

L-5RA8

Wide band 5G External Antenna

CELLULAR

WIFI

The L-5RA8 is a cellular antenna for 5G, LTE, and WCDMA that can also cover Wi-Fi frequencies. It's a compact and durable external antenna with wide-band and high efficiency.

The L-5RA8 allows the antenna to be positioned for optimum performance compared to a fixed whip design. The antenna attaches with an SMA connector.



170 × 42 × 13 mm

Document Information

Product	L-5RA8
Part Number	L-5RA8
Description	Wide band 5G External Antenna
Version	2.0 (current)
Date	30-June-2023
Status	Released

Revision History

Version	Date	Author	Changes
1.0	16-Dec-2020	Amy li	Initial Release
2.0	30-June-2023	Ivy Liao	New layout and design

Product Overview

Product Description

The L-5RA8 is a cellular antenna for 5G, LTE, and WCDMA that can also cover Wi-Fi frequencies. It's a compact and durable external antenna with wide-band and high efficiency. It's an ideal solution for cellular IoT applications requiring a durable and cost-effective external antenna.

The L-5RA8 allows the antenna to be positioned for optimum performance and reduces the potential for damage from impact compared to a fixed whip design. The antenna attaches with an SMA plug (male pin) connector.

Key Features

- Support the 5G / LTE / WCDMA/WIFI
- Wide Application
- High Reliability/Sensitivity
- Compact Size, Easy to install
- RoHS Compliant

Applications

- LTE/Wi-Fi Radios
- Gateways
- Set-top Boxes.
- Security
- Transportation
- Smart Agriculture

Electrical Specifications

Frequency			VSWR	Peak Gain	Efficiency
5G/LTE	690 - 960	MHz	2.8	0.9 d Bi	44%
5G/LTE	1710 - 5000	MHz	2.9	4.5 d Bi	62%
2.4G Wi-Fi	2400 - 2500	MHz	2.1	2.9 d Bi	63%

Frequency Range 690 – 5000 MHz

Impedance 50 Ω

Polarization Linear

Radiation Omnidirectional

Electrical Type Dipole

Mechanical Specifications

Type Hinge / Swivel Blade Type

Dimensions 170 x 42 x 13 mm

Mounting Type Connector Mount

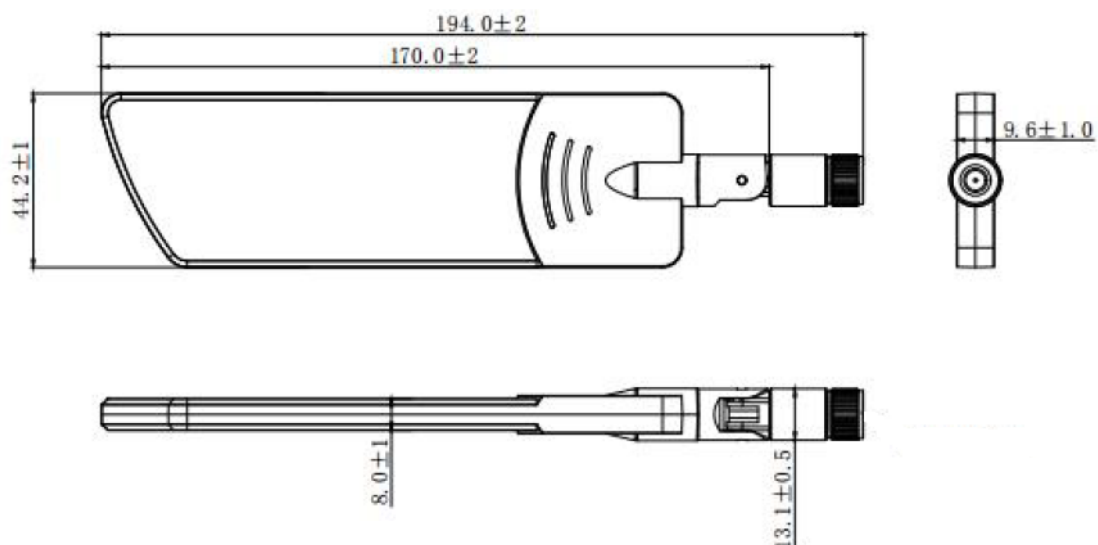
Casing Yes

Connector (Termination)	SMA Plug (male pin)	Color	Black
Cable type	NA	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.

Test Setup

Equipment

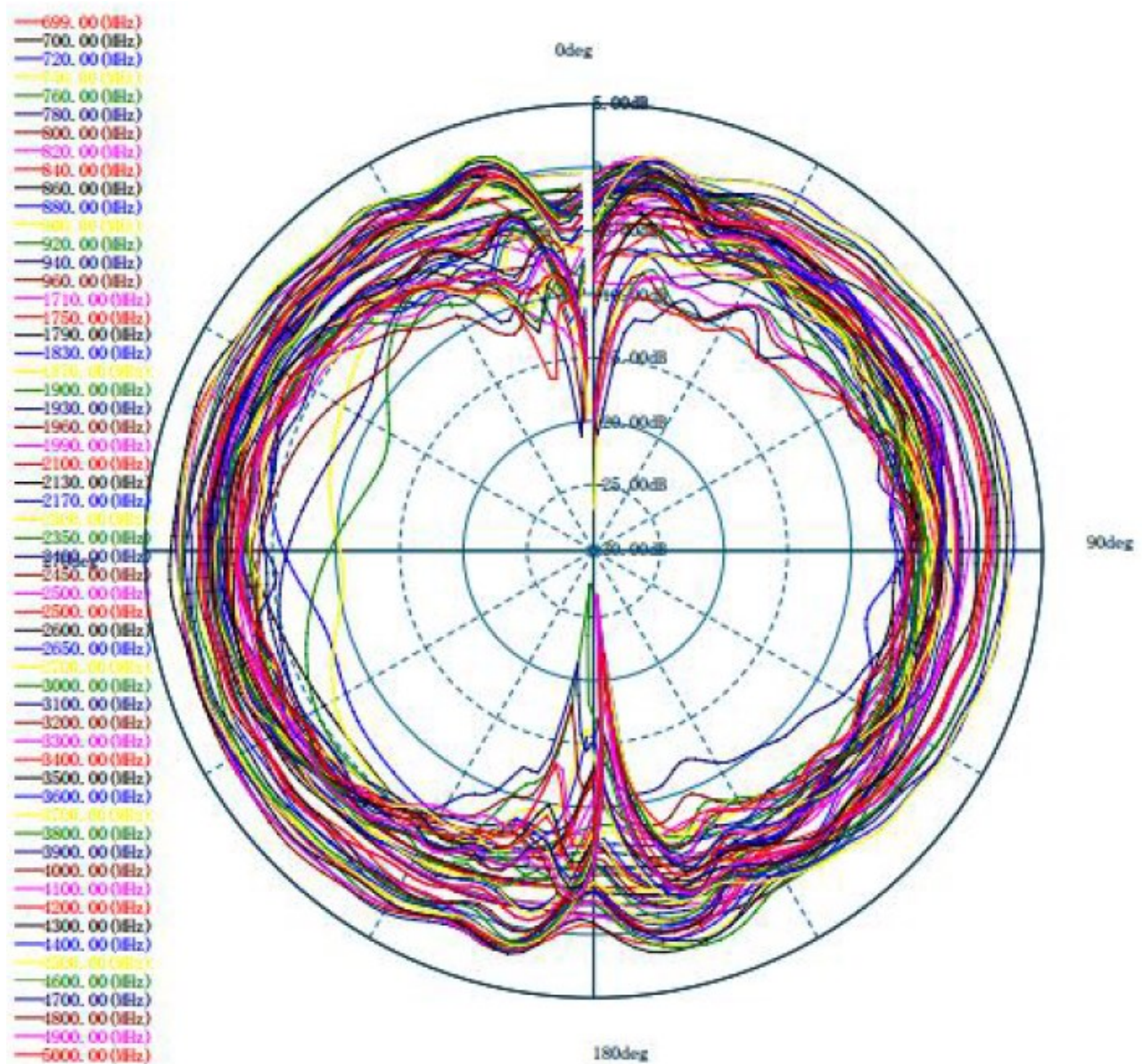
XYZ Testing Machine

Conditions

Free space Bend

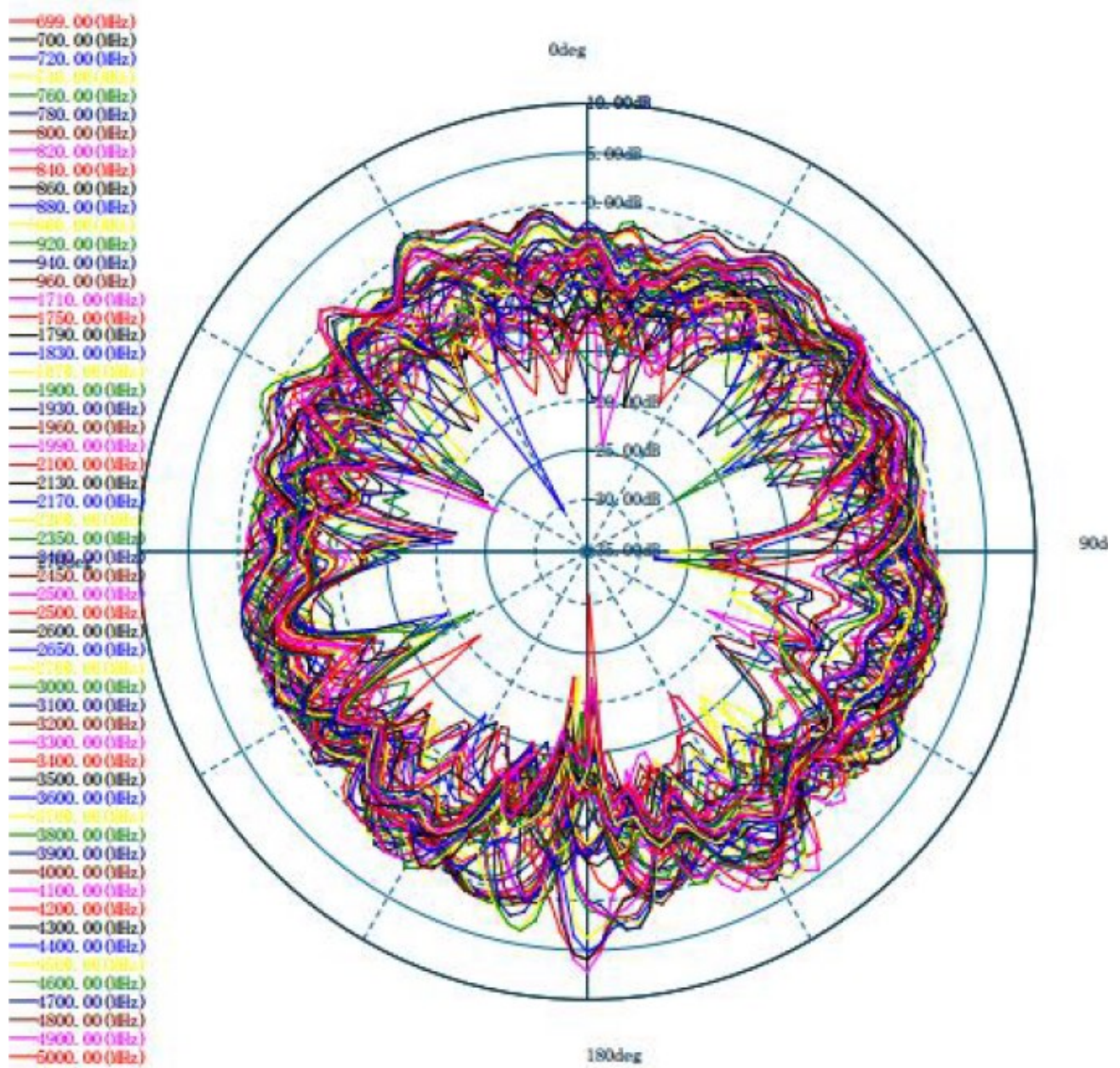
XY Plane (H)

690 – 5000 MHz



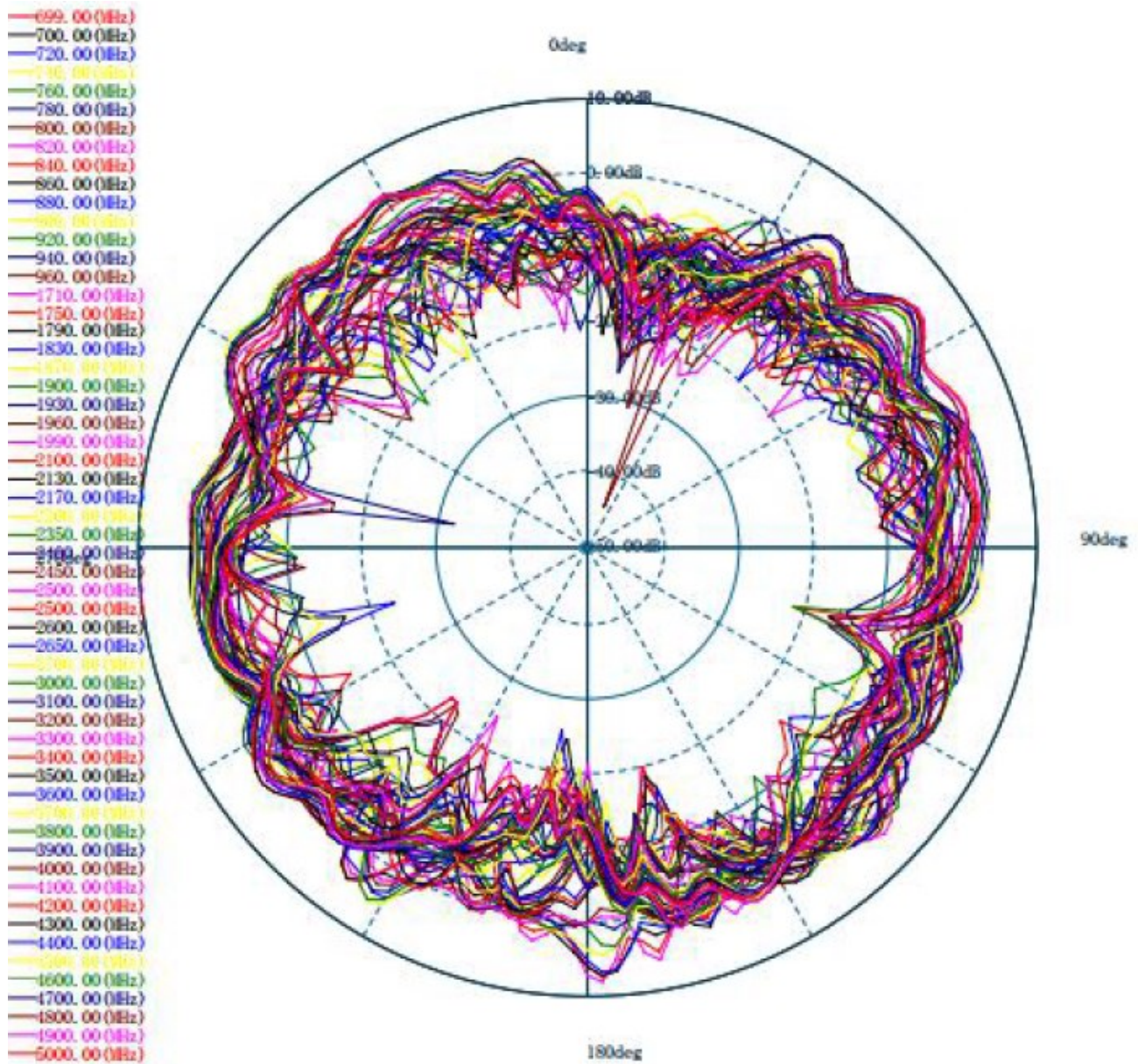
XZ Plane (E1)

690 – 5000 MHz



YZ Plane (E2)

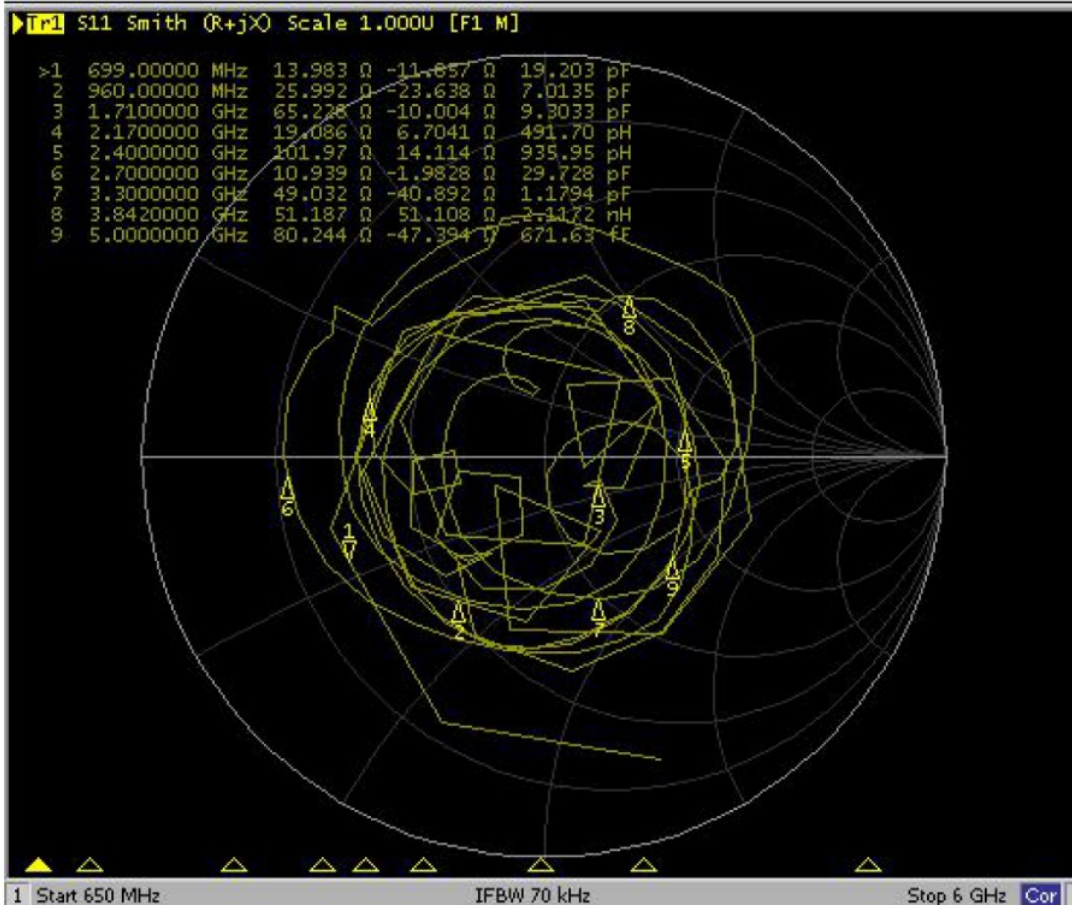
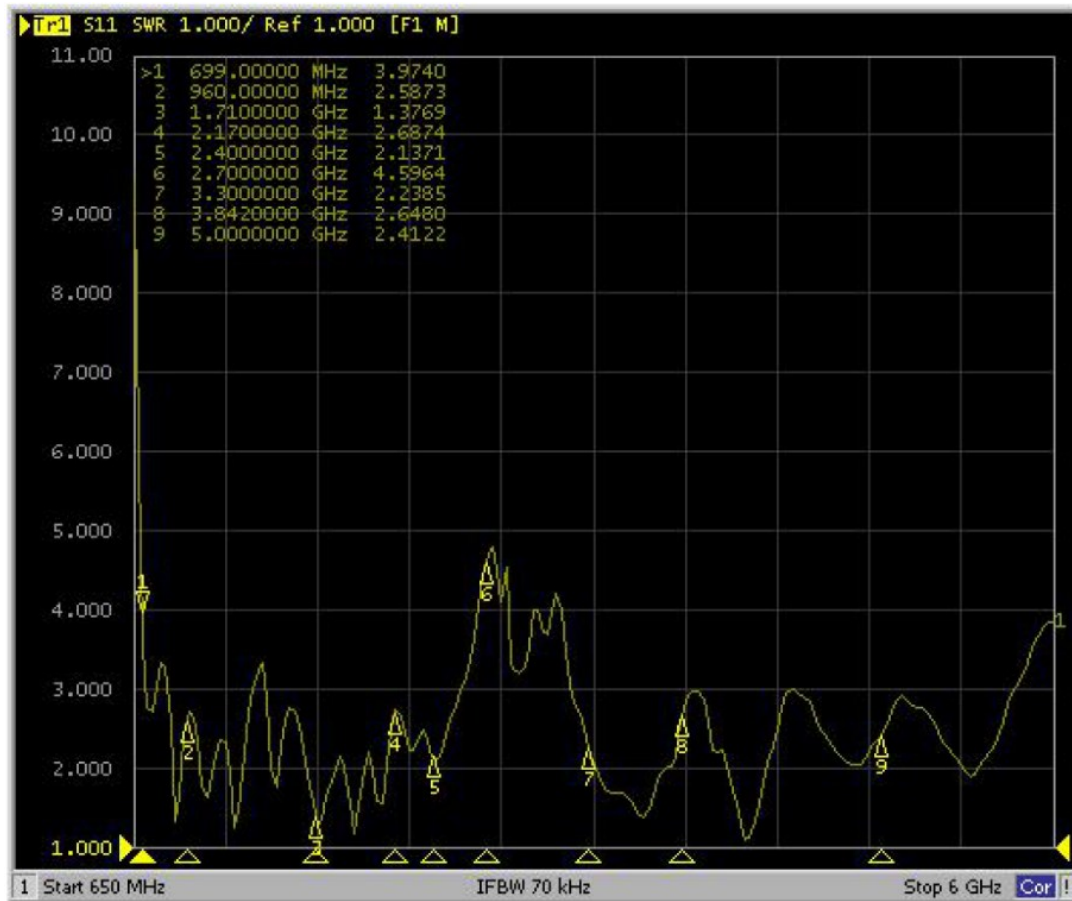
690 – 5000 MHz



Antenna Smith and VSWR

Frequency		VSWR
700	MHz	1.73
960	MHz	5.02
1710	MHz	3.14
2170	MHz	2.80
2690	MHz	2.80

Frequency		VSWR
3300	MHz	1.66
5800	MHz	1.97
5000	MHz	1.58
4000	MHz	2.22

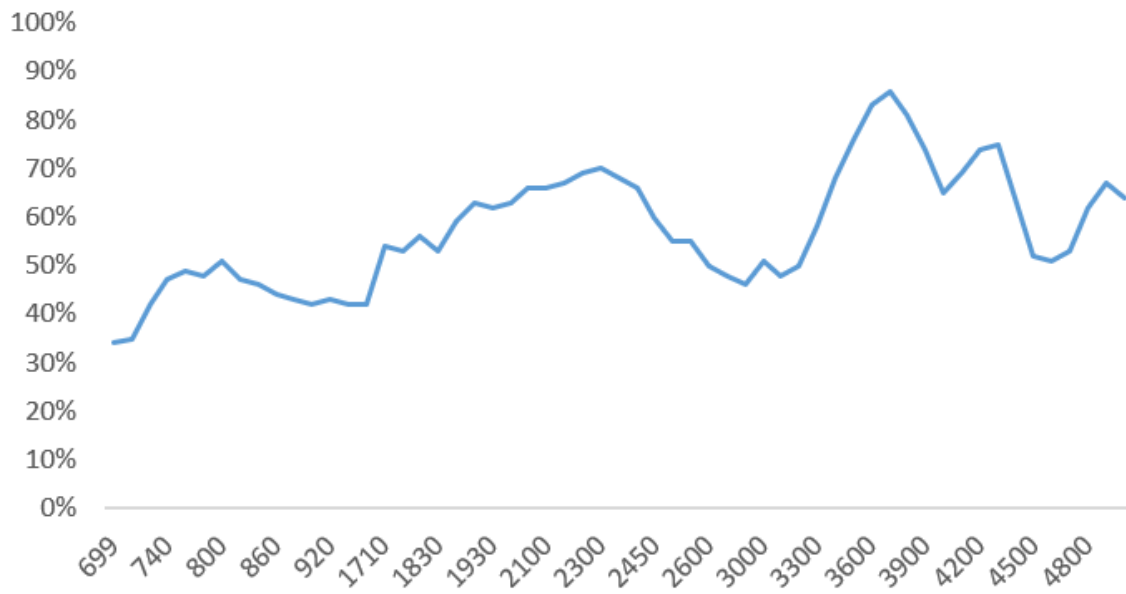


Antenna Efficiency and Gain

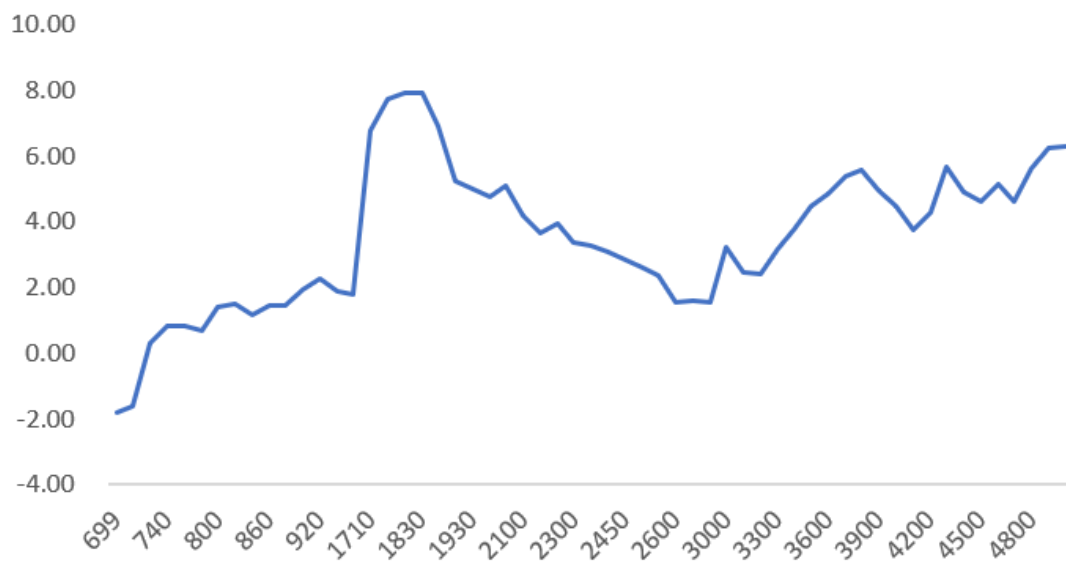
Frequency		Efficiency	Gain
699	MHz	34%	-1.80695
700	MHz	35%	-1.63334
720	MHz	42%	0.28547
740	MHz	47%	0.845904
760	MHz	49%	0.824614
780	MHz	48%	0.699416
800	MHz	51%	1.422835
820	MHz	47%	1.493128
840	MHz	46%	1.16621
860	MHz	44%	1.453914
880	MHz	43%	1.453447
900	MHz	42%	1.915161
920	MHz	43%	2.287646
940	MHz	42%	1.868689
960	MHz	42%	1.805741
1710	MHz	54%	6.778257
1750	MHz	53%	7.744284
1790	MHz	56%	7.922743
1830	MHz	53%	7.930031
1870	MHz	59%	6.911308
1900	MHz	63%	5.262767
1930	MHz	62%	4.993416
1960	MHz	63%	4.759224
1990	MHz	66%	5.086601
2100	MHz	66%	4.180188
2130	MHz	67%	3.660226
2170	MHz	69%	3.945562
2300	MHz	70%	3.384028
2350	MHz	68%	3.292878

Frequency		Efficiency	Gain
2400	MHz	66%	3.083696
2450	MHz	60%	2.830421
2500	MHz	55%	2.605468
2500	MHz	55%	2.377811
2600	MHz	50%	1.535078
2650	MHz	48%	1.582369
2700	MHz	46%	1.530182
3000	MHz	51%	3.231964
3100	MHz	48%	2.476926
3200	MHz	50%	2.396882
3300	MHz	58%	3.197586
3400	MHz	68%	3.763283
3500	MHz	76%	4.462443
3600	MHz	83%	4.84226
3700	MHz	86%	5.39288
3800	MHz	81%	5.554343
3900	MHz	74%	4.965058
4000	MHz	65%	4.448298
4100	MHz	69%	3.775924
4200	MHz	74%	4.284501
4300	MHz	75%	5.691422
4400	MHz	63%	4.908309
4500	MHz	52%	4.639442
4600	MHz	51%	5.145709
4700	MHz	53%	4.630818
4800	MHz	62%	5.617567
4900	MHz	67%	6.239517
5000	MHz	64%	6.284421

Efficiency



Gain



Environmental Data

Operating Temperature	-20°C to +80°C
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Vibration	N/A
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Ordering Information

Product Variants

Part Number	Description
L-5RA8	Multiband 5G/LTE/Wi-Fi Antenna with SMA Connector

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.

Contact

MIOT Wireless Solutions Co. Ltd.
120-5800 Ambler Dr, MISSISSAUGA
ONTARIO L4W 4J4
Canada

Website: www.mioticsolutions.com
Email: info@miotsolutions.com

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