Datasheet

W-5RA8

Ultra-Wide band Wi-Fi External Antenna

CELLULAR | WI-FI

The W-5RA8 is a high-performance external SMA antenna designed to provide reliable and stable triple Wi-Fi antenna coverage. Operating in a wide frequency range from 2400MHz to 7125MHz, it offers exceptional performance for various Wi-Fi applications.

With its triple Wi-Fi antenna design, the W-5RA8 optimizes signal reception and transmission, enhancing the wireless connectivity experience. Whether it's for home networks, industrial IoT, or smart city applications, the W-5RA8 is a versatile and efficient solution to ensure seamless and high-speed Wi-Fi connectivity.

170 × 42 × 13 mm

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Document Information

Product	W-5RA8
Part Number	W-5RA8
Description	Ultra-Wide band Wi-Fi External Antenna
Version	2.0 (current)
Date	25-July-2023
Status	Released

Revision History

Version	Date	Author	Changes
1.0	16-Dec-2020	Amy li	Initial Release
2.0	25-July-2023	Hazel Xu	New layout and design

Product Overview

Product Description

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Key Features

- Triple Band WI-FI
- Wide Application
- High Reliability/Sensitivity
- Easy to install
- RoHS Compliant

Applications

- LTE/Wi-Fi Radios
- Gateways
- Set-top Boxes.
- Security
- Transportation
- Smart Agriculture

Electrical Specifications

Frequency			VSWR	Peak Gain	Efficiency
Wi-Fi	2400 - 2500	MHz	1.6	2.0 d Bi	70%
Wi-Fi	5150 - 7125	MHz	1.5	4.0 d Bi	80%

Frequency Range	2400 – 7125 MHz	Radiation	Omnidirectional
Impedance	50 Ω	Electrical Type	Dipole
Polarization	Linear		

Mechanical Specifications

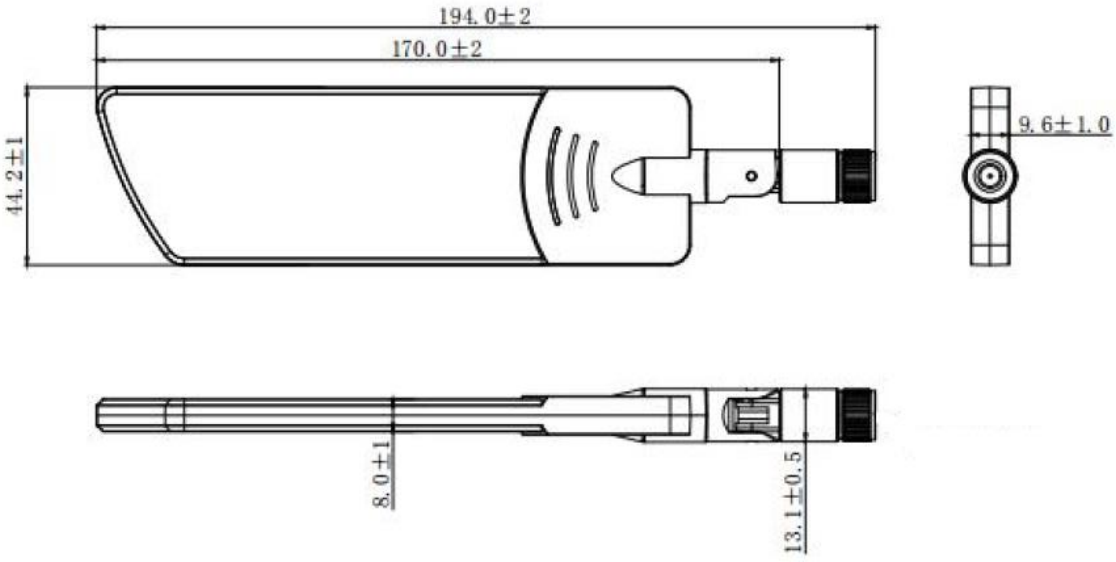
Type	Hinge / Swivel Blade Type	Mounting Type	Connector Mount
Dimensions	170 x 42 x 13 mm	Casing	Yes

Connector (Termination)	SMA Plug (male pin)	Color	Black
Cable type	NA	Material	PC + ABS

Caution:

1. Do not apply excess mechanical stress to the component body or terminations. Do not attempt to re-form or bend the components, as this will cause damage to the component.
2. Do not expose the component to an open flame.
3. This specification applies to the functionality of the component as a single unit. Please ensure the component is thoroughly evaluated in the application circuit.

Product Image and Dimensions



Radiation Pattern

A radiation pattern is a graphical representation of the directional properties of an antenna. It shows how electromagnetic waves are distributed in space in relation to the direction of propagation.

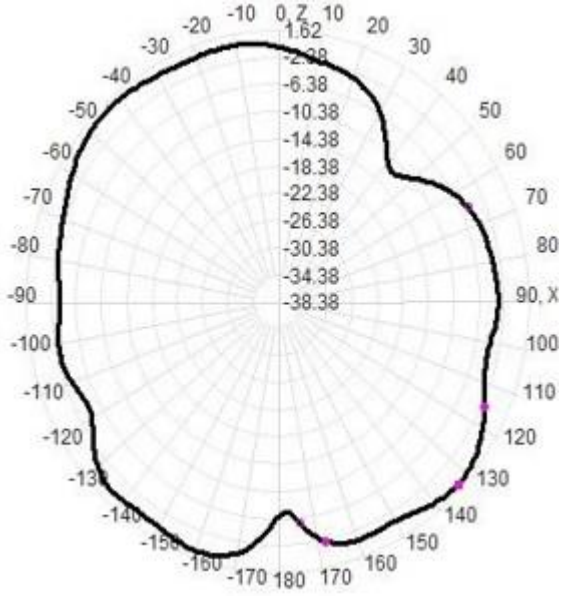
By understanding the information provided by a radiation pattern, it is possible to optimize the design and performance of an antenna for specific applications.

Test Setup

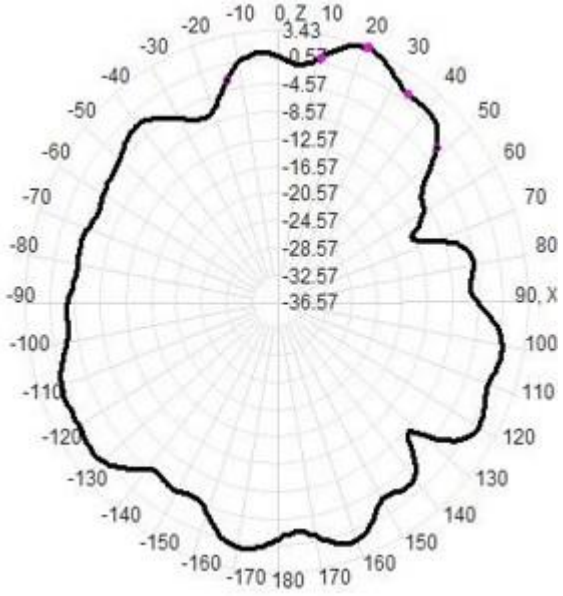
Equipment XYZ Testing Machine

Conditions Free space Bend

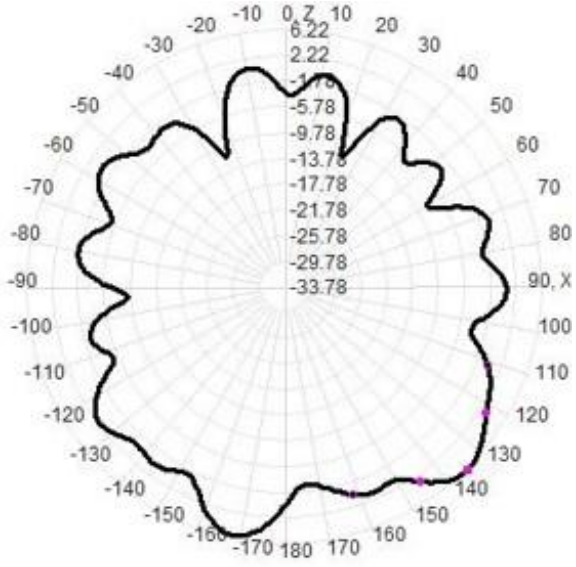
2410 MHz



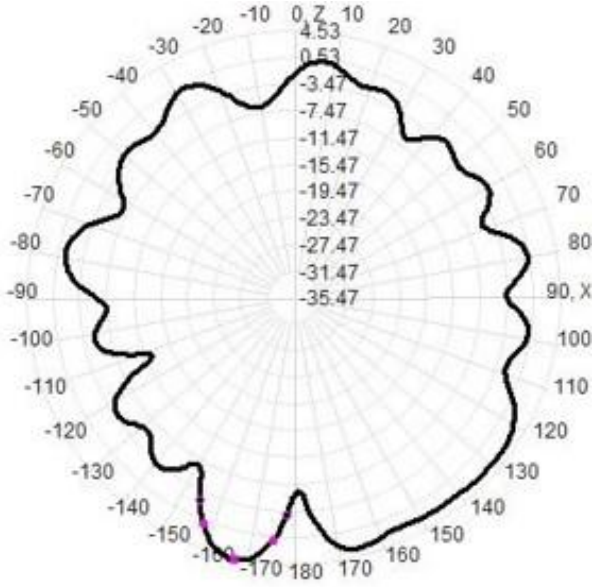
5150 MHz



6145 MHz



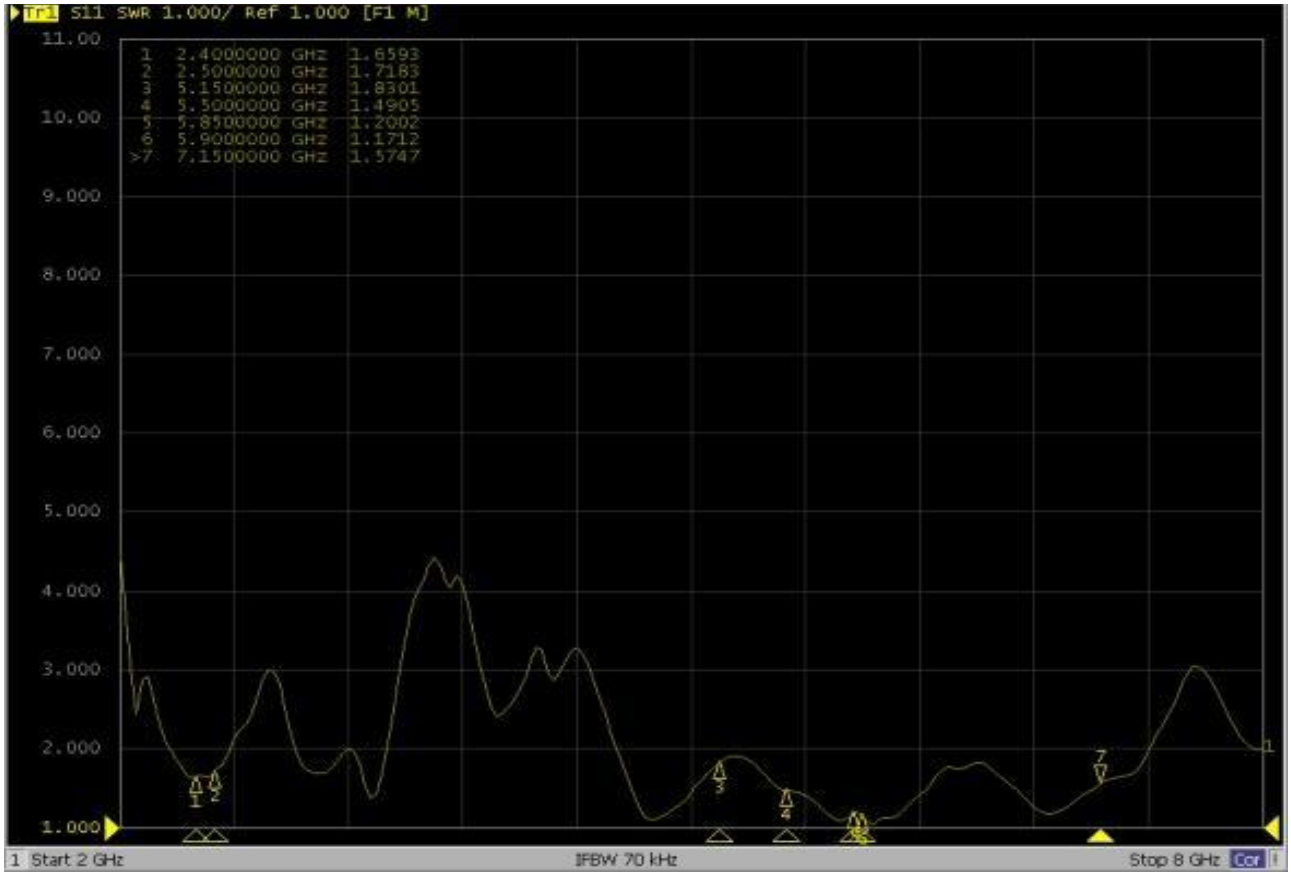
7075MHz

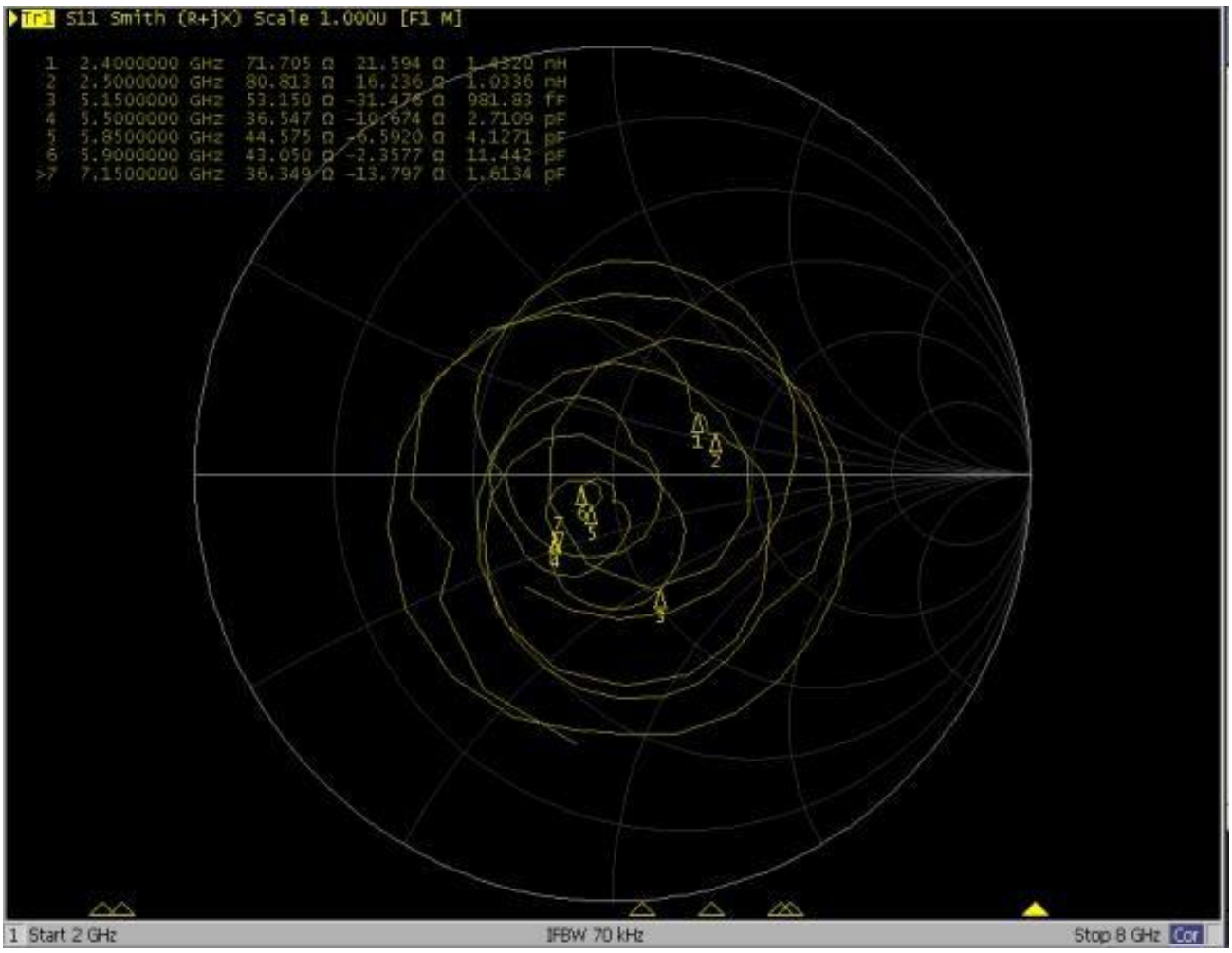


Antenna Smith and VSWR

Frequency		VSWR
2400	MHz	1.6593
2500	MHz	1.7183
5150	MHz	1.8301
5500	MHz	1.4905

Frequency		VSWR
5850	MHz	1.2002
5900	MHz	1.1712
7150	MHz	1.5747





Antenna Efficiency and Gain

Frequency		Efficiency	Gain
2400.0	MHz	71.99%	1.88
2410.0	MHz	73.55%	1.85
2420.0	MHz	70.14%	1.59
2430.0	MHz	69.99%	1.64
2440.0	MHz	69.28%	1.64
2450.0	MHz	68.13%	1.85
2460.0	MHz	68.11%	1.94
2470.0	MHz	68.22%	2.04
2480.0	MHz	65.84%	2.04
2490.0	MHz	66.48%	1.88
2500.0	MHz	64.03%	1.89

Frequency		Efficiency	Gain
5900.0	MHz	77.04%	3.31
5949.0	MHz	76.10%	3.02
5998.0	MHz	73.34%	2.83
6047.0	MHz	74.89%	3.32
6096.0	MHz	81.52%	4.98
6145.0	MHz	80.85%	4.69
6194.0	MHz	79.00%	3.74
6243.0	MHz	72.96%	3.72
6292.0	MHz	79.18%	3.61
6341.0	MHz	73.75%	3.01
6390.0	MHz	73.82%	3.56

5150.0	MHz	73.00%	2.71
5200.0	MHz	72.53%	2.99
5250.0	MHz	78.69%	2.61
5300.0	MHz	79.14%	2.52
5350.0	MHz	80.42%	3.96
5400.0	MHz	81.34%	3.26
5450.0	MHz	81.42%	4.22
5500.0	MHz	80.08%	3.59
5550.0	MHz	80.29%	3.81
5600.0	MHz	77.62%	3.31
5650.0	MHz	79.00%	3.03
5700.0	MHz	80.19%	3.18
5750.0	MHz	81.24%	4.29
5800.0	MHz	76.08%	3.77
5850.0	MHz	76.03%	3.22

6439.0	MHz	74.85%	3.57
6488.0	MHz	78.23%	3.94
6537.0	MHz	75.56%	3.94
6586.0	MHz	78.54%	3.98
6635.0	MHz	84.04%	4.34
6684.0	MHz	74.20%	3.20
6733.0	MHz	77.40%	4.28
6782.0	MHz	82.45%	4.37
6831.0	MHz	80.32%	4.09
6880.0	MHz	82.25%	4.46
6929.0	MHz	74.75%	3.96
6978.0	MHz	83.10%	4.20
7027.0	MHz	81.67%	4.39
7076.0	MHz	79.90%	3.94
7125.0	MHz	80.61%	4.59

Environmental Data

Operating Temperature	-20°C to +80°C
Vibration	N/A

Ordering Information

Product Variants

Part Number	Description
W-5RA8	Multiband 5G/LTE/Wi-Fi Antenna with SMA Connector

About MIOT

Miot Wireless Solutions, headquartered in Suzhou, China, was established in 2017. It has subsidiaries in Canada, the United States, Brazil, and EMEA. MIOT is a professional designer and manufacturer of Antennas and IoT PCBA products, providing turn-key service to customers worldwide.

Our talented R&D team has experienced antenna, hardware, and software engineers who can participate in your new project, from something simple like antenna/selection and design, to complete turn-key services, which entails taking your concept and ideas through design, prototyping, debugging, certification, and manufacturing. Miot offers reliable products at reasonable prices with fast delivery times to help you get ahead in the market.

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