

# 2J4H86MGFI

2x 5G NR MIMO, 4x 2.4/5.0/6.0 GHz ISM MIMO and GNSS  
Magnetic Mount

## Key Features

### Cable 1 - 2: 5G NR

- 617-960 MHz
- 1427-2690 MHz
- 3300-5000 MHz
- 5150-5925 MHz

### Cable 3 - 6: 2.4/5.0/6.0 GHz ISM

- 2410-2490 MHz
- 4920-7125 MHz

### Cable 7: GPS/GLONASS/QZSS/Galileo

- 1575-1606 MHz

Magnetic Mount

High Performance

Ground Plane Independent

Customizable Cable and Connector

Dimensions: 198 x 127 x 51 mm

Certificates: IP67, IP69



Cable 1

Parameters	5GNR Antenna			
<b>Technologies</b>	5G, 4G, 3G and 2G			
<b>Standards</b>	5GNR/4GLTE/FirstNet/CBRS/LPWA/CAT-X/CAT-Mx/CAT-NBx/NB-IoT/3G/2G			
<b>Frequency (MHz)</b>	617-960	1427-2690	3300-5000	5150-5925
<b>Band (MHz)</b>	600, 700, 850, 900	1500, 1600, 1700, 1800, 1900, 2000, 2100, 2300, 2500, 2600	3300, 3500, 3600, 3700, 4500	5200, 5500, 5800
<b>5GNR Bands</b>	n5, n8, 12, n20, n28, n71, n81, n82, n83,	n1, n2, n3, n7, n25, n34, n38, n39, n40, n41, n50, n51, n66, n70, n74, n75, n76, n80, n84, n86	n77, n78, n79	
<b>4GLTE Bands</b>	B5, B6, B8, B12, B13, B14, B17, B18, B19, B20, B26, B27, B28, B29, B44, B67, B68, B71, B85	B1, B2, B3, B4, B7, B9, B10, B11, B21, B23, B24, B25, B30, B32, B33, B34, B35, B36, B37, B38, B39, B40, B41, B45, B50, B51, B65, B66, B69, B70, B74, B75, B76	B22, B42, B43, B48, B49, B52	B46, B47, B252, B255
<b>3GCELL Bands</b>	B5, B6, B8, B12, B13, B14, B19, B20, B26	B1, B2, B3, B4, B7, B9, B10, B11, B21, B25, B32, B33, B34, B35, B36, B37, B38, B39, B40	B22	
<b>2GCELL Bands</b>	710, 750, 810T, 850, 900P, 900E, 900R	1800DCS, 1900PCS		
<b>CDMACELL Bands</b>	BC0, BC2, BC3, BC7, BC9, BC10, BC12, BC18, BC19	BC1, BC4, BC6, BC8, BC13, BC14, BC15, BC16, BC20, BC21		
<b>Return Loss (dB)</b>	~-14.9	~-14.6	~-15.3	~-15.2
<b>VSWR</b>	~1.6:1	~1.5:1	~1.6:1	~1.4:1
<b>Efficiency (%)</b>	~58.1	~47.0	~35.5	~39.8
<b>Peak Gain (dBi)</b>	~3.9	~5.8	~5.6	~6.6
<b>Average Gain (dB)</b>	~-2.4	~-3.3	~-4.6	~-4.0
<b>Impedance (Ohm)</b>	50			
<b>Polarisation</b>	Linear			
<b>Radiation Pattern</b>	Omni-Directional			
<b>Max. Input Power (W)</b>	25			
<b>Connector Type</b>	SMA-Male Standard (Other Connectors Available)			
<b>Cable Length</b>	300 cm Standard (Any Cable Length Available)			
<b>Cable Type</b>	D302 Standard (Other Cables Available)			

Cable 2

Parameters	5GNR Antenna			
<b>Technologies</b>	5G, 4G, 3G and 2G			
<b>Standards</b>	5GNR/4GLTE/FirstNet/CBRS/LPWA/CAT-X/CAT-Mx/CAT-NBx/NB-IoT/3G/2G			
<b>Frequency (MHz)</b>	617-960	1427-2690	3300-5000	5150-5925
<b>Band (MHz)</b>	600, 700, 850, 900	1500, 1600, 1700, 1800, 1900, 2000, 2100, 2300, 2500, 2600	3300, 3500, 3600, 3700, 4500	5200, 5500, 5800
<b>5GNR Bands</b>	n5, n8, 12, n20, n28, n71, n81, n82, n83,	n1, n2, n3, n7, n25, n34, n38, n39, n40, n41, n50, n51, n66, n70, n74, n75, n76, n80, n84, n86	n77, n78, n79	
<b>4GLTE Bands</b>	B5, B6, B8, B12, B13, B14, B17, B18, B19, B20, B26, B27, B28, B29, B44, B67, B68, B71, B85	B1, B2, B3, B4, B7, B9, B10, B11, B21, B23, B24, B25, B30, B32, B33, B34, B35, B36, B37, B38, B39, B40, B41, B45, B50, B51, B65, B66, B69, B70, B74, B75, B76	B22, B42, B43, B48, B49, B52	B46, B47, B252, B255
<b>3GCELL Bands</b>	B5, B6, B8, B12, B13, B14, B19, B20, B26	B1, B2, B3, B4, B7, B9, B10, B11, B21, B25, B32, B33, B34, B35, B36, B37, B38, B39, B40	B22	
<b>2GCELL Bands</b>	710, 750, 810T, 850, 900P, 900E, 900R	1800DCS, 1900PCS		
<b>CDMACELL Bands</b>	BC0, BC2, BC3, BC7, BC9, BC10, BC12, BC18, BC19	BC1, BC4, BC6, BC8, BC13, BC14, BC15, BC16, BC20, BC21		
<b>Return Loss (dB)</b>	~-16.2	~-14.2	~-14.4	~-13.2
<b>VSWR</b>	~1.6:1	~1.6:1	~1.6:1	~1.6:1
<b>Efficiency (%)</b>	~58.0	~46.7	~35.8	~36.7
<b>Peak Gain (dBi)</b>	~3.4	~5.8	~5.3	~5.7
<b>Average Gain (dB)</b>	~-2.4	~-3.3	~-4.5	~-4.4
<b>Impedance (Ohm)</b>	50			
<b>Polarisation</b>	Linear			
<b>Radiation Pattern</b>	Omni-Directional			
<b>Max. Input Power (W)</b>	25			
<b>Connector Type</b>	SMA-Male Standard (Other Connectors Available)			
<b>Cable Length</b>	300 cm Standard (Any Cable Length Available)			
<b>Cable Type</b>	D302 Standard (Other Cables Available)			

Cable 3

Parameters	2.4/5.0/6.0 GHz ISM Antenna		
<b>Standards</b>	WiFi, BT, ZigBee, ISM, Sigfox, LoRa		
<b>Band (MHz)</b>	2.4GHz	5.0 GHz	6.0GHz
<b>Frequency (MHz)</b>	2410-2490	4920-5925	5925-7125
<b>Return Loss (dB)</b>	~-13.4	~-16.0	~-13.4
<b>VSWR</b>	~1.6:1	~1.5:1	~1.6:1
<b>Efficiency (%)</b>	~31.1	~22.8	~31.1
<b>Peak Gain (dBi)</b>	~-4.6	~-3.3	~-4.6
<b>Average Gain (dB)</b>	~-5.1	~-6.5	~-5.1
<b>Impedance (Ohm)</b>	50		
<b>Polarisation</b>	Linear		
<b>Radiation Pattern</b>	Omni-Directional		
<b>Max. Input Power (W)</b>	25		
<b>Connector Type</b>	SMA-Male-RP Standard (Other Connectors Available)		
<b>Cable Length</b>	300 cm Standard (Any Cable Length Available)		
<b>Cable Type</b>	D302 Standard (Other Cables Available)		

Cable 4

Parameters	2.4/5.0/6.0 GHz ISM Antenna		
<b>Standards</b>	WiFi, BT, ZigBee, ISM, Sigfox, LoRa		
<b>Band (MHz)</b>	2.4 GHz	5.0 GHz	6.0 GHz
<b>Frequency (MHz)</b>	2410-2490	4920-5925	5925-7125
<b>Return Loss (dB)</b>	~-12.9	~-13.2	~-11.9
<b>VSWR</b>	~1.7:1	~1.7:1	~1.8:1
<b>Efficiency (%)</b>	~37.7	~31.2	~42.6
<b>Peak Gain (dBi)</b>	~-6.1	~-4.5	~-3.2
<b>Average Gain (dB)</b>	~-4.2	~-5.1	~-3.5
<b>Impedance (Ohm)</b>	50		
<b>Polarisation</b>	Linear		
<b>Radiation Pattern</b>	Omni-Directional		
<b>Max. Input Power (W)</b>	25		
<b>Connector Type</b>	SMA-Male-RP Standard (Other Connectors Available)		
<b>Cable Length</b>	300 cm Standard (Any Cable Length Available)		
<b>Cable Type</b>	D302 Standard (Other Cables Available)		

## Cable 5

Parameters	2.4/5.0/6.0 GHz ISM Antenna		
<b>Standards</b>	WiFi, BT, ZigBee, ISM, Sigfox, LoRa		
<b>Band (MHz)</b>	2.4GHz	5.0 GHz	6.0GHz
<b>Frequency (MHz)</b>	2410-2490	4920-5925	5925-7125
<b>Return Loss (dB)</b>	~-19.2	~-14.8	~-13.3
<b>VSWR</b>	~1.3:1	~1.6:1	~1.2:1
<b>Efficiency (%)</b>	~37.9	~34.5	~44.7
<b>Peak Gain (dBi)</b>	~-2.7	~-2.3	~-3.2
<b>Average Gain (dB)</b>	~-4.2	~-4.6	~-3.4
<b>Impedance (Ohm)</b>	50		
<b>Polarisation</b>	Linear		
<b>Radiation Pattern</b>	Omni-Directional		
<b>Max. Input Power (W)</b>	25		
<b>Connector Type</b>	SMA-Male-RP Standard (Other Connectors Available)		
<b>Cable Length</b>	300 cm Standard (Any Cable Length Available)		
<b>Cable Type</b>	D302 Standard (Other Cables Available)		

## Cable 6

Parameters	2.4/5.0/6.0 GHz ISM Antenna		
<b>Standards</b>	WiFi, BT, ZigBee, ISM, Sigfox, LoRa		
<b>Band (MHz)</b>	2.4 GHz	5.0 GHz	6.0 GHz
<b>Frequency (MHz)</b>	2410-2490	4920-5925	5925-7125
<b>Return Loss (dB)</b>	~-16.5	~-16.8	~-7.5
<b>VSWR</b>	~1.4:1	~1.4:1	~1.6:1
<b>Efficiency (%)</b>	~36.7	~30.8	~39.7
<b>Peak Gain (dBi)</b>	~-4.4	~-2.6	~-3.0
<b>Average Gain (dB)</b>	~-4.4	~-5.1	~-4.1
<b>Impedance (Ohm)</b>	50		
<b>Polarisation</b>	Linear		
<b>Radiation Pattern</b>	Omni-Directional		
<b>Max. Input Power (W)</b>	25		
<b>Connector Type</b>	SMA-Male-RP Standard (Other Connectors Available)		
<b>Cable Length</b>	300 cm Standard (Any Cable Length Available)		
<b>Cable Type</b>	D302 Standard (Other Cables Available)		

### Antenna Measurement Conditions:

Mounted on Metal Plate of 30 x 30 cm

100 cm of Cable D302

Measured in Certified CTIA 3D Anechoic Chamber

Cable 7

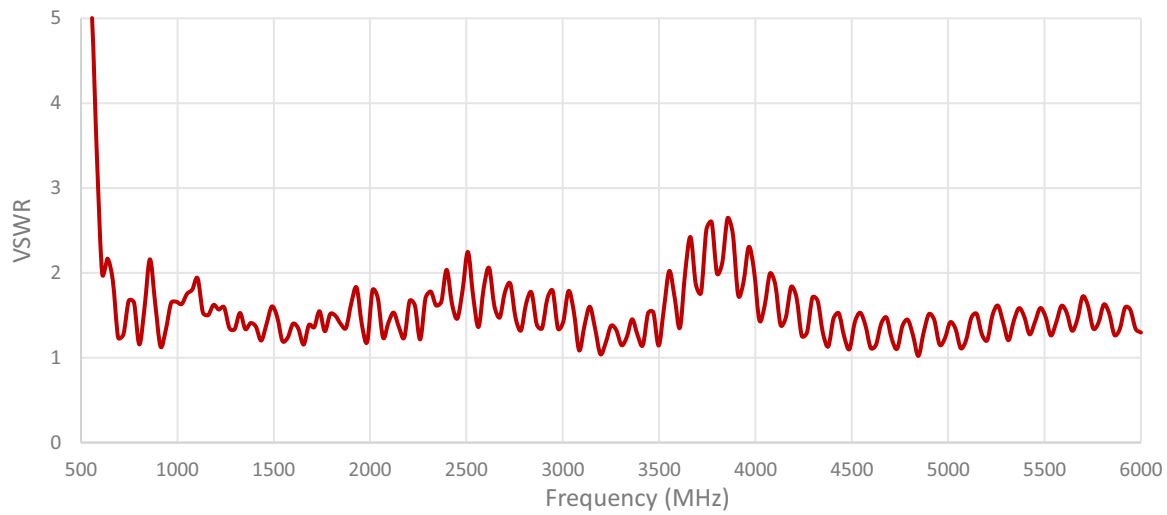
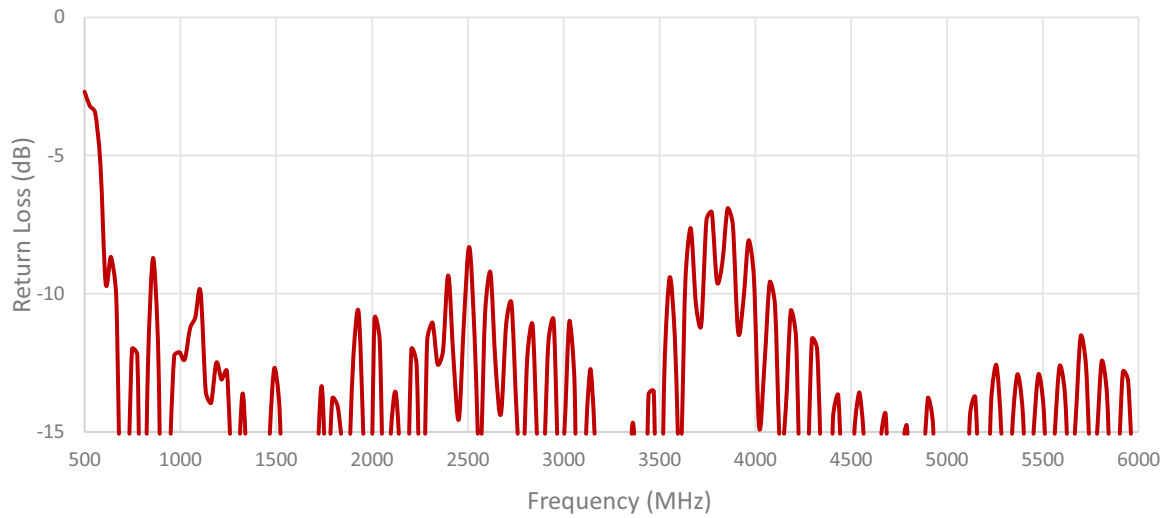
Parameters	GPS/GLONASS Antenna	
	GPS/QZSS/Galileo	GLONASS
<b>Standards</b>		
<b>Bands (MHz)</b>	1575	1602
<b>Frequency (MHz)</b>	1575.42	1598-1606
<b>Passive Gain (dBi)</b>	~4.5	~5.0
<b>Impedance (Ohms)</b>	50	
<b>Radiation Pattern</b>	Hemispherical	
<b>Voltage Range (V)</b>	1.5 - 3.6	
<b>Active Gain (dB)</b>	28 @ 2.7 V	
<b>Noise Figure (dB)</b>	1.8 @ 2.7 V	
<b>Current Consumption (mA)</b>	9 @ 2.7 V	
<b>Power Consumption (mW)</b>	24.3 @ 2.7 V	
<b>Saw Filter Type</b>	Pre-Filter	
<b>Out of Band Rejection (dB)</b>	~43	
<b>ESD Protection (kV)</b>	6	
<b>Connector Type</b>	SMA-Male Standard (Other Connectors Available)	
<b>Cable Length</b>	300 cm Standard (Any Cable Length Available)	
<b>Cable Type</b>	LL100 Standard (Other Cables Available)	

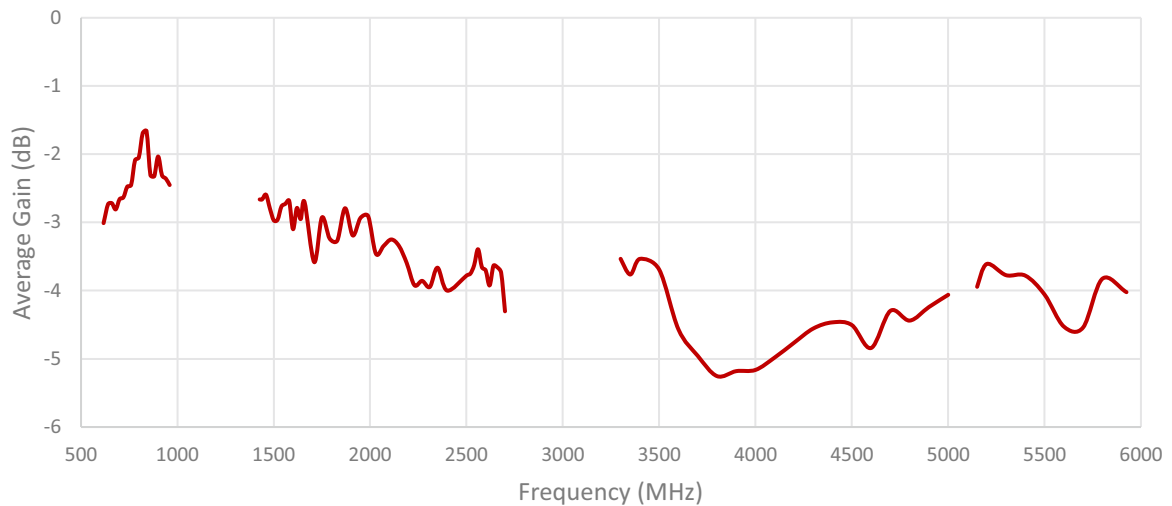
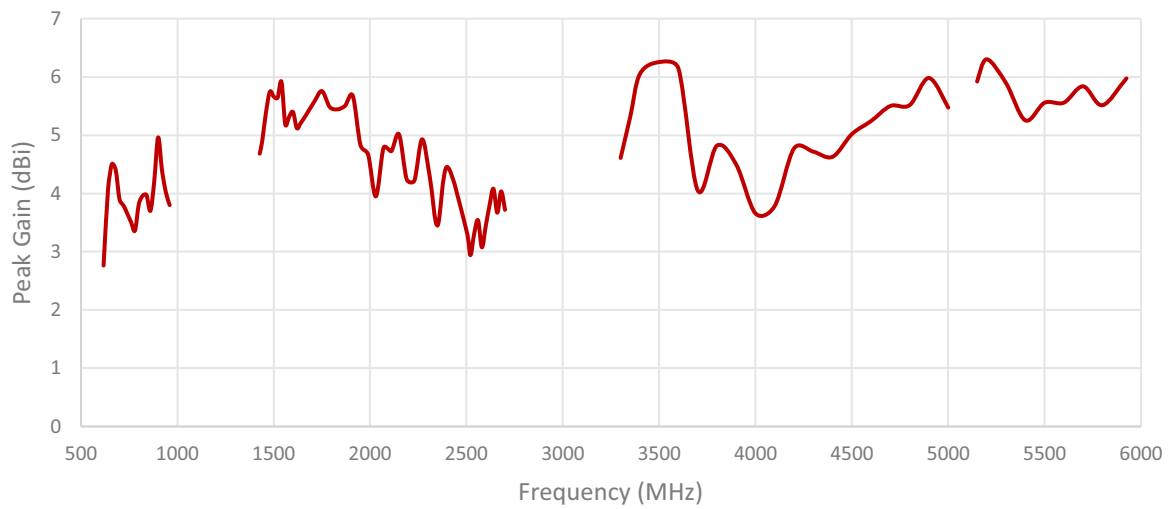
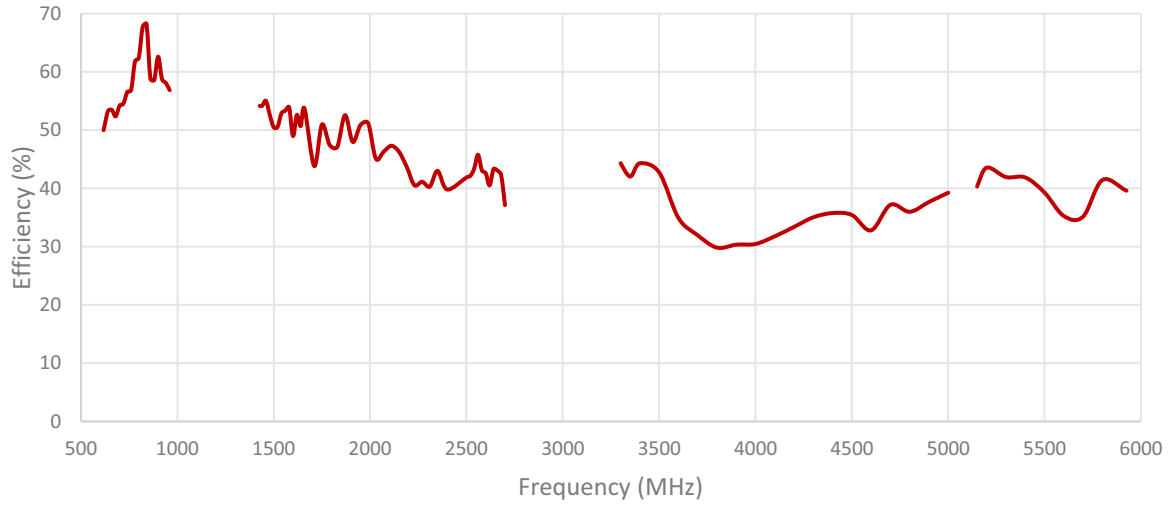
## 2. Mechanical and environmental specifications

Specifications	2J4H86MGFI
<b>Mounting Type</b>	Magnetic Mount
<b>Dimensions (mm)</b>	198 x 127 x 51
<b>Radome Type</b>	ASA
<b>Radome color</b>	Black
<b>Operating Temperature (C)</b>	-40 to +85
<b>Storage Temperature (C)</b>	-40 to +85
<b>Substance Compliance</b>	RoHS
<b>Certificates</b>	IP67, IP69, CE

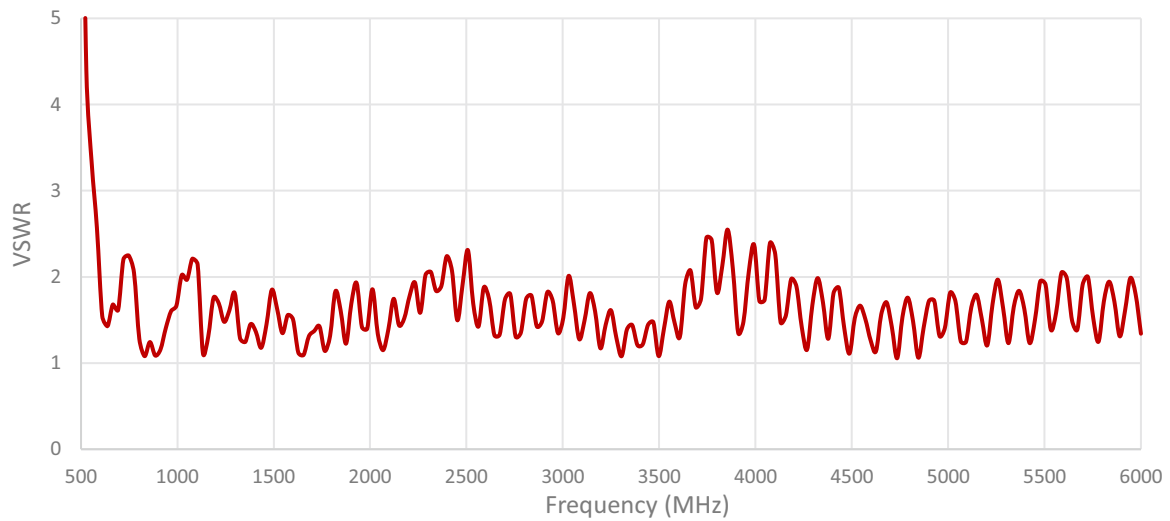
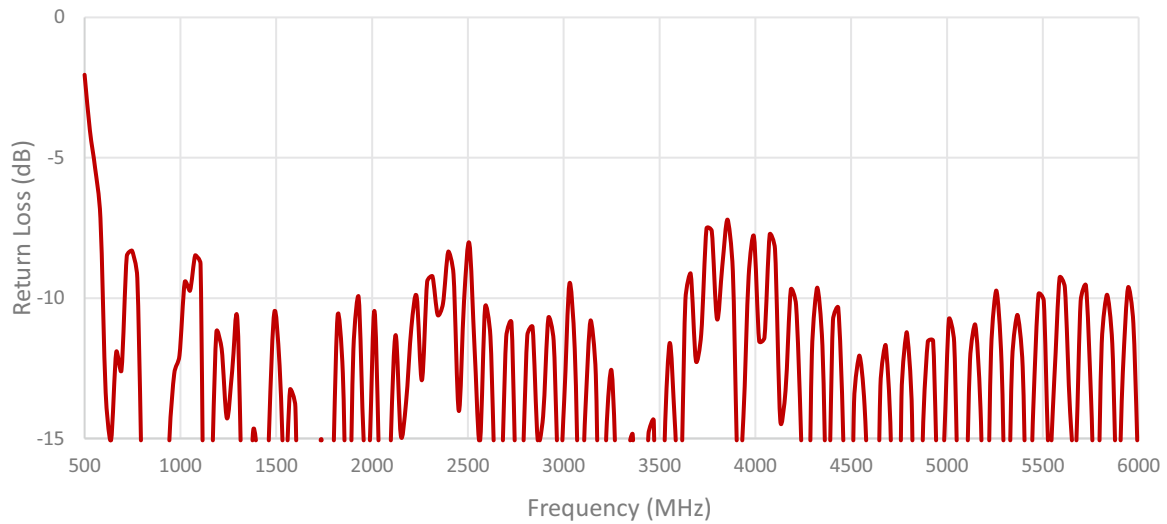
## 3. Antenna parameters

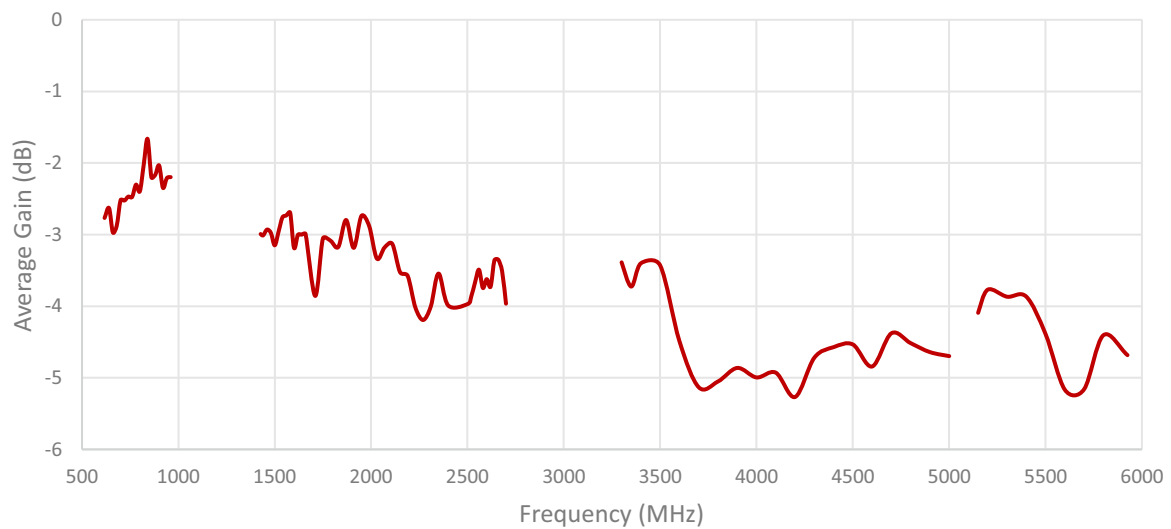
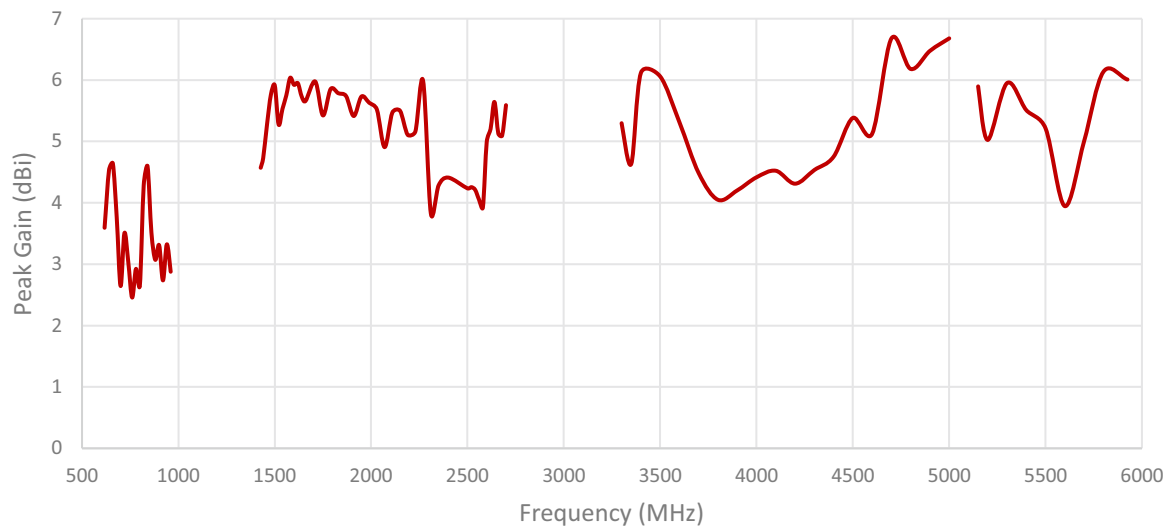
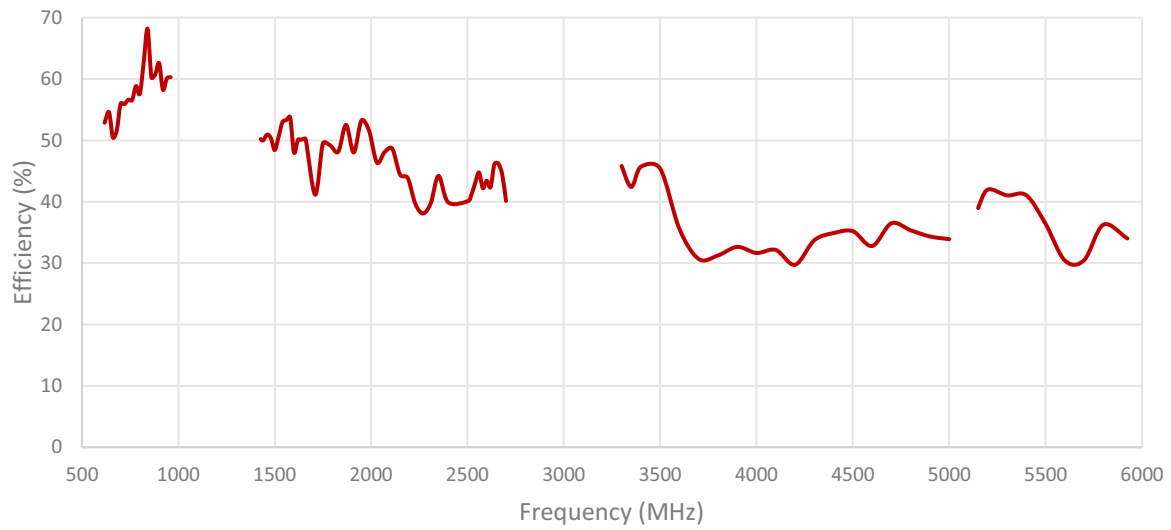
Cable 1: 5GNR



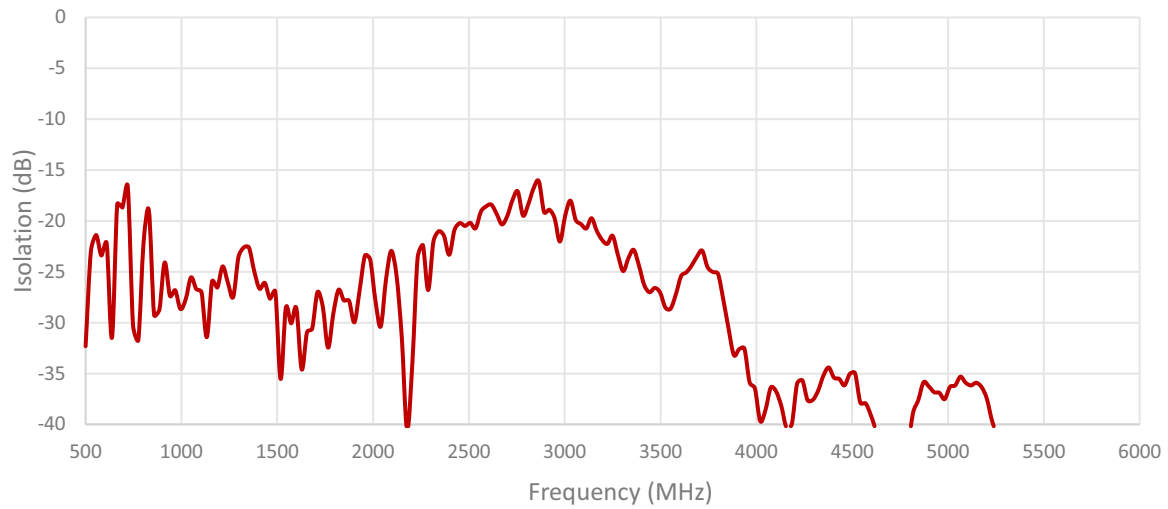


Cable 2: 5GNR

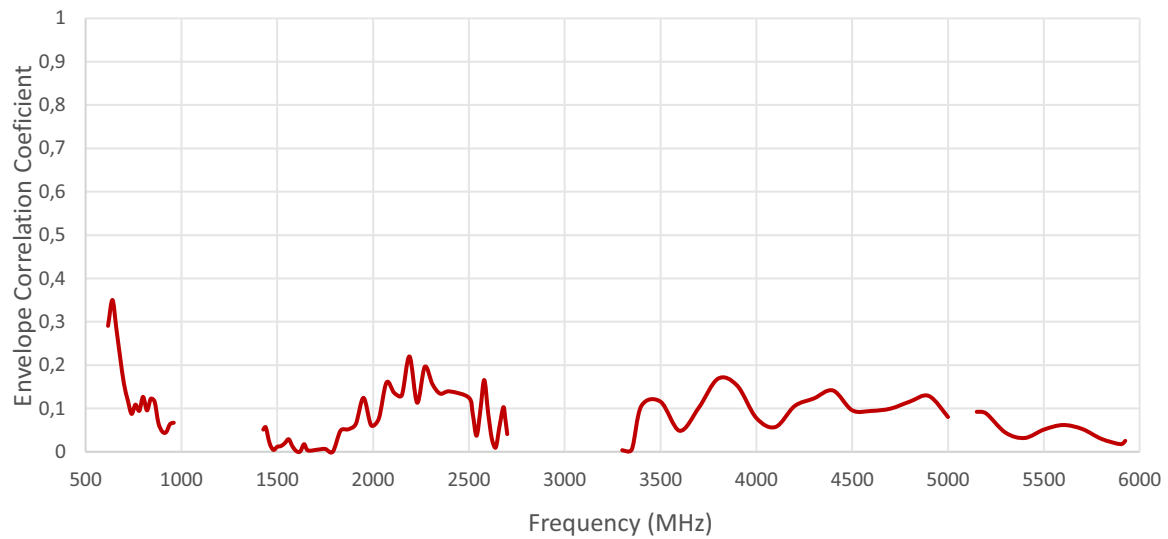




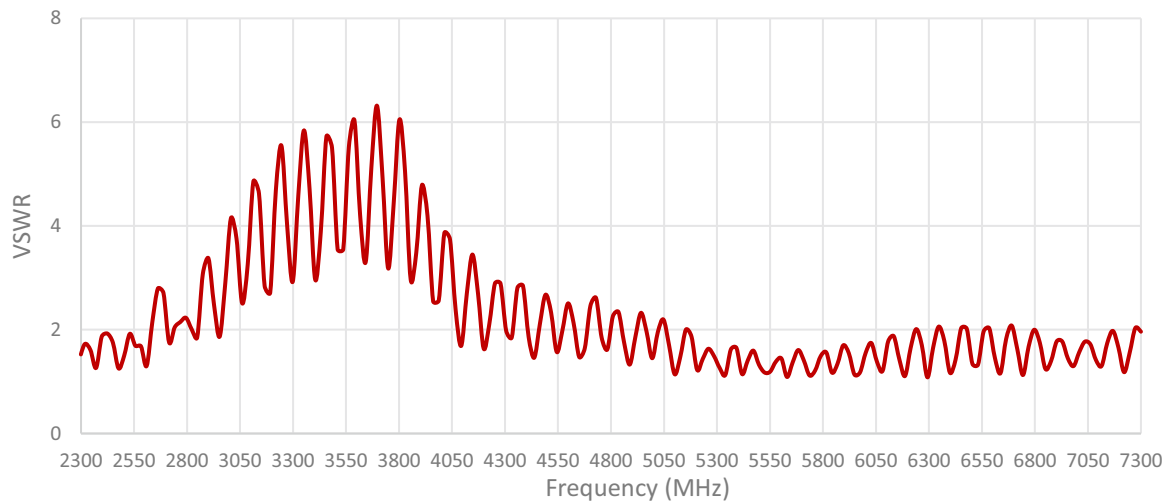
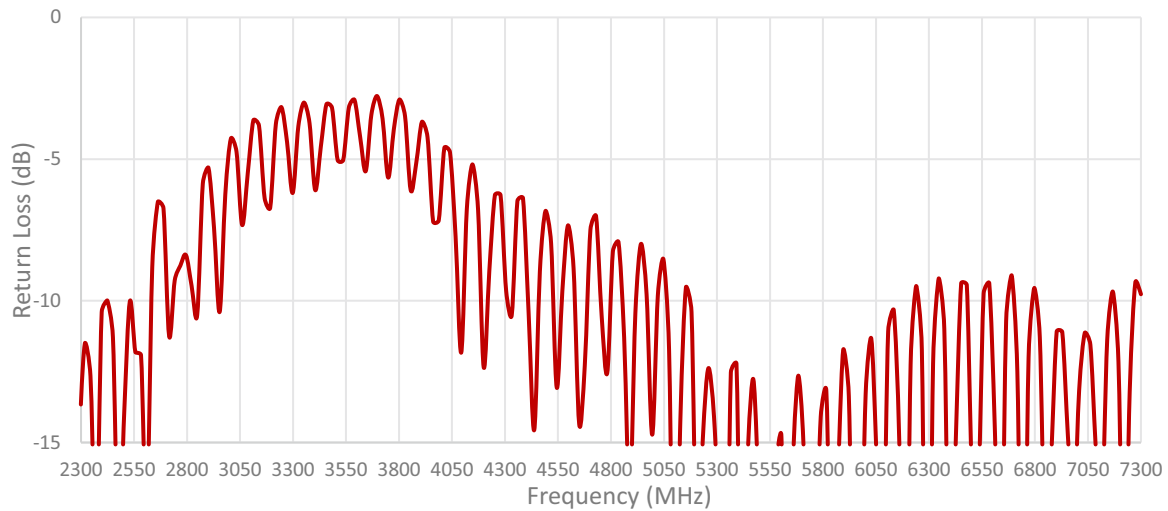
## ISOLATION FOR CABLES 1 AND 2

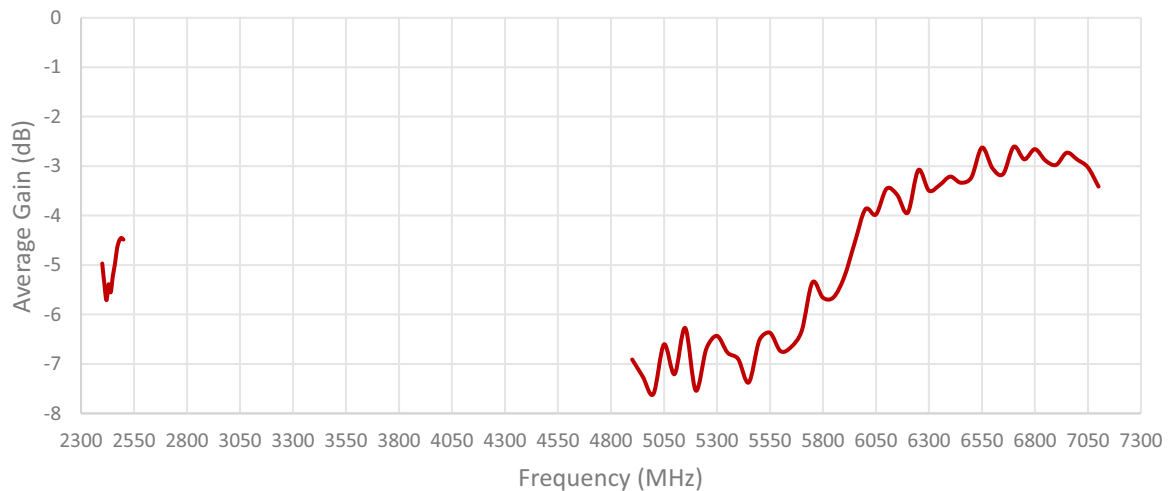
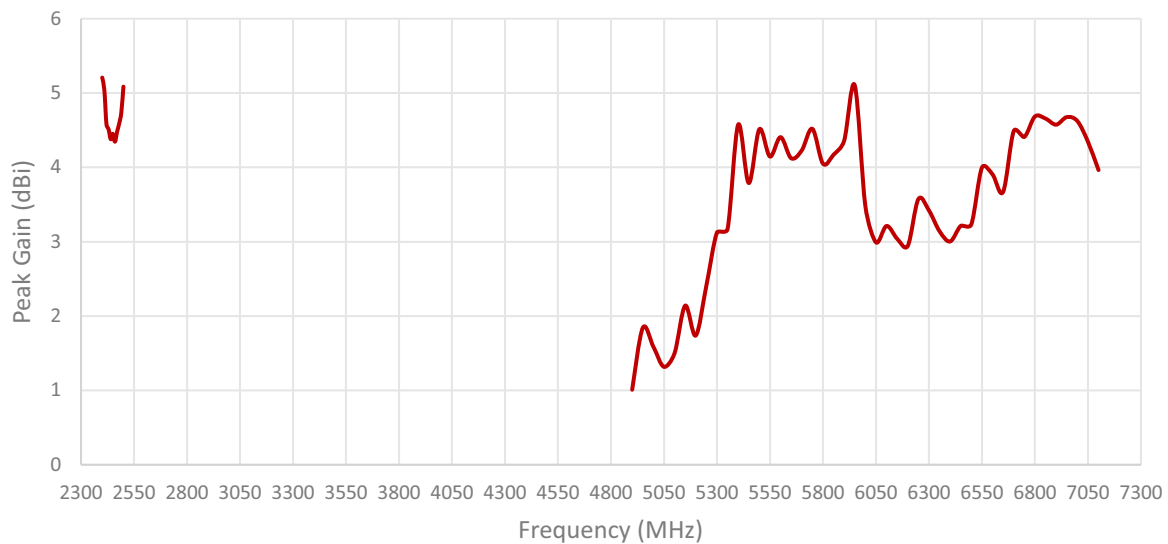
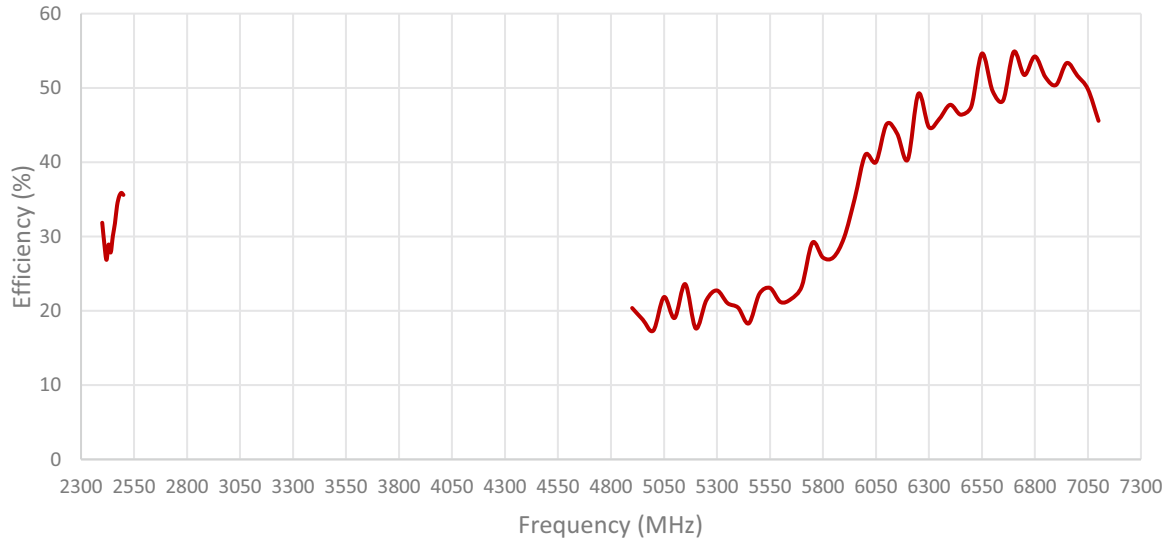


## ENVELOPE CORRELATION COEFFICIENT FOR CABLES 1 AND 2

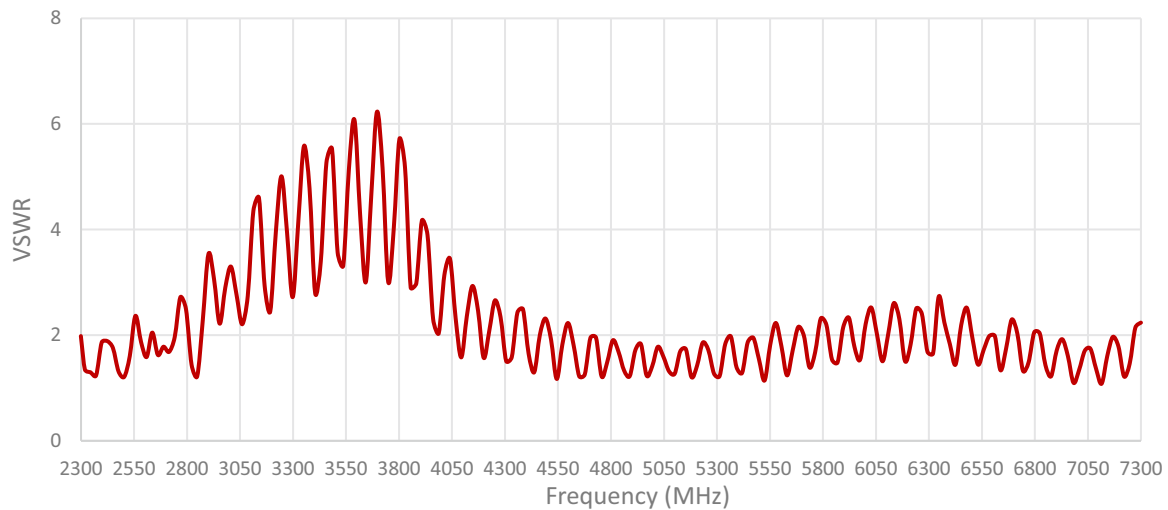
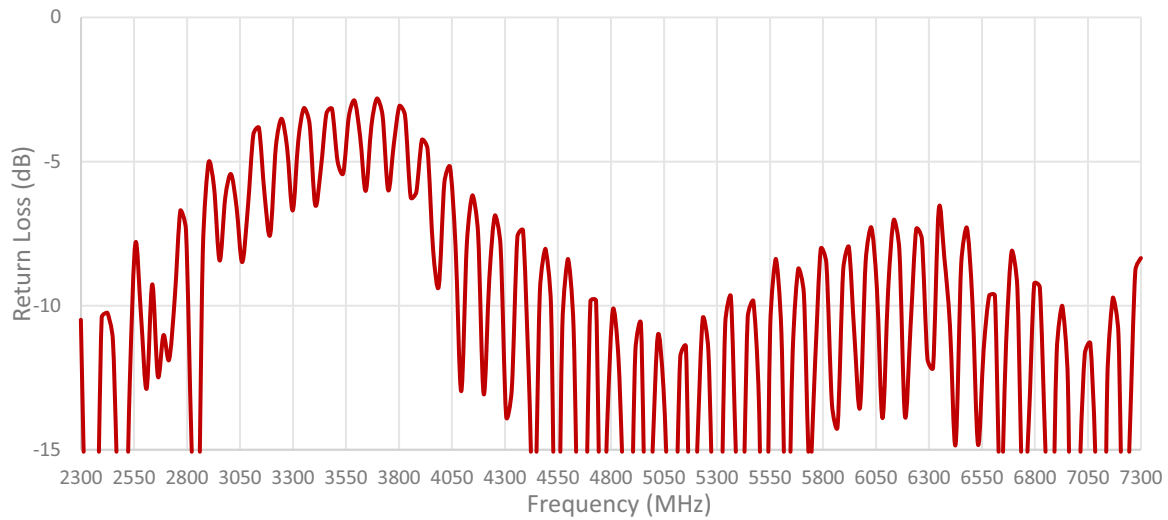


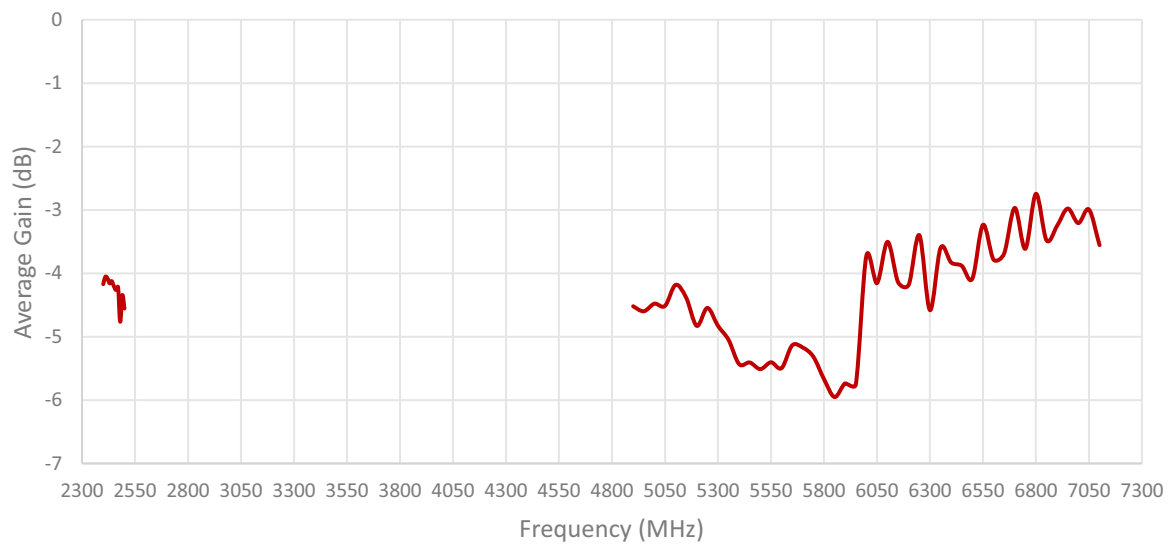
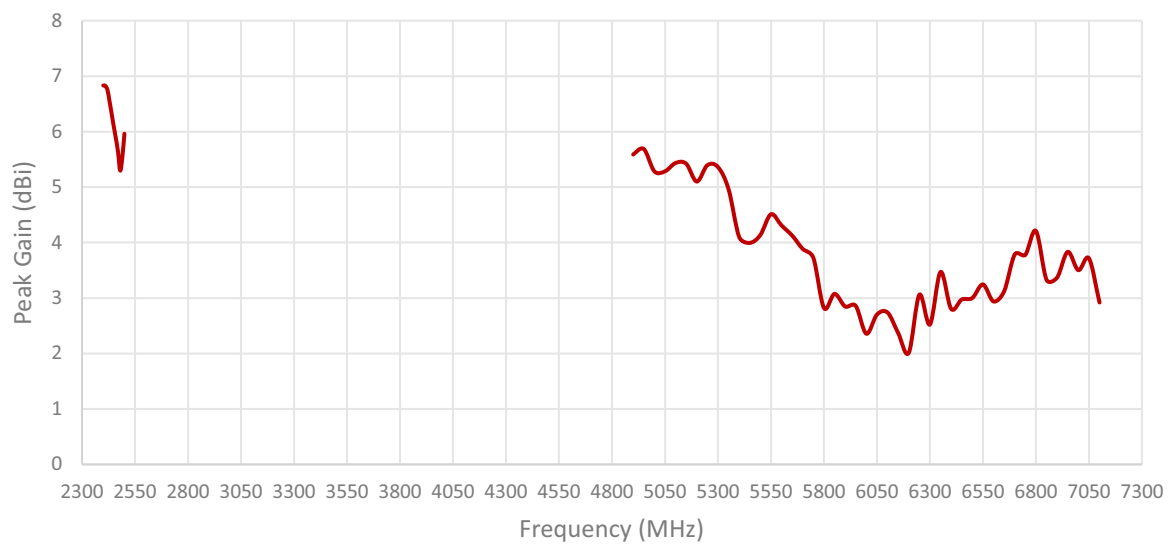
Cable 3: 2.4/5.0/6.0 GHz ISM



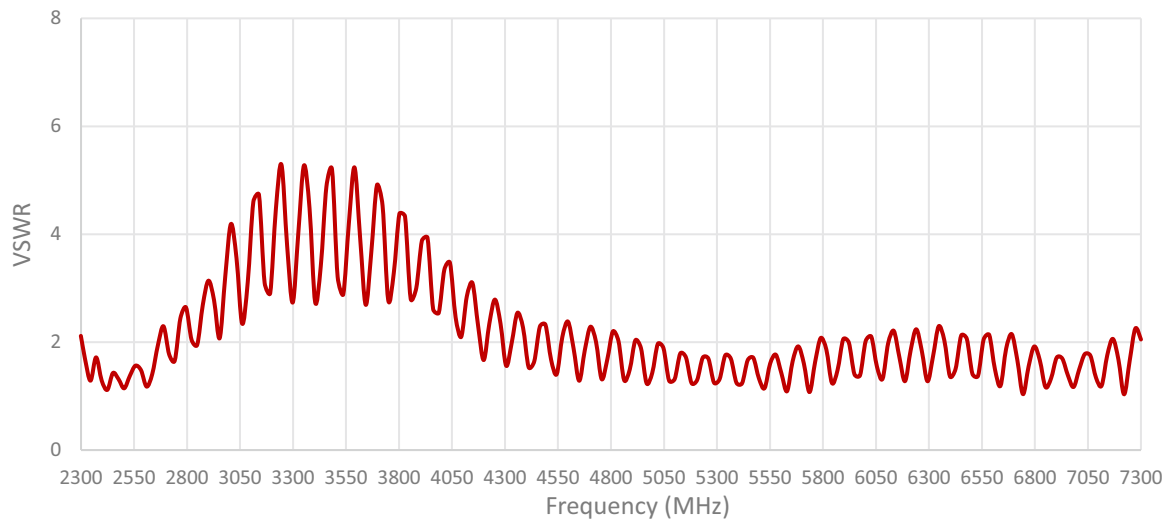
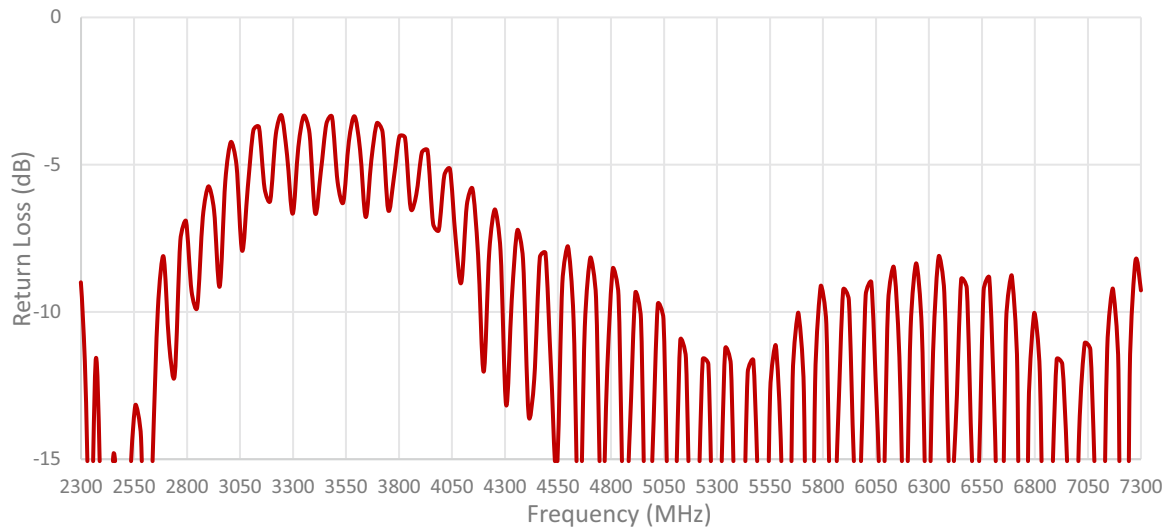


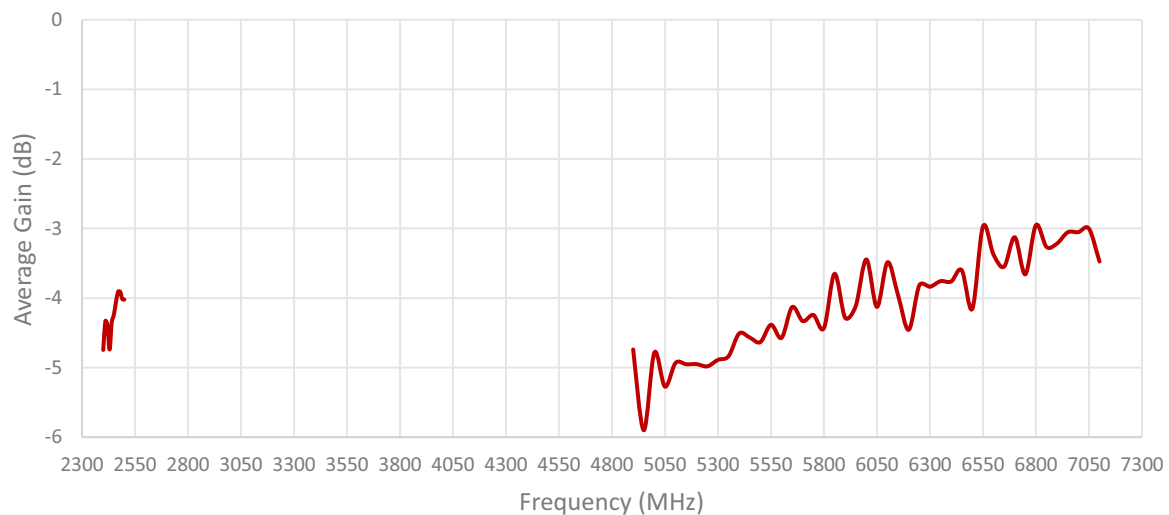
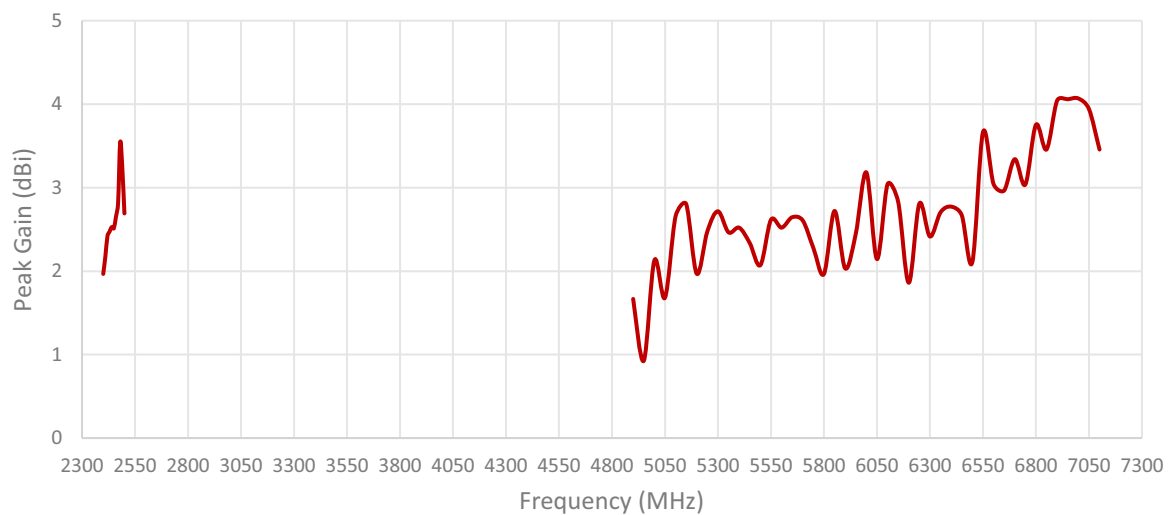
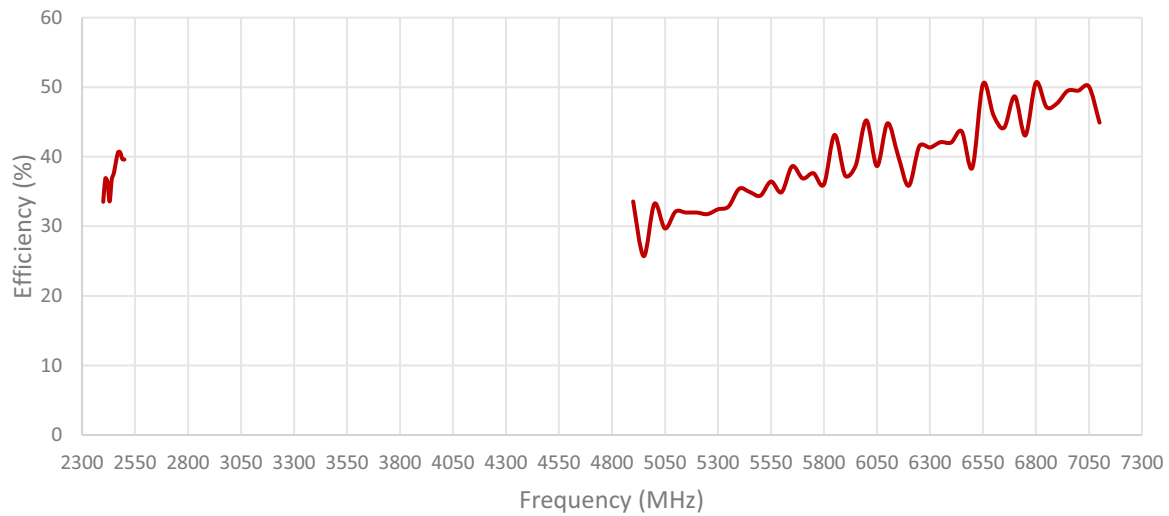
Cable 4: 2.4/5.0/6.0 GHz ISM



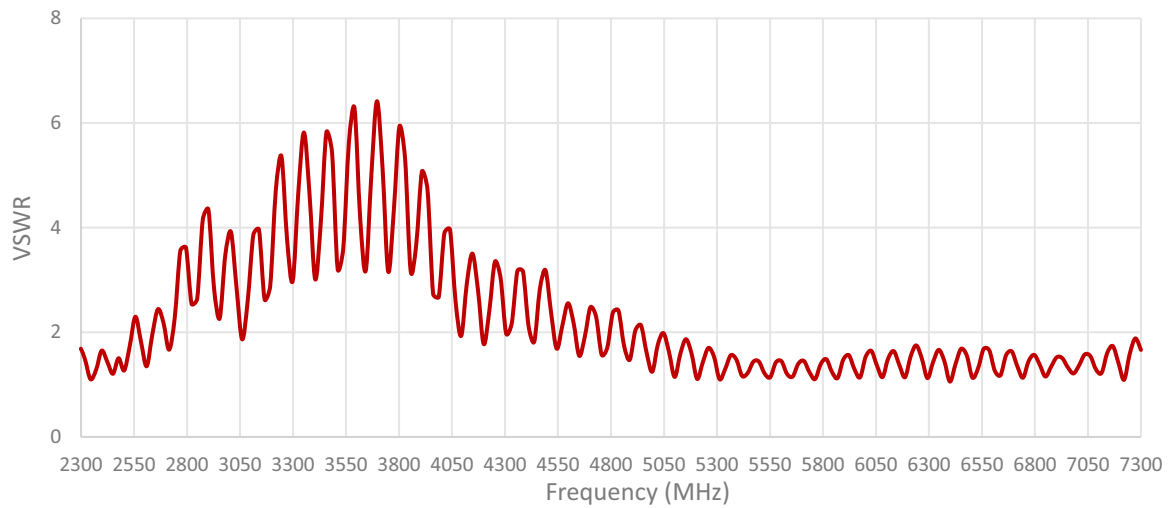
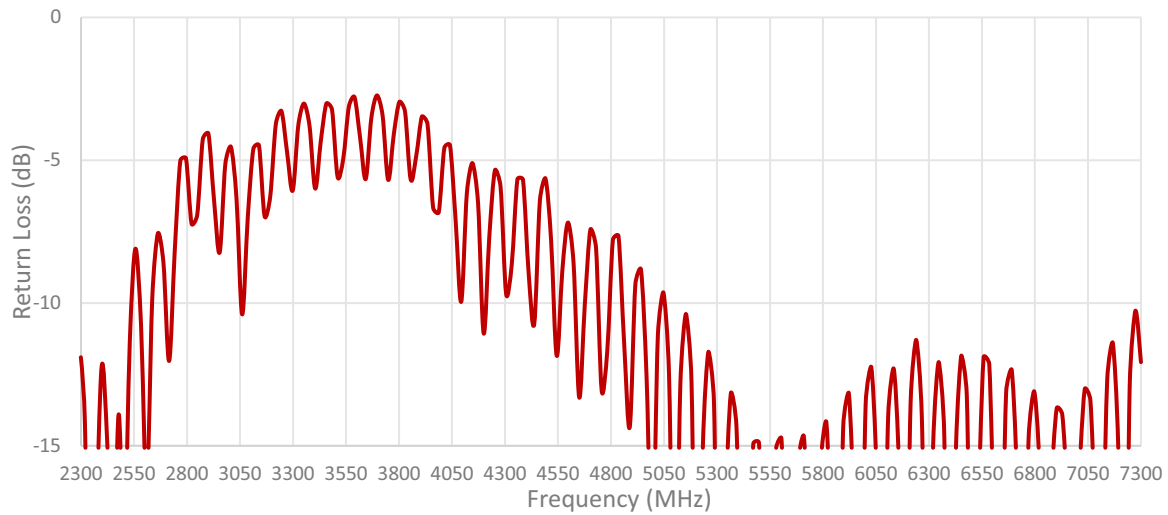


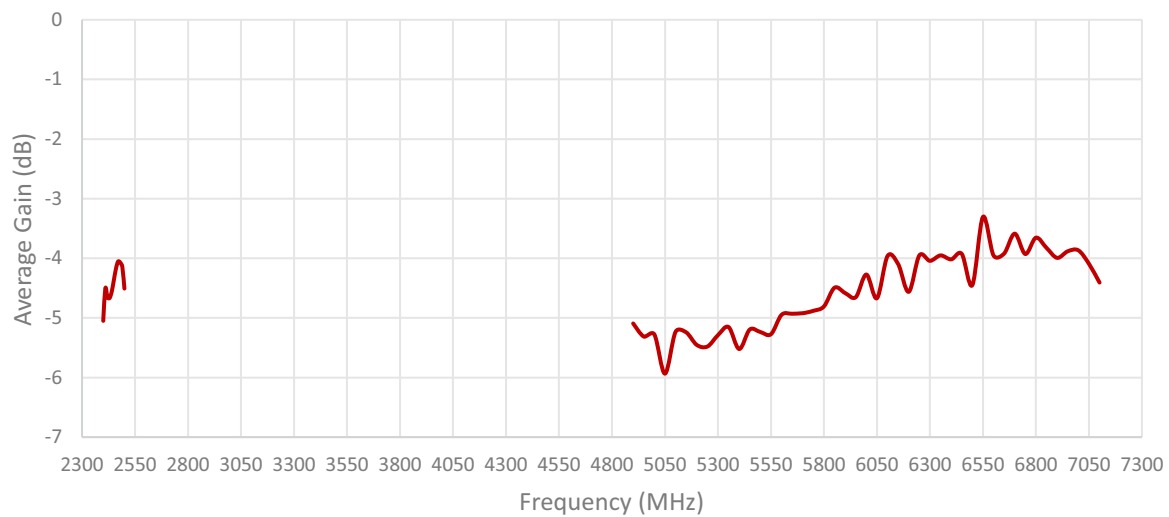
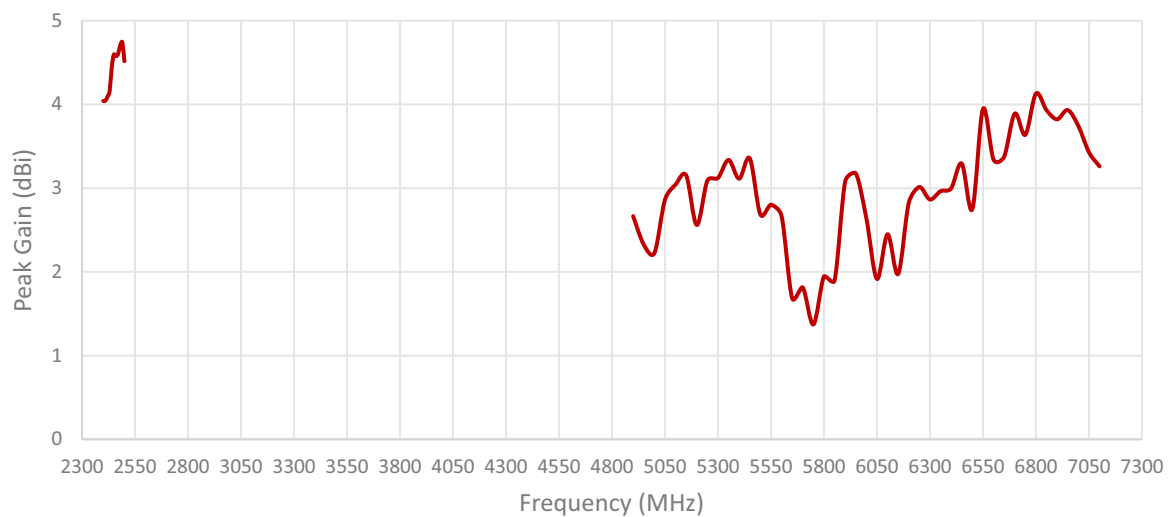
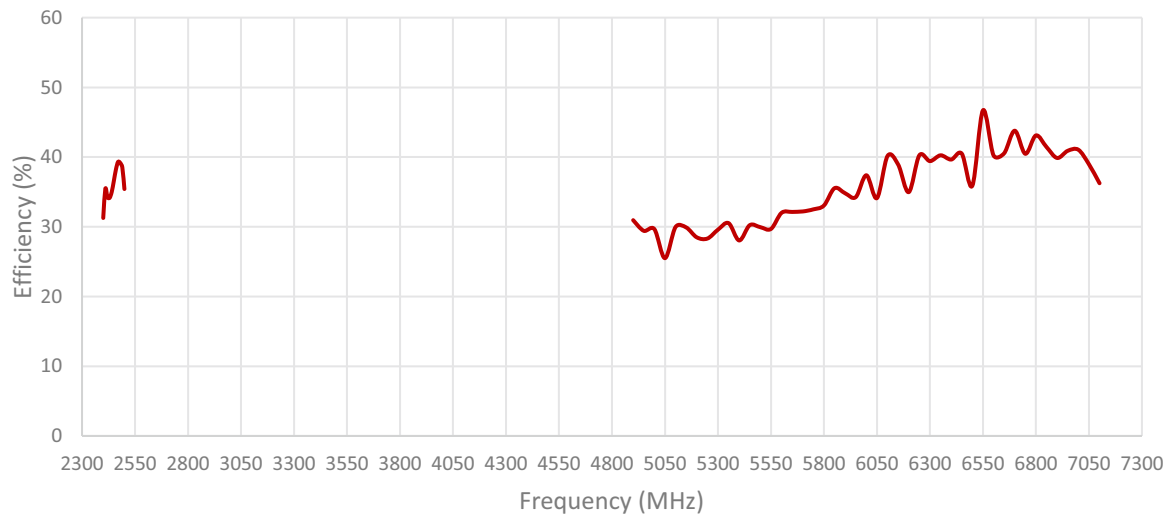
Cable 5: 2.4/5.0/6.0 GHz ISM



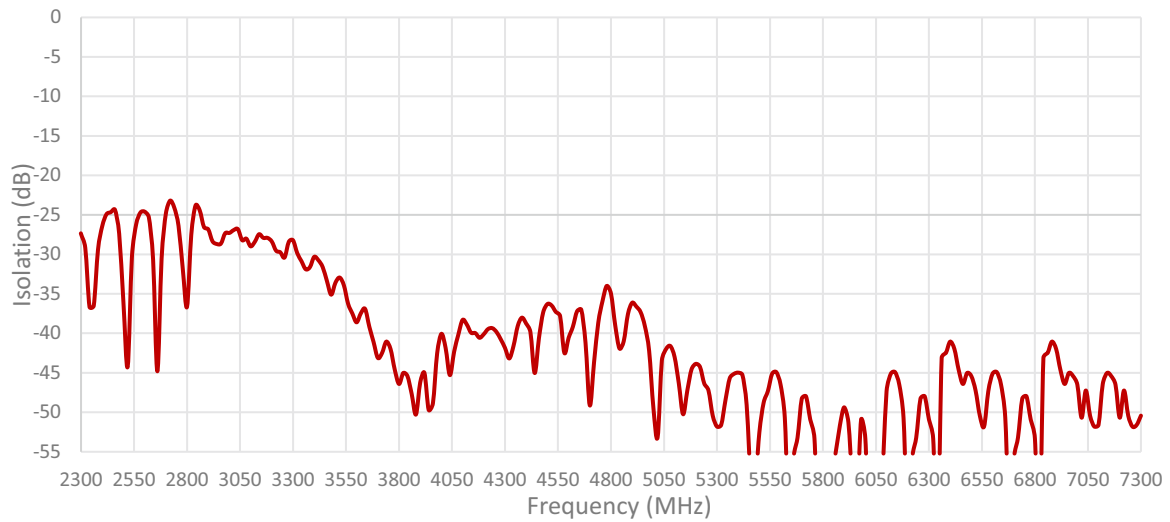


Cable 6: 2.4/5.0/6.0 GHz ISM

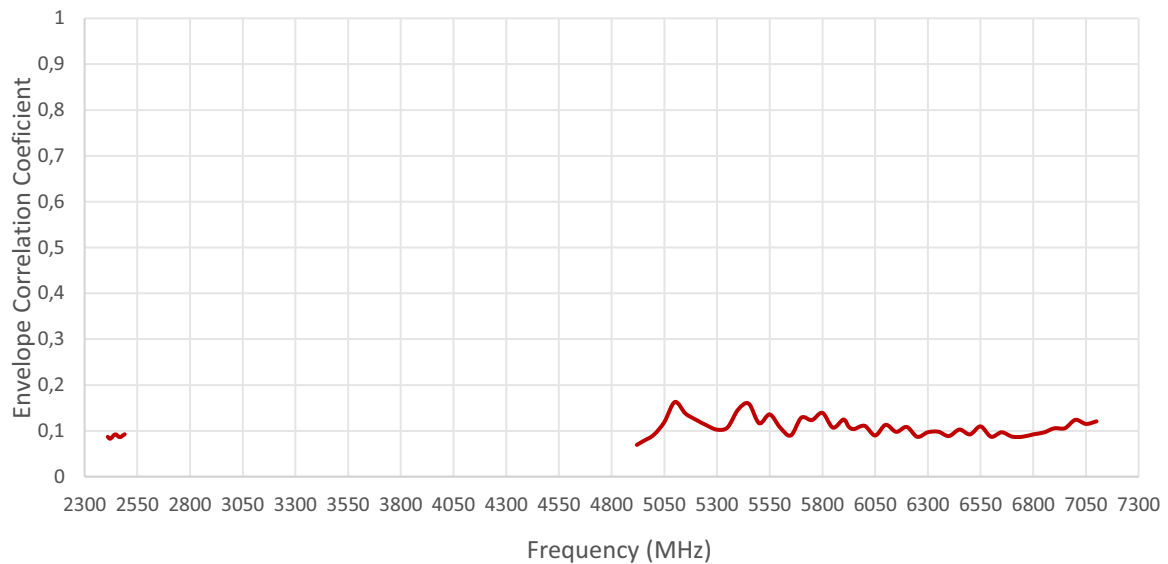




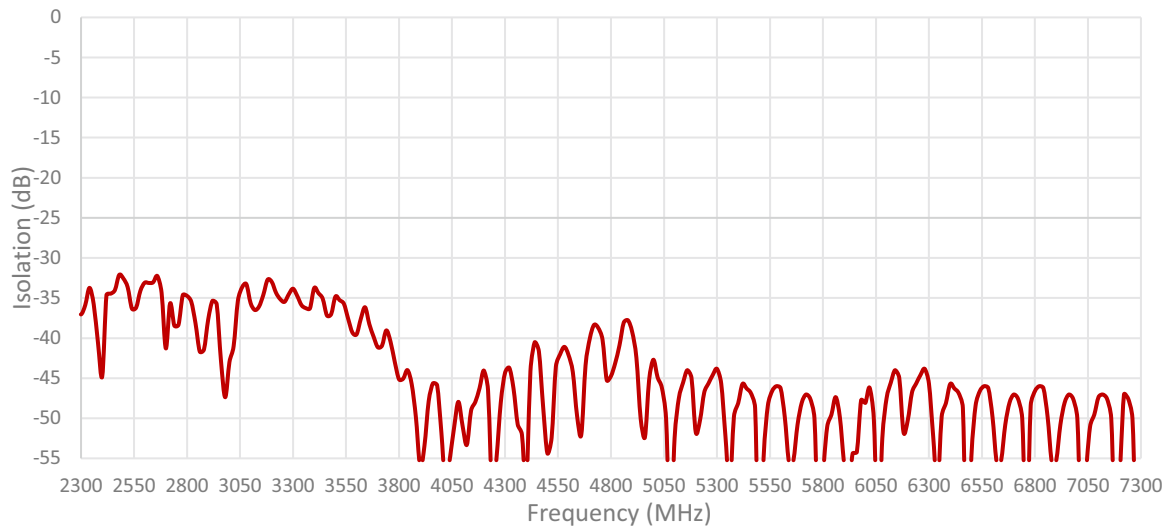
## ISOLATION FOR CABLES 3 AND 4



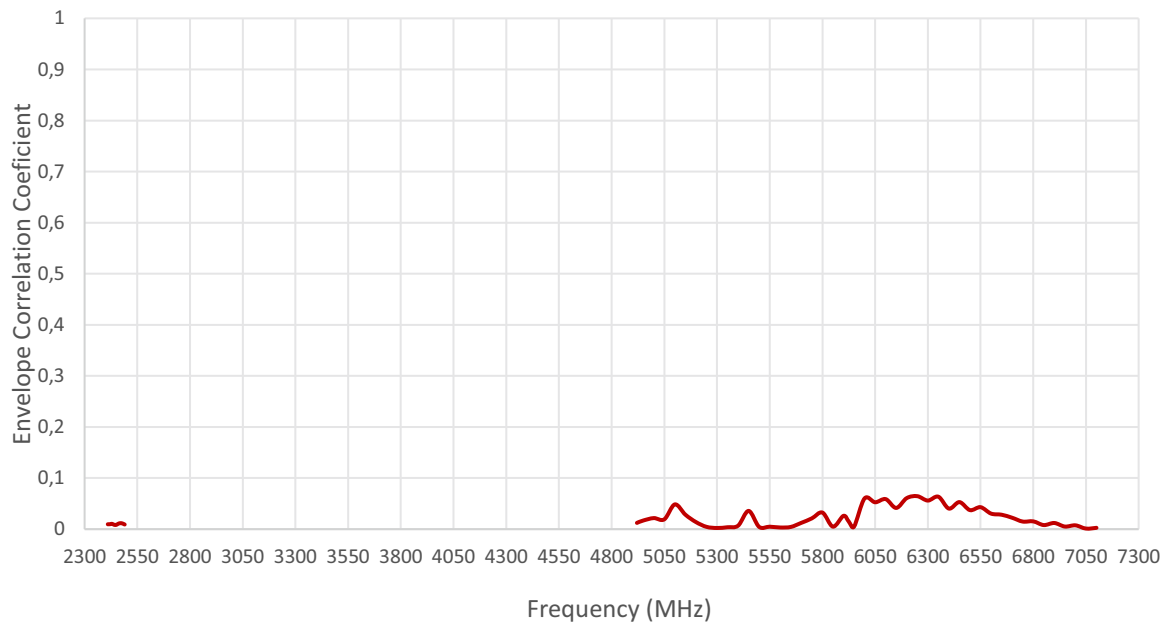
## ENVELOPE CORRELATION COEFFICIENT FOR CABLES 3 AND 4



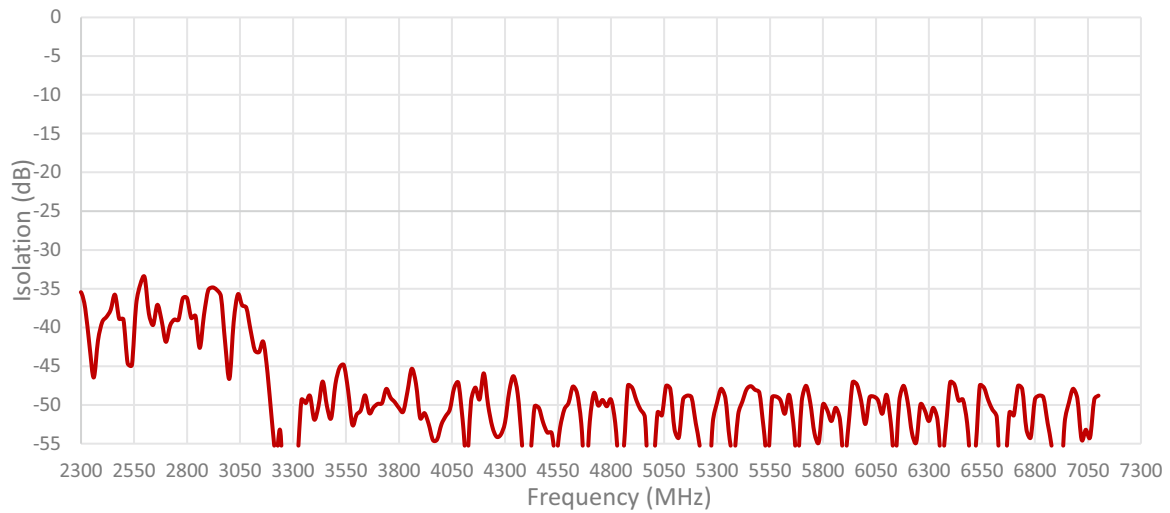
## ISOLATION FOR CABLES 3 AND 5



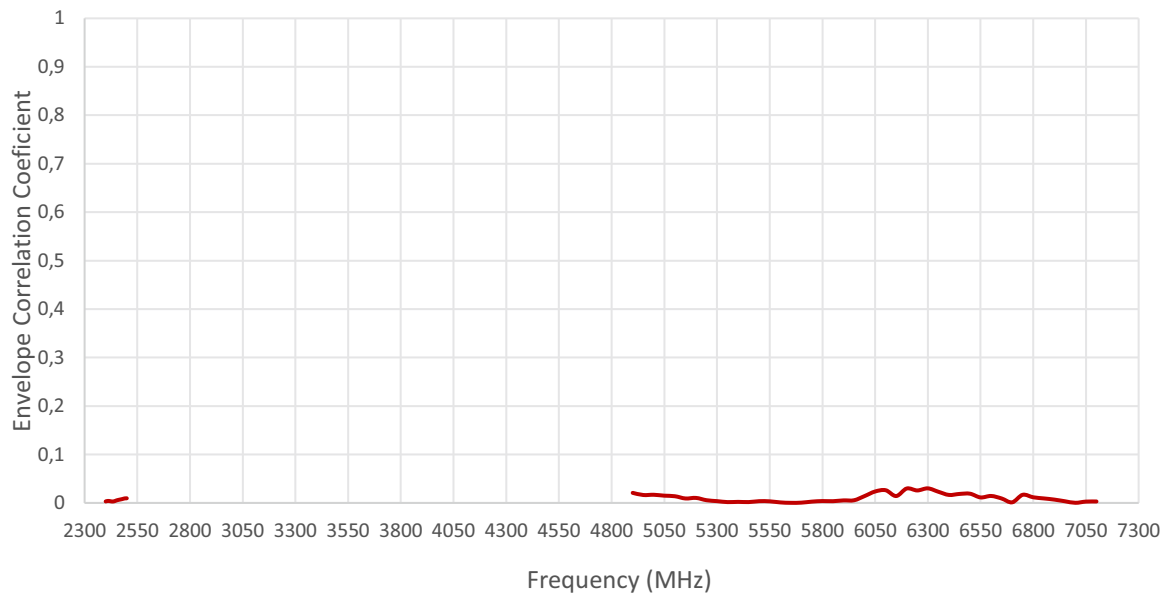
## ENVELOPE CORRELATION COEFFICIENT FOR CABLES 3 AND 5



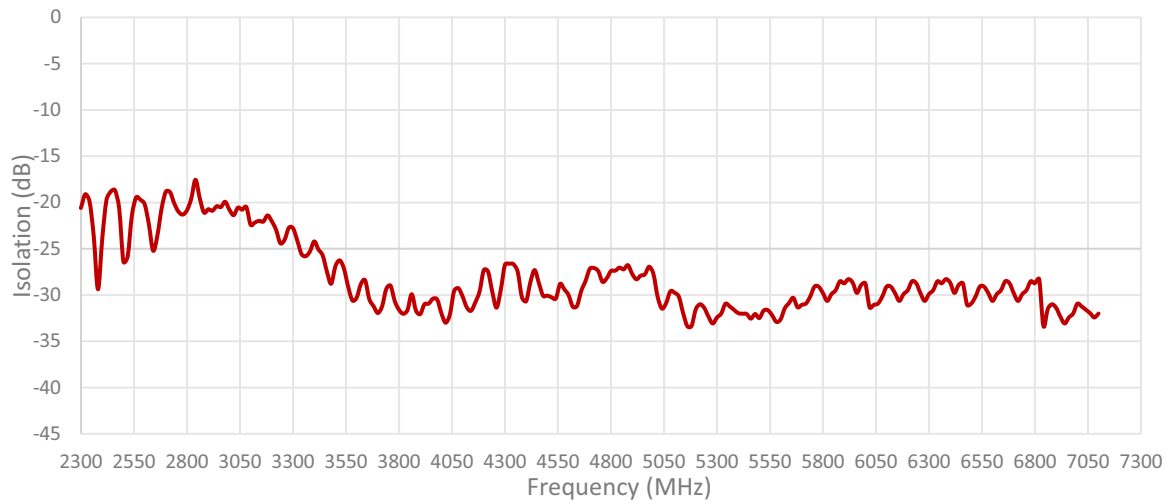
## ISOLATION FOR CABLES 3 AND 6



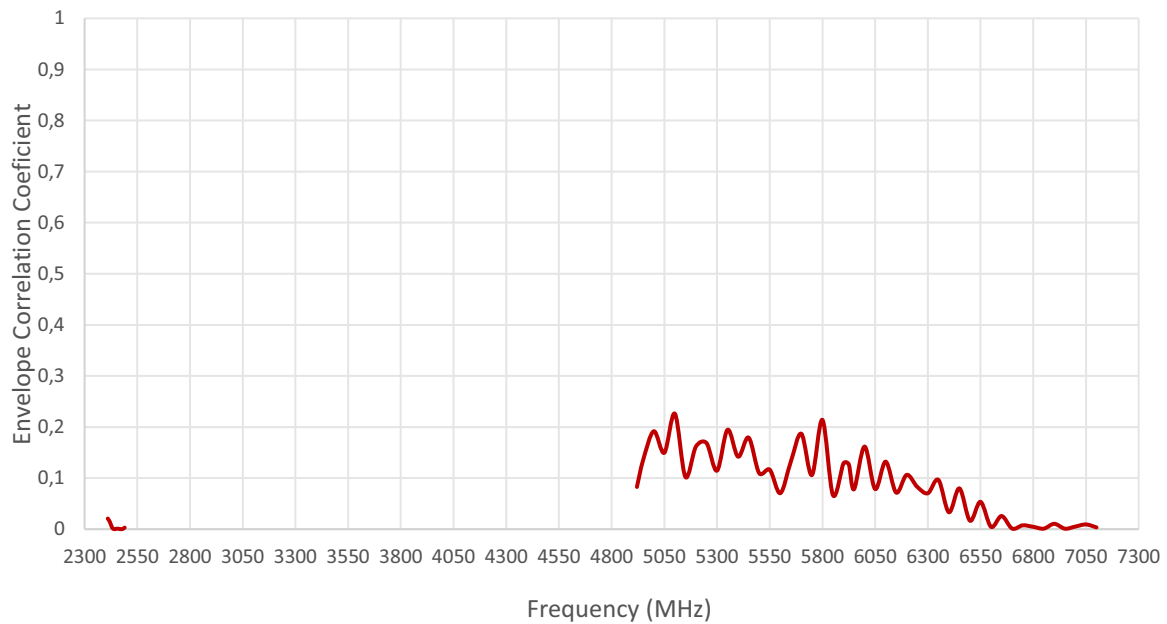
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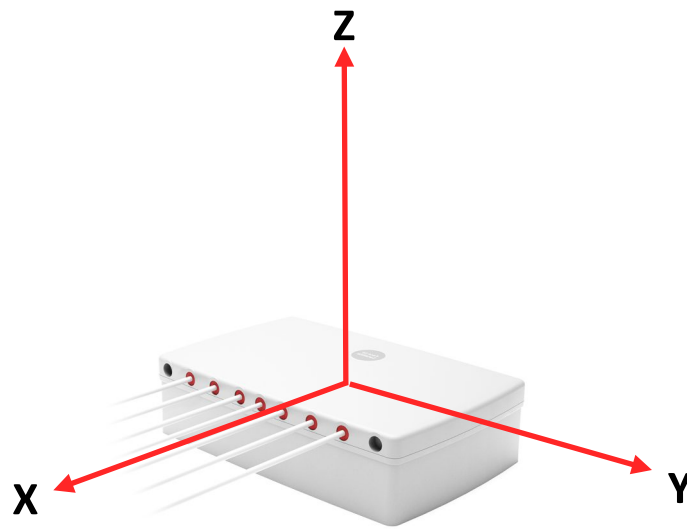


## ISOLATION FOR CABLES 4 AND 5



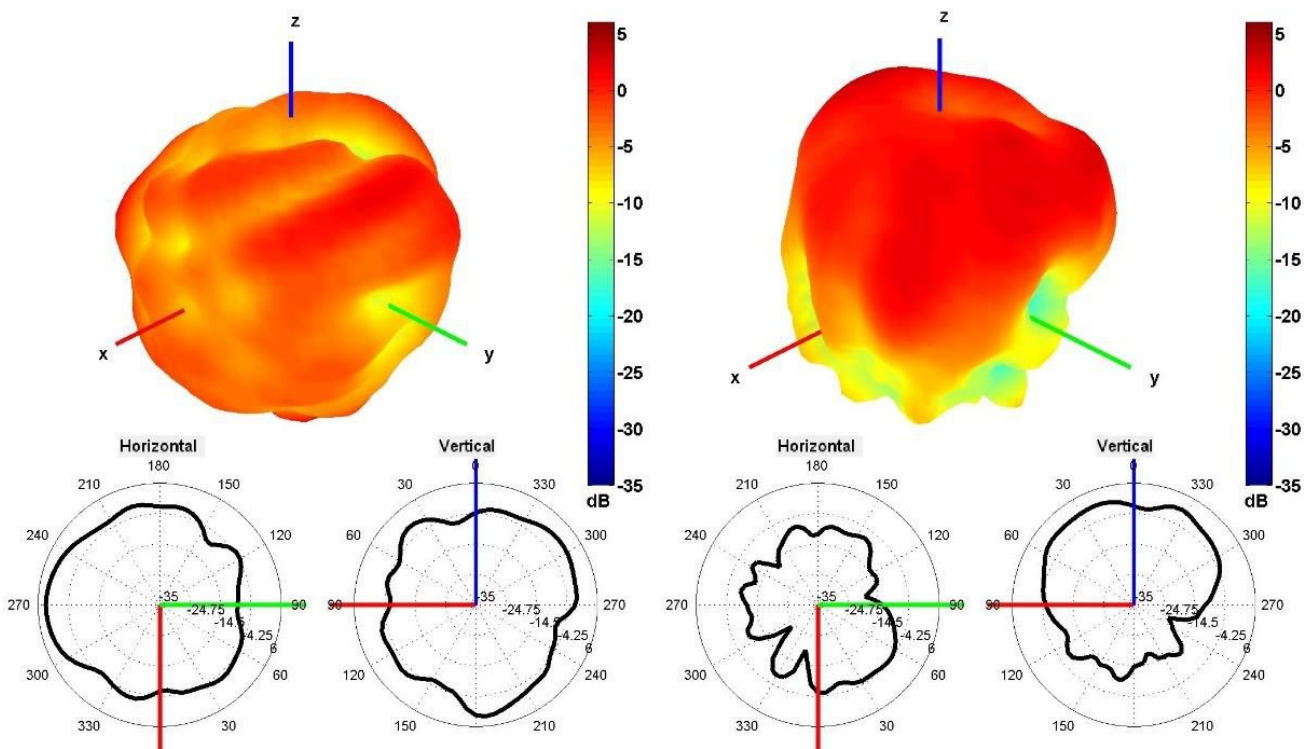
## ENVELOPE CORRELATION COEFFICIENT FOR CABLES 4 AND 5



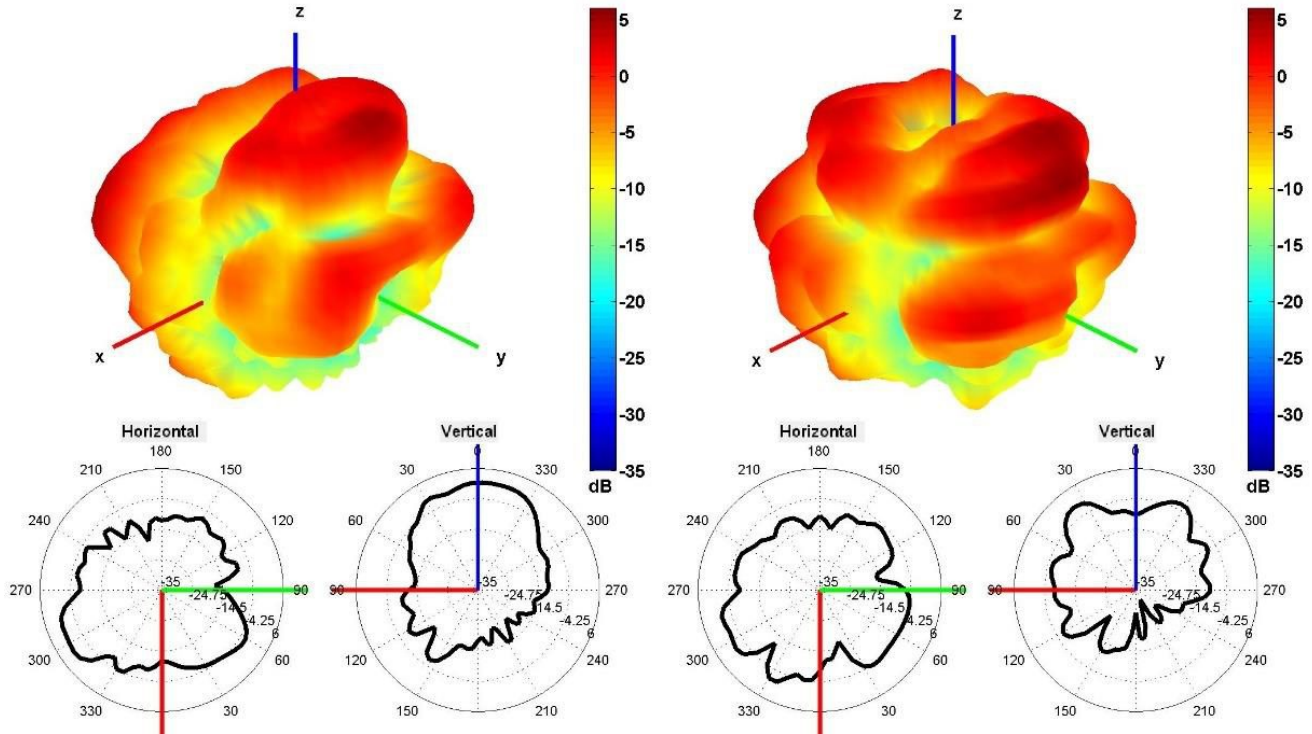


Radiation pattern reference

Cable 1: 5GNR

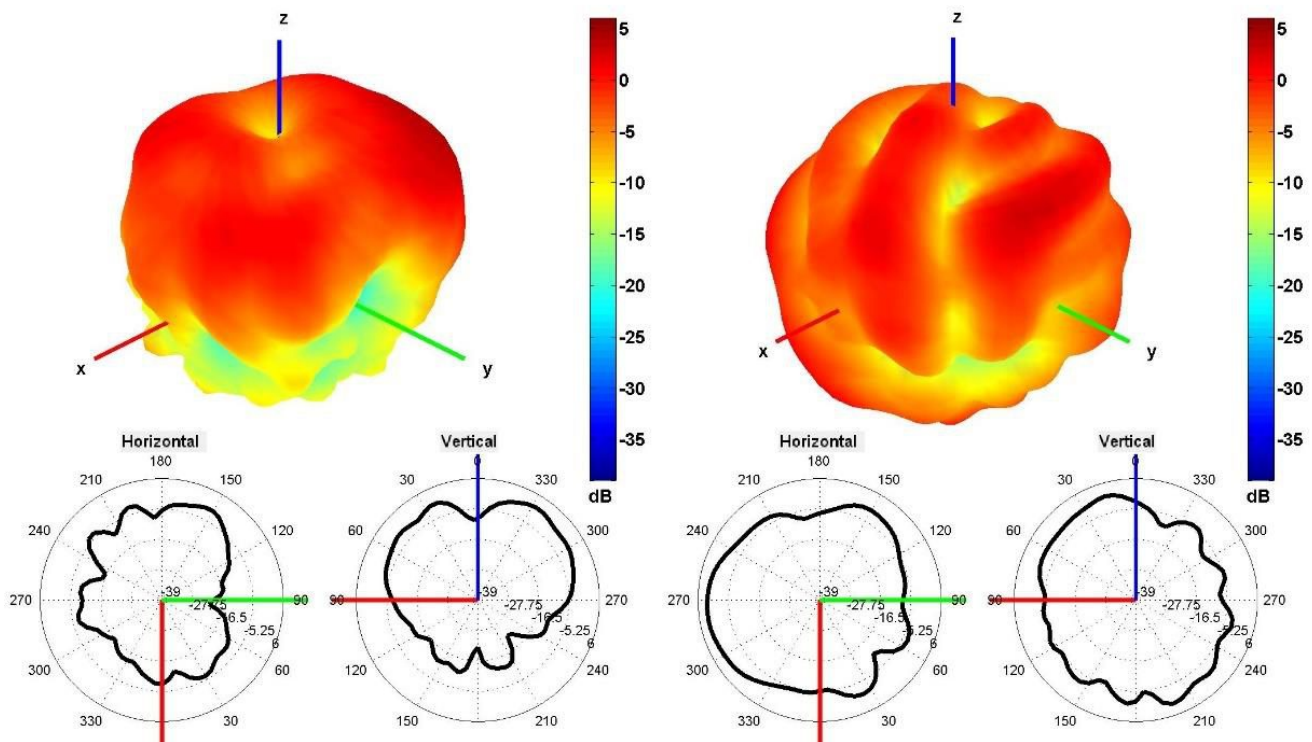


750 and 2500 MHz Radiation pattern

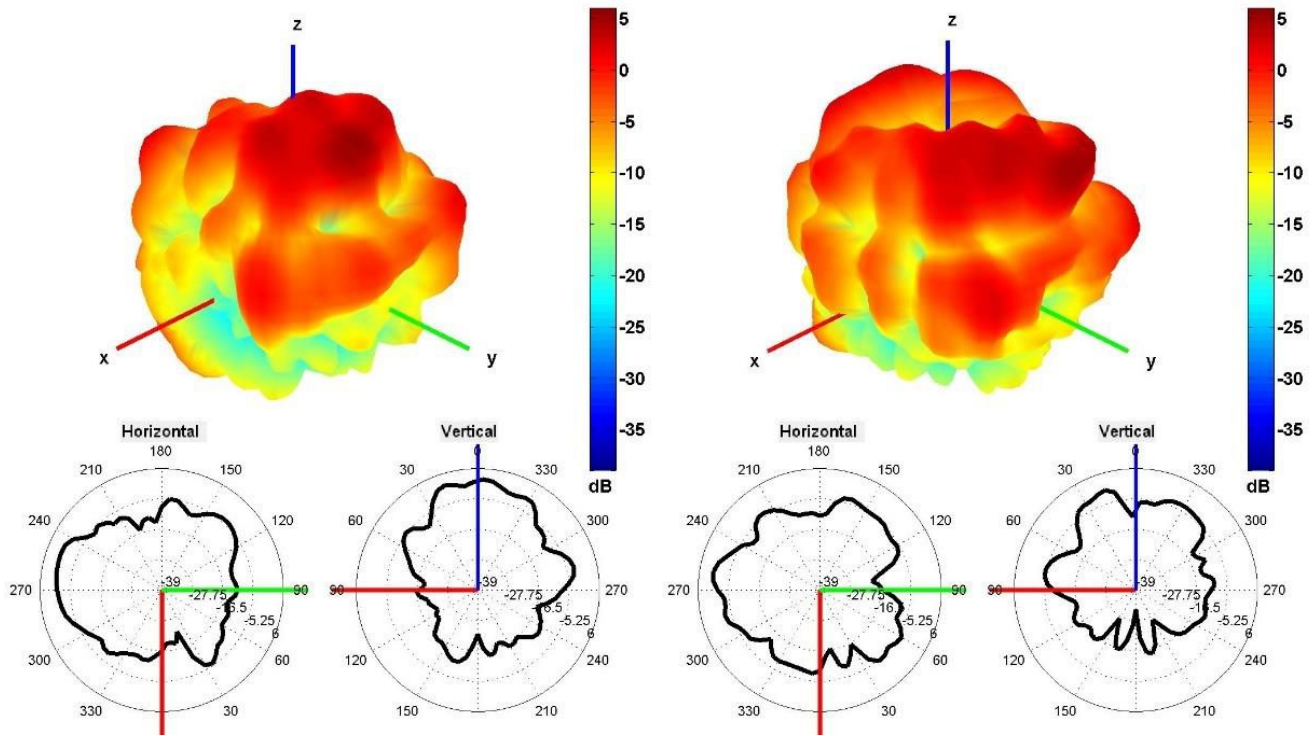


450 and 550 MHz Radiation pattern

Table 2: 5GNR

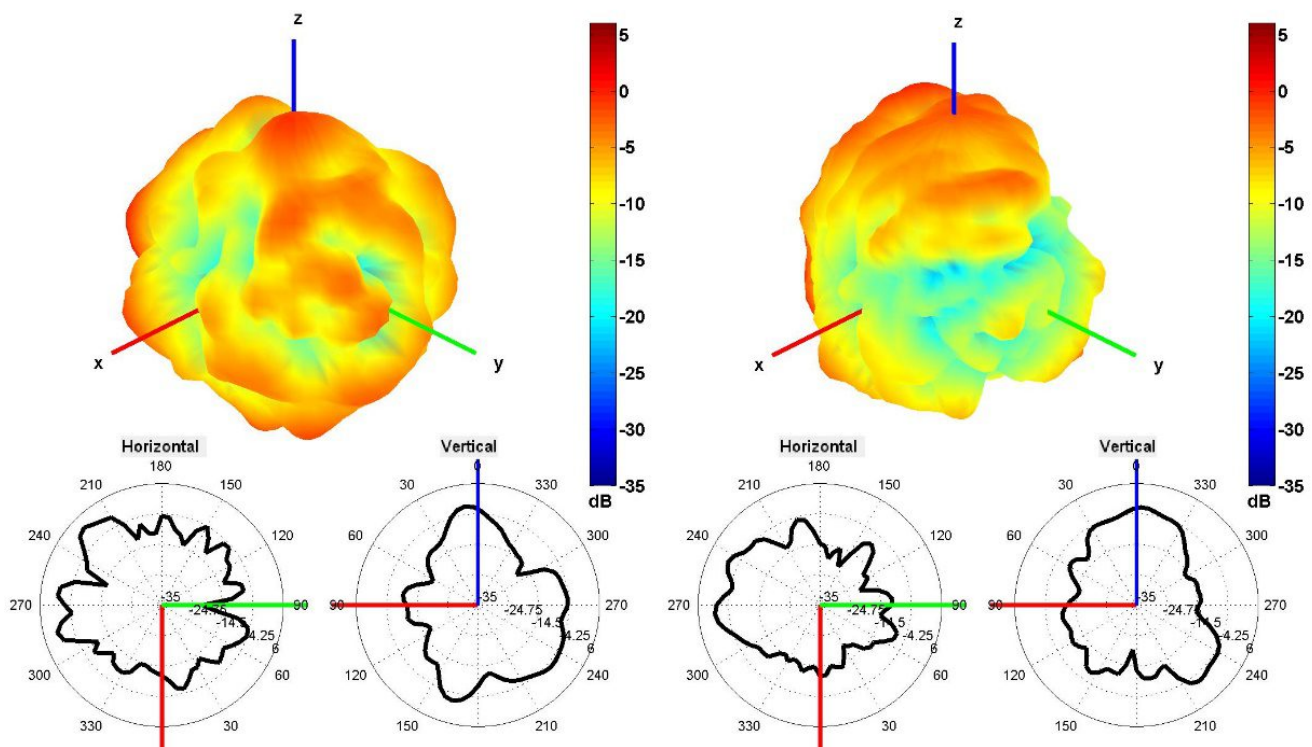


750 and 2500 MHz Radiation pattern

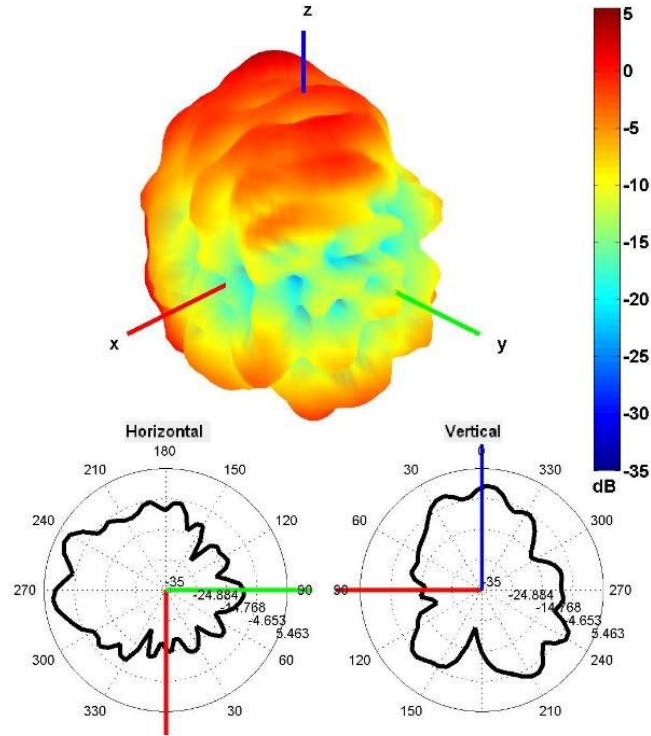


450 and 550 MHz Radiation pattern

Cable 3: 2.4/5.0/6.0 GHz ISM

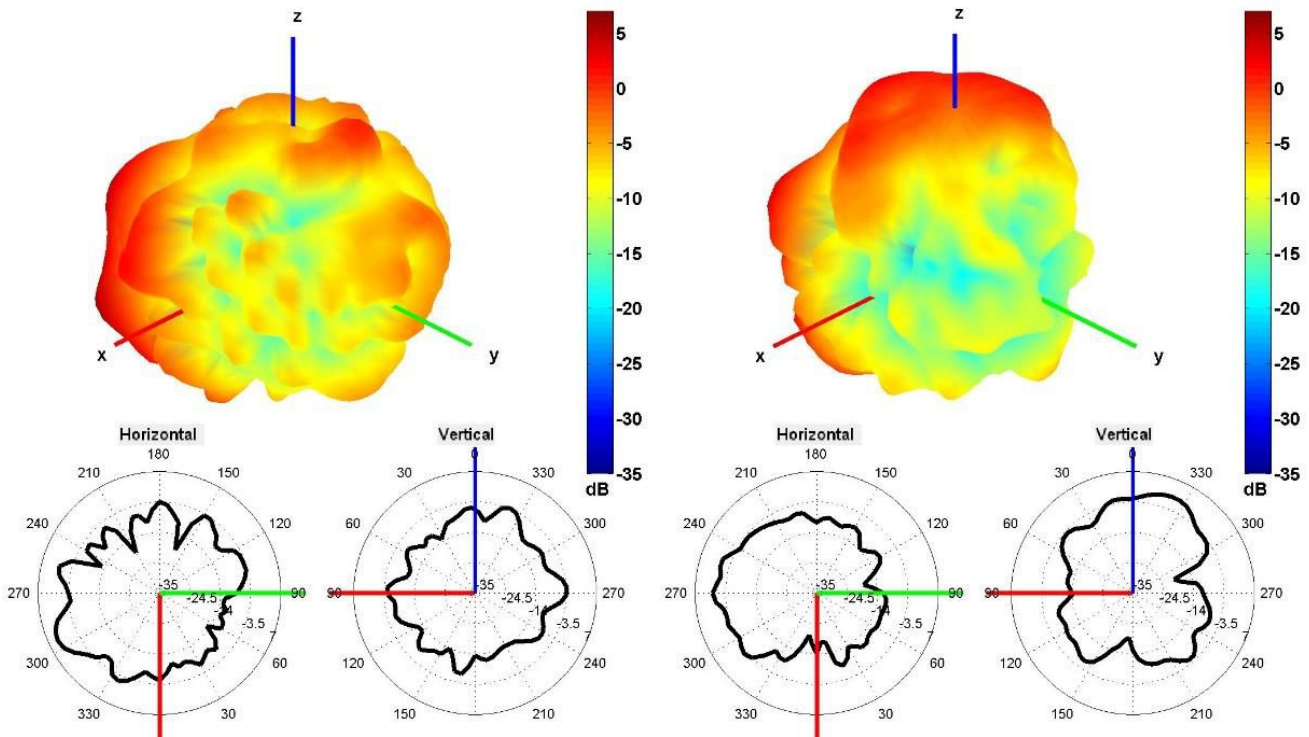


2450 and 5500 MHz Radiation pattern

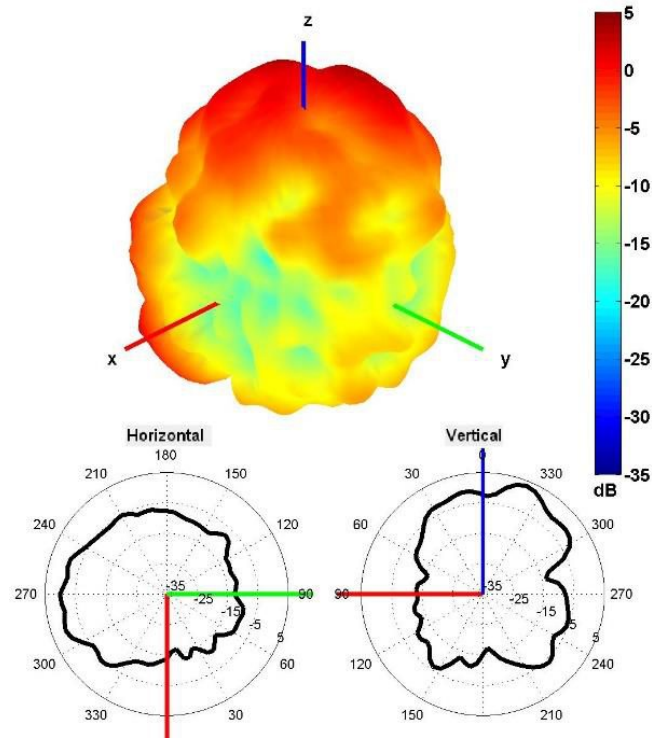


6500 MHz Radiation pattern

Cable 4: 2.4/5.0/6.0 GHz ISM

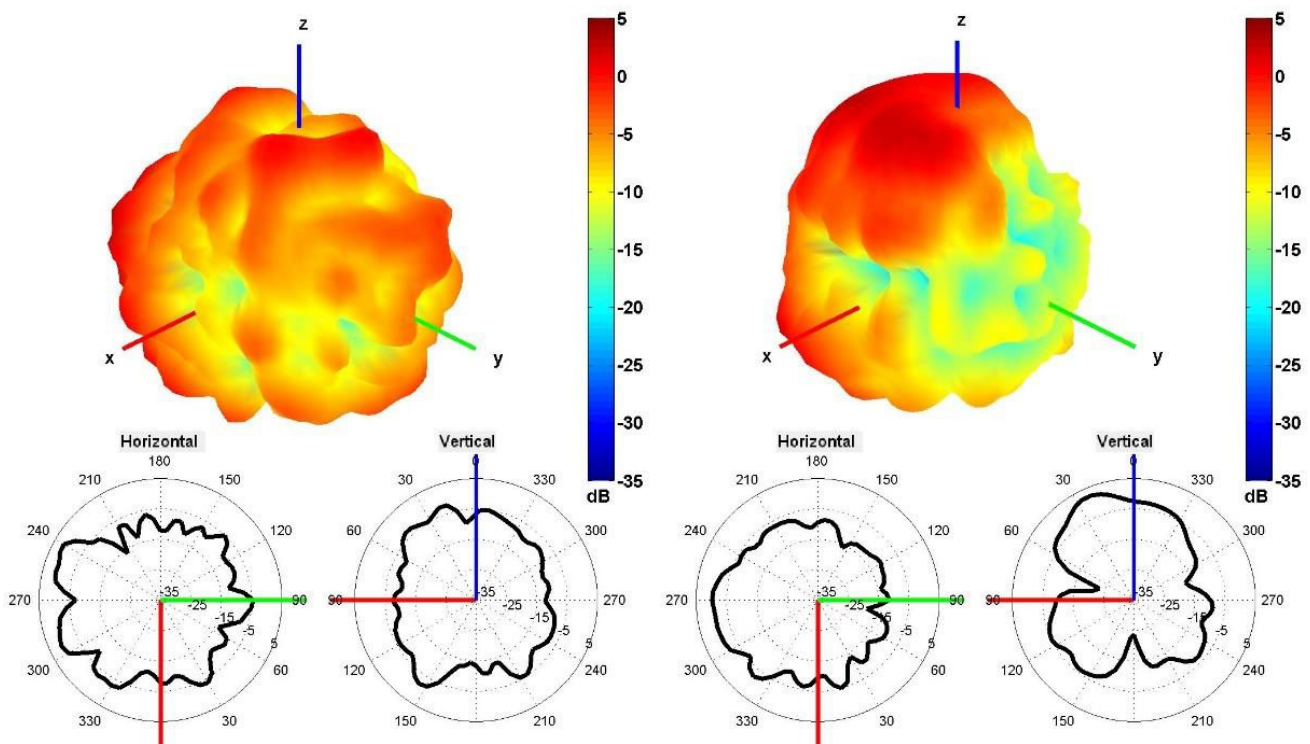


2450 and 5500 MHz Radiation pattern

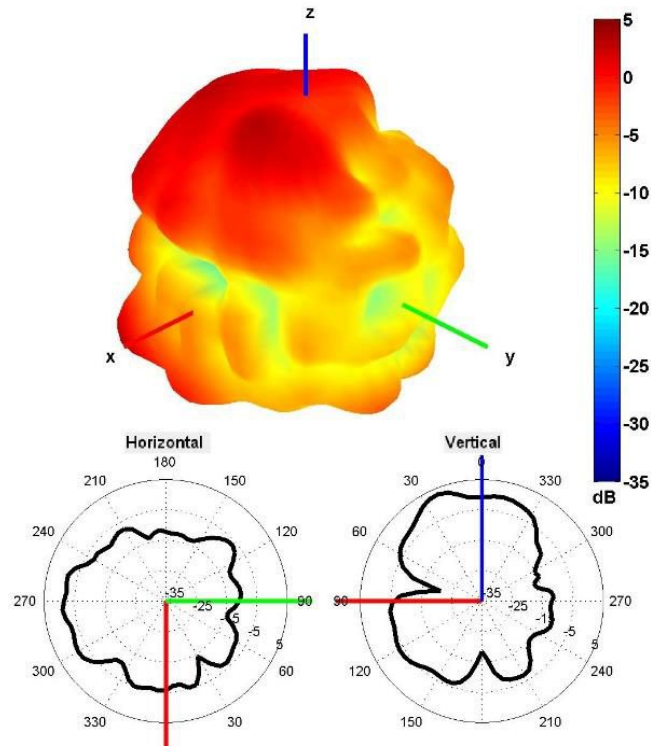


6500 MHz Radiation pattern

Cable 5: 2.4/5.0/6.0 GHz ISM

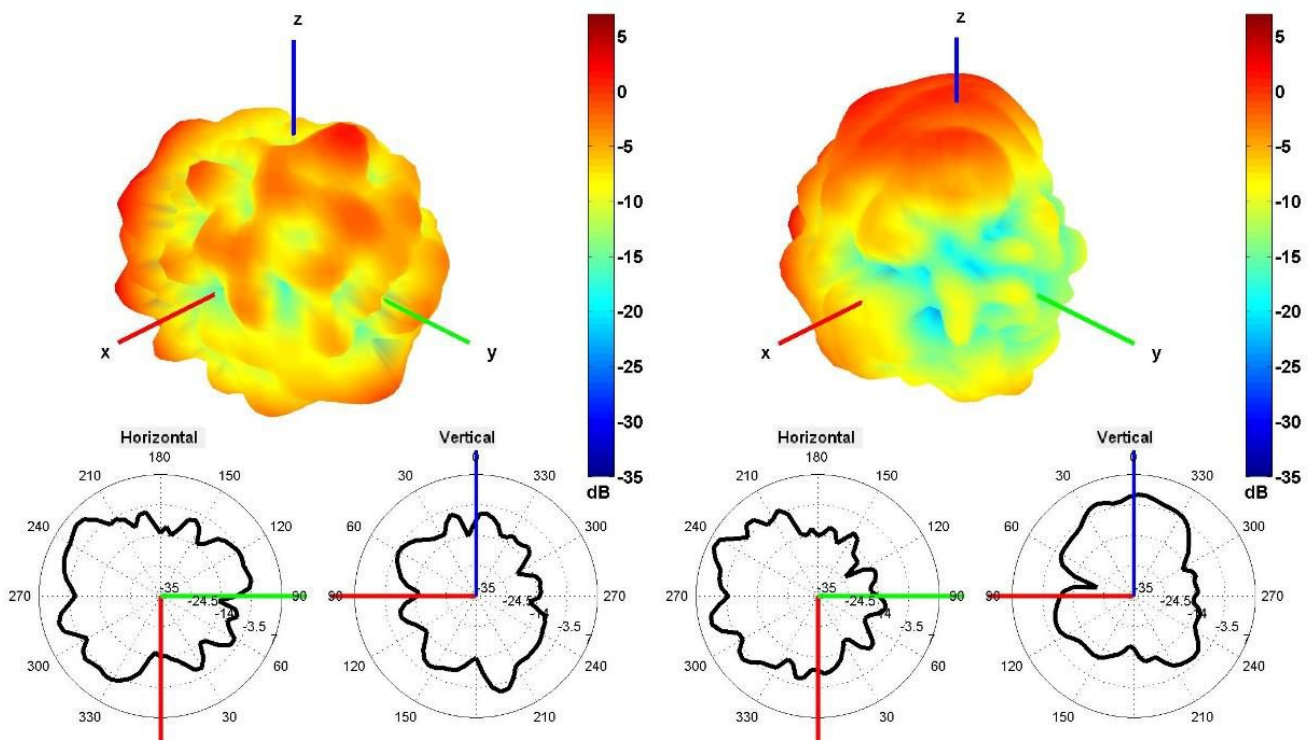


2450 and 5500 MHz Radiation pattern

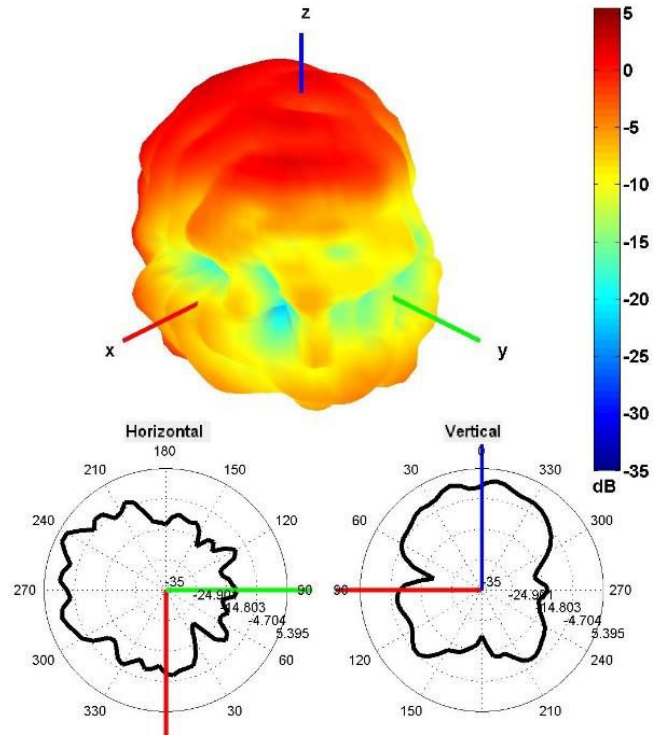


6500 MHz Radiation pattern

Cable 6: 2.4/5.0/6.0 GHz ISM

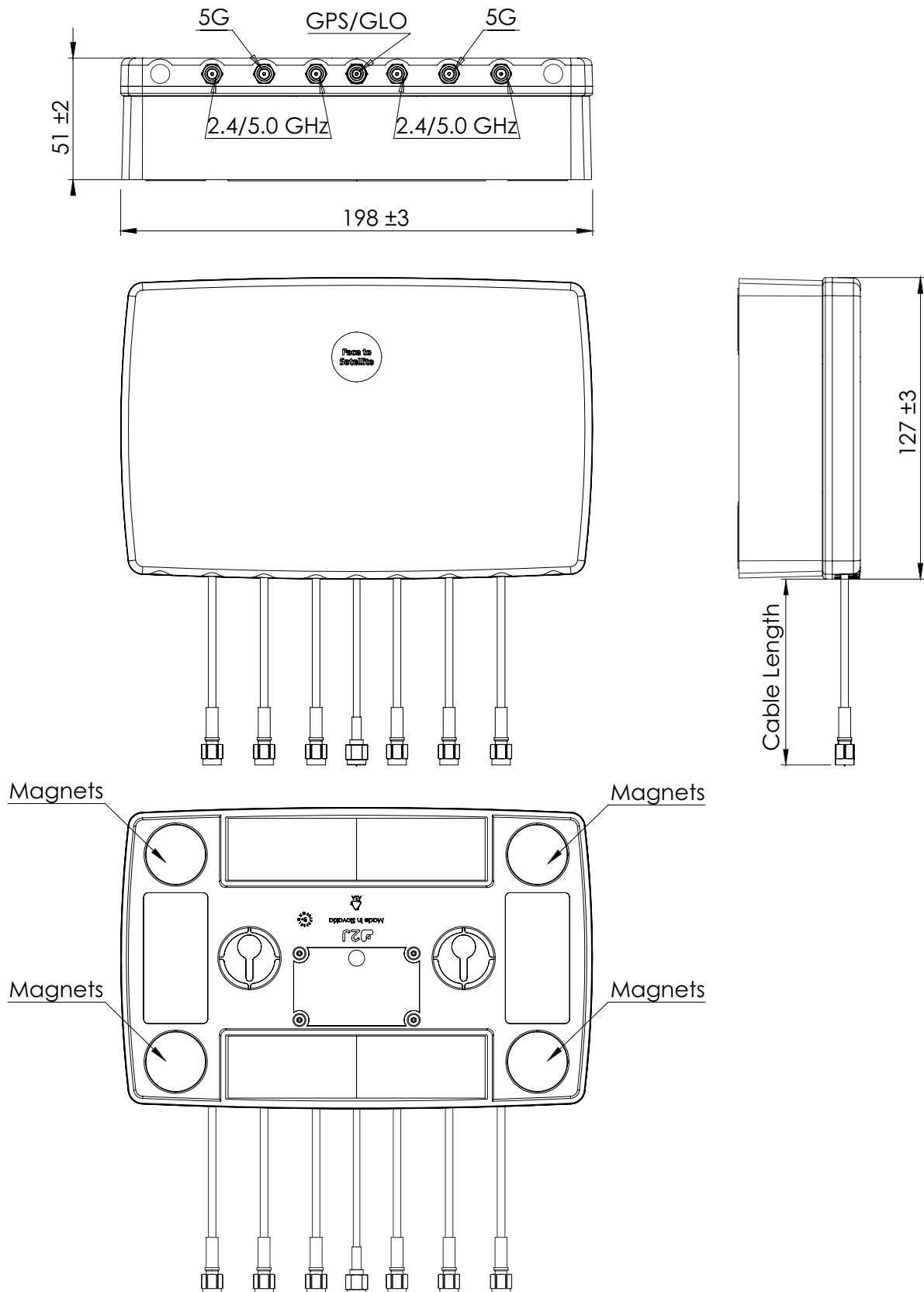


2450 and 5500 MHz Radiation pattern



6500 MHz Radiation pattern

## 4. Antenna drawings



## 5. Antenna Images

