



Antenna Specifications

CUSTOMER		GIEC	
CS P/N		1420400694	
MATERIAL CODE		<u>2.4G/5.8G-WiFi</u>	
JS P/N		<u>003-086-1A</u>	
Antenna Type		<u>PCB Antenna</u>	
Checked by(RF)	Checked by(ME)	Checked by(QA)	Approval led by
Customer Approval			

1. General Description

This document provides the antenna specifications on electric, mechanic and reliability. The testing conditions and related pictures are also included.

1.1 Print Acceptance

Samples and Antenna Specifications are to be sent to customer. When they are approved, the approval form should be completed, signed, and sent back to JINGSONG before further mass production batches can be delivered.

1.2 Coordinate System

The coordinate system for the phone is defined as follows:

- Origin in center of gravity.
- Positive X axis is perpendicular to, and directed from, front plane.
- Positive Y axis is perpendicular to, and directed from, right side plane (as seen from front).
- Positive Z axis is perpendicular to, and directed from, top plane.

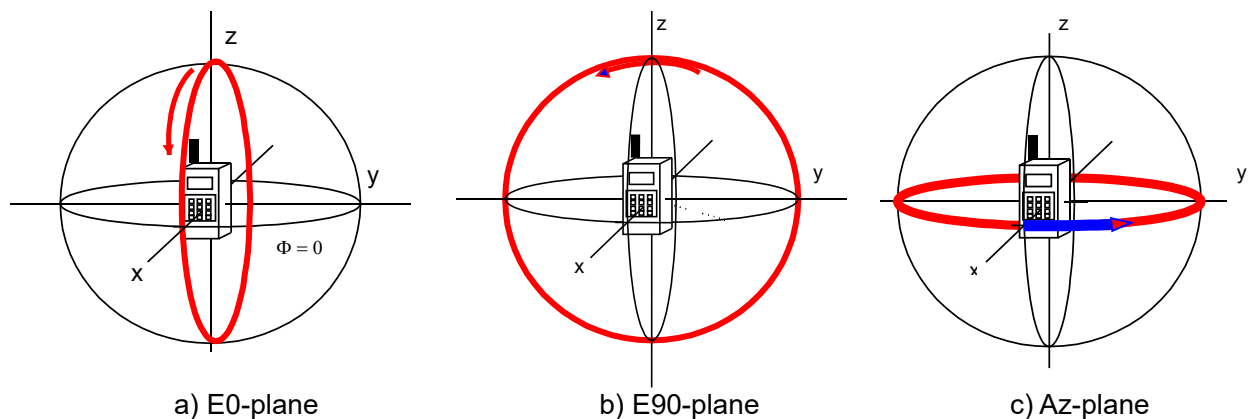


Figure 1-1 The coordinate system for the phone

2. Specifications

This report mainly provides the testing conditions of various electric and structural performance parameters for cell antenna ---- 2.4G/5.8G-WiFi. Figure 2-1 shows the antenna designed by JS & The fixturing of 2.4G/5.8G-WiFi

2-1: Specification

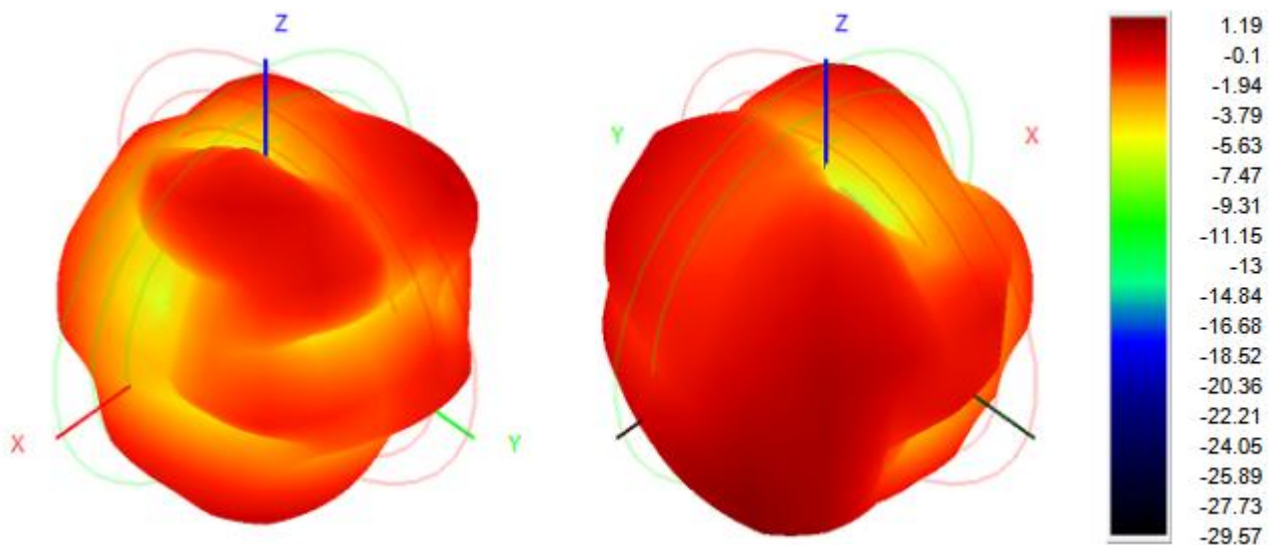
Sample Photo	
	
A.Electrical Characteristics	
Frequency	2400-2480MHz 5100-5850MHz
V.S.W.R.	2400-2480 MHz: < 1.5 5100-5850MHz: <2.0
Peak Gain	2400-2480 MHz: 1.42dBi 5100-5850MHz: 1.82dBi
Polarization	Linear
Impedance	50 Ohm
B.Material & Mechanical Characteristics	
Material of Radiator	/
Material of Plastic	PCB
Cable Type	/
Connector Type	weld
Connector Pull Test	> - 3 Kgf
C.Environmental	
Operation Temperature	- 40 °C ~ + 70 °C
Storage Temperature	- 40 °C ~ + 80 °C

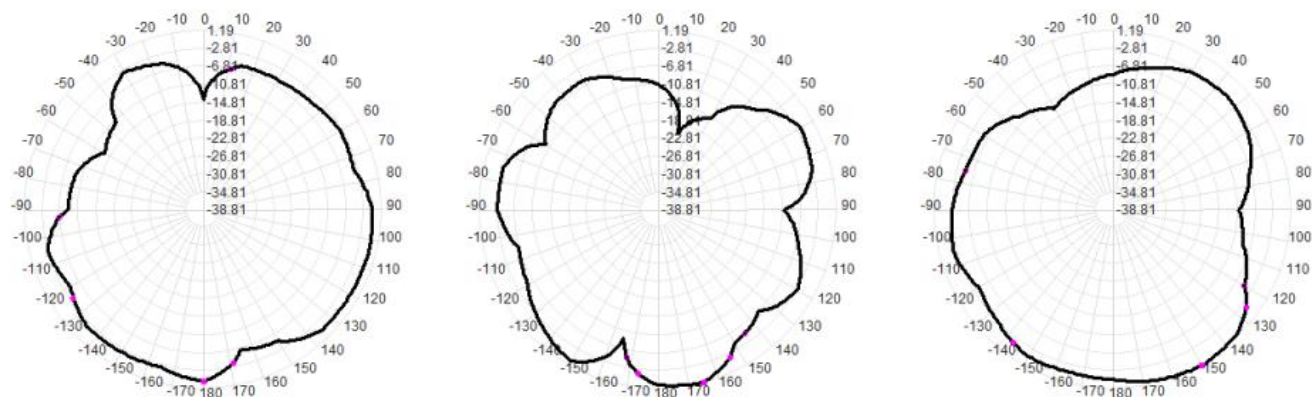
3. WiFi antenna test data

Wifi:2.4G efficiency / gain

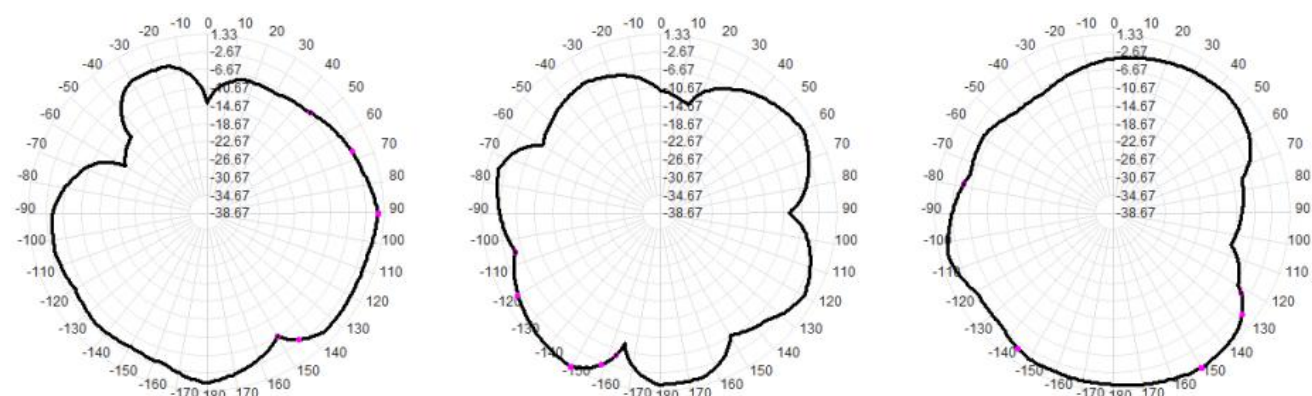
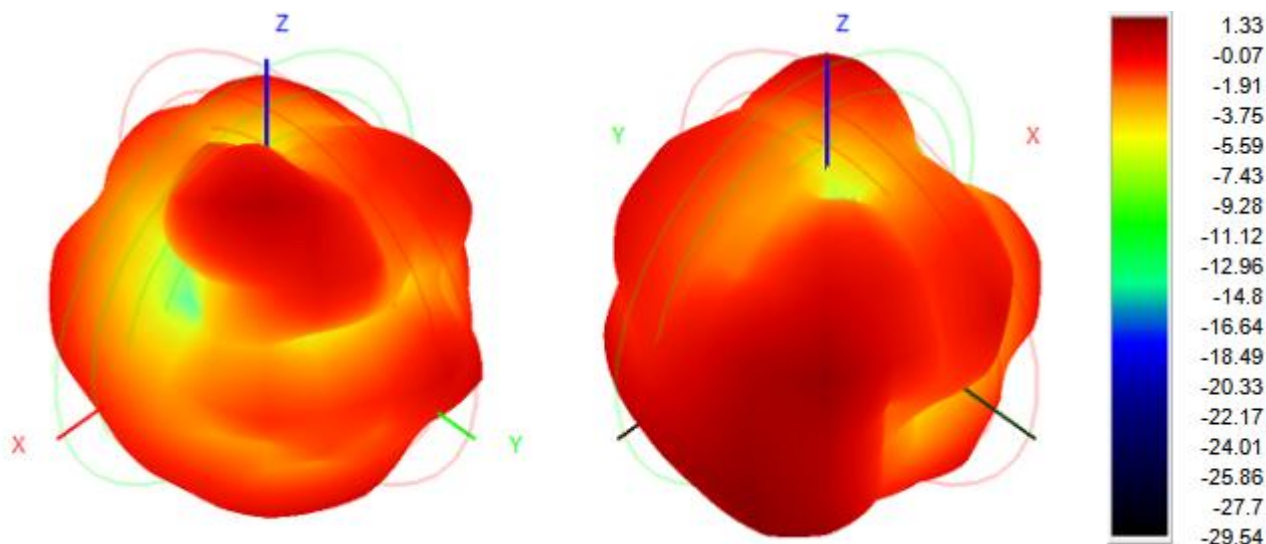
Fre.(Mhz)	Efficiency(%)	Gain(dBi)
2400	45.1	1.19
2410	42.6	1.23
2420	41.6	1.15
2430	43.8	1.18
2440	45.6	1.12
2450	42.4	1.33
2460	45.8	1.34
2470	47.1	1.42
2480	46.2	1.31

2400MHZ Apple chart

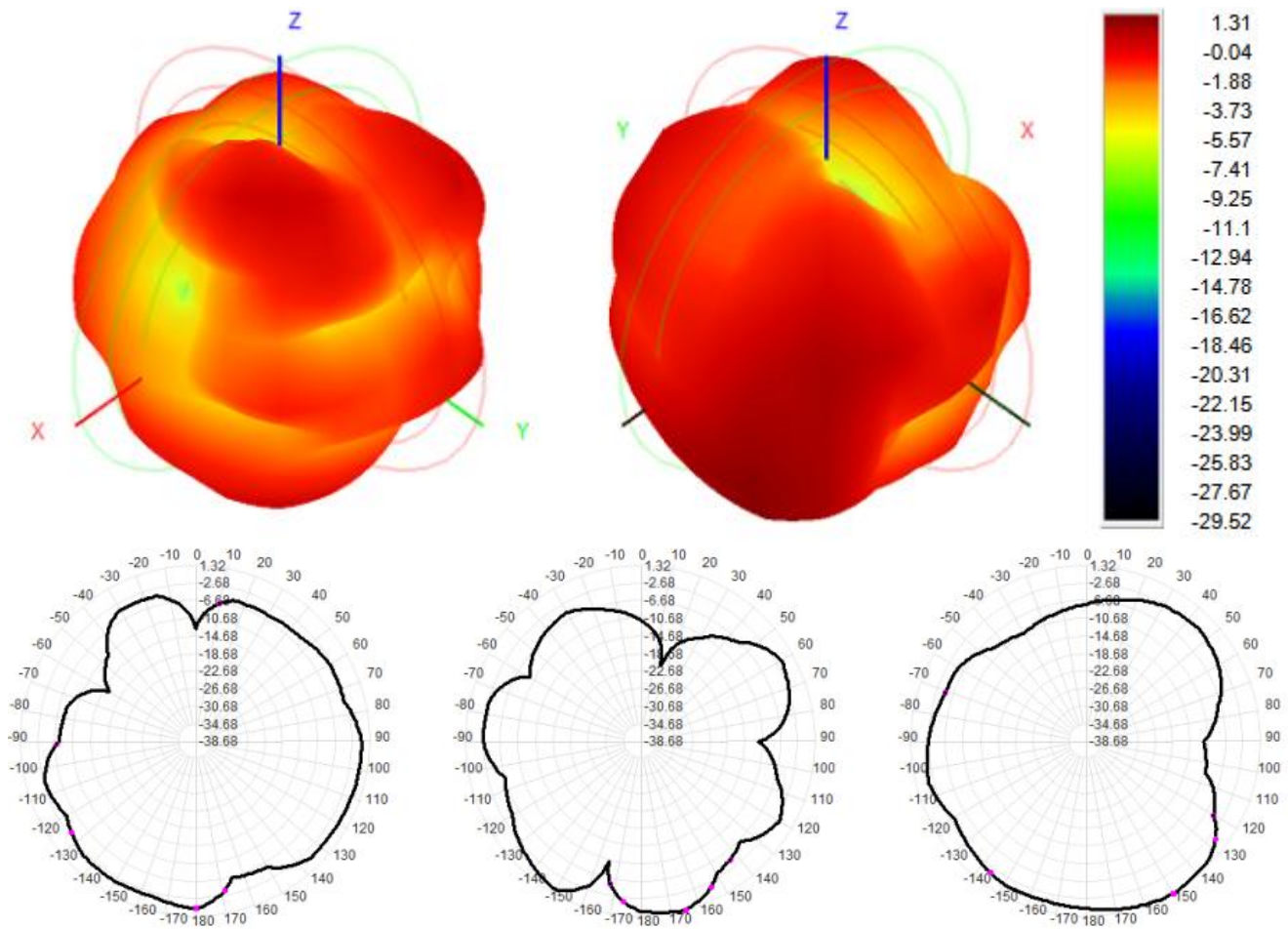




2450MHZ Apple chart



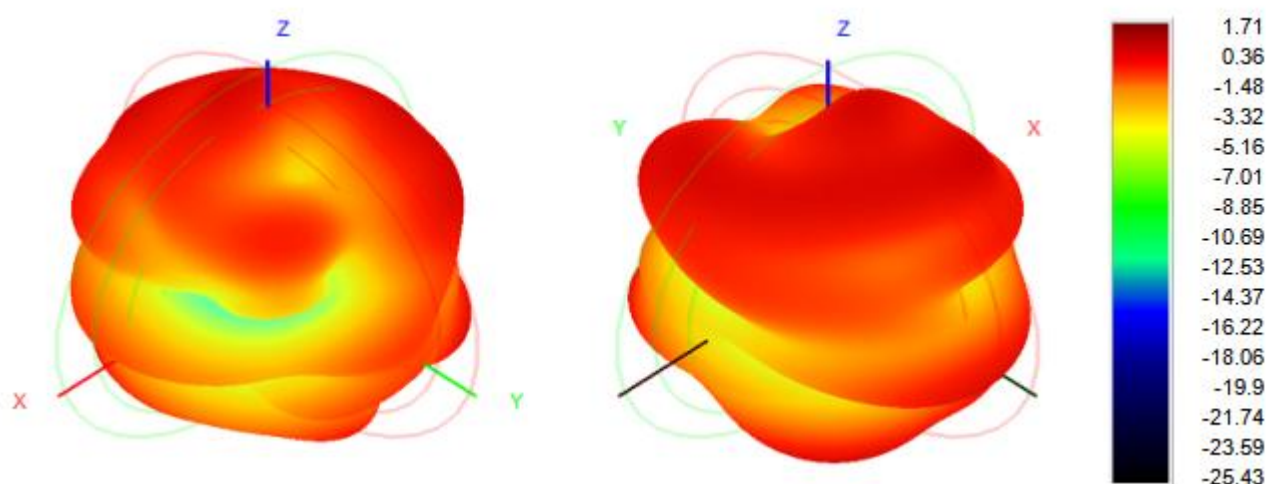
2480MHZ Apple chart



Wifi:5G efficiency / gain

WIFI: 5G		
Freq(MHz)	Efficiency (%)	Gain (dBi)
5150	48.3	1.71
5200	46.4	1.36
5250	44.8	1.25
5300	47.2	1.41
5350	46.3	1.76
5400	45.1	1.58
5450	49.4	1.35
5500	48.6	1.47
5550	47.1	1.82
5600	46.2	1.76
5650	43.4	1.65
5700	42.7	1.17
5750	43.4	1.31
5800	41.8	1.22
5850	43.5	0.92

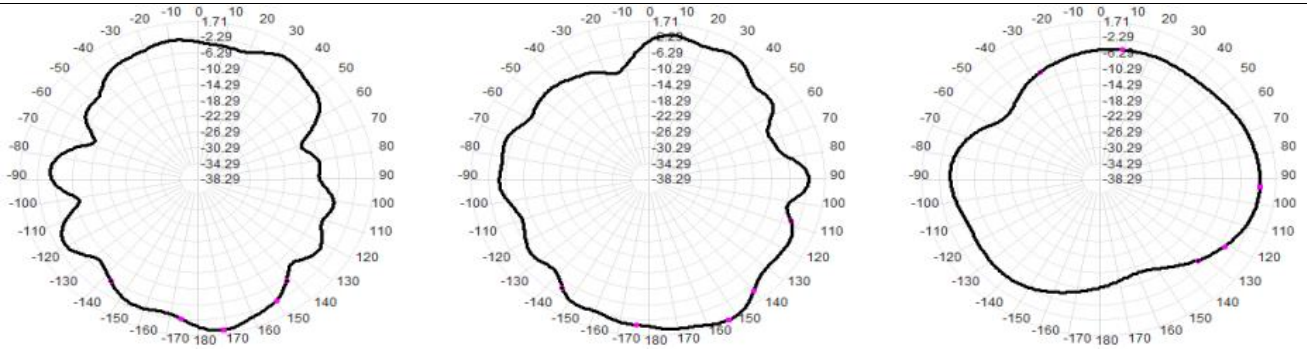
5150MHz Apple chart



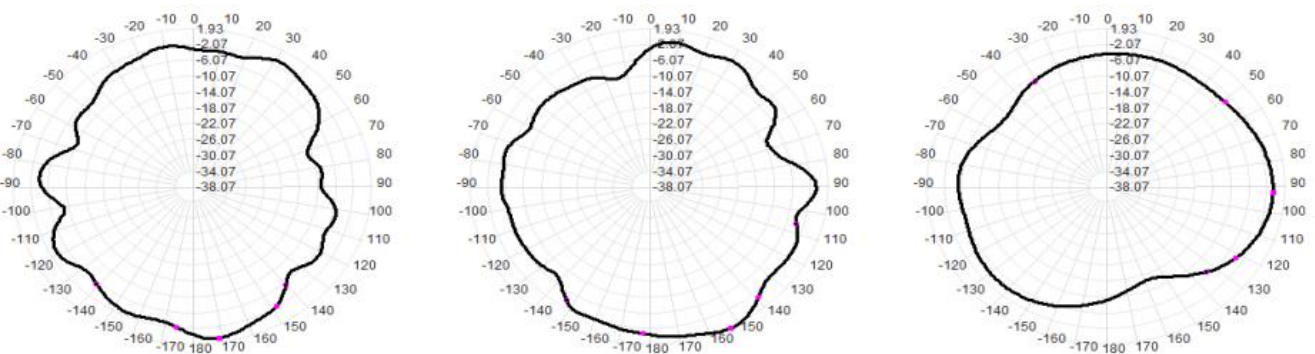
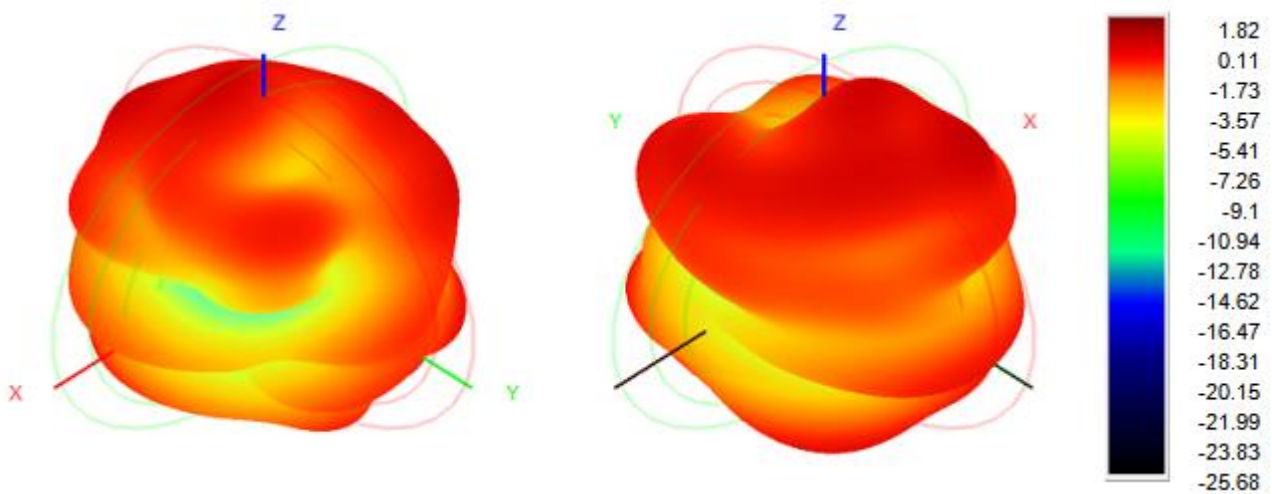


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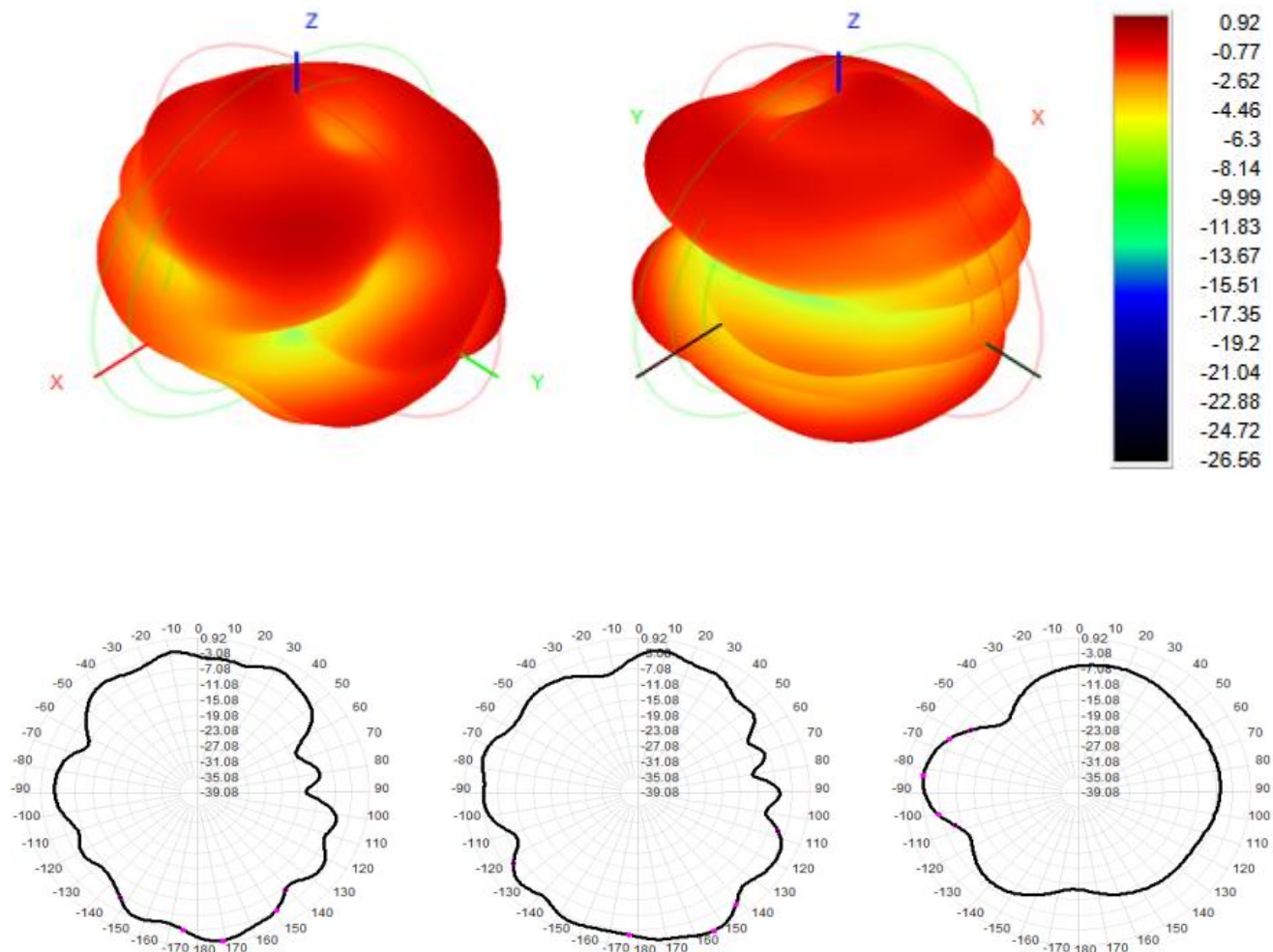


5550MHz Apple chart

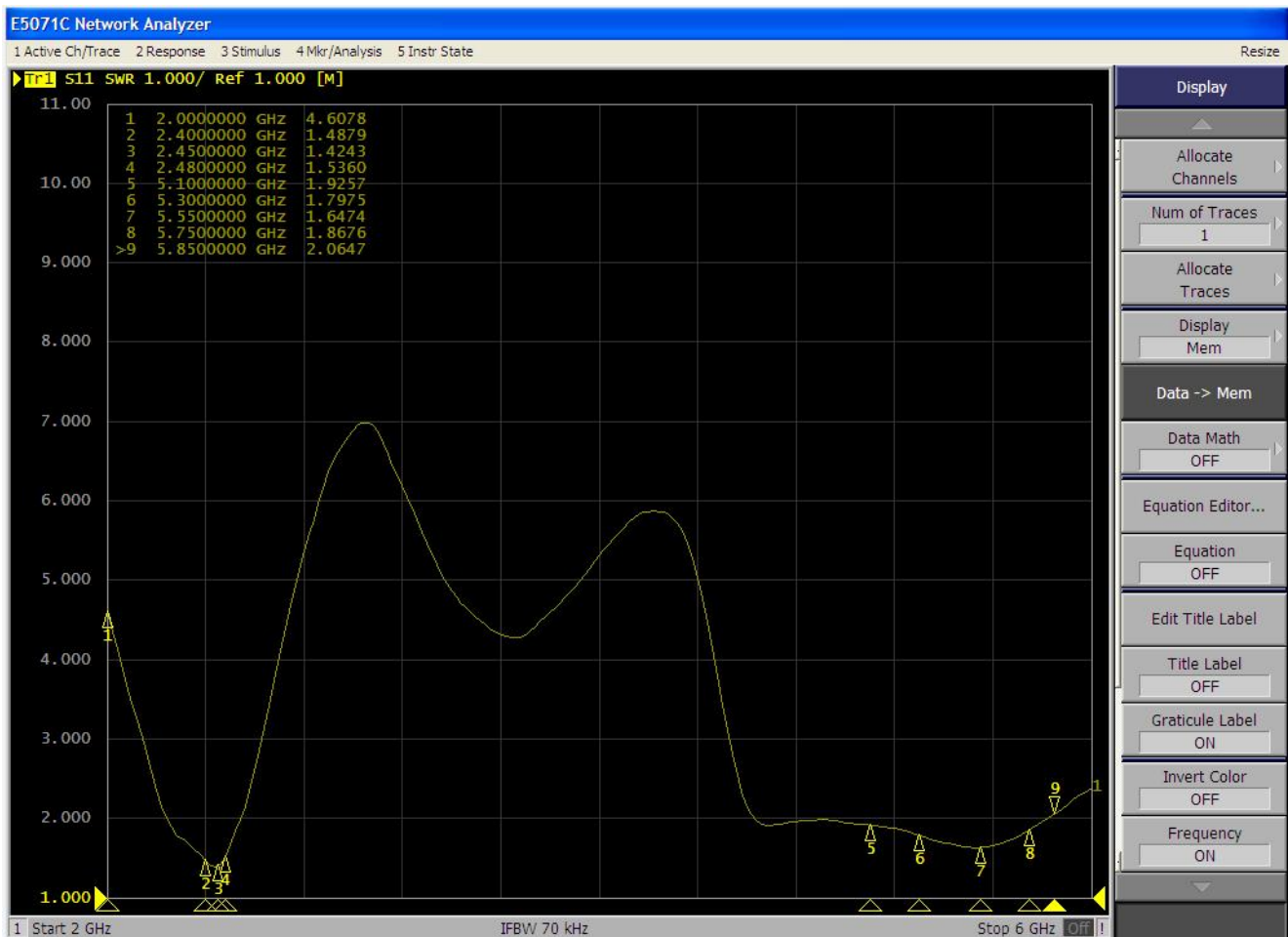


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5850MHz Apple chart



SWR

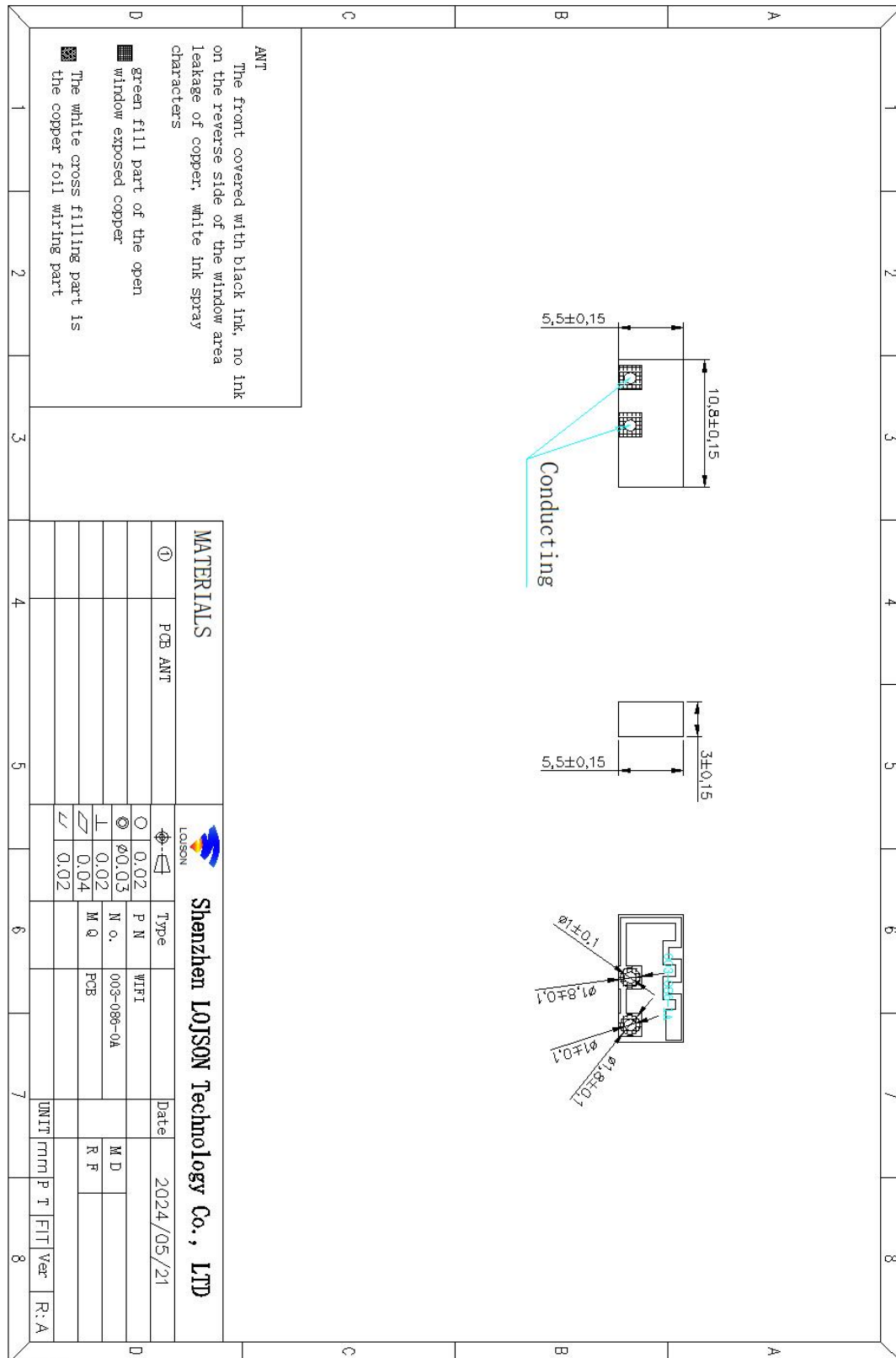




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4. Specifications Drawings



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5. Environmental Characteristic

Test Item	Test description
1. Low Temperature	Temp.: -20 °C Time: 24 hours
2. High Temperature	Temp.: 80°C Time: 24 hours
3. Salt Fog	5±0.1% Nad salt fog PH Value: 6.5-7.2 Temp: 35±1°C Time:24 hours



Antenna Specifications

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6.Characteristics and Reliability Test

Test Items 測試項目		Test Condition and Procedure 測試方法	Requirements 要求	Result 結果
C1	V.S.W.R. 電壓駐波比	Set DUT on Network Analyzer; make individual calibration to test 設置網路分析儀參數進行測試	Directive specification DUT 符合待測物規範	PASS
C3	Antenna Gain 天線增益	Set DUT on Antenna Chamber; make individual calibration to test 設置天線暗室參數進行測試	Directive specification DUT 符合待測物規範	PASS
M1	Vibration 震動	GB / T2423.48-2008 Amplitude: 0.03 inch (1.5mm); Freq: 20 to 80 to 20 Hz 3 directions; 2 hours for each direction 振幅 1.5mm; 頻率 20~80~20Hz; 3 個方向各 2H	1. No Visual Damage 2. Frequency Tol. $\leq 5\%$ 無明顯外觀不良 ; 頻率偏移 $\leq 5\%$	PASS
M4	Pull Test 拉力	Holding with individual specification; force applied to axis of Connector .單獨定義產品端子拉力	1. Directive specification DUT 2. Frequency Tol. $\leq 5\%$ 符合待測物規範 ; 頻率偏移 $\leq 5\%$	PASS
M5	Magnetic force 磁力	The separate definition of retention product magnetic surface magnets and adsorption on the iron 單獨定義產品磁鐵表面磁力及吸附鐵板上 保持力	1. Directive specification DUT 2. Frequency Tol. $\leq 5\%$ 符合待測物規範 ; 頻率偏移 $\leq 5\%$	PASS
M6	Sway test 搖擺測試	Holding with individual specification; the swing joint and wire, wire and plastic body test. 單獨定義接頭與線材、線材與塑膠本體的搖擺測試 .	1. Directive specification DUT 2. Frequency Tol. $\leq 5\%$ 符合待測物規範 ; 頻率偏移 $\leq 5\%$	PASS
M7	Dimension 尺寸	Inspection of dimension, color, material, package, surface process. 檢查尺寸 , 顏色, 材料, 包裝, 表面處理	Directive specification DUT 符合待測物規範	PASS
E2	Salt Spray 鹽霧	GB / T 2423.17-2008 Temp: 35°C; RH: $\geq 95\%$; NaCl solution: $\geq 5\%$; Time: 24H 溫度 35°C; 濕度 $\geq 95\%$; 鹽水濃度 $\geq 5\%$; 測試 24H	1. No Visual Damage 2. Frequency Tol. $\leq 5\%$ 無明顯外觀不良 ; 頻率偏移 $\leq 5\%$	PASS
E3	Temperature and Humidity Chamber 恒溫恒濕	GB / T 2423.3-2006 Temp: 80°C / 12 H; -40°C / 12H RH: $\geq 90\%$; Time: 24H 溫度 80°C 測試 12H 轉 -40°C 測試 12H; 濕度 $\geq 90\%$; 時間 24H	After 2 Hours Recovery 1. No Visual Damage 2. Frequency Tol. $\leq 5\%$ 恢復 2H 后, 無明顯外觀不良 ; 頻率偏移 $\leq 5\%$	PASS
E4	Thermal Shock 冷熱衝擊	GB / T 2423.22 - 2008 - 40°C (30 minutes) to + 80°C (30 minutes); Cycles: 24	After 2 Hours Recovery 1. No Visual Damage 2. Frequency Tol. $\leq 5\%$	PASS

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