2J4H84PGFe

6× 5GNR MIMO and GNSS
Adhesive Mount

Key Features

Cable 1 - 6: 5GNR
- 617-960 MHz
- 1427-2690 MHz
- 3300-5000 MHz
- 5150-5925 MHz

Cable 7: GPS/GLONASS/QZSS/Galileo
- 1575-1606 MHz

Adhesive Mount
High Performance
Low Profile
Ground Plane Independent
Customizable Cable and Connector
Dimensions: 198 x 127 x 15.7 mm
Certificates: IP67, IP69

1. Antenna and electrical specifications

Cable 1

Parameters	5GNR Antenna			
Technologies	5G, 4G, 3G and 2G			
Standards	5GNR/4GLTE/FirstNet/CBRS/LPWA/CAT-X/CAT-Mx/CAT-NBx/NB-IoT/3G/2G			
Frequency (MHz)	617-960	1427-2690	3300-5000	5150-5925
Band (MHz)	600, 700, 850, 900	1500, 1600, 1700, 1800, 1900, 2000, 2100, 2300, 2500, 2600	3300, 3500, 3600, 3700, 4500	5200, 5500, 5800
5GNR Bands	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	
4GLTE Bands	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
3GCELL Bands	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	
2GCELL Bands	710, 750, 810T, 850, 900P, 900E, 900R	1800DCS, 1900PCS		
CDMACELL Bands	BC0, BC2, BC3, BC7, BC9, BC10, BC12, BC18, BC19	BC1, BC4, BC6, BC8, BC13, BC14, BC15, BC16, BC20, BC21		
Return Loss (dB)	~-11.2	~-15.4	~-14.2	~-14.4
VSWR	~1.9:1	~1.6:1	~1.7:1	~1.5:1
Efficiency (%)	~42.6	~46.5	~38.6	~37.6
Peak Gain (dBi)	~2.6	~3.8	~5.1	~6.0
Average Gain (dB)	~-3.8	~-3.4	~-4.2	~-4.3
Impendance (Ohm)	50			
Polarisation	Linear			
Radiation Pattern	Omni-Directional			
Max. Input Power (W)	25			
Connector Type	SMA-Male Standard (Other Connectors Available)			
Cable Length	300 cm Standard (Any Cable Length Available)			
Cable Type	D302 Standard (Other Cables Available)			

Cable 2

Parameters	5GNR Antenna			
Technologies	5G, 4G, 3G and 2G			
Standards	5GNR/4GLTE/FirstNet/CBRS/LPWA/CAT-X/CAT-Mx/CAT-NBx/NB-IoT/3G/2G			
Frequency (MHz)	617-960	1427-2690	3300-5000	5150-5925
Band (MHz)	600, 700, 850, 900	1500, 1600, 1700, 1800, 1900, 2000, 2100, 2300, 2500, 2600	3300, 3500, 3600, 3700, 4500	5200, 5500, 5800
5GNR Bands	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	
4GLTE Bands	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
3GCELL Bands	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	
2GCELL Bands	710, 750, 810T, 850, 900P, 900E, 900R	1800DCS, 1900PCS		
CDMACELL Bands	BC0, BC2, BC3, BC7, BC9, BC10, BC12, BC18, BC19	BC1, BC4, BC6, BC8, BC13, BC14, BC15, BC16, BC20, BC21		
Return Loss (dB)	~-10.8	~-12.1	~-12.2	~-11.1
VSWR	~1.9:1	~2.0:1	~1.8:1	~1.8:1
Efficiency (%)	~28.1	~29.2	~28.1	~28.3
Peak Gain (dBi)	~1.0	~0.8	~1.6	~3.5
Average Gain (dB)	~-5.6	~-5.6	~-5.6	~-5.5
Impendance (Ohm)	50			
Polarisation	Linear			
Radiation Pattern	Omni-Directional			
Max. Input Power (W)	25			
Connector Type	SMA-Male Standard (Other Connectors Available)			
Cable Length	300 cm Standard (Any Cable Length Available)			
Cable Type	D302 Standard (Other Cables Available)			

Cable 3

Parameters	5GNR Antenna			
Technologies	5G, 4G, 3G and 2G			
Standards	5GNR/4GLTE/FirstNet/CBRS/LPWA/CAT-X/CAT-Mx/CAT-NBx/NB-IoT/3G/2G			
Frequency (MHz)	617-960	1427-2690	3300-5000	5150-5925
Band (MHz)	600, 700, 850, 900	1500, 1600, 1700, 1800, 1900, 2000, 2100, 2300, 2500, 2600	3300, 3500, 3600, 3700, 4500	5200, 5500, 5800
5GNR Bands	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	
4GLTE Bands	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
3GCELL Bands	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	
2GCELL Bands	710, 750, 810T, 850, 900P, 900E, 900R	1800DCS, 1900PCS		
CDMACELL Bands	BC0, BC2, BC3, BC7, BC9, BC10, BC12, BC18, BC19	BC1, BC4, BC6, BC8, BC13, BC14, BC15, BC16, BC20, BC21		
Return Loss (dB)	~-11.3	~-15.2	~-12.8	~-12.1
VSWR	~1.9:1	~1.6:1	~1.8:1	~1.7:1
Efficiency (%)	~31.2	~39.1	~33.0	~30.0
Peak Gain (dBi)	~0.8	~2.1	~3.2	~2.4
Average Gain (dB)	~-5.2	~-4.1	~-4.9	~-5.2
Impendance (Ohm)	50			
Polarisation	Linear			
Radiation Pattern	Omni-Directional			
Max. Input Power (W)	25			
Connector Type	SMA-Male Standard (Other Connectors Available)			
Cable Length	300 cm Standard (Any Cable Length Available)			
Cable Type	D302 Standard (Other Cables Available)			

Cable 4

Parameters	5GNR Antenna			
Technologies	5G, 4G, 3G and 2G			
Standards	5GNR/4GLTE/FirstNet/CBRS/LPWA/CAT-X/CAT-Mx/CAT-NBx/NB-IoT/3G/2G			
Frequency (MHz)	617-960	1427-2690	3300-5000	5150-5925
Band (MHz)	600, 700, 850, 900	1500, 1600, 1700, 1800, 1900, 2000, 2100, 2300, 2500, 2600	3300, 3500, 3600, 3700, 4500	5200, 5500, 5800
5GNR Bands	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	
4GLTE Bands	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
3GCELL Bands	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	
2GCELL Bands	710, 750, 810T, 850, 900P, 900E, 900R	1800DCS, 1900PCS		
CDMACELL Bands	BC0, BC2, BC3, BC7, BC9, BC10, BC12, BC18, BC19	BC1, BC4, BC6, BC8, BC13, BC14, BC15, BC16, BC20, BC21		
Return Loss (dB)	~-12.1	~-15.1	~-15.1	~-10.8
VSWR	~1.8:1	~1.6:1	~1.6:1	~1.9:1
Efficiency (%)	~29.9	~42.8	~42.8	~32.1
Peak Gain (dBi)	~0.3	~2.7	~2.7	~2.9
Average Gain (dB)	~-5.3	~-3.8	~-3.8	~-4.9
Impendance (Ohm)	50			
Polarisation	Linear			
Radiation Pattern	Omni-Directional			
Max. Input Power (W)	25			
Connector Type	SMA-Male Standard (Other Connectors Available)			
Cable Length	300 cm Standard (Any Cable Length Available)			
Cable Type	D302 Standard (Other Cables Available)			

Cable 5

Parameters	5GNR Antenna			
Technologies	5G, 4G, 3G and 2G			
Standards	5GNR/4GLTE/FirstNet/CBRS/LPWA/CAT-X/CAT-Mx/CAT-NBx/NB-IoT/3G/2G			
Frequency (MHz)	617-960	1427-2690	3300-5000	5150-5925
Band (MHz)	600, 700, 850, 900	1500, 1600, 1700, 1800, 1900, 2000, 2100, 2300, 2500, 2600	3300, 3500, 3600, 3700, 4500	5200, 5500, 5800
5GNR Bands	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	
4GLTE Bands	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
3GCELL Bands	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	
2GCELL Bands	710, 750, 810T, 850, 900P, 900E, 900R	1800DCS, 1900PCS		
CDMACELL Bands	BC0, BC2, BC3, BC7, BC9, BC10, BC12, BC18, BC19	BC1, BC4, BC6, BC8, BC13, BC14, BC15, BC16, BC20, BC21		
Return Loss (dB)	~-11.8	~-12.4	~-11.8	~-10.7
VSWR	~1.8:1	~2.0:1	~1.9:1	~1.9:1
Efficiency (%)	~22.1	~27.1	~29.9	~28.3
Peak Gain (dBi)	~-0.6	~0.6	~2.0	~1.9
Average Gain (dB)	~-6.6	~-5.8	~-5.3	~-5.5
Impendance (Ohm)	50			
Polarisation	Linear			
Radiation Pattern	Omni-Directional			
Max. Input Power (W)	25			
Connector Type	SMA-Male Standard (Other Connectors Available)			
Cable Length	300 cm Standard (Any Cable Length Available)			
Cable Type	D302 Standard (Other Cables Available)			

Cable 6

Parameters	5GNR Antenna			
Technologies	5G, 4G, 3G and 2G			
Standards	5GNR/4GLTE/FirstNet/CBRS/LPWA/CAT-X/CAT-Mx/CAT-NBx/NB-IoT/3G/2G			
Frequency (MHz)	617-960	1427-2690	3300-5000	5150-5925
Band (MHz)	600, 700, 850, 900	1500, 1600, 1700, 1800, 1900, 2000, 2100, 2300, 2500, 2600	3300, 3500, 3600, 3700, 4500	5200, 5500, 5800
5GNR Bands	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	
4GLTE Bands	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
3GCELL Bands	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	
2GCELL Bands	710, 750, 810T, 850, 900P, 900E, 900R	1800DCS, 1900PCS		
CDMACELL Bands	BC0, BC2, BC3, BC7, BC9, BC10, BC12, BC18, BC19	BC1, BC4, BC6, BC8, BC13, BC14, BC15, BC16, BC20, BC21		
Return Loss (dB)	~-12.6	~-16.6	~-13.9	~-13.1
VSWR	~1.7:1	~1.6:1	~1.7:1	~1.6:1
Efficiency (%)	~33.8	~42.4	~34.0	~33.9
Peak Gain (dBi)	~1.6	~3.8	~4.3	~4.4
Average Gain (dB)	~-4.8	~-3.8	~-4.7	~-4.7
Impendance (Ohm)	50			
Polarisation	Linear			
Radiation Pattern	Omni-Directional			
Max. Input Power (W)	25			
Connector Type	SMA-Male Standard (Other Connectors Available)			
Cable Length	300 cm Standard (Any Cable Length Available)			
Cable Type	D302 Standard (Other Cables Available)			

Antenna Measurement Conditions:

Mounted on Plastic Plate of 30 x 30 x 0.25 cm

100 cm of Cable D302

Measured in Certified CTIA 3D Anechoic Chamber

Cable 7

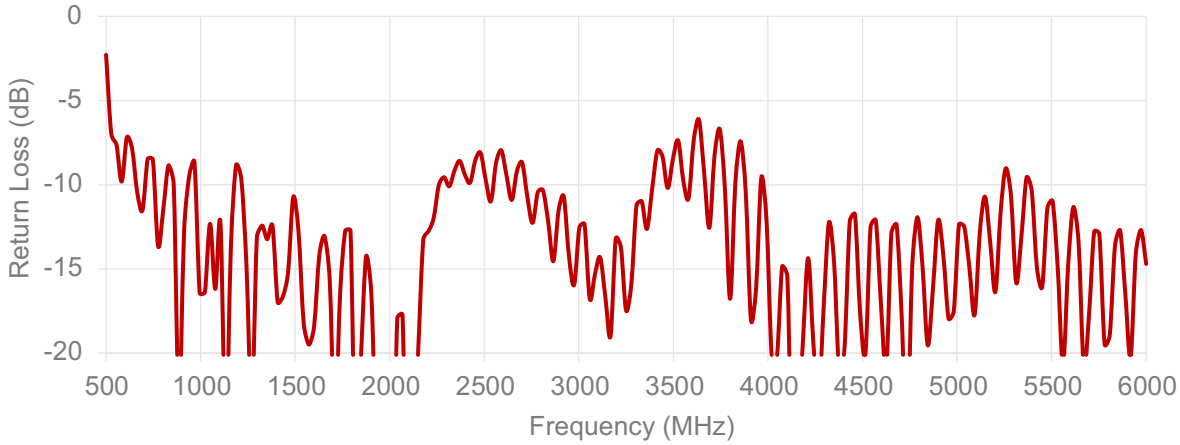
Parameters	GPS/GLONASS Antenna	
Standards	GPS/QZSS/Galileo	GLONASS
Bands (MHz)	1575	1602
Frequency (MHz)	1575.42	1598-1606
Passive Gain (dBi)	~4.5	~5.0
Impedance (Ohms)	50	
Radiation Pattern	Hemispherical	
Voltage Range (V)	1.5 - 3.6	
Active Gain (dB)	28 @ 2.7 V	
Noise Figure (dB)	1.8 @ 2.7 V	
Current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

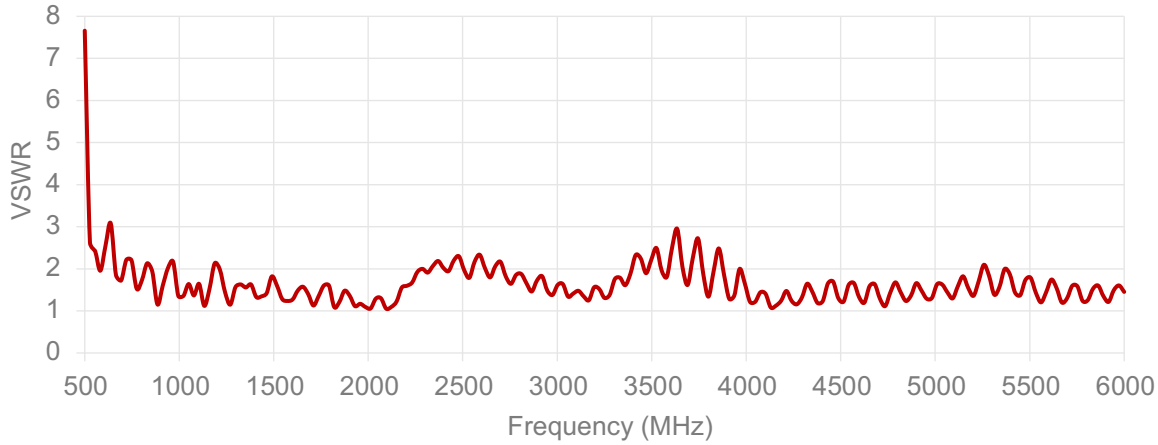
2. Mechanical and environmental specifications

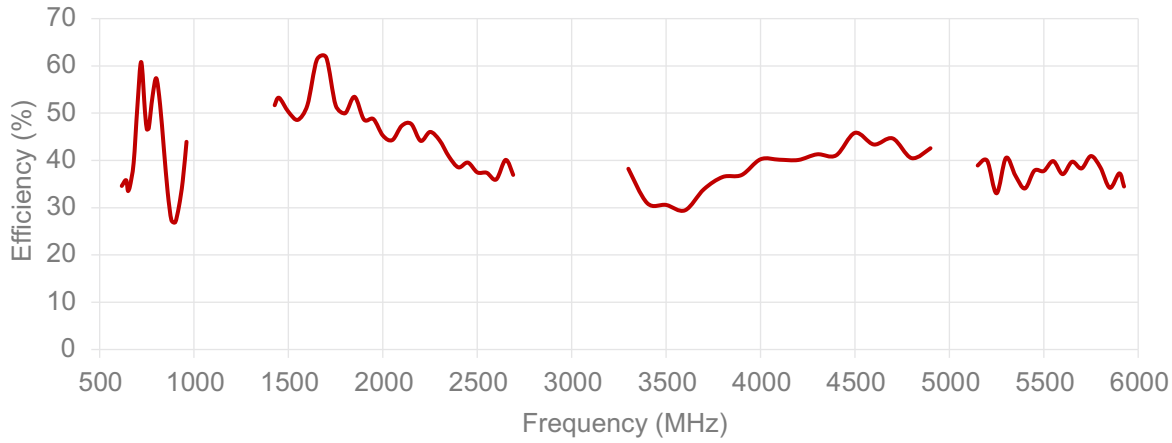
Specifications	2J4H84PGFe
Mounting Type	Adhesive Mount
Dimensions (mm)	198 x 127 x 15.7
Radome Type	ASA
Radome color	Black
Operating Temperature (C)	-40 to +85
Storage Temperature (C)	-40 to +85
Substance Compliance	RoHS
Certificates	IP67, IP69, CE

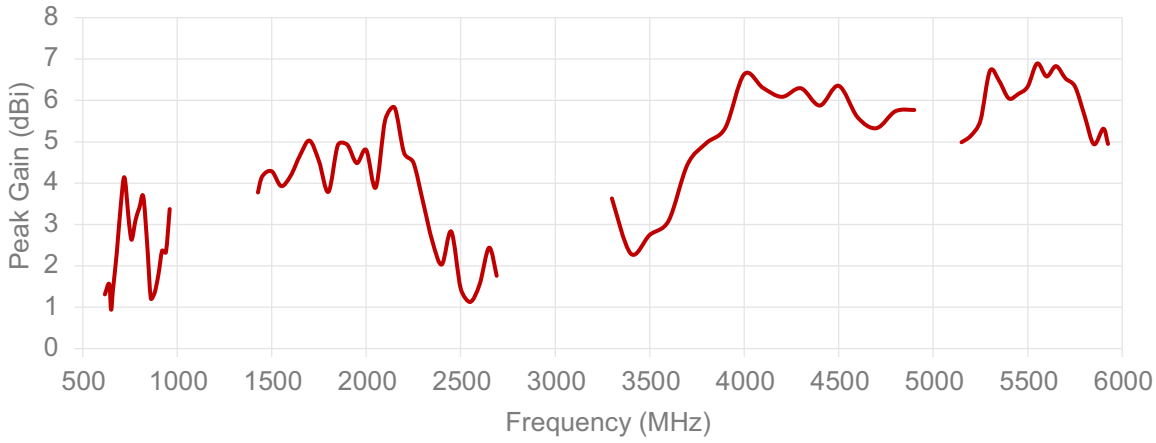
3. Antenna parameters

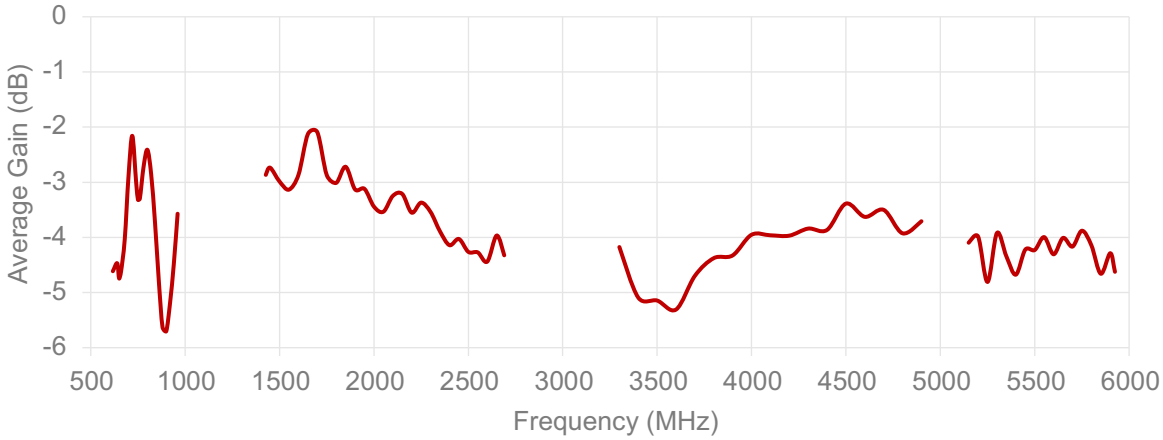
Cable 1: 5GNR



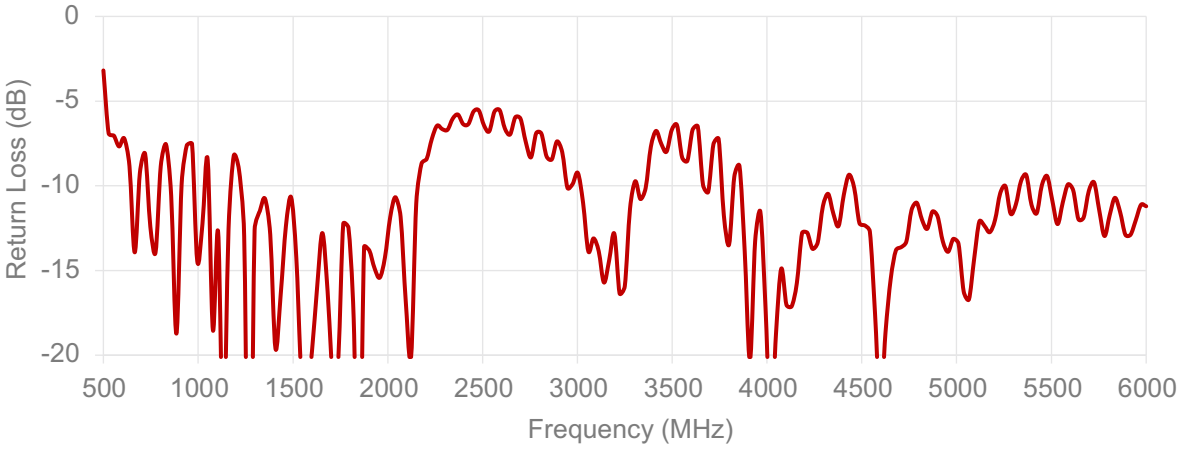


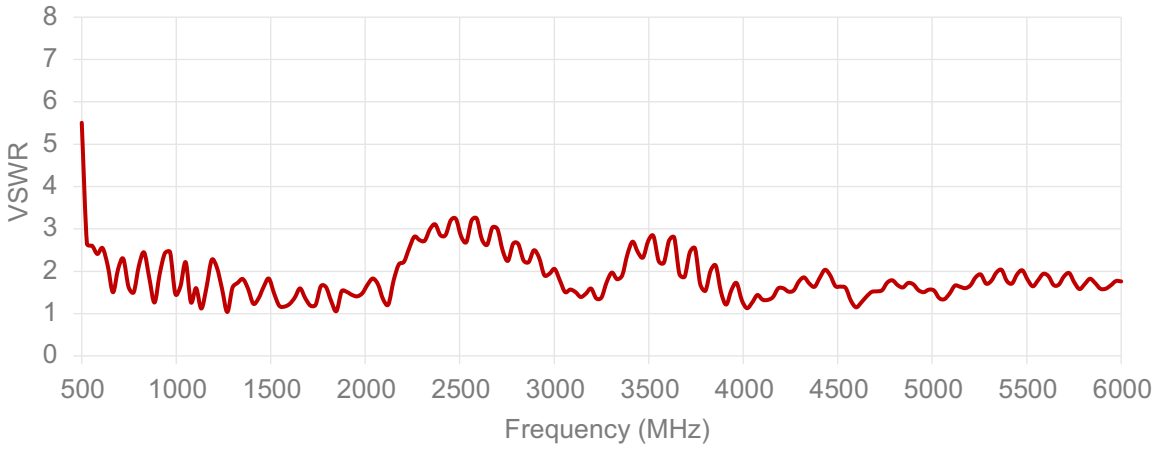

Efficiency (%)
70
60
50
40
30
20
10
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
Frequency (MHz)

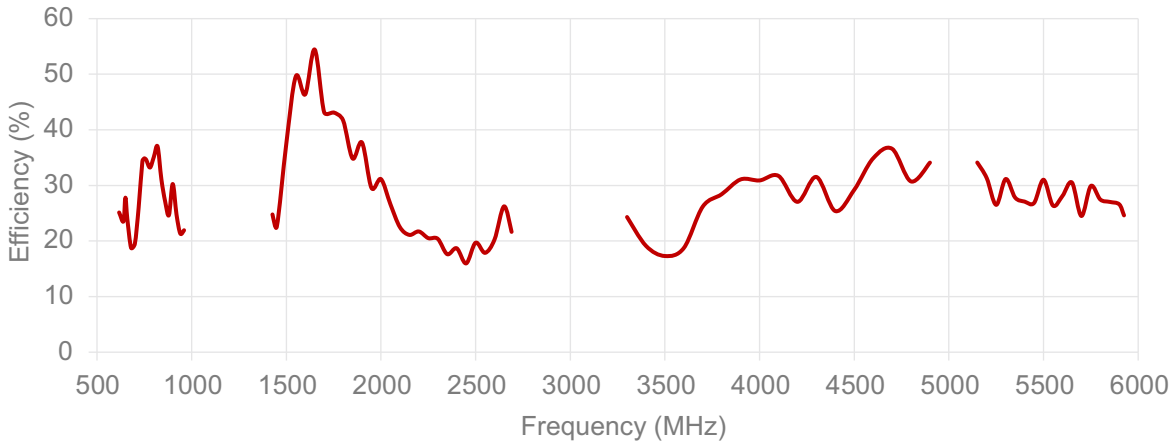

Peak Gain (dBi)
8
7
6
5
4
3
2
1
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
Frequency (MHz)

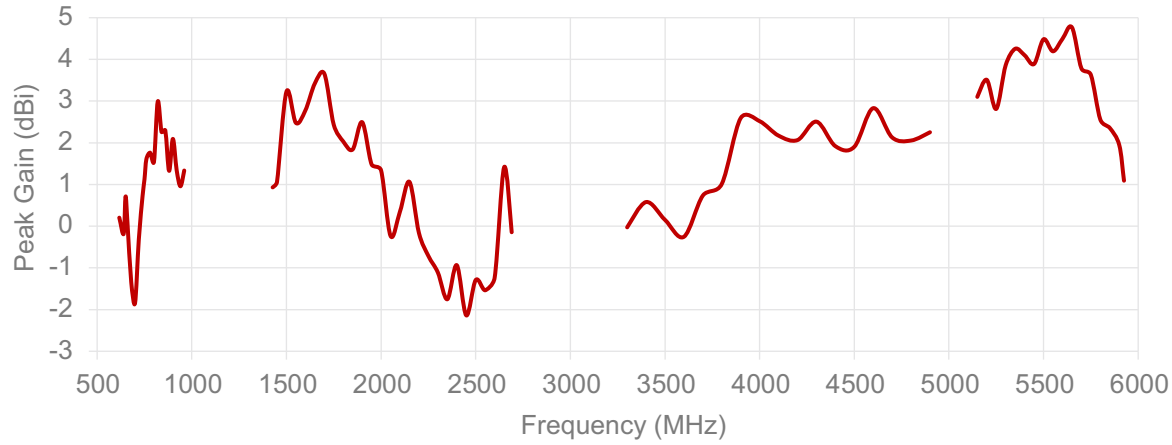

Average Gain (dB)
0
-1
-2
-3
-4
-5
-6
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
Frequency (MHz)

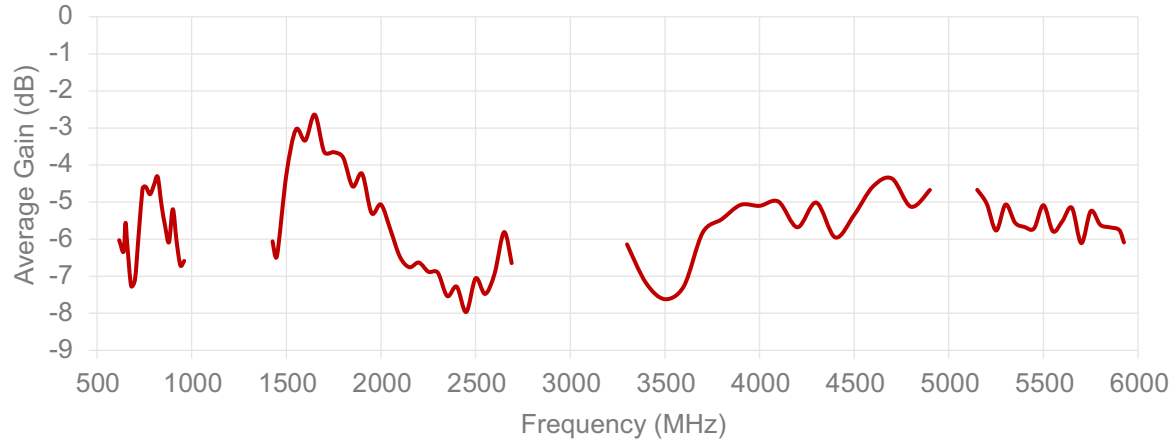
Cable 2: 5GNR


0
-5
-10
-15
-20
Return Loss (dB)
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
Frequency (MHz)

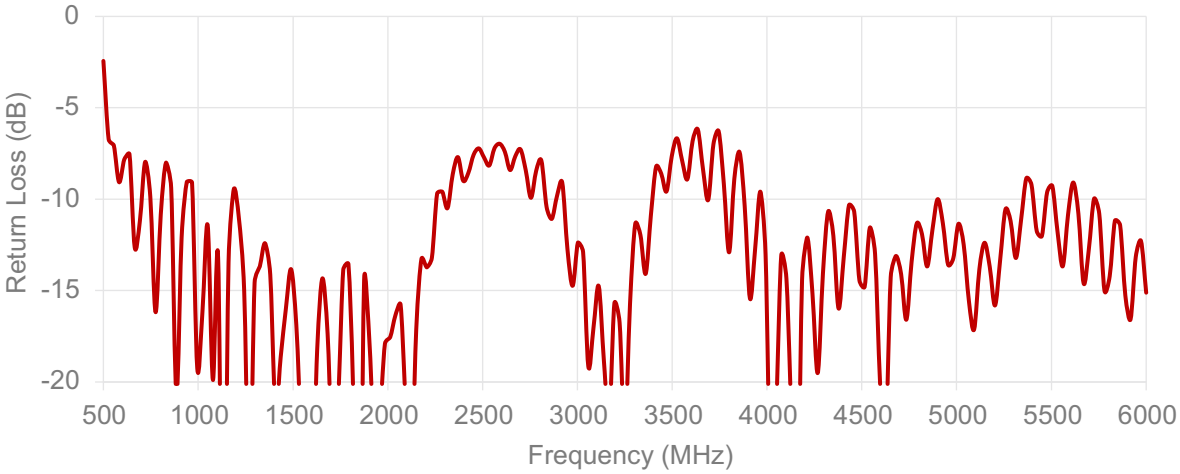

8
7
6
5
4
3
2
1
0
VSWR
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
Frequency (MHz)

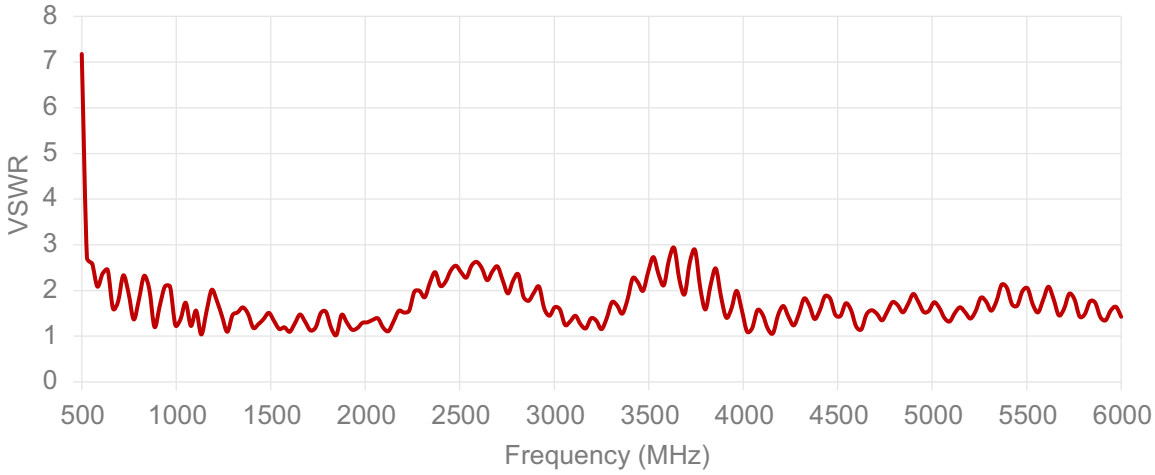

Efficiency (%)
60
50
40
30
20
10
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
Frequency (MHz)

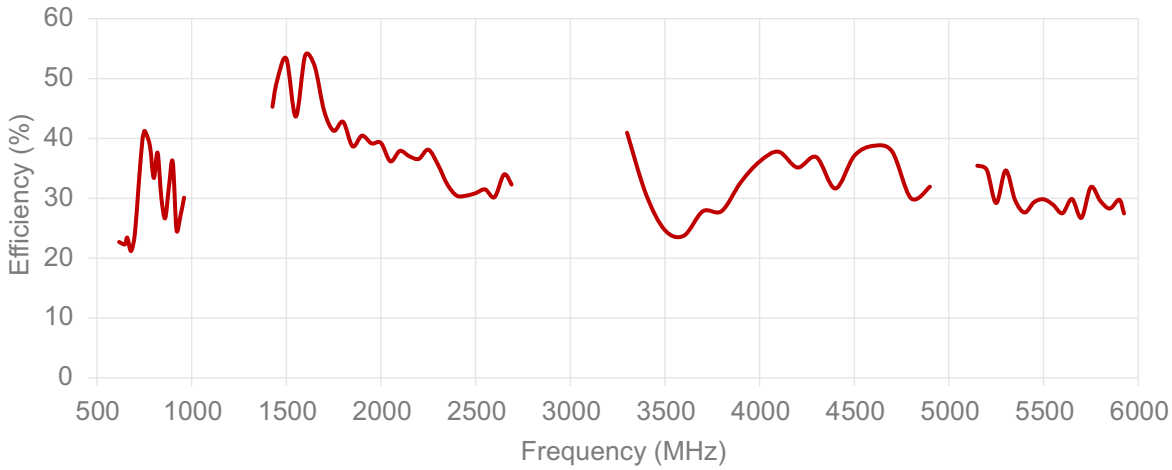

Peak Gain (dBi)
5
4
3
2
1
0
-1
-2
-3
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
Frequency (MHz)

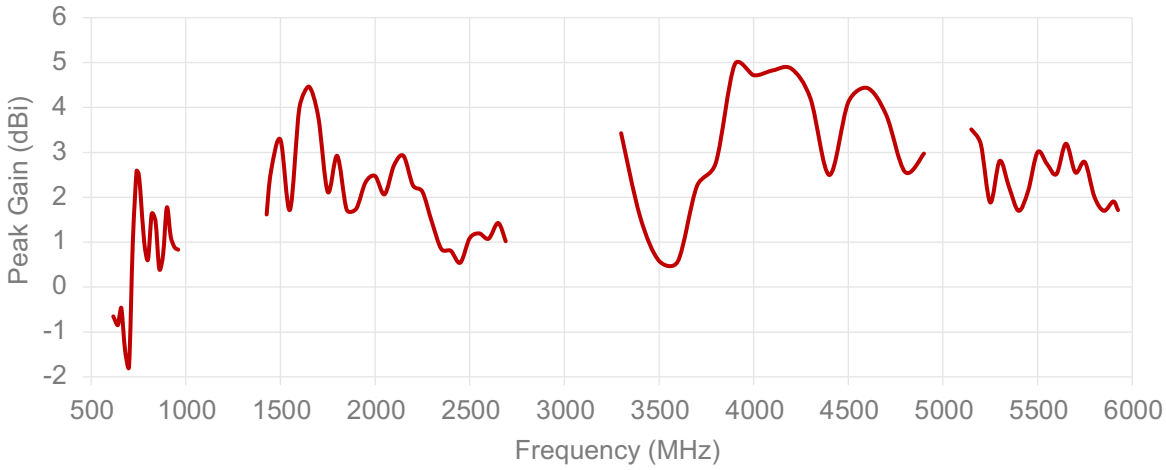

Average Gain (dB)
0
-1
-2
-3
-4
-5
-6
-7
-8
-9
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
Frequency (MHz)

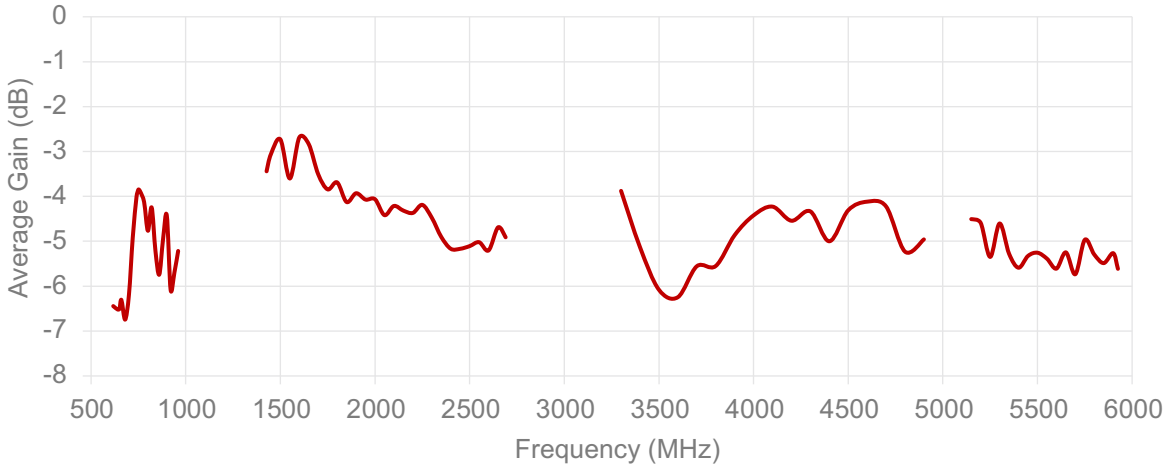
Cable 3: 5GNR


0
-5
-10
-15
-20
Return Loss (dB)
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
Frequency (MHz)

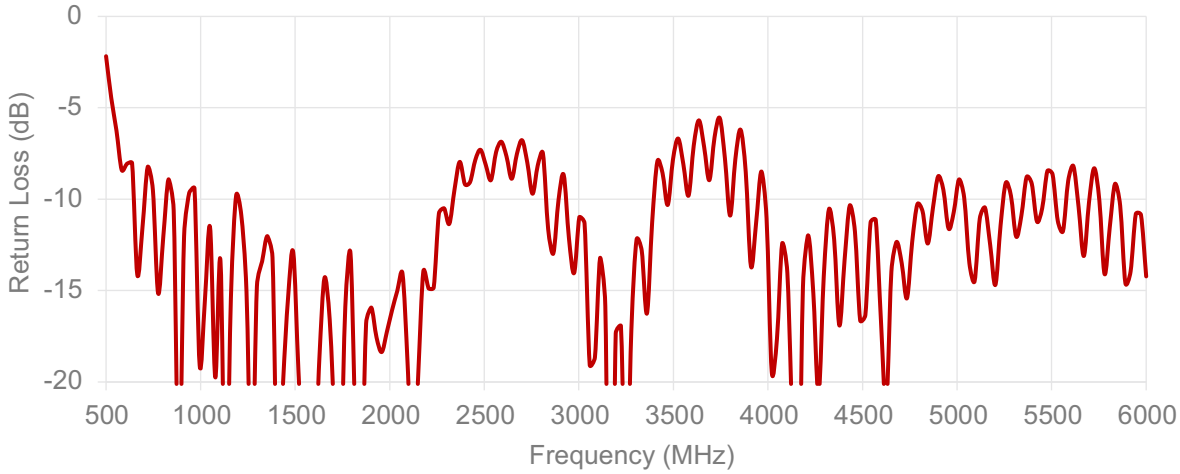

8
7
6
5
4
3
2
1
0
VSWR
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
Frequency (MHz)

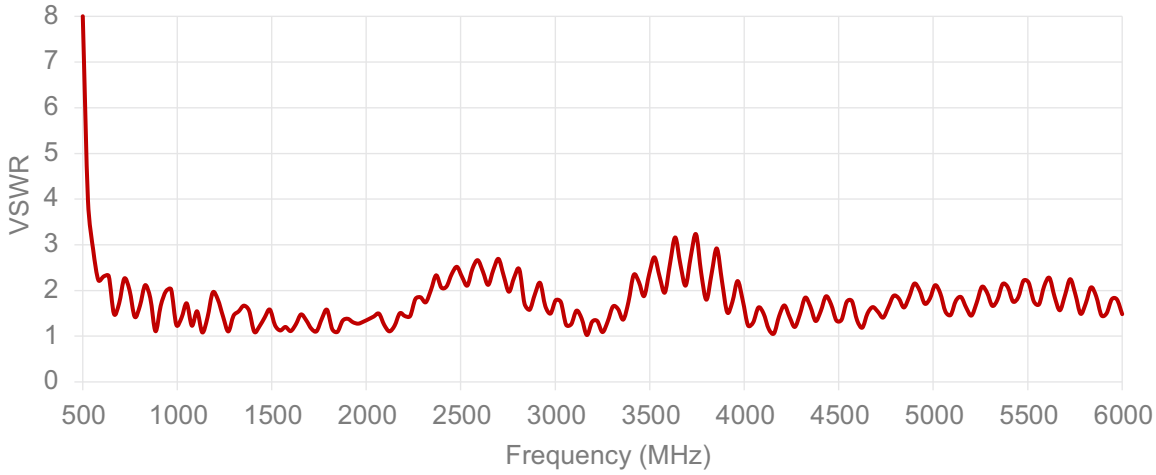

Efficiency (%)
60
50
40
30
20
10
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
Frequency (MHz)

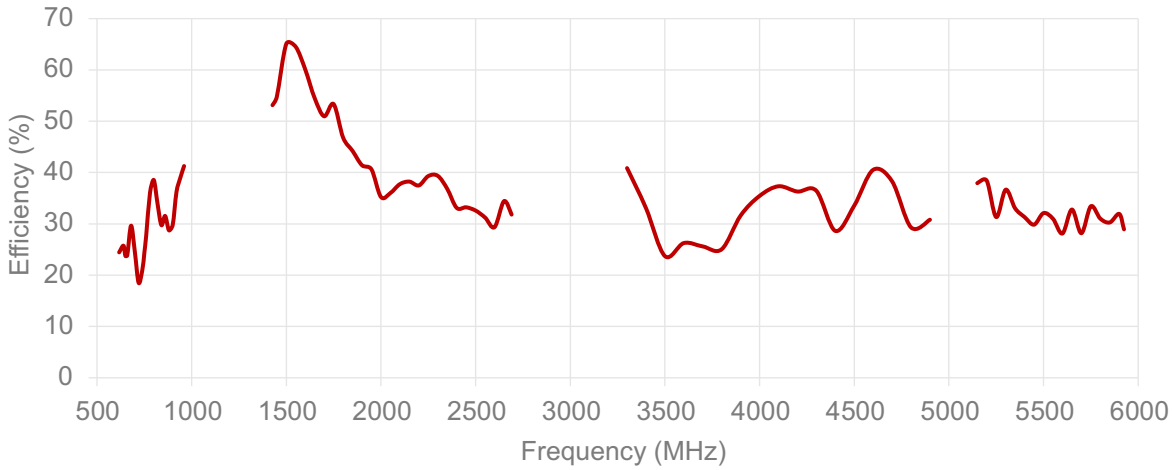

Peak Gain (dBi)
6
5
4
3
2
1
0
-1
-2
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
Frequency (MHz)

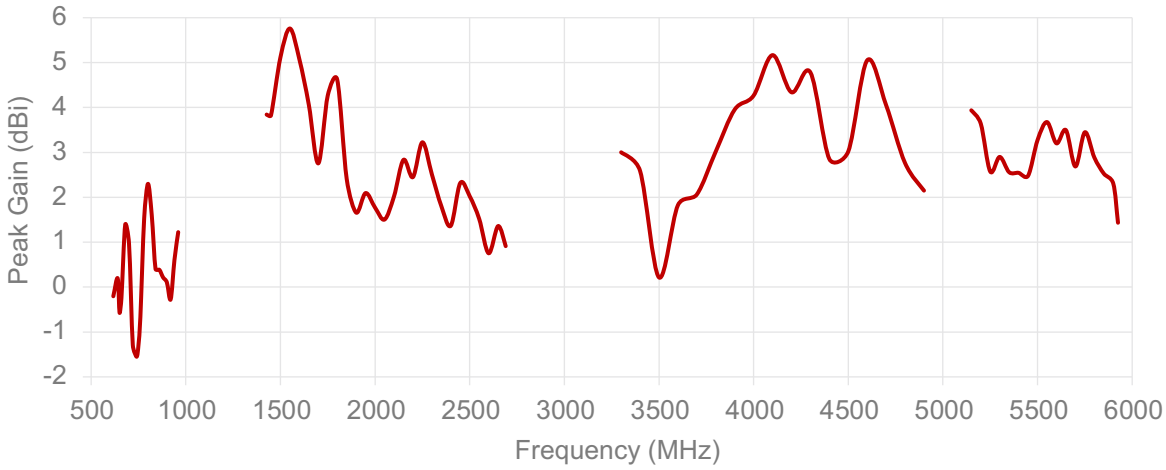

Average Gain (dB)
0
-1
-2
-3
-4
-5
-6
-7
-8
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
Frequency (MHz)

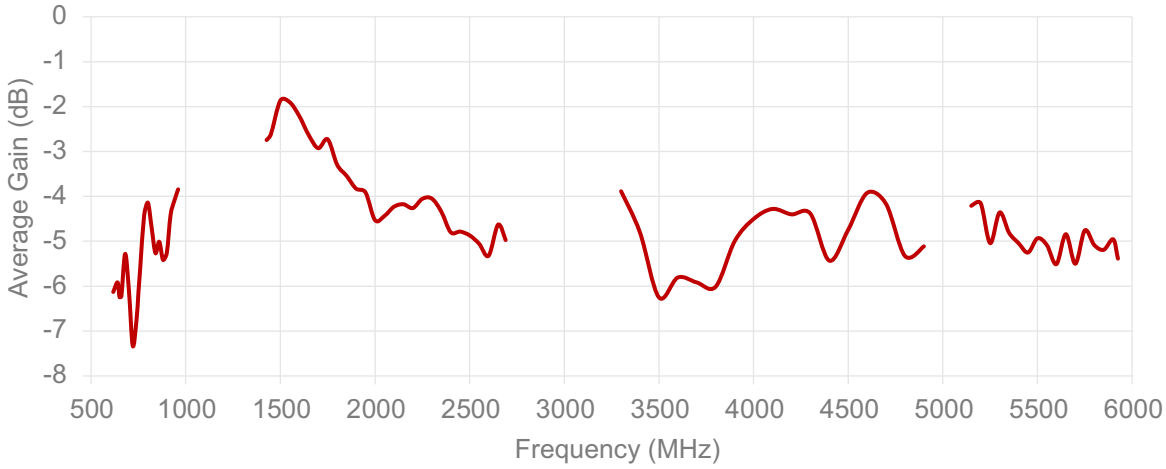
Cable 4: 5GNR


0
-5
-10
-15
-20
Return Loss (dB)
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
Frequency (MHz)

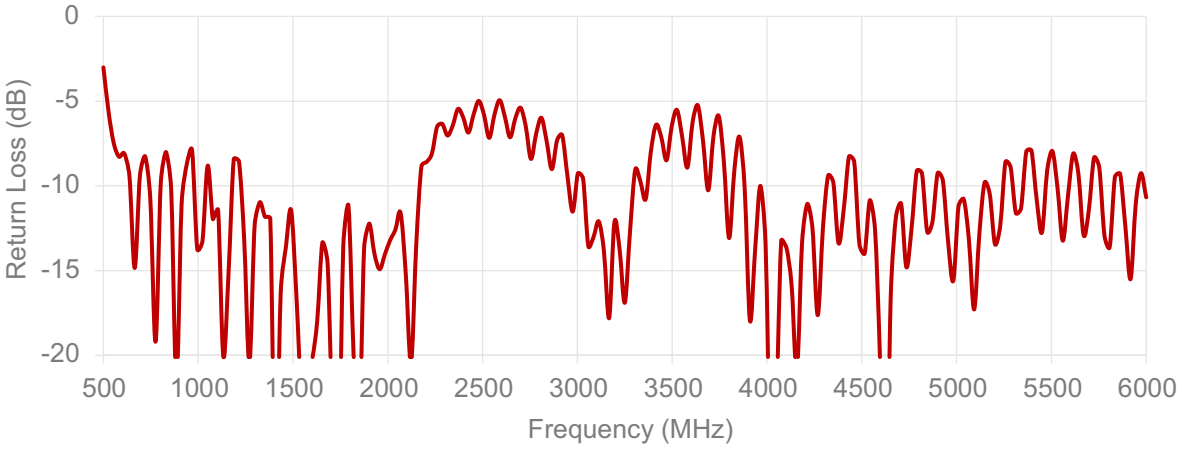

8
7
6
5
4
3
2
1
0
VSWR
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
Frequency (MHz)

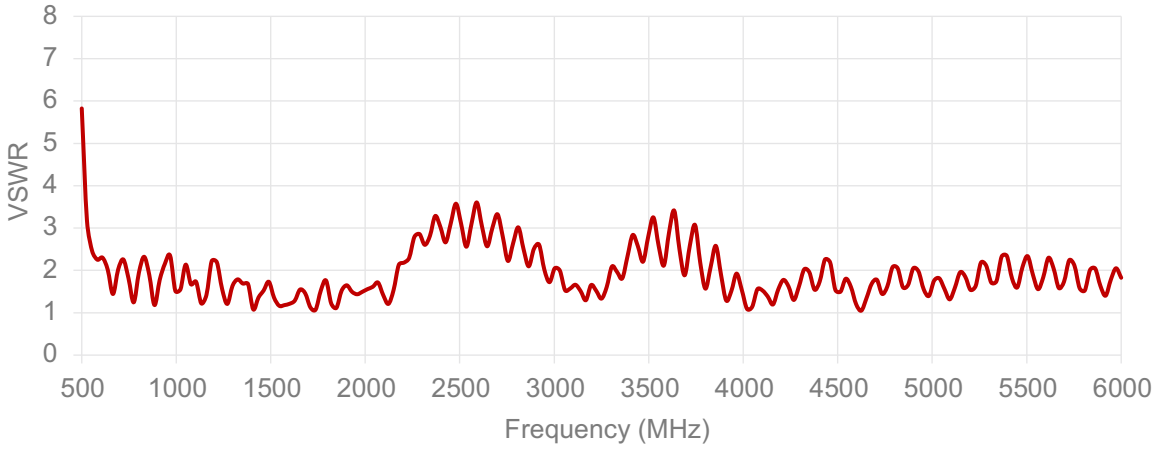

Efficiency (%)
70
60
50
40
30
20
10
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
Frequency (MHz)

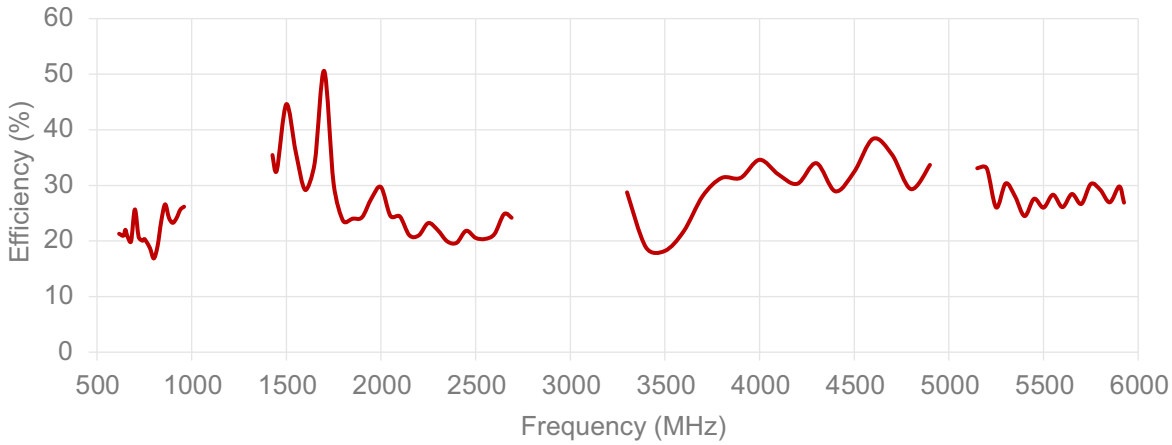

Peak Gain (dBi)
6
5
4
3
2
1
0
-1
-2
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
Frequency (MHz)

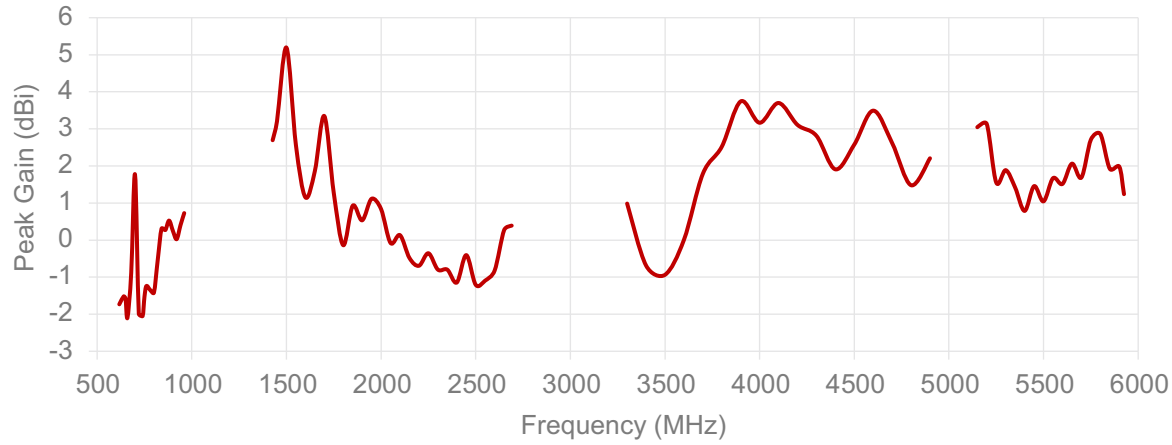

Average Gain (dB)
0
-1
-2
-3
-4
-5
-6
-7
-8
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
Frequency (MHz)

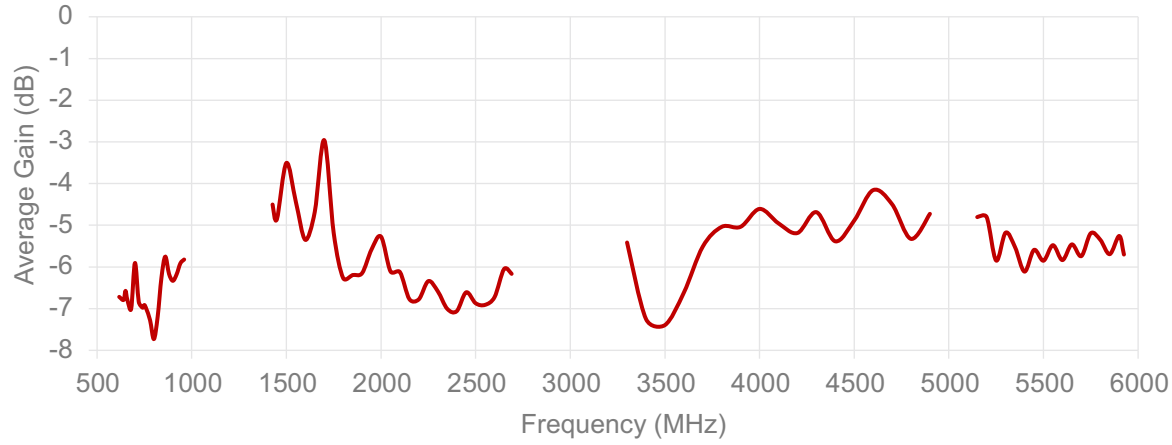
Cable 5: 5GNR


0
-5
-10
-15
-20
Return Loss (dB)
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
Frequency (MHz)

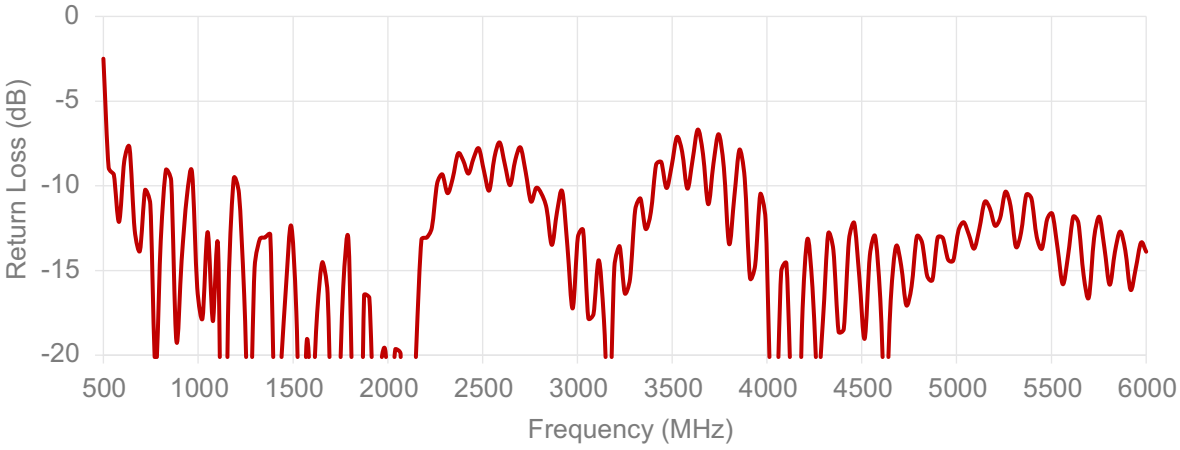

8
7
6
5
4
3
2
1
0
VSWR
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
Frequency (MHz)

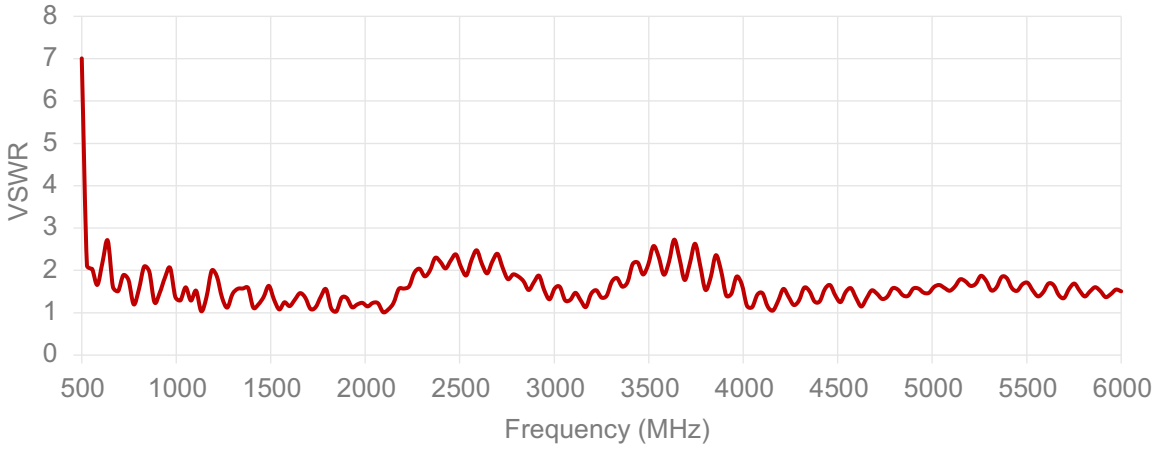

Efficiency (%)
60
50
40
30
20
10
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
Frequency (MHz)

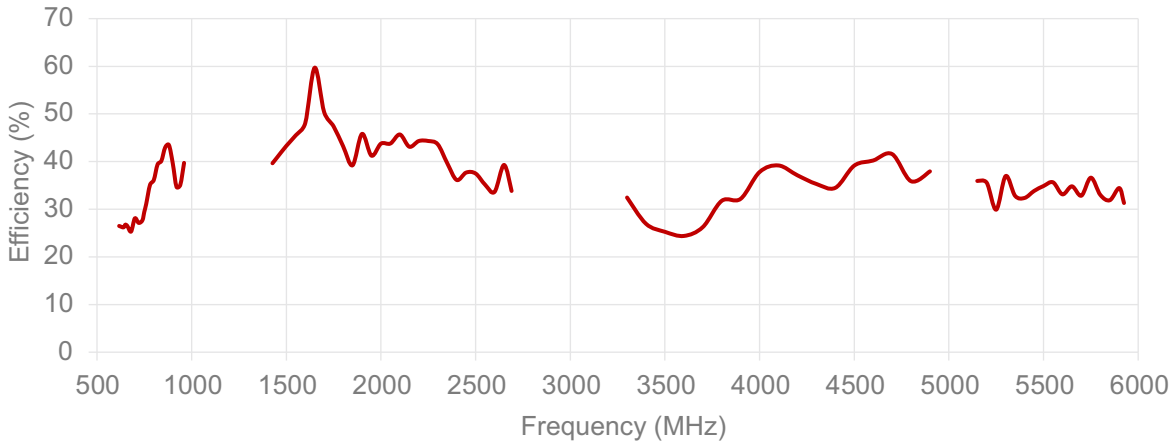

Peak Gain (dBi)
6
5
4
3
2
1
0
-1
-2
-3
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
Frequency (MHz)

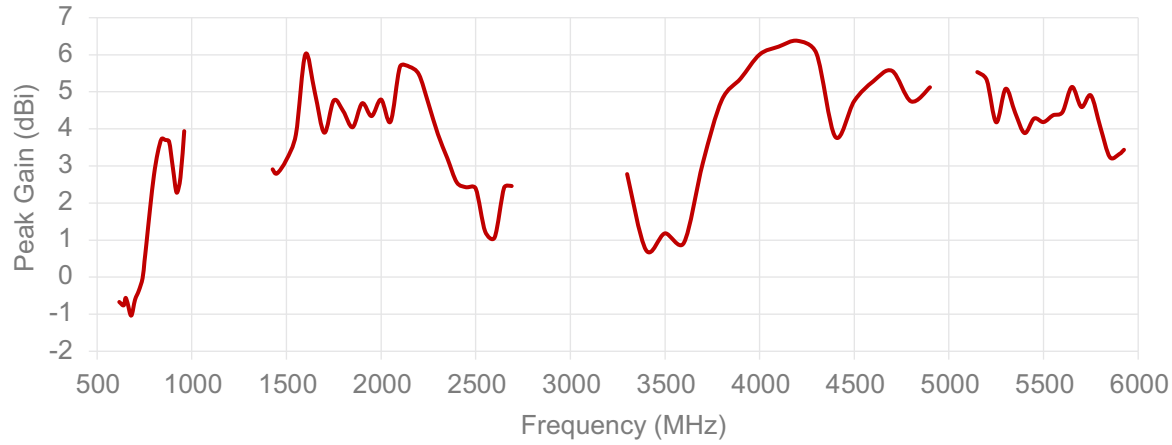

Average Gain (dB)
0
-1
-2
-3
-4
-5
-6
-7
-8
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
Frequency (MHz)

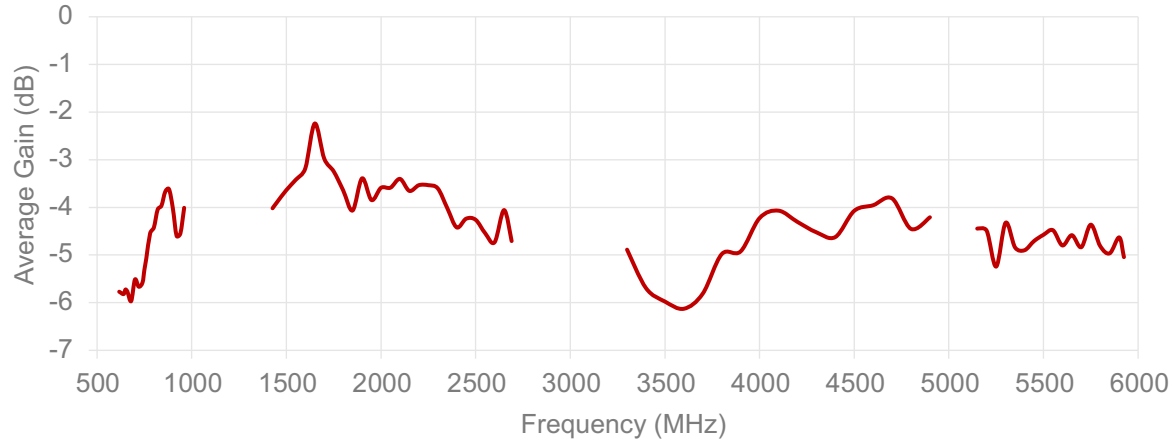
Cable 6: 5GNR


0
-5
-10
-15
-20
Return Loss (dB)
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
Frequency (MHz)

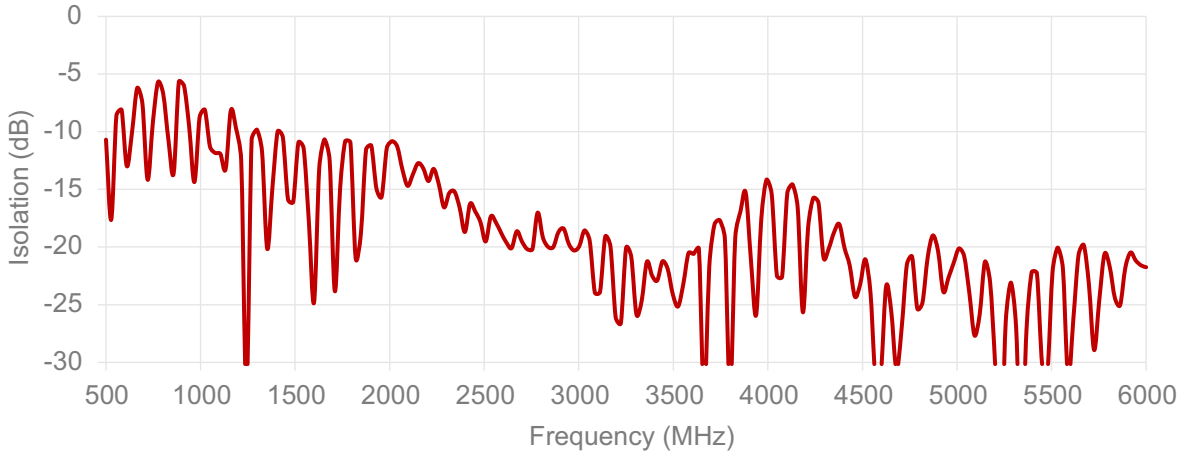

8
7
6
5
4
3
2
1
0
VSWR
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
Frequency (MHz)


Efficiency (%)
70
60
50
40
30
20
10
0
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
Frequency (MHz)

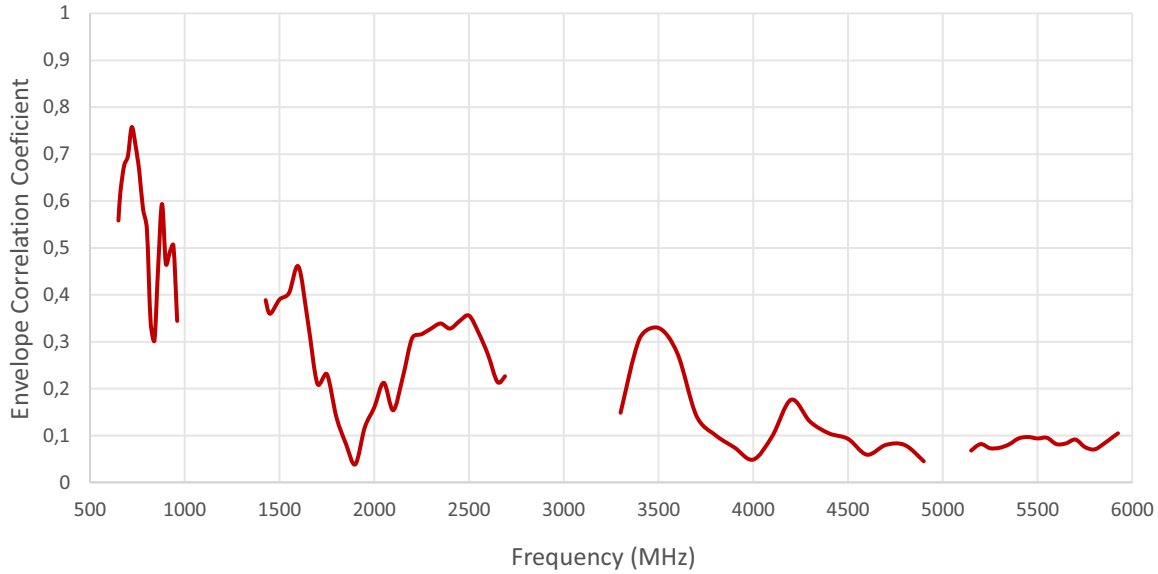

Peak Gain (dBi)
7
6
5
4
3
2
1
0
-1
-2
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
Frequency (MHz)


Average Gain (dB)
0
-1
-2
-3
-4
-5
-6
-7
500
1000
1500
2000
2500
3000
3500
4000
4500
5000
5500
6000
Frequency (MHz)

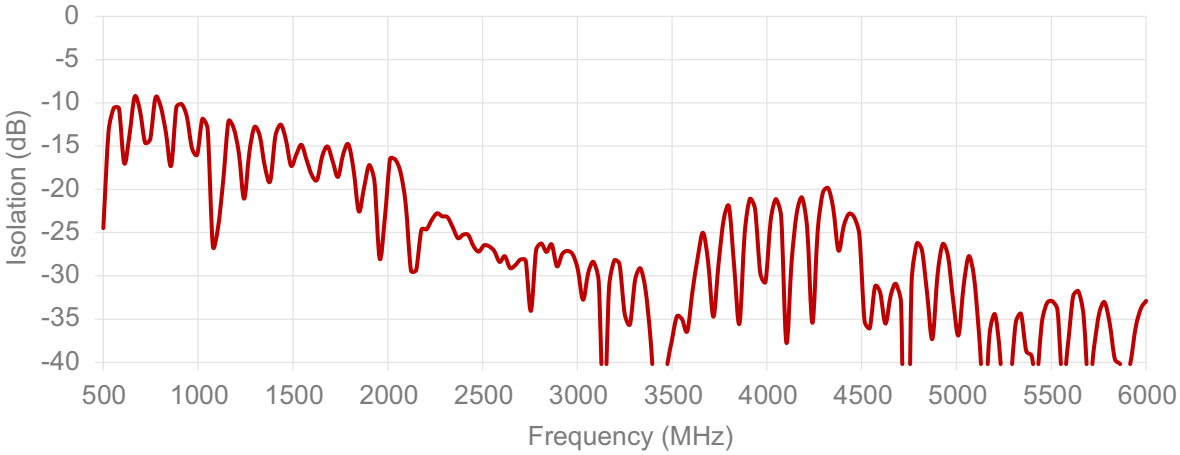
ISOLATION FOR CABLES 1 AND 2



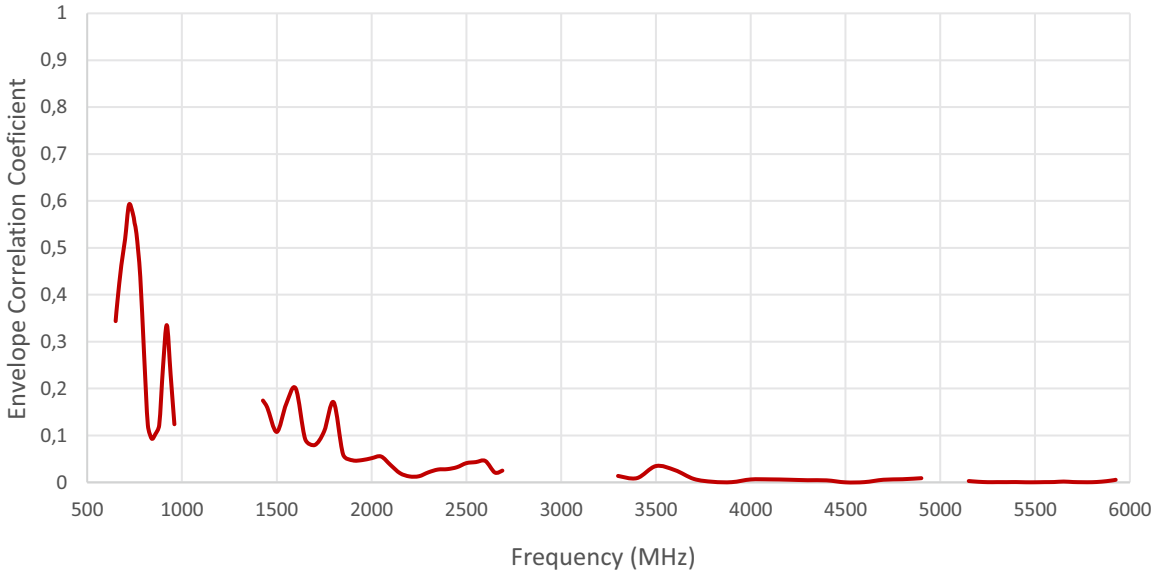
ENVELOPE CORRELATION COEFFICIENT FOR CABLES 1 AND 2



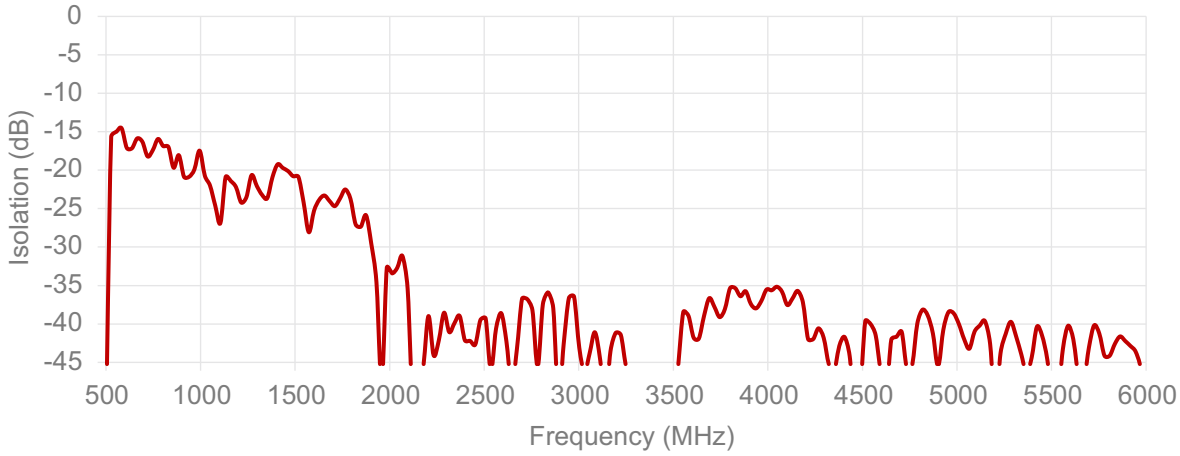
ISOLATION FOR CABLES 1 AND 3



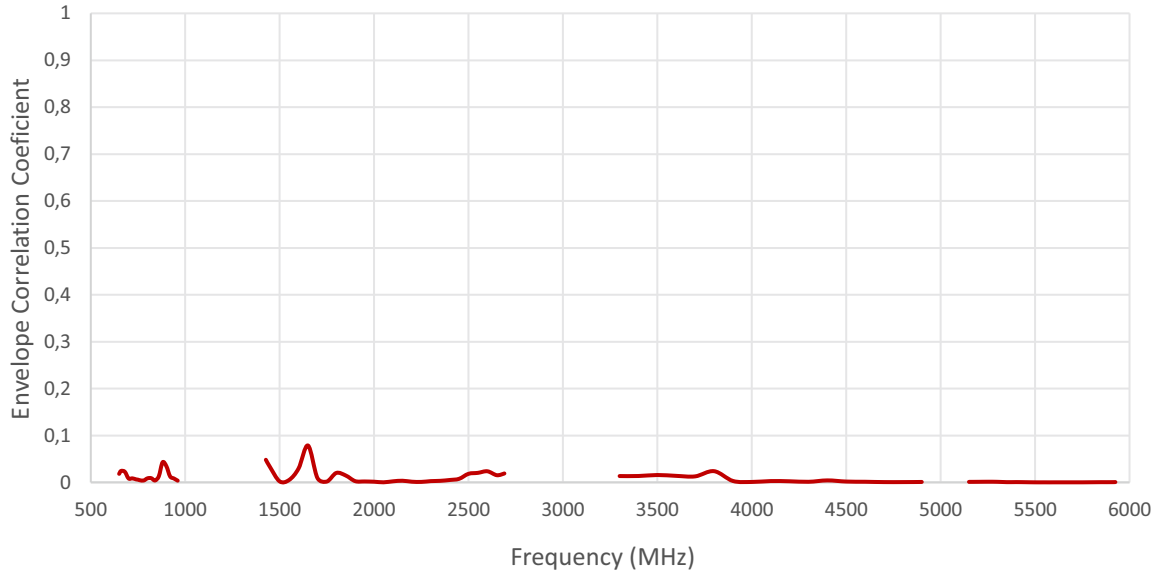
ENVELOPE CORRELATION COEFFICIENT FOR CABLES 1 AND 3



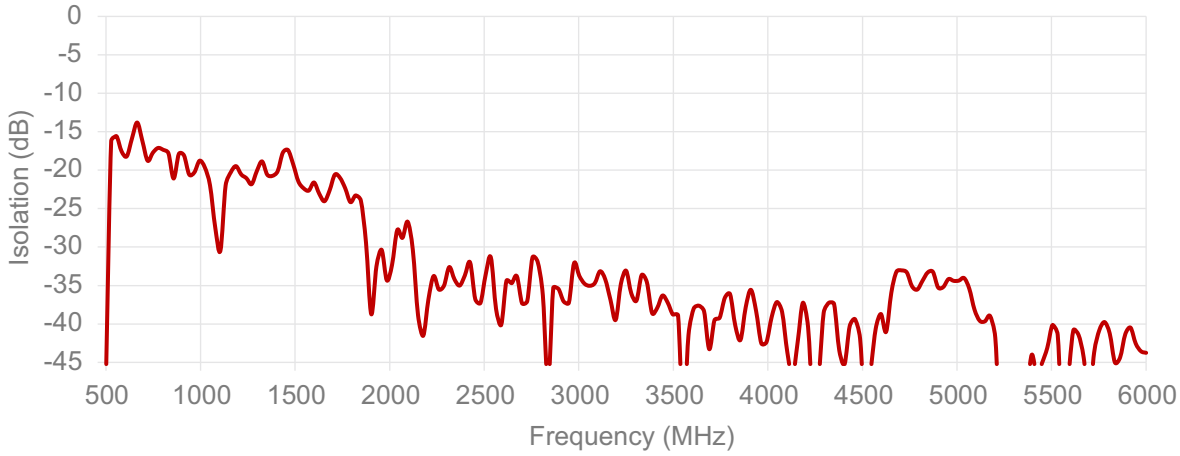
ISOLATION FOR CABLES 1 AND 6



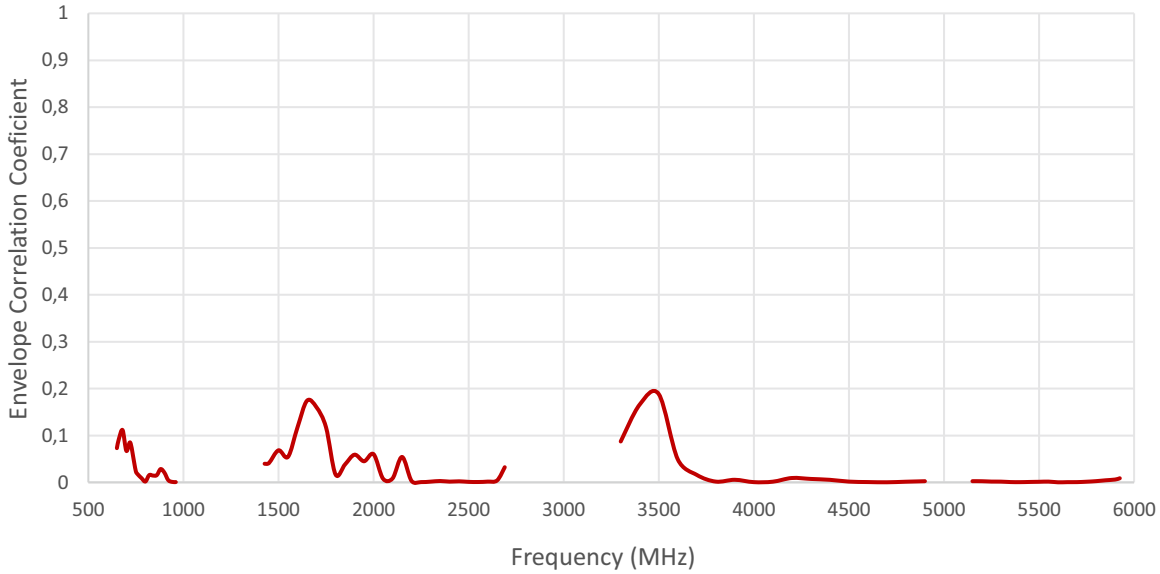
ENVELOPE CORRELATION COEFFICIENT FOR CABLES 1 AND 6



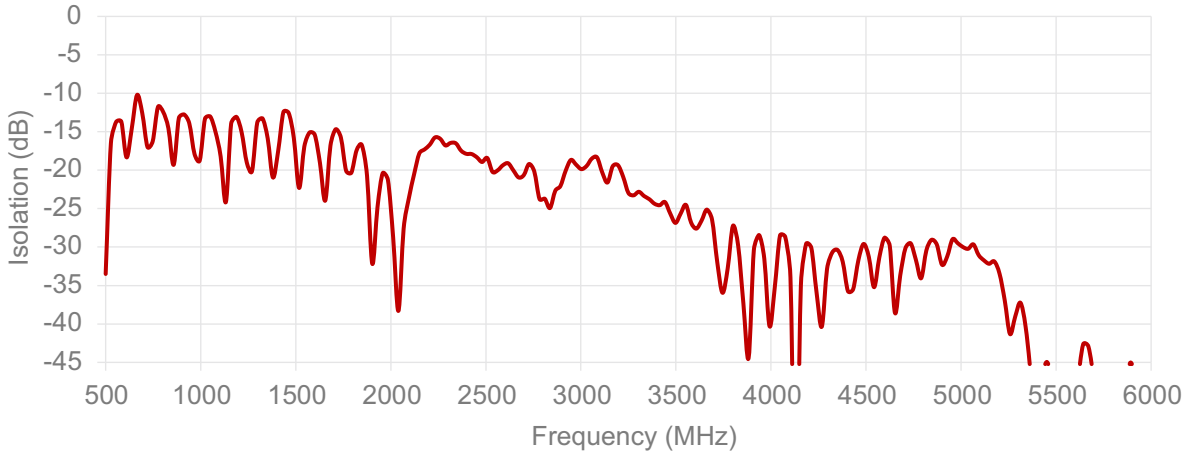
ISOLATION FOR CABLES 2 AND 5



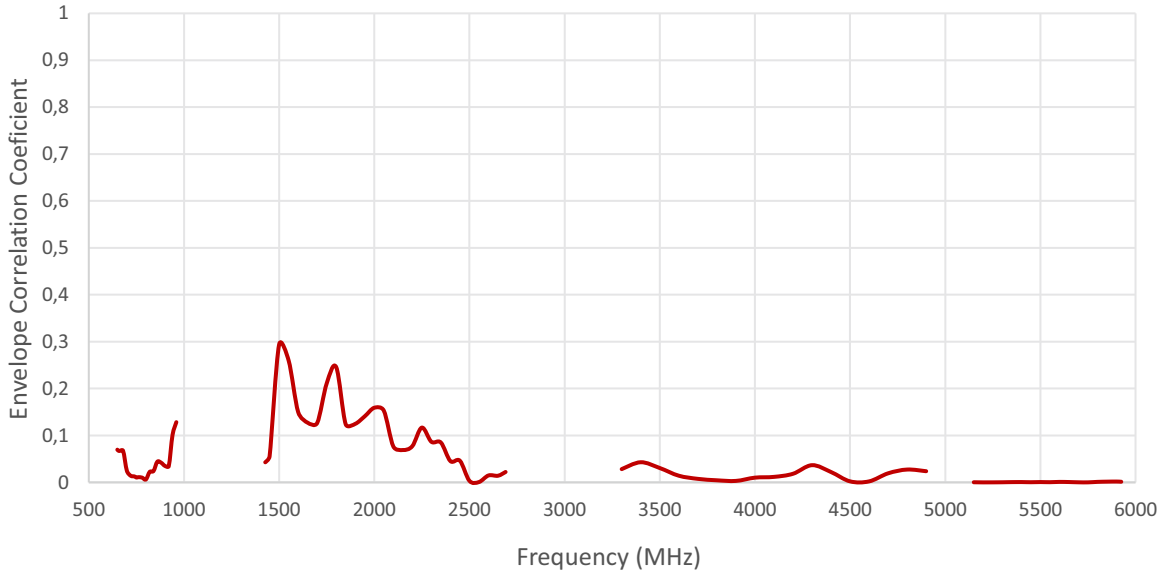
ENVELOPE CORRELATION COEFFICIENT FOR CABLES 2 AND 5

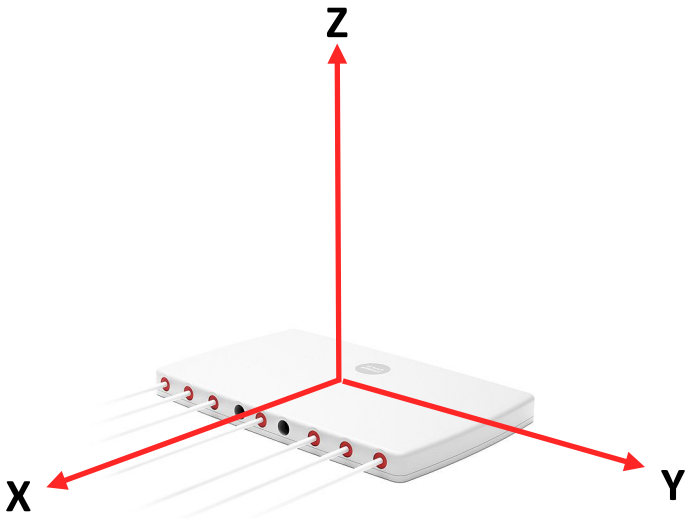


ISOLATION FOR CABLES 3 AND 4



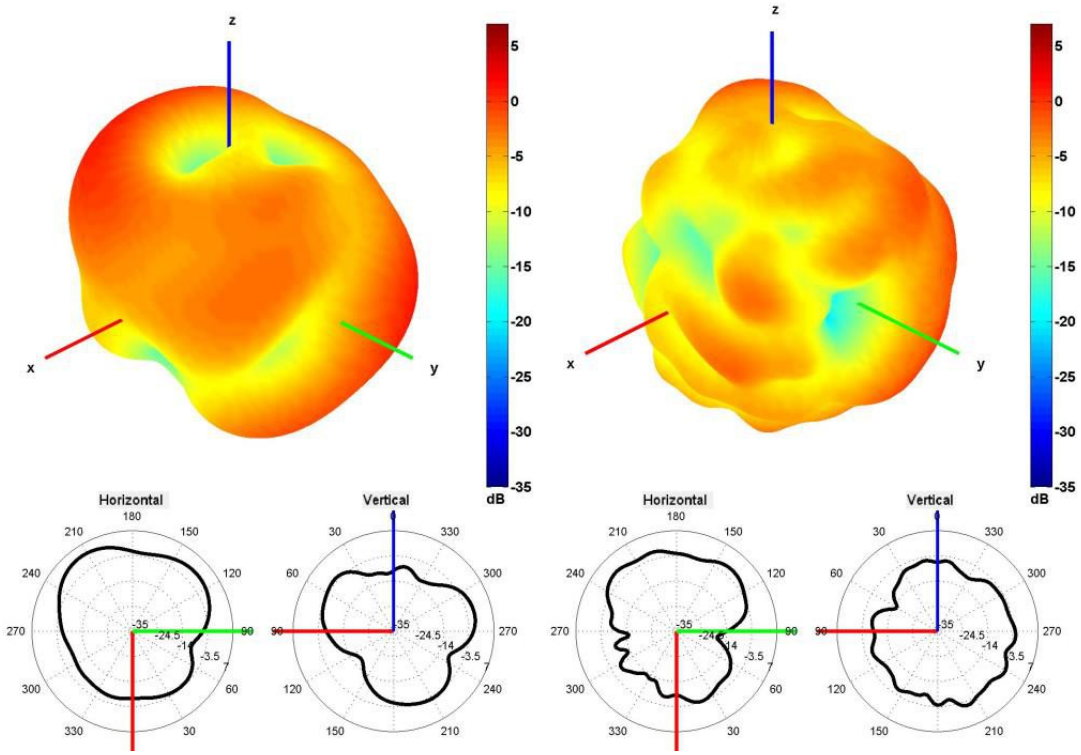
ENVELOPE CORRELATION COEFFICIENT FOR CABLES 3 AND 4



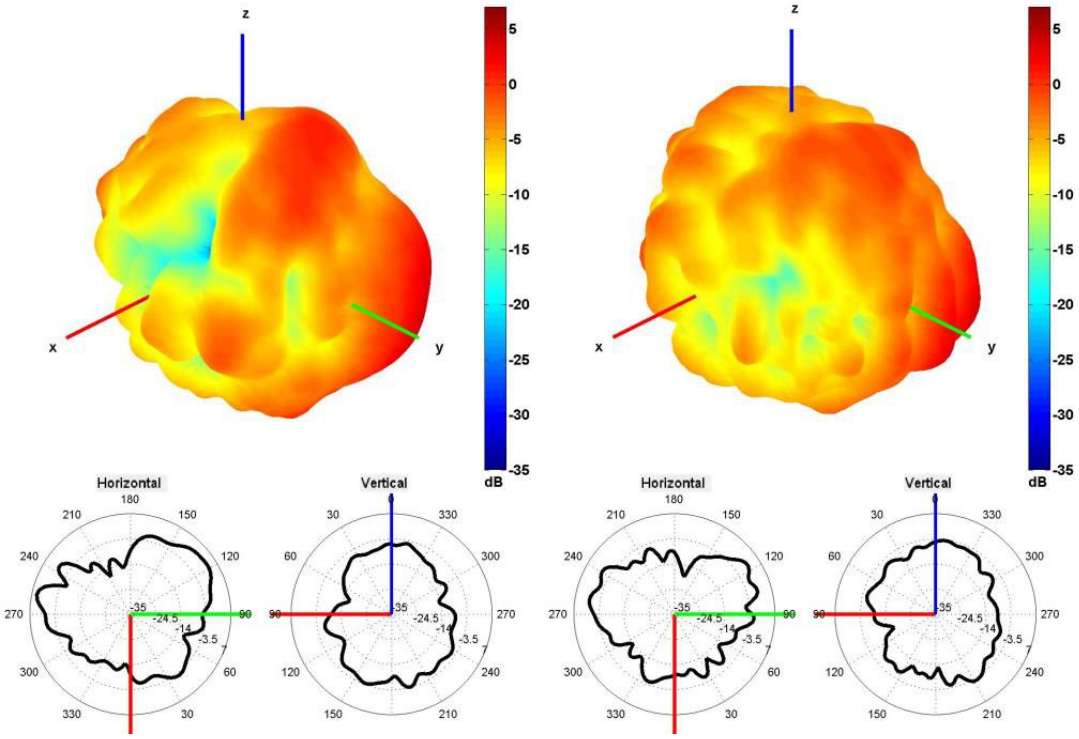


Radiation pattern reference

Cable 1: 5GNR

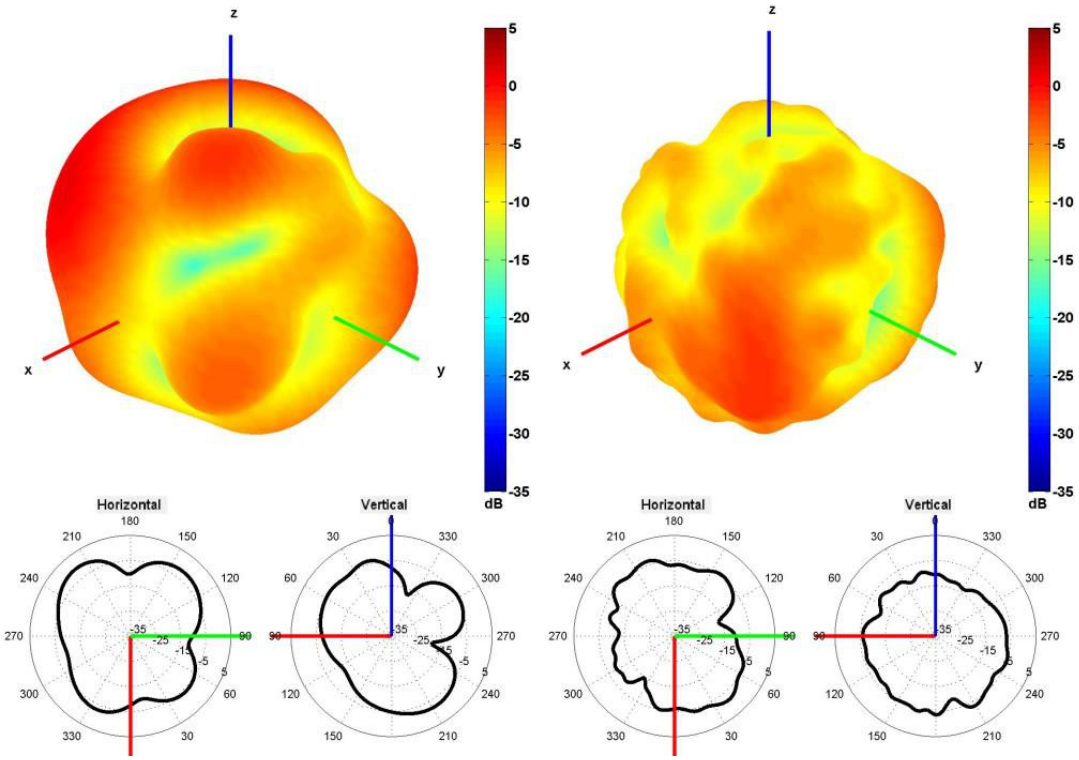


750 and 2500 MHz Radiation pattern

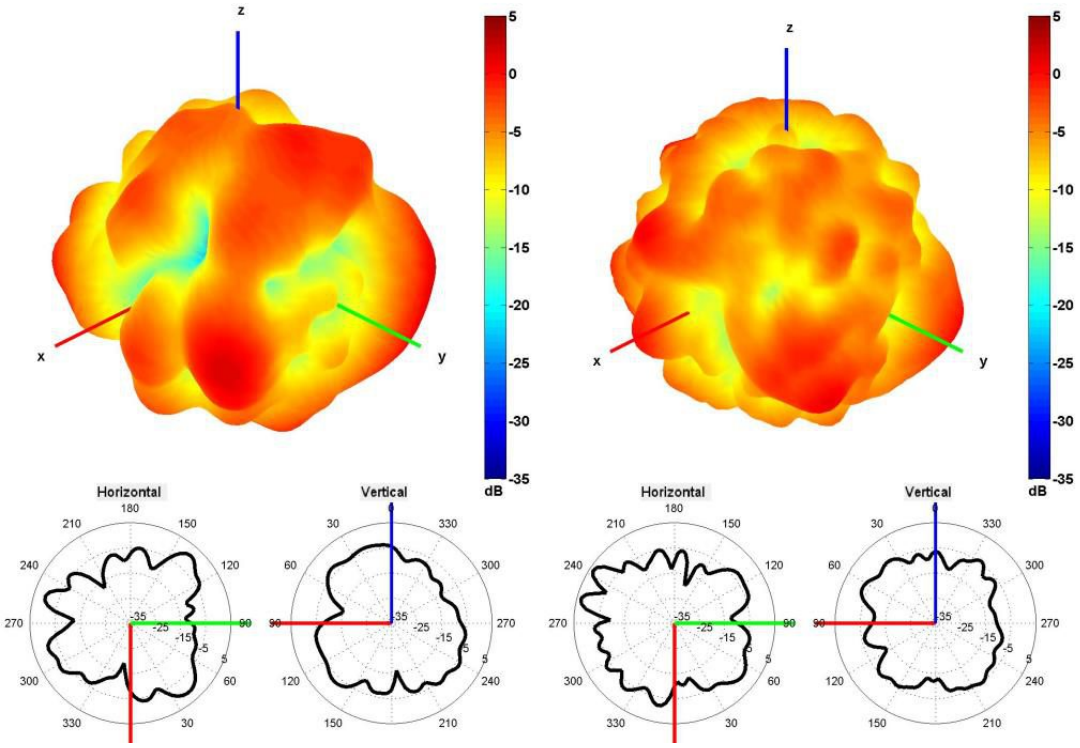


4500 and 5500 MHz Radiation pattern

Cable 2: 5GNR

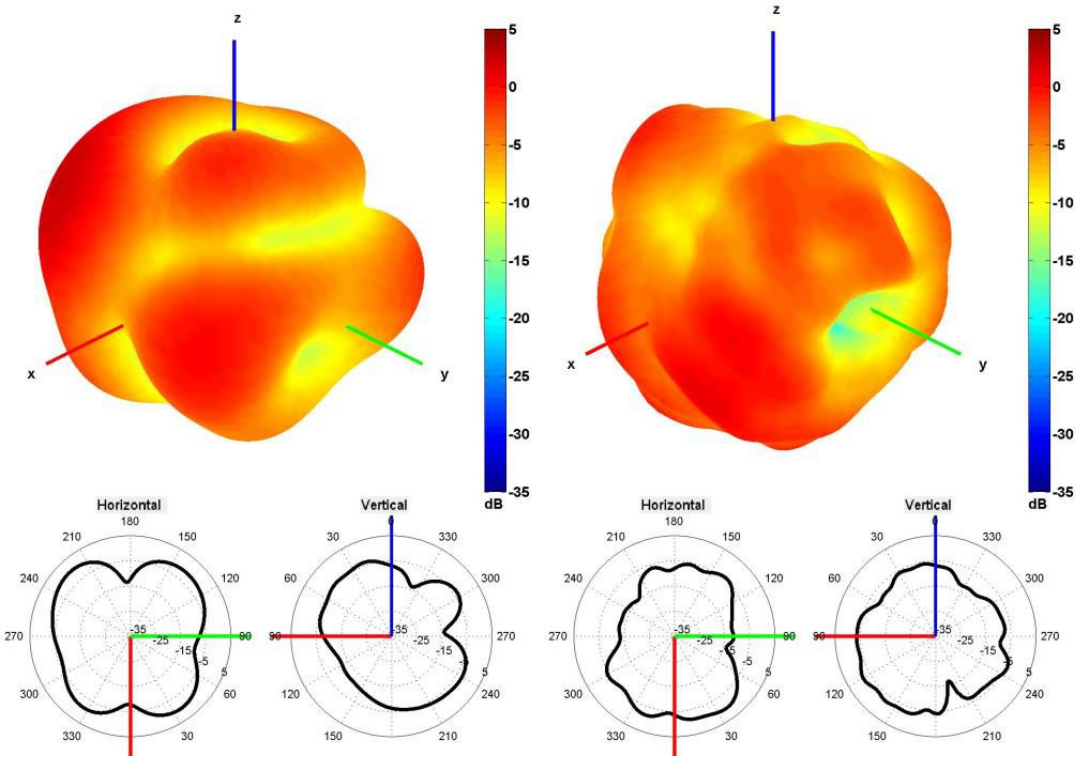


750 and 2500 MHz Radiation pattern

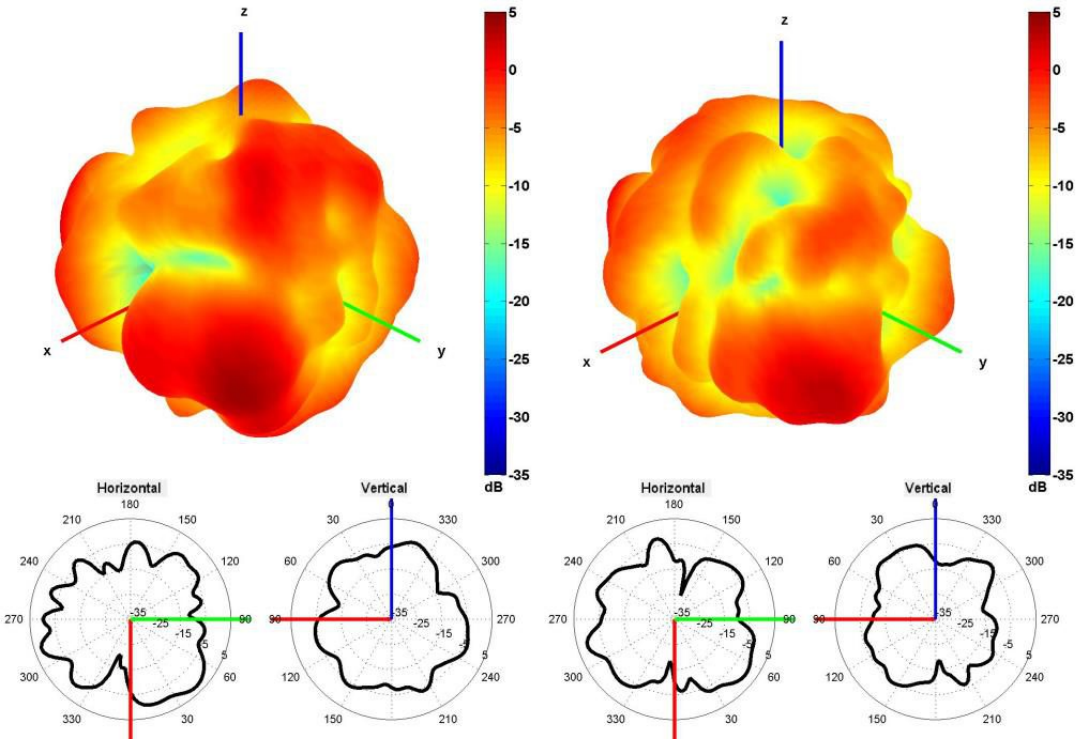


4500 and 5500 MHz Radiation pattern

Cable 3: 5GNR

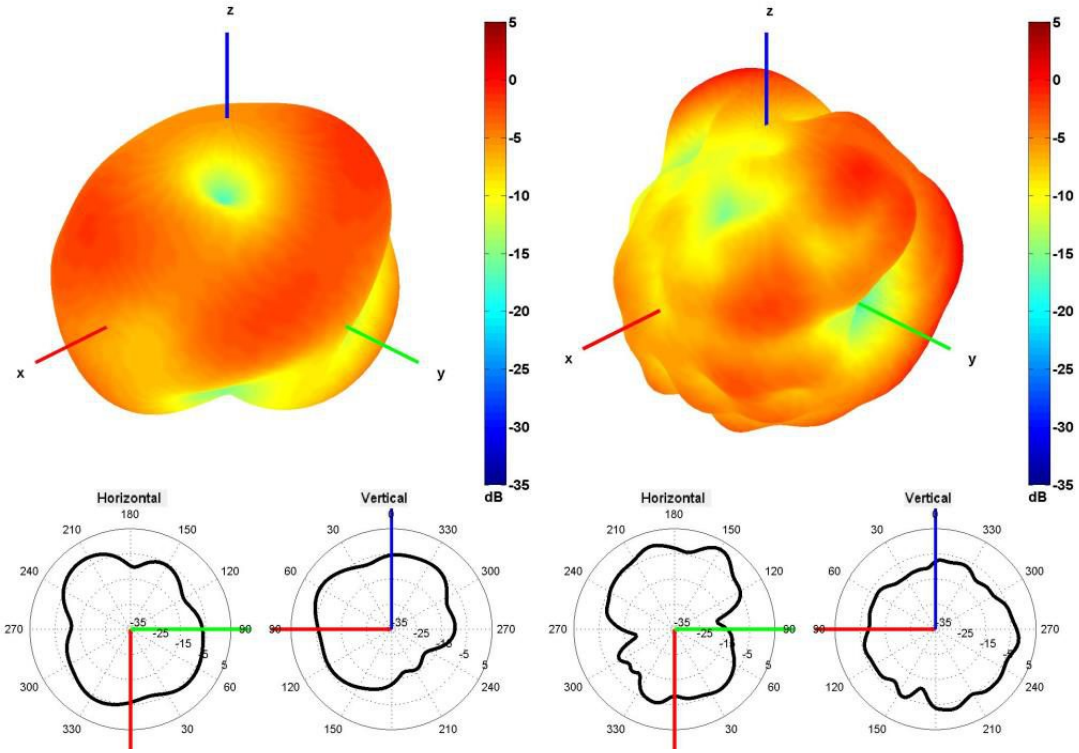


750 and 2500 MHz Radiation pattern

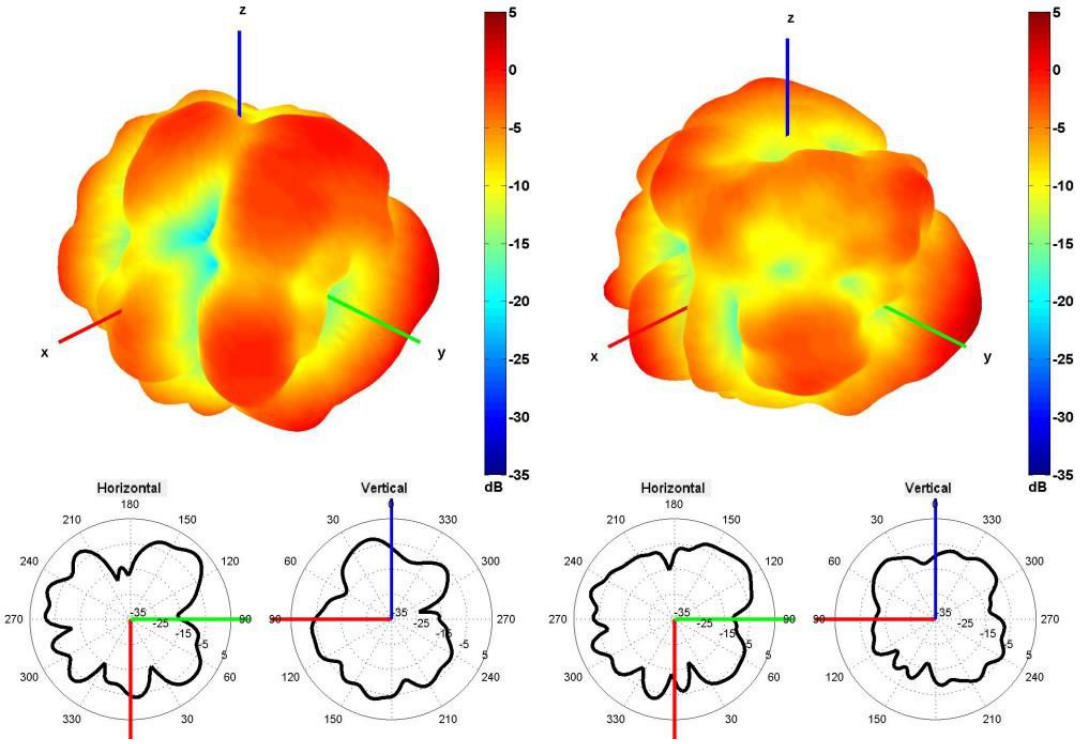


4500 and 5500 MHz Radiation pattern

Cable 4: 5GNR

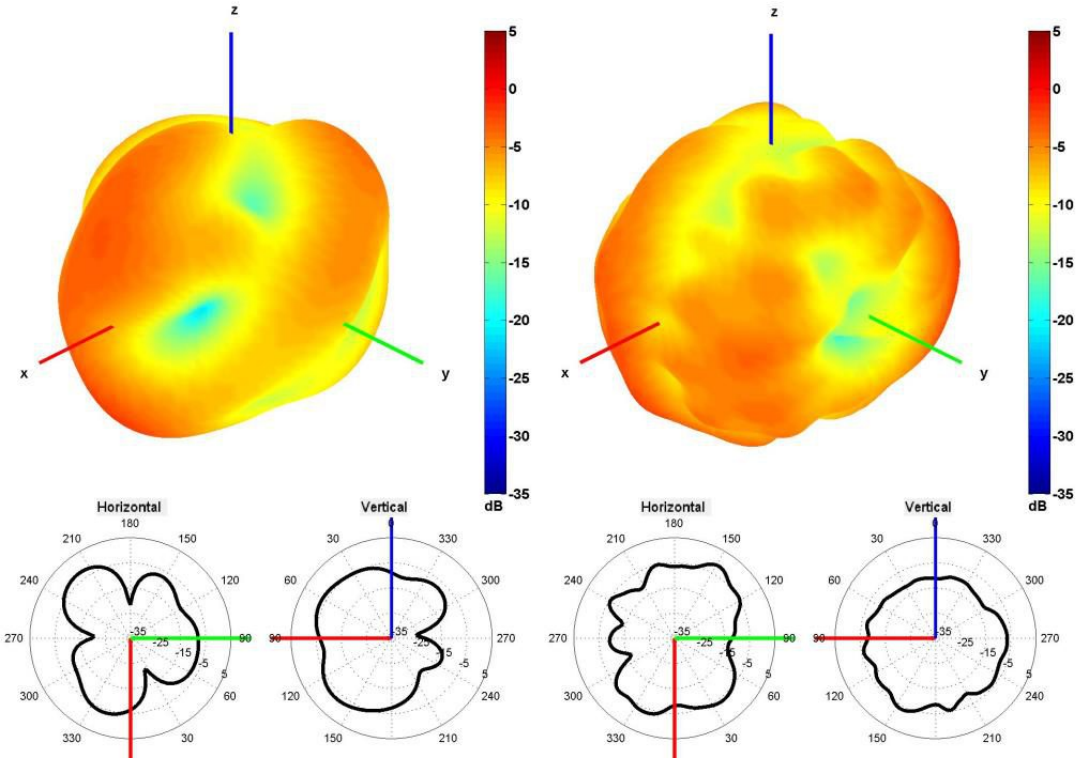


750 and 2500 MHz Radiation pattern

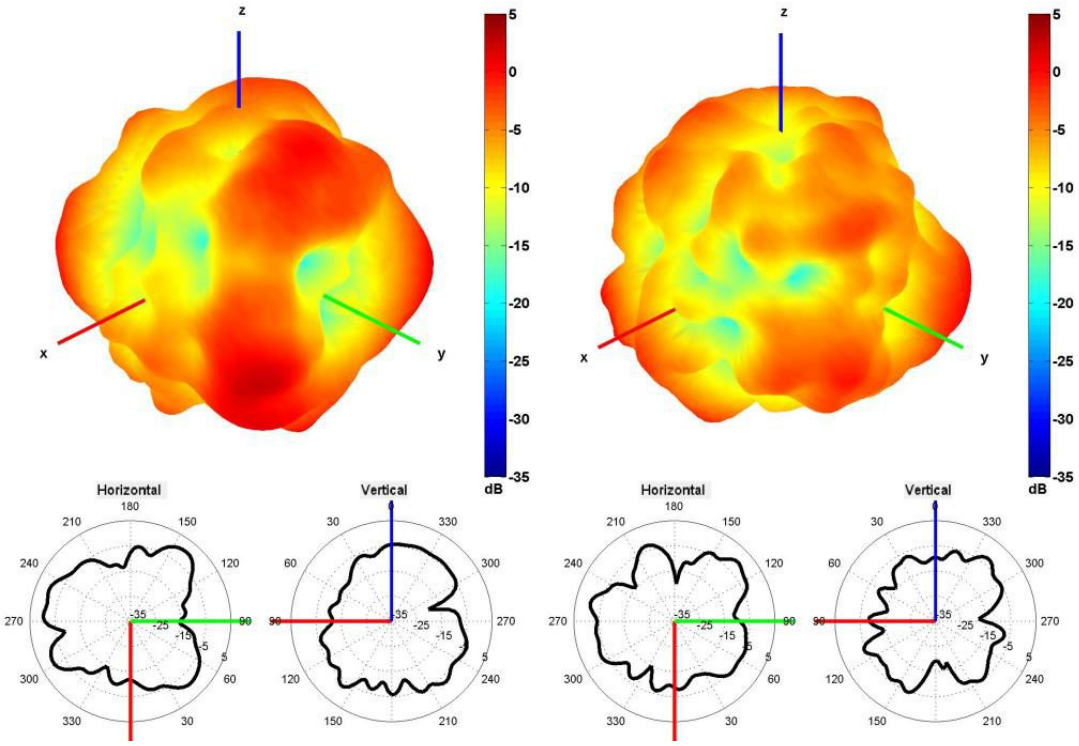


4500 and 5500 MHz Radiation pattern

Cable 5: 5GNR

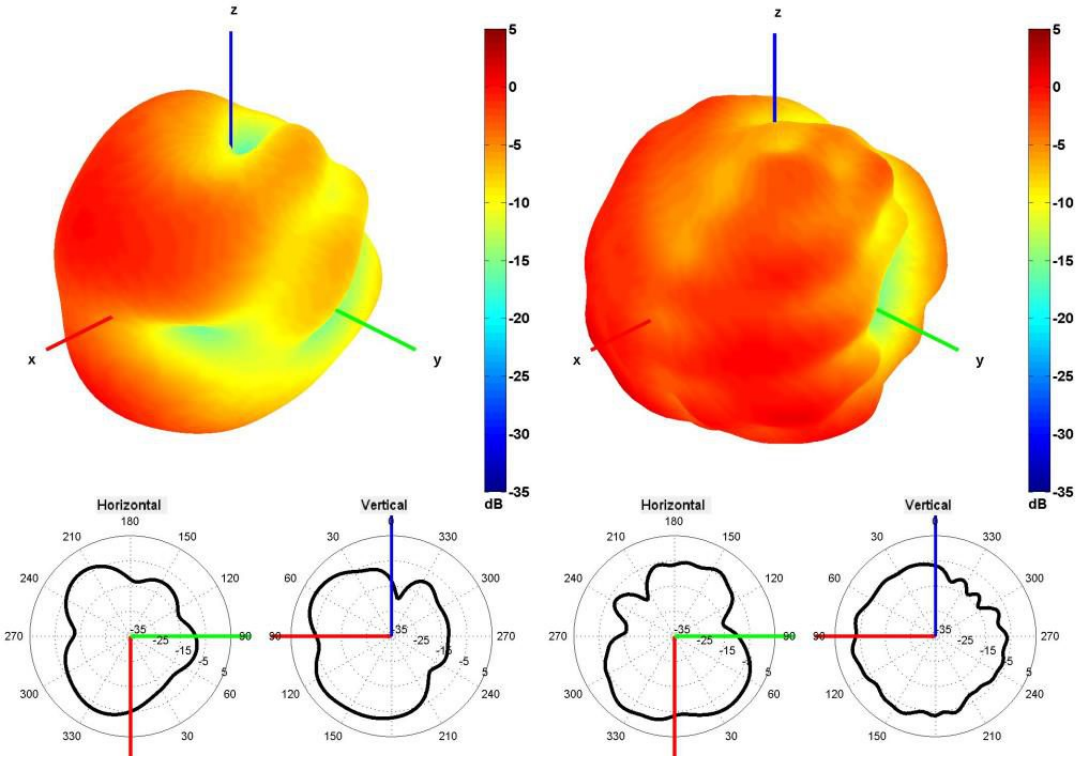


750 and 2500 MHz Radiation pattern

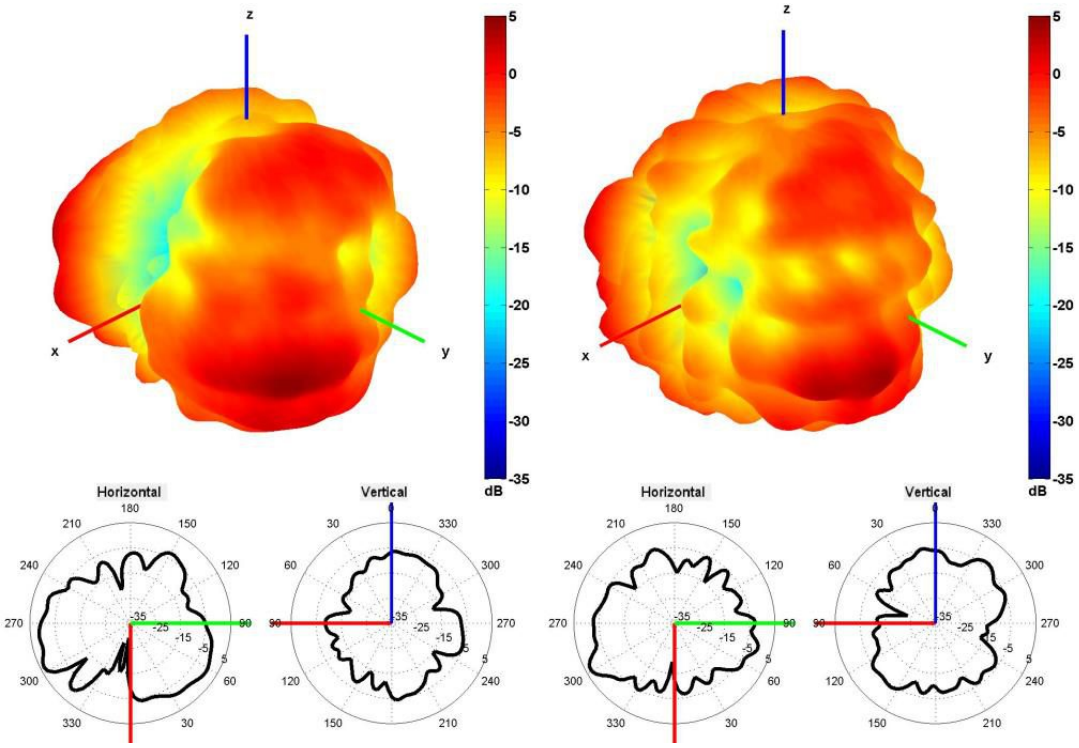


4500 and 5500 MHz Radiation pattern

Cable 6: 5GNR



750 and 2500 MHz Radiation pattern

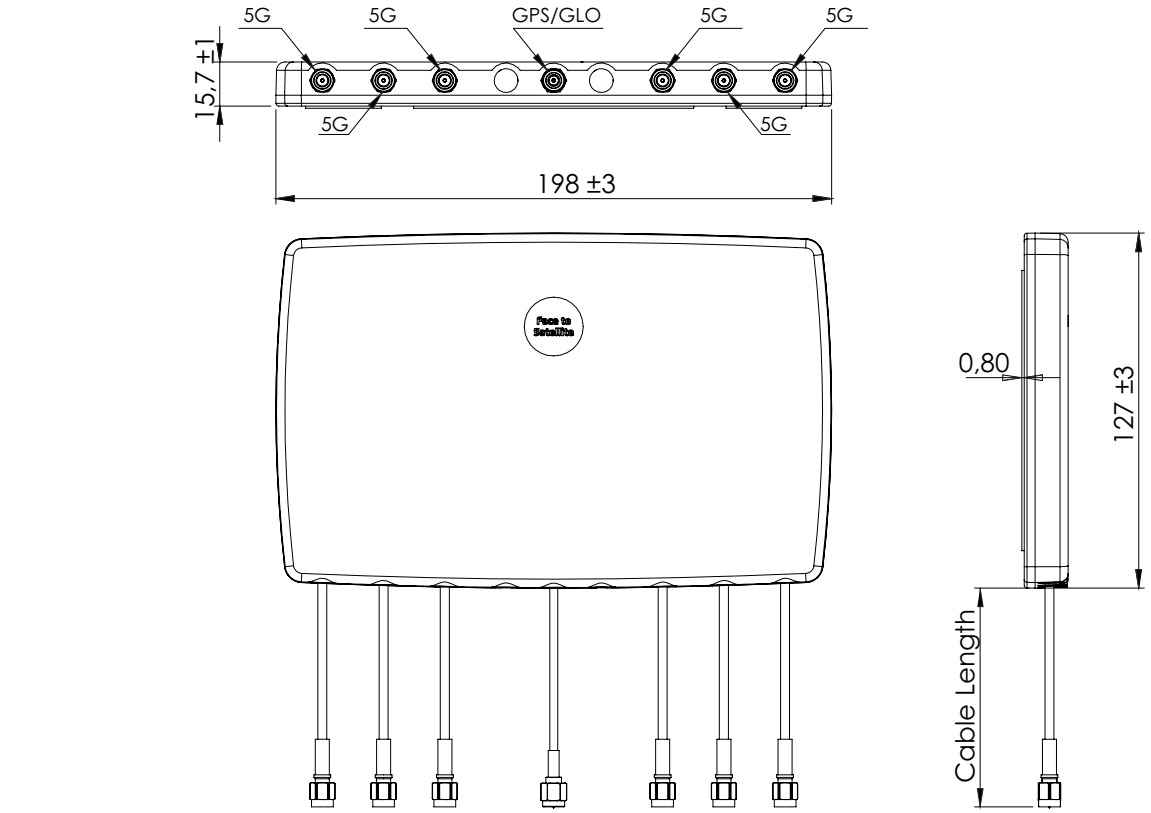


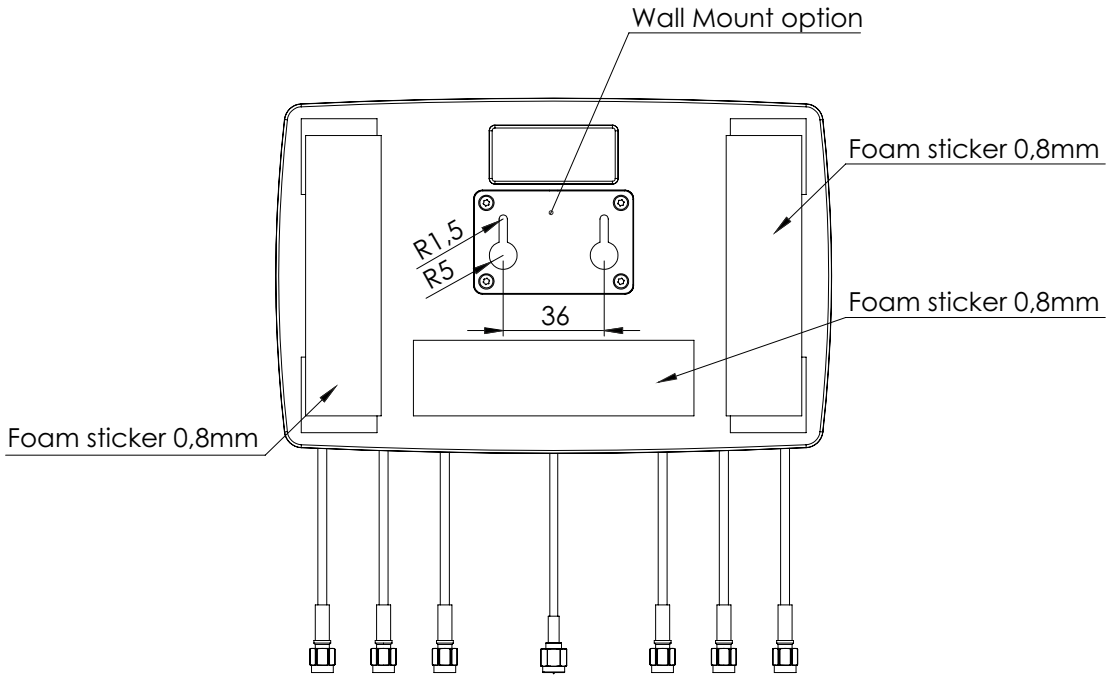
4500 and 5500 MHz Radiation pattern

4. Antenna drawings

Default Adhesive Option

2J4H84PGFe - Three Foam stickers included in packaging

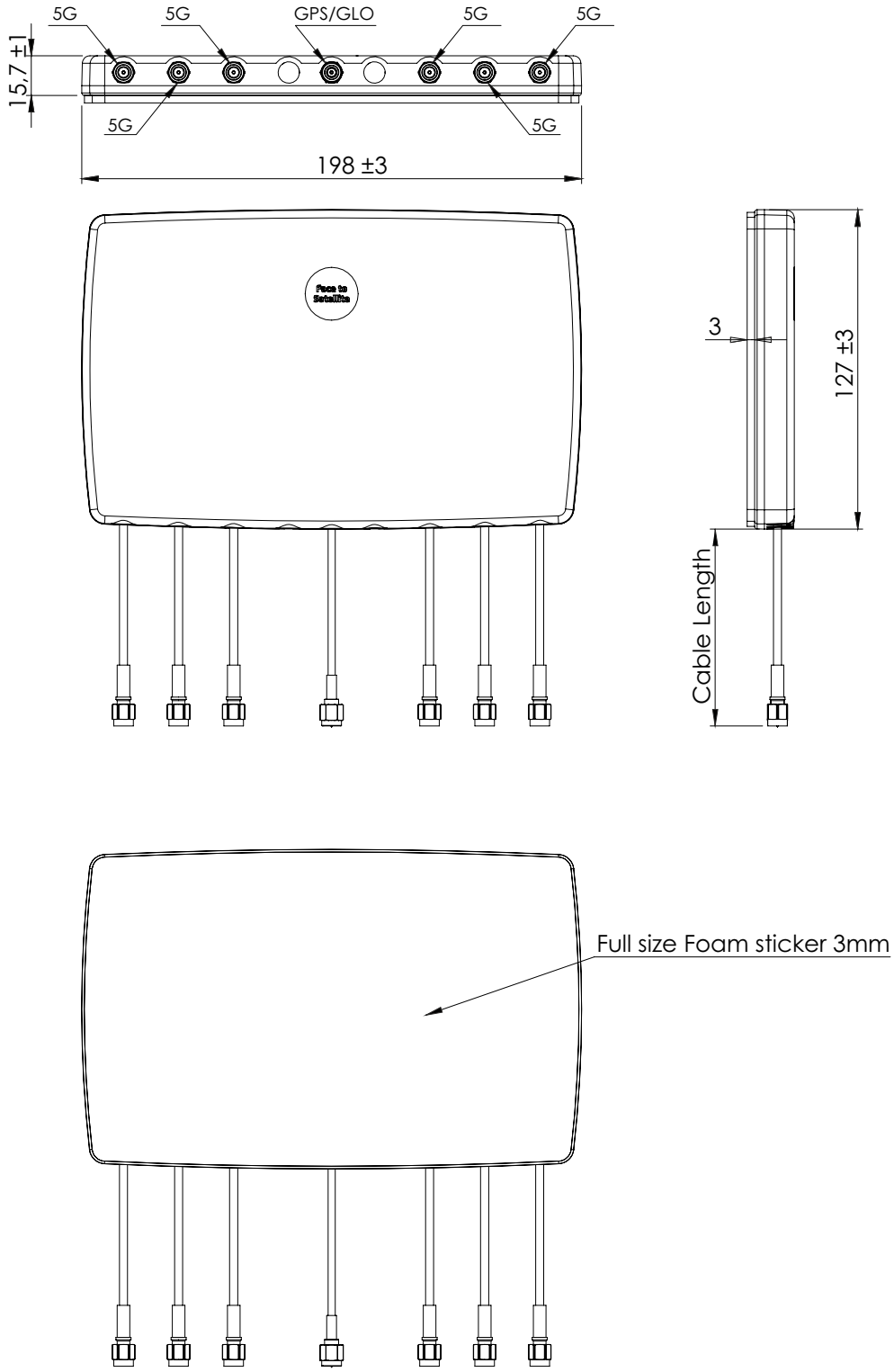




4. Antenna drawings

Optional Full Size Adhesive Option

2J4H84PGFe-SP - Full size Foam sticker included in packaging



5. Antenna Images