

Antenna Datasheet

Product OC: VIC-TX2506G

Version: 1.1

Date: 2025-11-08

Product Name: Wi-Fi FPC Antenna

Key Features:

Frequency band: 2400–2500 MHz, 5150–5850 MHz

Dimensions: 38 mm × 7 mm

RoHS and REACH Compliant

Overview

Wi-Fi antenna covers 2.4~5.8 GHz, fully satisfying customers' requirements for Wi-Fi 5, Wi-Fi 6, and Wi-Fi 6E/Wi-Fi 7. There are various antenna types, including built-in FPC/PCB antenna, ceramic patch antenna, and other external antennas of different shapes or sizes. The antenna performance meets the customers' demands for efficiency, gain, and radiation and ensures the superior experience of the customers' products in use.

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1 Specification

Test Condition: Free Space & Stick on 2 mm Thick ABS Board

1.1. Electrical

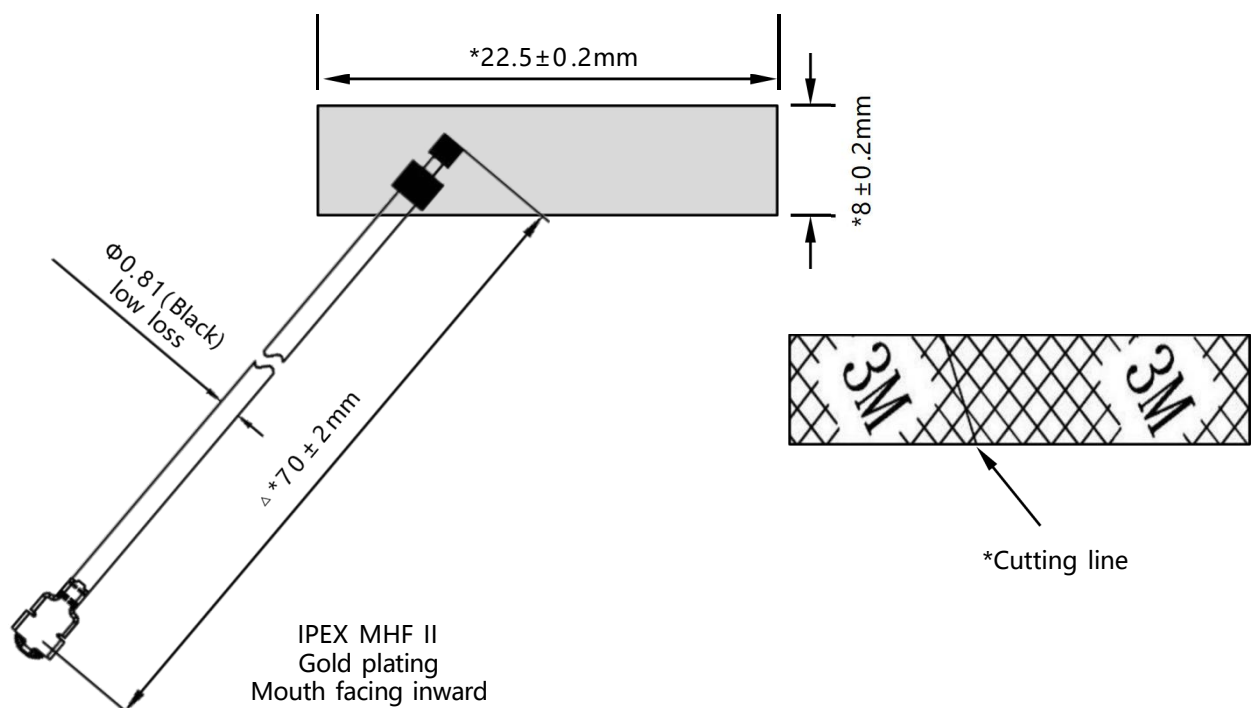
Electrical	
Frequency Range	2400–2500 MHz
Impedance	50 Ω
Polarization	Linear
Radiation Pattern	Omni-directional

Specification	Wi-Fi 2.4G
	2400 - 2500
Max. VSWR	2.0
Max. Return Loss (dB)	-13.3
AVG Eff. (%)	47.4%
AVG Gain (dB)	3.10
Max. Peak Gain (dBi)	3.38
VSWR	1.22
Return Loss	≤ -8.5 dB
Max.Eff.(%)	49.68

1.2. Mechanical & Environmental

Mechanical	
Antenna Size	22.5 mm × 8 mm
Antenna Material & Color	FPC & Black
Cable Type & Color & Length	Φ 0.81 & Black & 70 mm
Connector Type	IPEX MHF 2
Mounting Type	Adhesive
Antenna Weight	Typ. 0.4 g
Environmental	
Operation Temperature	-40 °C to +85 °C
Storage Temperature	-40 °C to +85 °C
RoHS and REACH Compliant	Yes

2 Drawing

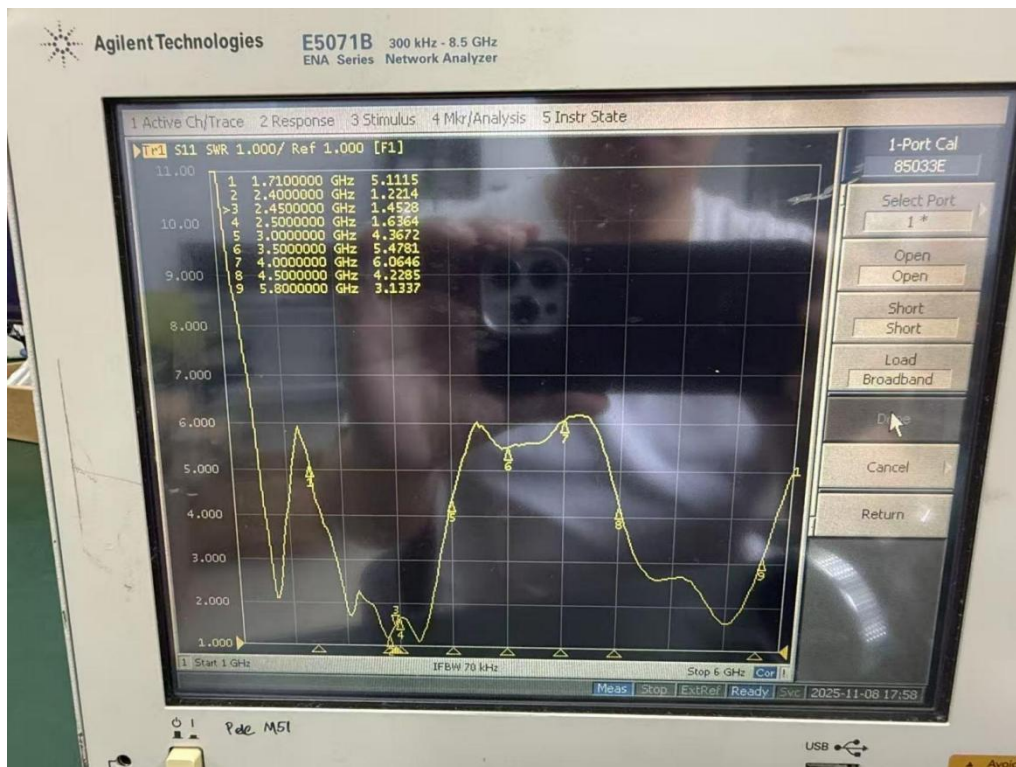


3 Detailed Performance

3.1 S-Parameter Test

3.1.1 VSWR

VSWR



Frequency (MHz)	2400	2450	2500
VSWR	1.2214	1.4528	1.6364

3.2 Radiation Performance Test

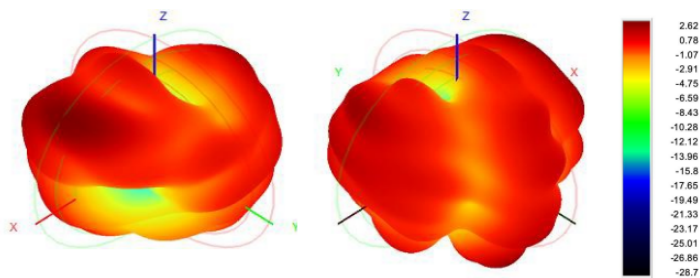
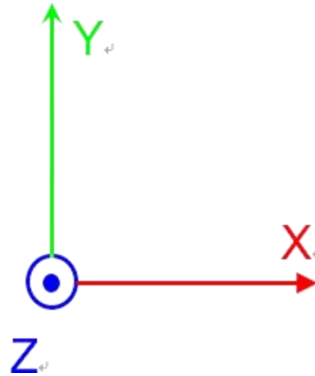
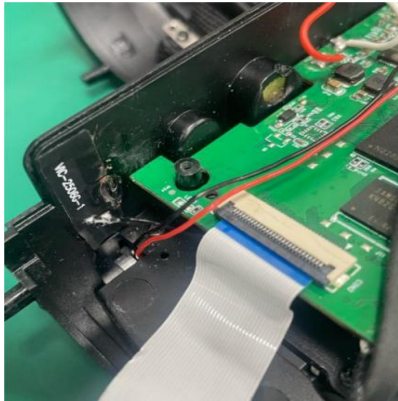
3.2.1 Efficiency & Gain & Directivity

Frequency (MHz)	Efficiency (dBi)	Gain (dBi)	Efficiency (%)	Directivity (dB)
2400.00	-3.04	2.62	49.68	5.66
2410.00	-3.10	2.73	49.03	5.83
2420.00	-3.15	2.86	48.36	6.02
2430.00	-3.21	2.99	47.79	6.19
2440.00	-3.22	3.14	47.64	6.36
2450.00	-3.24	3.26	47.47	6.50
2460.00	-3.20	3.37	47.88	6.56
2470.00	-3.23	3.38	47.53	6.61
2480.00	-3.32	3.33	46.57	6.65
2490.00	-3.43	3.26	45.37	6.69
2500.00	-3.55	3.20	44.13	6.75

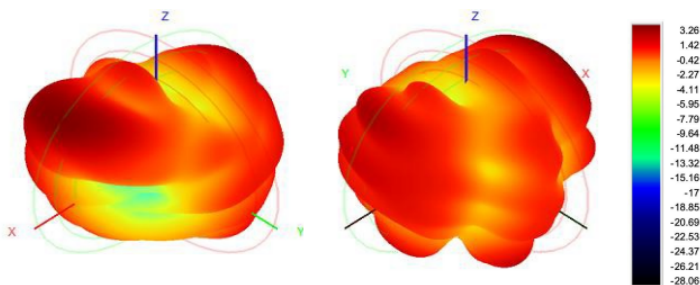
4. 3D & 2D Radiation Pattern

1. Test Condition: Free Space

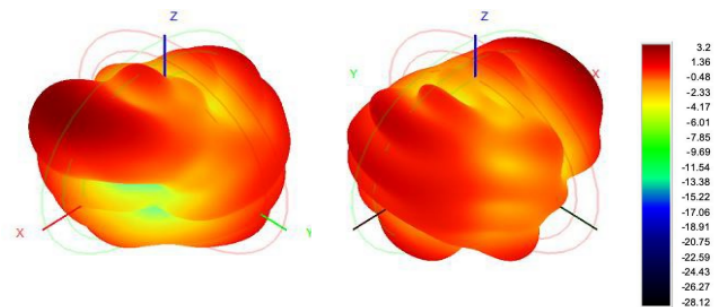
- Test Chamber: HF-G-1



2400.0MHz Total, Eff: 49.7%
Total (E1-XZ), Max= 2.61dBi ; Total (E2-YZ), Max= -0.17dBi



2450.0MHz Total, Eff: 47.5%
Total (E1-XZ), Max= 3.24dBi ; Total (E2-YZ), Max= -1.43dBi



2500.0MHz Total, Eff: 44.1%
Total (E1-XZ), Max= 2.84dBi ; Total (E2-YZ), Max= -0.89dBi

4 Installation and recommendations

During installation, please note the following:

- There should be no wiring or grounding beneath the antenna.
- The antenna should not be placed too close to metal objects, such as batteries or chips. It should not overlap with batteries or other metal objects.
- Internal cables (such as battery power cables) should not be placed too close to the antenna.
- Antenna matching in the final product design can shorten the adjustment cycle; repeated adjustments are often required on bare boards.
- Do not use metal casings or plastic casings with metal inserts around the antenna.