Datasheet

W-2GA1

Multiband WIFI+GNSS FPC Antenna

GNSS | WIFI

The W-2GA1is a compact, dual-band (2.4 GHz and 5.8 GHz) PCB rigid antenna designed for use in IoT devices that require reliable and high-performance wireless communication. With an IPEX connector, the W-2GA1 is easy to integrate into various devices, and its low profile and small size make it an ideal choice for space-constrained applications.

Its high gain and excellent radiation efficiency provide reliable and stable WiFi connectivity, making it suitable for a wide range of IoT applications. Overall, the W-2GA1 an excellent choice for developers and designers who need a high-performance, compact, and easy-to-integrate dual-band WiFi antenna for their IoT devices.

50 x 20 x 0.1mm

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Document Information

Product	W-2GA1
Part Number	W-2GA1
Description	Multiband WIFI+GNSS FPC Antenna
Version	2.0 (current)
Date	15-Sep-2023
Status	Released

Revision History

Version	Date	Author	Changes
1.0	30-Dec-2021	Amy Li	Initial Release
1.1	05-July-2023	Hazel Xu	New layout and design
2.0	15-Sep-2023	Ivy Liao	New layout and design

Product Overview

Product Description

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Key Features

- Support 2.4G/5.8G/GPS/GLONASS/BD
- Small and exquisite
- High Reliability/Sensitivity
- Compact Size, Easy to install
- RoHS Compliant

Applications

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

Electrical Specifications

Frequency Range	WIFI (2400 MHz ~2500 MHz / 5000~MHz ~5900 MHz) GNSS (1561 MHz ~ 1602MHz)
Input Impedance	50 Ω
Polarization	Linear

VSWR	≤2.0
Gain	WIFI 2DBi / GNSS 4DBi
Power Handling Capacity	50W

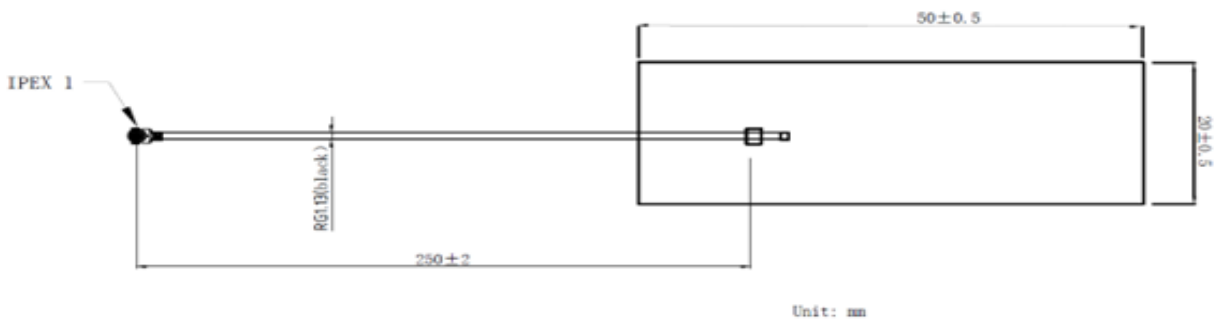
Mechanical Specifications

Type	Internal	Mounting	Embedded
Dimensions	50 x 20 x 0.1 mm	Casing	N/A
Cable	RG1.13 (250mm)	Cable length	250 mm

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



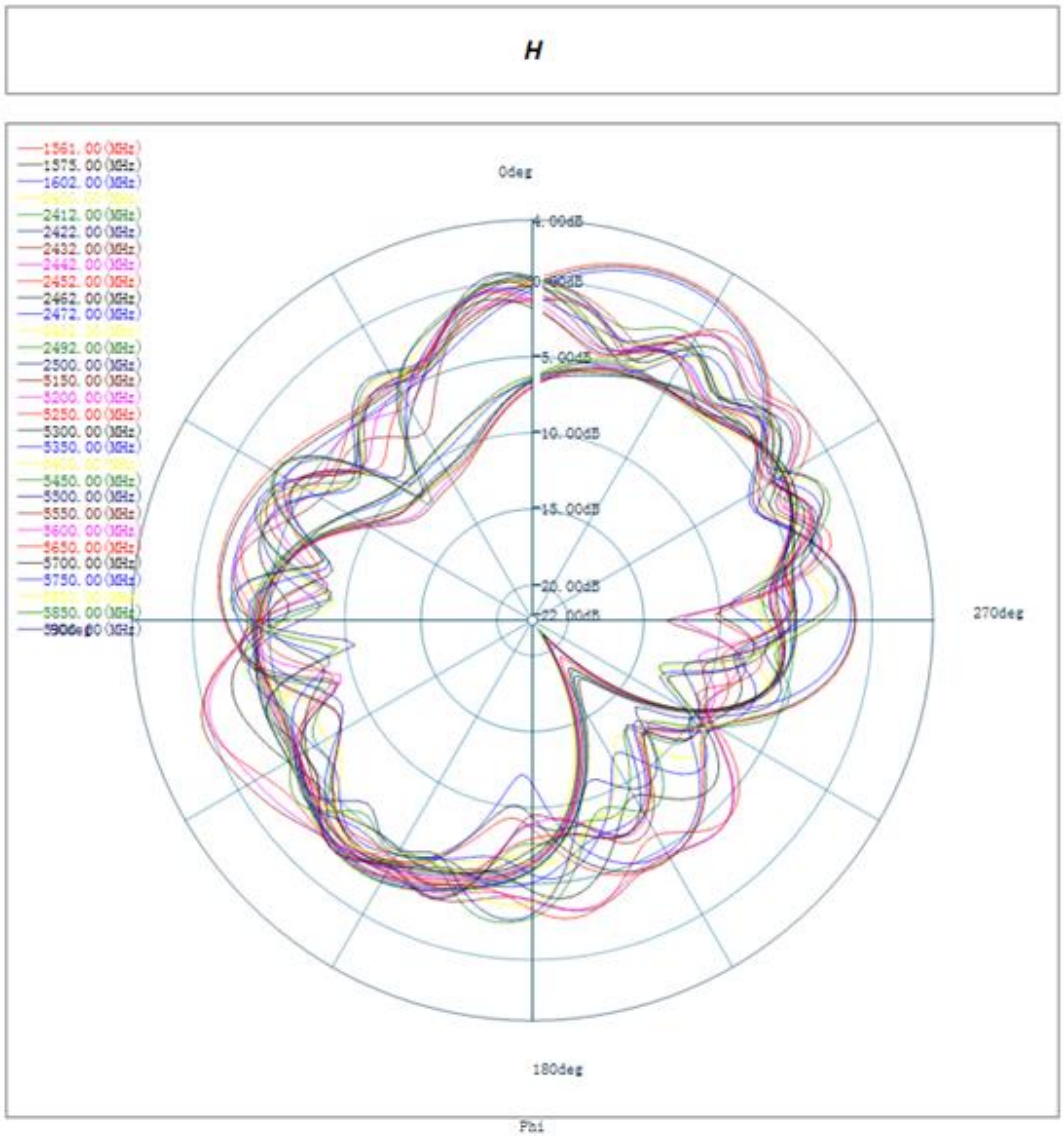
Radiation Pattern

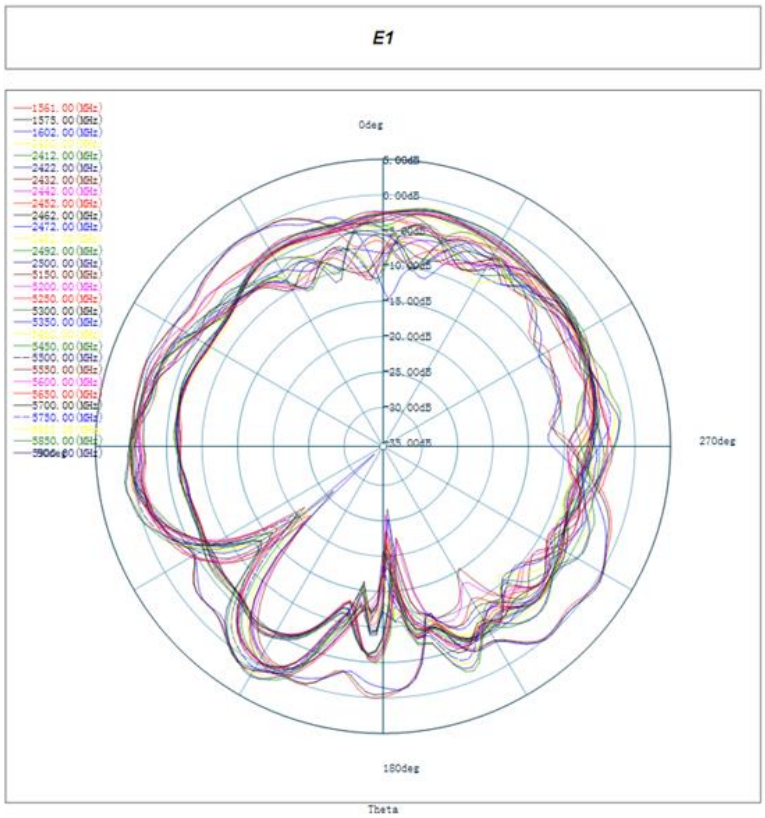
A radiation pattern is a graphical representation of the directional properties of an antenna. It shows how electromagnetic waves are distributed in space in relation to the direction of propagation.

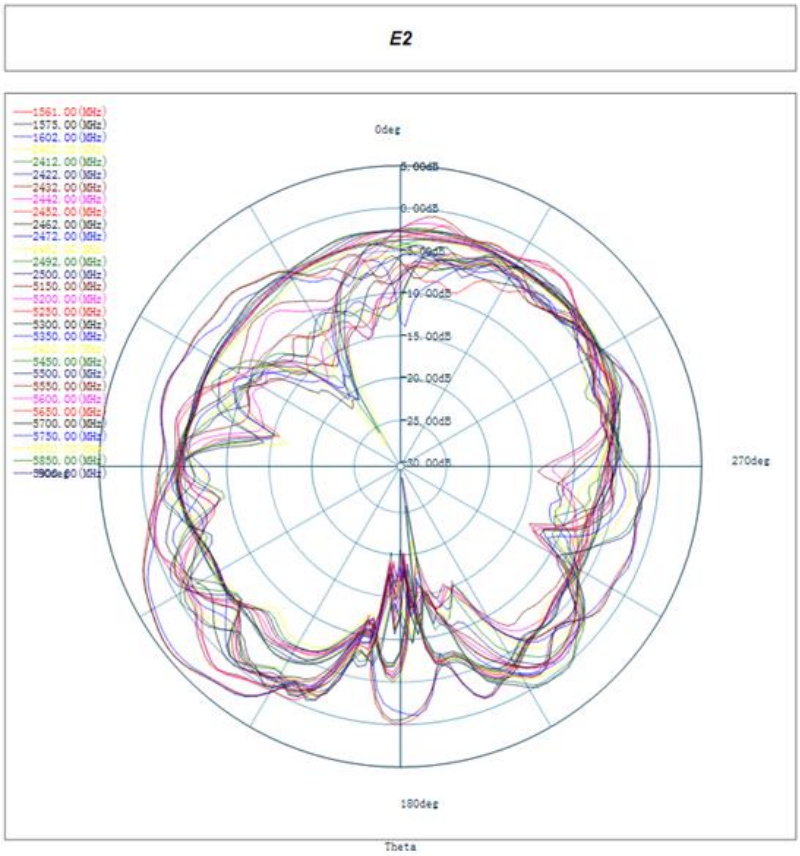
By understanding the information provided by a radiation pattern, it is possible to optimize the design and performance of an antenna for specific applications.

Test Setup

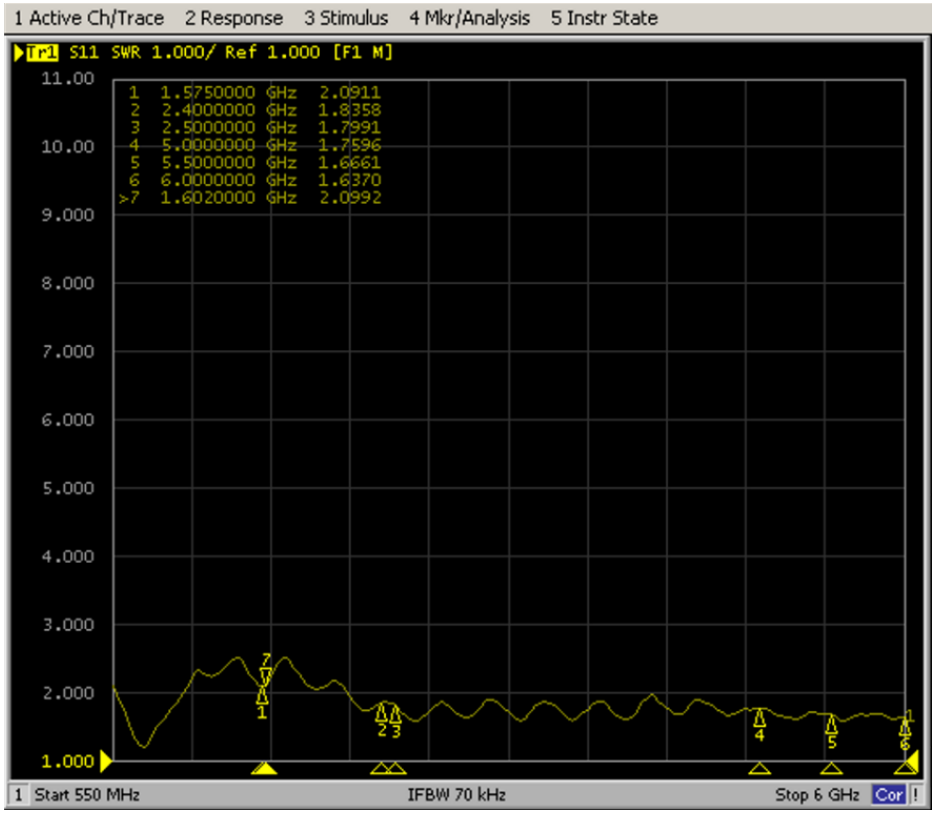
Equipment	XYZ Testing Machine	Conditions	Free space Bend

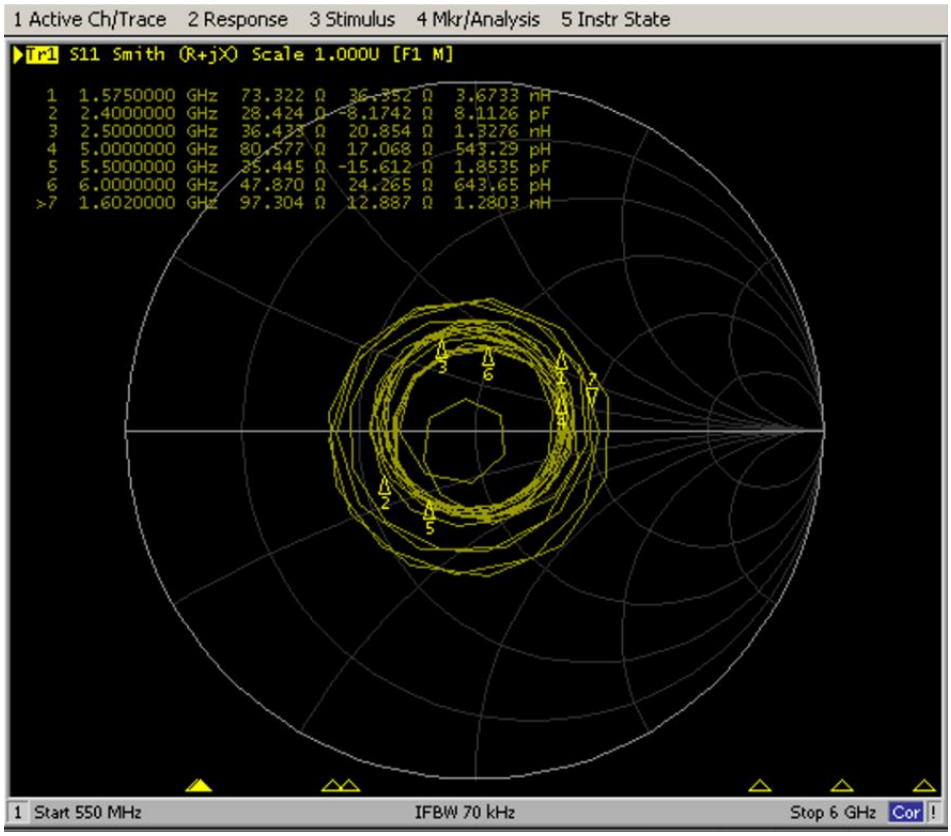


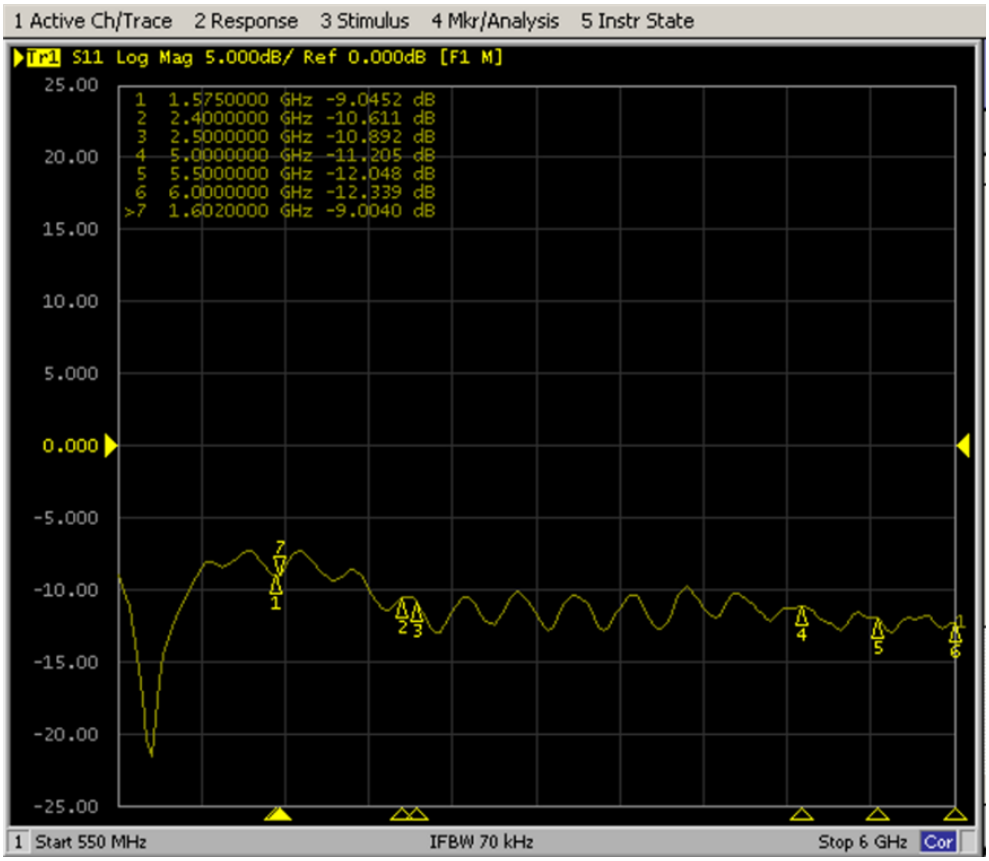

E1
0deg
270deg
180deg
Theta


E2
0deg
270deg
180deg
Theta

Antenna Smith and VSWR







Frequency		VSWR
1574	MHz	2.1
1600	MHz	2.1
2400	MHz	1.8
2500	MHz	1.8

Frequency		VSWR
5000	MHz	1.8
5500	MHz	1.7
6000	MHz	1.6

Antenna Efficiency and Gain

Frequency		Efficiency	Gain
1561	MHz	59%	4.370211
1575	MHz	60%	4.435308
1602	MHz	56%	4.027988
2400	MHz	47%	2.08953
2412	MHz	46%	1.88538
2422	MHz	46%	1.83878

Frequency		Efficiency	Gain
5150	MHz	46%	1.986053
5200	MHz	45%	1.821165
5250	MHz	47%	1.801137
5300	MHz	46%	1.768645
5350	MHz	41%	1.702266
5400	MHz	40%	1.340247

2432	MHz	49%	1.88539
2442	MHz	43%	1.82462
2452	MHz	44%	1.84314
2462	MHz	41%	1.64266
2472	MHz	42%	1.38334
2482	MHz	43%	1.20155
2492	MHz	44%	1.27011
2500	MHz	43%	1.23068

5450	MHz	44%	2.496075
5500	MHz	46%	2.713244
5550	MHz	45%	2.338983
5600	MHz	42%	1.74655
5650	MHz	41%	1.003553
5700	MHz	40%	1.423753
5750	MHz	46%	1.599849
5800	MHz	49%	1.871829
5850	MHz	56%	2.547417
5900	MHz	54%	2.738681

Environmental Data

Operating Temperature	-20°C to +80°C
Storage Temperature	-20°C to +80ww°C

Certifications and Approvals

Type Approvals	N/A	Standards	N/A
Health & Safety	N/A	Compliance	RoHS

Ordering Information

Product Variants

Part Number	Description
W-2GA1	Multiband WIFI+GNSS FPC 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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