Datasheet

L-5MA1

Multiband 5G/LTE SMD Chip Antenna

CELLULAR | WIFI

The L-5MA1 is a versatile SMD antenna designed to operate at frequencies ranging from 700 MHz to 960 MHz, 1710 MHz to 2700 MHz and 3400 MHz to 3800 MHz. This wide frequency range makes it suitable for various wireless communication applications, including cellular networks, IoT devices, and wireless data transmission. The SMD form factor allows for easy integration onto printed circuit boards (PCBs), making it ideal for compact and space-constrained devices.

The L-5MA1 offers reliable performance and efficient signal reception, enabling seamless wireless connectivity in diverse environments. Whether it's for IoT deployments or wireless communication systems, the L-5MA1 SMD antenna is a reliable choice.

25*7*3 mm

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Document Information

Product	L-5MA1
Part Number	L-5MA1
Description	Multiband 5G/LTE SMD Chip Antenna
Version	2.0 (current)
Date	15-May-2023
Status	Released

Revision History

Version	Date	Author	Changes
1.0	4-May-2020	Amy Li	Initial Release
2.0	15-May-2023	Amy Li	New layout and design

Product Overview

Product Description

The L-5MA1 is a versatile SMD antenna designed to operate at frequencies ranging from 700 MHz to 960 MHz, 1710 MHz to 2700 MHz and 3400 MHz to 3800 MHz. This wide frequency range makes it suitable for various wireless communication applications, including cellular networks, IoT devices, and wireless data transmission.

The SMD form factor allows for easy integration onto printed circuit boards (PCBs), making it ideal for compact and space-constrained devices.

Key Features

- Supports 5G / LTE / WCDMA & WIFI
- Wide Application
- High Reliability/Sensitivity
- Compact Size, Easy to install.
- Ideal for MIMO systems
- Corner placement for ergonomic design-in

Applications

- Mi-Fi routers
- Medical equipment
- Tablets
- OBD++ system
- Femtocell / Pico stations
- Remote monitoring

Electrical Specifications

Frequency			VSWR	Peak Gain	Efficiency
LTE	700 - 960	MHz	2.5	-1.1 d Bi	35%
LTE	1710 - 2700	MHz	2.1	3.5 d Bi	60%
5G	3400 - 3800	MHz	2.8	1.5 d Bi	50%

Frequency Range	700 –3800 MHz	Radiation	Omnidirectional
Impedance	50 Ω	Electrical Type	Monopole
Polarization	Linear		

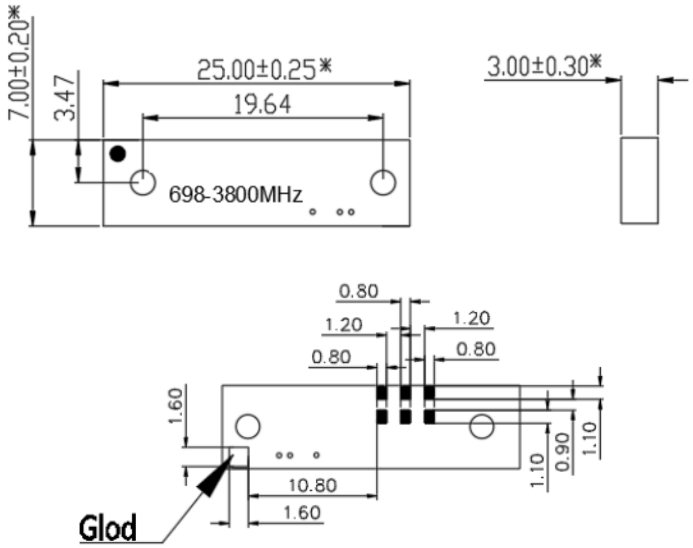
Mechanical Specifications

Type	SMD	Casing	NA
Dimensions	25 x 7 x 3 mm	Color	Black
Connector (Termination)	NA	Material	FR4
Mounting Type	SMT	Weight	<2.5g

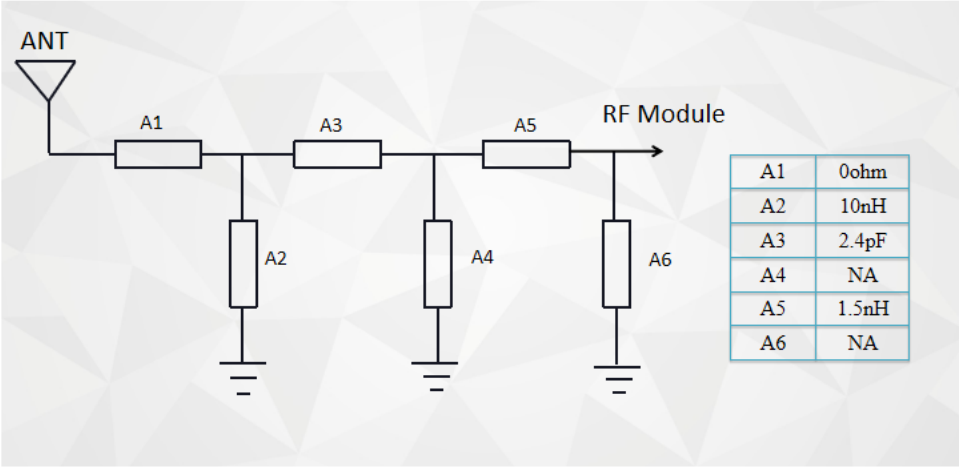
Caution:

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.
4. For vibration environments, apply adhesive at the antenna base for additional fixation.

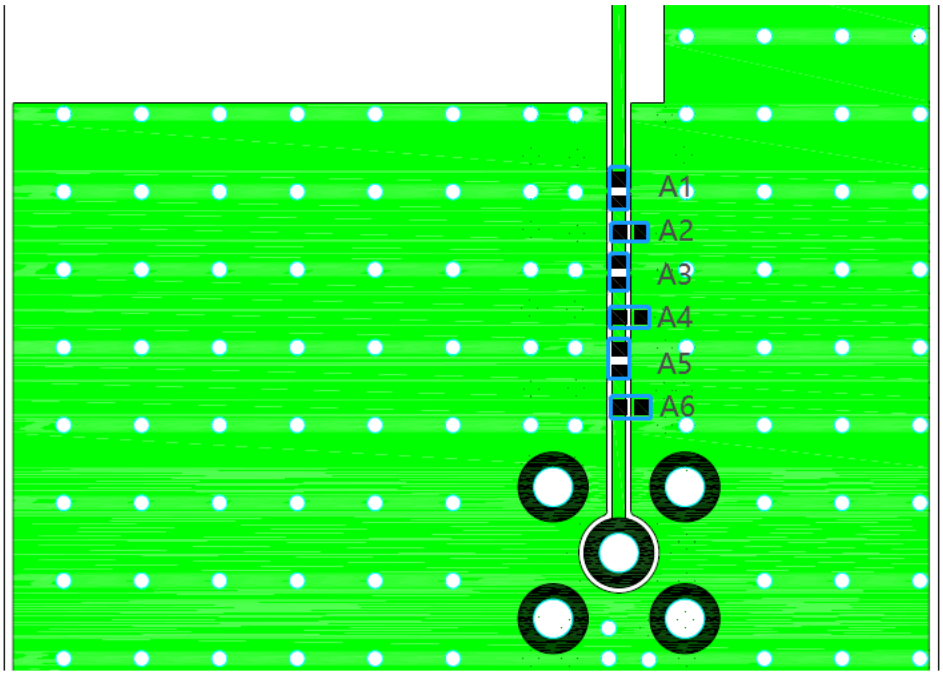
Product Image and Dimensions



Matching Circuit



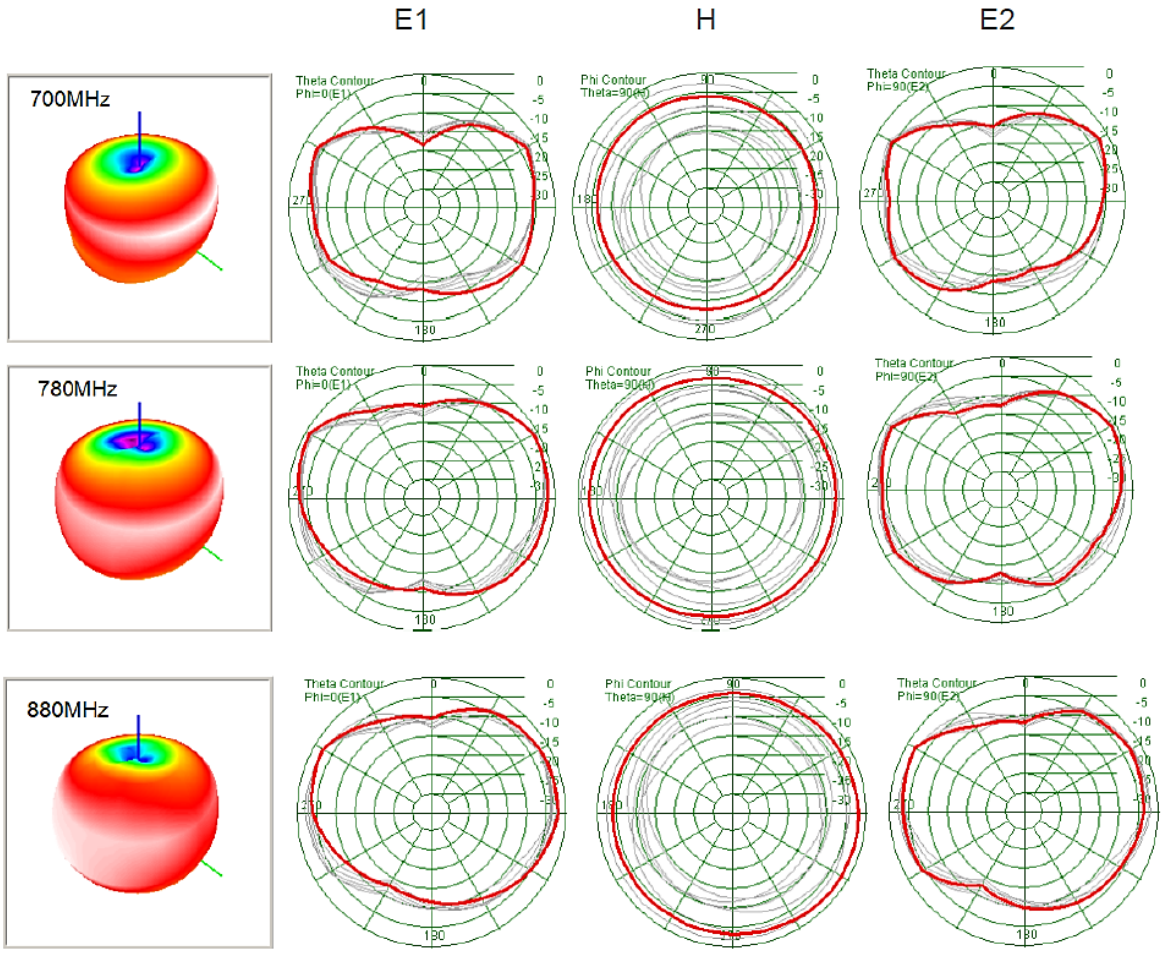
A1	0ohm
A2	10nH
A3	2.4pF
A4	NA
A5	1.5nH
A6	NA

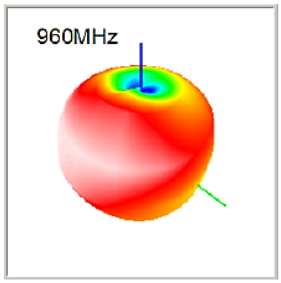


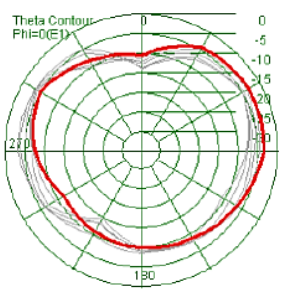
Radiation Pattern

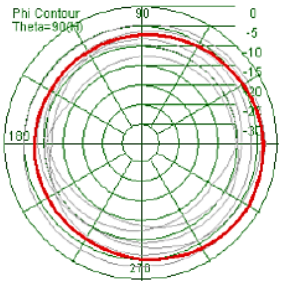
A radiation pattern is a graphical representation of the directional properties of an antenna. It shows how electromagnetic waves are distributed in space in relation to the direction of propagation.

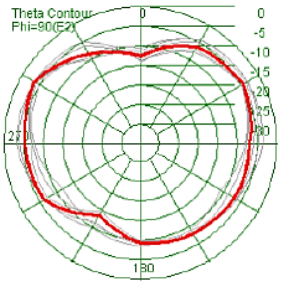
By understanding the information provided by a radiation pattern, it is possible to optimize the design and performance of an antenna for specific applications.

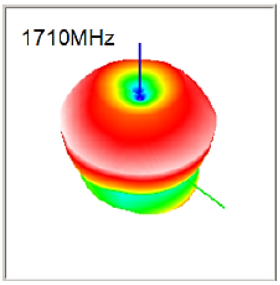


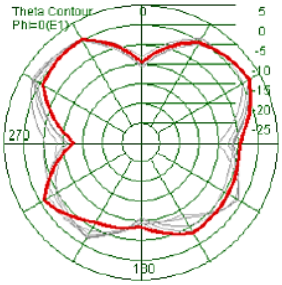

960MHz


Theta Contour
Phi=0(E1)


Phi Contour
Theta=90(H)


Theta Contour
Phi=90(E2)


1710MHz


Theta Contour
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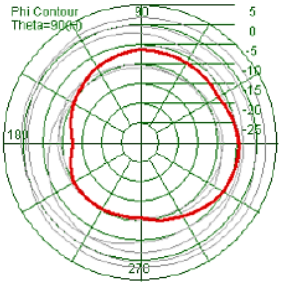
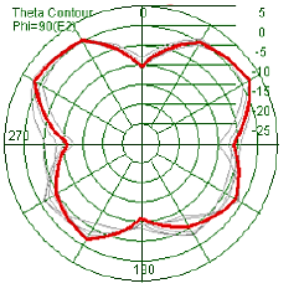
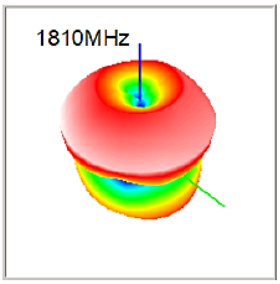
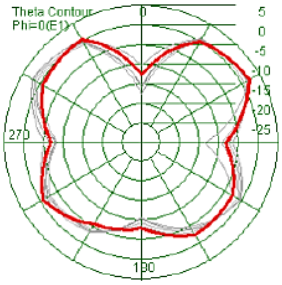
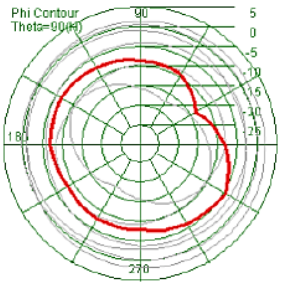
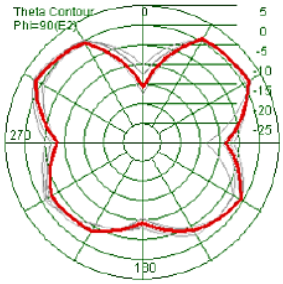

Phi Contour
Theta=90(H)

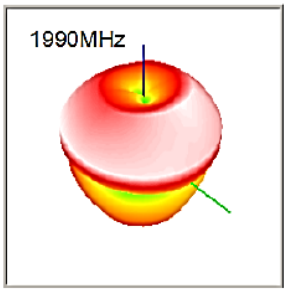

Theta Contour
Phi=90(E2)

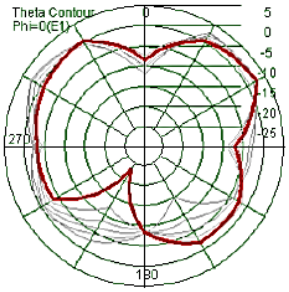

1810MHz

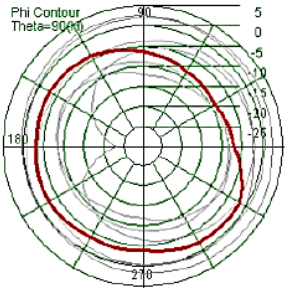

Theta Contour
Phi=0(E1)

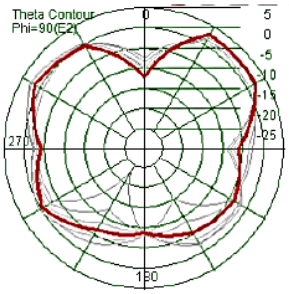

Phi Contour
Theta=90(H)

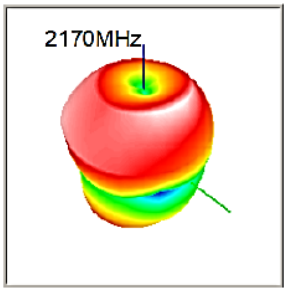

Theta Contour
Phi=90(E2)

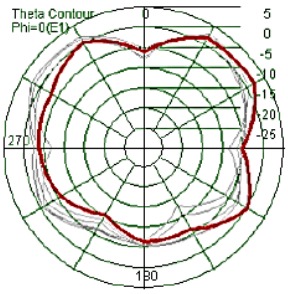

1990MHz


Theta Contour
Phi=0(E1)


Phi Contour
Theta=90(H)


Theta Contour
Phi=90(E2)


2170MHz


Theta Contour
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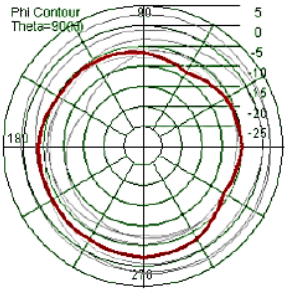
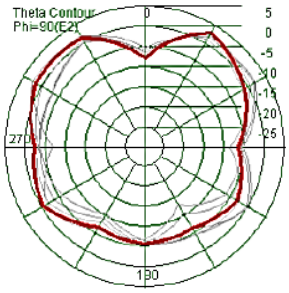
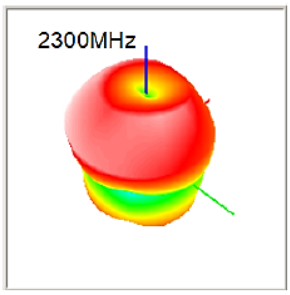
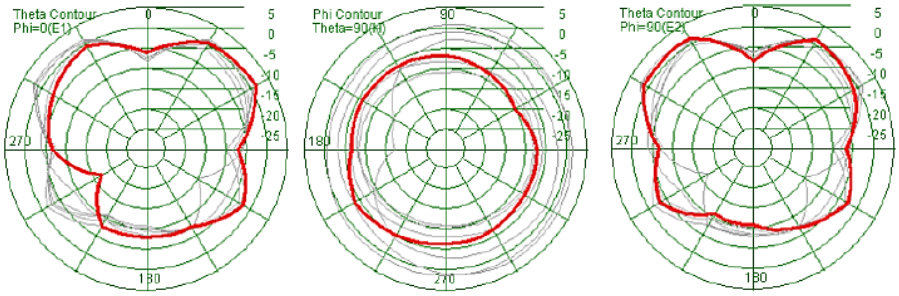
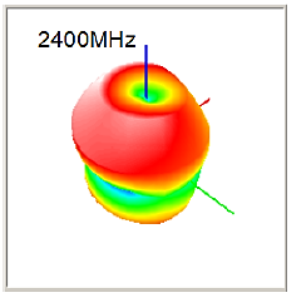
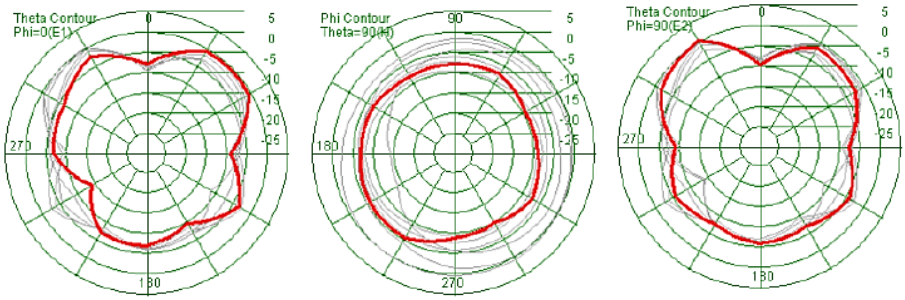

Phi Contour
Theta=90(H)

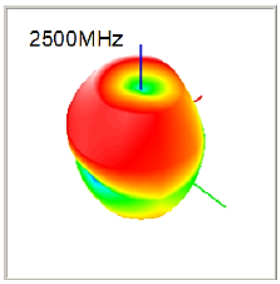

Theta Contour
Phi=90(E2)

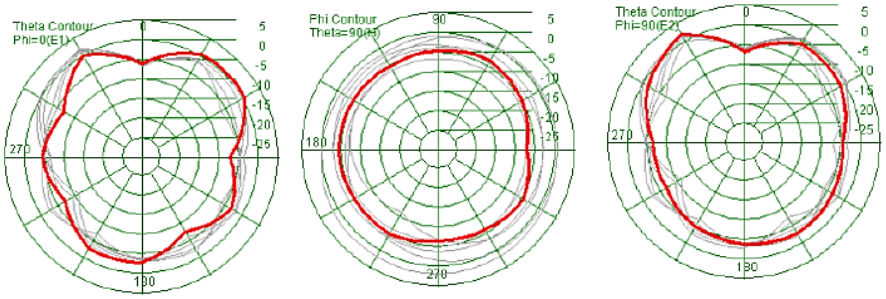

2300MHz

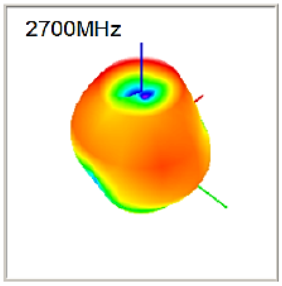

Theta Contour
Phi=0(E1)
Phi Contour
Theta=90(H)
Theta Contour
Phi=90(E2)

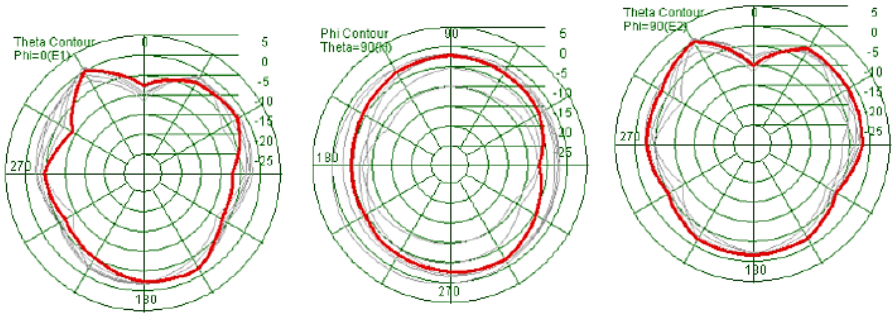

2400MHz

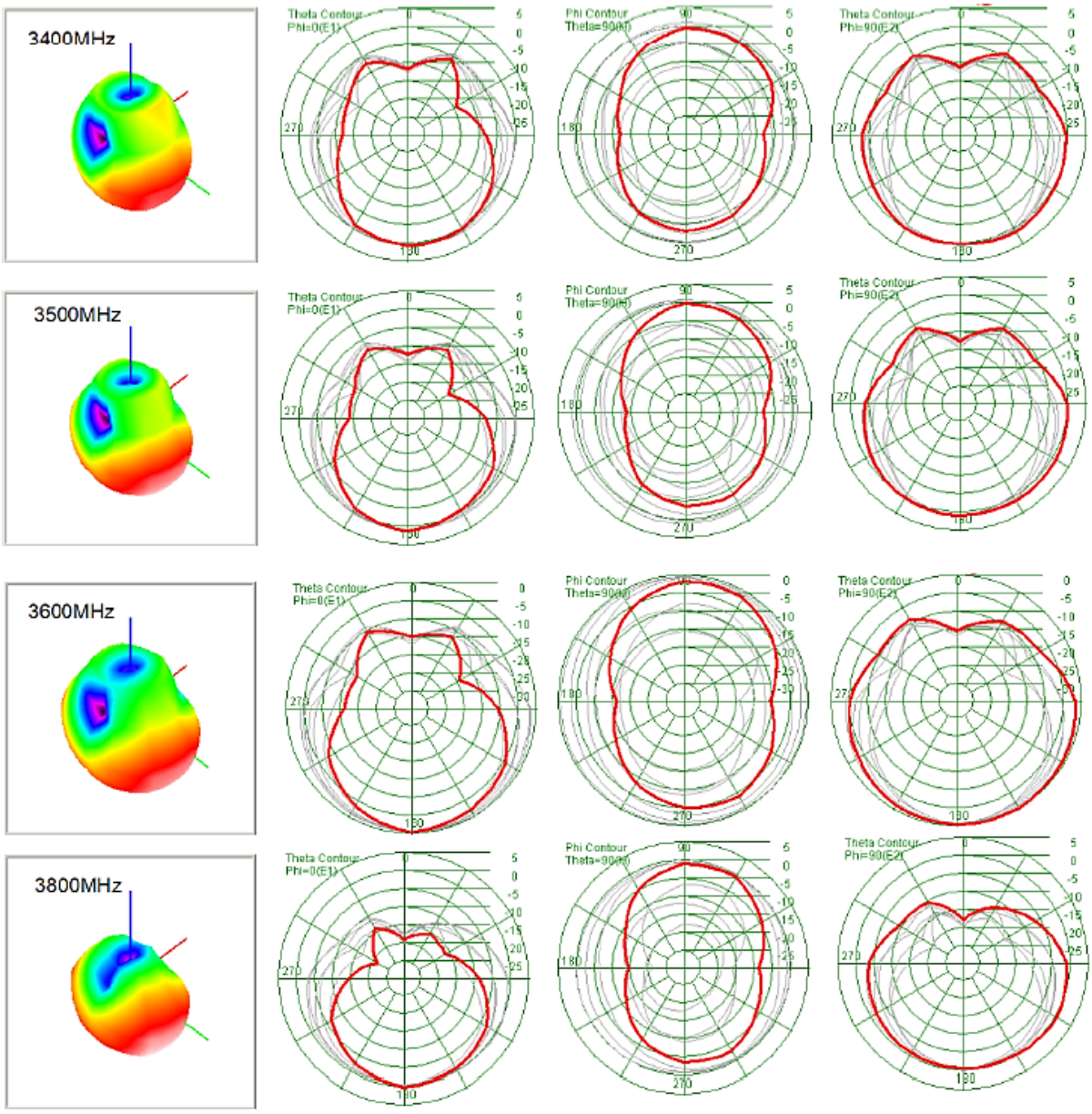

Theta Contour
Phi=0(E1)
Phi Contour
Theta=90(H)
Theta Contour
Phi=90(E2)


2500MHz


Theta Contour
Phi=0(E1)
Phi Contour
Theta=90(H)
Theta Contour
Phi=90(E2)

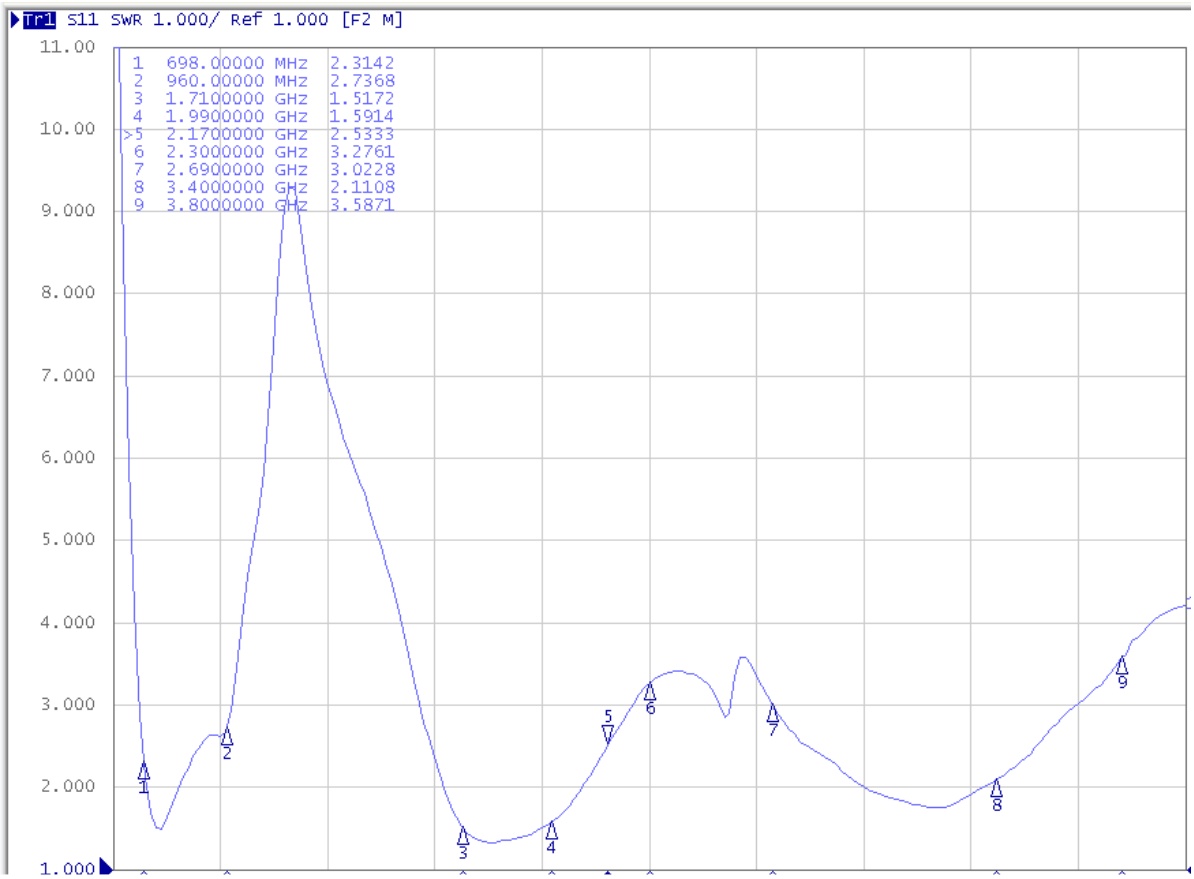

2700MHz


Theta Contour
Phi=0(E1)
Phi Contour
Theta=90(H)
Theta Contour
Phi=90(E2)



Antenna Smith and VSWR

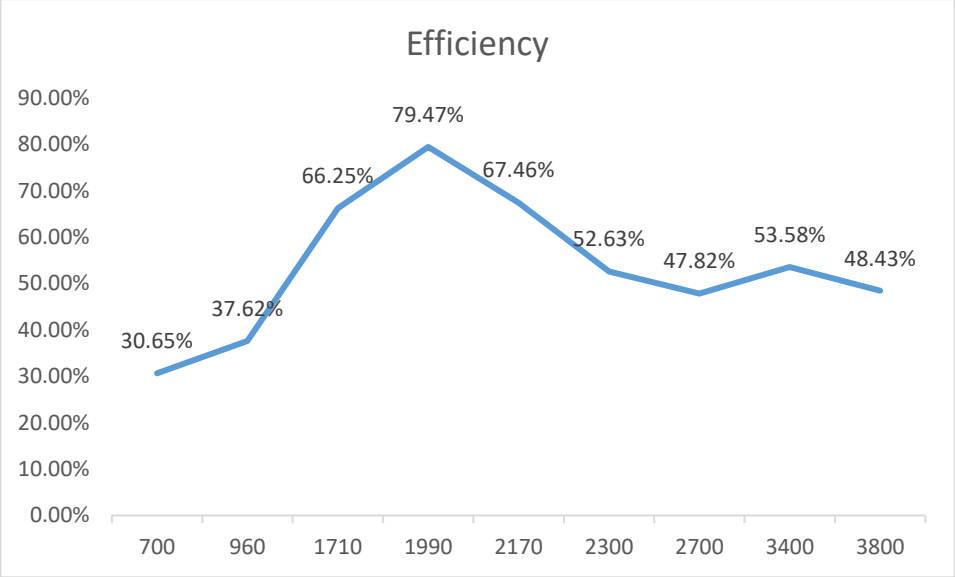
Frequency		VSWR	Frequency		VSWR
698	MHz	2.31	2300	MHz	3.27
960	MHz	2.73	2690	MHz	3.02
1710	MHz	1.51	3400	MHz	2.11
1990	MHz	1.59	3800	MHz	3.58
2170	MHz	2.53			

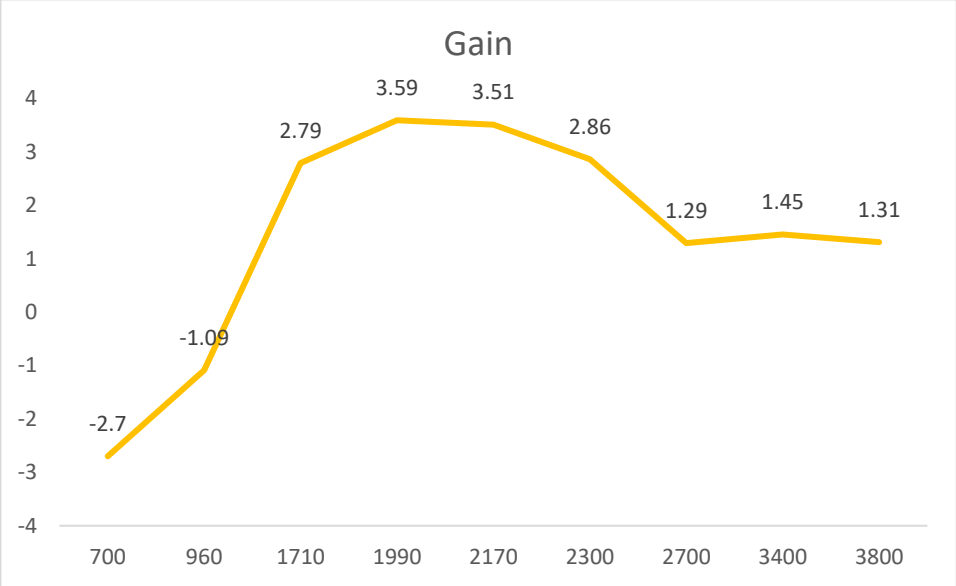


Antenna Efficiency and Gain

Frequency		Efficiency	Gain
700	MHz	30.65%	-2.7
960	MHz	37.62%	-1.09
1710	MHz	66.25%	2.79
1990	MHz	79.47%	3.59
2170	MHz	67.46%	3.51

Frequency		Efficiency	Gain
2300	MHz	52.63%	2.86
2700	MHz	47.82%	1.29
3400	MHz	53.58%	1.45
3800	MHz	48.43%	1.31


Efficiency
90.00%
80.00%
70.00%
60.00%
50.00%
40.00%
30.00%
20.00%
10.00%
0.00%
30.65%
37.62%
66.25%
79.47%
67.46%
52.63%
47.82%
53.58%
48.43%
700
960
1710
1990
2170
2300
2700
3400
3800


Gain
4
3
2
1
0
-1
-2
-3
-4
-2.7
-1.09
2.79
3.59
3.51
2.86
1.29
1.45
1.31
700
960
1710
1990
2170
2300
2700
3400
3800

Environmental Data

Operating Temperature	-20 °C to +80 °C
IP Rating	NA
Compliance	RoHS

Ordering Information

Product Variants

Part Number	Description
L-5MA1	Multiband 5G/LTE SMD Chip 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.

Contact

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ONTARIO L4W 4J4
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