

Antenna Specification

Customer Name:	EARLY LIGHT INDUSTRIAL CO., LTD
Project Name:	Hf01
New Material Model:	M02-0600040ROA
Old Material Model:	M1G.0096-ROA
Product Name:	2.4G external rod antenna
Customer Number:	
Antenna Type:	Monopole
Version:	C

supplier		customer	
Prepared by		Purchase	
Checked by		Engineering	
Approved by		Quality	
☐ The new material ☐ Recycle (The number to be recycled)			
Cachet : 2022-09-02		Cachet:	

ShenZhen MyAntenna RF Technology Co.,Ltd

Address: Room 405, building r3-a, South District, Nanshan Science Park, Shenzhen

Telephone: 0755-86503881 Fax:0755-27801677

Mailbox: nfc@imyantenna.com Zip code:518057

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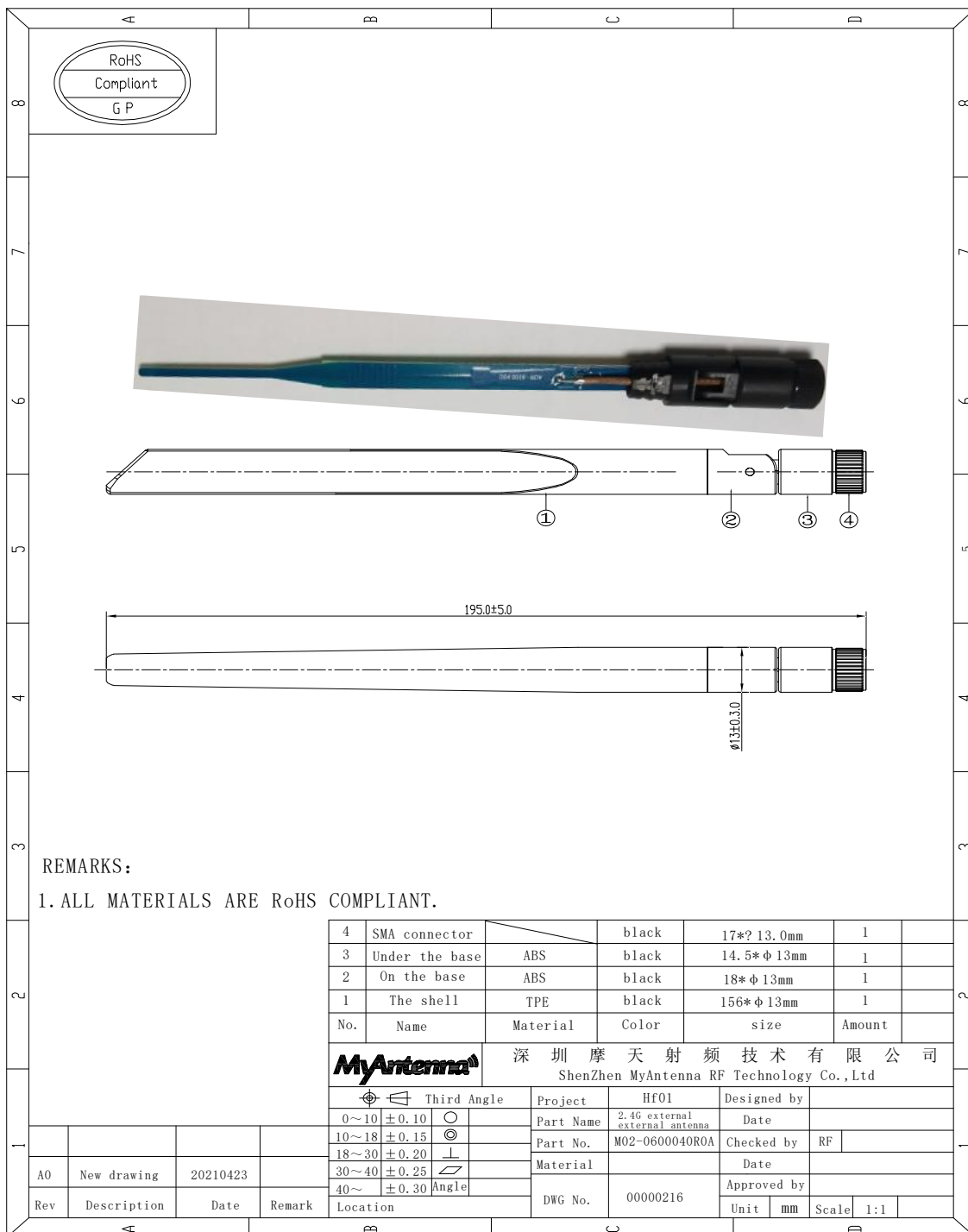
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[illegible]

4. The performance parameters

Electrical performance index	
Frequency range	2400-2500MHZ
2.4GHz VSWR	≤ 1.9
Gain	$\leq 6.5\text{dBi}$ (Different darkroom and different environment location, the gain will be different)
Radiation direction	omnidirectional
The input impedance	$50\ \Omega$
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	$-30^{\circ}\text{C}-80^{\circ}\text{C}$
Working humidity	5%-95%

5. Engineering Drawing



6. Antenna Test

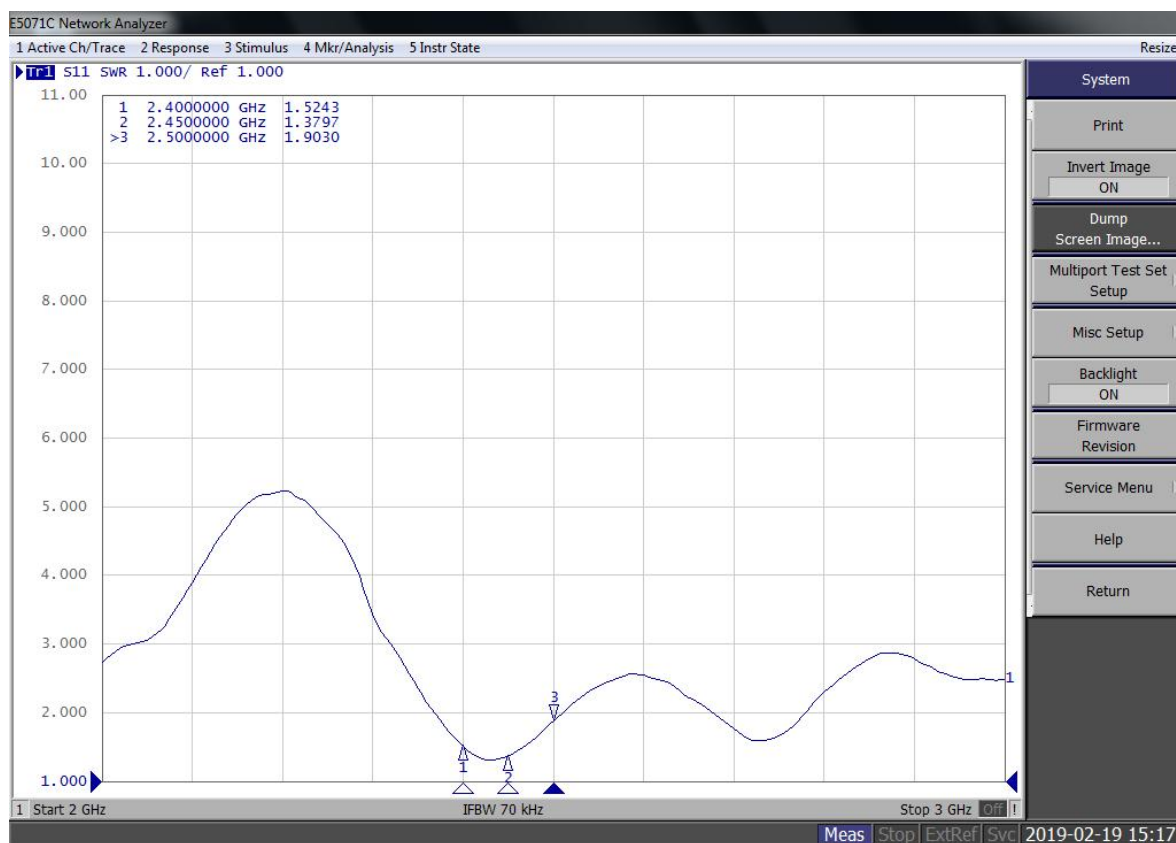
6.1 Processing Mode

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
VSWR	1.52	1.37	1.90

6.2.2 Active Antenna Test (Nothing)

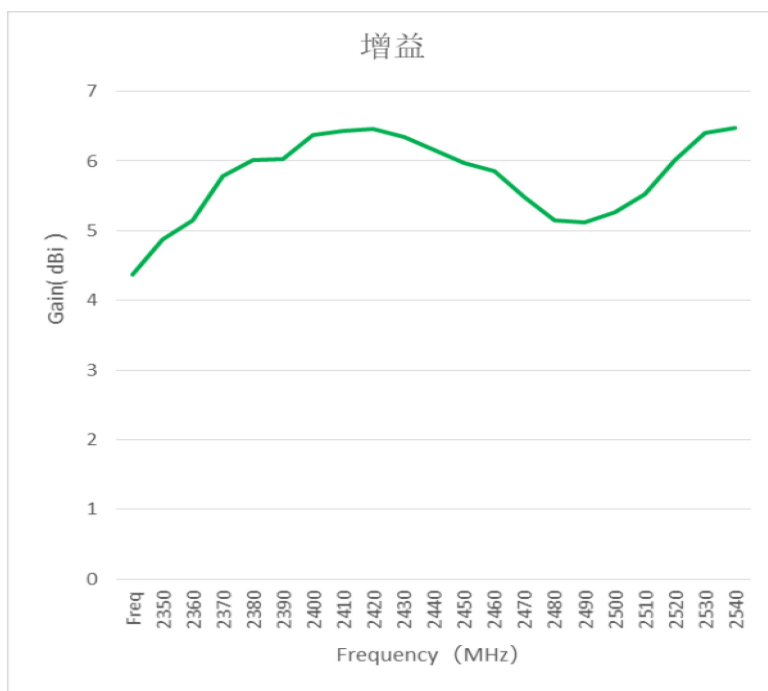
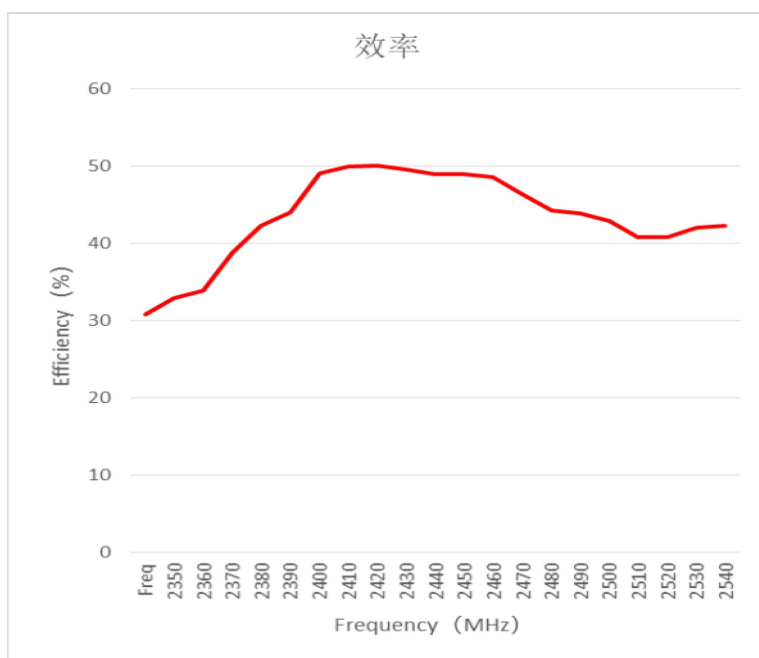
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6. 2. 3 Passive Antenna Test



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Frequency (MHz)	Gain (dBi)	Efficiency (%)
2350	4. 37	30. 76
2360	4. 88	32. 92
2370	5. 15	33. 90
2380	5. 78	38. 86
2390	6. 01	42. 27
2400	6. 02	44. 08
2410	6. 37	49. 10
2420	6. 43	49. 92
2430	6. 46	50. 12
2440	6. 35	49. 61
2450	6. 16	48. 95
2460	5. 97	48. 92
2470	5. 86	48. 61
2480	5. 48	46. 32
2490	5. 14	44. 28
2500	5. 12	43. 84
2510	5. 26	42. 85
2520	5. 53	40. 86
2530	6. 01	40. 79
2540	6. 41	42. 09
2550	6. 47	42. 33

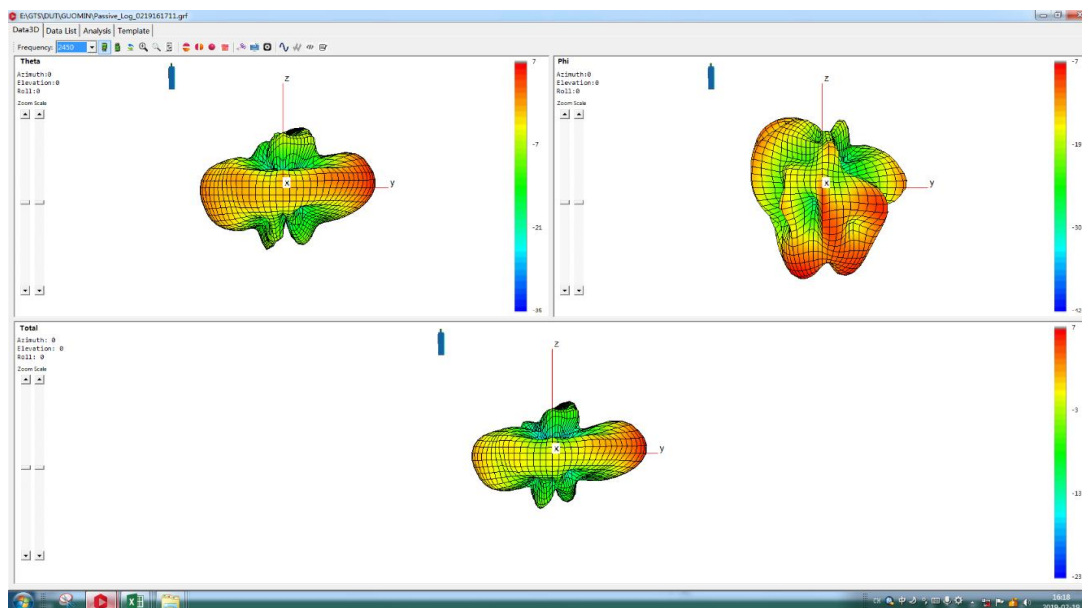
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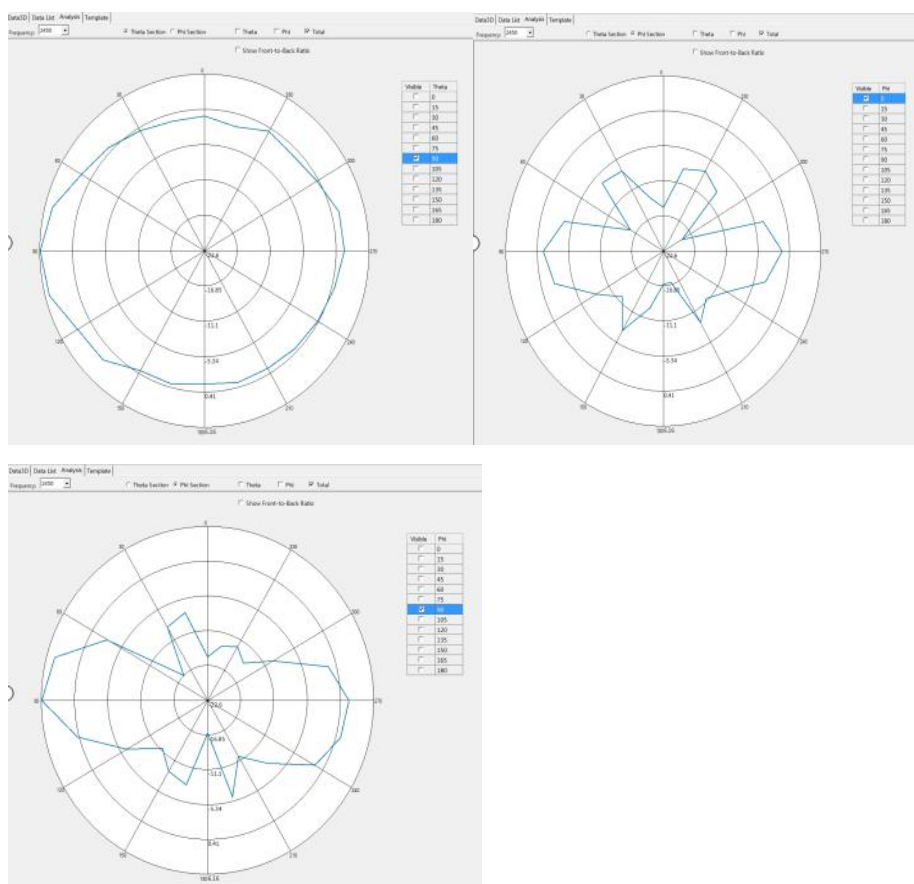
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6.2.4 3D graphics



6.2.5 2D graphics



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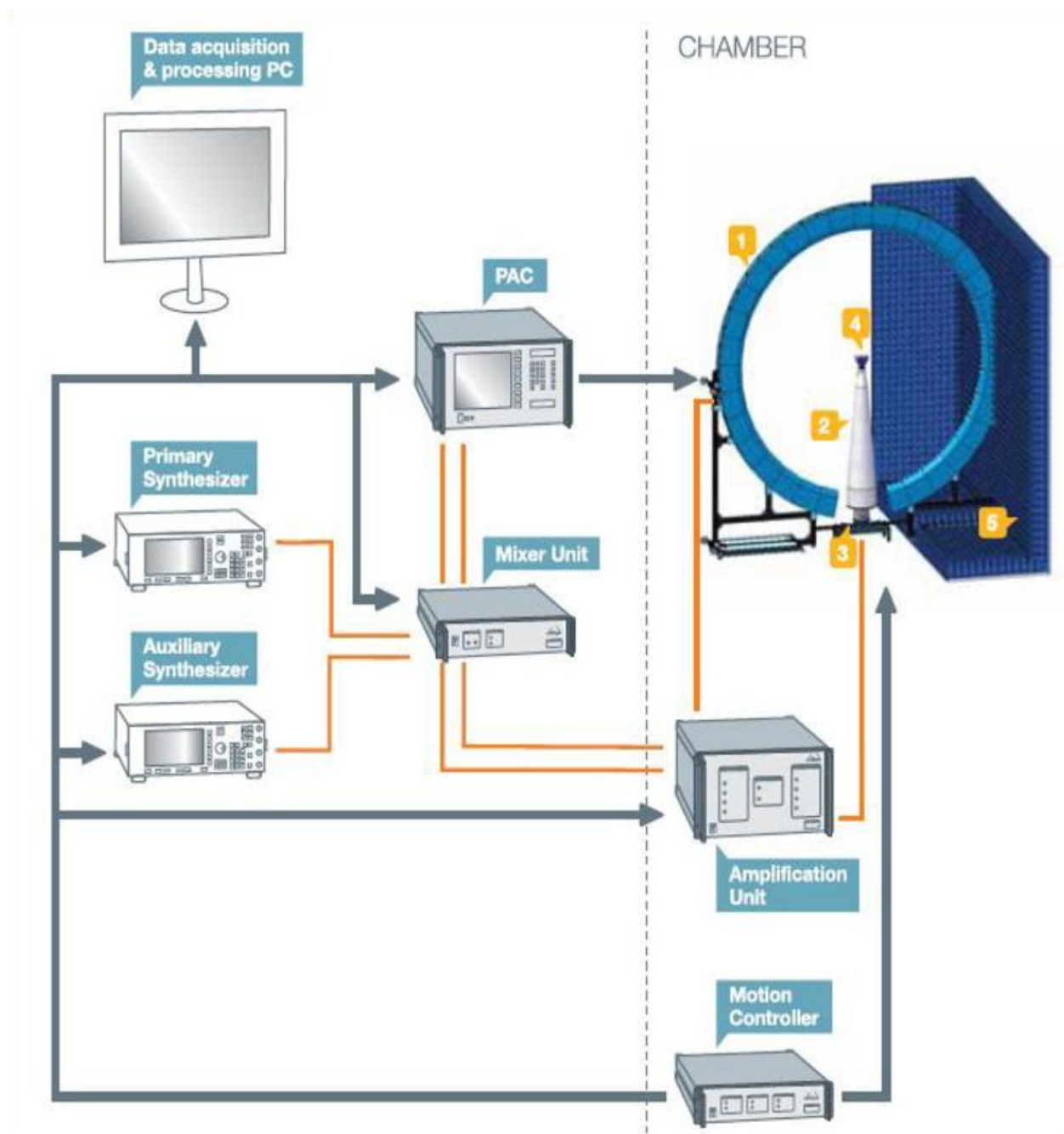
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7. Antenna placement diagram

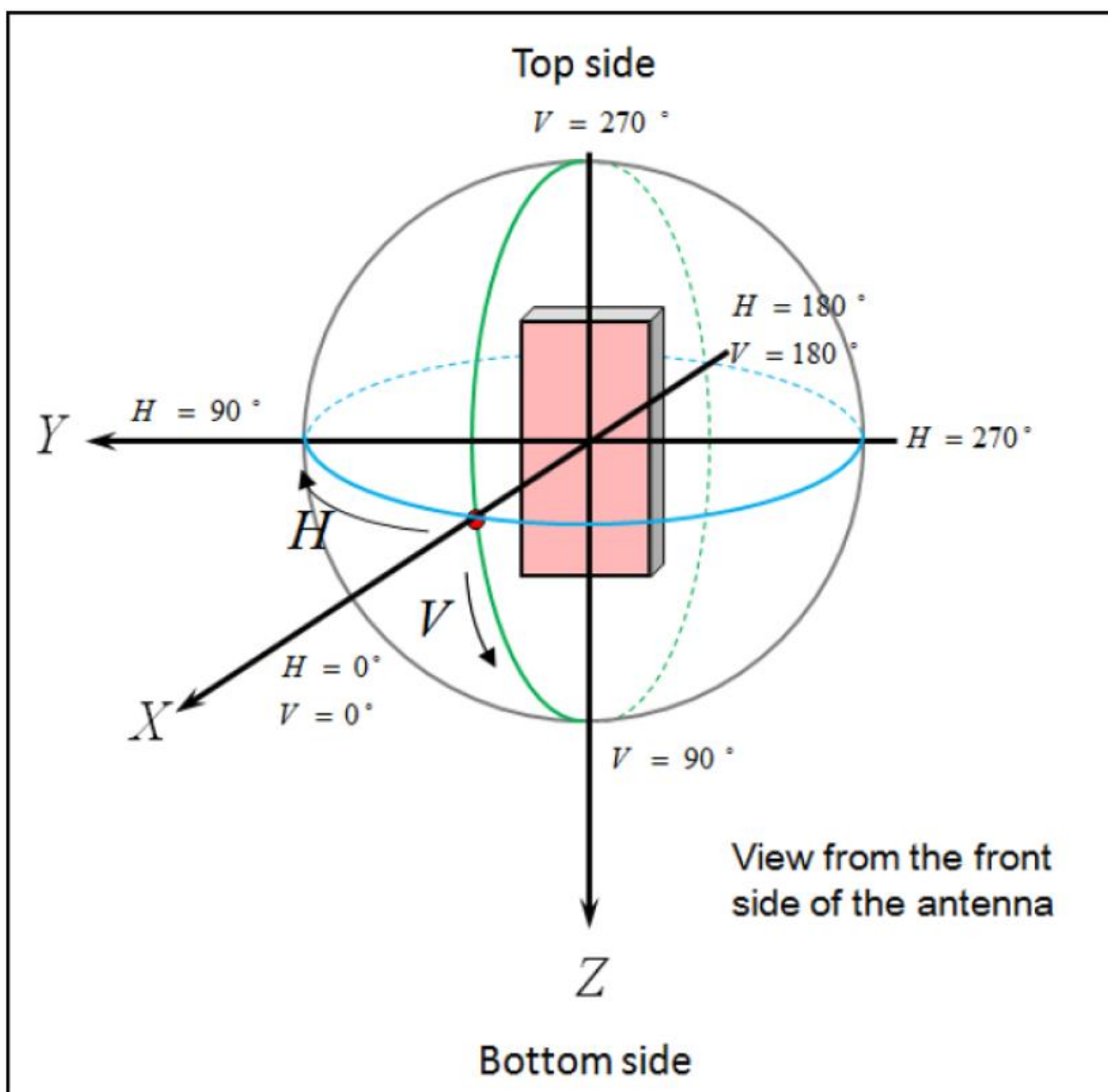


8. Test method, equipment list, installation picture



- 1) The microwave anechoic chamber test equipment was started and the calibration self-test passed;
- 2) Fix the antenna under test and test parameters;

- 3) The measured data of the test direction chart shall be retained and archived; In a working band TX/RX band, at least three frequency points of high, medium and low gain should be tested;
- 4) A description of the coordinates of the test field, a description of the corresponding relationship between the antenna test and the coordinates of the test field are attached, and the test data is provided. (The coordinate relationship requirements between antenna and test field are attached in the figure below)



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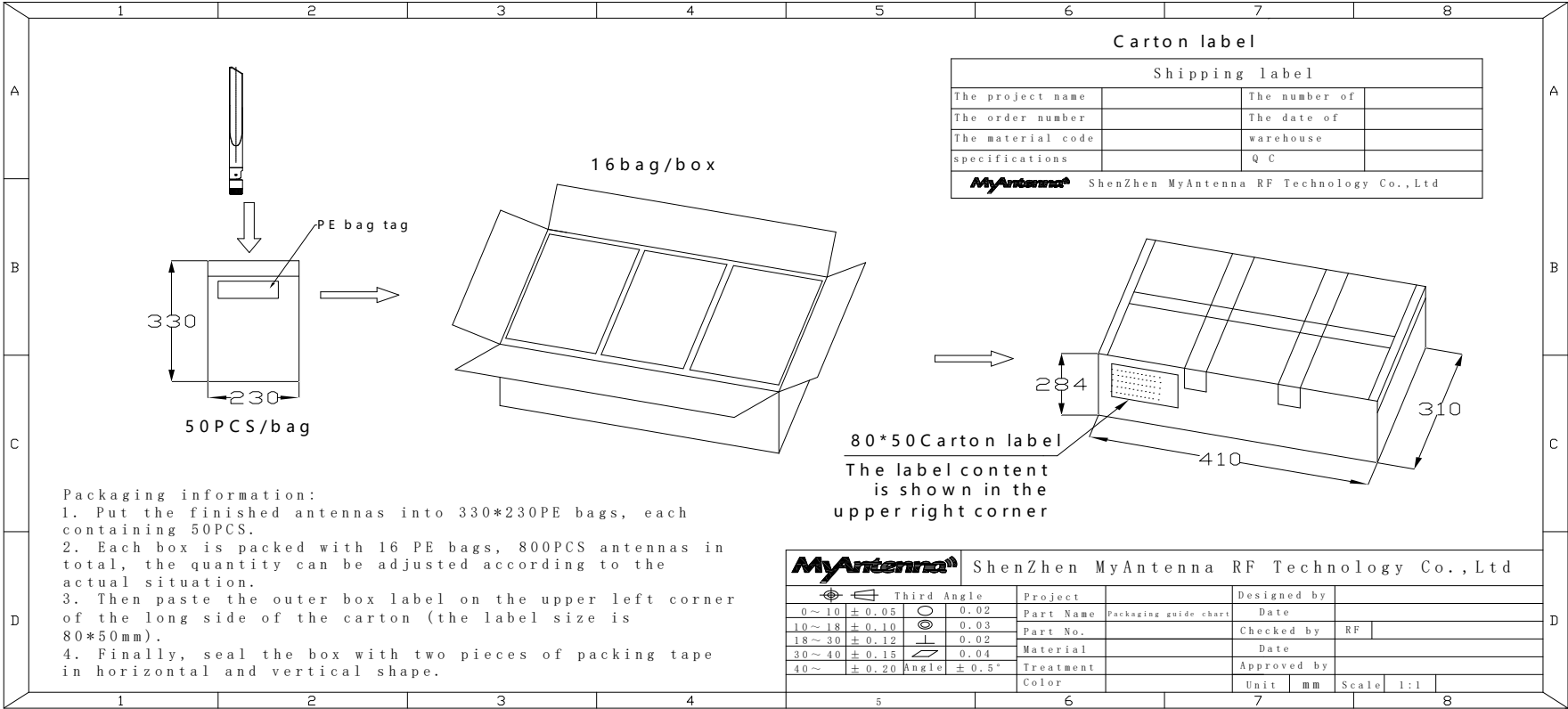
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9. Inspection Report

Project Name		Hf01		Antenna Type	2.4G external rod antenna	Inspection Date	2022-09-02		
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			

10.Packing specification diagram



11. QC engineering drawing

 QC engineering drawing			The file number	MA-QCW-2206-006	The file name	2.4G external rod antenna			To compile	zhao
			version	A					audit	
			The release date	2022-09-02	Effective date	2022-09-02	The page number	1/3	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 (unpacking) confirm quantity	Delivery note	/	/	/	/	Delivery note	The operator	
4		First appearance	Sealed samples samples	/	visual	visual	/	IPQC first inspection	IPQC	

		confirmation						record		
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 inspection	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 inspection	Daily production report	The operator	
9		inspection	IPQC process inspection regulations	/	visual	visual	2H	IPQC process inspection record	IPQC	
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	
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: □ Said operation、 processing; ◇ It means confirm, check, judge, approve; ▽ Put into storage; ↓ Said handling										
mark	Modify the content				version	The date of		modifier	The examination and approval	

12. ROHS Test Report

Project material name	material code	Report the name of the test sample	<u>testing organization</u>	testing time	Test report number	<u>test conclusion</u>	remarks
JMD003	M02-060004 OR0A	Coaxial line	SGS	2022/07/29	CANEC2215893206	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: 2022-09-02		Stamp service:	