

Antenna Datasheet

Product OC: FCM363X

Version: 1.0

Date: 2025-8-22

Status: Preliminary

Product Name: Wi-Fi Antenna

Key Features:

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

Efficiency: Up to 65 %

Overview

Quectel Wi-Fi antenna covers 2.4 GHz, 5 GHz, and up to 7 GHz bands, 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

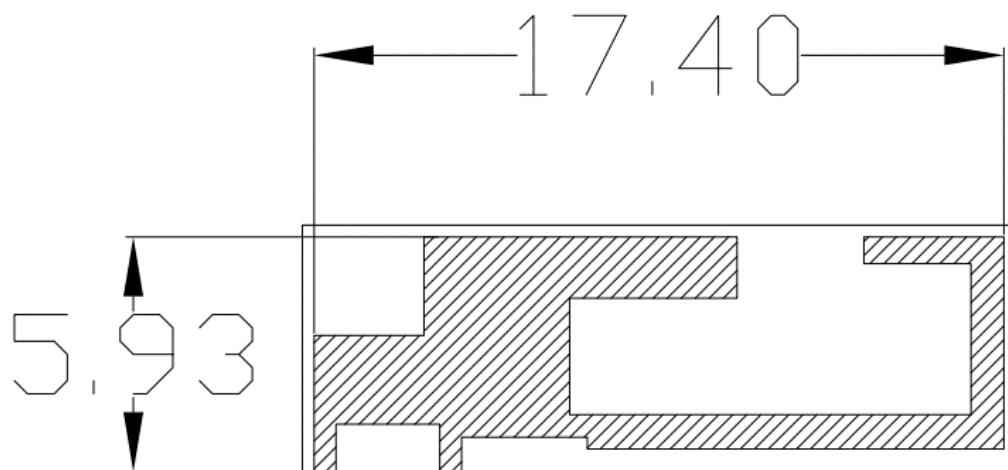
Test Condition: Assembled in test device

1.1. Electrical

Electrical	
Frequency Range	2400–2500 MHz, 5150–5850 MHz
Impedance	50 Ω
Polarization	Linear
Radiation Pattern	Omni-directional

Band	Band	Wi-Fi 2G	Wi-Fi 5G
Specification	Freq. (MHz)	2400–2500	5150–5850
Max. VSWR		4.0	3.2
Max. Return Loss (dB)		-4.4	-5.5
AVG Eff. (%)		41.6	54.3
AVG Gain (dB)		-4.0	-2.4
Max. Peak Gain (dBi)		2.4	3.1
VSWR	≤ 4.0		
Return Loss	≤ -4.4 dB		
Peak Gain	≤ 3.1 dBi		

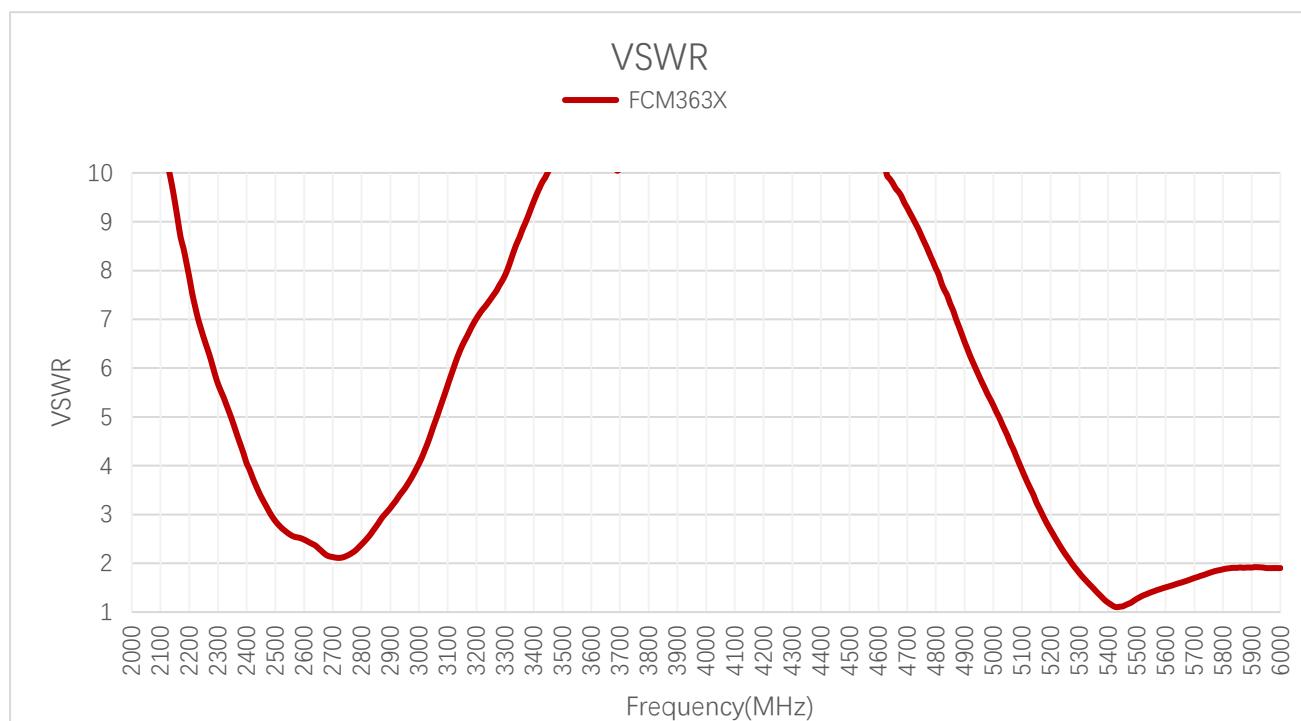
2 Drawing



3 Detailed Performance

3.1. S-Parameter Test

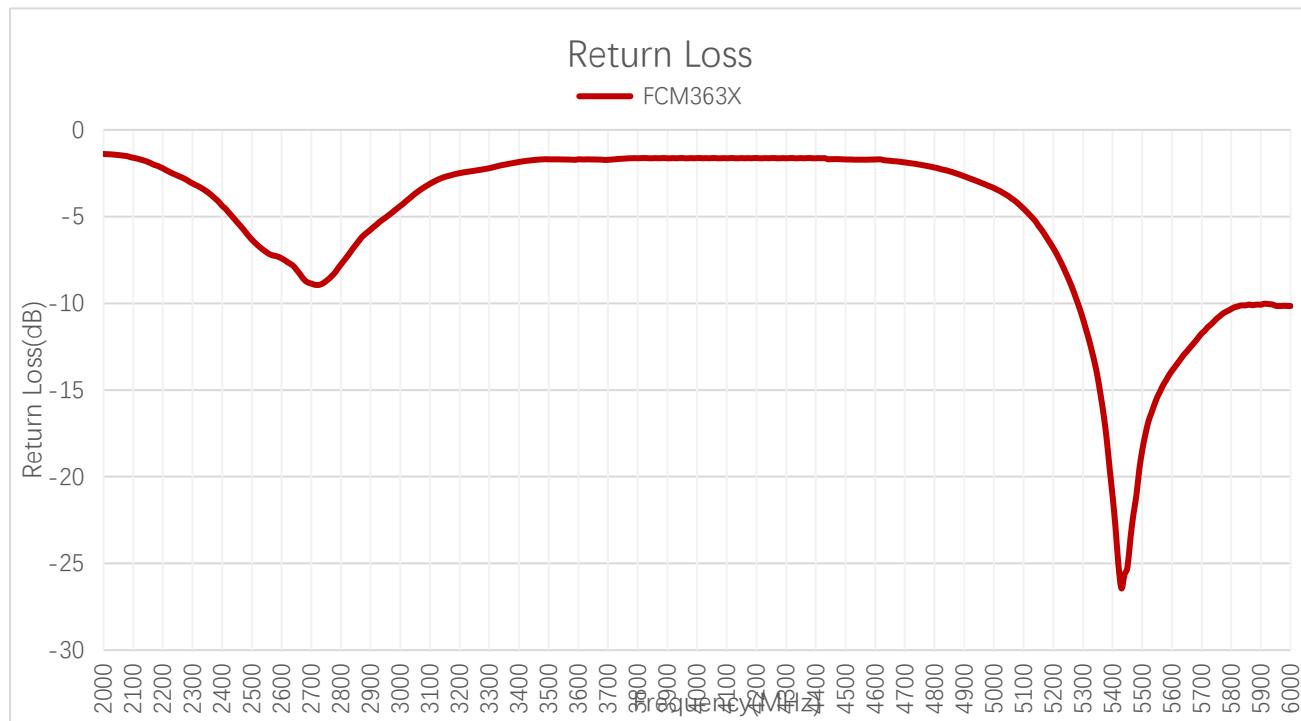
3.1.1. VSWR



VSWR

Frequency (MHz)	2400	2450	2500	5150	5500	5850	5925	6325	6725	7125
VSWR	4.0	3.4	2.9	3.2	1.3	1.9	-	-	-	-

3.1.2. Return Loss



Return Loss (dB)

Frequency (MHz)	2400	2450	2500	5150	5500	5850	5925	6325	6725	7125
Return Loss (dB)	-4.4	-5.3	-6.3	-5.5	-18.5	-10.1	-	-	-	-

3.2. OTA Test Data

- Test Condition: Assembled in test device

Test Mode: 802.11/g 54Mbps

Band	Channel	TRP(dBm)	TX(dBm)	TIS(dBm)	RX(dBm)
Wi-Fi/2.4G	2412/1	11.33	16.21	-68.21	-76
	2437/6	11.95	16	-68.47	-74.5
	2472/13	12.05	16.05	-68.45	-76

Test Mode: 802.11/b 11Mbps

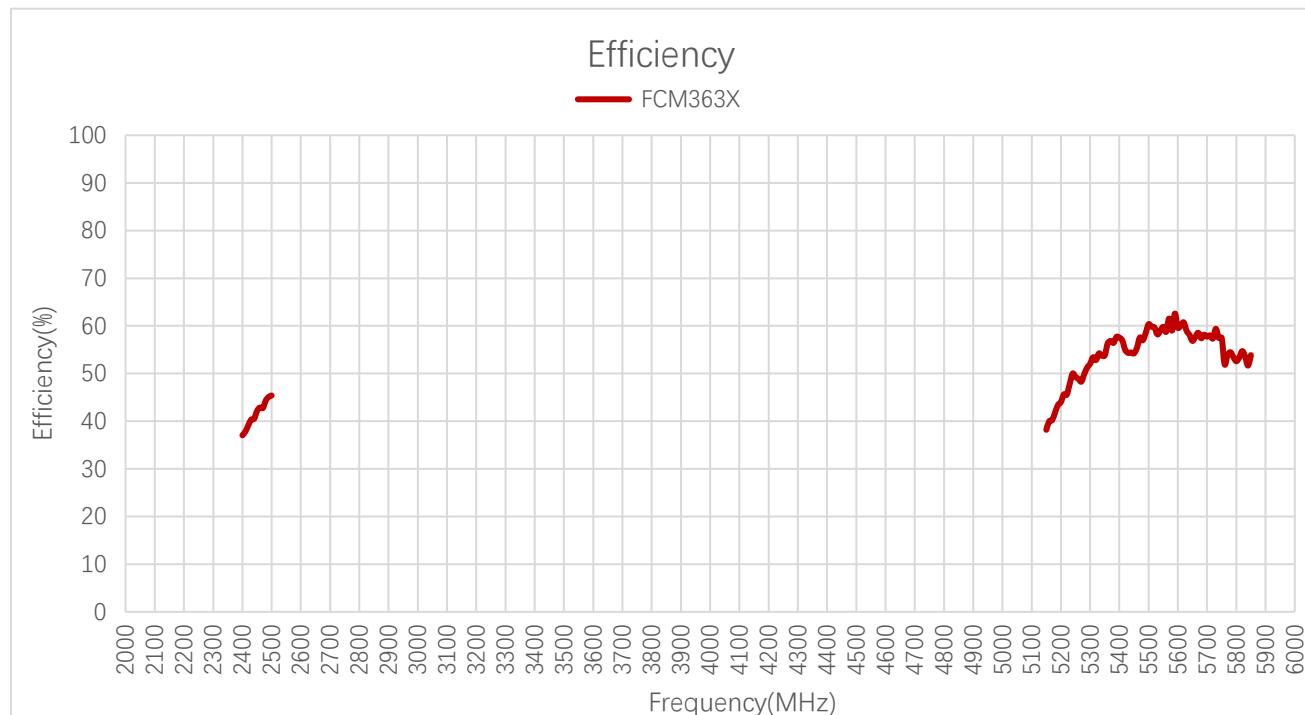
Band	Channel	TIS(dBm)	RX(dBm)
Wi-Fi /2.4G	2412/1	-82.21	-87
	2437/6	-82.66	
	2472/13	-82.68	

Test Mode: 802.11/1 54Mbps

Band	Channel	TRP(dBm)	TX(dBm)	TIS(dBm)	RX(dBm)
Wi-Fi/5G	5180/36	12.39	16.04	-68.94	-75.5
	5500/100	12.52	16.8	-68.71	-74.5
	5825/165	12.09	16.2	-69.75	-76

3.3. Radiation Performance Test

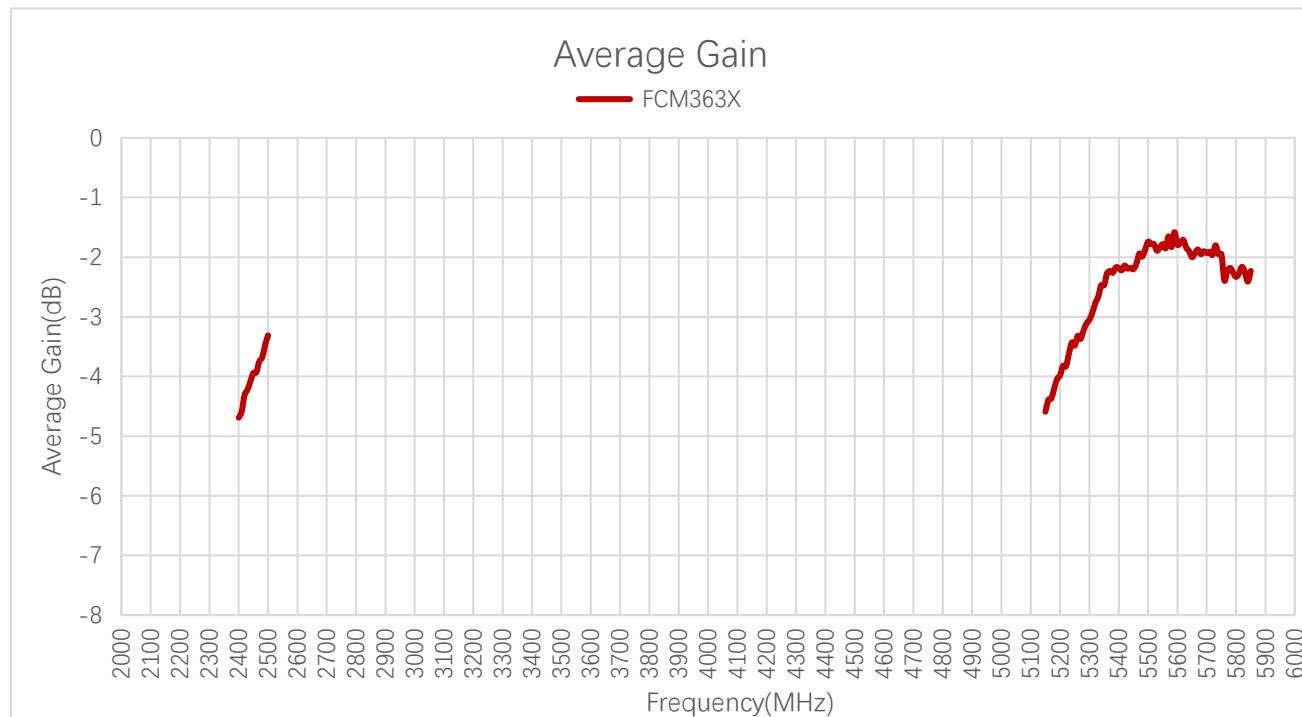
3.3.1. Efficiency



Efficiency (%)

Frequency (MHz)	2400	2450	2500	5150	5500	5850	5925	6325	6725	7125
Efficiency (%)	37.0	42.1	45.4	38.2	60.4	53.9	-	-	-	-

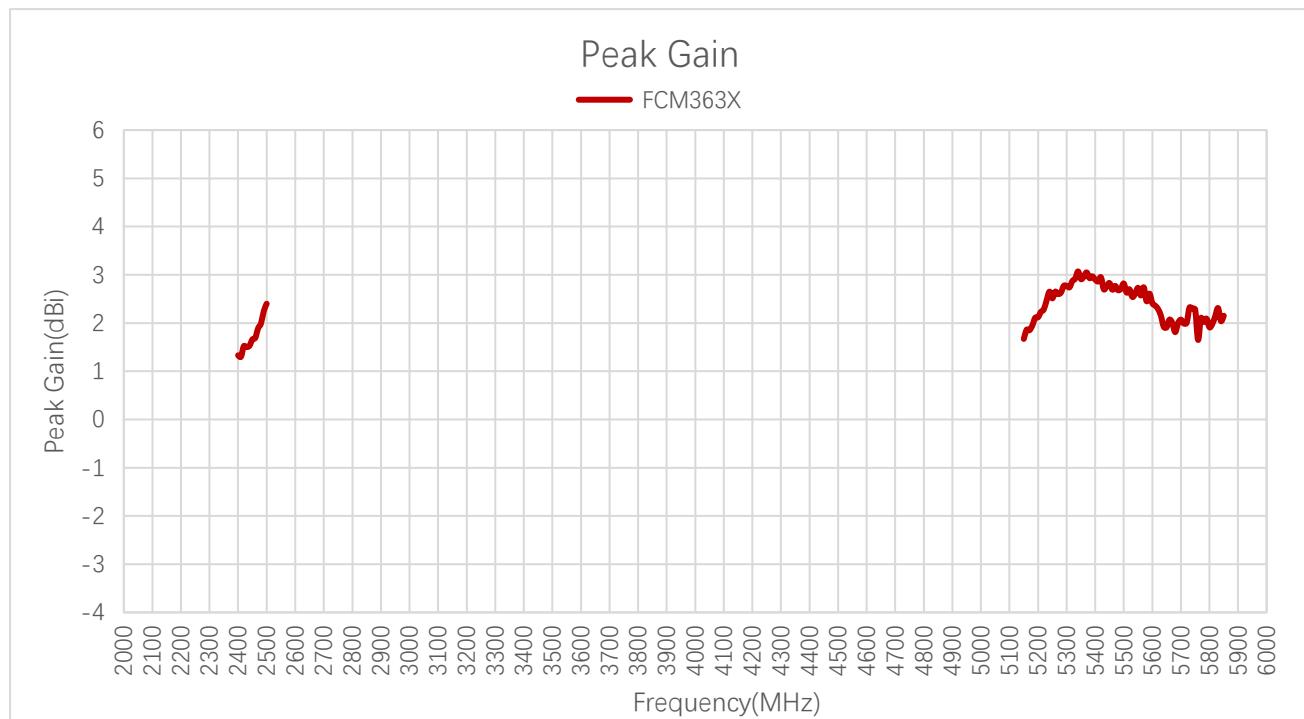
3.3.2. Average Gain



Average Gain (dB)

Frequency (MHz)	2400	2450	2500	5150	5500	5850	5925	6325	6725	7125
Average Gain (dB)	-4.7	-3.9	-3.3	-4.6	-1.7	-2.2	-	-	-	-

3.3.3. Peak Gain



Frequency (MHz)	2400	2450	2500	5150	5500	5850	5925	6325	6725	7125
Peak Gain (dBi)	1.3	1.7	2.4	1.7	2.8	2.2	-	-	-	-

Contact Us

At Quectel, our aim is to provide timely and comprehensive services to our customers. If you require any assistance, please contact our headquarters:

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Revision History

Version	Date	Author	Note
-	2025-2-21	Nico Pan	Creation of the document
1.0	2025-2-21	Nico Pan	First official release
1.1	2025-5-22	Nico Pan	Add Chapter 3.2: OTA Test Data



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