.2.1 VSWR.....	6
6.2.2 Active Antenna Test.....	6
6.2.3 Passive Antenna Test.....	7-9
6.2.4 3D graphics.....	10
6.2.5 2D graphics.....	11
7. Antenna placement diagram.....	12
8. Inspection Report.....	13
9. Packing specification diagram.....	14
10. QC engineering drawing.....	15-18
11. ROHS Test Report.....	19

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3. Version information

Version	DATE	REVISION DESCRIPTION	PREPARED	CHECKED	APPROVED
V1.0	2021-02-23	For the first time to issue	DONG	Yang	Chen
V1.1	2022-06-11	Modify the shell	DONG	Yang	Chen

4. The performance parameters

Electrical performance index	
Frequency range	2400–2500MHZ, 5100–5900MHz
2.4GHz VSWR	<3.0
Gain	≤3.73 (Different darkroom and different environment location, the gain will be different)
Radiation direction	omnidirectional
The input impedance	50 Ω
Polarization mode	Linear polarization
The most powerful	2W
Mechanical performance index	
Interface form	SMA Male and female
The antenna material	PCB+hardware+plastic
Working temperature	-30°C–80°C
Working humidity	5%–95%

5. Engineering Drawing

A
B
C
D

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8

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7

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4

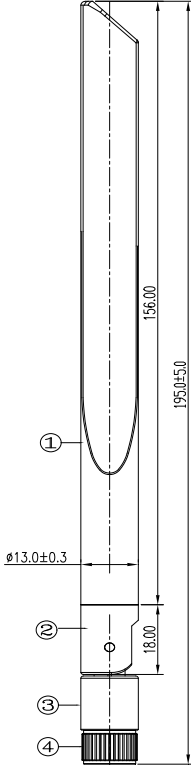
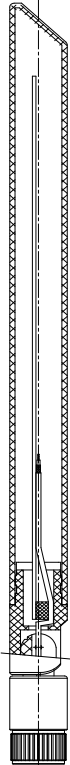

3
3

2
2

1
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A
B
C
D


RoHS
Compliant
G P

REMARKS:

1. ALL MATERIALS ARE RoHS COMPLIANT.

No.	Name	Material	Color	size	Amount	Remark
4	SMA connector		white	17*? 13.0mm	1	
3	Under the base	ABS	white	14.5*φ 13mm	1	
2	On the base	ABS	white	18*φ 13mm	1	
1	The shell	TPE	white	156*φ 13mm	1	



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Rev	Description	Date	Remark	Location	DWG No.	Unit	mm	Scale	1:1
A0	New drawing	20220705							

6. Antenna Test

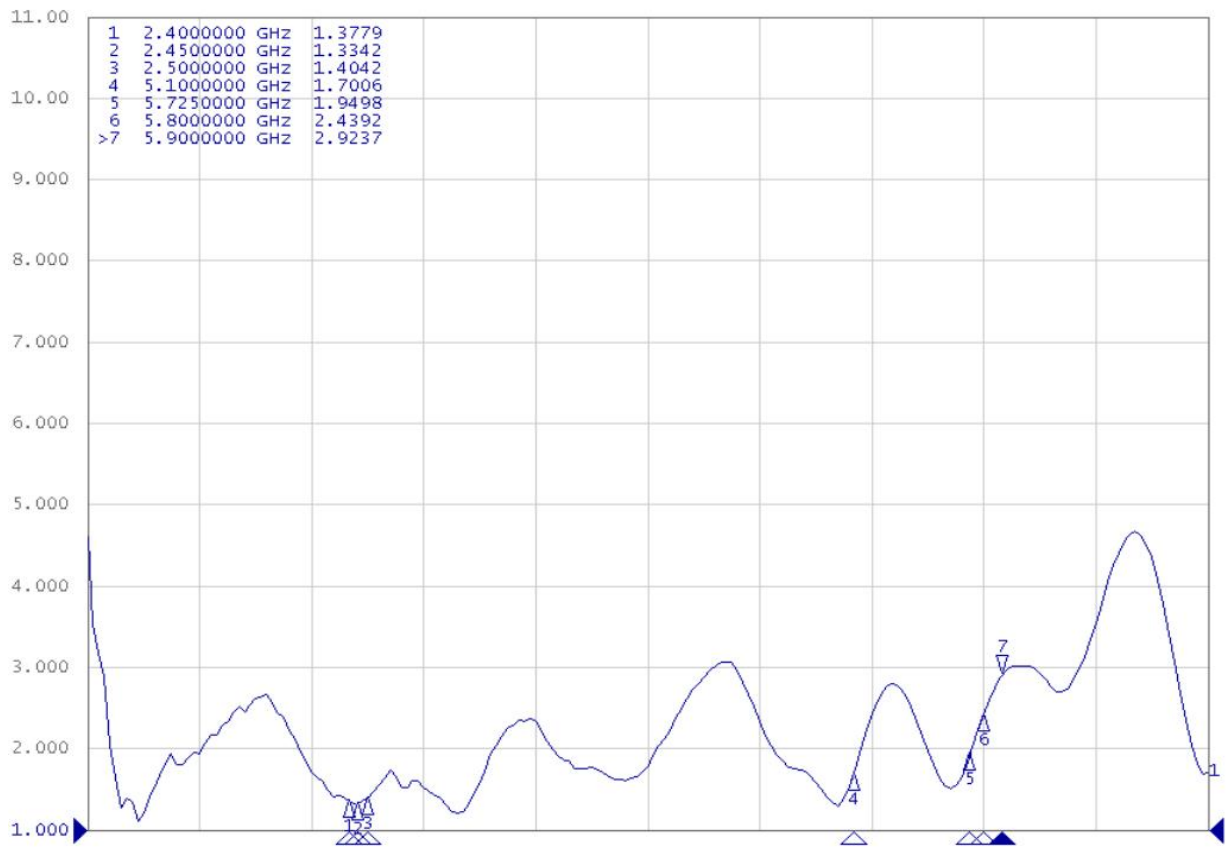
6.1 Processing Mode

6.1.1 Matching Circuit (Nothing)

6.1.2 Environmental Treatment (Nothing)

6.2 Performance Testing

6.2.1 VSWR



Standing wave ratio data

Freq	2.4GHz	2.45GHz	2.5GHz	5.10GHz	5.72GHz	5.80GHz	5.90GHz
VSWR	1.37	1.33	1.40	1.70	1.94	2.43	2.92

6.2.2 Active Antenna Test (Nothing)

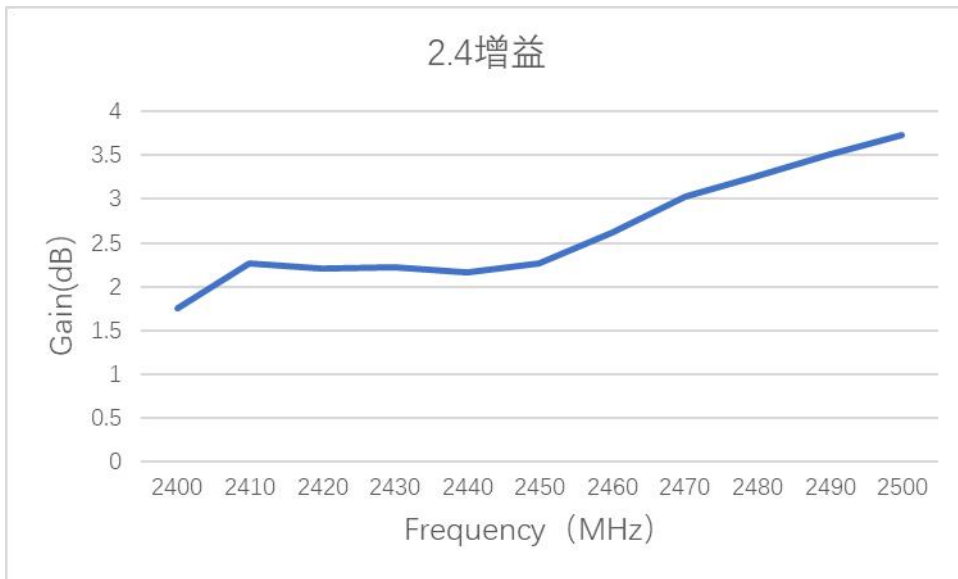
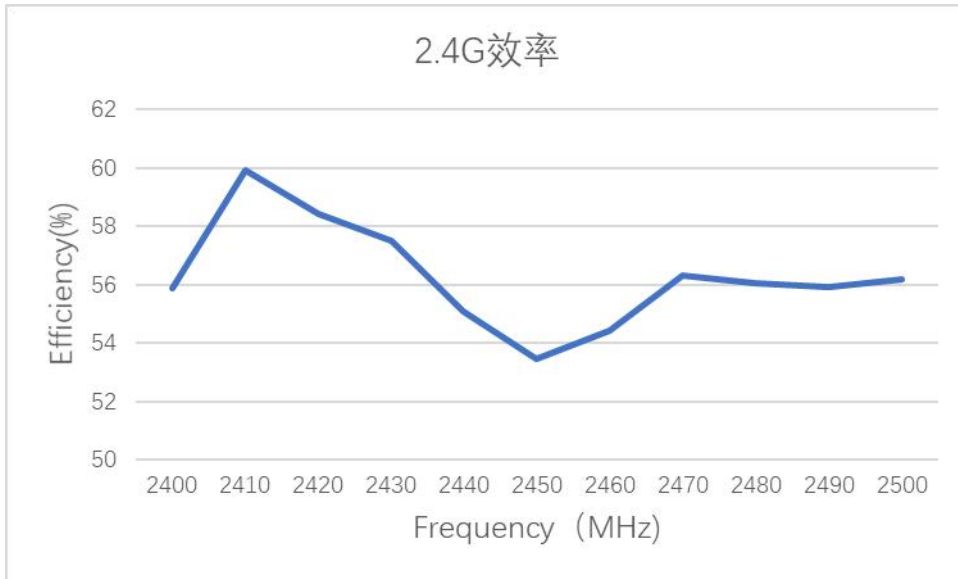
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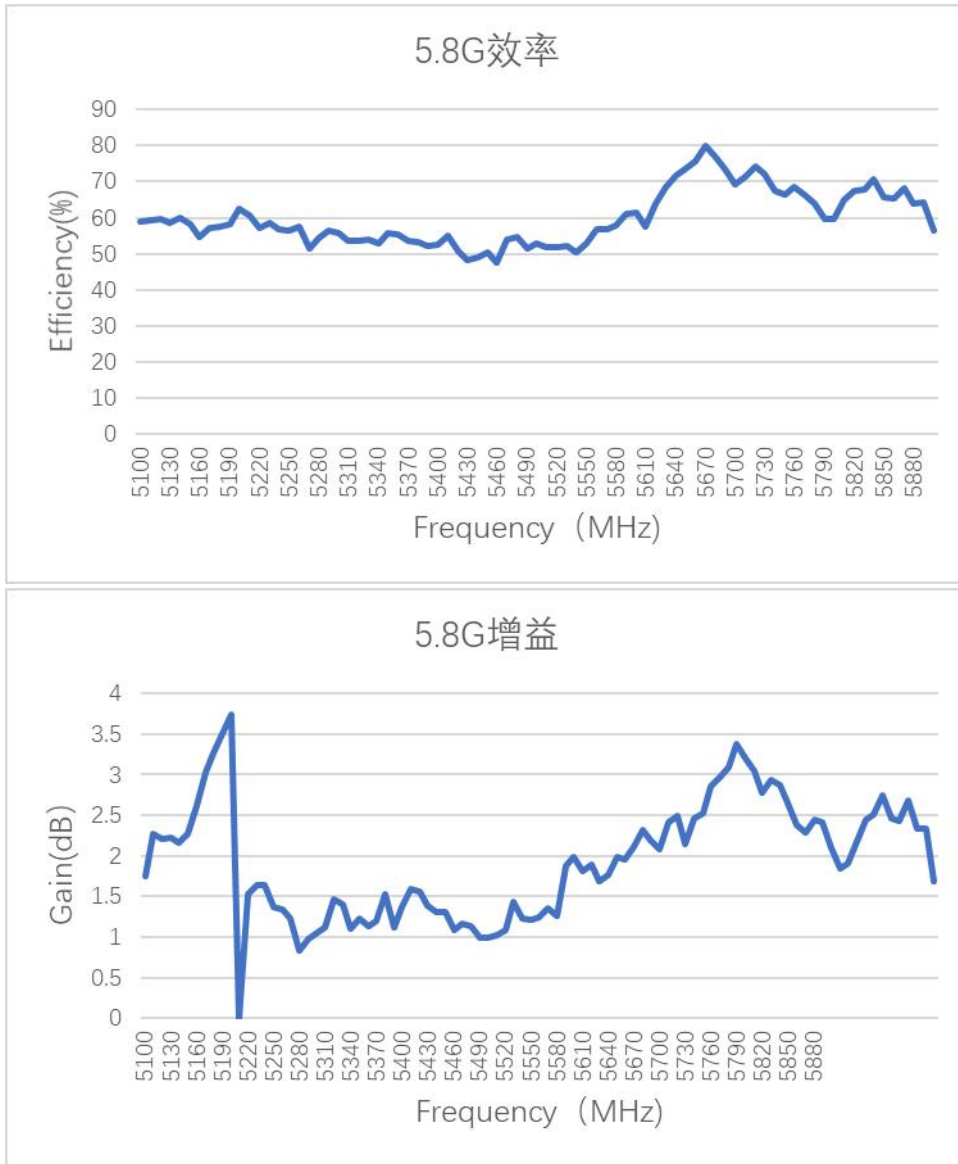
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6.2.3 Passive Antenna Test





Frequency (MHz)	Gain (dB)	Efficiency (%)	Frequency (MHz)	Gain (dB)	Efficiency (%)	Frequency (MHz)	Gain (dB)	Efficiency (%)
2400	1.76	55.89	5300	1.56	55.81	5610	2.15	57.61
2410	2.27	59.91	5310	1.39	53.68	5620	2.47	63.82
2420	2.20	58.43	5320	1.31	53.49	5630	2.52	68.57
2430	2.22	57.48	5330	1.30	54.11	5640	2.86	71.73

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2440	2.16	55.07	5340	1.08	52.74	5650	2.96	73.39
2450	2.27	53.46	5350	1.17	55.82	5660	3.10	75.50
2460	2.62	54.44	5360	1.13	55.23	5670	3.38	79.87
2470	3.02	56.30	5370	0.98	53.77	5680	3.20	76.61
2480	3.26	56.06	5380	0.99	53.26	5690	3.04	73.70
2490	3.51	55.91	5390	1.02	52.35	5700	2.78	69.20
2500	3.74	56.18	5400	1.09	52.47	5710	2.93	71.40
5100	1.52	58.85	5410	1.43	55.10	5720	2.88	74.29
5110	1.63	59.28	5420	1.23	50.84	5730	2.66	72.18
5120	1.63	59.78	5430	1.21	48.13	5740	2.39	67.57
5130	1.37	58.64	5440	1.25	49.02	5750	2.28	66.50
5140	1.34	59.93	5450	1.35	50.23	5760	2.45	68.54
5150	1.22	58.23	5460	1.26	47.68	5770	2.41	66.29
5160	0.84	54.84	5470	1.88	54.03	5780	2.10	63.79
5170	0.98	57.06	5480	1.98	54.83	5790	1.84	59.53
5180	1.05	57.59	5490	1.82	51.31	5800	1.90	59.49
5190	1.12	58.15	5500	1.89	52.89	5810	2.18	64.85
5200	1.46	62.47	5510	1.69	51.93	5820	2.44	67.35
5210	1.41	60.78	5520	1.76	51.87	5830	2.51	67.83
5220	1.10	57.15	5530	1.99	52.25	5840	2.74	70.55
5230	1.22	58.73	5540	1.95	50.31	5850	2.46	65.82
5240	1.13	56.89	5550	2.12	52.77	5860	2.43	65.46
5250	1.20	56.51	5560	2.31	56.73	5870	2.68	68.13
5260	1.53	57.49	5570	2.19	56.85	5880	2.33	63.78
5270	1.12	51.55	5580	2.07	57.72	5890	2.34	64.44
5280	1.37	54.29	5590	2.41	61.24	5900	1.68	56.39
5290	1.59	56.37	5600	2.49	61.48			

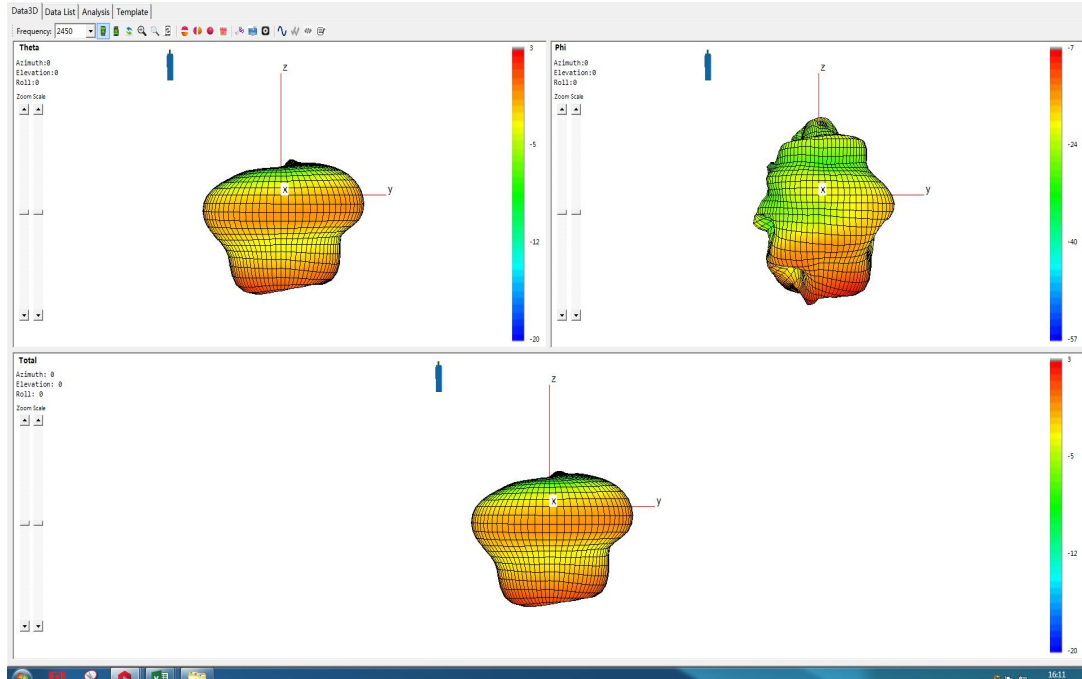
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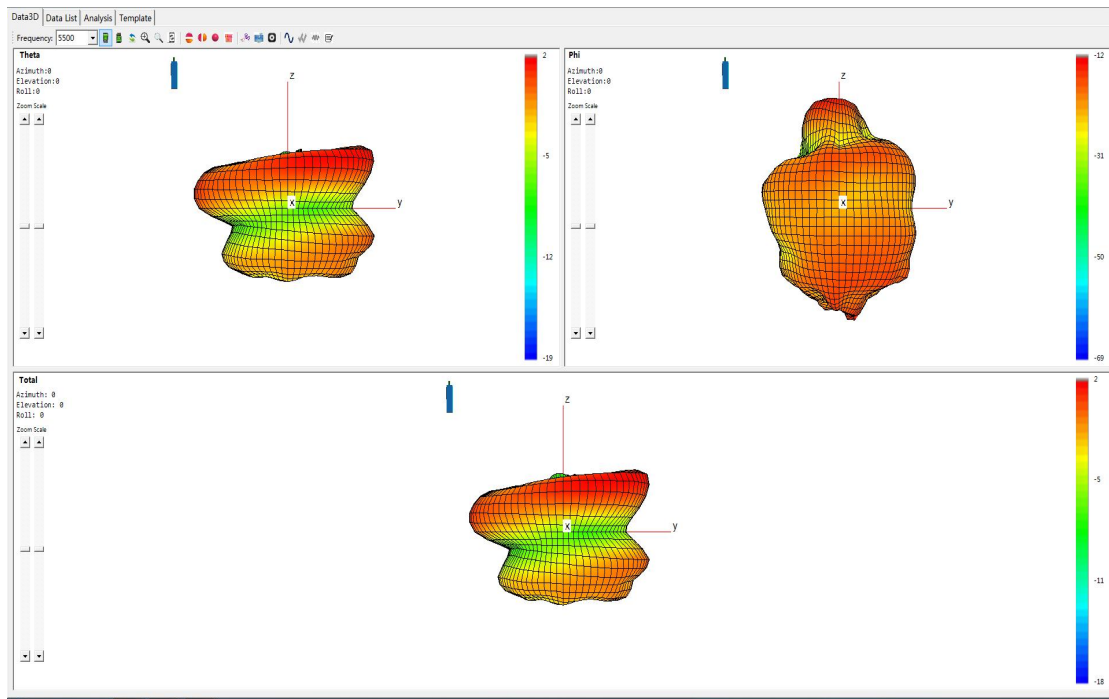
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6. 2. 4 3D graphics
2. 4G



5. 8G



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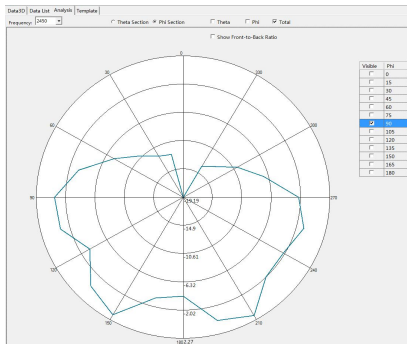
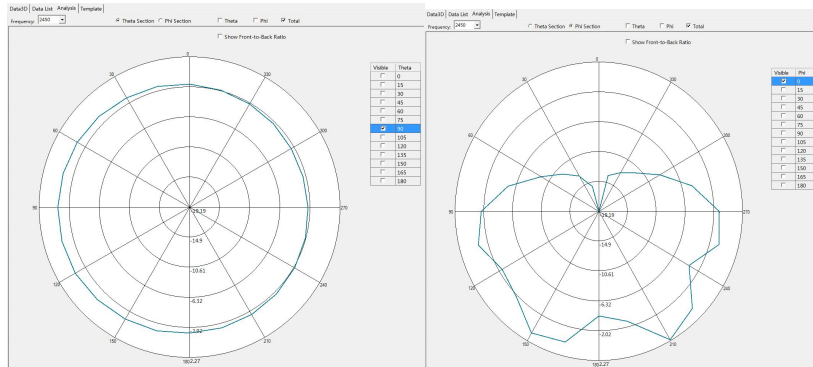
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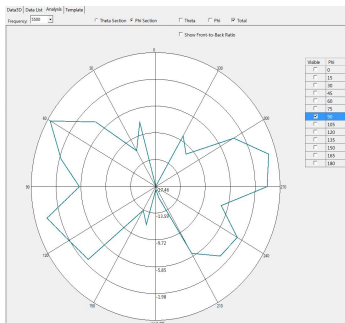
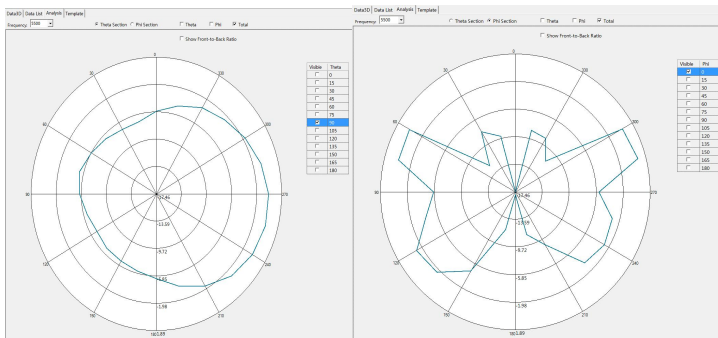
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6. 2. 5 2D graphics

2. 4G



5. 8G



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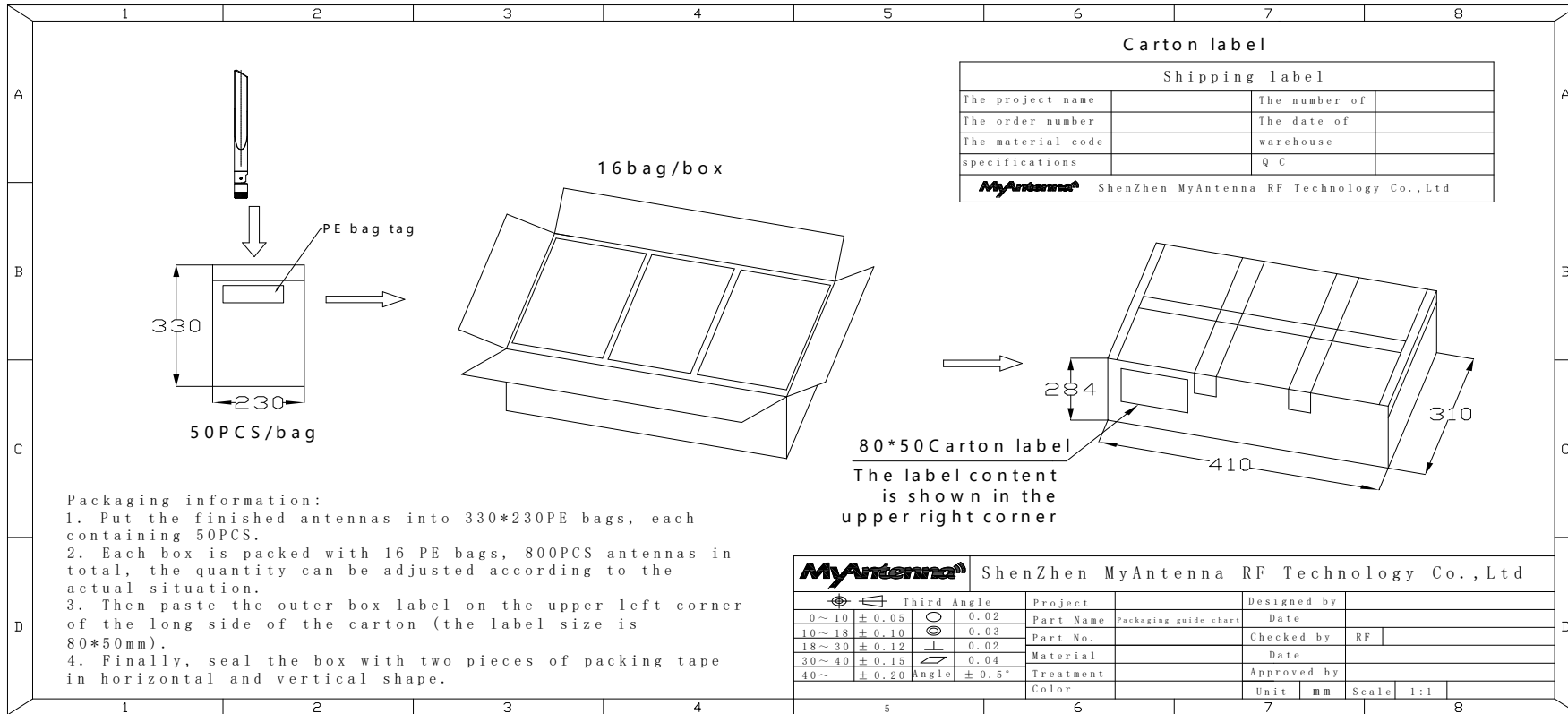
7. Antenna placement diagram



8. Inspection Report





Project Name		JMD003		Antenna Type	2.4&5.8G Dual-frequency external rod antenna		Inspection Date	2022-07-05	
Appearance Standard				1、No abnormality on the antenna surface					
Dimension Standard				2、Within the required tolerances based on the drawing					
No	Inspection subject	Standard	Inspection tool	Sampling number	Result	Remark			
1	Appearance	As Above	Visually	6PCS	OK				
2	Dimension	As Below Chart	Vernier Caliper	6PCS	OK				
No	Inspection Subject	Dimension	Tool	Test Results (Recorded six groups of testing data includes the highest & lowest values)					
				1	2	3	4	5	1
1	Dimension	$\Phi 13 \pm 0.3$	Caliper	13.05	13.08	13.09	13.01	13.03	13.07
2		195.0 ± 5.0		196.4	195.9	196.8	195.2	196.3	195.2
3									
Remark									
Supervisor: SAM			Audit: CHEN			Inspector: JOYCE			

9. Packing specification diagram



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10. QC engineering drawing

 QC engineering drawing			The file number	MA-QCW-2206-006	The file name	2.4&5.8G Dual-frequency external rod antenna			To compile	zha o
			version	A					audit	
			The release date	2022-06-11	Effective date	2022-06-11	The page number	1/2	approval	xu
The serial number	process	The name of the process	Make technical parameters/quality characteristics	Use equipment fixture	Testing equipment	Check the method	Check the frequency	Using the record	undertaker	The relevant documents
1		Incoming inspection	Inspection standards/drawings	caliper	/	visual	AQL sampling	IQC inspection report	IQC	
2		Production of picking	Production task list	/	/	/	/	Material requisition	Warehouse operator	
3		Unpacking	Delivery note	/	/	/	/	Delivery note	The	

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	◇ ↓ □ ↓ ◇	(unpacking) confirm quantity							operator	
4	□ ↓ □ ↓ ◇	First appearance confirmatio n	Sealed samples samples	/	visual	visual	/	IPQC first inspection record	IPQC	
5	□ ↓ ◇	First piece performance test	The product meets the requirements in the design specification	/	Network analyzer	Test visual	/	IPQC first inspection record	IPQC	
6	◇ ↓ □ ↓ □	Assemble the SMA head	Technical documents/drawings /BOM	/	manual	visual	All inspe ction	Daily production report	The operator	
7	◇ ↓ ▽	inspection	IPQC process inspection regulations	/	visual	visual	2H	IPQC process inspection record	IPQC	
8	◇ ↓ ◇	Soldering PCB	Technical documents/drawings /BOM	/	manual	visual	All inspe ction	Daily production report	The operator	
9		inspection	IPQC process inspection	/	visual	visual	2H	IPQC process inspection	IPQC	

			regulations					record		
10	Assemble the shell	Technical documents/drawings /BOM	/	manual	visual	All inspection	Daily production report	The operator		
11	inspection	IPQC process inspection regulations	/	visual	visual	2H	IPQC process inspection record	IPQC		
12	Appearance all inspection	Technical documents/drawings /appearance criteria	/	visual	visual	All inspection	Daily production report	The inspector		
13	Test	Technical documents/drawings	/	Network analyzer	Test visual	All inspection	Daily production report	The operator		
14	Packing (bag) quantity confirmation	Drawing/BOM	/	/	visual	All inspection	Daily production report	The operator		
15	inspection	IPQC process inspection regulations	/	visual	visual	2H	IPQC process inspection record	IPQC		

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16		Put in storage	Production task list	/	/	/	/	Warehouse receipt of products	Warehouse operator	
17		Pre-shipment inspection	Shipping note	Network analyzer		measurement	AQL sampling	/	OQC	
instructions: <input type="checkbox"/> Said operation、 processing; <input type="checkbox"/> It means confirm, check, judge, approve; <input type="checkbox"/> Put into storage; <input type="checkbox"/> Said handling										
mark	Modify the content			version	The date of	modifier	The examination and approval			

11. ROHS Test Report

Project material name	code	Report the name of the test sample	<u>testing organization</u>	testing time	Test report number	<u>test conclusion</u>	remark
JMD003	M02-0600040 ROA	Coaxial line	SGS	2021/07/15	SHAEC2100702402	OK	
		TPE TPR Plastic	SGS	2022/3/4	SZXEC2200440602	OK	
		ABS Plastic mixture	SGS	2022/2/17	CANEC210323701	OK	
		PCB	SGS	2021/11/4	NGBML2105022604	OK	
Legal fiction: JOYCE		verifier: chen		date: 2022-07-05		Stamp service:	