

W-2FA1

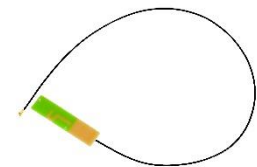
Dual Band WiFi Internal Rigid Antenna

PCB

WIFI

The W-2FA1 is 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-2FA1 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-2FA1 is 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.



51 x 13 x 0.2 mm

Document Information

Product	W-2FA1
Part Number	W-2FA1
Description	Dual Band WiFi Internal Rigid Antenna
Version	2.0 (current)
Date	16-Apr-2020
Status	Released

Revision History

Version	Date	Author	Changes
1.0	30-Dec-2021	Amy Li	Initial Release
1.1	16-Apr-2023	Amy Li	New layout and design

Product Overview

Product Description

The W-2FA1 is 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-2FA1 is easy to integrate into various devices, and its low profile and small size make it an ideal choice for space-constrained applications.

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Key Features

- Dual band WiFi antenna
- Wide Application
- Linear Polarization
- Easy integration
- RoHS Compliant

Applications

- IoT
- Wearables
- Home automation
- Security
- Transportation
- Smart Agriculture

Electrical Specifications

Frequency	VSWR	Peak Gain	Efficiency
2.4G WiFi	2400 - 2490 MHz		
5.8G WiFi	5749 - 5900 MHz		

Frequency Range	2400 – 2490 MHz 5749 – 5900 MHz	Radiation	Omnidirectional
Impedance	50 Ω	Electrical Type	Monopole
Polarization	Vertical	Lighting Protection	Direct Current earth
Power Handling Capacity	50W		

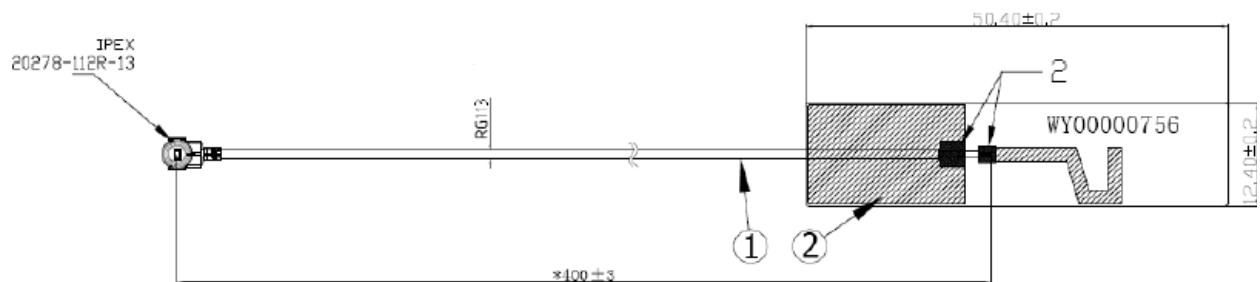
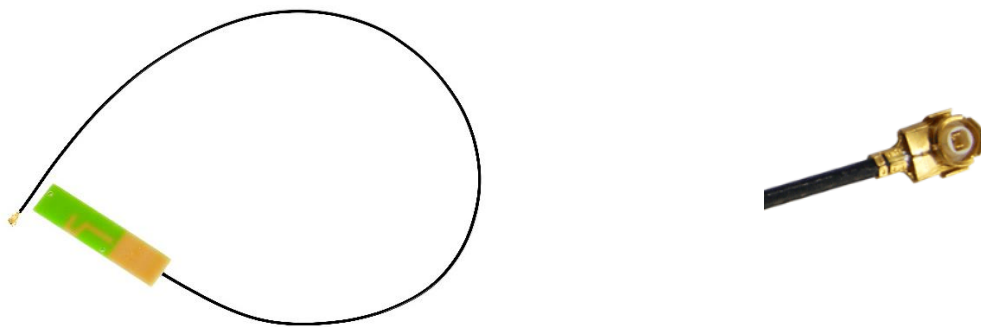
Mechanical Specifications

Type	Internal	Mounting Type	Connector Mount
Dimensions	51 x 13 x 0.2 mm	Casing	N/A
Connector (Termination)	IPEX Plug	Cable length	100 mm
Cable type	RG1.13		

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.

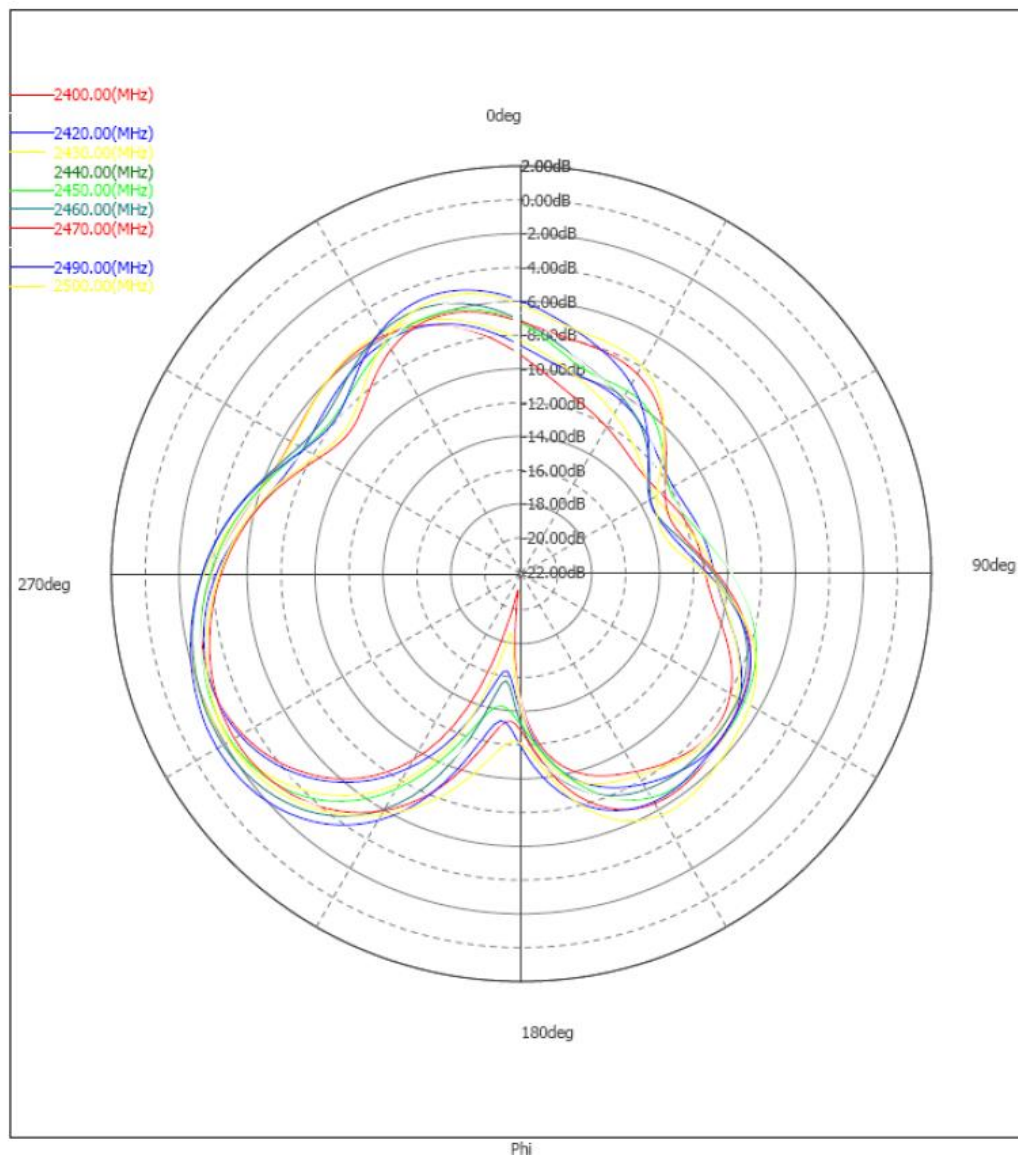
By understanding the information provided by a radiation pattern, it is possible to optimize the design and performance of an antenna for specific applications.

Test Setup

Equipment	XYZ Testing Machine	Conditions	Free space Bend
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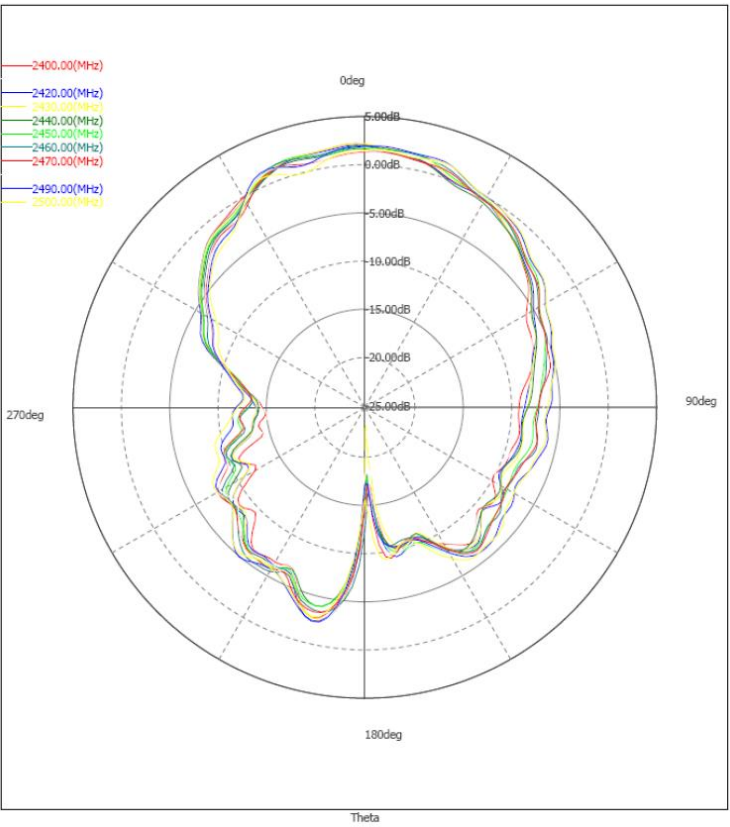
XY Plane (H)

2.4G



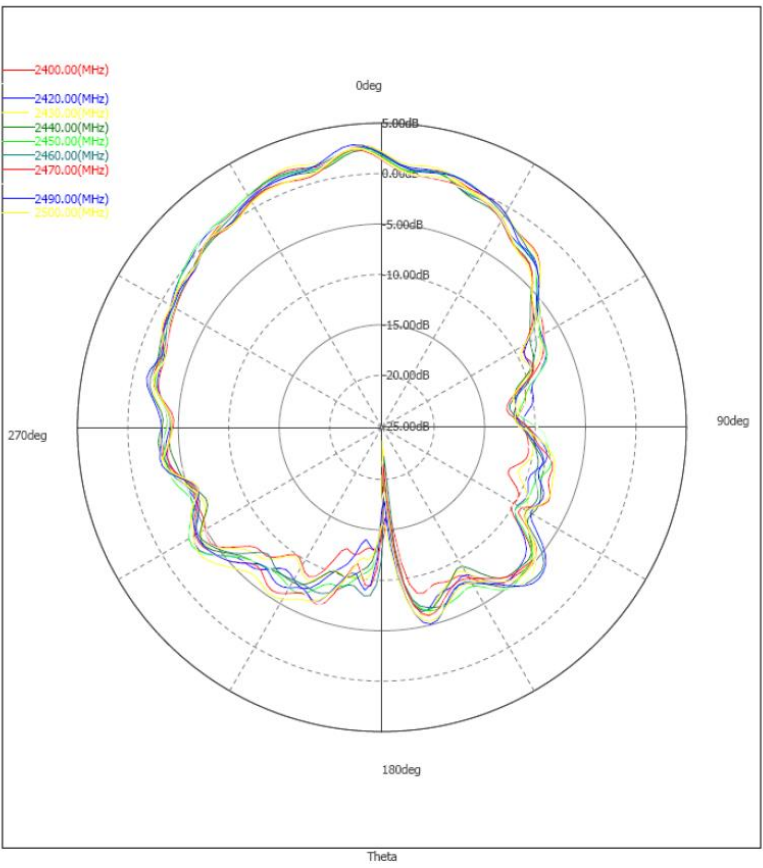
XZ Plane (E1)

2.4G



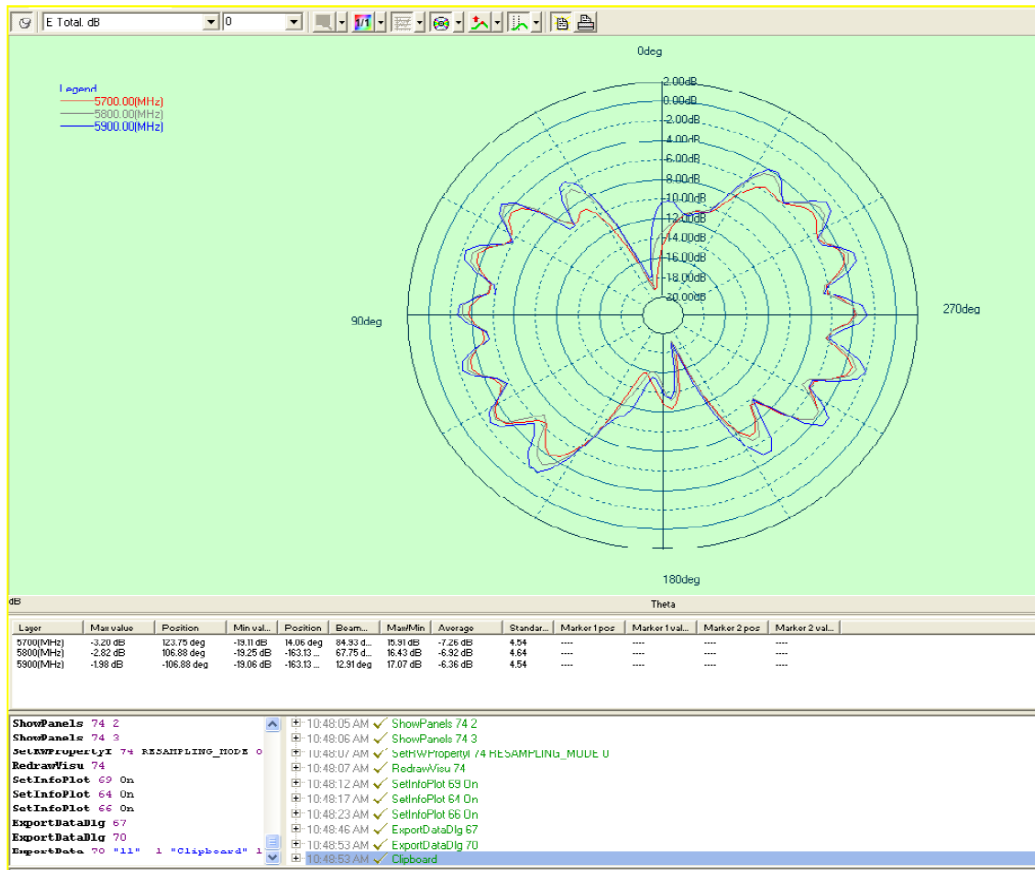
YZ Pane (E2)

2.4G



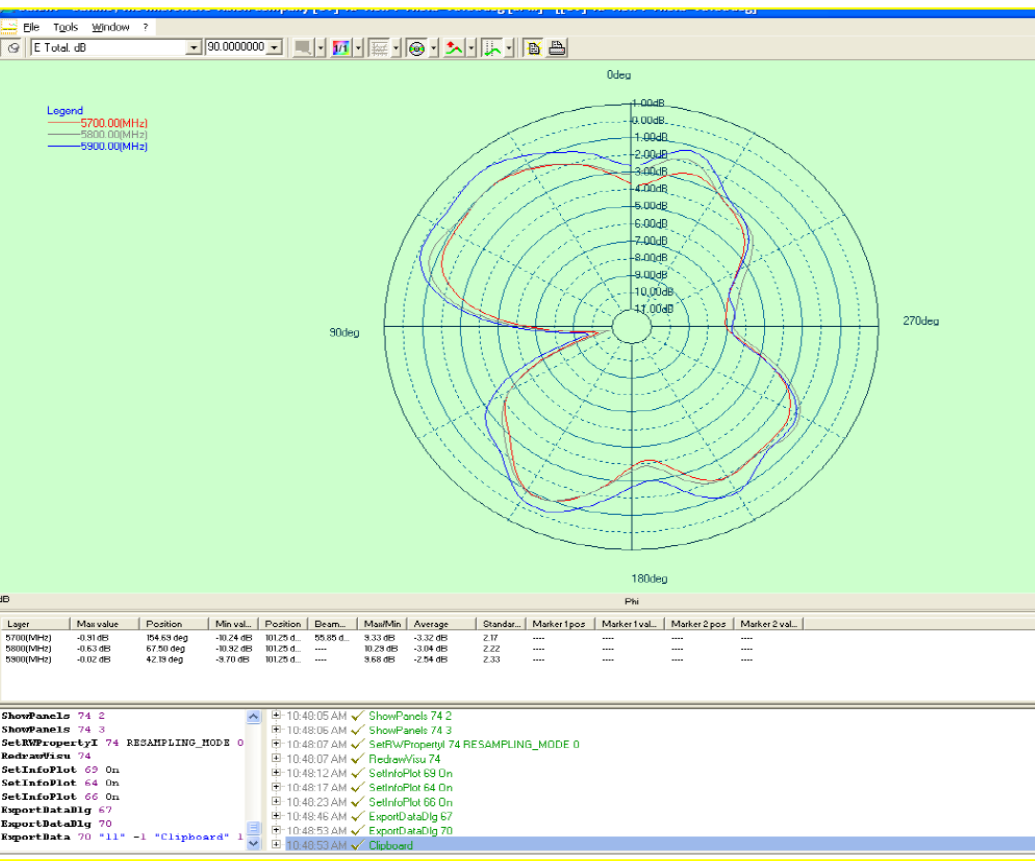
XY Plane (H)

5.8G



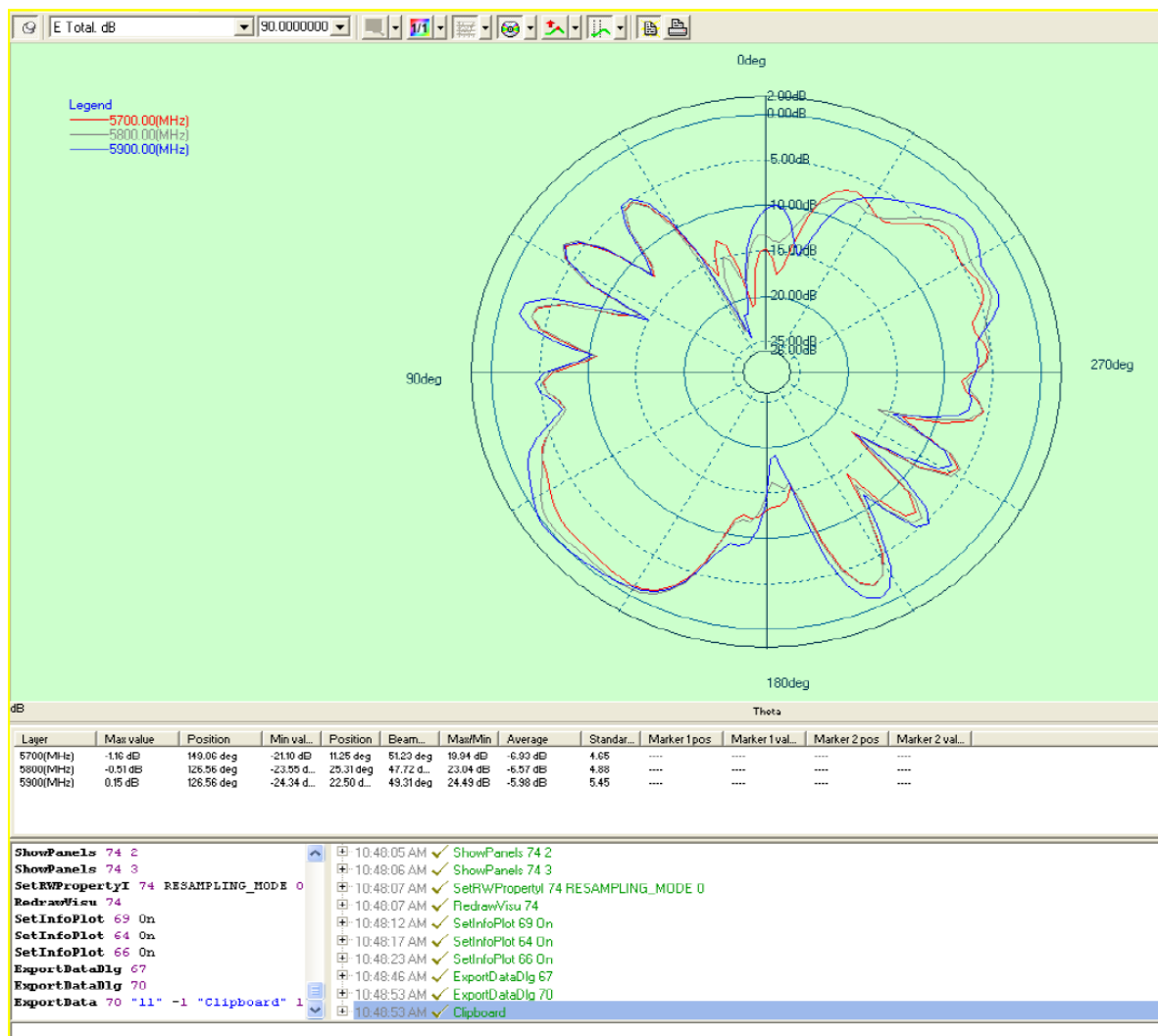
XZ Plane (E1)

5.8G



YZ Plane (E2)

5.8G



Antenna Smith and VSWR

Frequency		VSWR
2400	MHz	1.7
2500	MHz	1.5

Frequency		VSWR
5749	MHz	2.0
5800	MHz	1.77

Antenna Efficiency and Gain

Frequency	Efficiency	Gain
2400 MHz	46%	1.90
2410 MHz	45%	1.68

Frequency	Efficiency	Gain
2470 MHz	47%	1.50
2480 MHz	50%	1.69

2420	MHz	47%	1.69
2430	MHz	47%	1.82
2440	MHz	45%	1.39
2450	MHz	49%	1.58
2460	MHz	49%	1.68

2490	MHz	51%	1.01
5700	MHz	43%	1.46
5800	MHz	46%	1.62
5900	MHz	47%	1.34

Environmental Data

Operating Temperature -45°C to +85°C

Storage Temperature -45°C to +85°C

Humidity 00 % to 95 % RH

Certifications and Approvals

Type Approvals N/A

Standards N/A

Health & Safety N/A

Compliance RoHS

Ordering Information

Product Variants

Part Number	Description
W-2FA1	Dual Band WiFi Internal Rigid 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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