

W-1RA1

Dual Band 2.4G 5G Antenna

CELLULAR

WIFI

The W-1RA1 is an ultraband antenna for 5G, LTE, and WCDMA that can also cover Wi-Fi frequencies. It operates in 2410-2490 MHz and 4920-5925 MHz. It's a compact and durable external antenna with a wide band and high efficiency. It is mainly use in Wireless Router to Enlarge the wireless network signal.

The W-1RA1 allows the antenna to be positioned for optimum performance compared to a fixed whip design. The antenna attaches with an IPEX connector.



Document Information

Product	W-1RA1
Part Number	W-1RA1
Description	Dual Band 2.4G 5G Antenna
Version	2.0 (current)
Date	14-Sep-2023
Status	Released

Revision History

Version	Date	Author	Changes
1.0	16-Dec-2020	Amy Li	Initial Release
2.0	14-Sep-2023	Ivy Liao	New layout and design

Product Overview

Product Description

The W-1RA1 is an ultraband antenna for 5G, LTE, and WCDMA that can also cover Wi-Fi frequencies. It operates in 2410-2490 MHz and 4920-5925 MHz. It's a compact and durable external antenna with a wide band and high efficiency. It is mainly use in Wireless Router to Enlarge the wireless network signal.

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Key Features

- Operates in 2410-2490 MHz and 4920-5925 MHz
- Dual band antenna
- Vertical polarization
- High gain of 6 dBi
- VSWR 1.1
- Omni-directional pattern

Applications

- Wifi radios
- Gateways
- Set-Top Boxes
- Security
- IoT
- M2M
- Transportation
- Smart agriculture

Electrical Specifications

Frequency				VSWR	Peak Gain	Efficiency
2.4G WiFi	2400	2500	MHz	1.1	6 d Bi	60%
5G WiFi	4920	5925	MHz	1.8		

Frequency Range	2400 – 2500/4920-5925 MHz	Azimuth	Omnidirectional
Impedance	50 Ω	Power Handling	50W
		Capacity	
Polarization	Vertical	Lighting Protection	Direct Current earth

Mechanical Specifications

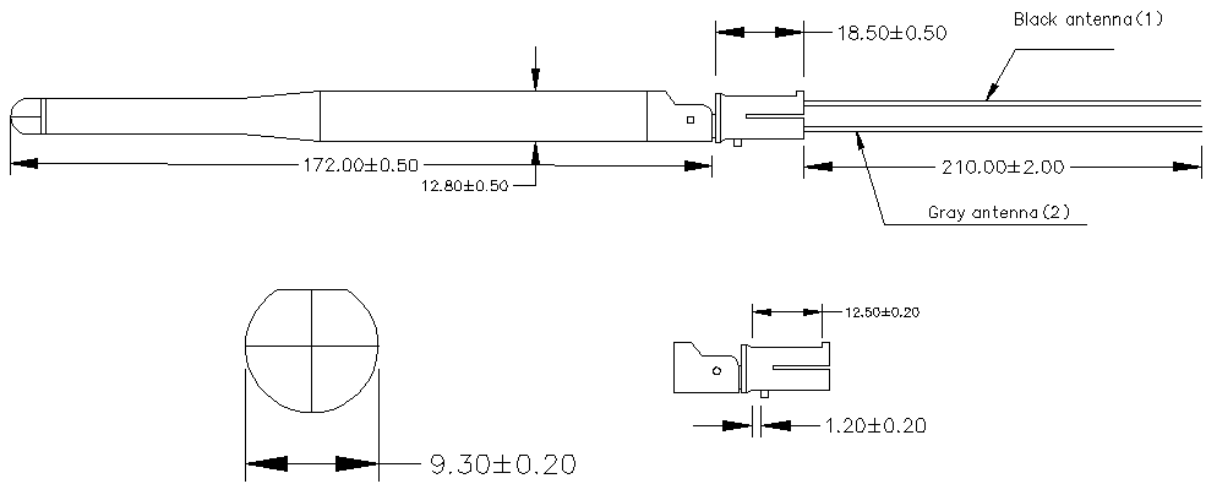
Cable Type	RG-1.13	Enclosure	TPE
Dimensions	172 × 13 mm	Color	Black
Connector (Termination)	IPEX	Material	PBT + PC
Radiator	Cuprum		

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





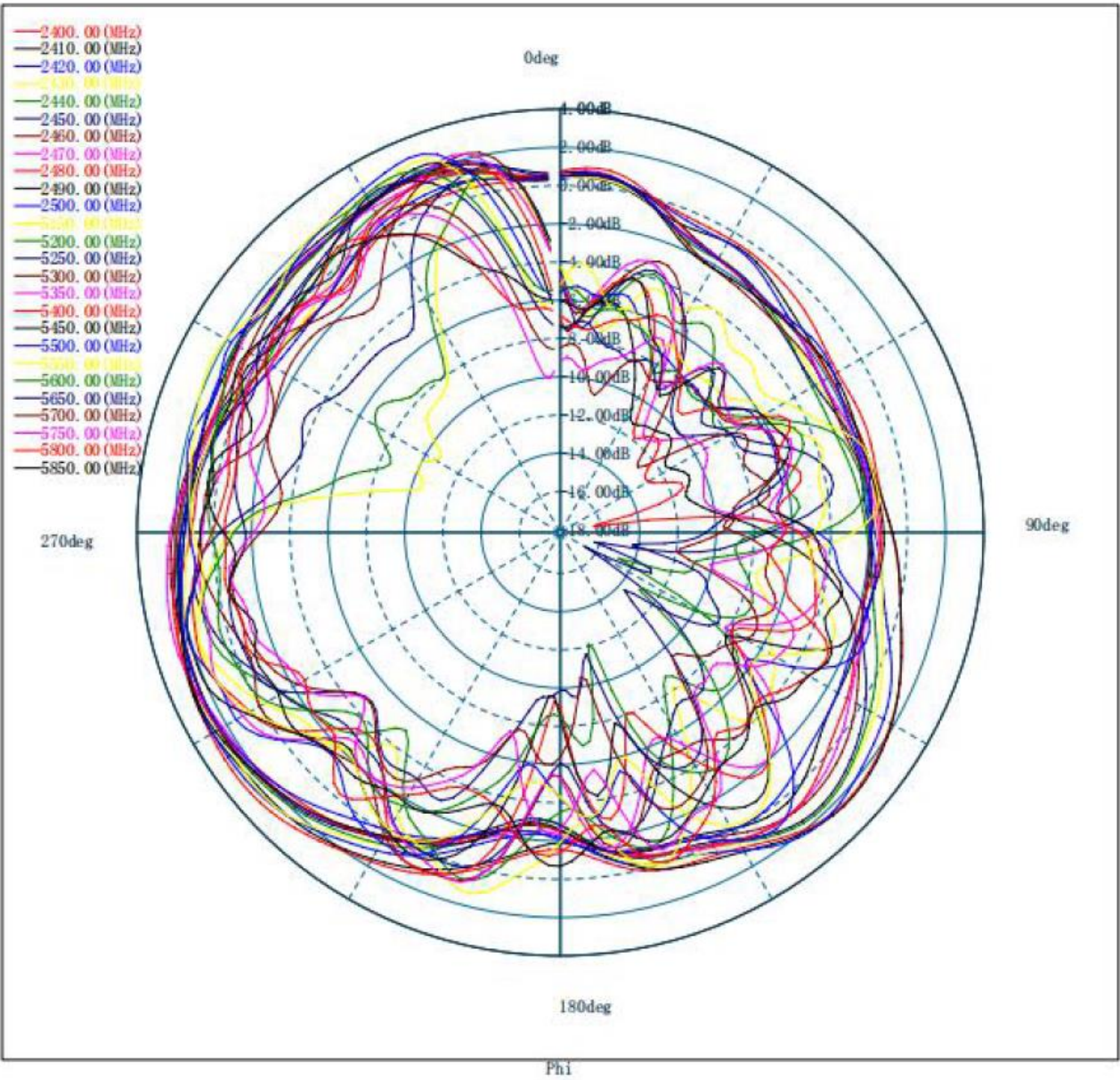
Radiation Pattern

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.

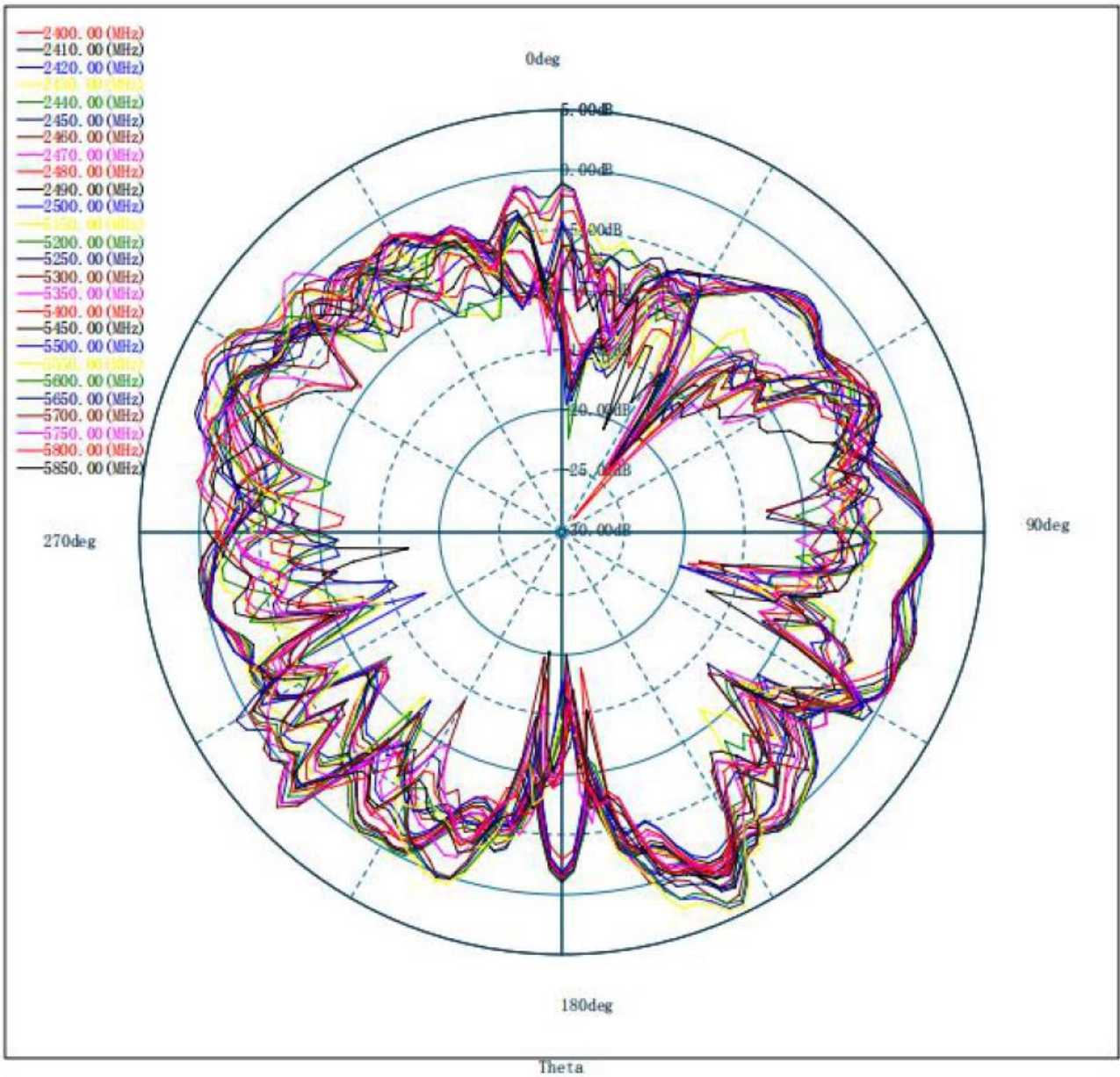
XY Plane (H)

2410 – 5925 MHz



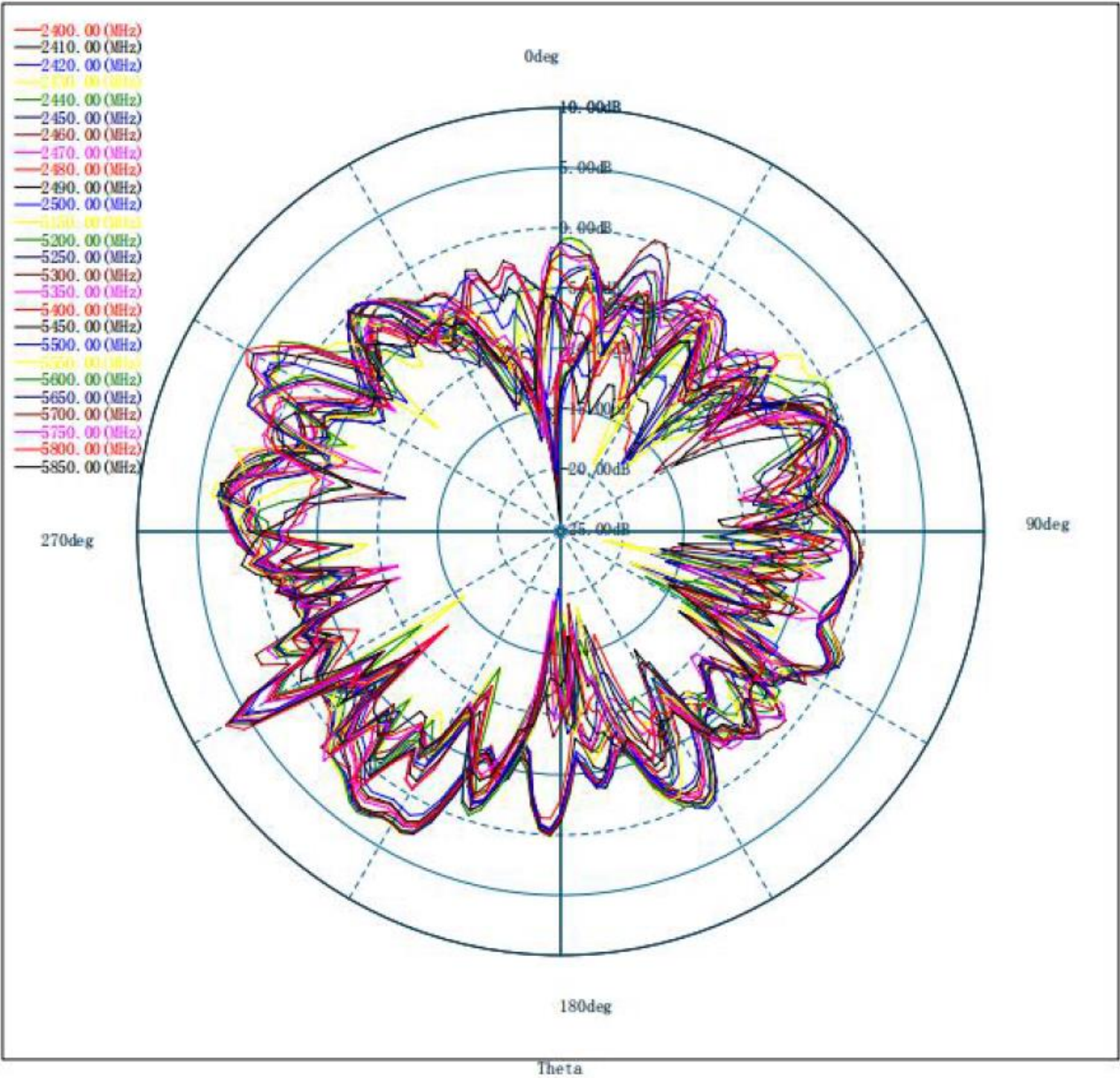
YZ Plane (E1)

2410 – 5925 MHz



YZ Plane (E2)

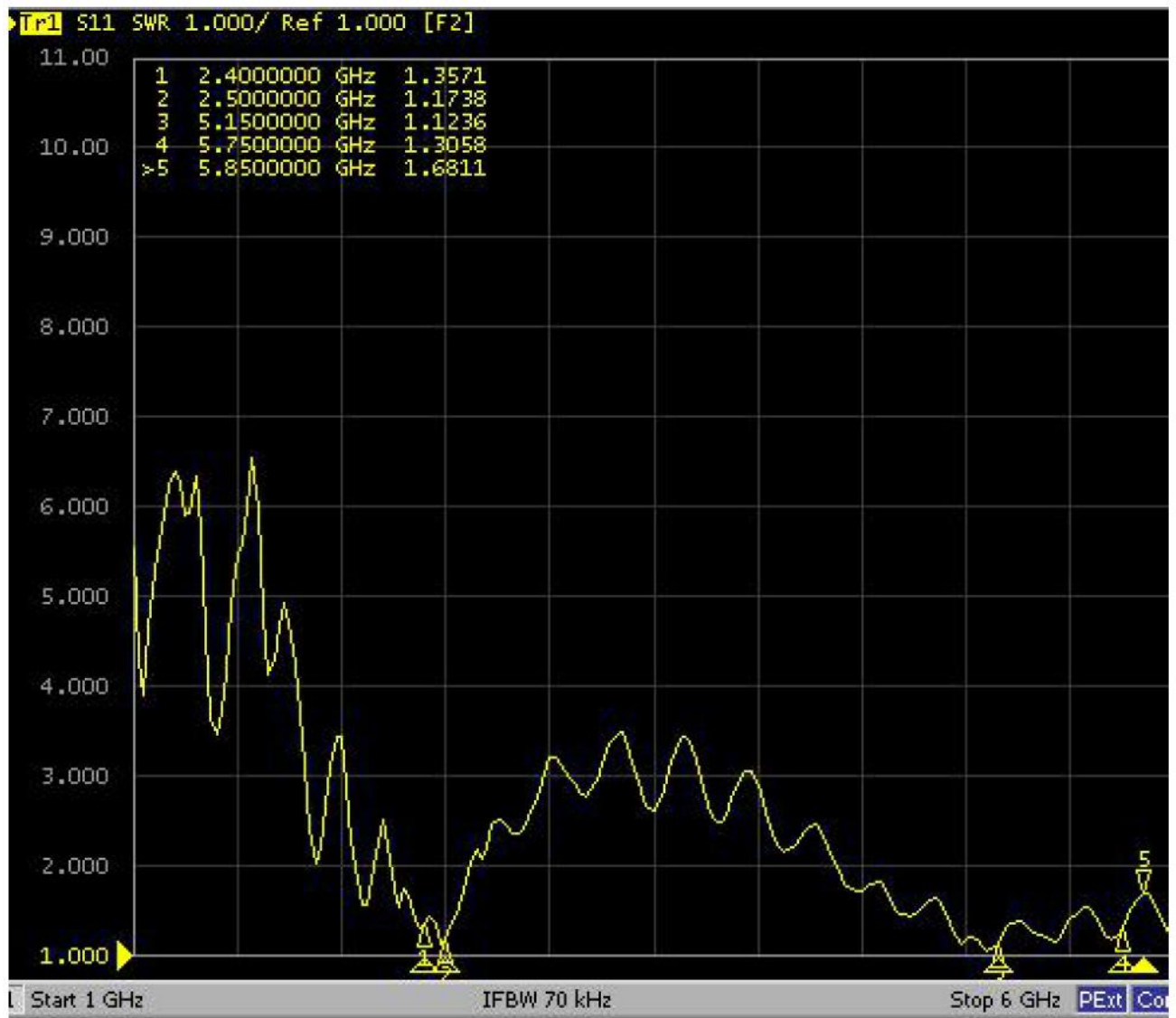
2410 – 5925 MHz

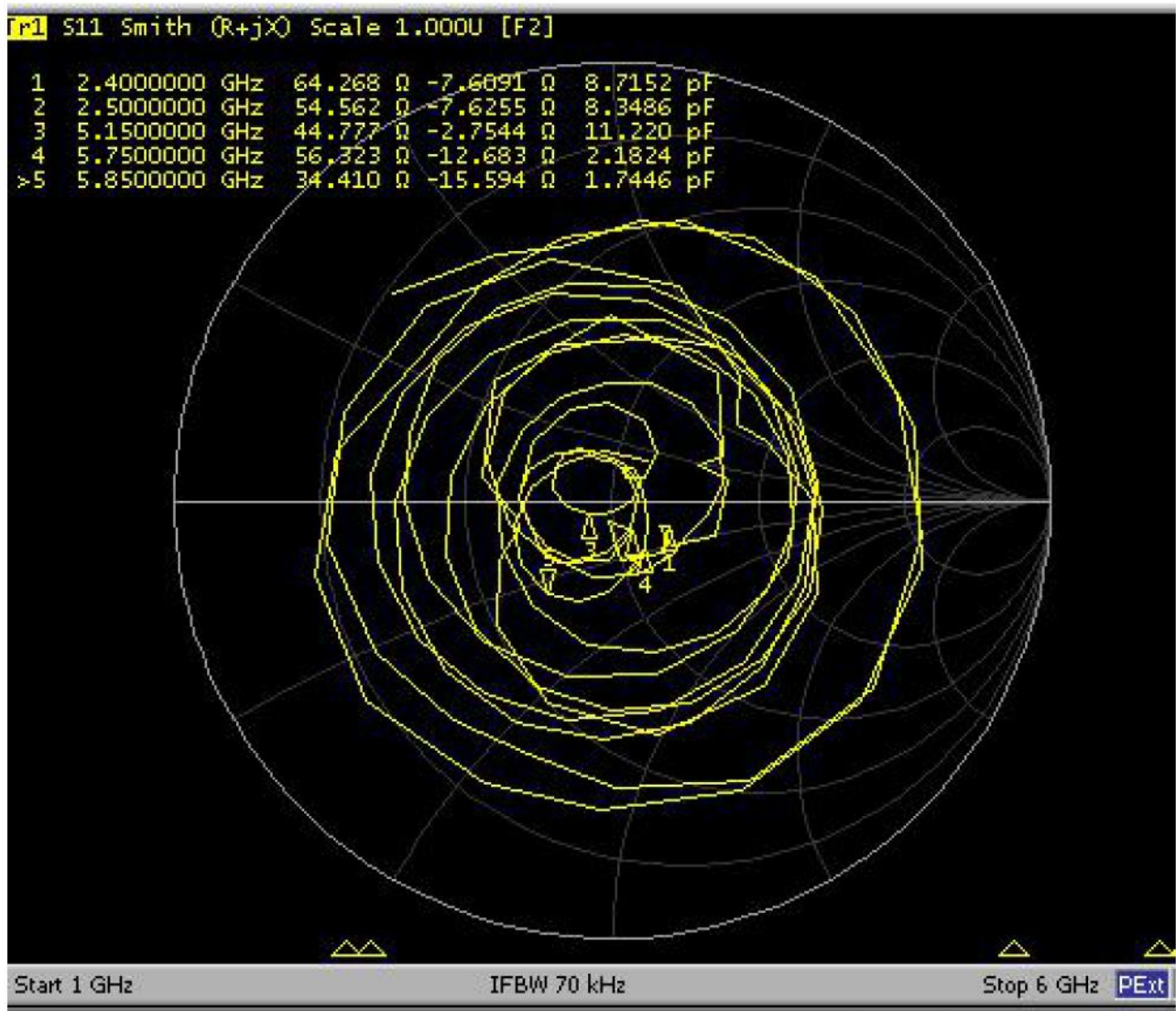


Antenna Smith and VSWR

Frequency		VSWR
2400	MHz	1.3
2500	MHz	1.1
5150	MHz	1.1

Frequency		VSWR
5750	MHz	1.3
5850	MHz	1.6





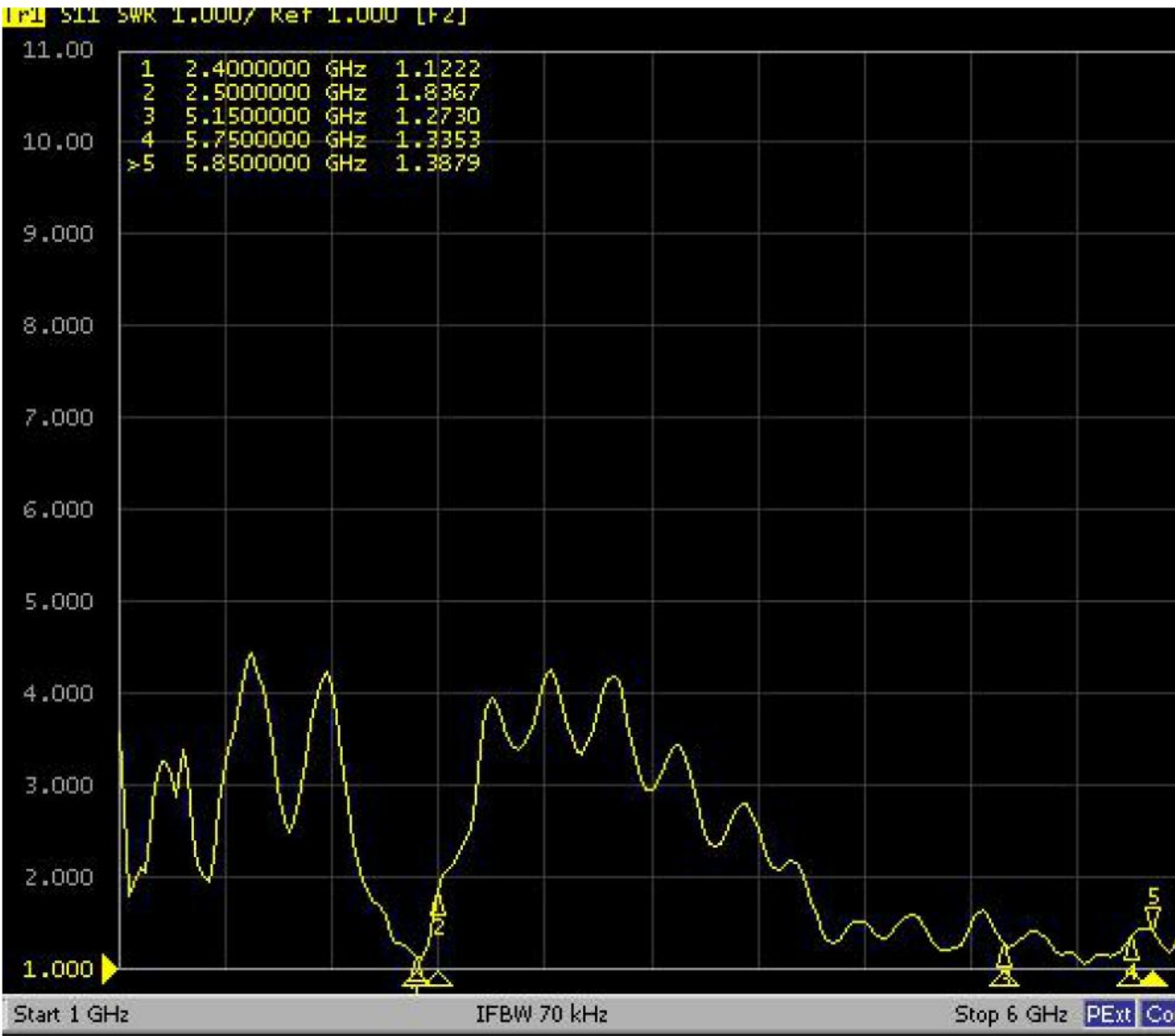
Antenna Efficiency and Gain

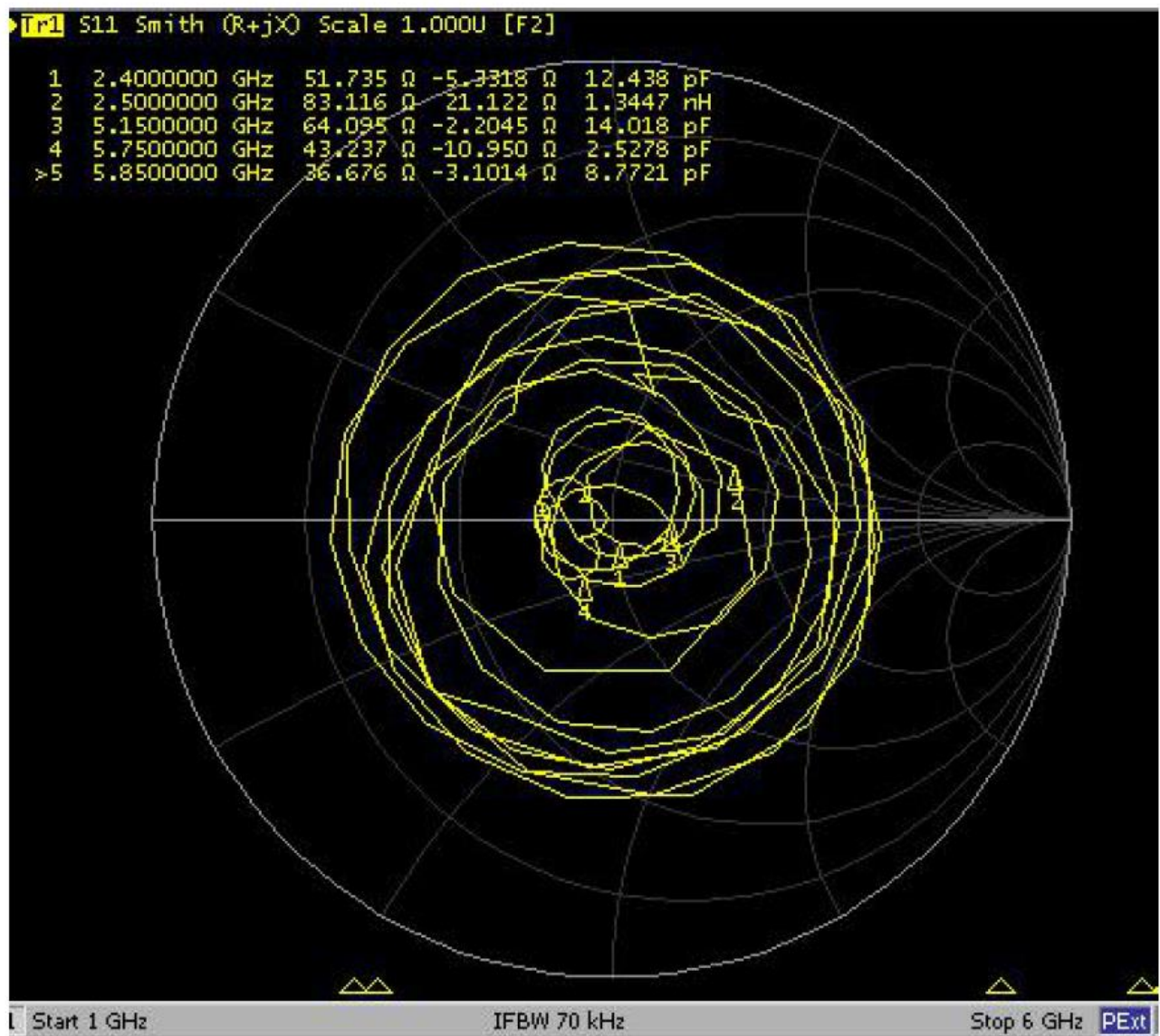
Frequency		Efficiency	Gain
2400	MHz	0.66	3.27
2410	MHz	0.66	3.50
2420	MHz	0.66	3.92
2430	MHz	0.65	3.86
2440	MHz	0.66	3.90
2450	MHz	0.66	3.82
2460	MHz	0.66	3.43
2470	MHz	0.67	2.82
2480	MHz	0.66	2.75

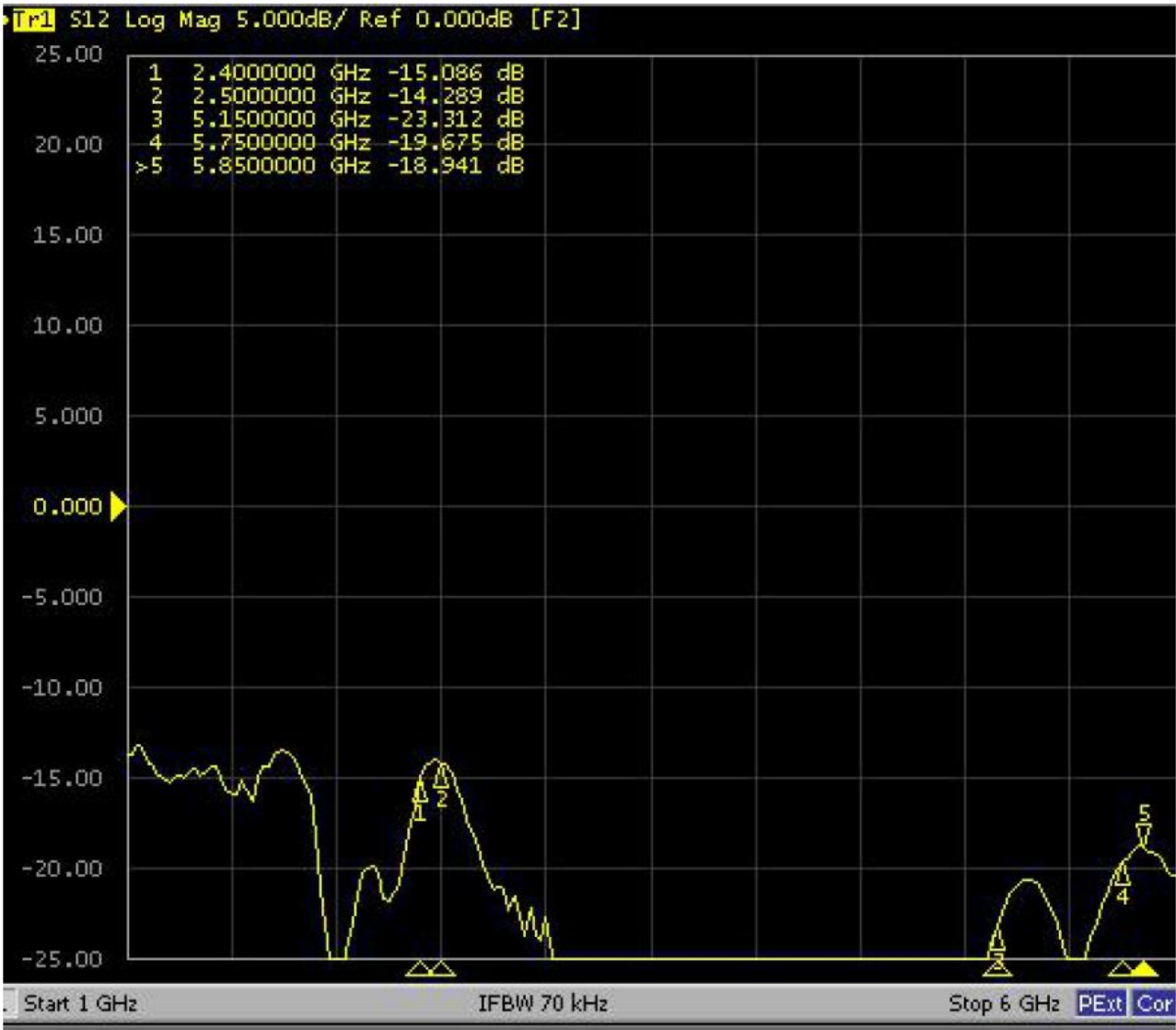
Frequency		Efficiency	Gain
5250	MHz	0.50	5.47
5300	MHz	0.51	4.91
5350	MHz	0.50	4.70
5400	MHz	0.50	5.09
5450	MHz	0.51	4.26
5500	MHz	0.52	4.43
5550	MHz	0.49	3.95
5600	MHz	0.46	4.15
5650	MHz	0.45	4.23

2490	MHz	0.66	2.91
2500	MHz	0.64	2.48
5150	MHz	0.48	5.00
5200	MHz	0.50	5.50

5700	MHz	0.45	4.15
5750	MHz	0.45	3.91
5800	MHz	0.43	3.65
5850	MHz	0.40	3.88







Environmental Data

Operating Temperature	-45 °C to +85 °C
IP Rating	IP55
Compliance	RoHS

Ordering Information

Product Variants

Part Number	Description
W-1RA1	Dual Band 2.4G 5G Antenna

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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