



**Huizhou Speed Wireless Technology Co.,Ltd**

## F-NR300 WIFI1 Antenna Specification

Customer/Project	F-NR300		Frequency Band	2400-2500MHz, 5.15-5.85GHz	
SCT P/N	F-0Y-4X-0084-006-00		Version	S01	
Date	2022.08.31				
<b>SPEED</b>					
Checked by	RF	汤小俊	Designed by	RF	高俊健
	ME	徐雷		ME	粟茗亮
	QC		Remark		
<b>Customer</b>					
Date					
Confirmed by	RF				
	ME				
Remark					

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## 1 Summary

This document is the F-NR300 wifi antenna specification. The antenna scheme is a PCB+Cable cable. The antenna is fed directly through the coaxial line. Its installation location is shown in Figure 1:

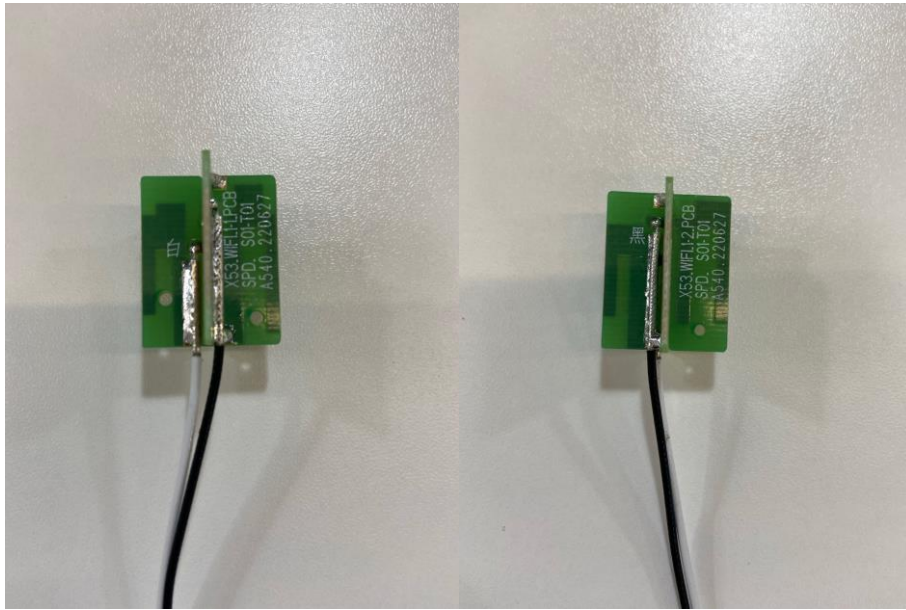


Figure 1 Antenna Picture

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## 2 Antenna Specification

Electrical performance technical indicators

Antenna Form	PCB+Cable
Frequency	2400-2500MHz, 5.15-5.85GHz
Antenna Isolation	2400-2500MHz <-25dB 5.15-5.85GHz <-25dB
Antenna Efficiency	2400-2500MHz>40% 5.15-5.85GHz>50%
Return Loss	2400-2500MHz<-10dB 5.15-5.85GHz<-10dB
Input Impedance	50ohm
Polarization	Linear polarization
Axial ratio	N/A
Radiation pattern	omnidirectional
Feed type	Direct Feed
Antenna Size	See drawing
Weight	No Requirement
Work Temp.	-40 °C to +80 °C
Storage Temp.	-40 °C to +80 °C

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### 3 Antenna Test Environment

The test equipment for antenna return loss, VSWR and isolation is Keysight E5071C vector network analyzer. As shown in the figure below:



Fig. 3 Keysight E5071C Vector network analyzer

The efficiency, gain and pattern of the antenna were measured in the French Satimo anechoic chamber. The anechoic chamber uses 64 probes to electronically scan the radiation performance of the antenna, collect data, and then analyze and sort out the data by computer, which can provide antenna testing in the 400MHz to 6GHz frequency band.



Fig. 4 Satimo anechoic chamber test system

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## 4 Antenna Test Result

### 4.1 Antenna return loss and isolation

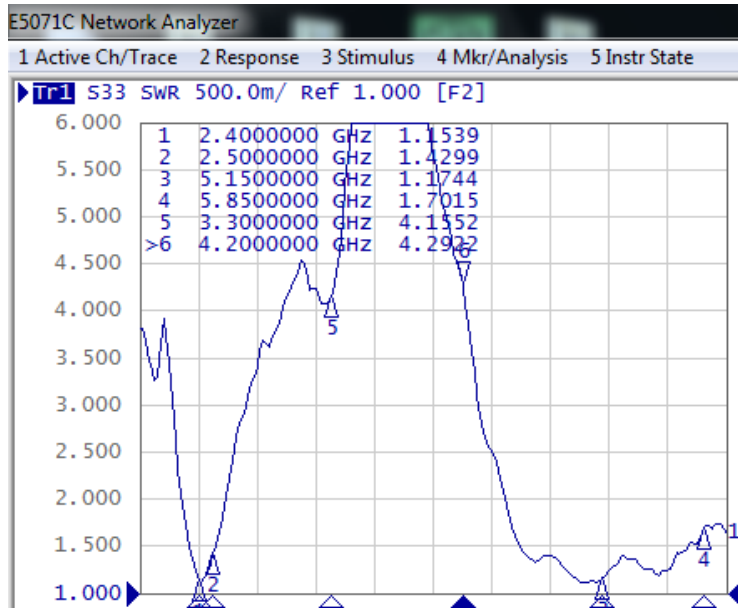


Fig. 5 WIFI1-1 Antenna Return LOSS

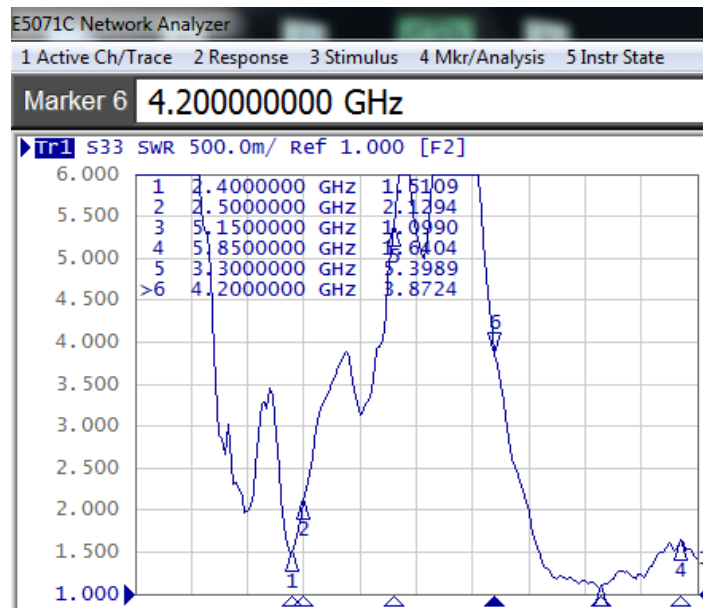


Fig. 6 WIFI1-2 Antenna Return Loss

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#### 4.2 Antenna Efficiency and Max. Gain

Frequency (MHz)	Efficiency (%)	Gain (dBi)
2400	56	2.36
2410	55	2.23
2420	55	1.96
2430	55	1.76
2440	55	1.92
2450	56	2.06
2460	57	2.1
2470	59	2.16
2480	59	2.64
2490	59	2.97
2500	59	3.1
5150	57	2.58
5200	52	1.61
5250	53	2.39
5300	58	3.08
5350	57	2.87
5400	62	2.85
5450	61	2.39
5500	52	1.34
5550	54	1.59
5600	49	1.53
5650	49	1.71
5700	51	1.35
5750	50	1.28
5800	50	1.14
5850	55	1.51

#### WIFI1-1 Ant. Efficiency and Gain

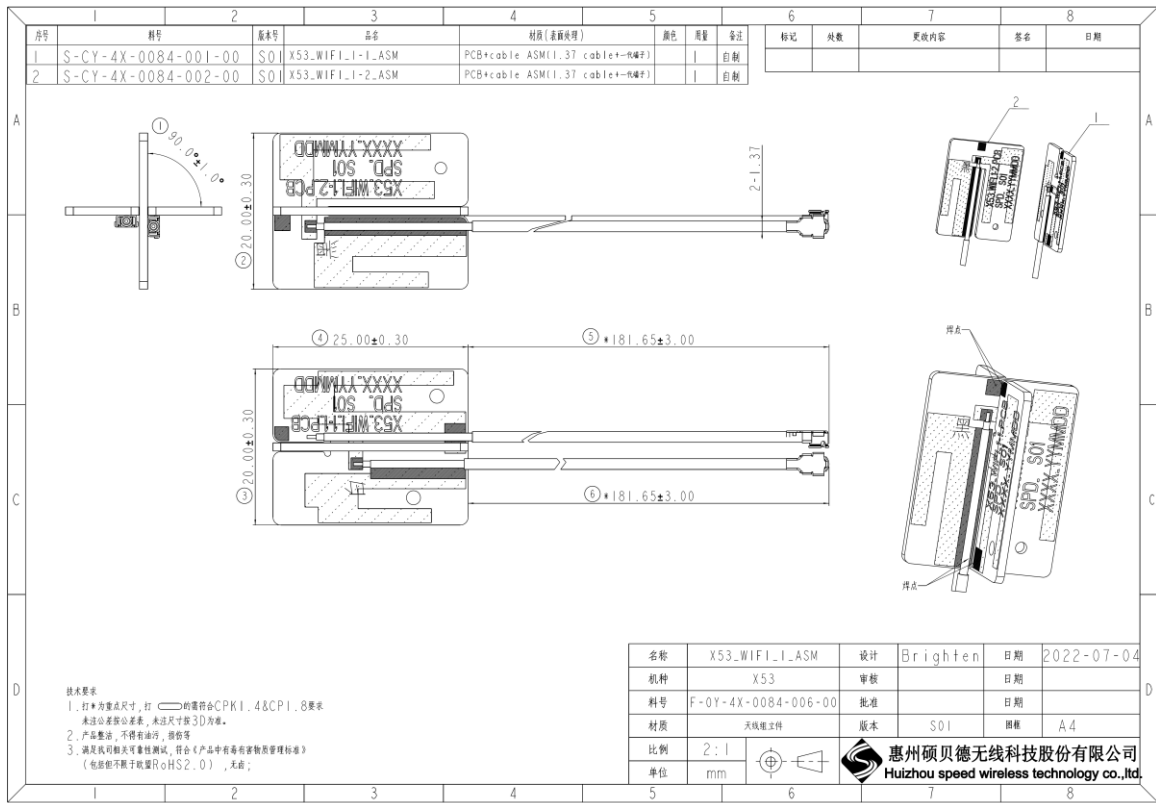
Frequency (MHz)	Efficiency (%)	Gain (dBi)
2400	63	2.84
2410	62	2.7
2420	62	2.58
2430	62	2.46
2440	62	2.36
2450	63	2.52
2460	63	2.8
2470	64	3.08
2480	64	3.09
2490	64	3.03
2500	64	3.12
5150	48	2.17
5200	50	2.54
5250	50	2.13
5300	46	1.67
5350	48	1.57
5400	51	2.09
5450	53	2.04
5500	55	1.73
5550	65	2.29
5600	65	2.52
5650	66	2.82
5700	66	3.02
5750	60	3.13
5800	59	2.87
5850	59	2.47

#### WIFI1-2 Ant. Efficiency and Gain

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## 5 Antenna Structure Diagram



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