

## L-5RB1

### 5G Ultraband Hinged Monopole Blade Antenna

CELLULAR

WIFI

The L-5RB1 is an ultraband antenna for 5G, LTE, and WCDMA that can also cover Wi-Fi frequencies. It's a compact and durable external antenna with a wide band and high efficiency.

The L-5RB1 allows the antenna to be positioned for optimum performance compared to a fixed whip design. The antenna attaches with an SMA connector.



193.5 x 37 x 10 mm

## Document Information

|             |                                          |
|-------------|------------------------------------------|
| Product     | L-5RB1                                   |
| Part Number | L-5RB1                                   |
| Description | 5G full band foldable rubber rod antenna |
| Version     | 2.0 (current)                            |
| Date        | 30-Mar-2023                              |
| Status      | Released                                 |

## Revision History

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

# Product Overview

## Product Description

The L-5RB1 is an ultraband hinged monopole blade cellular antenna for 5G, LTE, and WCDMA that can also cover Wi-Fi frequencies. It's a compact and durable external antenna with an ultra-wide range 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

- Supports 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    | 600 - 960   | MHz | 1.8  | 1.6 d Bi  | 50%        |
| 5G/LTE    | 1710 - 6000 | MHz | 1.8  | 5.0 d Bi  | 70%        |
| 2.4G WiFi | 2400 2500   | MHz | 1.2  | 4.5 d Bi  | 80%        |

Frequency Range 600 – 6000 MHz

Impedance 50  $\Omega$

Polarization Vertical

Radiation Omnidirectional

Electrical Type Monopole

## Mechanical Specifications

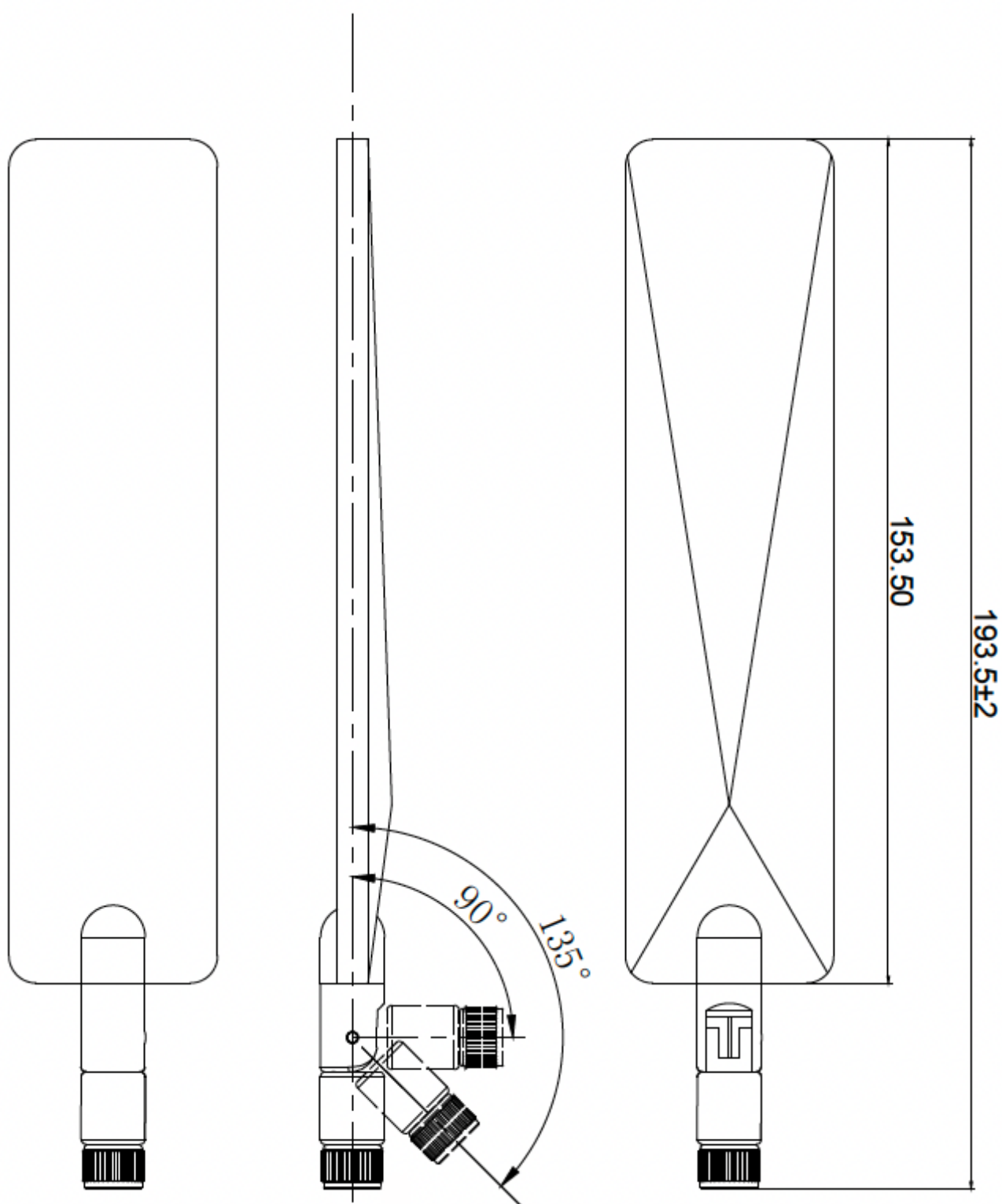
|                            |                           |          |                       |
|----------------------------|---------------------------|----------|-----------------------|
| Type                       | Hinge / Swivel Blade Type | Casing   | Yes                   |
| Dimensions                 | 193.5 x 26 x 10 mm        | Color    | Black                 |
| Connector<br>(Termination) | SMA Plug (male pin)       | Material | PC + ABS              |
| Mounting Type              | Connector Mount           | 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.

## Product Image and Dimensions





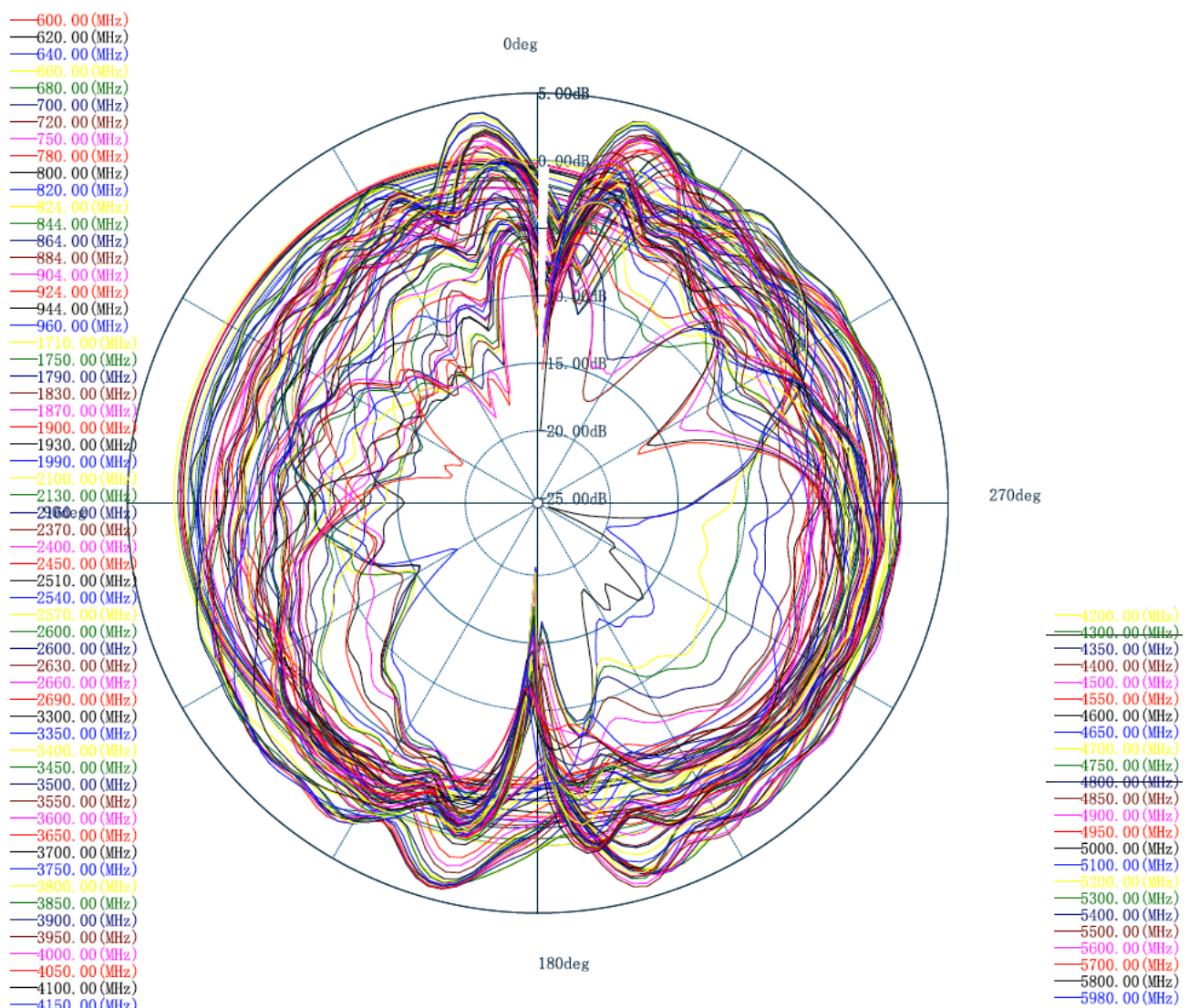
# Radiation Pattern

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)

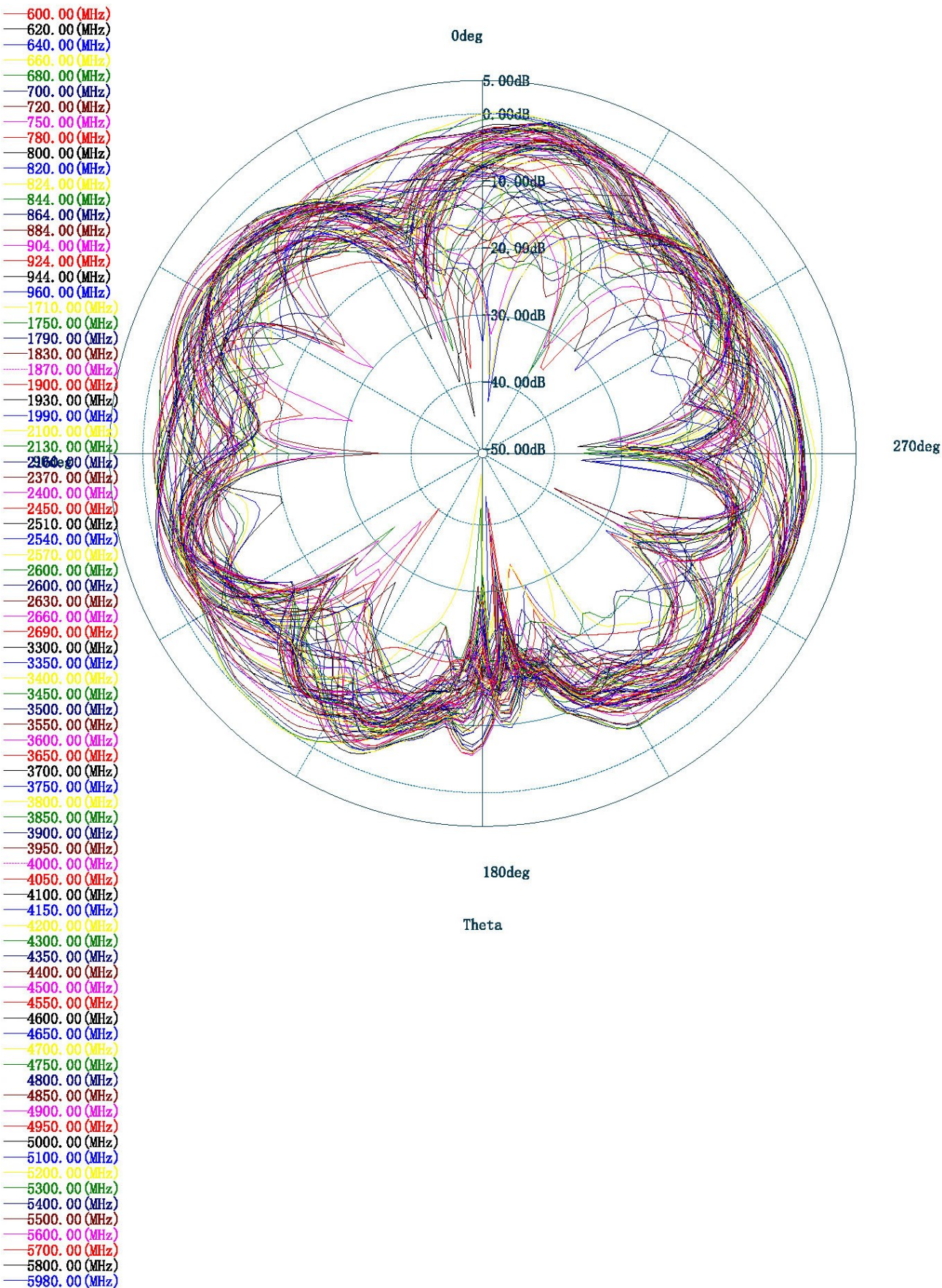
600 – 6000 MHz





YZ Plane (E1)

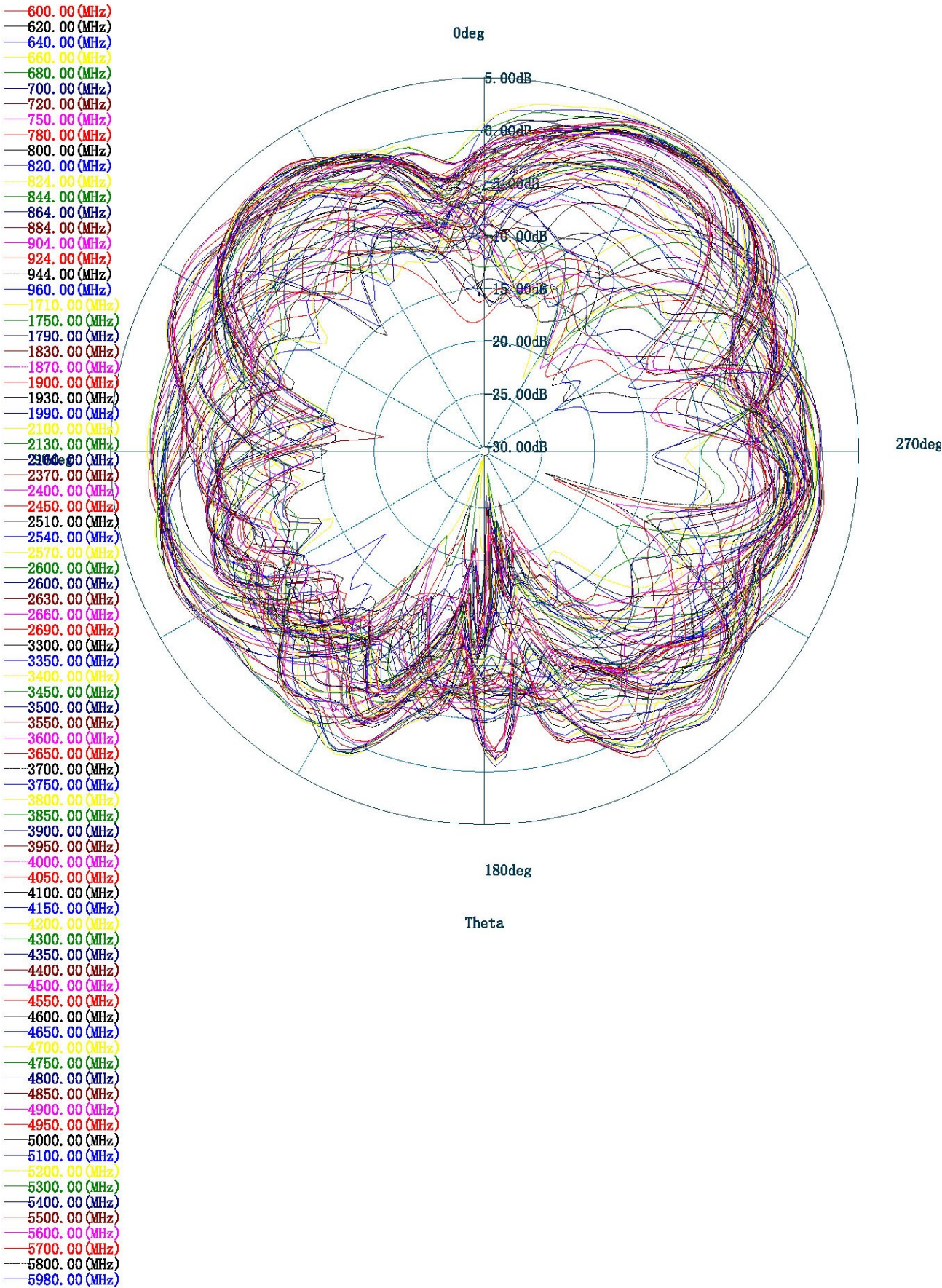
600 – 6000 MHz





YZ Plane (E2)

600 – 6000 MHz

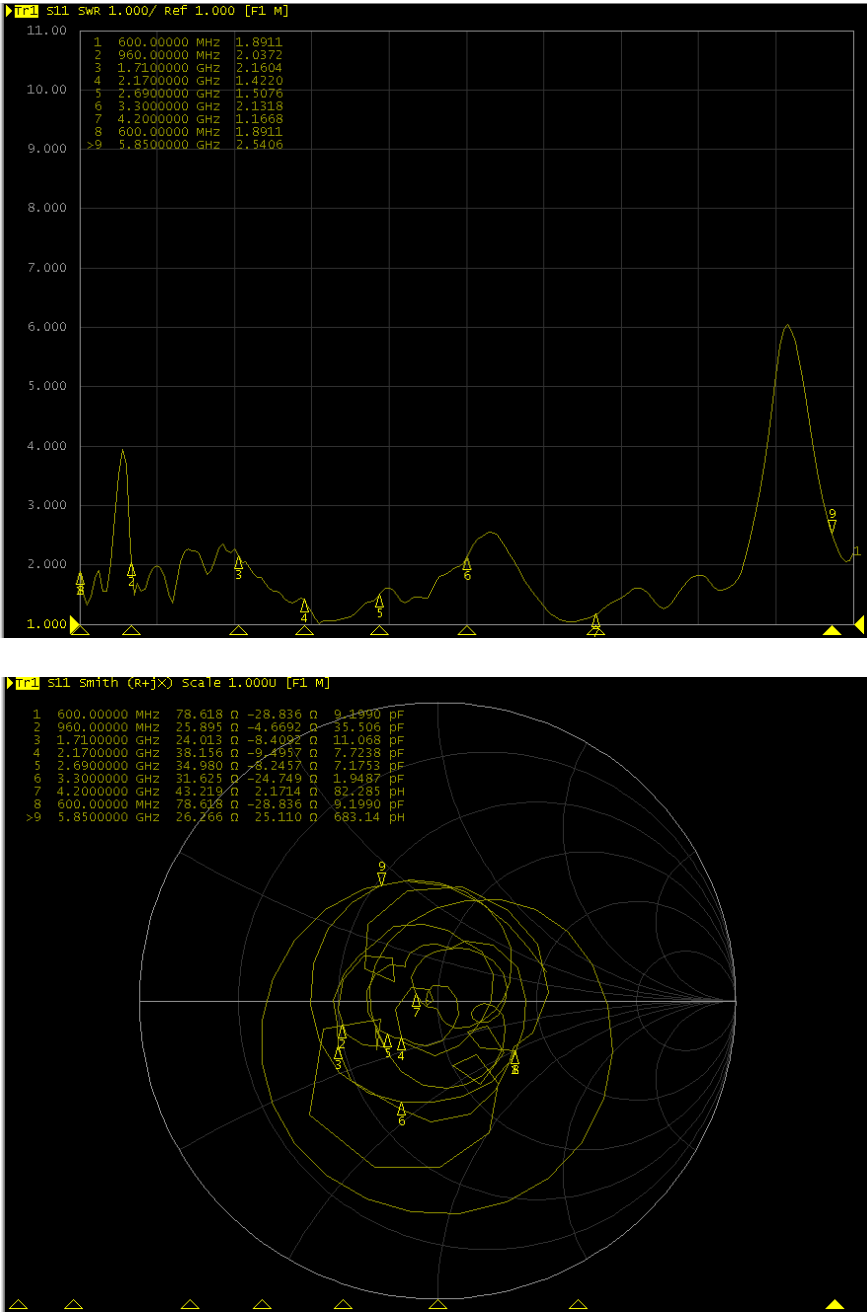




# Antenna Smith and VSWR

| Frequency |     | VSWR |
|-----------|-----|------|
| 600       | MHz | 1.89 |
| 960       | MHz | 2.03 |
| 1710      | MHz | 2.16 |
| 2170      | MHz | 1.42 |
| 2690      | MHz | 1.50 |

| Frequency |     | VSWR |
|-----------|-----|------|
| 3300      | MHz | 2.13 |
| 4200      | MHz | 1.16 |
| 6000      | MHz | 1.89 |
| 5850      | MHz | 2.54 |



# Antenna Efficiency and Gain

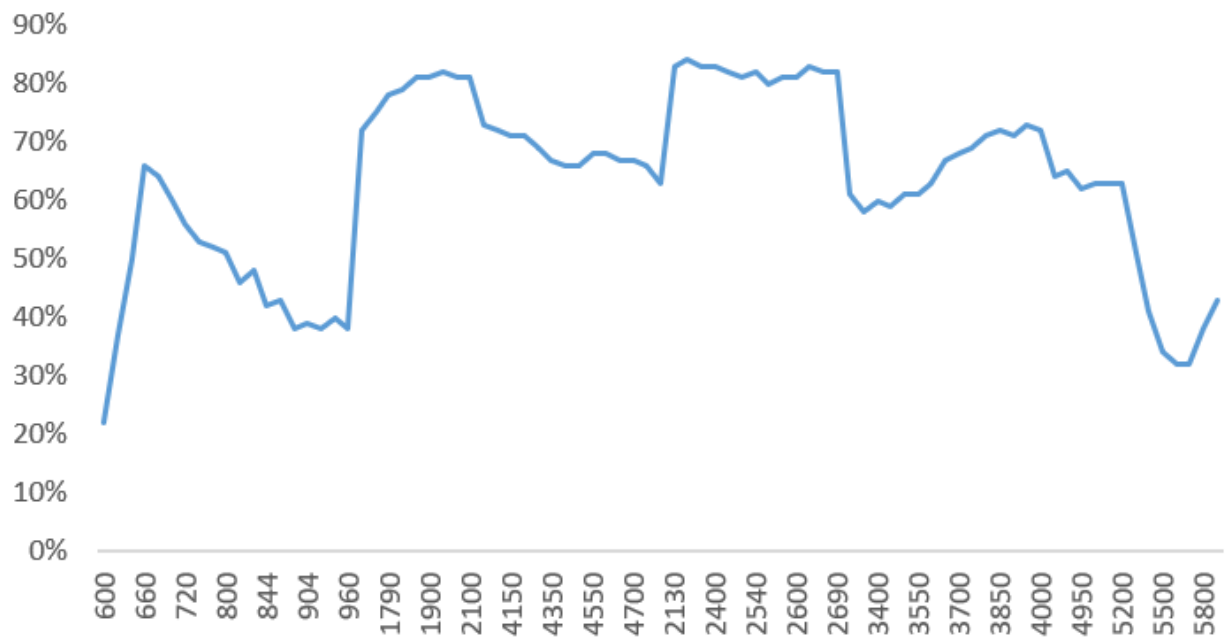
| Frequency |     | Efficiency | Gain     |
|-----------|-----|------------|----------|
| 600       | MHz | 22%        | -2.81185 |
| 620       | MHz | 37%        | -1.13336 |
| 640       | MHz | 50%        | 0.380245 |
| 660       | MHz | 66%        | 1.571216 |
| 680       | MHz | 64%        | 1.460934 |
| 700       | MHz | 60%        | 1.201793 |
| 720       | MHz | 56%        | 1.692067 |
| 750       | MHz | 53%        | 1.214098 |
| 780       | MHz | 52%        | 1.336346 |
| 800       | MHz | 51%        | 1.37651  |
| 820       | MHz | 46%        | 1.143318 |
| 824       | MHz | 48%        | 1.46784  |
| 844       | MHz | 42%        | 1.584811 |
| 864       | MHz | 43%        | 1.240109 |
| 884       | MHz | 38%        | 0.748351 |
| 904       | MHz | 39%        | 1.092452 |
| 924       | MHz | 38%        | 0.949888 |
| 944       | MHz | 40%        | 1.490599 |
| 960       | MHz | 38%        | 1.444815 |
| 1710      | MHz | 72%        | 4.354856 |
| 1750      | MHz | 75%        | 4.450958 |
| 1790      | MHz | 78%        | 4.603097 |
| 1830      | MHz | 79%        | 4.307678 |
| 1870      | MHz | 81%        | 4.266425 |
| 1900      | MHz | 81%        | 4.174389 |
| 1930      | MHz | 82%        | 4.32451  |
| 1990      | MHz | 81%        | 4.254974 |
| 2100      | MHz | 81%        | 4.752332 |
| 4050      | MHz | 73%        | 5.568268 |

| Frequency |     | Efficiency | Gain     |
|-----------|-----|------------|----------|
| 2130      | MHz | 83%        | 4.978934 |
| 2160      | MHz | 84%        | 4.888483 |
| 2370      | MHz | 83%        | 4.722612 |
| 2400      | MHz | 83%        | 4.828868 |
| 2450      | MHz | 82%        | 4.578252 |
| 2510      | MHz | 81%        | 4.565362 |
| 2540      | MHz | 82%        | 4.696508 |
| 2570      | MHz | 80%        | 4.407131 |
| 2600      | MHz | 81%        | 4.230364 |
| 2600      | MHz | 81%        | 4.215272 |
| 2630      | MHz | 83%        | 4.361275 |
| 2660      | MHz | 82%        | 4.337233 |
| 2690      | MHz | 82%        | 4.597091 |
| 3300      | MHz | 61%        | 4.400471 |
| 3350      | MHz | 58%        | 4.212075 |
| 3400      | MHz | 60%        | 4.217249 |
| 3450      | MHz | 59%        | 3.894526 |
| 3500      | MHz | 61%        | 3.845038 |
| 3550      | MHz | 61%        | 3.533937 |
| 3600      | MHz | 63%        | 3.556475 |
| 3650      | MHz | 67%        | 4.122467 |
| 3700      | MHz | 68%        | 4.470158 |
| 3750      | MHz | 69%        | 4.55189  |
| 3800      | MHz | 71%        | 5.282838 |
| 3850      | MHz | 72%        | 5.439901 |
| 3900      | MHz | 71%        | 5.547183 |
| 3950      | MHz | 73%        | 5.578497 |
| 4000      | MHz | 72%        | 5.534568 |
| 4850      | MHz | 64%        | 4.820444 |

|      |     |     |          |
|------|-----|-----|----------|
| 4100 | MHz | 72% | 5.565091 |
| 4150 | MHz | 71% | 5.523798 |
| 4200 | MHz | 71% | 5.360662 |
| 4300 | MHz | 69% | 5.443983 |
| 4350 | MHz | 67% | 5.125211 |
| 4400 | MHz | 66% | 5.326871 |
| 4500 | MHz | 66% | 5.180861 |
| 4550 | MHz | 68% | 5.274385 |
| 4600 | MHz | 68% | 5.020384 |
| 4650 | MHz | 67% | 4.920138 |
| 4700 | MHz | 67% | 4.742701 |
| 4750 | MHz | 66% | 4.611537 |
| 4800 | MHz | 63% | 5.568268 |

|      |     |     |          |
|------|-----|-----|----------|
| 4900 | MHz | 65% | 5.040499 |
| 4950 | MHz | 62% | 4.876637 |
| 5000 | MHz | 63% | 5.03679  |
| 5100 | MHz | 63% | 5.06759  |
| 5200 | MHz | 63% | 4.939609 |
| 5300 | MHz | 51% | 4.028063 |
| 5400 | MHz | 41% | 3.113334 |
| 5500 | MHz | 34% | 2.446156 |
| 5600 | MHz | 32% | 2.277399 |
| 5700 | MHz | 32% | 1.833427 |
| 5800 | MHz | 38% | 2.819965 |
| 5980 | MHz | 43% | 3.887592 |

### Efficiency





## Environmental Data

|                       |                  |
|-----------------------|------------------|
| Operating Temperature | -40 °C to +85 °C |
| IP Rating             | IP55             |
| Compliance            | RoHS             |

## Ordering Information

### Product Variants

| Part Number | Description                              |
|-------------|------------------------------------------|
| L-5RB1      | 5G full band foldable rubber rod 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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