

D-1RS5U

External GNSS/LTE Combo Antenna

GNSS

CELLULAR

The D-1RS5U is a high-performance combo antenna that supports GNSS and LTE frequencies. With its IP66 rating and black enclosure, it is designed to withstand harsh environmental conditions, making it ideal for outdoor use. The SMA connector ensures easy connectivity to various devices.

The D-1RS5U is compact and easy to install. It is a reliable and versatile option for IoT applications that require high-performance wireless connectivity, such as smart agriculture, smart cities, and fleet management.



Ø85 x 25 mm

Document Information

Product	D-1RS5U
Part Number	D-1RS5U
Description	External GNSS/LTE Combo 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-Oct-2023	Ivy Li	New layout and design

Product Overview

Product Description

The D-1RS5U is a high-performance combo antenna that supports GNSS and LTE frequencies. With its IP66 rating and black enclosure, it is designed to withstand harsh environmental conditions, making it ideal for outdoor use. The SMA connector ensures easy connectivity to various devices.

The D-1RS5U is compact and easy to install. It is a reliable and versatile option for IoT applications that require high-performance wireless connectivity, such as smart agriculture, smart cities, and fleet management.

Key Features

- Support the LTE / GNSS
- Wide Application
- High Reliability/Sensitivity
- IP66 waterproof
- RoHS Compliant

Applications

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

Electrical Specifications

Frequency					VSWR	Peak Gain	Efficiency
LTE	700	-	2690	MHz	2	5 d Bi	60%
GNSS	1561	-	1575	MHz	1.8	2 d Bi	60%

Frequency Range	700– 2690 MHz	Radiation	Omnidirectional
Impedance	50 Ω	Electrical Type	Monopole
Polarization	Linear		

GPS Antenna

Frequency Range	1575.42MHz,1561.098MHZ	Dimension	25*25*4mm
Impedance	50 Ω	Electrical Type	Monopole
Polarization	RHCP	Band Width	CF $\pm$ 3MHz

GNSS LNA

Gain	20±2dB	Noise Figure	<1.5
Filter Insertion Loss	<3dB	Ex-band Attenuation	35dB@CF+50MHz/50dB@CF-100MHz
Supply Voltage	3.3V MAX	Current Consumption	10~20mA

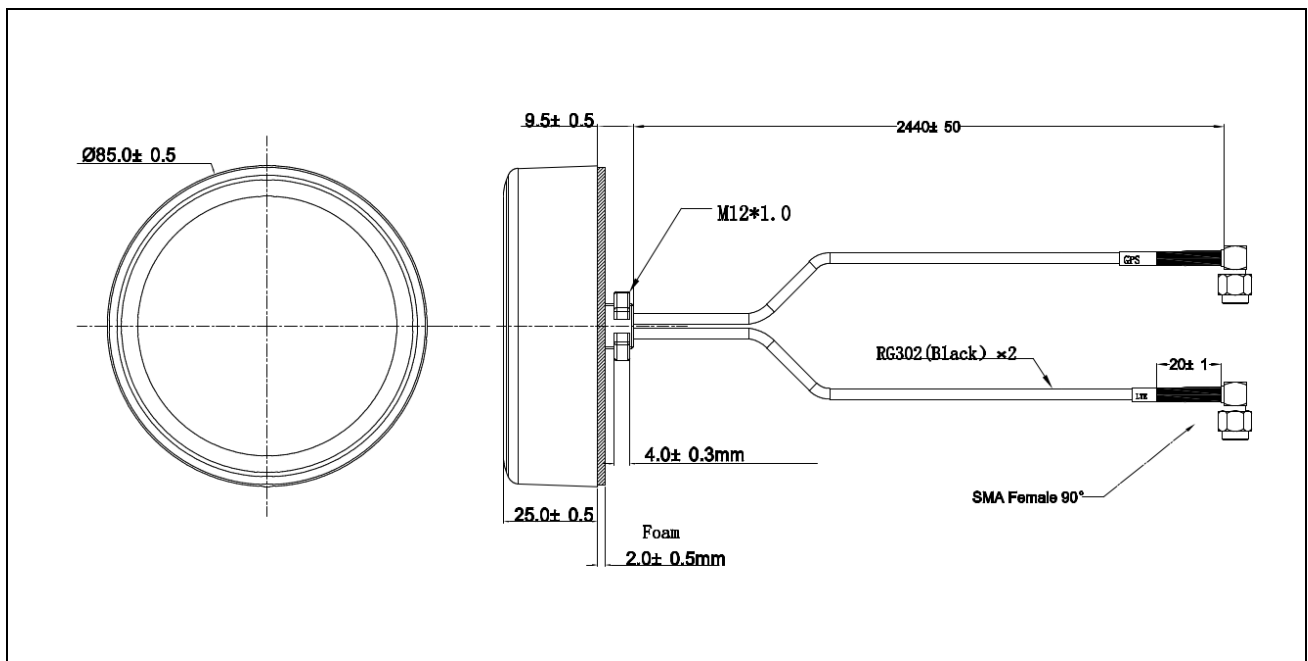
Mechanical Specifications

Type	Hinge	Mounting Type	Connector Mount
Dimensions	Ø85 x 25 mm	Casing	YES
Connector	SMA	Color	Black
Cable type	LMR100	Material	PC + ABS
Cable Length	50 cm		

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



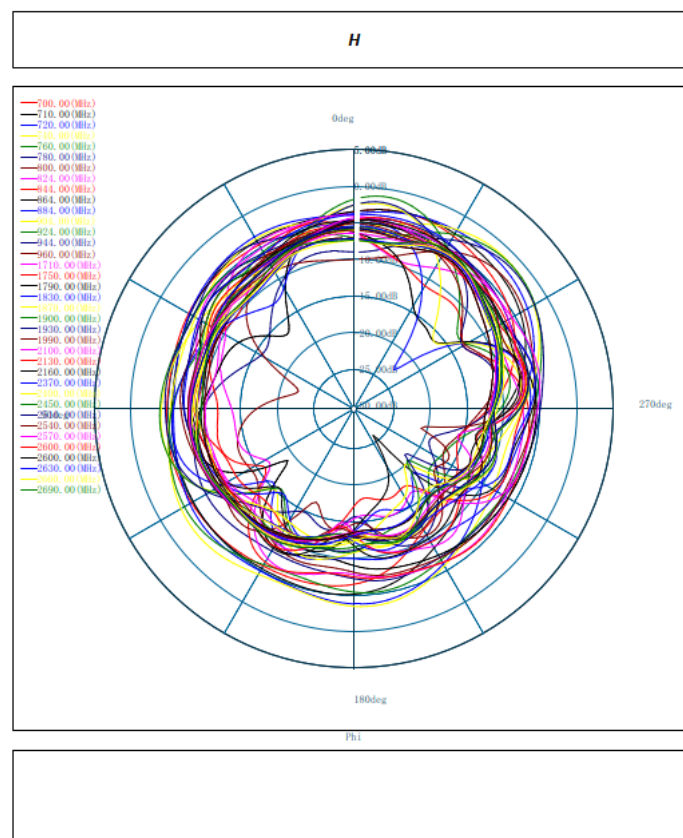
LTE Radiation Pattern

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.

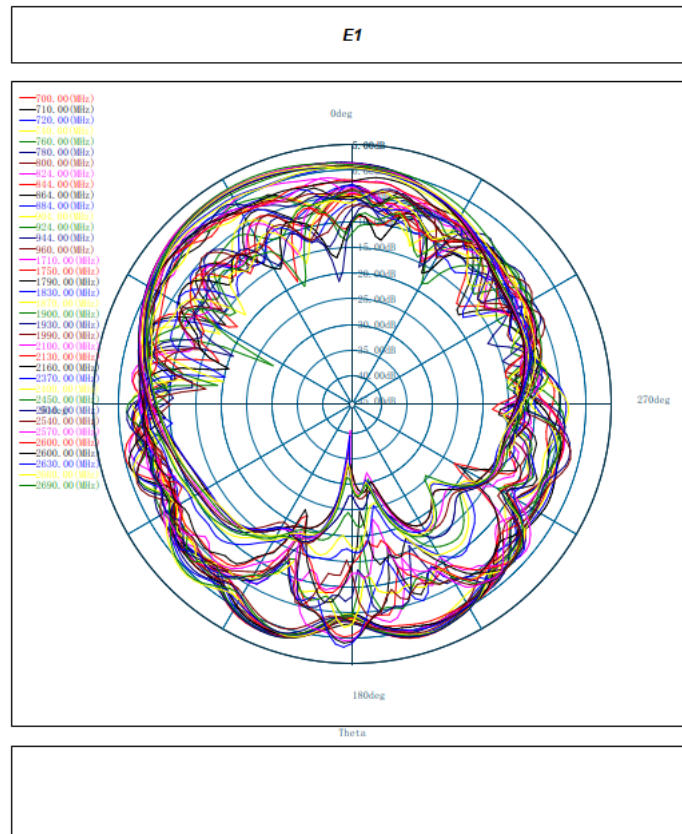
XY Plane (H)

698 – 2690 MHz



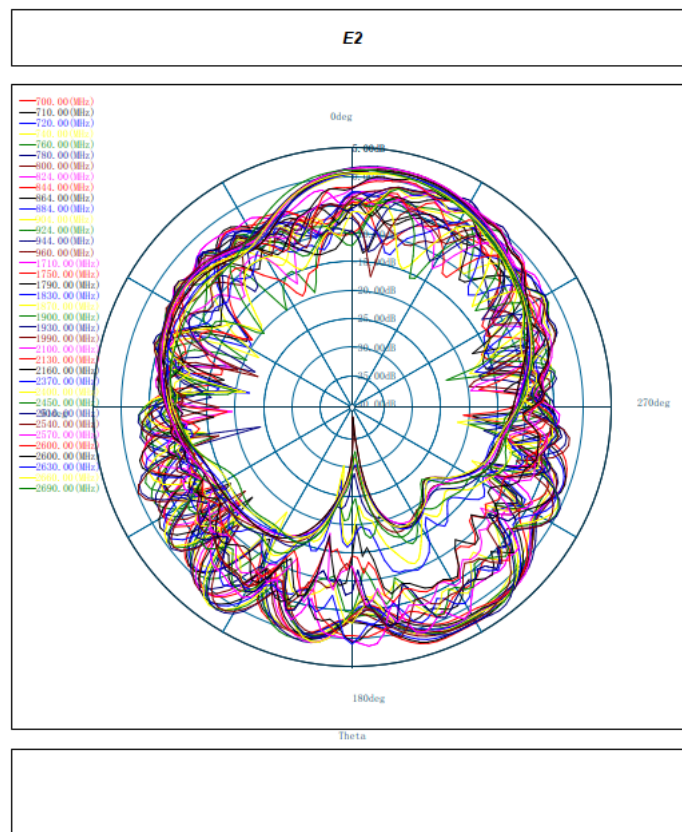
XZ Plane (E1)

698 – 2690 MHz



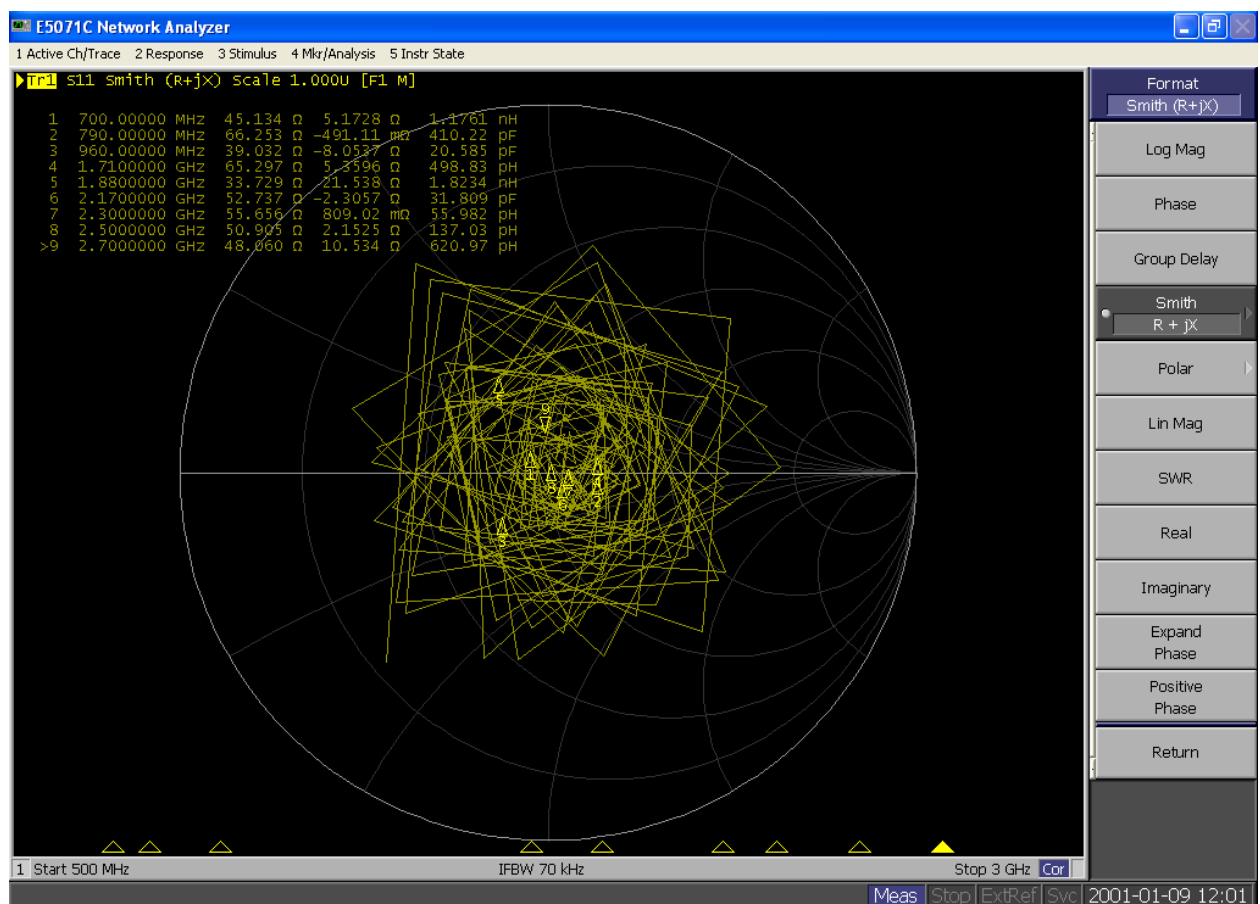
YZ Plane (E2)

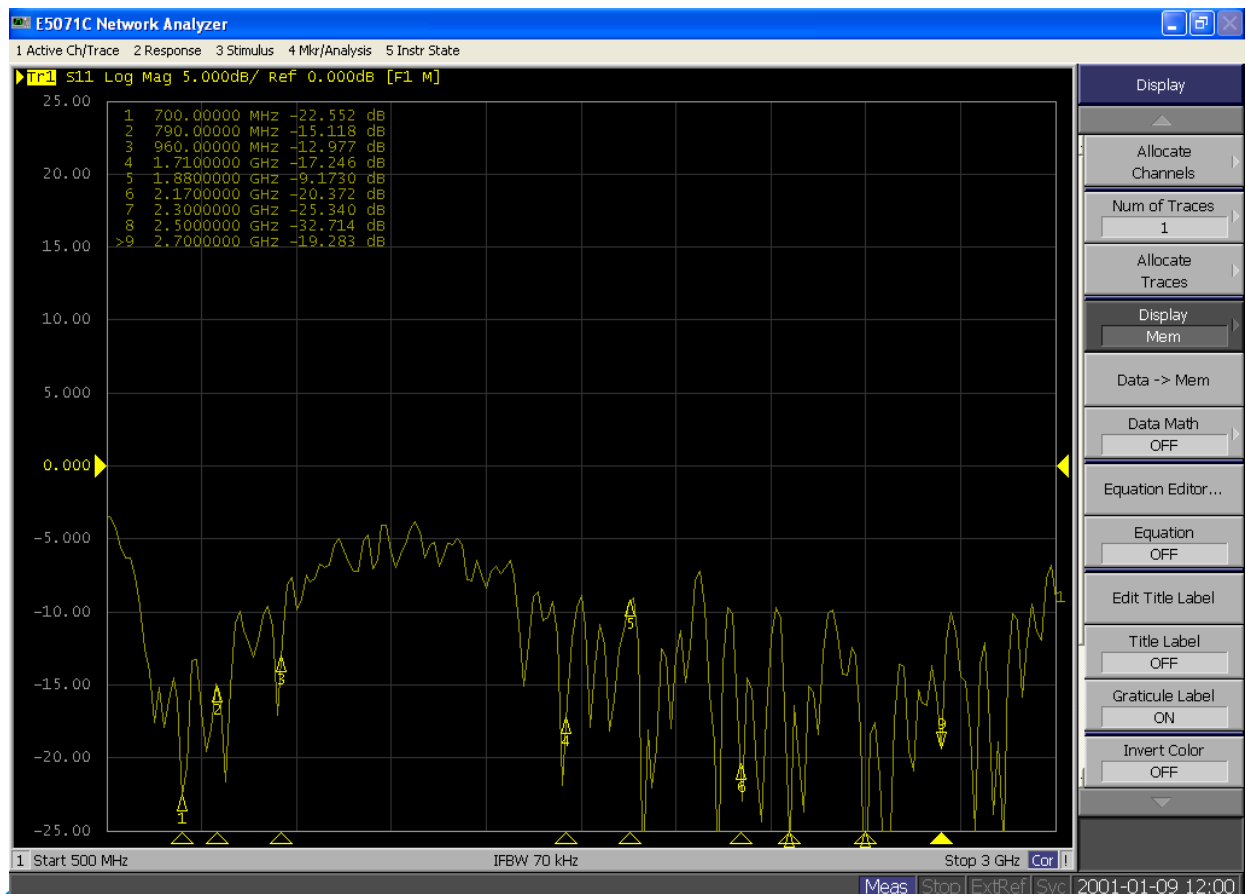
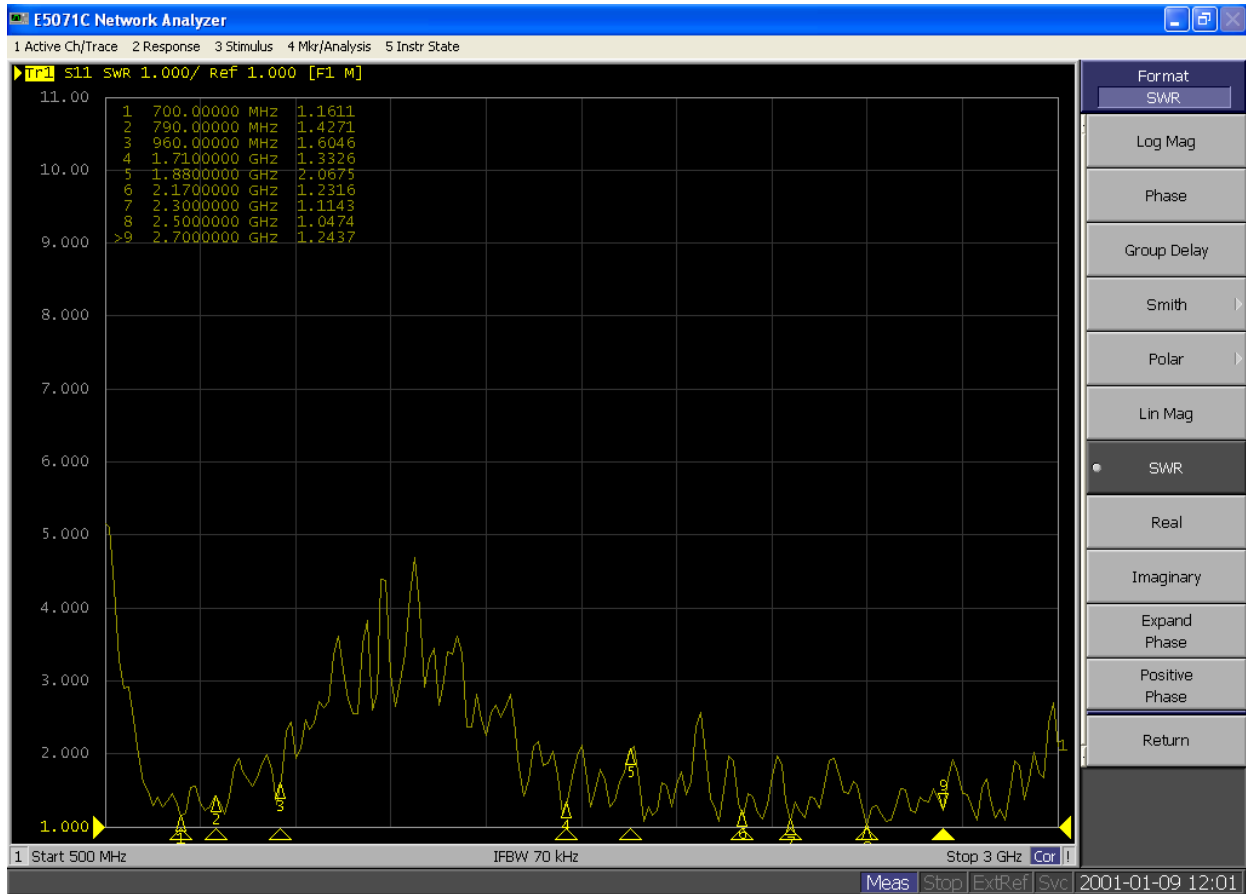
698 – 2690 MHz



LTE Antenna Smith and VSWR

Frequency	VSWR	Frequency	VSWR
699 MHz	1.28	1710 MHz	1.57
760 MHz	2.29	1990 MHz	1.34
790 MHz	2.49	2170 MHz	2.81
894 MHz	1.69		

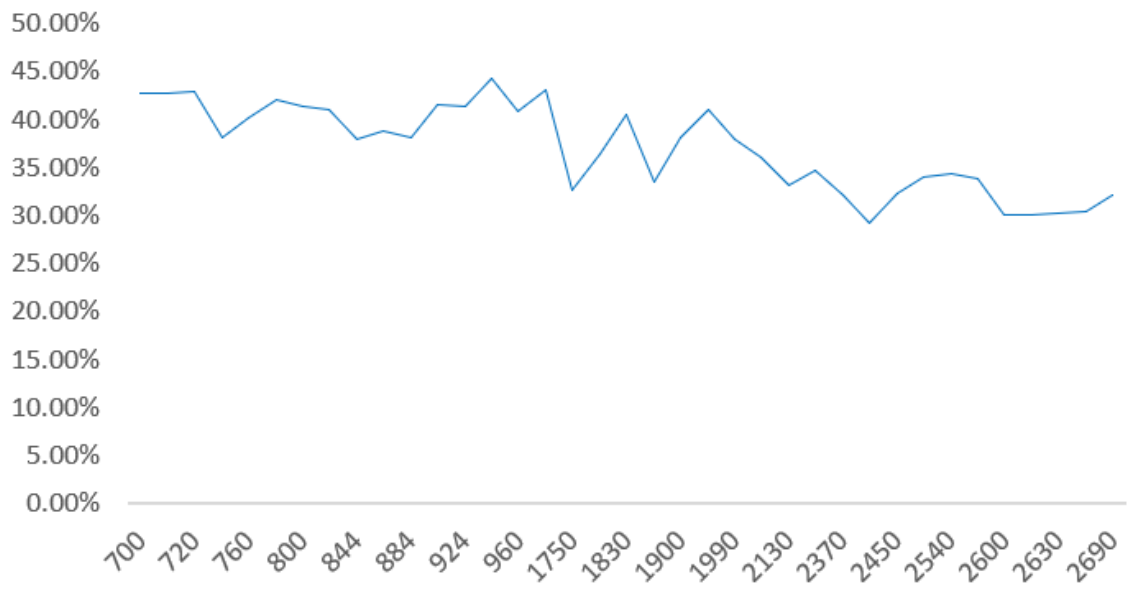




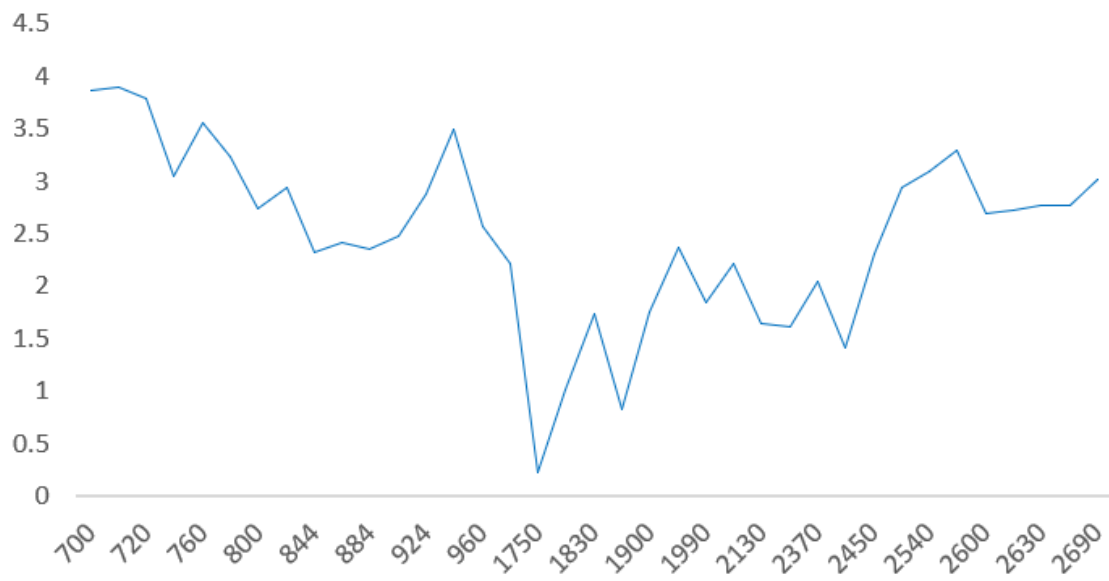
LTE Antenna Efficiency and Gain

Frequency		Efficiency	Gain	Frequency		Efficiency	Gain
700	MHz	42.8%	3.87	1870	MHz	33.5%	0.83
710	MHz	42.7%	3.90	1900	MHz	38.2%	1.75
720	MHz	42.9%	3.78	1930	MHz	41.1%	2.37
740	MHz	38.2%	3.05	1990	MHz	37.9%	1.85
760	MHz	40.2%	3.56	2100	MHz	36.1%	2.22
780	MHz	42.0%	3.23	2130	MHz	33.2%	1.65
800	MHz	41.3%	2.74	2160	MHz	34.7%	1.62
824	MHz	41.0%	2.94	2370	MHz	32.2%	2.04
844	MHz	37.9%	2.33	2400	MHz	29.3%	1.42
864	MHz	38.8%	2.42	2450	MHz	32.3%	2.30
884	MHz	38.2%	2.36	2510	MHz	34.0%	2.94
904	MHz	41.6%	2.48	2540	MHz	34.4%	3.09
924	MHz	41.3%	2.87	2570	MHz	33.8%	3.30
944	MHz	44.3%	3.50	2600	MHz	30.1%	2.70
960	MHz	40.8%	2.57	2600	MHz	30.1%	2.73
1710	MHz	43.1%	2.22	2630	MHz	30.2%	2.77
1750	MHz	32.6%	0.22	2660	MHz	30.4%	2.77
1790	MHz	36.5%	1.02	2690	MHz	32.1%	3.02
1830	MHz	40.5%	1.73				

Efficiency



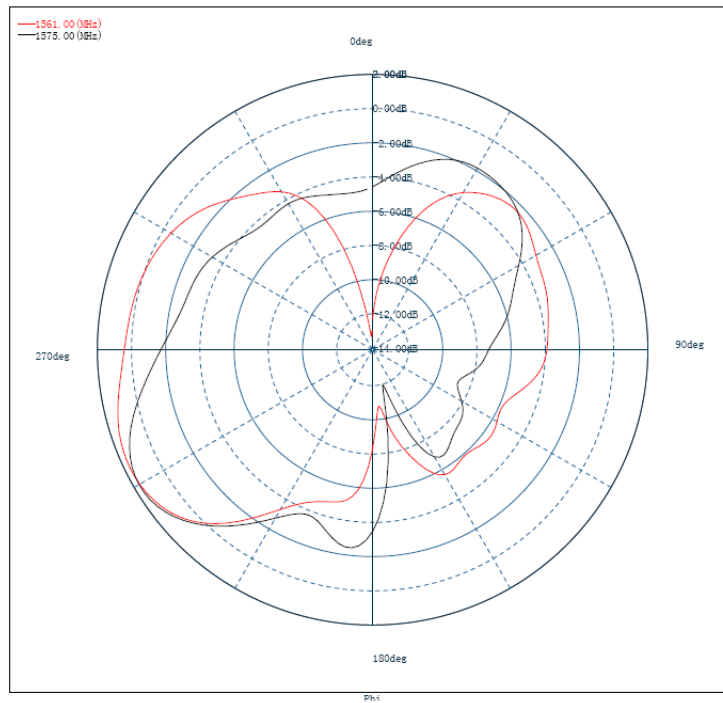
Gain



GPS Radiation Pattern

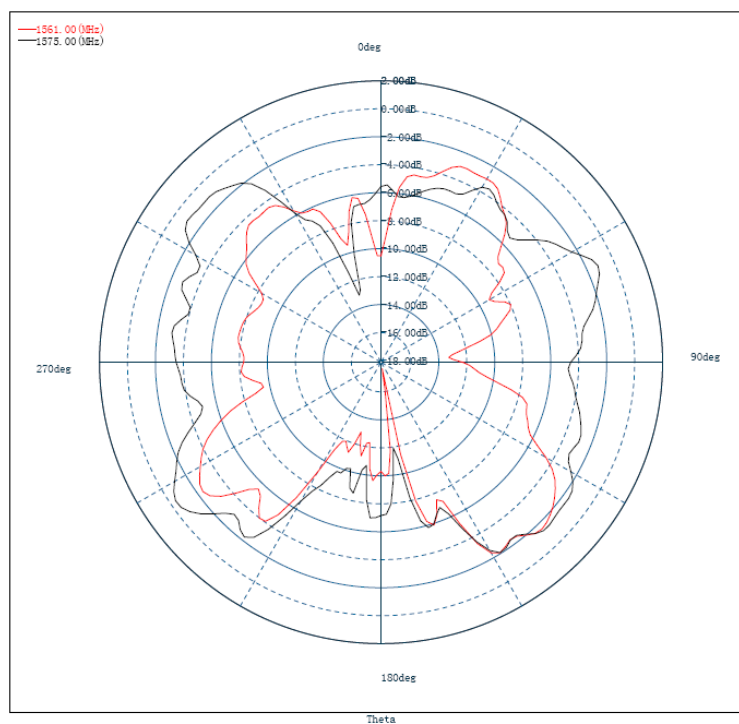
XY Plane (H)

1561 – 1575 MHz



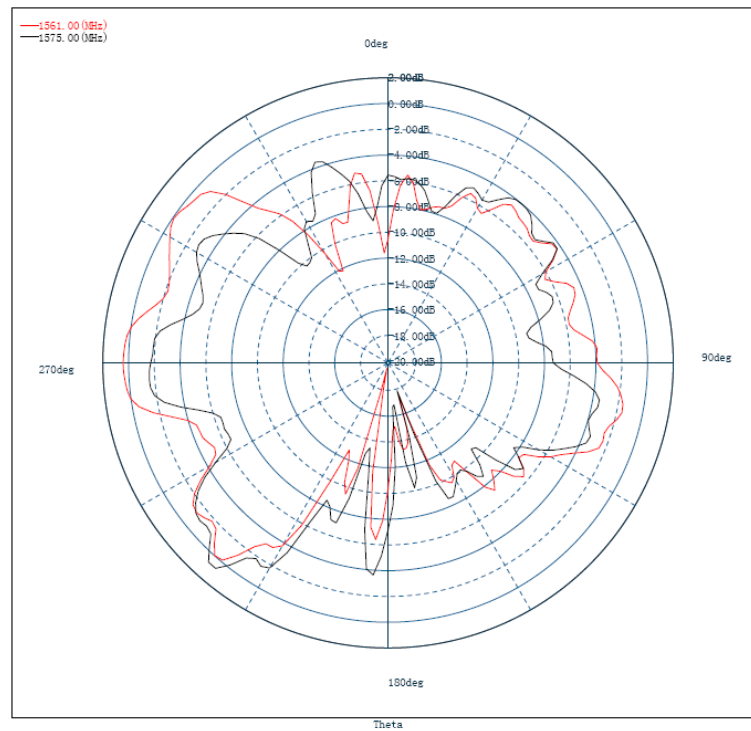
XY Plane (E1)

1561 – 1575 MHz



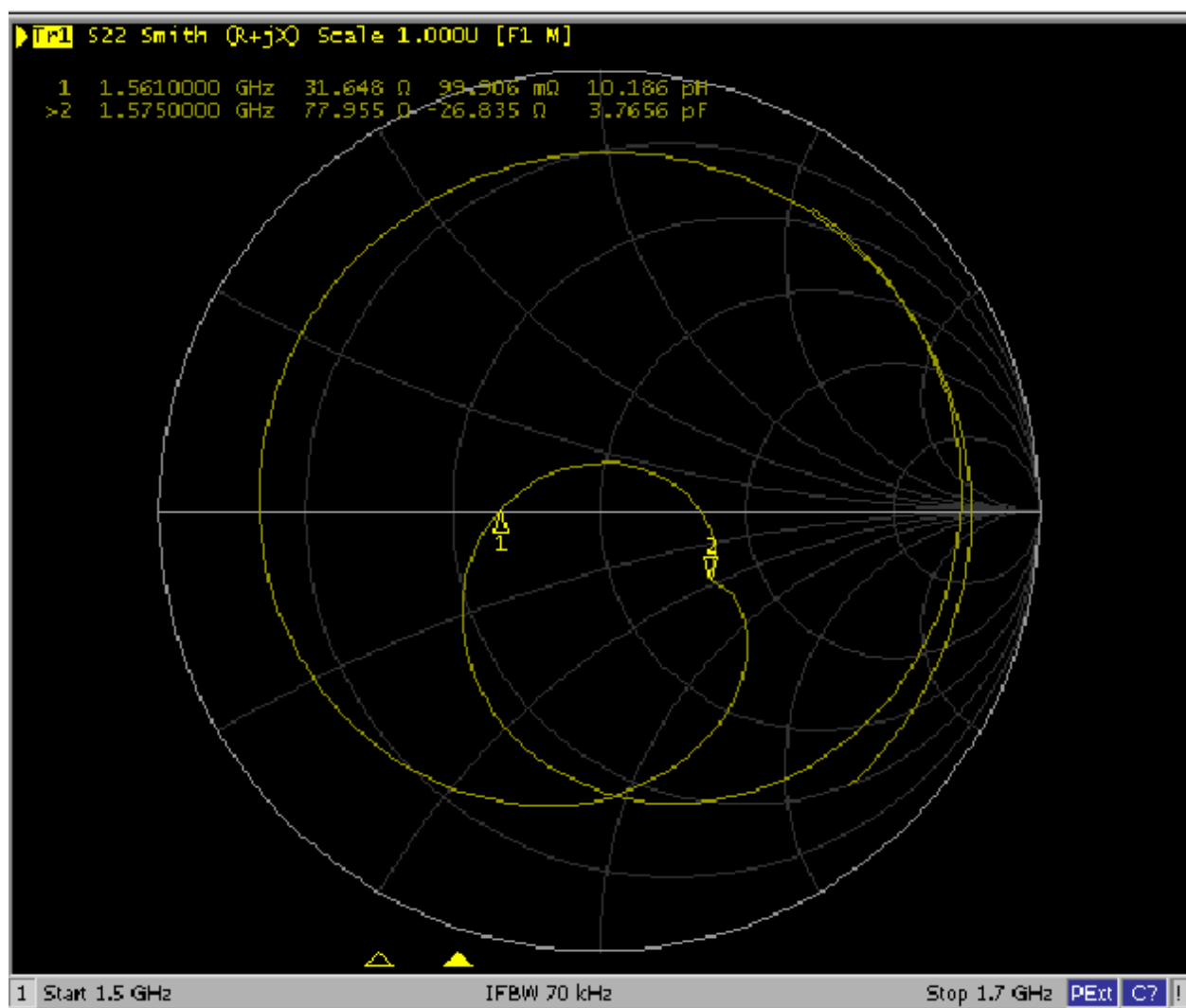
XY Plane (E2)

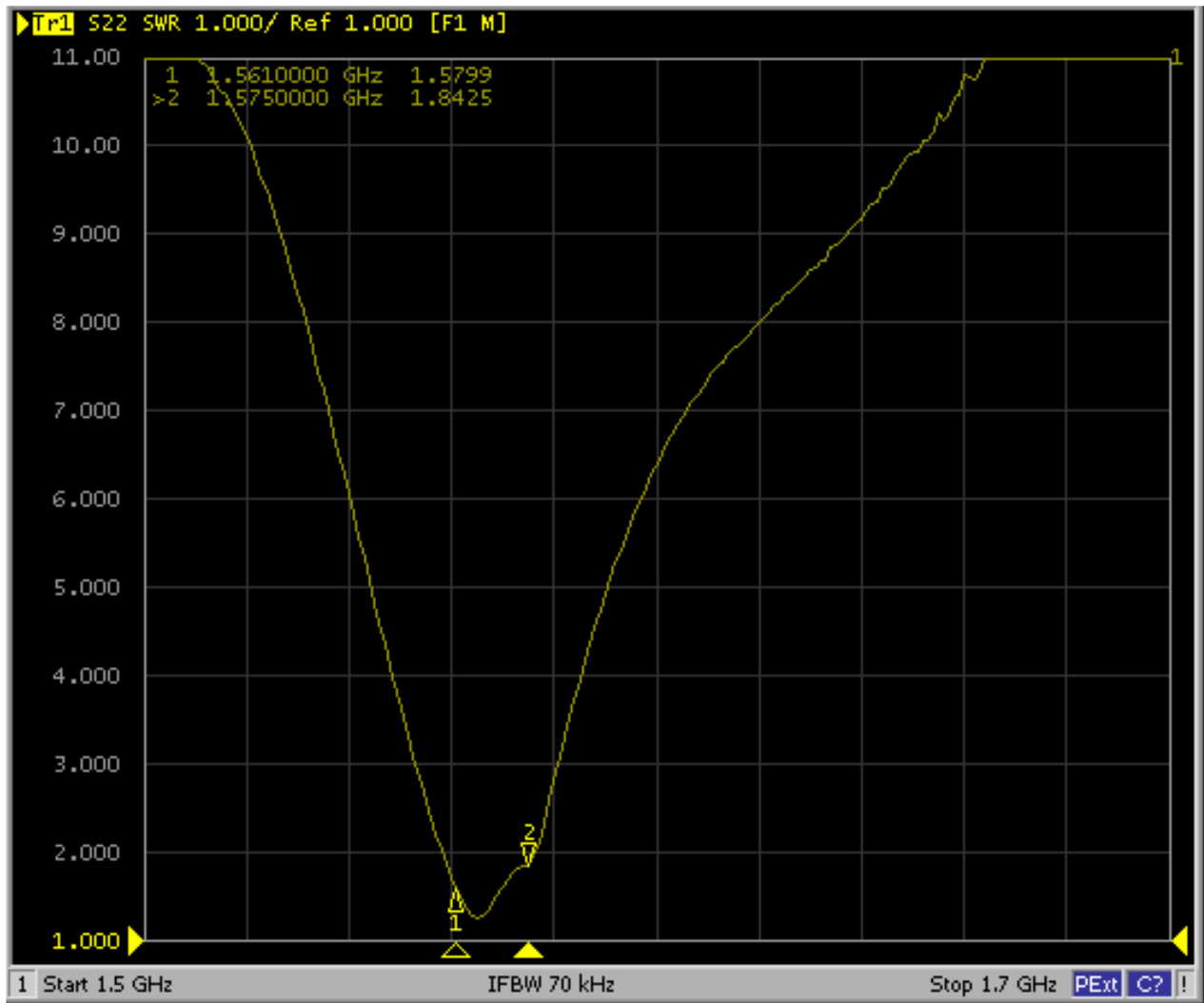
1561 – 1575 MHz



GPS Antenna Smith and VSWR

Frequency		VSWR	Frequency		VSWR
1561	MHz	1.5799	1575	MHz	1.8425





GPS Antenna Efficiency and Gain

Frequency		Efficiency	Gain
1561	MHz	60%	1.75
1575	MHz	60%	2.00

Environmental Data

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

IP Rating	IP66
-----------	------

Certifications and Approvals

Type Approvals	N/A
----------------	-----

Standards	N/A
-----------	-----

Health & Safety	N/A
-----------------	-----

Compliance	RoHS
------------	------

Ordering Information

Product Variants

Part Number	Description
D-1RS5U	External GNSS/LTE Combo 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

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

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

The information contained herein is provided "as is" and MOIT assumes no liability for using the information. No warranty, either express or implied, is given, including but not limited to the accuracy, correctness, reliability, and fitness for a particular purpose of the information. This document may be revised by MOIT at any time.

MIOT reserves all rights to this document and the information contained herein. Reproduction, use, modification, or disclosure to third parties of this document without express permission is strictly prohibited.

Copyright © 2023, MIOT Wireless Solutions Ltd. All Rights Reserved





www.mioticsolutions.com

