

Essential information

Specification For Approval

CUSTOMER NAME: Xingmai Innovation Technology (Suzhou) Co., Ltd

CUSTOMER P/N: XM030208-0002

PRODUCT SPEC: 2.4/5.8G frequency band, RG178 plus 4.5mm TPU outer back, total
length 460MM, UV glue applied, connected to 180-degree MCX

SUPPLIER P/N: NB2450-08P006MCX

REV: 1.0

DATE: 2025/08/30

DRAWING	CHECK	APPROVED
FENG	ZHU	FENG



CUSTOMER APPROVE:

DATE	CHECK	APPROVED

PRODUCTION COMPANY:

Dongguan Chungmung Electronics Co., Ltd.

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1. Revision History

Revision	Date	Change Notification	Description
1.0	2025.08.30	First edition	

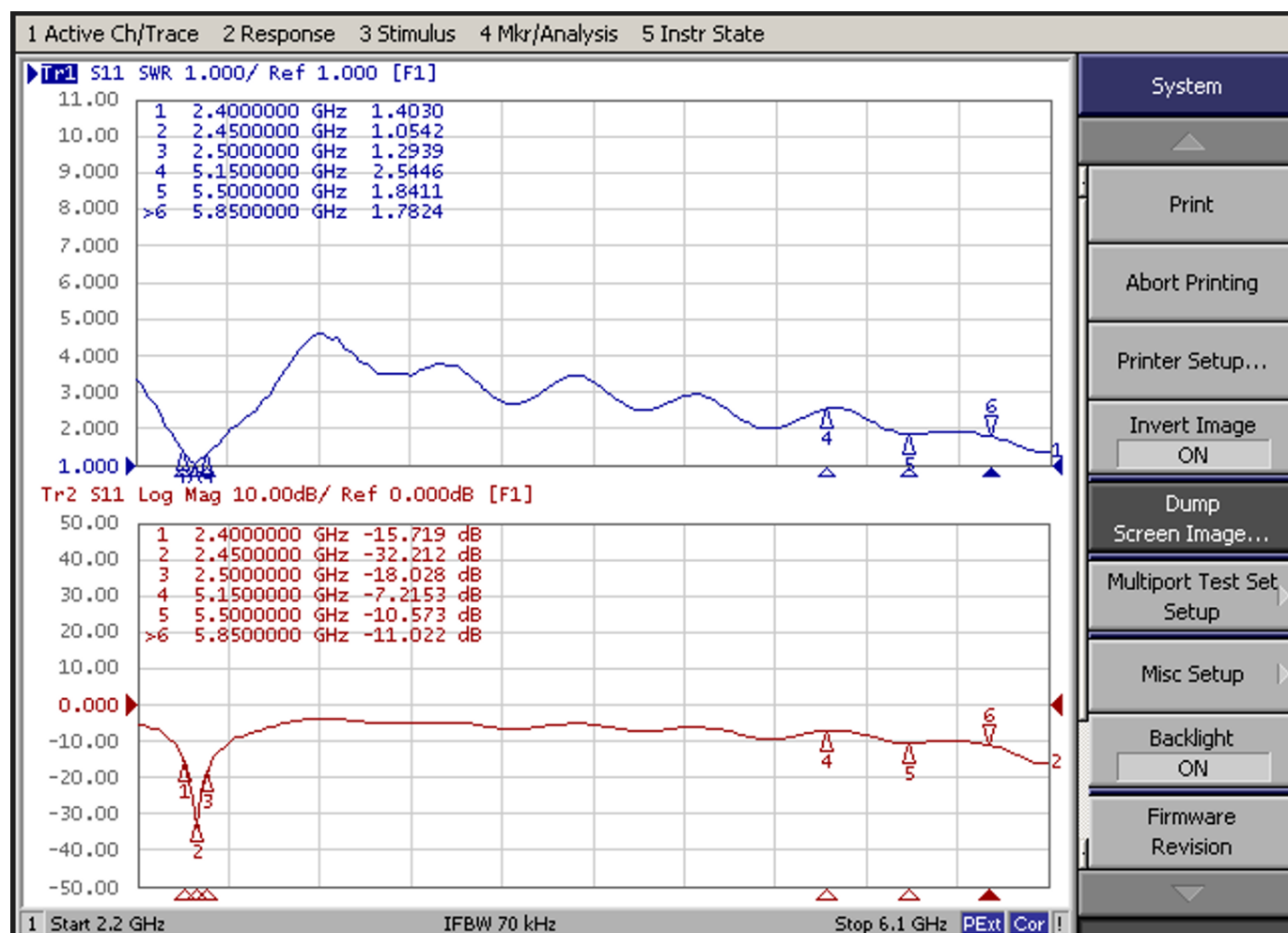
2. Specification

Sample Photo	
	
A. Electrical Characteristics	
Frequency	2400 ~ 2500 MHz 5150 ~ 5850 MHz
V.S.W.R.	<= 2.0
Antenna Gain	2400 ~ 2500 MHz 4.46dBi 5150 ~ 5850 MHz 7.16dBi
Efficiency	2400 ~ 2500 MHz 57.6% 5150 ~ 5850 MHz 45.1%
Polarization	Linear
Impedance	50 Ohm
B. Material & Mechanical Characteristics	
Material of Radiator	PCB
Cable Type	O.D. 1.78/4.5mm
C. Environmental	
Operation Temperature	- 40 °C ~ + 65 °C
Storage Temperature	- 40 °C ~ + 80 °C

3. Characteristics and Reliability Test

Test Items		Test Condition and Procedure	Requirements
C1	S.W.R.	Set DUT on Network Analyzer; make individual calibration to test	Directive DUT specification
C2	Antenna Gain	Set DUT on Antenna Chamber; make individual calibration to test	Directive DUT specification
M1	Vibration	GB / T2423 . 48-1997 Amplitude: 0.03 inch (1.5mm); Freq: 20 to 80 to 20 Hz3 directions; 2 hours for each direction	1. No Visual Damage 2. Frequency Tol.<= 5%
M2	Random Drop	GB / T2423.8-1995 Height: 1.0 Meter; 3 directions; 1 time for each direction	1. No parts separated 2. Frequency Tol.<= 5%
M3	Solderability	GB 2423 . 28- 82 Solder iron: 260±5°C; Duration: 5 seconds	1. Mounted on PCB 2. No Visual Damage
M4	Terminal- Pull Test	Holding with individual specification; force applied to axis of terminal	1. Directive DUT specification 2. Frequency Tol.<= 5%
M5	Terminal- Torque Test	Holding with individual specification; applied clockwise and counterclockwise to the axis of terminal	1. Directive DUT specification 2. Frequency Tol.<= 5%
M6	Dimension	Inspection of dimension, color, material, package, surface process	Directive DUT specification
E1	Salt Spray	GB / T 2423 . 17- 93 Temp: 35°C; RH: >= 95%; NaCl solution: >= 5%; Time: 24 hours	After 2 Hours Recovery 1. No Visual Damage 2. Frequency Tol.<= 5%
E2	Humidity	GB / T 2423 . 4 - 93 Temp: 80°C / 12 H; -40°C / 12H RH: >= 90%; Time: 24 hours	After 2 Hours Recovery 1. No Visual Damage 2. Frequency Tol.<= 5%
E3	Thermal Shock	GB / T 2423 . 22 - 87 1 Cycle: - 40°C (30 minutes) to + 80°C (30 minutes) Cycles: 24	After 2 Hours Recovery 1. No Visual Damage 2. Frequency Tol.<= 5%
E4	Life (High Temp.)	GB /T 2423 . 2 - 89 Temp: 80°C; Time: 24 hours	After 2 Hours Recovery 1. No Visual Damage 2. Frequency Tol.<= 5%
R1	RoHS	With Reference to IEC 62321:2008 with flow chart	Directive RoHS 2002/95/EC

4. Antenna - S Parameter Test Data



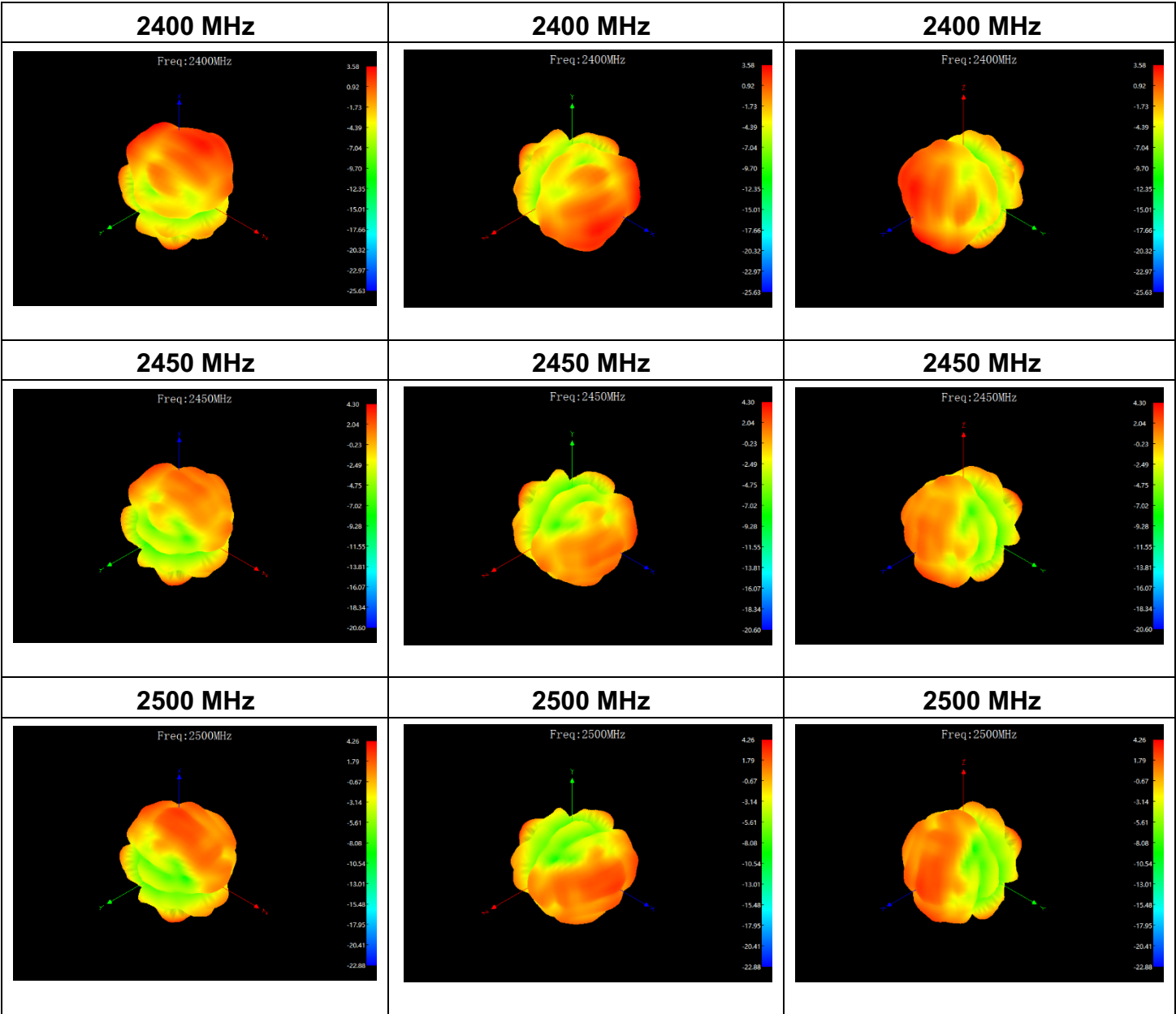
5. 1 Antenna - Radiation Pattern Test Data

Frequency/MHz	MaxGain/dBi	AvgGain/dBi
2400	3.58	-2.49
2410	3.7	-2.45
2420	3.68	-2.47
2430	3.95	-2.49
2440	4.19	-2.45
2450	4.3	-2.46
2460	4.41	-2.41
2470	4.46	-2.33
2480	4.4	-2.27
2490	4.39	-2.25
2500	4.26	-2.28
5150	4.81	-3.57
5200	5.37	-3.59
5250	5.93	-3.66
5300	6.56	-3.45
5350	6.98	-3.48
5400	6.86	-3.45
5450	6.99	-3.38
5500	6.48	-3.33
5550	6.38	-3.37
5600	6.68	-3.5
5650	6.87	-3.25
5700	7.16	-3.33
5750	6.95	-3.49
5800	6.99	-3.39
5850	6.61	-3.62

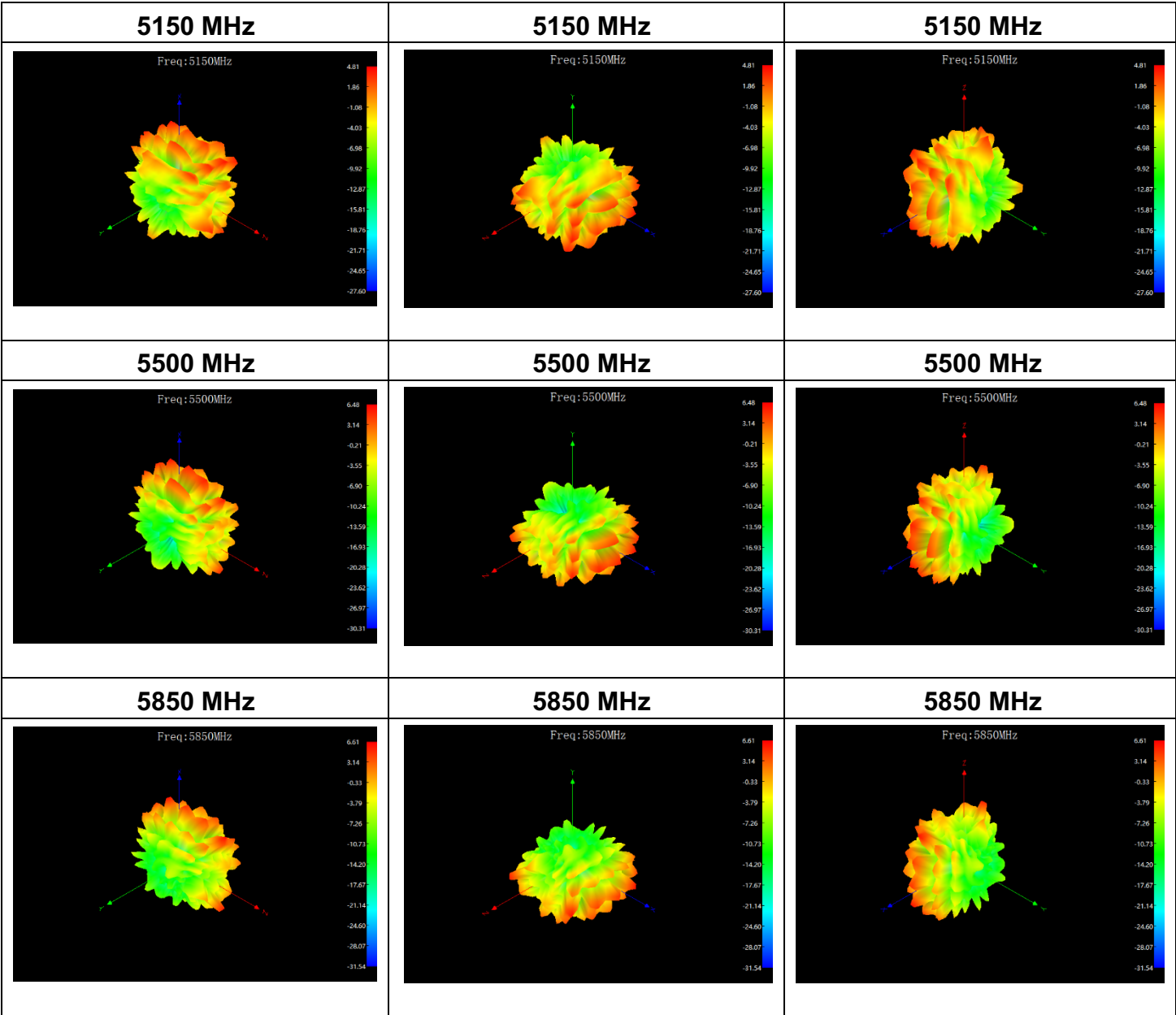
5. 2 Antenna - Radiation Pattern Test Data

Frequency/Mhz	Efficiency / dB	Efficiency / %
2400	-2.49	56.36
2410	-2.45	56.89
2420	-2.47	56.62
2430	-2.49	56.36
2440	-2.45	56.89
2450	-2.46	56.75
2460	-2.41	57.41
2470	-2.33	58.48
2480	-2.27	59.29
2490	-2.25	59.57
2500	-2.28	59.16
5150	-3.57	43.95
5200	-3.59	43.75
5250	-3.66	43.05
5300	-3.45	45.19
5350	-3.48	44.87
5400	-3.45	45.19
5450	-3.38	45.92
5500	-3.33	46.45
5550	-3.37	46.03
5600	-3.5	44.67
5650	-3.25	47.32
5700	-3.33	46.45
5750	-3.49	44.77
5800	-3.39	45.81
5850	-3.62	43.45

5. 3 Antenna - Radiation Pattern Test Data



5. 4 Antenna - Radiation Pattern Test Data





5. 5Antenna - OTA test data

Item	Measurement	Azimuths	Elevations	Standard	Band	Channel	Frequency	Max	Min	Total
1	TRP	Every30	Every30	WIFI (AP)	WIFI_B (11M)	1	2412	21.76	2.37	18.61
2	TRP	Every30	Every30	WIFI (AP)	WIFI_B (11M)	6	2437	22.15	3.64	18.94
3	TRP	Every30	Every30	WIFI (AP)	WIFI_B (11M)	11	2462	20.78	2.67	17.47
4	TIS(EIRP)	Every30	Every30	WIFI (AP)	WIFI_B (11M)	1	2412	-73.64	-93.16	-89.98
5	TIS(EIRP)	Every30	Every30	WIFI (AP)	WIFI_B (11M)	6	2437	-74.09	-92.62	-89.41
6	TIS(EIRP)	Every30	Every30	WIFI (AP)	WIFI_B (11M)	11	2462	-74.61	-92.69	-89.37
7	TRP	Every30	Every30	WIFI (AP)	WIFI_A (54M)	36	5180	14.44	-9.78	9.28
8	TRP	Every30	Every30	WIFI (AP)	WIFI_A (54M)	100	5500	10.99	-11.93	6.69
9	TRP	Every30	Every30	WIFI (AP)	WIFI_A (54M)	165	5825	18.04	-0.43	13.59
10	TIS(EIRP)	Every30	Every30	WIFI (AP)	WIFI_A (54M)	36	5180	-53.95	-78.13	-72.98
11	TIS(EIRP)	Every30	Every30	WIFI (AP)	WIFI_A (54M)	100	5500	-54.32	-77.28	-73
12	TIS(EIRP)	Every30	Every30	WIFI (AP)	WIFI_A (54M)	165	5825	-56.12	-74.46	-70.01

6. Testing Equipment and Principle

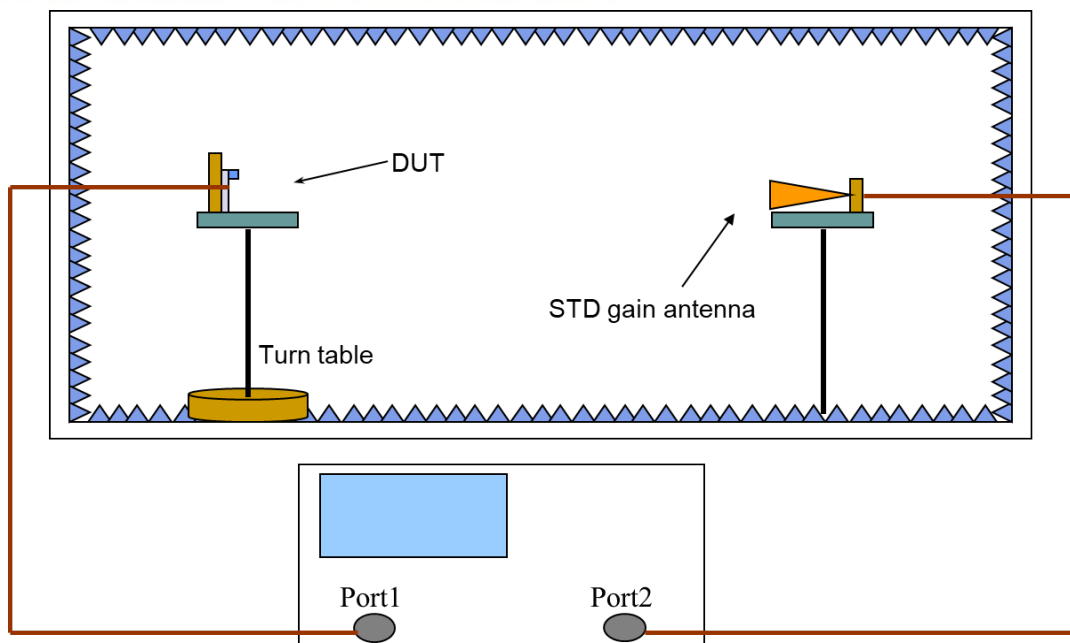
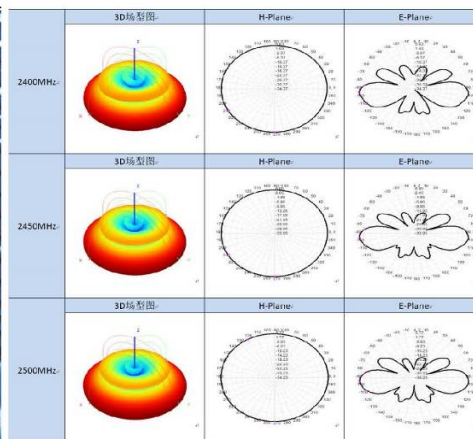
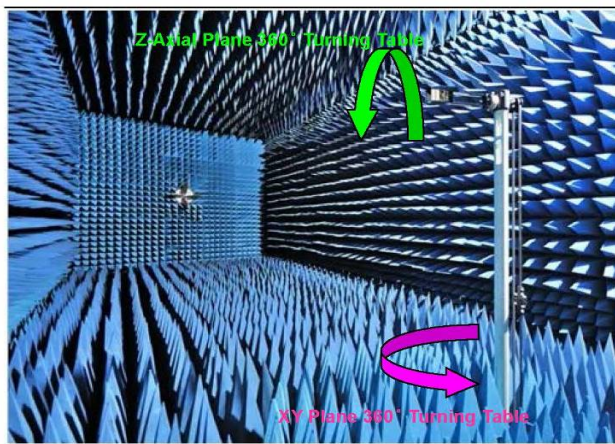
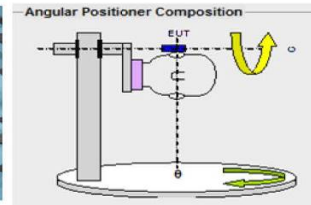
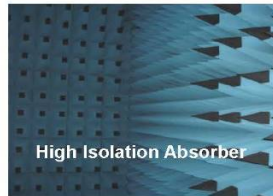
1. Testing equipment::

Network Analyzers :Agilent 8753D 5071B

Communications Test Set:Agilent E5515C

3D Chamber Test System:

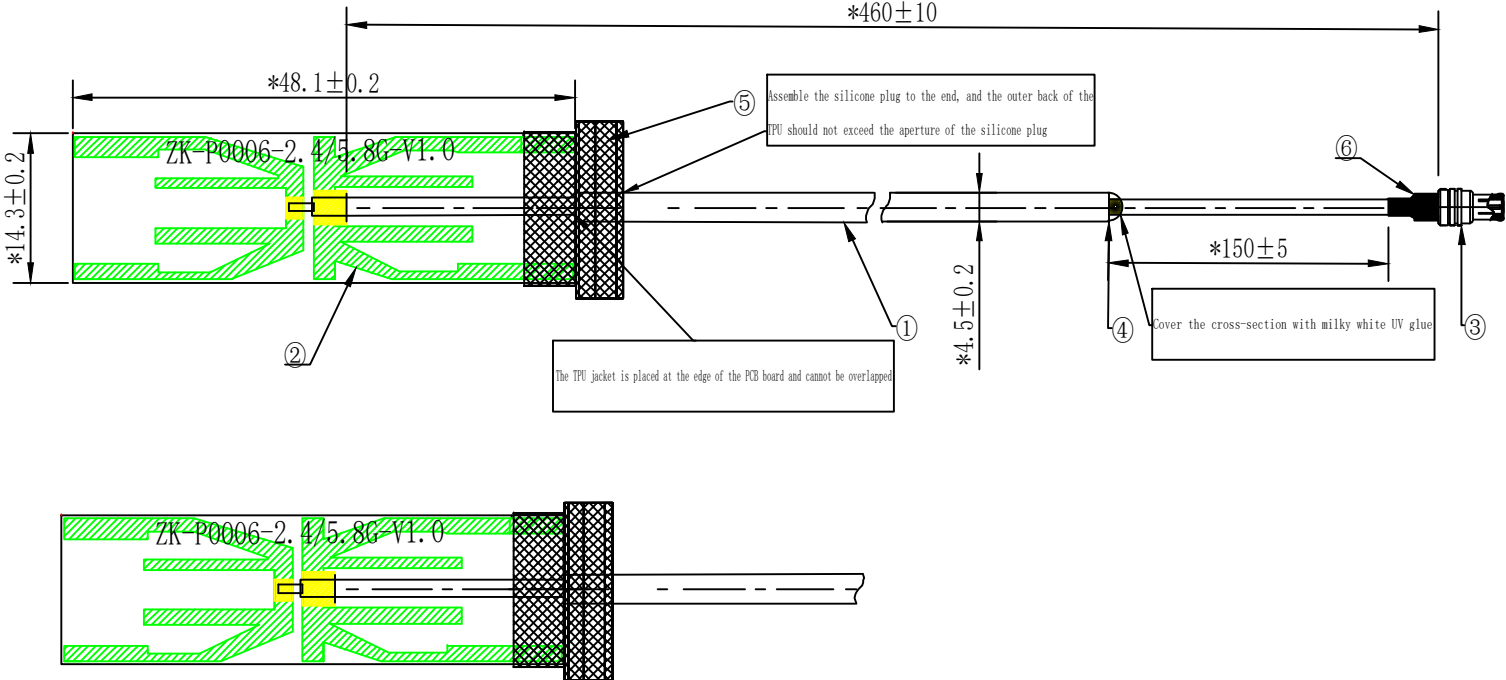
.Chamber Size: 9 x 5 x 4 m³
.Freq. Range: 0.4 ~ 18.0 GHz
.Double Ridge Horn Antenna
.VNA: Agilent E5071C
.3D Turning Table and Positioner
.ADT Solution 3D Testing Software



7. Mechanical Drawing See attached files

RoHS
Compatible

SIGN	DATE	DESCRIPTION	APPROVER
			
			
			



NOTES:

1.  The green part is made of copper material;
 White is the PCB substrate;
 The yellow part is the nickel plating area;
2. The knife mold should not damage the circuit, and the nickel plating area should be conductive with the circuit;
3. The surface must not have any dirt, scratches, black spots, or defects such as breakage or detachment after gold plating.

6	TUBE	OD3.5	Black, L=15MM	1
5	Silica gel	NBR-45	Black	1
4	UV glue	X-352	Milky White	1
3	MCX-178	MCX	Mini Connector	1
2	ZK-P0006-2.4/5.8G-V1.0	PCB	FR-4,TG135, 0.6MM	1
1	RG-178/TPU	Cable	SHOWA-O.D.4.5mm Black	1
No.	Part Number	Name	Material	Q'ty

Dongguan Chrungmung Electronics Co., Ltd.

TITLE: Embedded Antenna

PART NO.: NB2450-08P006MCX

DWG NAME:



Tolerance

LQ
2025-08-30

DJC
2025-08-30

DJC
2025-08-30

UNITS: mm

SCALE: 1/1

REVISION:

X.X	± 0.5
X.XX	± 0.2
X°	$\pm 1^\circ$

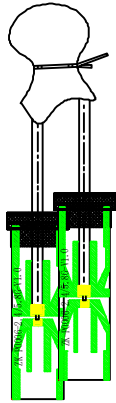
PACKING CRITERION

Date: 2025.08.30

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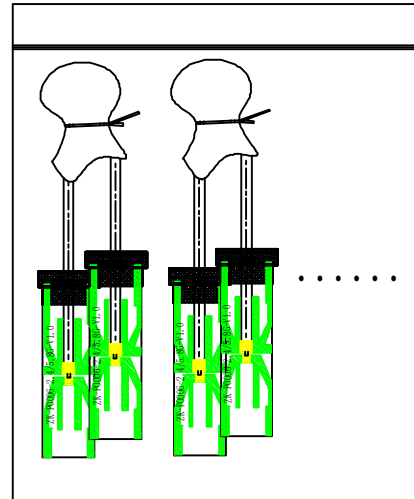
Part Number : NB2450-08P006MCX	Revision : A
Name: Embedded Antenna	Customer : ALL

1.



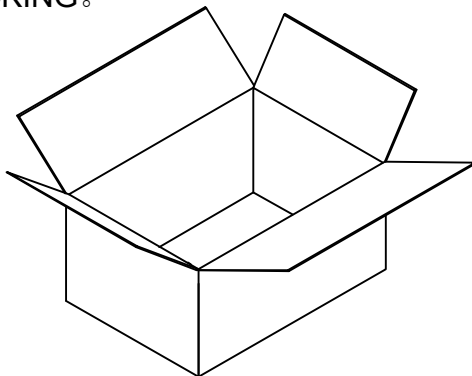
25pcs/扎

2.

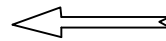


50PCS/PE BAG
R-NIP-BAG-300245

3.PACKING。

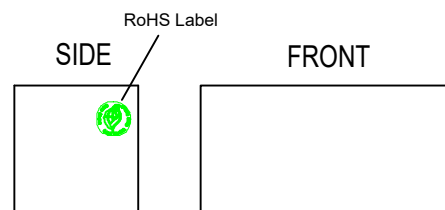
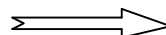
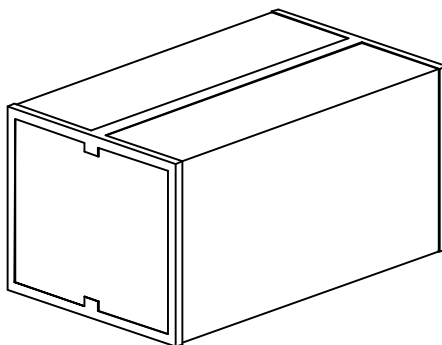


SIZE:29.0x23.0x32.5cm
800PCS/BOX



Pearl cotton :1pcs/BOX

4 . SEALING。



APPROVED BY: LQ

CHECKED BY:

DESIGNED BY: DJC