

1、 Antenna characteristic description

This report mainly explains the physical characteristics and electrical performance of 2.4G antennas through various testing conditions.

1.1 Antenna schematic diagram



1.2 Physical Property Description



Function	2.4G
Antenna appearance size	38.4*14.7*0.5MM
Antenna material	FPC
Antenna color	黑色
Working temperature	-20℃-65℃
Storage temperature	-20℃-80℃

1.3 Electrical Characteristics Description

function	2.4G
Frequency range (GHZ)	2.4GHz-2.5GHz
Voltage standing wave ratio (VSWR)	≤ 1.5
Peak gain	1.5dBi
Input impedance (Ω)	50
Polarization mode	Vertical, linear
Antenna form	PIFA

2、 Antenna testing

2.1 Testing equipment

Number	Device Name	Device images	Measurement indicators	Operating environment
1	Microwave anechoic chamber		Passive performance	There are no large metal objects around Normal temperature and humidity
2	HP8753D network analyzer			

2.2 Test results

Echo standing loss



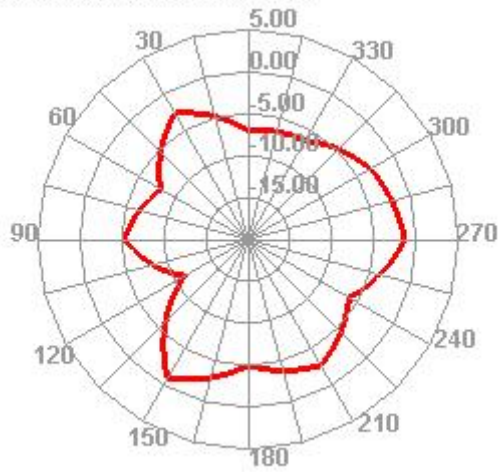
SMITH



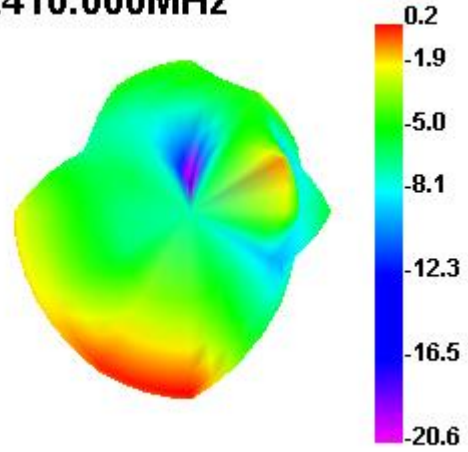
2.4G antenna efficiency and gain

Freq (MHz)	Effi (%)	Gain (dBi)
2400	37.7	1.5
2410	39.44	1.35
2420	41.69	1.5
2430	41.31	1.3
2440	41.11	1.28
2450	43.15	1.45
2460	46.48	1.5
2470	42.45	1.46
2480	44.62	1.5
2490	42.48	1.39
2500	38.05	1.3

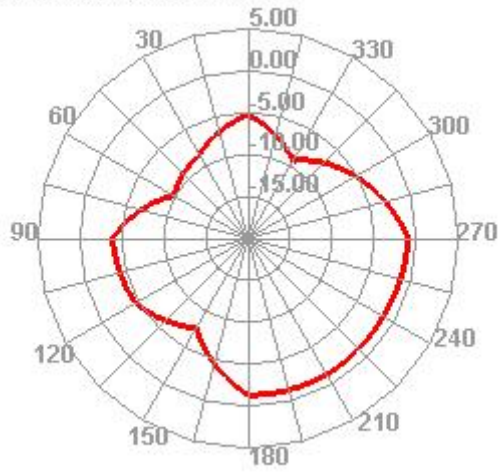
2410.000MHz E1



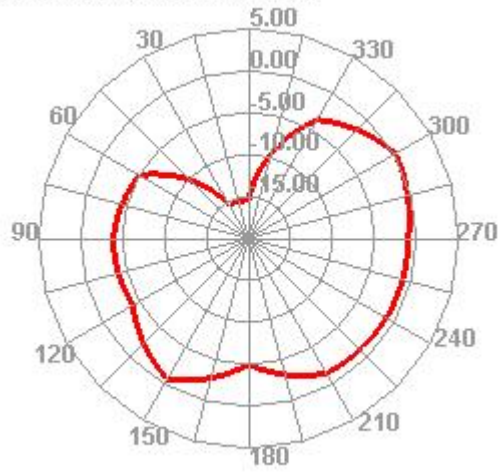
2410.000MHz



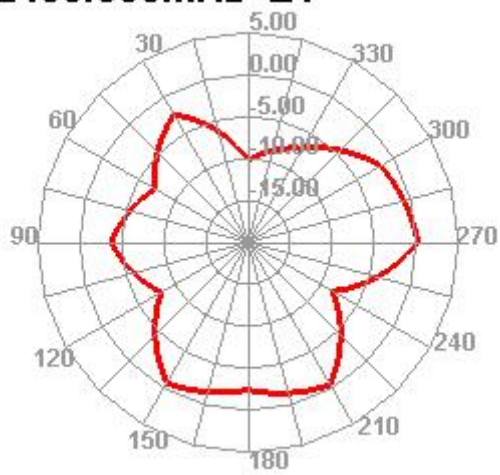
2410.000MHz H



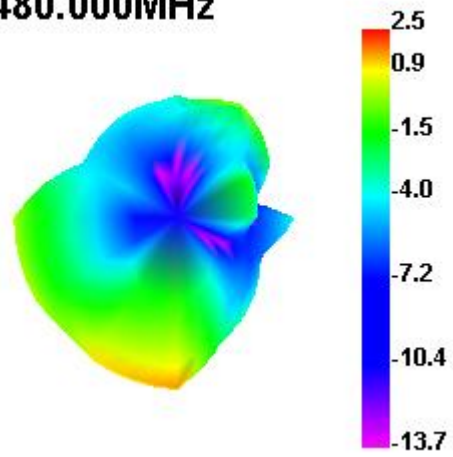
2410.000MHz E2



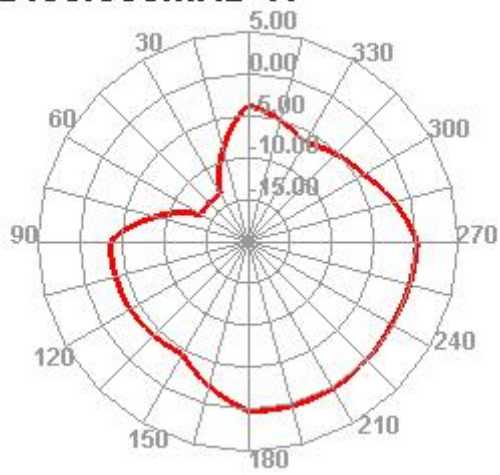
2480.000MHz E1



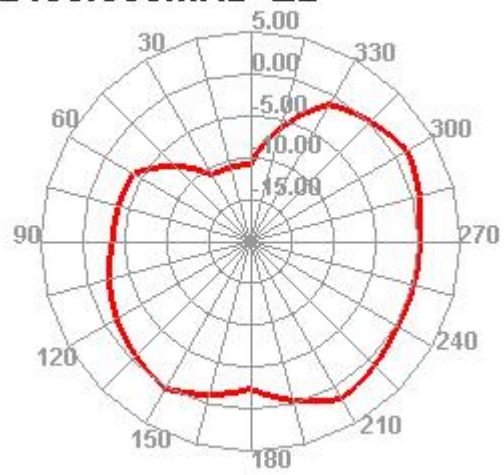
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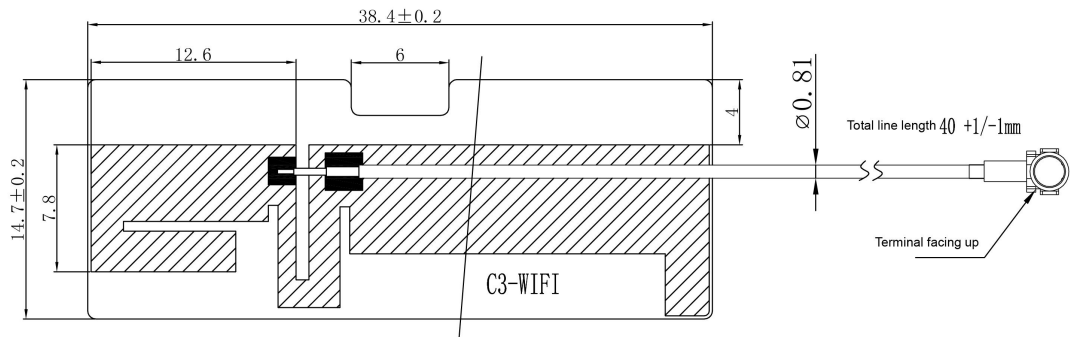
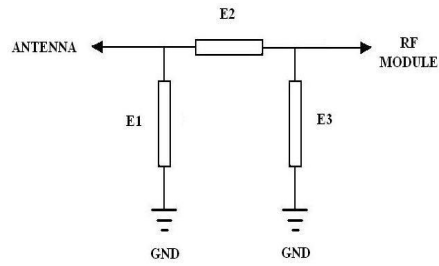
2480.000MHz H



2480.000MHz E2



2.3 Matching circuit



Note: All holes are through holes, the red line is broken.

Note

1. Material :FPC. Base material :18/25, surface color is matte black, and silk screen black bright oil.
2. The back of the overall adhesive type :3M-9471LE, total thickness T<0.15MM.
3. There should be no contaminants, scratches or black spots on the surface.
4. The thickness of nickel plating is 2~6um, and it is not easy to break and fall off after nickel plating, poor conduction, partial circuit failure and other undesirable phenomena
5. The adhesive needs to be hot shock experiment: experimental conditions :-40~+85 degrees Celsius for 16 cycles (one cycle is 30 minutes).
6. The drawing is a scale drawing of the original size, and * is the key control size

GENERAL TOLERANCE TABLE			
LINEAR(MM)		ANGULAR	
DIVISION	TOLERANCE	DIVISION	TOLERANCE
0-10	±0.05	0-30度	±1°
10-25	±0.07	30-90度	±2°
25-50	±0.10		
50-80	±0.13		
OVER 80	±0.20		