antenna conceptor

Product Datasheet

2JF0302Pa

2.4/5.0/6.0 GHz ISM MIMO Adhesive Mount Flexible Polymer Embedded Antenna



Key Features

Cable 1 - 2: 2.4/5.0/6.0 GHz ISM
- 2410-2490 MHz
- 4920-7125 MHz

Self-Adhesive
Wifi 6E Antenna
Flexible Material
Compact Size
Embedded Antenna
Ground Plane Independent
High Performance
Customizable Cable and Connector
Dimensions: 22.4 x 20.6 x 0.2 mm

1. Antenna Description

2JF0302Pa

One of the smallest ISM MIMO flexible self-adhesive embedded antennas on the market

At only 22x20mm size, this flexible self-adhesive embedded antenna is one of the only designs providing a MIMO solution suitable for 2.4/5.0/6.0, WiFi, WiFi 6 and WiFi 6E technologies. WiFi 6E offers lower power consumption, higher data rates with peak gigabit speeds, increased capacity with reduced latency that supports higher volume of users and devices, making it ideal for the next-gen commercial and residential wireless applications. This is a substantial improvement for routers, gaming and IoT devices.

Applications

Implementing an omnidirectional design the 2JF0302P is ideal for IoT and automotive wireless systems as it provides 360° of coverage. Applications can range from WiFi hotspots, dash cameras, routers, infotainment systems and any others that require contact connection with large data demand. Where the 2JF0302P exceeds is particularly based on its MIMO design capability. One of the top applications for this antenna is data actually intensive integrations, such as connected cars, self-driving cars and self-driving systems such as manufacturing autonomous robots and other logistical applications. This system is compatible with a large number of standards such as WiFi, WiFi 6, WiFi 6E, Bluetooth, BLE, ISM, DSRC, V2V, V2X, Sigfox, LoRa, ZigBee, RPMA and LPWAN.

Typical applications

- IoT devices
- Commercial and residential automation
- Consumer electronics
- Mobile and computing devices
- Gaming
- Augmented reality
- Virtual reality
- Industrial, scientific and medical devices

Key Features

- Flexible ultra-small and thin PCB for convenient integration
- Self-Adhesive back side aiding easy installation
- Eco-friendly in Size
- High-Efficiency MIMO Embedded Antenna
- Ground Plane Independent
- Customizable Cable and Connector

Fully Customizable

With an ultra-thin and flexible PCB compact design, this antenna comes equipped with a self-adhesive peel-and-stick installation option. Connectors can be customized based on application and design.

2. Antenna and electrical specifications

Cable 1

Parameters	2.4/5.0/6.0 GHz ISM Antenna		
Standards	WiFi 6E, BT, ZigBee, ISM, SigFox, LoRa		
Band (MHz)	2.4 GHz	5.0 GHz	6.0 GHz
Frequency (MHz)	2410-2490	4920-5925	5925-7125
Return Loss (dB)	~-8.3	~-12.6	~-7.9
VSWR	~2.4:1	~2.2:1	~2.5:1
Efficiency (%)	~53	~64	~52.1
Peak Gain (dBi)	~3.2	~5.0	~5.2
Average Gain (dB)	~-2.8	~-1.9	~-3.0
Impendance (Ohm)	50		
Polarisation	Linear		
Radiation Pattern	Omni-Directional		
Max. Input Power (W)	10		
Connector Type	U.FL Standard (Other Connectors Available)		
Cable Length	100mm Standard (Any Cable Length Available)		
Cable Type	1.37mm Mini-Coax Standard (Other Cables Available)		

Cable 2

Parameters	2.4/5.0/6.0 GHz ISM Antenna		
Standards	WiFi 6E, BT, ZigBee, ISM, SigFox, LoRa		
Band (MHz)	2.4 GHz	5.0 GHz	6.0 GHz
Frequency (MHz)	2410-2490	4920-5925	5925-7125
Return Loss (dB)	~-8.4	~-12.5	~-7.0
VSWR	~2.4:1	~2.2:1	~2.7:1
Efficiency (%)	~55	~63	~53.0
Peak Gain (dBi)	~3.0	~4.9	~5.2
Average Gain (dB)	~-2.8	~-1.9	~-2.7
Impendance (Ohm)	50		
Polarisation	Linear		
Radiation Pattern	Omni-Directional		
Max. Input Power (W)	10		
Connector Type	U.FL Standard (Other Connectors Available)		
Cable Length	100mm Standard (Any Cable Length Available)		
Cable Type	1.37mm Mini-Coax Standard (Other Cables Available)		

Antenna Measurement Conditions:

Mounted on 30 x 30 x 0.25 cm ABS Plate

100 mm of 1.37 mm Mini-Coax Cable

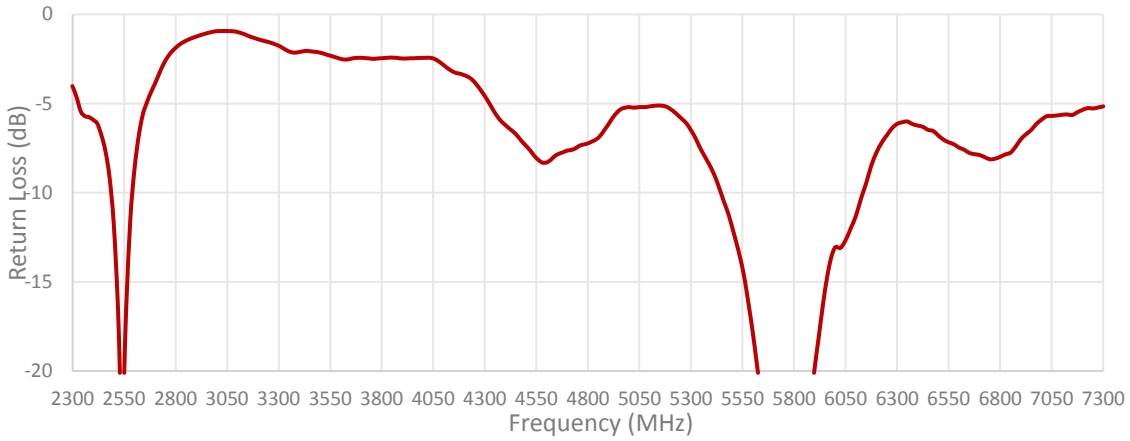
Measured in Certified CTIA 3D Anechoic Chamber

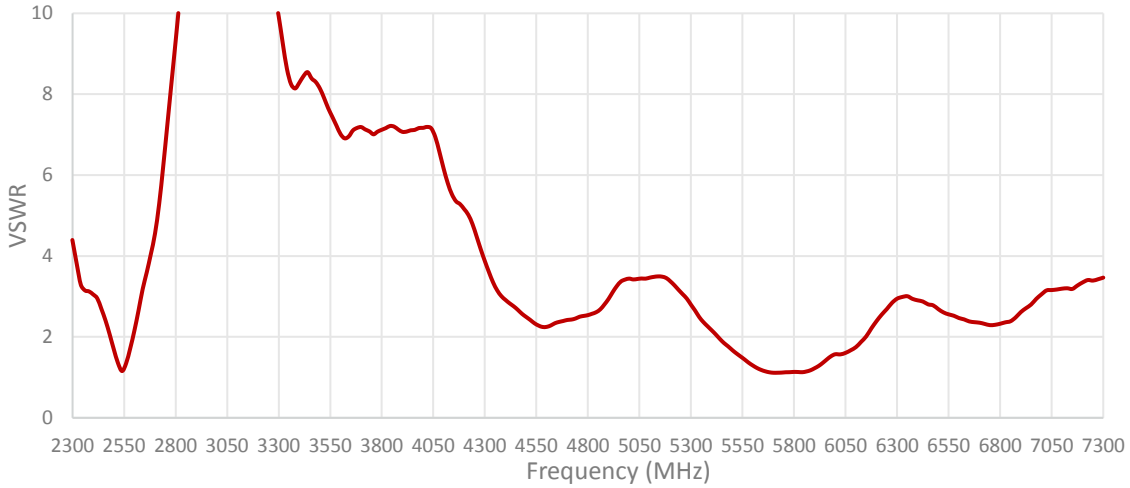
3. Mechanical and environmental specifications

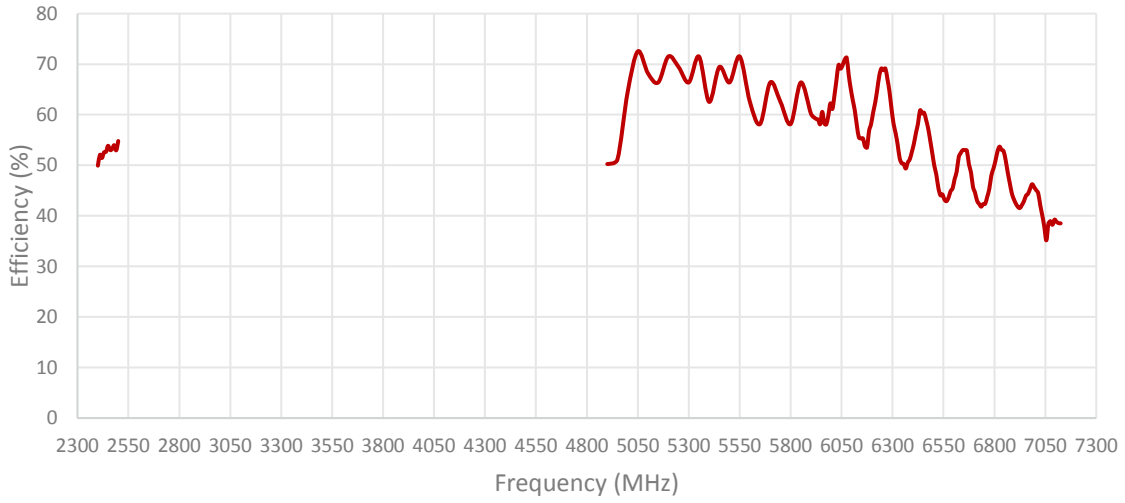
Specifications	2JF0302Pa
Mounting Type	Self-Adhesive
Dimensions (mm)	22.4 x 20.6 x 0.2
Adhesive Type	3M 467
Material	Flexible Polymer
Operating Temperature (C)	-40 to +85
Storage Temperature (C)	-40 to +85
Substance Compliance	RoHS

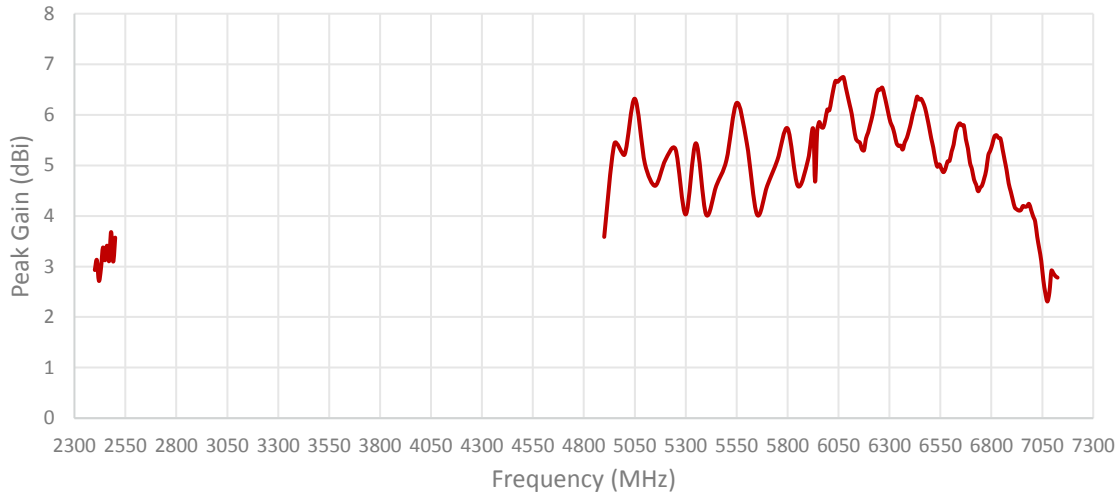
4. Antenna parameters

Cable 1: 2.4/5.0/6.0 GHz ISM






Efficiency (%)
80
70
60
50
40
30
20
10
0
2300 2550 2800 3050 3300 3550 3800 4050 4300 4550 4800 5050 5300 5550 5800 6050 6300 6550 6800 7050 7300
Frequency (MHz)


Peak Gain (dBi)
8
7
6
5
4
3
2
1
0
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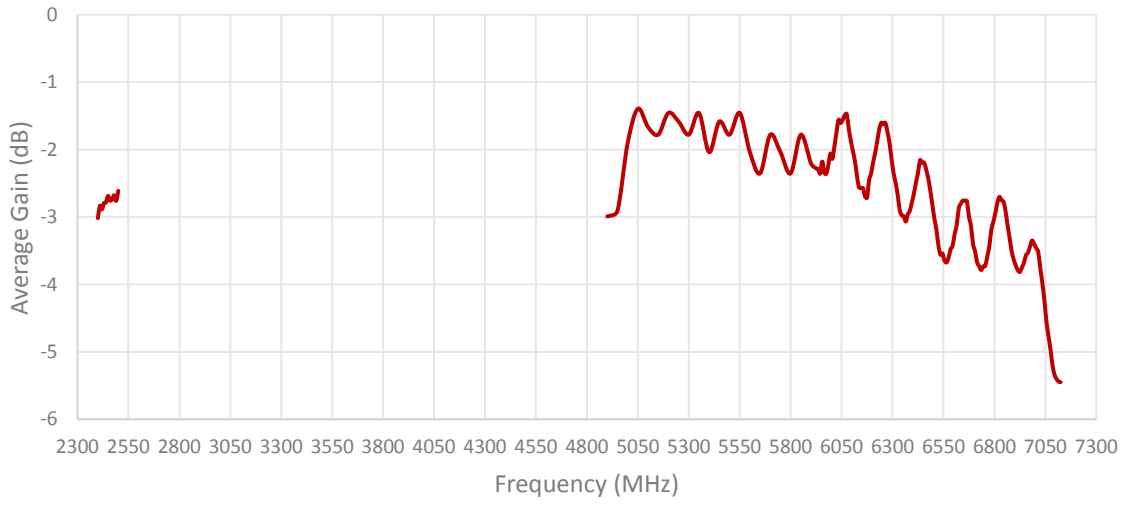
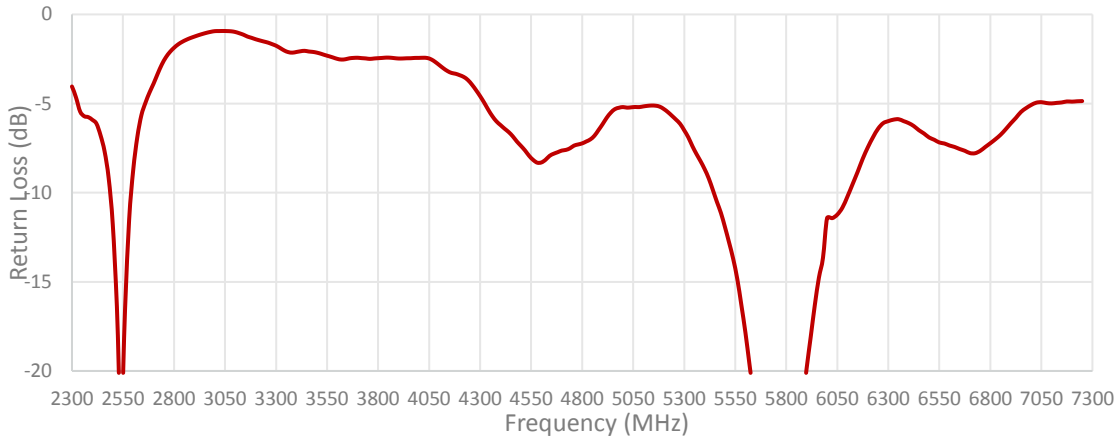
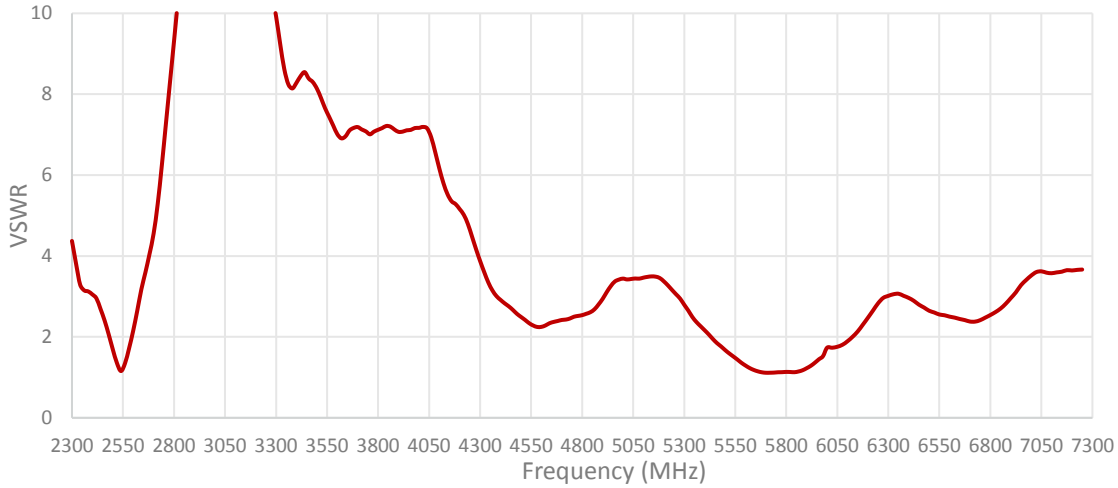
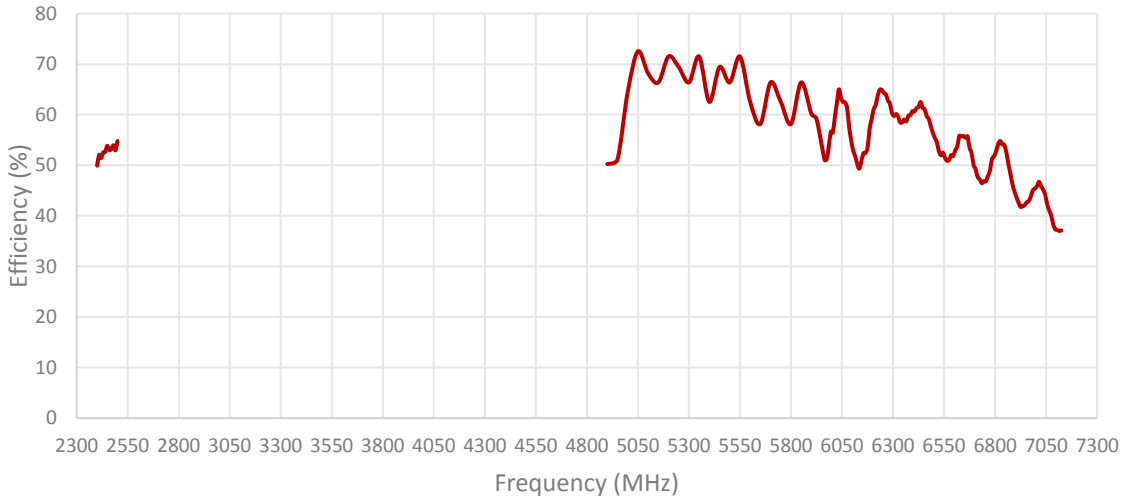
Frequency (MHz)

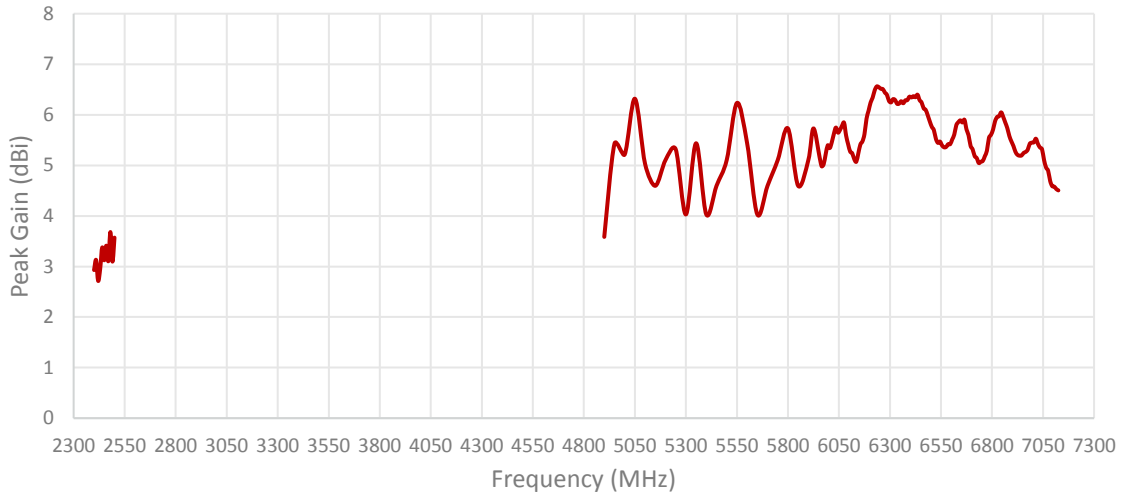

Average Gain (dB)
0
-1
-2
-3
-4
-5
-6
2300 2550 2800 3050 3300 3550 3800 4050 4300 4550 4800 5050 5300 5550 5800 6050 6300 6550 6800 7050 7300
Frequency (MHz)

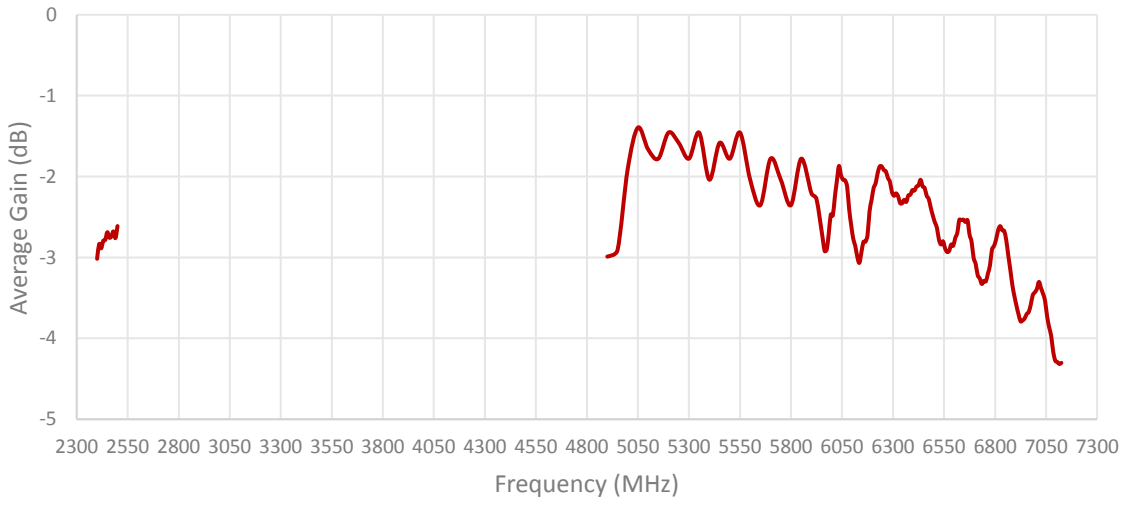
Cable 2: 2.4/5.0/6.0 GHz ISM



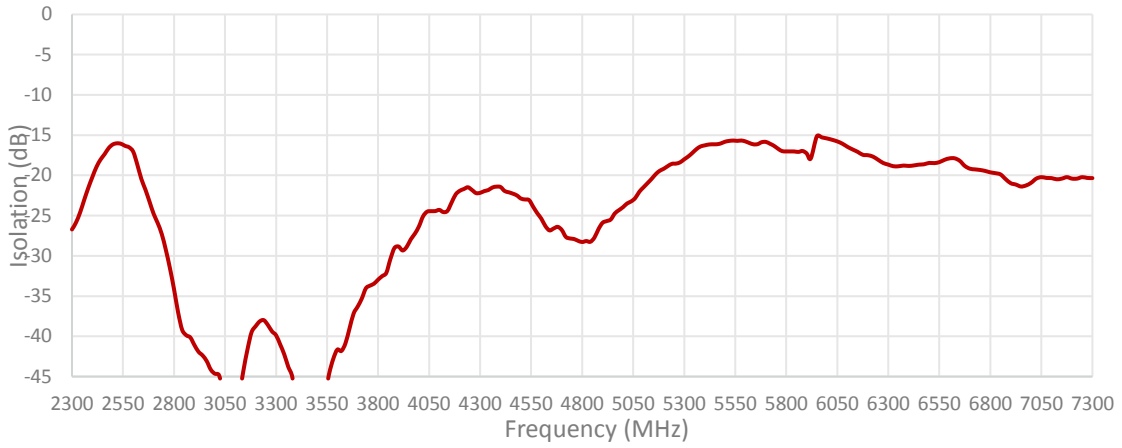



Efficiency (%)
80
70
60
50
40
30
20
10
0
2300 2550 2800 3050 3300 3550 3800 4050 4300 4550 4800 5050 5300 5550 5800 6050 6300 6550 6800 7050 7300
Frequency (MHz)

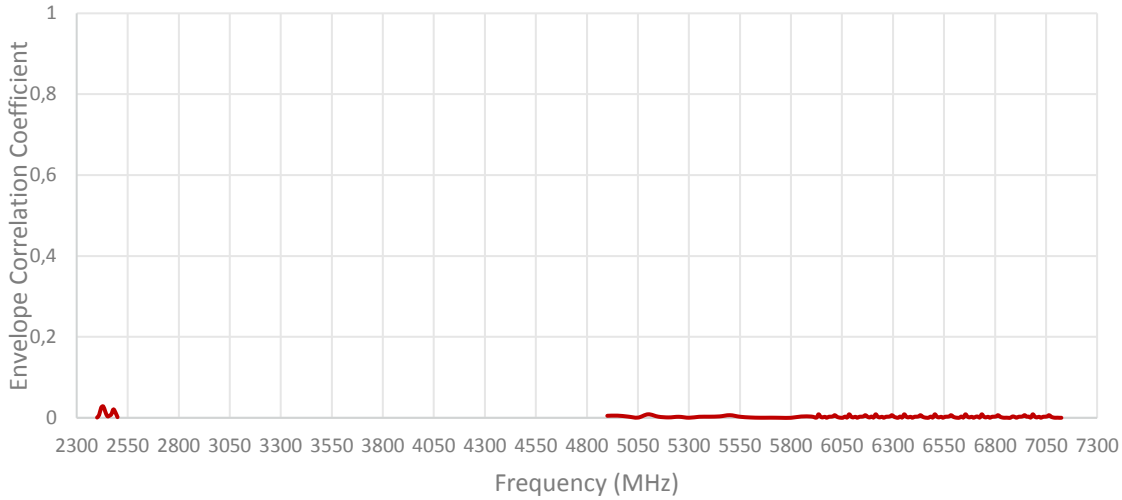

Peak Gain (dBi)
8
7
6
5
4
3
2
1
0
2300 2550 2800 3050 3300 3550 3800 4050 4300 4550 4800 5050 5300 5550 5800 6050 6300 6550 6800 7050 7300
Frequency (MHz)

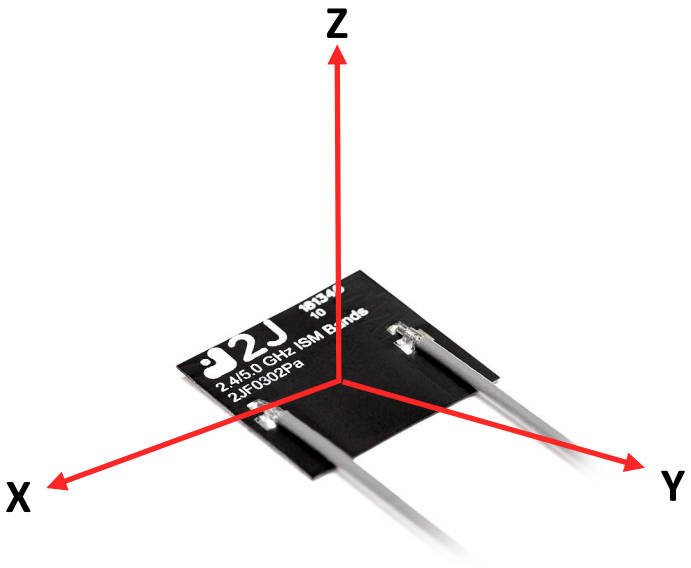

Average Gain (dB)
0
-1
-2
-3
-4
-5
2300 2550 2800 3050 3300 3550 3800 4050 4300 4550 4800 5050 5300 5550 5800 6050 6300 6550 6800 7050 7300
Frequency (MHz)

ISOLATION FOR CABLES 1 AND 2



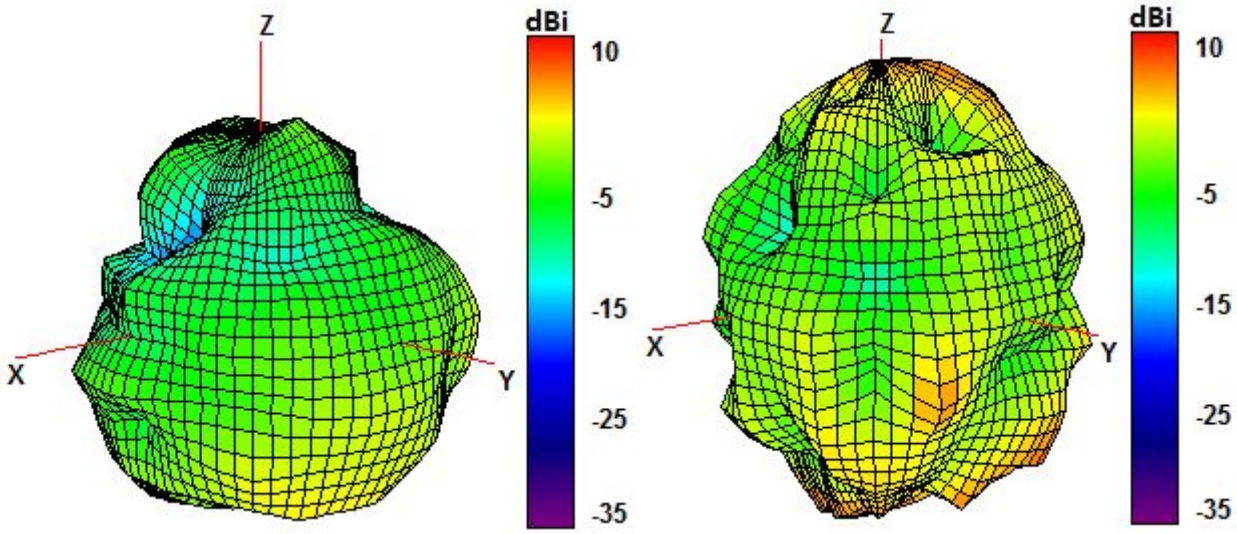
ENVELOPE CORRELATION COEFICIENT FOR CABLES 1 AND 2



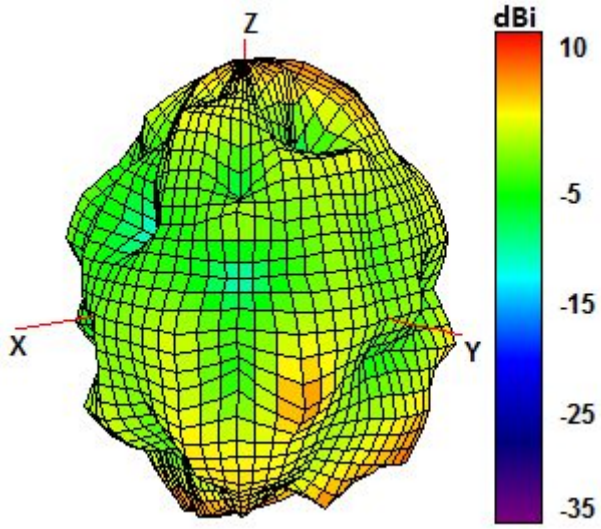


Radiation pattern reference

Cable 1: 2.4/5.0/6.0 GHz ISM

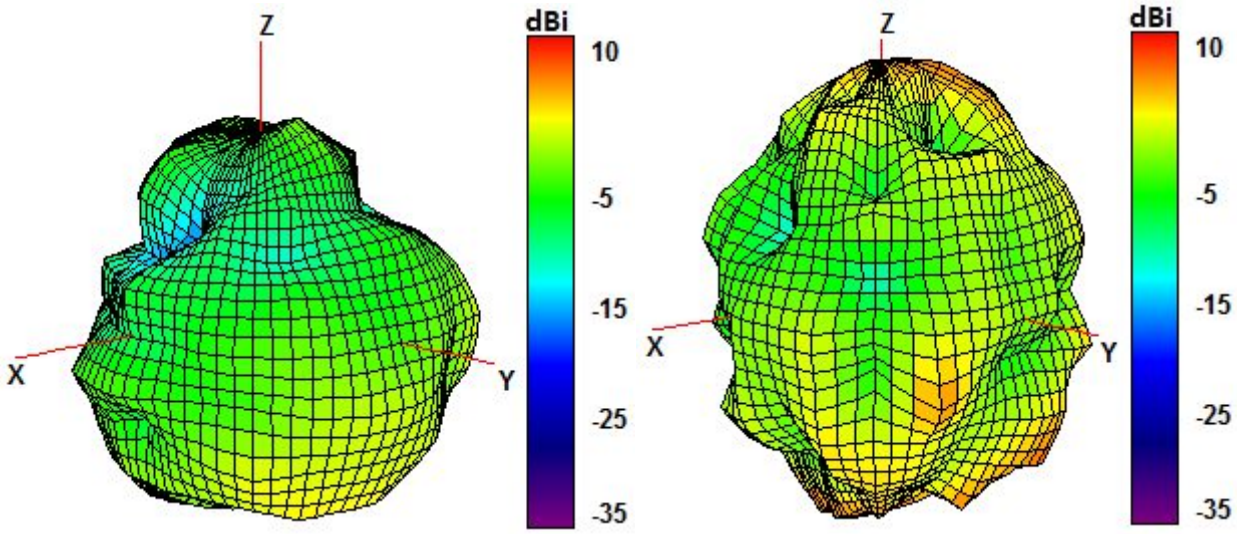


2450 and 5500 MHz Radiation pattern

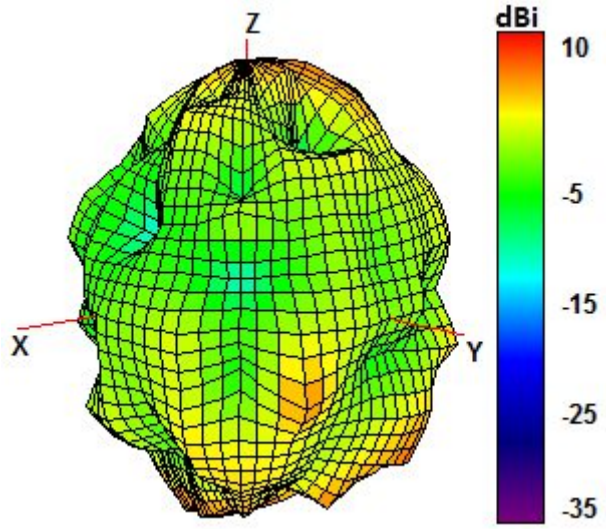


6500 MHz Radiation pattern

Cable 2: 2.4/5.0/6.0 GHz ISM

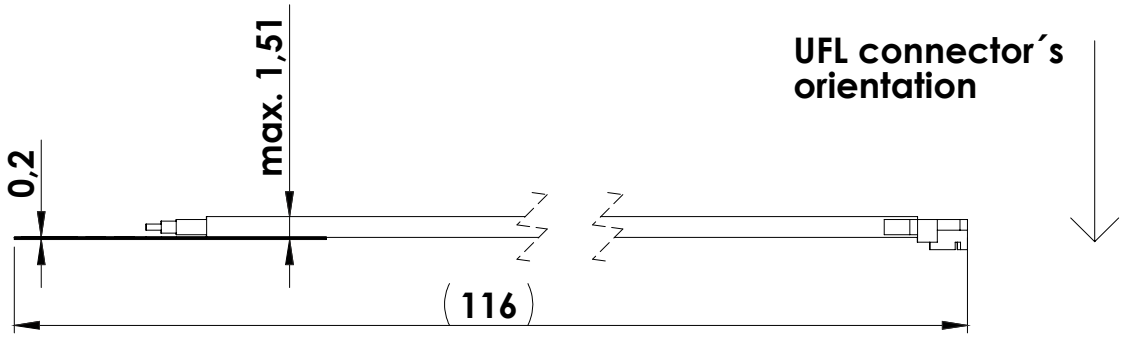


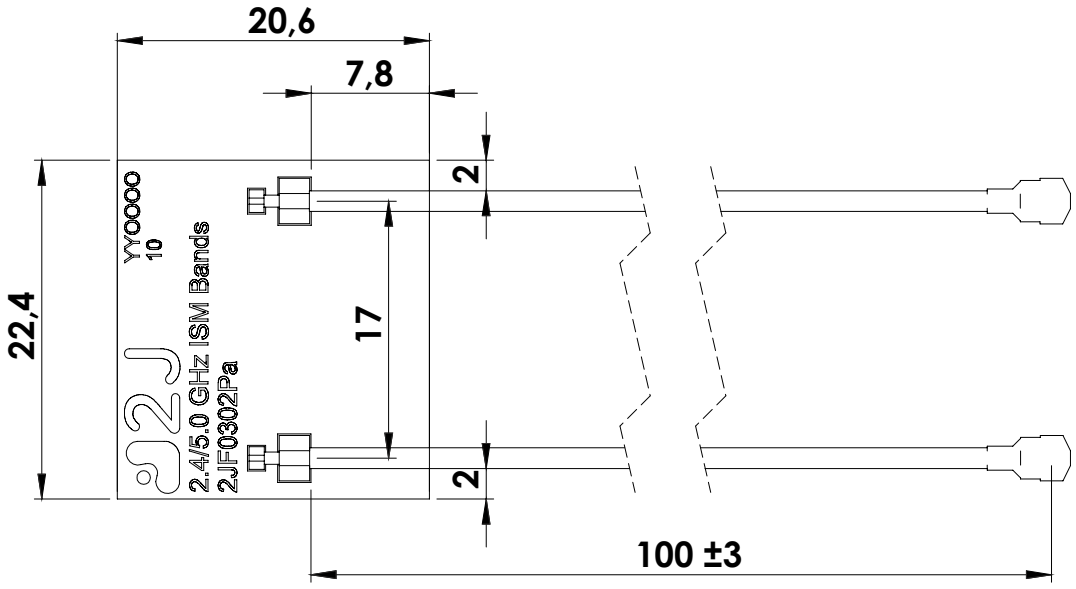
2450 and 5500 MHz Radiation pattern



6500 MHz Radiation pattern

5. Antenna drawings





6. Antenna Images



