

# PAN / Vehicular 5GFR1 + WiFi + GNSS L1 Direct Mount 8-in-1 Antenna

PAN5G84311DM - 617 to 7125 MHz



## Features & Applications:

- 🌀 Vehicle roof mount, directly on metal plane
- 🌀 Ground plane independent
- 🌀 4x4 MiMo Cellular 5G-FR1 (4G compatible)
- 🌀 3x3 MiMo WiFi, DSRC, V2X (WiFi-6E/7 compatible)
- 🌀 Active GNSS L1+L2 with low noise 38dB amplifier
- 🌀 Cable length and connector type per request
- 🌀 Heavy and light vehicles
- 🌀 IoT, navigation, tracking

### ELECTRICAL SPECIFICATIONS @ 25°C <sup>1</sup>

#### General Specifications – 5G FR1 + WiFi 6E

Antenna type	Nominal Impedance	Polarization	Radiation pattern	Power withstanding	DC Ground
Monopole <sup>2</sup>	50Ω	Vertical / Linear	Omni	45W	No

#### 5G FR1 Antennas: 617 – 7125MHz

Port	Frequency (MHz)	617-960	1710-2700	3300-4200	4400-5000	5150-7125
Port 1,2,3,4	Return Loss	-4:1	-5:1	-5:1	-5:1	-5:1
	Avg. Peak Gain (dBi)	2.3	4.6	5.2	4.7	5.4
	Avg. Efficiency (%)	40	52	60	55	50
Isolation <sup>3</sup>	Isolation (dB)	5	10	20	20	25

#### WiFi 6E/7 Antennas: 2400-2500 / 4900-7125MHz

Port	Frequency (MHz)	2400-2500	4900-7125
Port 1,2,3	Return Loss	-5:1	-5:1
	Avg. Peak Gain (dBi)	6.0	5.7
	Avg. Efficiency (%)	62	50
Isolation <sup>3</sup>	Isolation (dB)	14	20

#### GNSS Antenna L1 Band: 1561.098 +/- 2.046MHz, 1575.42 +/- 1.023MHz, 1602.5625 +/- 4MHz

#### GNSS Antenna L2 Band: 1227.6 +/- 1.023MHz

Frequency (MHz)	L1 Band		L2 Band	
VSWR	2:1		2:1	
Gain – Radiating Element (dBic)	2 +/- 1		4 +/- 1	
Polarization	LNA Gain (dB)	Noise Figure (dB)	Operating Voltage (V <sub>dc</sub> )	Current Consumption (mA)
RHCP	38 +/- 2	< 2.4	3.3 – 5.0	< 11
Frequency (MHz)	960	1710	2170	2400
Out of Band Rejection (dB)	> 65	> 60	> 65	> 65

#### Notes:

1. Storage Temperature: -40°C to 85°C
2. (5) Multi-Band Monopoles with built in ground plane, Independent from external ground plane
3. Minimum Isolation (dB)

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**MECHANICAL SPECIFICATIONS**

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Dimension (Length x Width x Height)	Housing Material	Color	Weight	Fixing System	Mounting Hole Diameter
151.9 x 164.5 x 76 mm (5.98 x 6.48 x 3 inch)	PC, UV Protected	Black	550g (1.22lbs)	Direct Mount	1.346" (34.2mm)
Wireless Technology	No. of Port	Cable Length	Cable Type	Connector Type	
5G FR1/ LTE	4	17ft (5.181m)	RG 58	SMA (Male)	
WiFi 6E	3	17ft (5.181m)	RG 58	RP-SMA Male	
GNSS L1	1	17ft (5.181m)	RG-174	SMA (Male)	

**ENVIRONMENTAL SPECIFICATIONS**

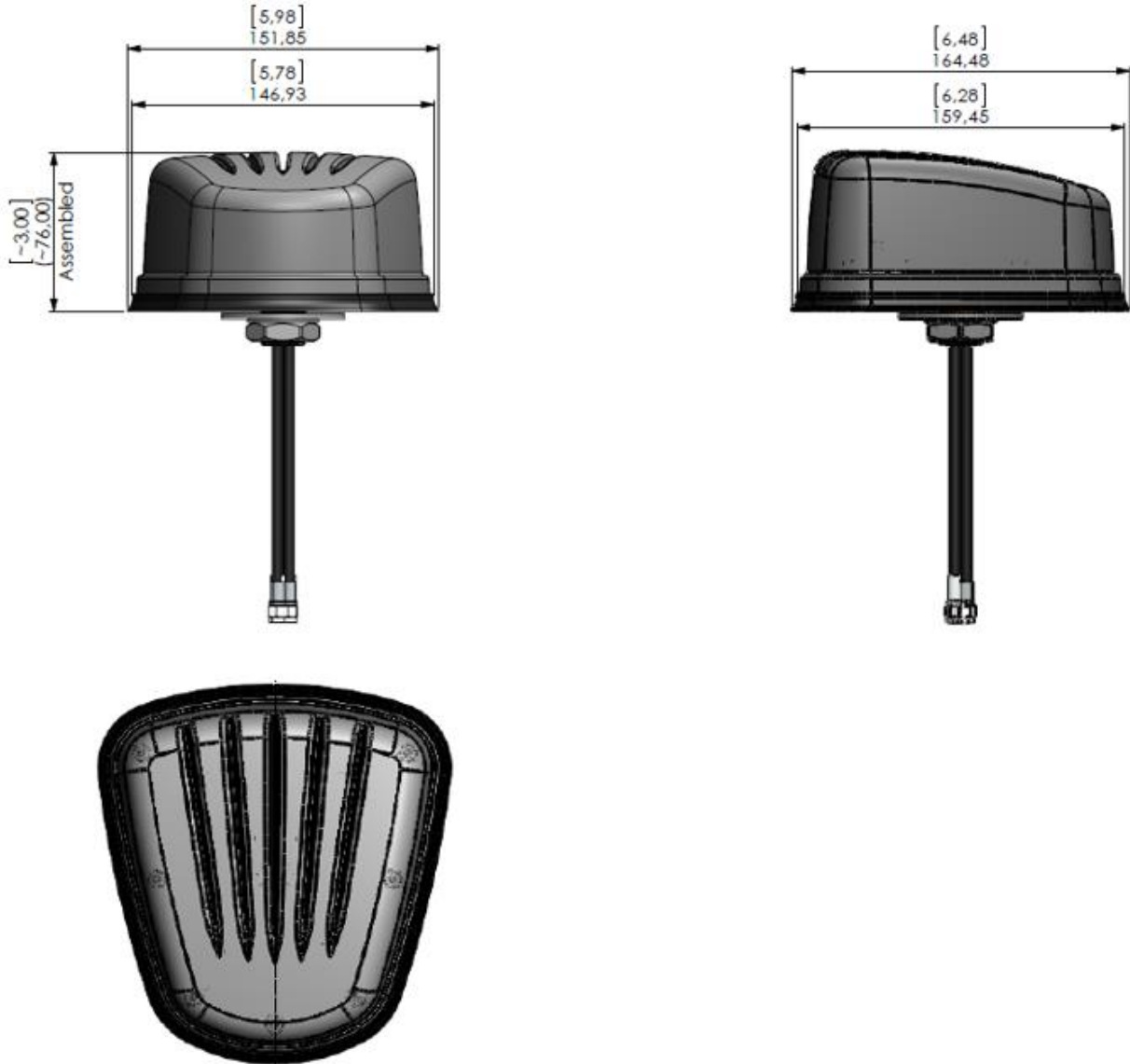
**PAN5G84311DM**

Operating Temperature	Ingress Protection	RoHS Compliant
-40 / +85° C	IP67	Yes

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Mechanical Drawing

PAN5G84311DM



**Dimensions:** Inches (mm)  
Unless otherwise specified, all tolerances are  $\pm 0.010$  (0.25mm)

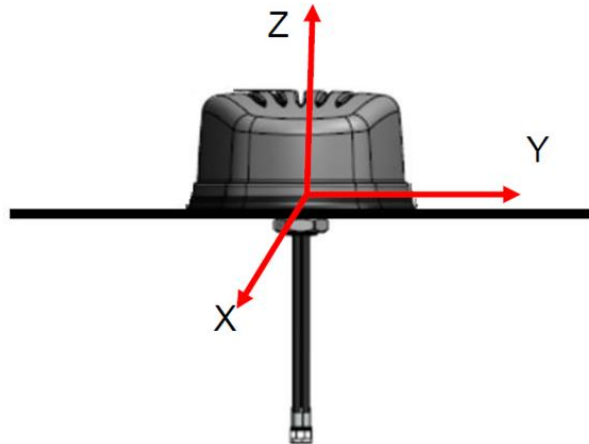
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## Test Setup

### General / Chamber Setup

- All measurements done on  $\varnothing$  500mm (20") round ground plane.
- S-parameters with 0.5m RG 58 cable
- Gain and Efficiency with 0.5m RG 58 cable
- Measured at Pulse, Suzhou



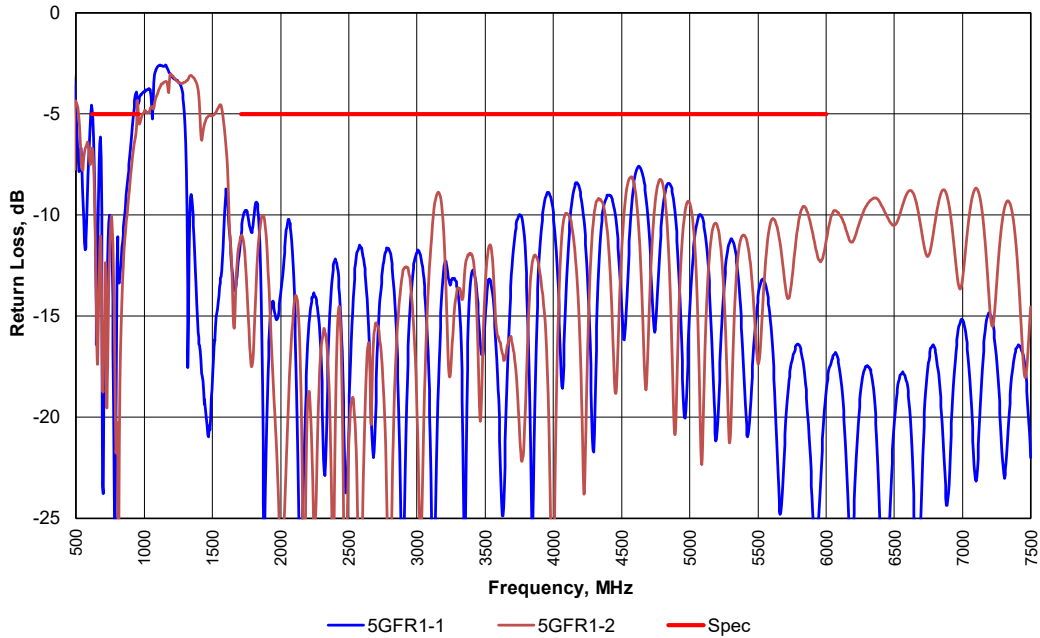
Radiation pattern coordinate system

## Charts-Return Loss

5G FR1

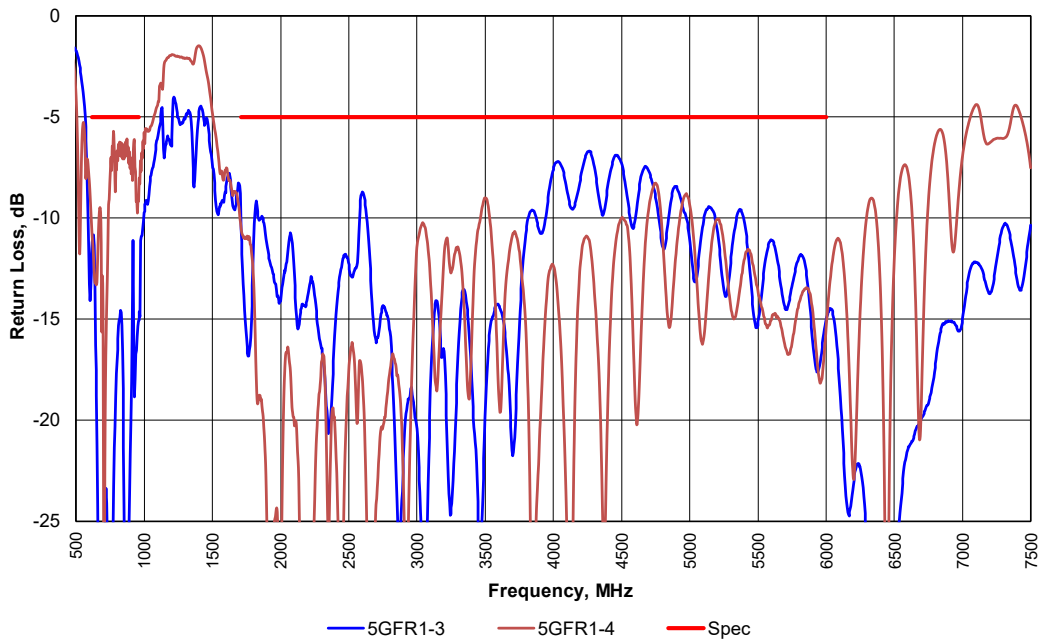
**Return Loss vs Frequency**

Measured at Pulse, Suzhou - 20230224



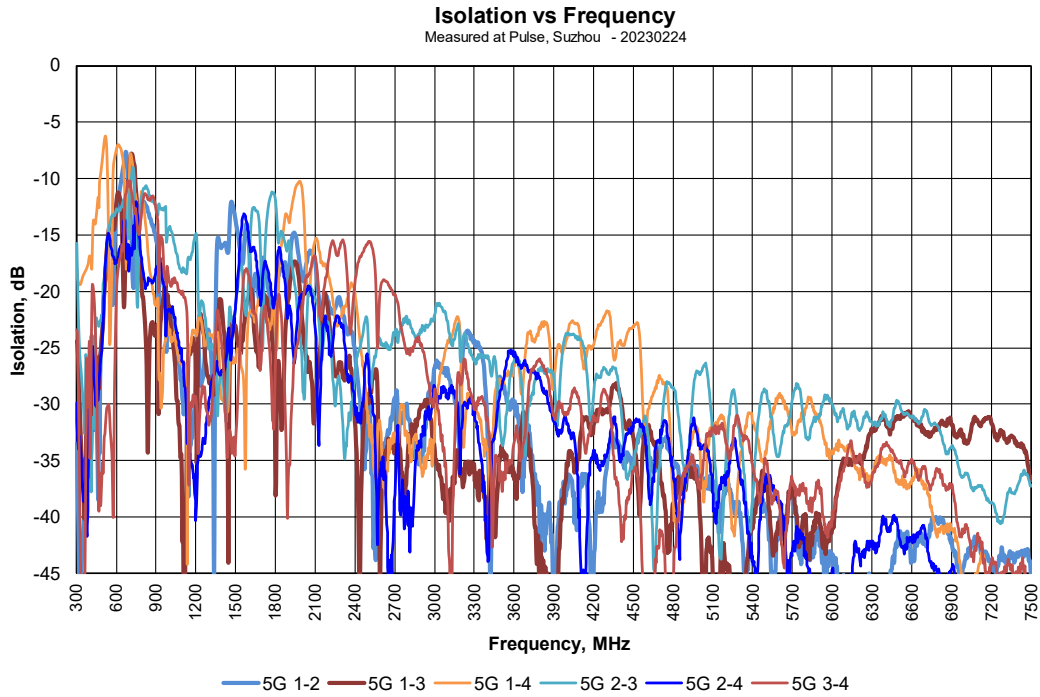
**Return Loss vs Frequency**

Measured at Pulse, Suzhou - 20230224



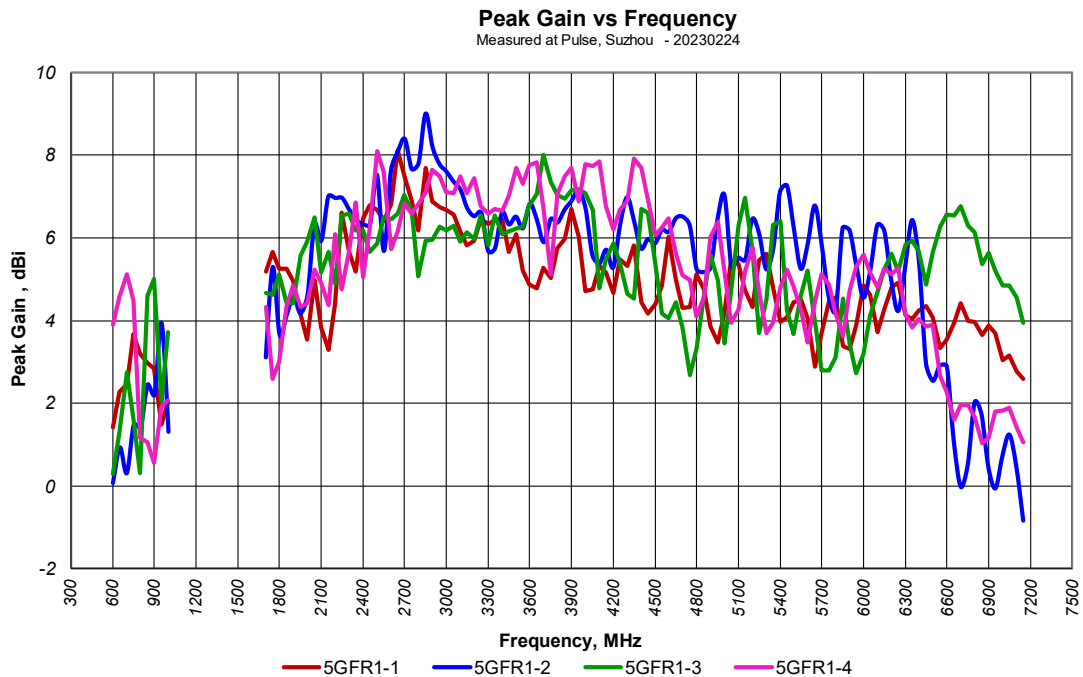
### Charts-Isolation

5G FR1



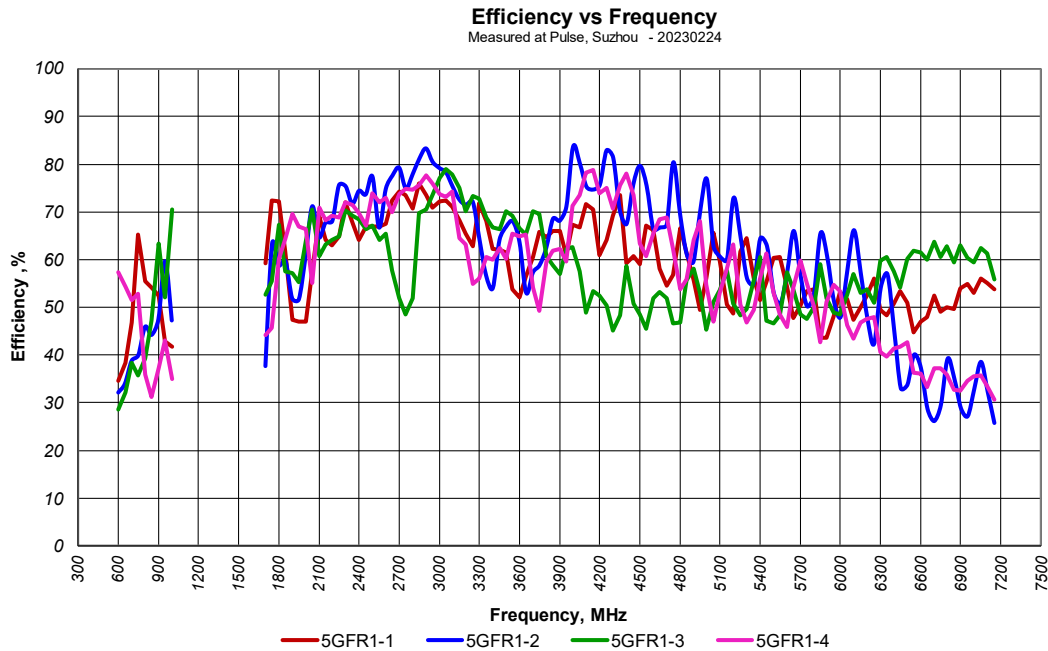
### Charts-Peak Gain

5G FR1



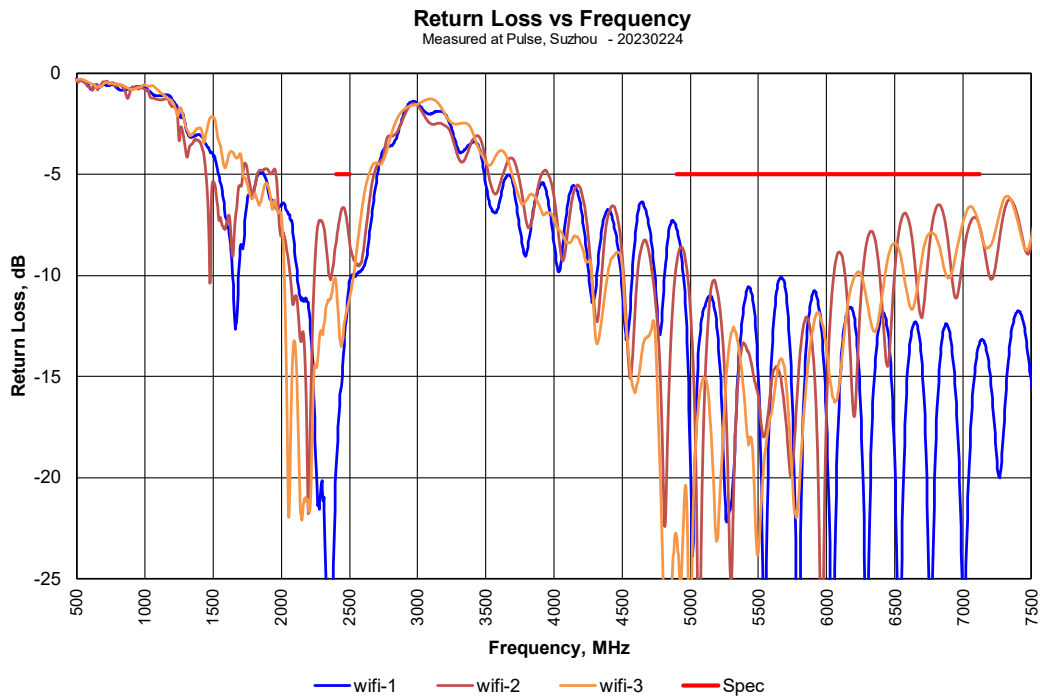
### Charts- Peak Efficiency

5G FR1



### Charts-Return Loss

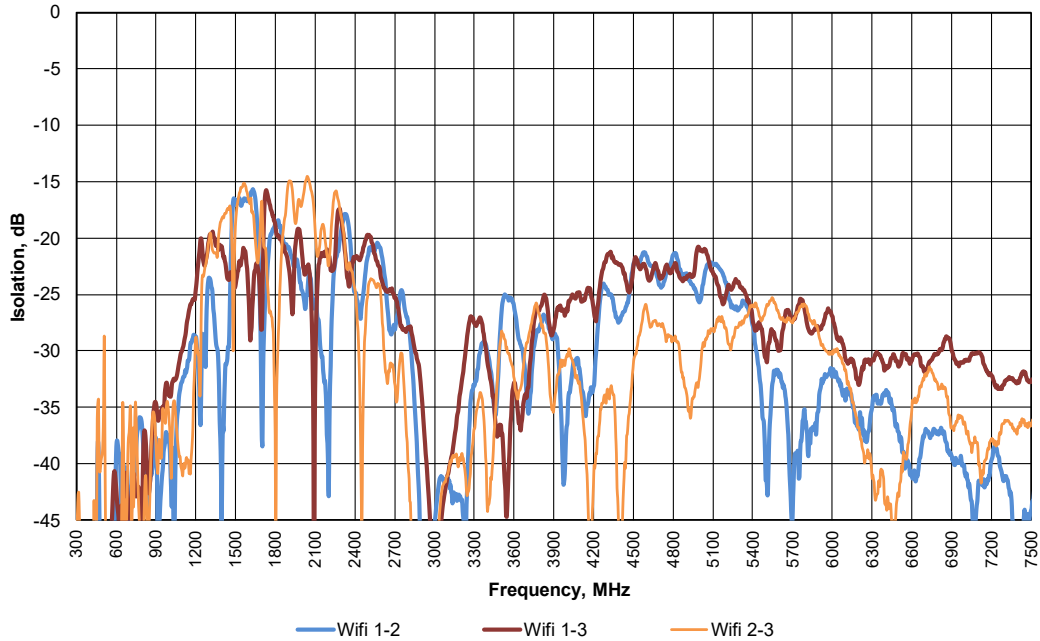
WiFi 6E



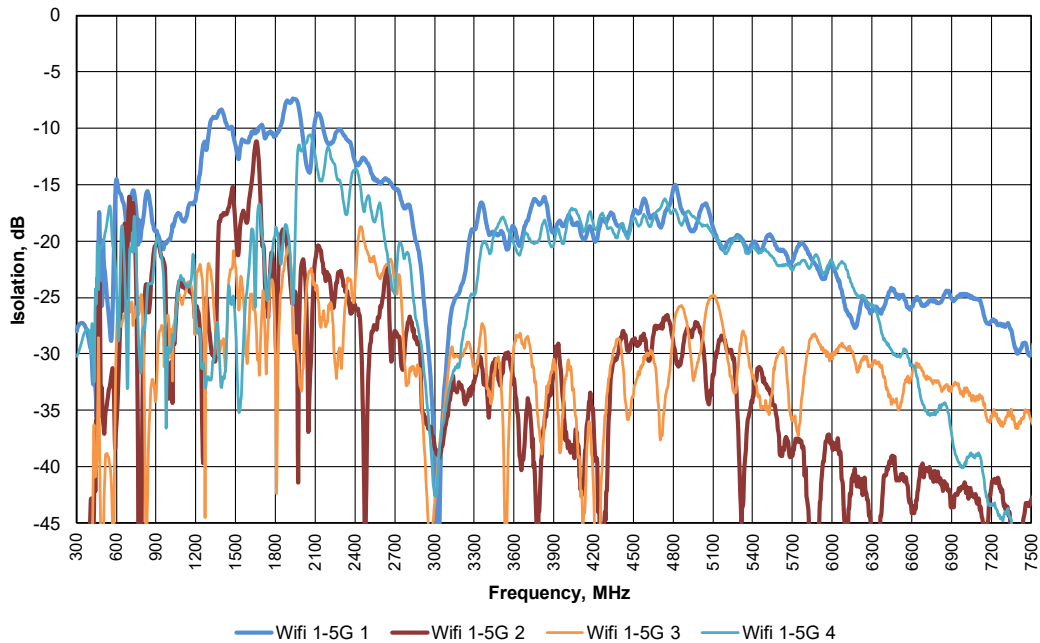
### Charts-Isolation

WiFi 6E

**Isolation vs Frequency**  
 Measured at Pulse, Suzhou - 20230224

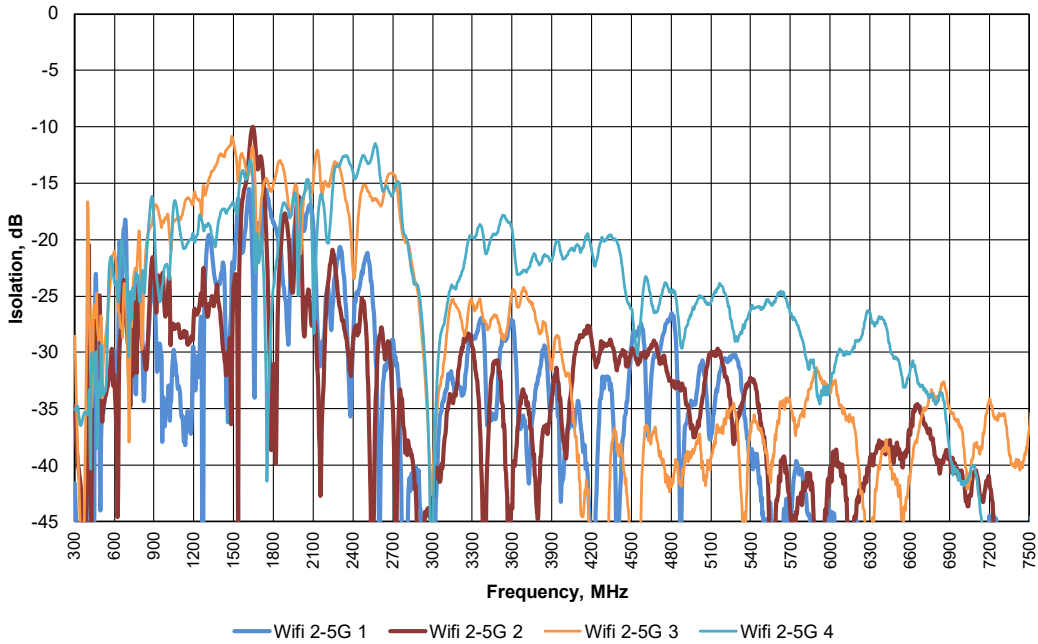


**Isolation vs Frequency**  
 Measured at Pulse, Suzhou - 20230224

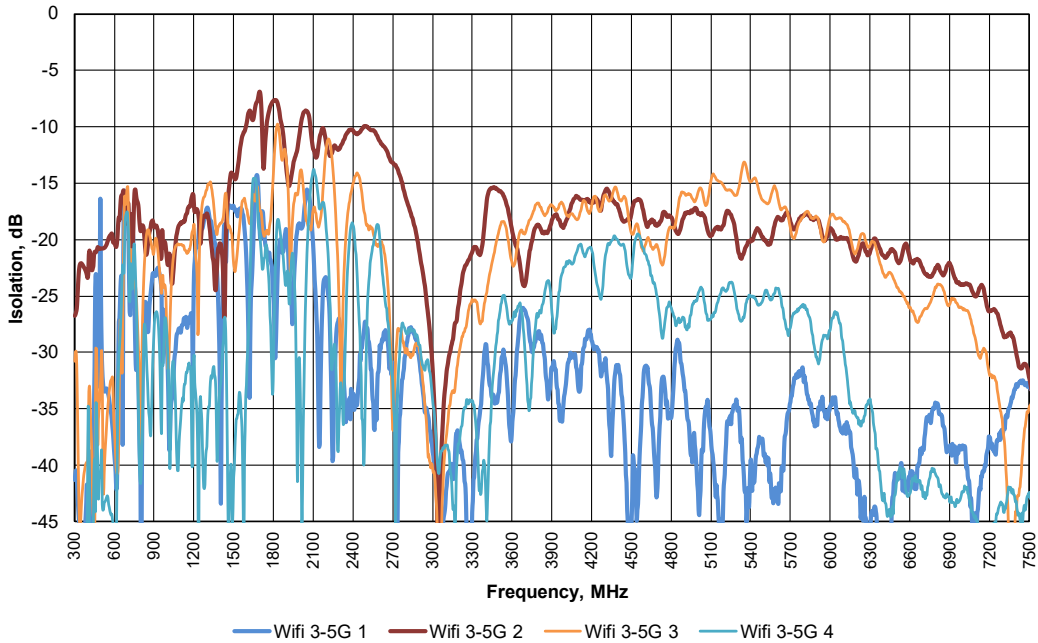




**Isolation vs Frequency**  
Measured at Pulse, Suzhou - 20230224

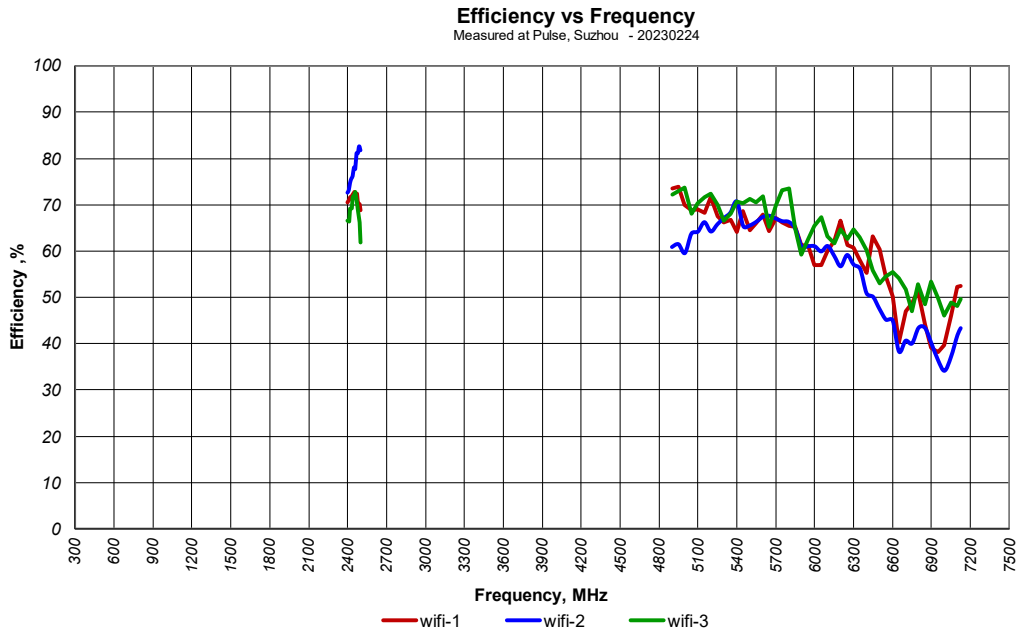


**Isolation vs Frequency**  
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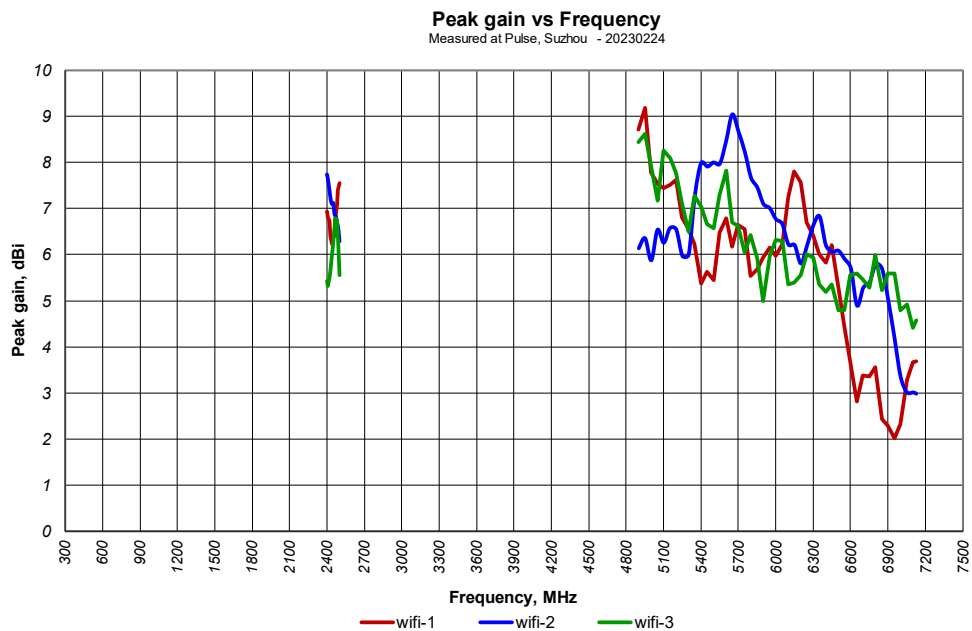
### Charts-Peak Gain

WiFi 6E



### Charts- Peak Efficiency

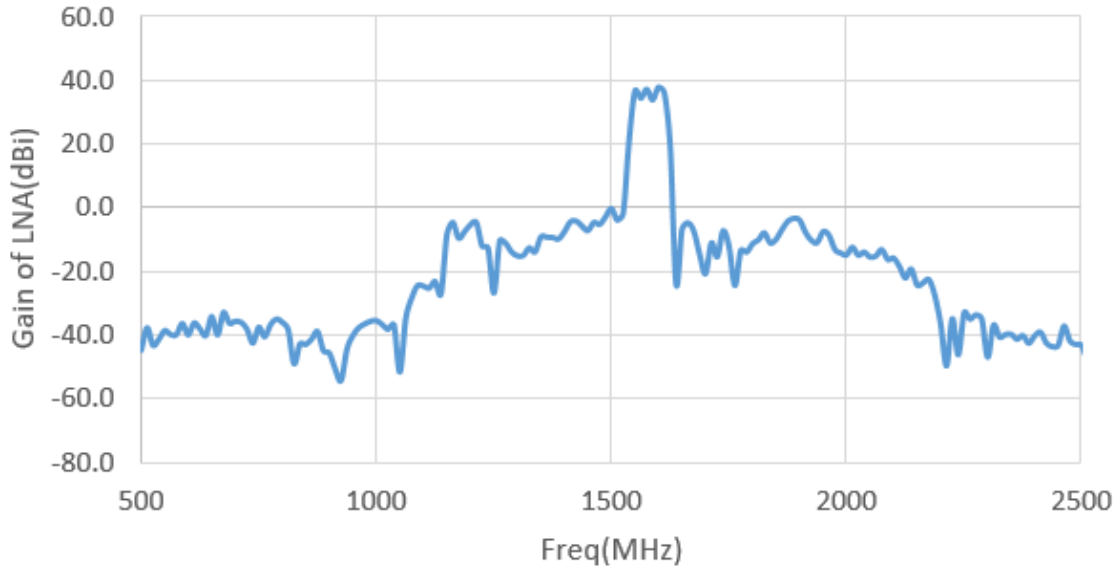
WiFi 6E



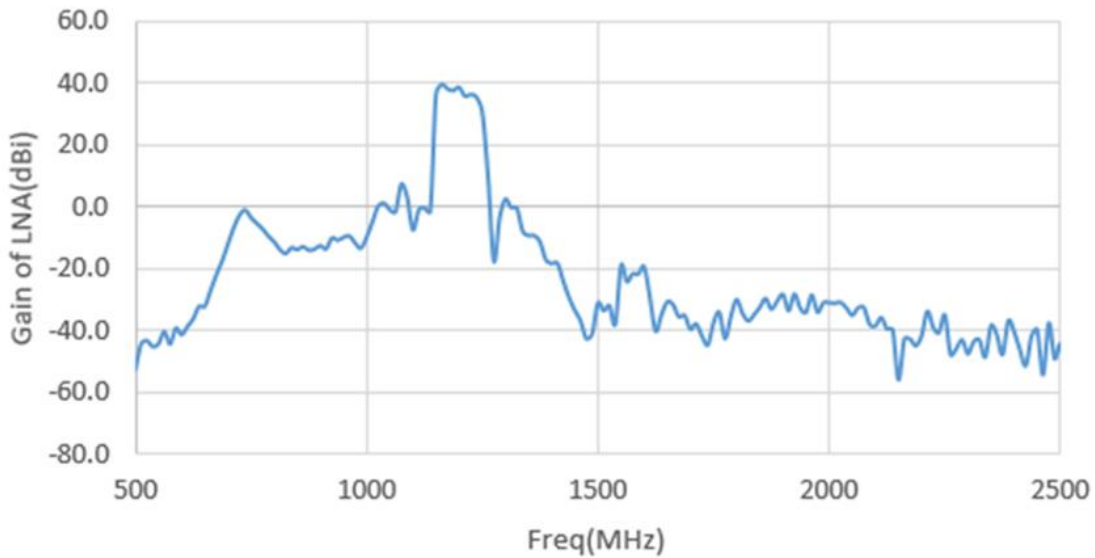
GNSS Antenna - LNA Gain

LNA gain and Out-of-band Rejection

L1 Band



L2 Band



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PACKAGING

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One antenna packed in one PE bag, 6 antennas packed in one box.

Notes:

1. Please contact sales for availability, lead time, and/or any special requests. Samples available upon request.

For More Information:

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