

M-1RA1

Sigfox 915 Antenna

CELLULAR

SIGFOX

The M-1RA1 is a Sigfox 915 Antenna with a wide band and high efficiency. It's an ideal solution for cellular IoT applications requiring a durable and cost-effective external antenna.

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



208 x 14 mm

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Document Information

Product	M-1RA1
Part Number	M-1RA1
Description	Sigfox 915 Antenna
Version	2.0 (current)
Date	15-Sep-2023
Status	Released

Revision History

Version	Date	Author	Changes
1.0	16-Dec-2020	Amy Li	Initial Release
1.1	06-July-2023	Hazel Xu	New layout and design
2.0	15-Sep-2023	Ivy Liao	New layout and design

Product Overview

Product Description

The M-1RA1 is a Sigfox 915 Antenna with a wide band 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

- Operates in 900-930MHz
- Dual band antenna
- Vertical polarization
- High gain of 2.5dBi
- VSWR 1.7
- Omni-directional pattern

Applications

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

Electrical Specifications

Frequency			VSWR	Peak Gain	Efficiency
LORA	900 - 930	MHz	1.7	2.5 d Bi	40%

Frequency Range	900 – 930 MHz
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Impedance	50 Ω
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Polarization	Vertical
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Radiation	Omnidirectional
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Power Handling	50W
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Capacity	
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Lighting Protection	Direct Current earth
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Mechanical Specifications

Cable Type	RG-178
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Dimensions	208 x 14 mm
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Enclosure	TPE
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Color	Black
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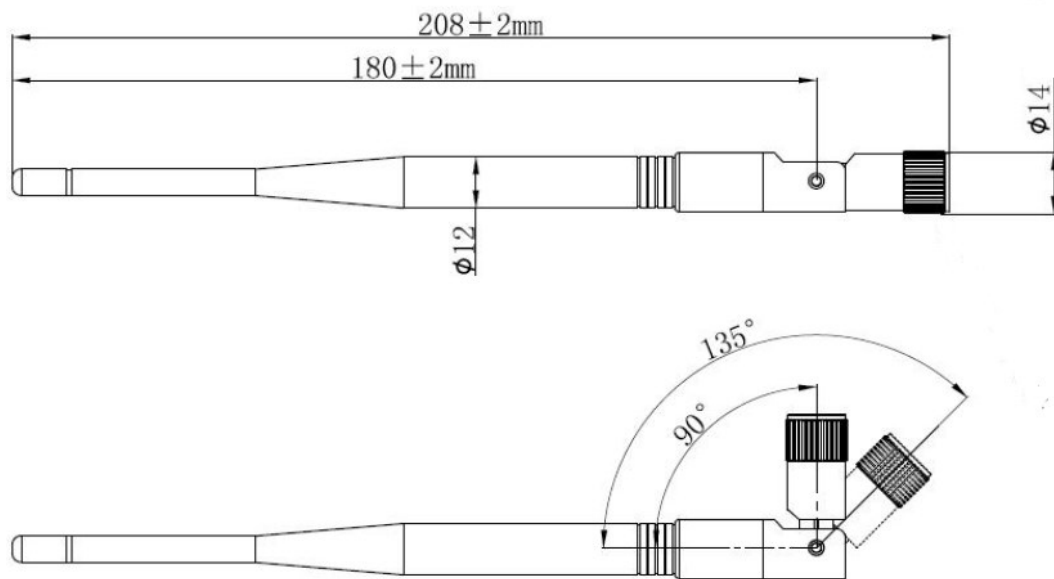
Connector (Termination)	SMA	Material	PBT + PC
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Caution:

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





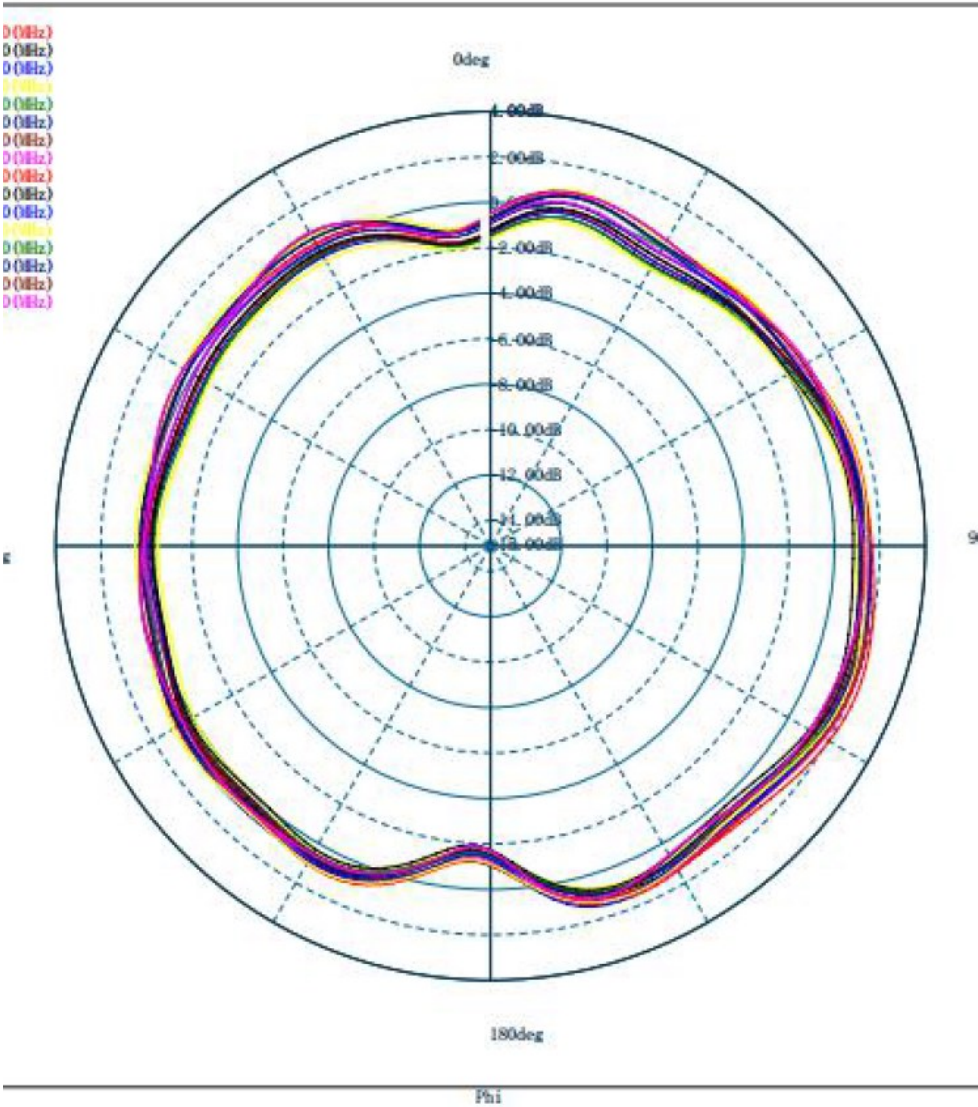
Radiation Pattern

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.

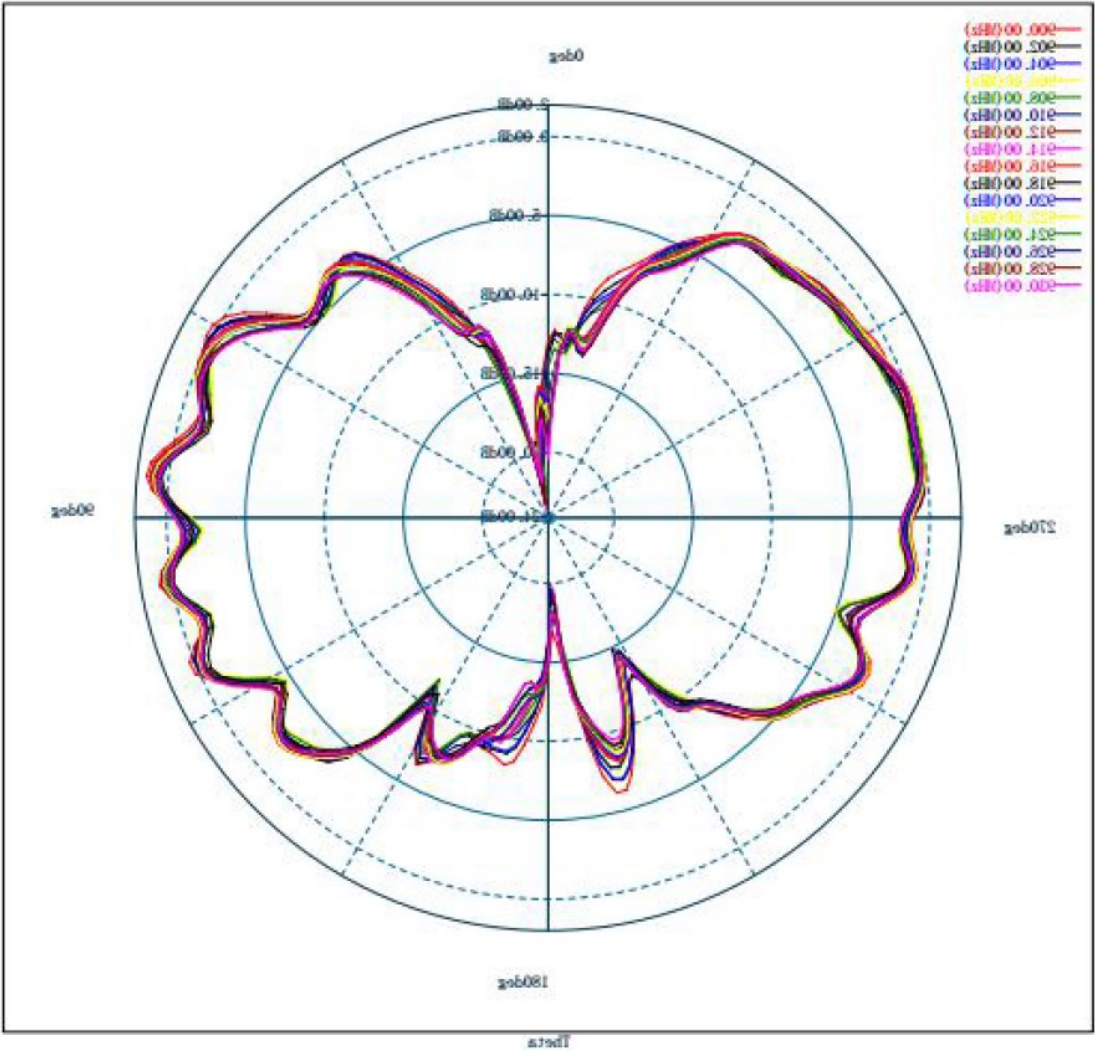
XY Plane (H)

900 – 930 MHz



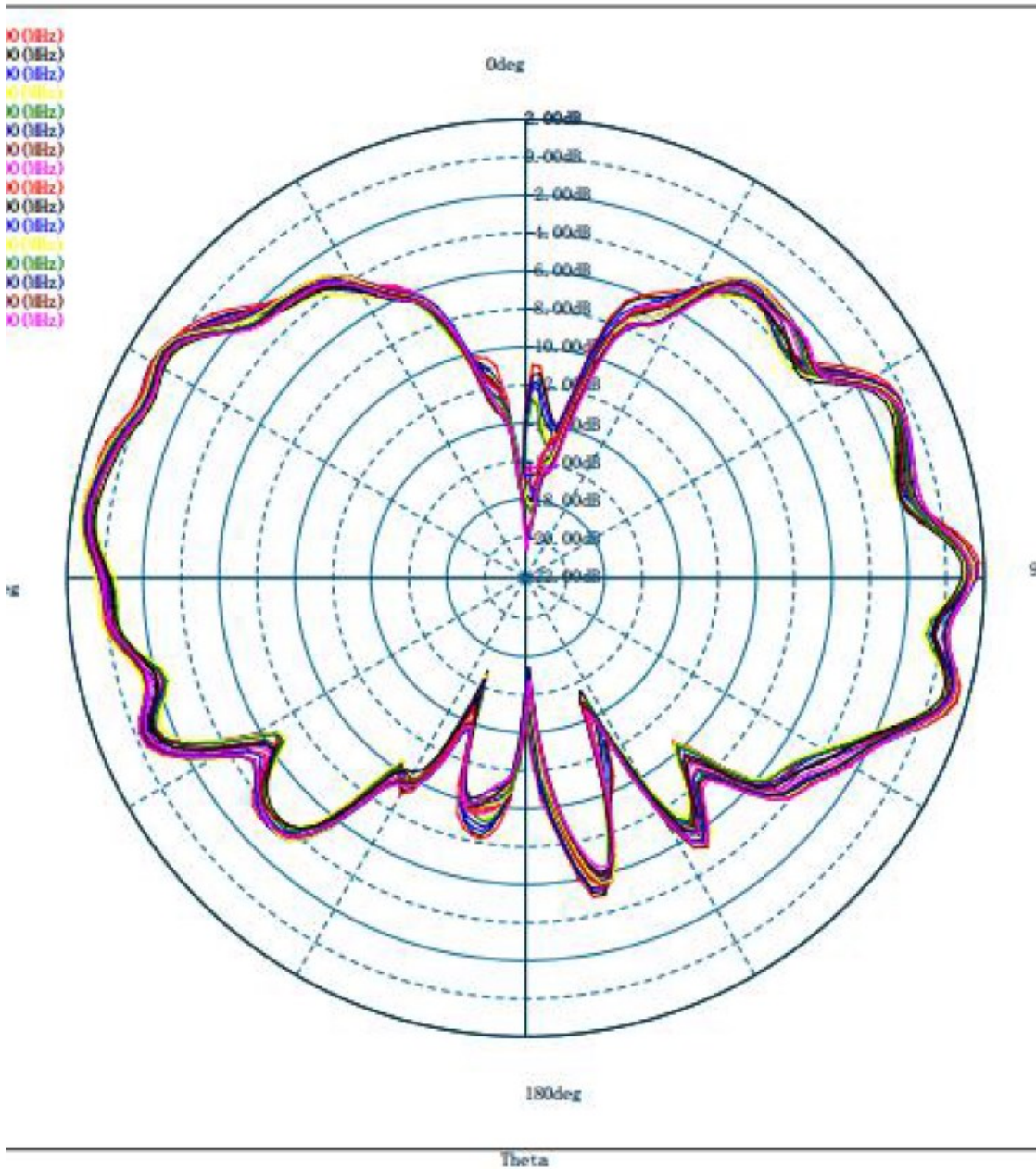
YZ Plane (E1)

900 – 930 MHz



YZ Plane (E2)

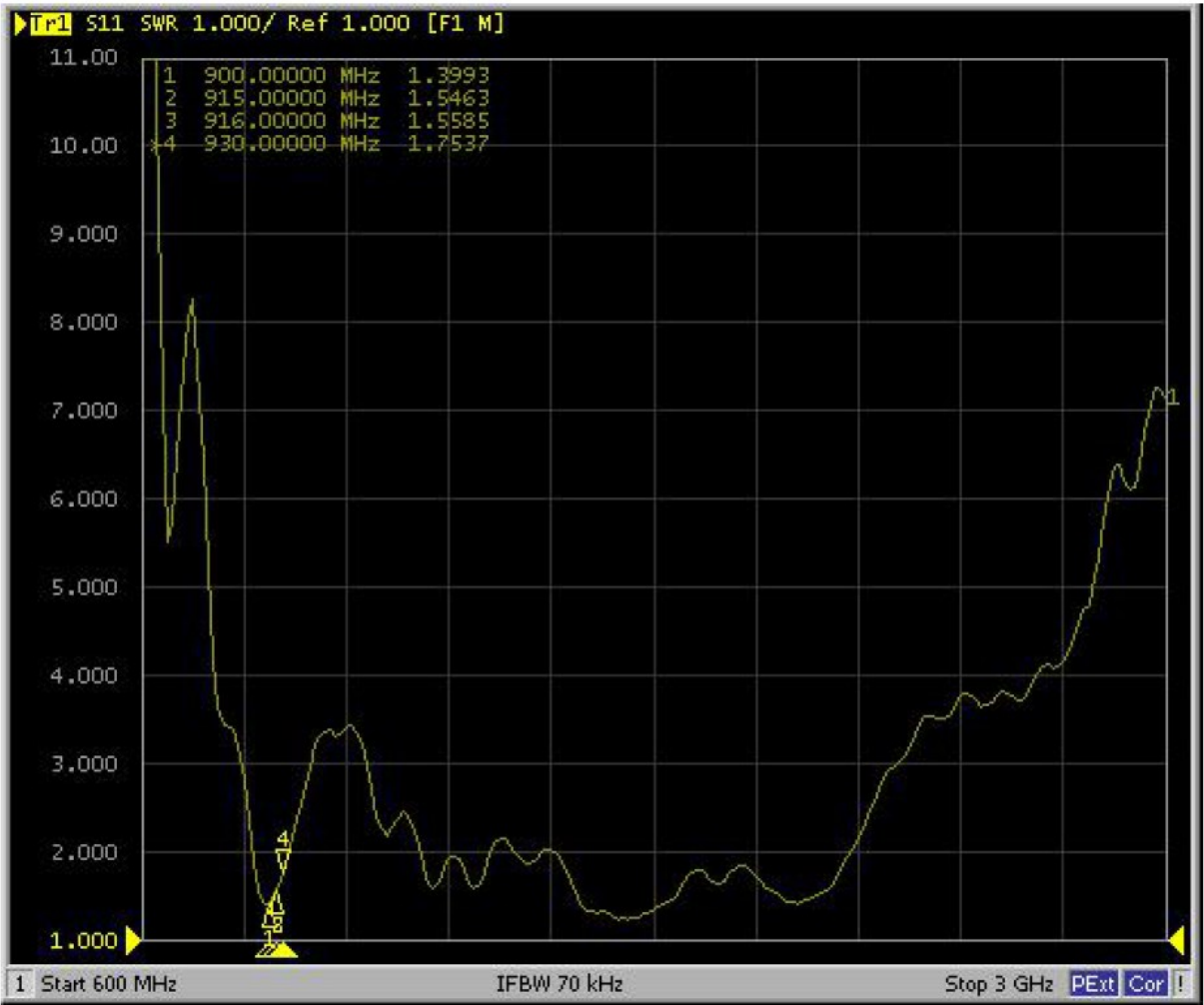
900 – 930 MHz

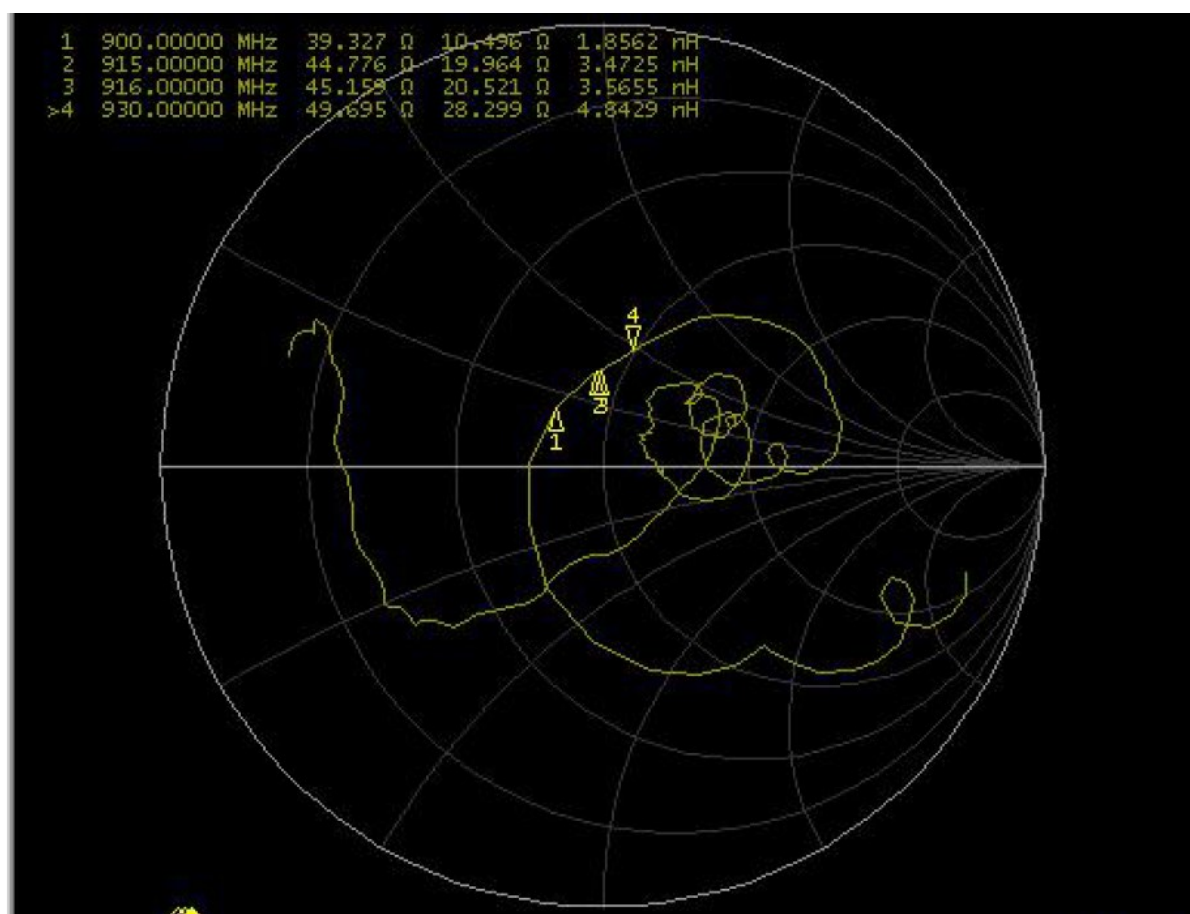


Antenna Smith and VSWR

Frequency		VSWR
900	MHz	1.3993
915	MHz	1.5463

Frequency		VSWR
916	MHz	1.5585
930	MHz	1.7537

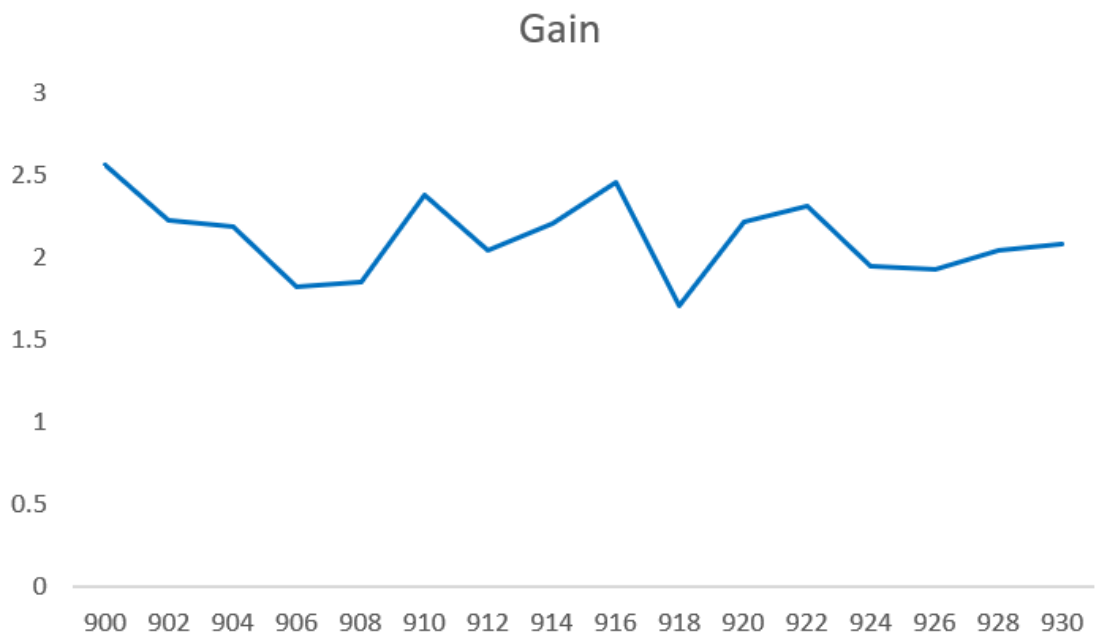
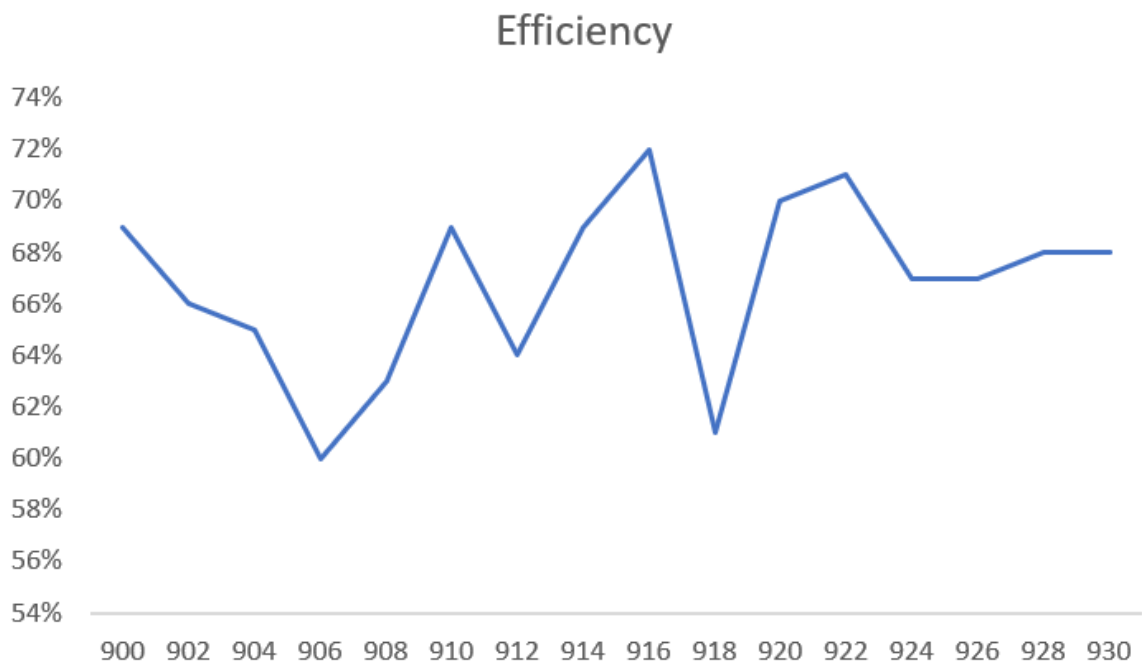




Antenna Efficiency and Gain

Frequency		Efficiency	Gain
900	MHz	69%	2.56
902	MHz	66%	2.23
904	MHz	65%	2.19
906	MHz	60%	1.82
908	MHz	63%	1.85
910	MHz	69%	2.38
912	MHz	64%	2.04
914	MHz	69%	2.21

Frequency		Efficiency	Gain
916	MHz	72%	2.46
918	MHz	61%	1.71
920	MHz	70%	2.22
922	MHz	71%	2.31
924	MHz	67%	1.95
926	MHz	67%	1.93
928	MHz	68%	2.04
930	MHz	68%	2.08



Environmental Data

Operating Temperature	-40 °C to +85 °C
Compliance	RoHS

Ordering Information

Product Variants

Part Number	Description
M-1RA1	Sigfox 915 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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