Datasheet

W-1RB5

2.4G WIFI Antenna

CELLULAR | WIFI

The W-1RB5 is an ultraband antenna for 2.4G, LTE, and WCDMA that can also cover Wi-Fi frequencies. It's a compact and durable external antenna with a wide band and high efficiency.

The W-1RB5 allows the antenna to be positioned for optimum performance compared to a fixed whip design. The antenna attaches with an SMA connector.

88 x 10 mm

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Document Information

Product	W-1RB5
Part Number	W-1RB5
Description	2.4G WIFI 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-1RB5 is an ultraband hinged monopole blade cellular antenna for 2.4G, LTE, and WCDMA that can also cover Wi-Fi frequencies. It's a compact and durable external antenna with an ultra-wide range and high efficiency. It's an ideal solution for cellular IoT applications requiring a durable and cost-effective external antenna.

The hinged swivel design allows the antenna to be positioned for optimum performance and reduces the potential for damage from impact compared to a fixed blade design. The antenna attaches with an SMA plug (male pin) connector.

Key Features

- Support 2.4G WIFI
- Small and exquisite
- High Reliability/Sensitivity
- Compact Size, Easy to install
- RoHS Compliant

Applications

- WIFI radios
- Gateways
- Set-Top Boxes
- Security
- Transportation
- Smart agriculture

Electrical Specifications

Frequency Range	2400 – 2500 MHz	VSWR	≤1.8
Impedance	50 Ω	Gain	1 DBi
Polarization	Vertical	Efficiency	60%

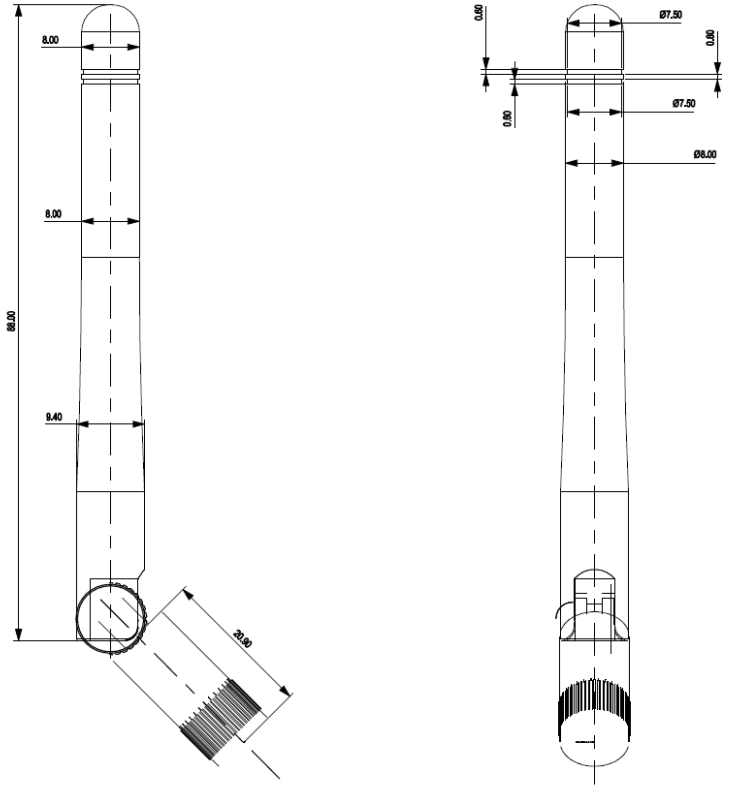
Mechanical Specifications

Type	Hinge / Swivel Blade Type	Cable	RG178
Dimensions	88 x 10 mm	Color	Black
Connector (Termination)	SMA-RP	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



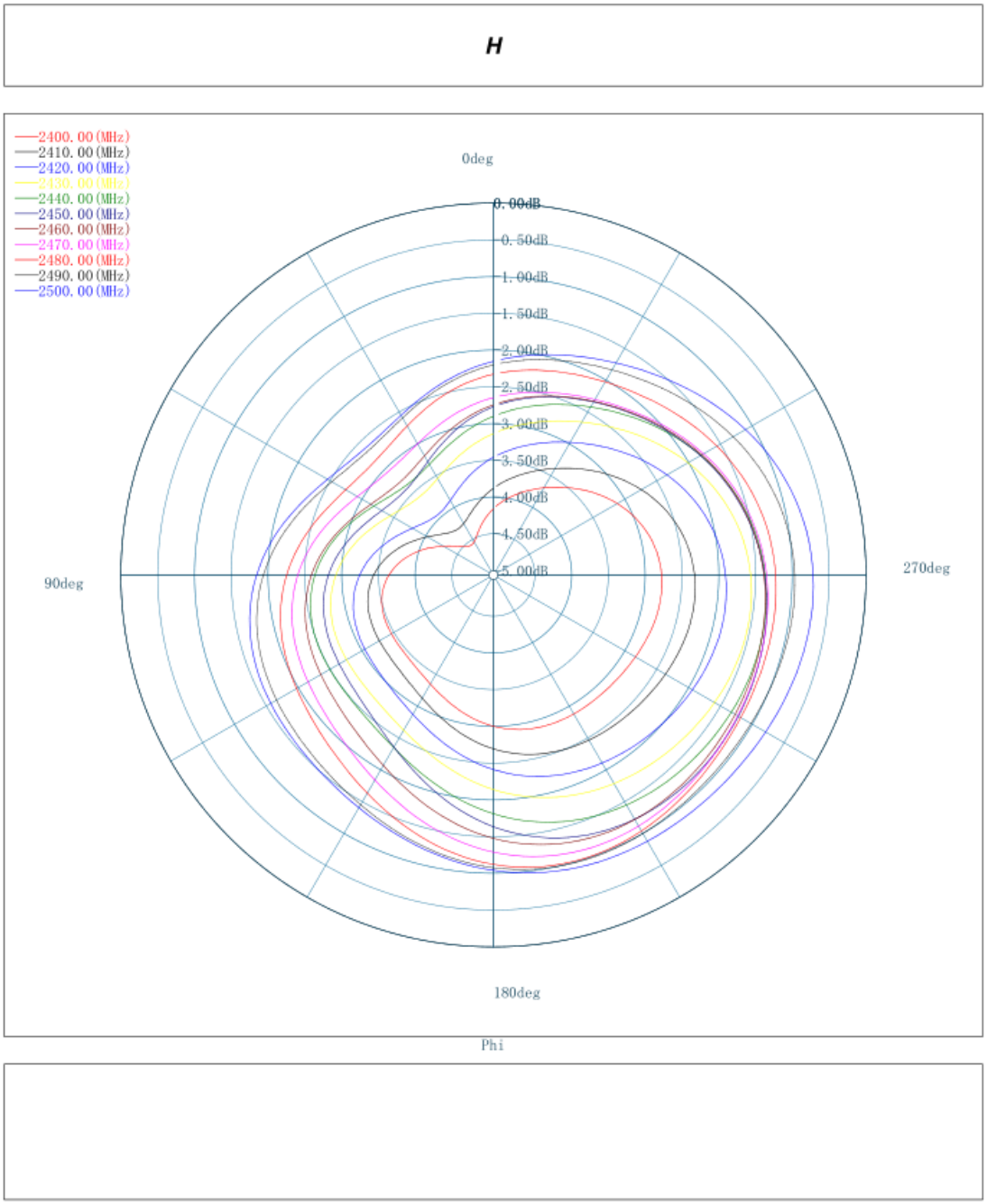
Radiation Pattern

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.

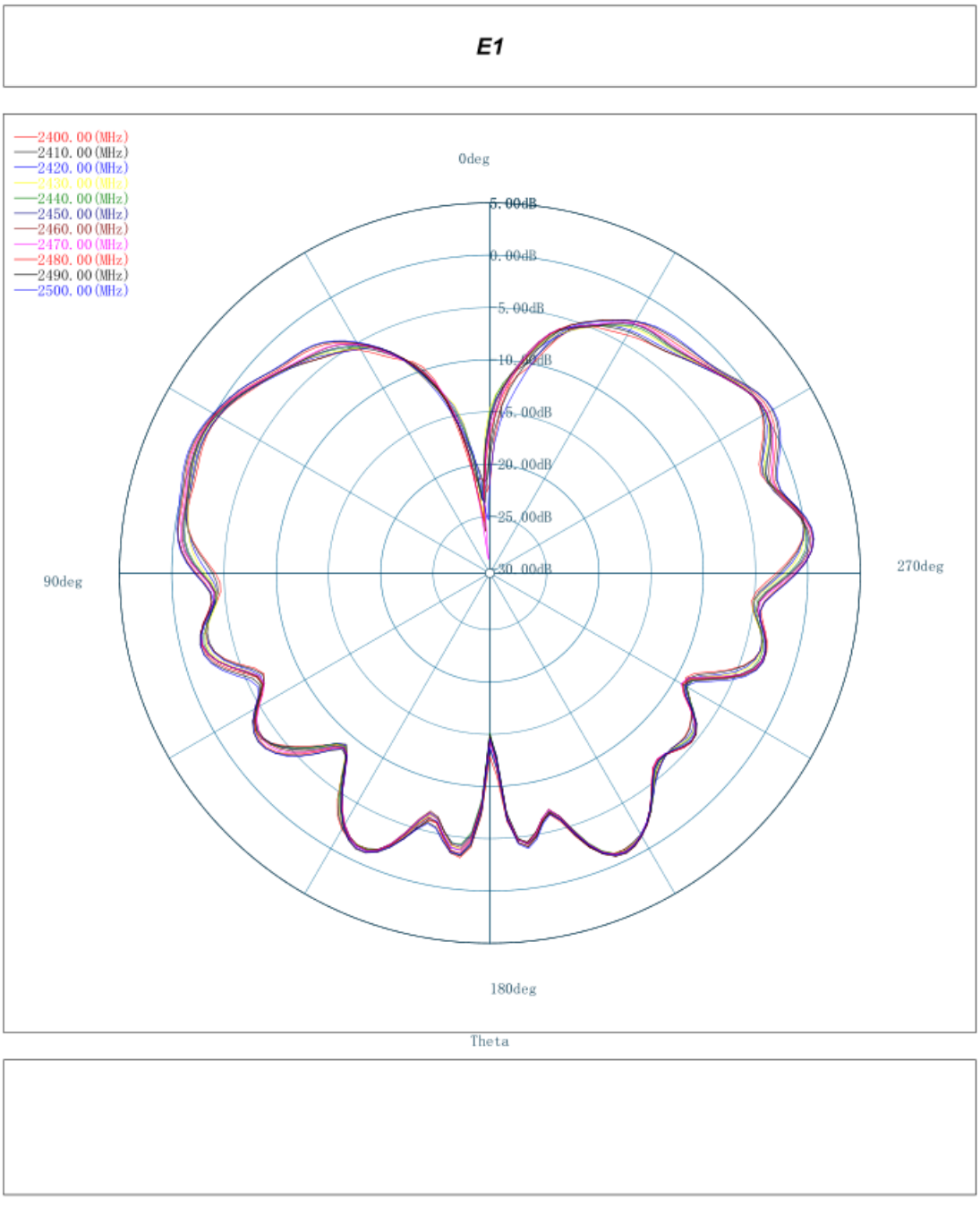
By understanding the information provided by a radiation pattern, it is possible to optimize the design and performance of an antenna for specific applications.

XY Plane (H)

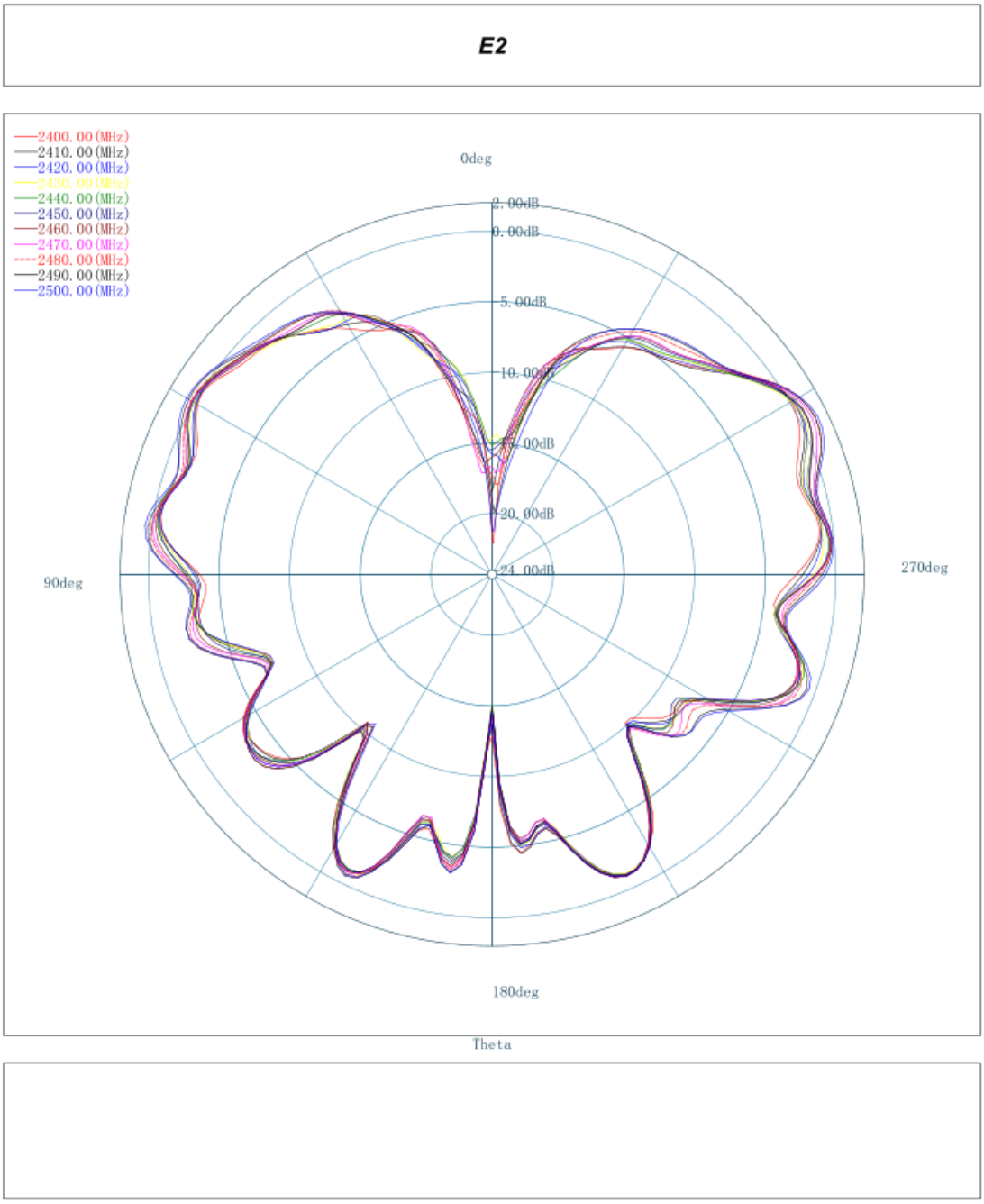
2400 – 2500 MHz



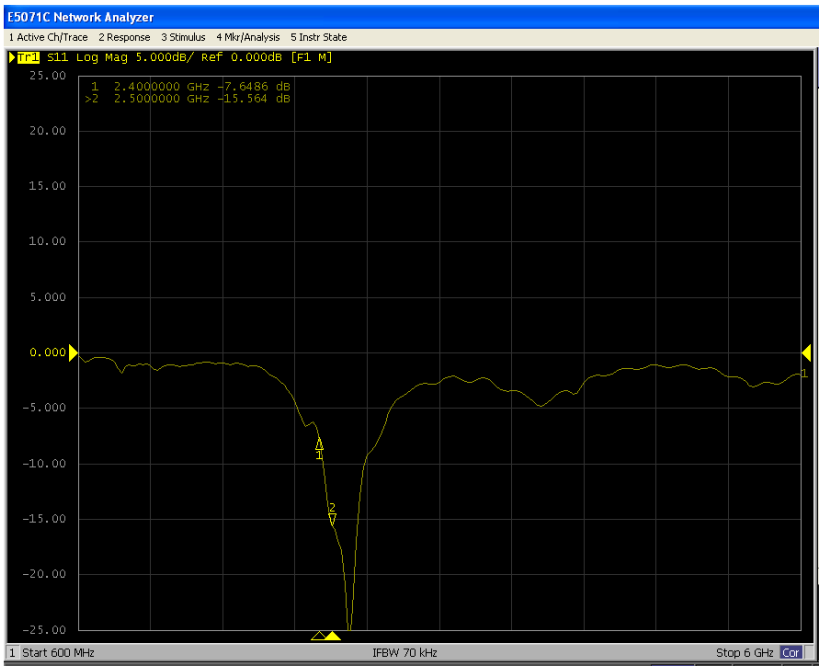
YZ Plane (E1) 2400 – 2500 MHz

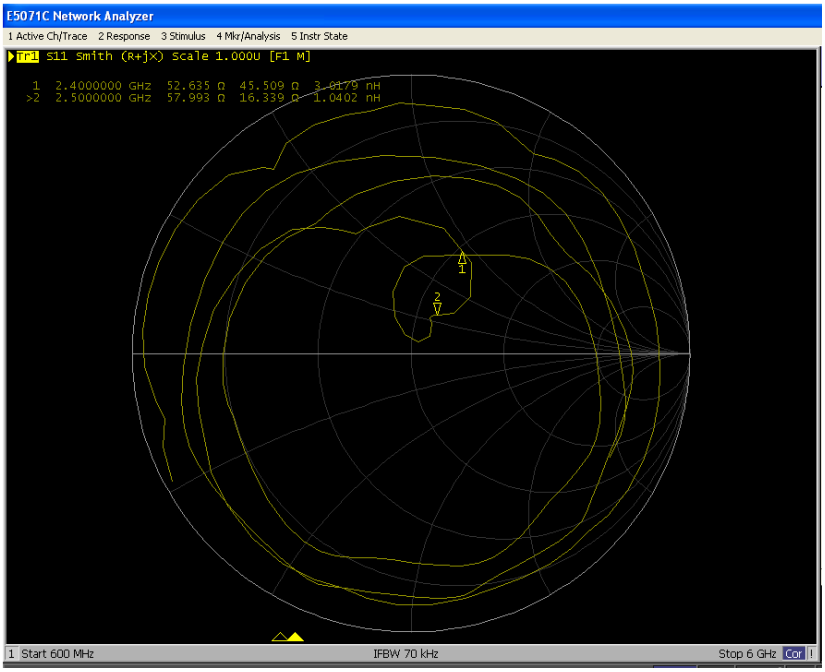


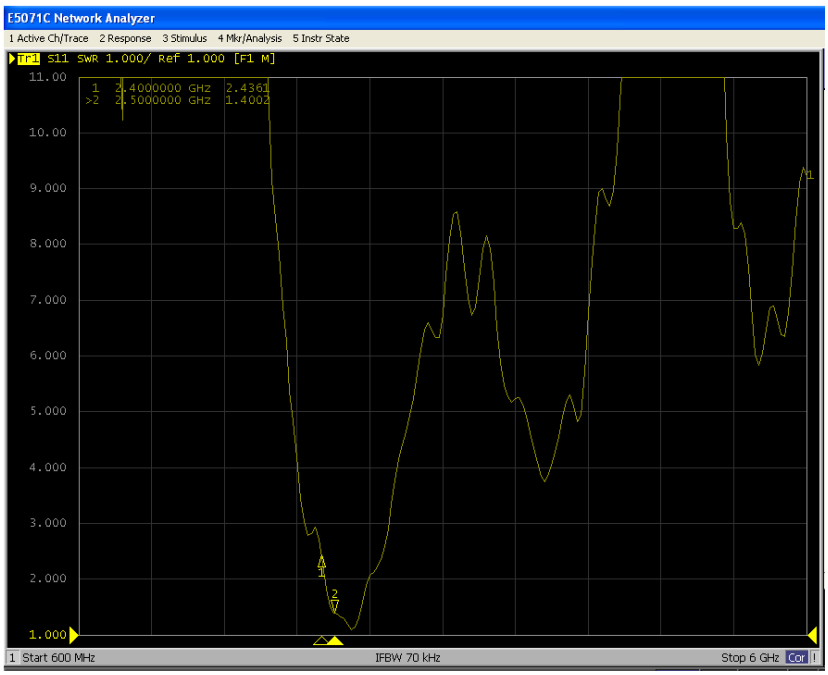
YZ Plane (E2) 2400 – 2500 MHz



Antenna Smith and VSWR


E5071C Network Analyzer
1 Active Ch/Trace 2 Response 3 Stimulus 4 Mkr/Analysis 5 Instr State
Tr1 S11 Log Mag 5.000dB/ Ref 0.000dB [F1 M]
1 2.4000000 GHz -7.6486 dB
>2 2.5000000 GHz -15.564 dB
25.00
20.00
15.00
10.00
5.000
0.000
-5.000
-10.00
-15.00
-20.00
-25.00
1 Start 600 MHz
IFBW 70 kHz
Stop 6 GHz
Cor


E5071C Network Analyzer
1 Active Ch/Trace 2 Response 3 Stimulus 4 Mkr/Analysis 5 Instr State
Tr1 S11 Smith (R+jX) Scale 1.000U [F1 M]
1 2.4000000 GHz 52.635 Ω 45.509 Ω 3.0179 nH
>2 2.5000000 GHz 57.993 Ω 16.339 Ω 1.0402 nH
1 Start 600 MHz
IFBW 70 kHz
Stop 6 GHz
Cor



Antenna Efficiency and Gain

Frequency		Efficiency	Gain
2400	MHz	60%	0.155379
2410	MHz	61%	0.271767
2420	MHz	62%	0.348472
2430	MHz	63%	0.419755
2440	MHz	64%	0.620323
2450	MHz	64%	0.596242

Frequency		Efficiency	Gain
2460	MHz	65%	0.632674
2470	MHz	66%	0.904938
2480	MHz	59%	1.094625
2490	MHz	60%	1.110116
2500	MHz	61%	1.2923

Environmental Data

Operating Temperature	-20 °C to +80 °C
Compliance	RoHS

Ordering Information

Product Variants

Part Number	Description
W-1RB5	2.4G WIFI 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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