Datasheet

L-5MA2

LTE SMD Chip Antenna

CELLULAR | LTE

The L-5MA2 is a versatile SMD antenna designed to operate at frequencies ranging from 700 MHz to 960 MHz and 1710 MHz to 2700 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.

36 x 7 x 3 mm

The L-5MA2 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-5MA2 SMD antenna is a reliable choice.

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Document Information

Product	L-5MA2
Part Number	L-5MA2
Description	LTE SMD Chip Antenna
Version	2.0 (current)
Date	30-April-2023
Status	Released

Revision History

Version	Date	Author	Changes
1.0	16-Dec-2020	Amy Li	Initial Release
2.0	30-April-2023	Amy Li	New layout and design

Product Overview

Product Description

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Key Features

- Supports LTE, GSM/GPRS/EDGE, CDMA2000, UMTS bands
- Wide Application
- Ground Plane Dependent
- Compact Size, Easy to integrate.
- RoHS Compliant

Applications

- Commercial / Residential
- Gateways
- Set-top Boxes.
- Industrial, Science and Medical
- Transportation
- Smart Agriculture

Electrical Specifications

Frequency			VSWR	Peak Gain	Efficiency
LTE	700 - 960	MHz	4.6	-2.8 d Bi	40%
LTE	1710 - 2700	MHz	2.6	-1.5 d Bi	50%

Frequency Range	700 – 2700 MHz	Radiation	Omnidirectional
Impedance	50 Ω	Electrical Type	Monopole
Polarization	Linear		

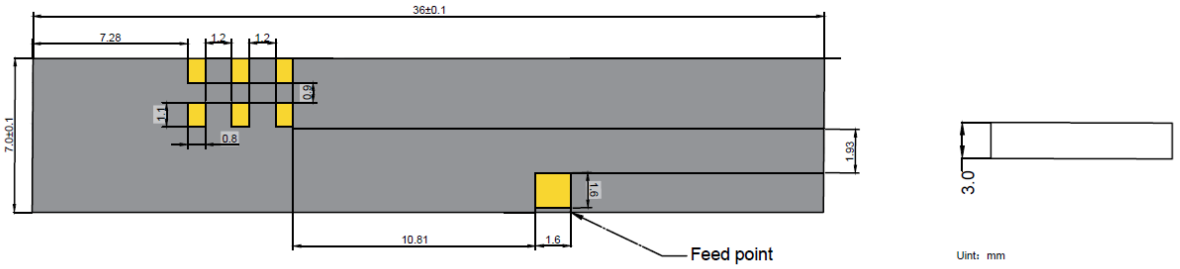
Mechanical Specifications

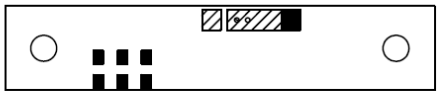
Type	SMD	Casing	NA
Dimensions	36 x 7 x 3 mm	Color	Black
Connector (Termination)	NA	Material	FR4
Mounting Type	SMT	Weight	TBC (to be confirmed)

Caution:

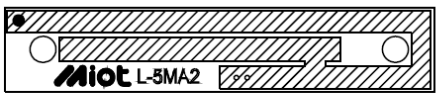
1. Do not apply excess mechanical stress to the component body or terminations. Do not attempt to re-form or bend the components, as this will cause damage to the component.
2. Do not expose the component to an open flame.
3. This specification applies to the functionality of the component as a single 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



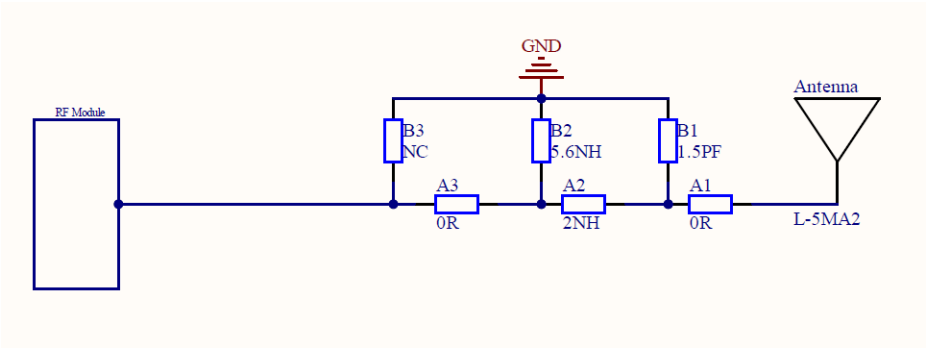


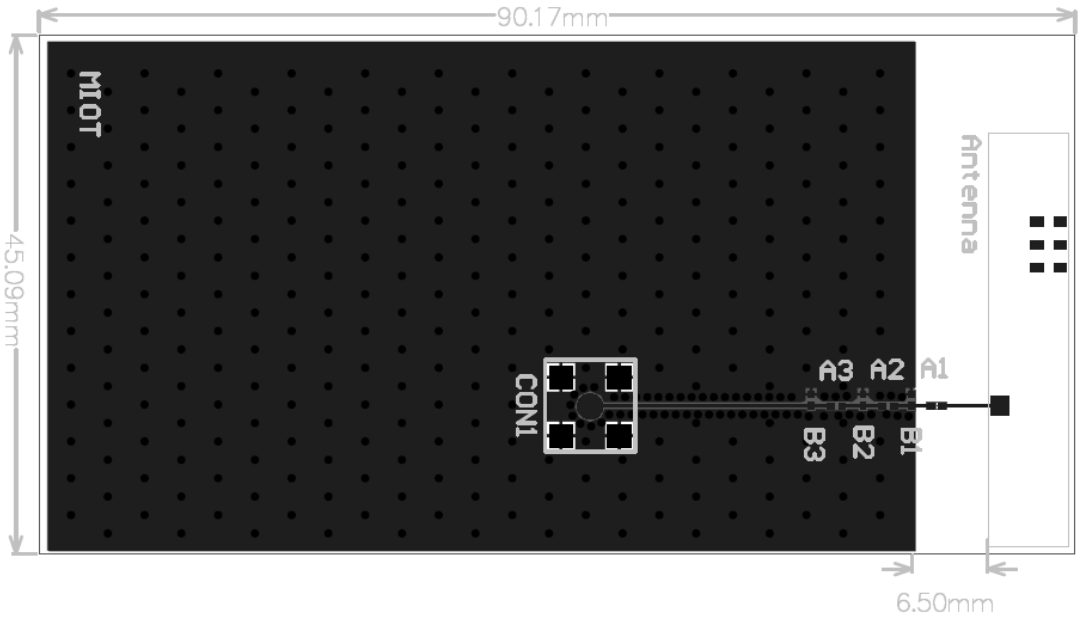
Bottom



TOP

Matching Circuit





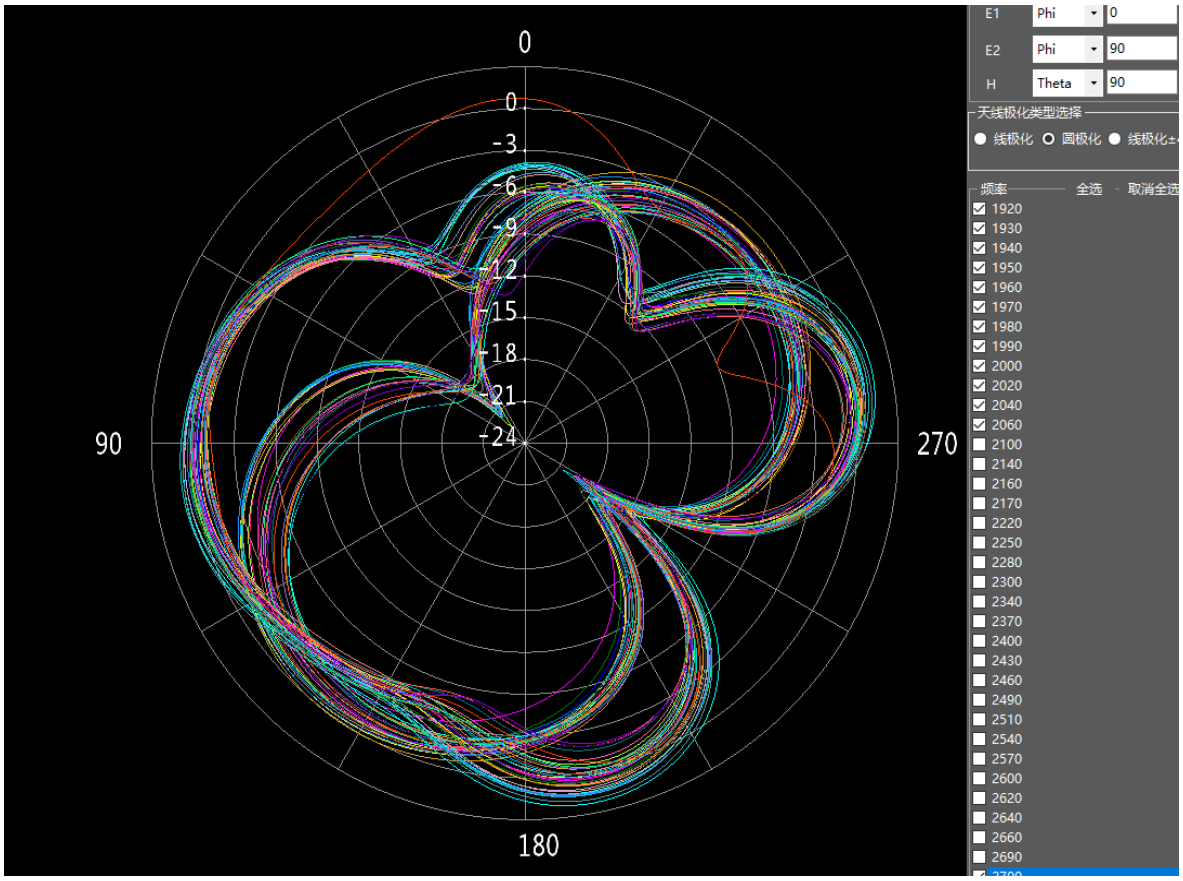
Radiation Pattern

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.

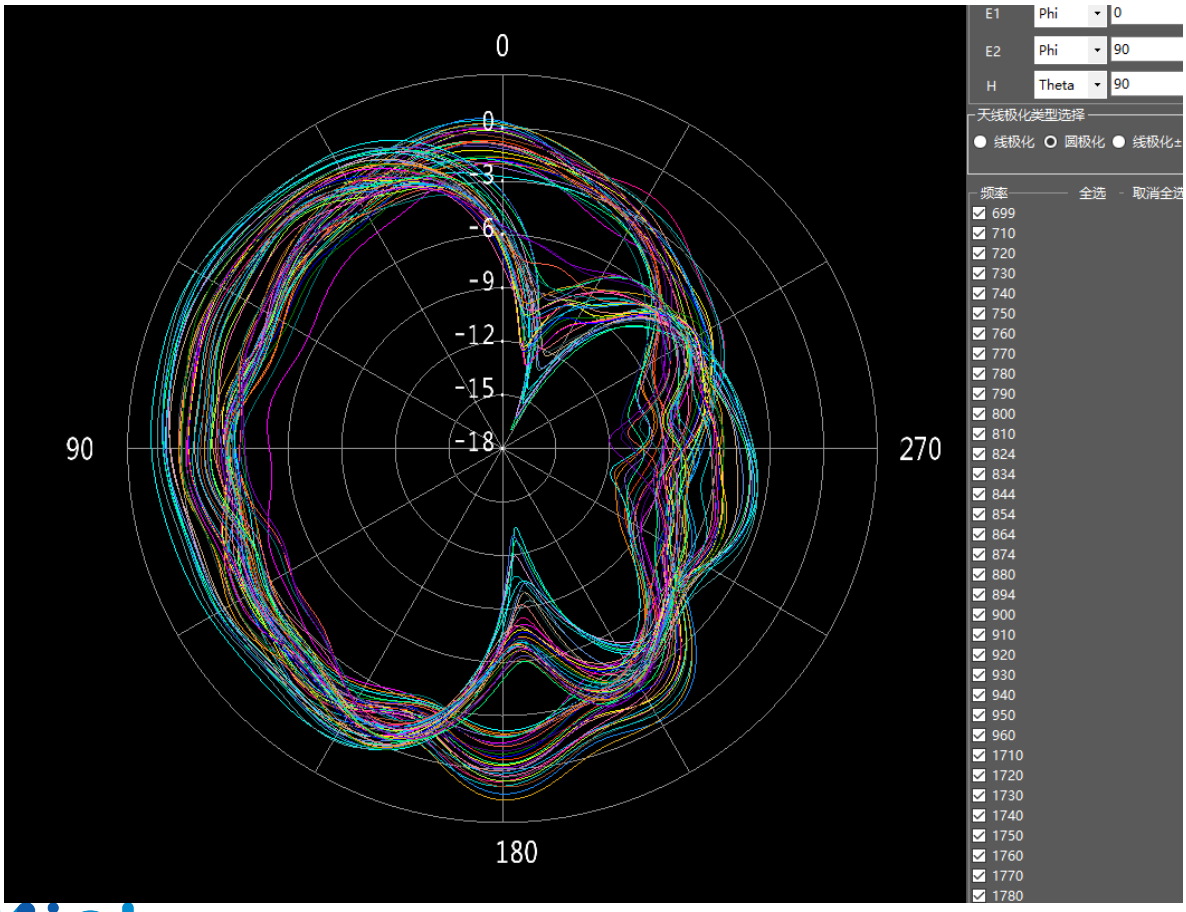
XY Plane (H)

700 – 2700 MHz

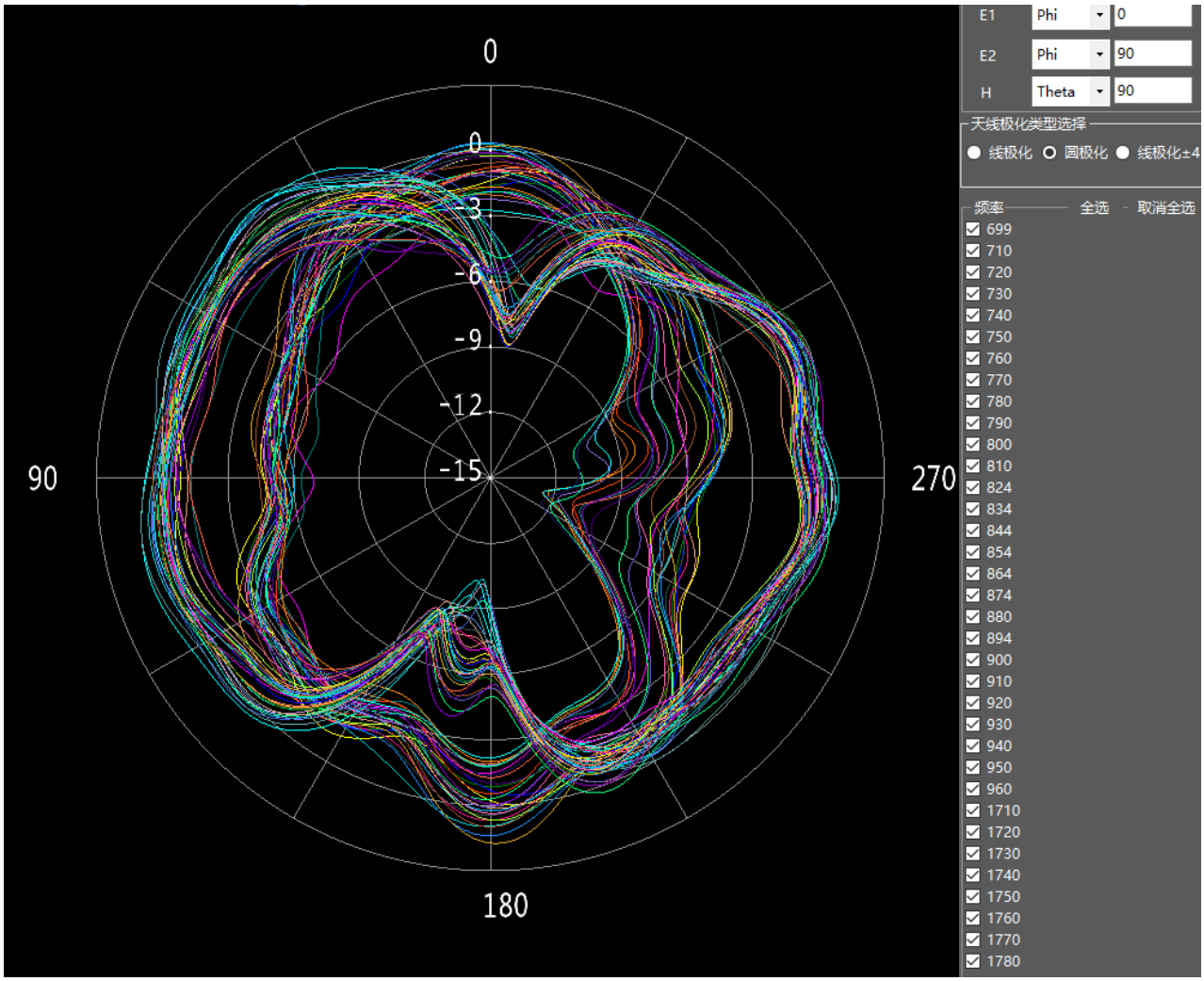


YZ Plane (E1)

700 – 2700 MHz



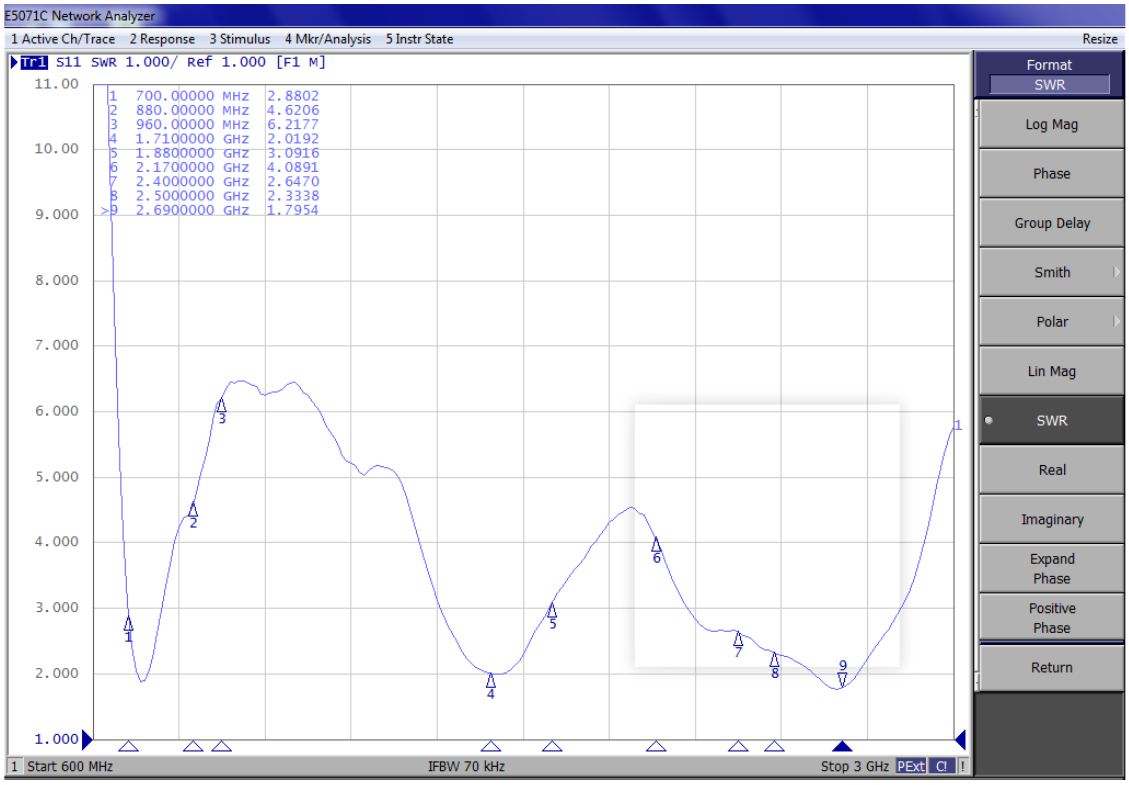
YZ Plane (E2) 700 – 2700 MHz



Antenna Smith and VSWR

Frequency		VSWR
700	MHz	2.88
880	MHz	4.62
960	MHz	6.22
1710	MHz	2.02
1880	MHz	3.09

Frequency		VSWR
2170	MHz	4.09
2400	MHz	2.65
2500	MHz	2.33
2690	MHz	1.80



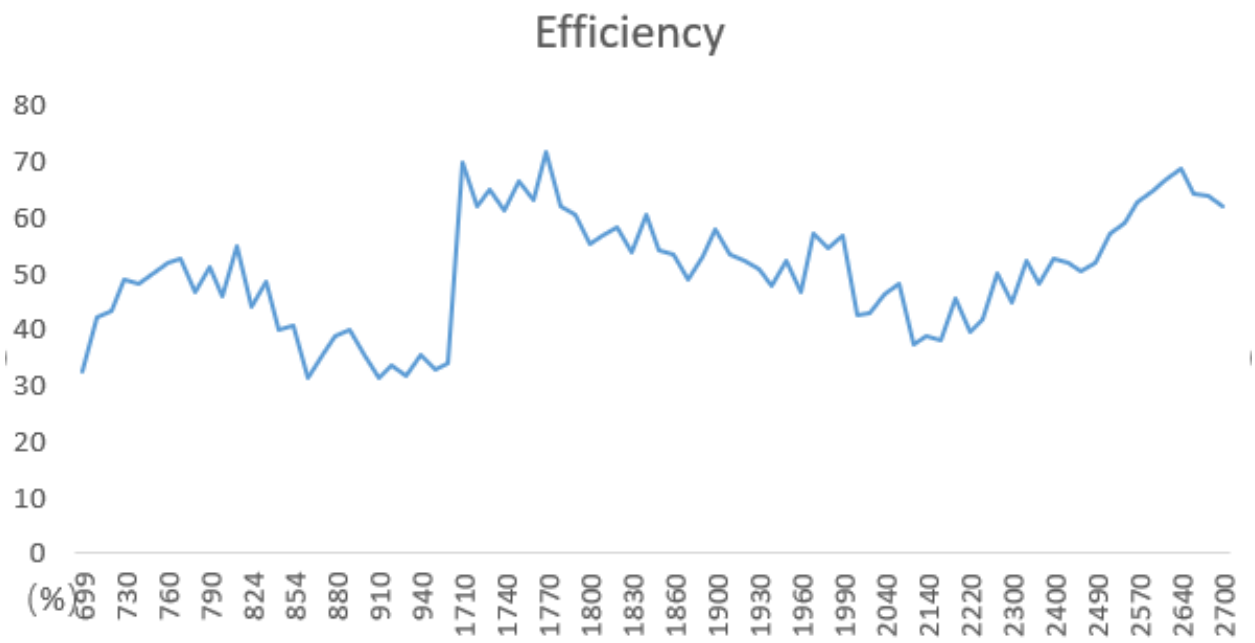
Antenna Efficiency and Gain

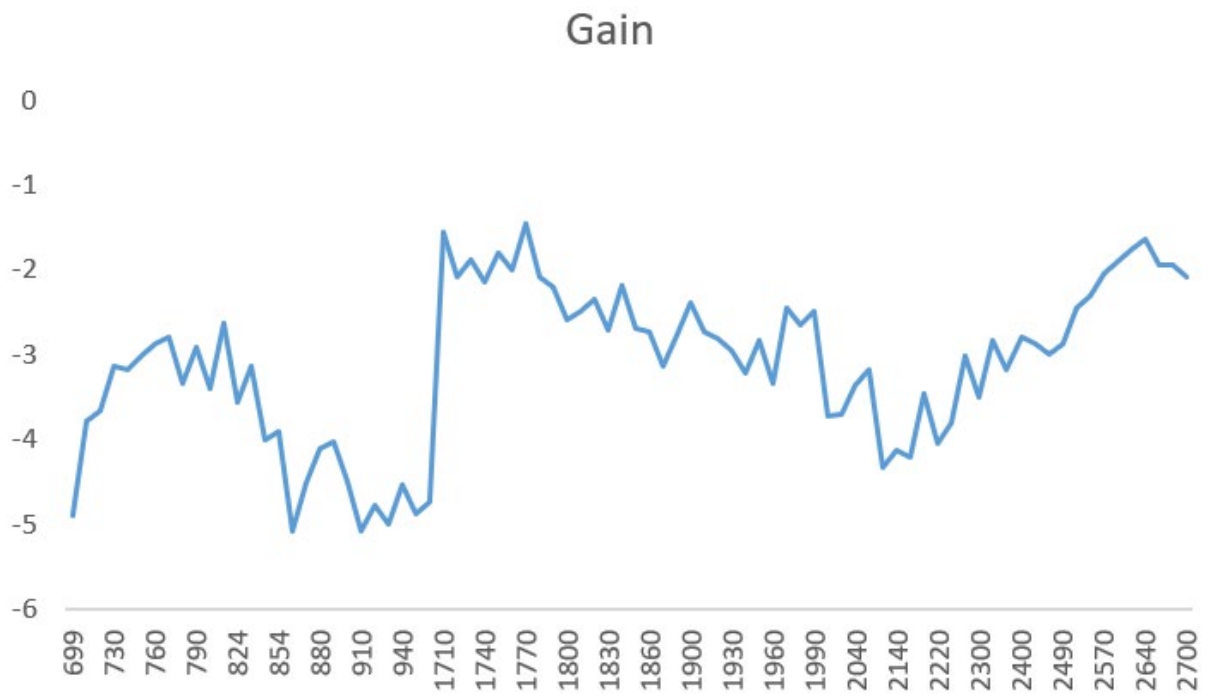
Frequency		Efficiency	Gain
699	MHz	32.33	-4.90
710	MHz	41.91	-3.78
720	MHz	43.02	-3.66
730	MHz	48.67	-3.13
740	MHz	48.05	-3.18
750	MHz	49.89	-3.02
760	MHz	51.64	-2.87
770	MHz	52.44	-2.80
780	MHz	46.34	-3.34
790	MHz	51.16	-2.91
800	MHz	45.84	-3.39
810	MHz	54.76	-2.62
824	MHz	44.08	-3.56
834	MHz	48.57	-3.14

Frequency		Efficiency	Gain
844	MHz	39.68	-4.01
854	MHz	40.67	-3.91
864	MHz	31.05	-5.08
874	MHz	35.35	-4.52
880	MHz	38.86	-4.10
894	MHz	39.62	-4.02
900	MHz	35.46	-4.50
910	MHz	31.08	-5.07
920	MHz	33.34	-4.77
930	MHz	31.59	-5.00
940	MHz	35.26	-4.53
950	MHz	32.52	-4.88
960	MHz	33.66	-4.73
1710	MHz	69.77	-1.56

1720	MHz	61.81	-2.09
1730	MHz	64.87	-1.88
1740	MHz	61.16	-2.14
1750	MHz	66.27	-1.79
1760	MHz	63.09	-2.00
1770	MHz	71.53	-1.45
1780	MHz	61.99	-2.08
1790	MHz	60.18	-2.21
1800	MHz	55.21	-2.58
1810	MHz	56.52	-2.48
1820	MHz	58.28	-2.34
1830	MHz	53.73	-2.70
1840	MHz	60.42	-2.19
1850	MHz	53.90	-2.68
1860	MHz	53.35	-2.73
1870	MHz	48.60	-3.13
1880	MHz	52.79	-2.77
1900	MHz	57.83	-2.38
1910	MHz	53.26	-2.74
1920	MHz	52.18	-2.82
1930	MHz	50.73	-2.95
1940	MHz	47.71	-3.21
1950	MHz	52.07	-2.83
1960	MHz	46.44	-3.33
1970	MHz	57.05	-2.44
1980	MHz	54.44	-2.64
1990	MHz	56.44	-2.48

2000	MHz	42.46	-3.72
2020	MHz	42.64	-3.70
2040	MHz	46.22	-3.35
2060	MHz	48.16	-3.17
2100	MHz	37.01	-4.32
2140	MHz	38.61	-4.13
2160	MHz	37.99	-4.20
2170	MHz	45.22	-3.45
2220	MHz	39.39	-4.05
2250	MHz	41.65	-3.80
2280	MHz	49.85	-3.02
2300	MHz	44.70	-3.50
2340	MHz	52.01	-2.84
2370	MHz	48.19	-3.17
2400	MHz	52.43	-2.80
2430	MHz	51.66	-2.87
2460	MHz	50.25	-2.99
2490	MHz	51.60	-2.87
2510	MHz	56.84	-2.45
2540	MHz	58.71	-2.31
2570	MHz	62.55	-2.04
2600	MHz	64.35	-1.91
2620	MHz	66.77	-1.75
2640	MHz	68.73	-1.63
2660	MHz	64.01	-1.94
2690	MHz	63.80	-1.95
2700	MHz	62.01	-2.08


Efficiency
80
70
60
50
40
30
20
10
0
(%)
699
730
760
790
824
854
880
910
940
1710
1740
1770
1800
1830
1860
1900
1930
1960
1990
2040
2140
2220
2300
2400
2490
2570
2640
2700


Gain
0
-1
-2
-3
-4
-5
-6
699
730
760
790
824
854
880
910
940
1710
1740
1770
1800
1830
1860
1900
1930
1960
1990
2040
2140
2220
2300
2400
2490
2570
2640
2700

Environmental Data

Operating Temperature	-40 °C to +85 °C
IP Rating	NA
Compliance	RoHS

Ordering Information

Product Variants

Part Number	Description
L-5MA2	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.

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