
Project 549AA WIFI Antenna

Electrical performance report

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1 Overview

This document is the electrical performance report of the 549AA project antenna. The working frequency band of the WIFI antenna is 2400MHZ-2500MHZ and 5150MHZ-5850MHZ.

2 Antenna specification

Band	Frequency(MHz)	Return Loss(dB)
WIFI	2400-2500 & 5150-5850	<-5

3 Antenna status



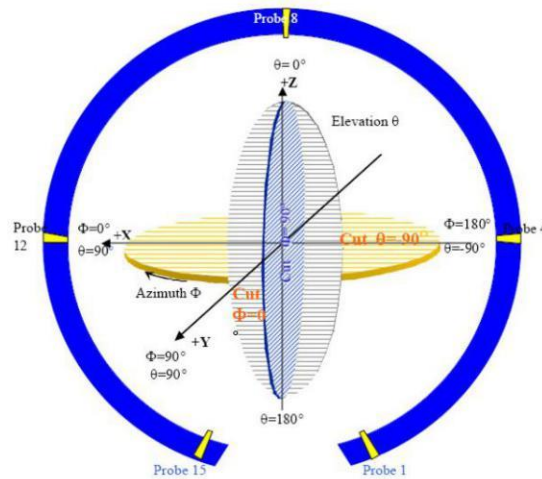
3.1 Antenna photo

4 Antenna test environment

4.1 Passive antenna test equipment

The antenna input characteristics were tested using an Agilent E5071C vector network analyzer.

The antenna radiation characteristics were tested using a GTS Ray Zone 1800 3D near-field microwave anechoic chamber. The test coordinate system is shown in 4.1.1



4.1.1 3D Microwave anechoic chamber test coordinate system (back view)

4.2 Physical drawing of antenna test equipment



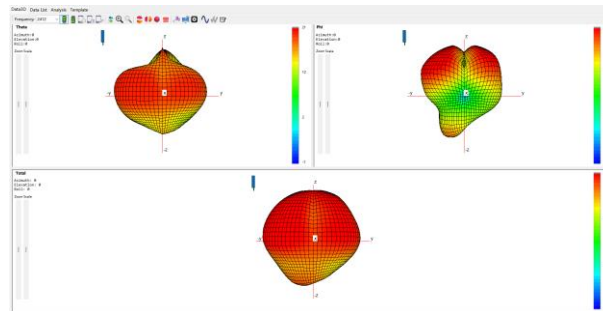
4.2.1 Darkroom physical drawing

5 Antenna test results

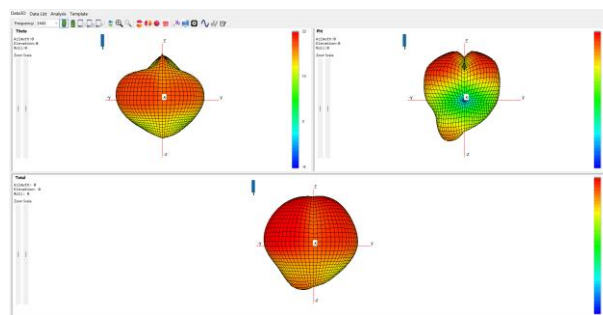
5.1 Antenna pattern

11B

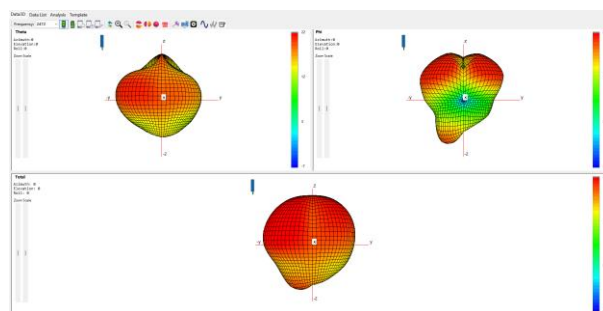
CH 1



CH7

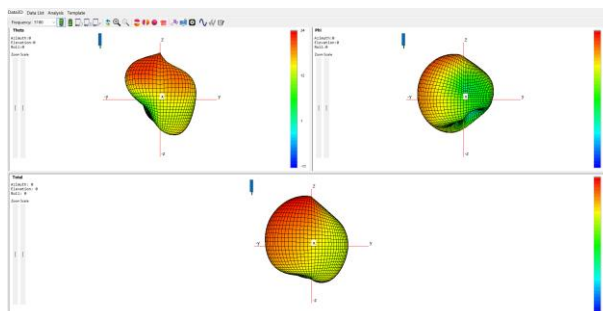


CH13

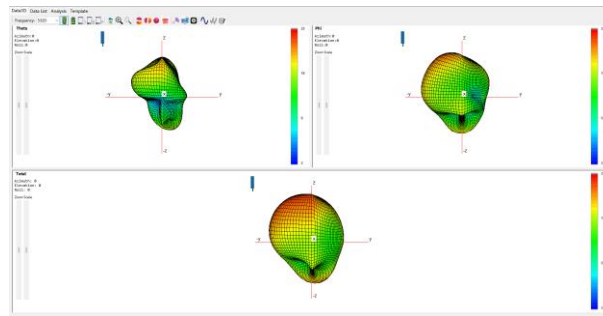


11A

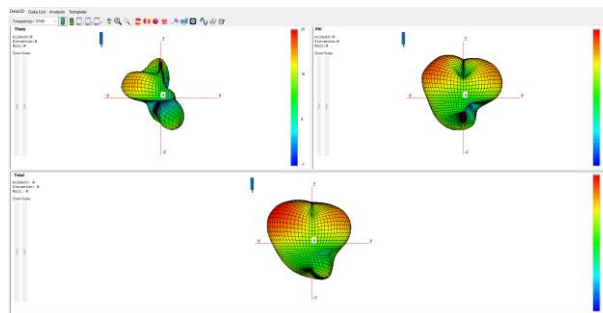
CH36



CH64

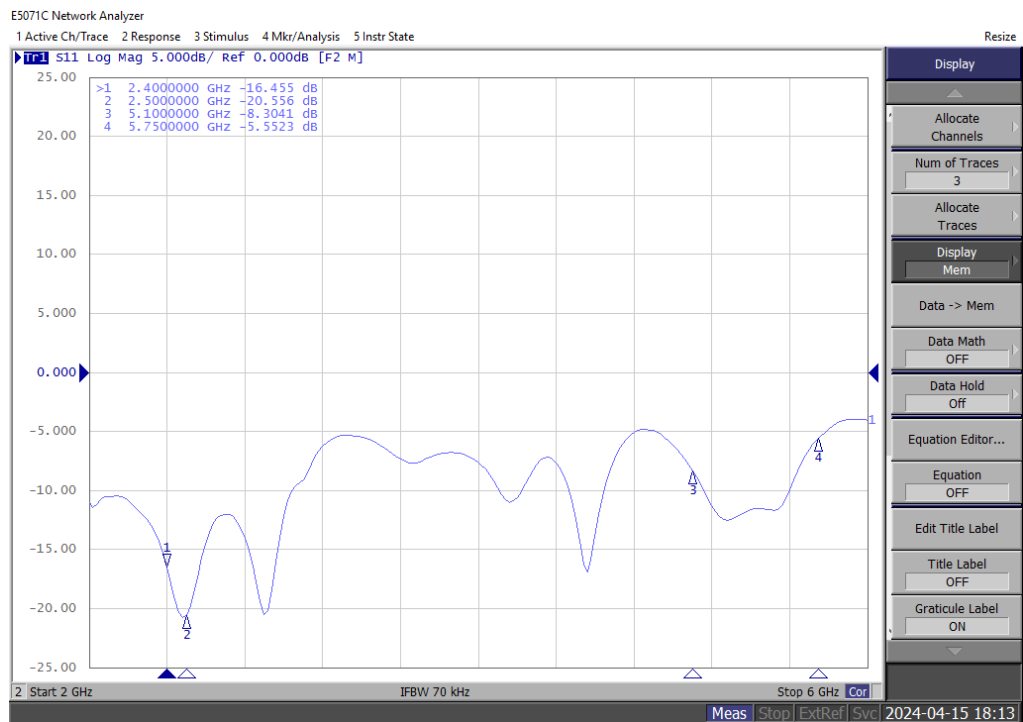


CH149



5.2 Reflection Loss

S11:



5.3Passive efficiency:

频率	效率	增益	频率	效率	增益
2400	-4.10	1.64	5150	-2.06	3.77
2410	-4.12	1.76	5200	-2.01	3.62
2420	-4.21	1.81	5250	-2.19	3.13
2430	-4.18	1.92	5300	-2.14	2.90
2440	-4.07	2.03	5350	-2.19	3.17
2450	-4.12	2.06	5400	-2.49	3.18
2460	-4.13	2.05	5450	-2.76	3.41
2470	-4.12	2.09	5500	-3.00	3.43
2480	-4.11	2.15	5550	-3.28	3.20
2490	-4.17	2.13	5600	-4.07	2.76
2500	-4.36	2.05	5650	-3.83	2.99
			5700	-3.93	2.81
			5750	-4.50	2.49
			5800	-4.20	2.70
			5850	-4.46	2.45
			5900	-4.96	2.09
			5950	-4.56	2.22
			6000	-4.54	2.28

6 Antenna Drawings

Technical drawing of a PCB antenna assembly with dimensions and specifications.

Dimensions:

- ① 41.97 ± 0.15 (mm)
- ② 20.41 ± 0.15 (mm)
- ③ 38 ± 1 (mm) (端子中心测量)
- ④ 天线厚度 (mm)

Labels:

- 端子朝上
- 切断线

Specifications:

- 1. 为标注尺寸参考3D, 关键尺寸公差值大于1.33.
- 2. 材料: (1) 材料: FR-4, 厚度: 1.6mm (2) 工艺: 阻焊: (3) 颜色: 黑色; (4) 表面处理: 喷锡
- 3. 所有尺寸均符合IPC-A-600 Class 2, 除非另有说明.
- 4. 所有尺寸均符合IPC-A-600 Class 2, 除非另有说明.
- 5. 所有尺寸均符合IPC-A-600 Class 2, 除非另有说明.
- 6. 所有尺寸均符合IPC-A-600 Class 2, 除非另有说明.
- 7. 所有尺寸均符合IPC-A-600 Class 2, 除非另有说明.
- 8. 所有尺寸均符合IPC-A-600 Class 2, 除非另有说明.

PCB Requirements:

- 1. 所有标注尺寸参考3D, 关键尺寸公差值大于1.33.
- 2. 材料: (1) 材料: FR-4, 厚度: 1.6mm (2) 工艺: 阻焊: (3) 颜色: 黑色; (4) 表面处理: 喷锡
- 3. 所有尺寸均符合IPC-A-600 Class 2, 除非另有说明.
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- 8. 所有尺寸均符合IPC-A-600 Class 2, 除非另有说明.

Table 1: Material Properties

Item	Material	Thickness	Color	Surface Treatment
1	FR-4	1.6mm	Black	Solder Plating

Table 2: Dimensional Tolerances

Dimension	Symbol	Value
One Place <td>X.X</td> <td>± 0.15</td>	X.X	± 0.15
Two Place <td>X.XX</td> <td>± 0.10</td>	X.XX	± 0.10
Angular Dia <td>X.X°</td> <td>$\pm 1.0°$</td>	X.X°	$\pm 1.0°$
Hole Dia <td>X.X</td> <td>± 0.10</td>	X.X	± 0.10

Table 3: Mechanical Properties

Property	Value
Modulus	2100 N/mm²
Strength	100 N/mm²
Hardness	100 N/mm²

Table 4: Environmental Properties

Property	Value
Temperature	-40°C ~ +100°C
Humidity	5% ~ 95%
Altitude	0 ~ 1000m

Table 5: Electrical Properties

Property	Value
Resistance	100Ω
Capacitance	100pF
Inductance	100nH

Table 6: Mechanical Properties

Property	Value
Modulus	2100 N/mm²
Strength	100 N/mm²
Hardness	100 N/mm²

Table 7: Environmental Properties

Property	Value
Temperature	-40°C ~ +100°C
Humidity	5% ~ 95%
Altitude	0 ~ 1000m

Table 8: Electrical Properties

Property	Value
Resistance	100Ω
Capacitance	100pF
Inductance	100nH

Table 9: Mechanical Properties

Property	Value
Modulus	2100 N/mm²
Strength	100 N/mm²
Hardness	100 N/mm²

Table 10: Environmental Properties

Property	Value
Temperature	-40°C ~ +100°C
Humidity	5% ~ 95%
Altitude	0 ~ 1000m

Table 11: Electrical Properties

Property	Value
Resistance	100Ω
Capacitance	100pF
Inductance	100nH

Table 12: Mechanical Properties

Property	Value
Modulus	2100 N/mm²
Strength	100 N/mm²
Hardness	100 N/mm²

Table 13: Environmental Properties

Property	Value
Temperature	-40°C ~ +100°C
Humidity	5% ~ 95%
Altitude	0 ~ 1000m

Table 14: Electrical Properties

Property	Value
Resistance	100Ω
Capacitance	100pF
Inductance	100nH

Table 15: Mechanical Properties

Property	Value
Modulus	2100 N/mm²
Strength	100 N/mm²
Hardness	100 N/mm²

Table 16: Environmental Properties

Property	Value
Temperature	-40°C ~ +100°C
Humidity	5% ~ 95%
Altitude	0 ~ 1000m

Table 17: Electrical Properties

Property	Value
Resistance	100Ω
Capacitance	100pF
Inductance	100nH

Table 18: Mechanical Properties

Property	Value
Modulus	2100 N/mm²
Strength	100 N/mm²
Hardness	100 N/mm²

Table 19: Environmental Properties

Property	Value
Temperature	-40°C ~ +100°C
Humidity	5% ~ 95%
Altitude	0 ~ 1000m

Table 20: Electrical Properties

Property	Value
Resistance	100Ω
Capacitance	100pF
Inductance	100nH

Table 21: Mechanical Properties

Property	Value
Modulus	2100 N/mm²
Strength	100 N/mm²
Hardness	100 N/mm²

Table 22: Environmental Properties

Property	Value
Temperature	-40°C ~ +100°C
Humidity	5% ~ 95%
Altitude	0 ~ 1000m

Table 23: Electrical Properties

Property	Value
Resistance	100Ω
Capacitance	100pF
Inductance	100nH

Table 24: Mechanical Properties

Property	Value
Modulus	2100 N/mm²
Strength	100 N/mm²
Hardness	100 N/mm²

Table 25: Environmental Properties

Property	Value
Temperature	-40°C ~ +100°C
Humidity	5% ~ 95%
Altitude	0 ~ 1000m

Table 26: Electrical Properties

Property	Value
Resistance	100Ω
Capacitance	100pF
Inductance	100nH

Table 27: Mechanical Properties

Property	Value
Modulus	2100 N/mm²
Strength	100 N/mm²
Hardness	100 N/mm²

Table 28: Environmental Properties

Property	Value
Temperature	-40°C ~ +100°C
Humidity	5% ~ 95%
Altitude	0 ~ 1000m

Table 29: Electrical Properties

Property	Value
Resistance	100Ω
Capacitance	100pF
Inductance	100nH

Table 30: Mechanical Properties

Property	Value
Modulus	2100 N/mm²
Strength	100 N/mm²
Hardness	100 N/mm²

Table 31: Environmental Properties

Property	Value
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