TAOGLAS

Datasheet

Adhesive Antenna

Part No:
GSA.8846.A.105111

Description

IP67 Rated Wideband 5G/4G Adhesive Mount Antenna

Features:

450-470MHz and 698-6000MHz Coverage

Suitable for 5G/4G/Wi-Fi Applications

Adhesive Mount Antenna

IP67 Rated Enclosure

Cable: 1m TGC-200

Connector: SMA(M)

Dimensions: 176mm * 59mm *11.6mm

RoHS & Reach Compliant

1. Introduction

The Taoglas GSA.8846 Wideband Dipole Antenna has been designed to cover all Cellular, ISM and Wi-Fi working frequencies in the 450-6000 MHz spectrum. It has the highest wide-band efficiency in its range of any I-Bar style antenna on the market today.

The GSA.8846 has been primarily designed for use with 4G LTE modules and devices that require the highest possible efficiency and peak gain to deliver best in class throughput on all major cellular (4G/3G/2G) bands worldwide, vital for applications such as high-speed video and real-time streaming, or high-capacity MIMO networks on public transportation.

It is supplied with a 1-meter coaxial cable and SMA (M) connector as standard but both can be customized upon request. The robust, low-profile enclosure is IP67 rated for use in the most demanding of applications. re for mounting via high quality first tier automotive approved 3M adhesive foam.

The GSA.8846 exhibits high efficiency and is backward compatible with 3G and 2G cellular applications such as GSM, LTE, UMTS, and Wi-Fi.

It is an ideal solution for any device requiring high, reliable performance. It is also guaranteed to meet any type approval or carrier certification requirements from an efficiency standpoint. The antenna also makes an excellent reference antenna for test purposes. It has been designed as an omnidirectional antenna, as can be seen in the radiation patterns, which is stable across all bands.

Contact your regional customer support team for further information.

2. Specification

Electrical									
Band	**Frequency (MHz)**	**Set-up**		**Efficiency (%)**	**Average Gain (dB)**	**Peak Gain (dBi)**	**Impedance**	**Polarization**	**Radiation Pattern**	**Input Power**
LTE 450	450-470	In free space	0.3M	54.59	-2.70	-0.03	50Ω	Linear	Omni	5W
			1M	52.14	-2.90	-0.23				
			2M	48.66	-3.20	-0.53				
			3M	46.47	-3.40	-0.73				
			5M	41.42	-3.90	-1.23				
		On 2mm ABS Base	0.3M	35.95	-4.54	-0.76				
			1M	34.34	-4.74	-0.96				
			2M	32.05	-5.04	-1.26				
			3M	30.61	-5.24	-1.46				
			5M	27.28	-5.74	-1.25				
		On Glass Base	0.3M	19.55	-7.63	-1.88				
			1M	18.67	-7.83	-2.08				
			2M	17.42	-8.13	-2.38				
			3M	16.64	-8.33	-2.58				
			5M	14.83	-8.83	-1.99				
LTE 700	698-806	In free space	0.3M	68.84	-1.78	2.76				
			1M	65.27	-2.02	2.56				
			2M	60.91	-2.32	2.26				
			3M	56.34	-2.65	1.86				
			5M	48.67	-3.28	1.26				
		On 2mm ABS Base	0.3M	68.97	-1.63	2.19				
			1M	65.24	-1.87	1.99				
			2M	60.88	-2.17	1.69				
			3M	56.40	-2.50	1.29				
			5M	48.74	-3.13	0.69				
		On Glass Base	0.3M	67.74	-1.70	1.73				
			1M	64.00	-1.95	1.53				
			2M	59.72	-2.25	1.23				
			3M	55.36	-2.58	0.83				
			5M	47.88	-3.21	0.23				
GSM 850	824-894	In free space	0.3M	76.00	-1.21	2.85				
			1M	72.56	-1.41	2.65				
			2M	66.66	-1.78	2.35				
			3M	61.76	-2.11	1.95				
			5M	52.57	-2.81	1.25				
		On 2mm ABS Base	0.3M	66.19	-1.80	2.42				
			1M	63.20	-2.00	2.22				
			2M	58.05	-2.37	1.92				
			3M	53.79	-2.70	1.52				
			5M	45.78	-3.40	0.82				
		On Glass Base	0.3M	62.39	-2.05	2.09				
			1M	59.59	-2.25	1.89				
			2M	54.72	-2.62	1.59				
			3M	50.72	-2.95	1.19				
			5M	43.17	-3.65	0.49				
GSM 900	880-960	In free space	0.3M	63.84	-1.96	2.13				
			1M	60.97	-2.16	1.93				
			2M	55.61	-2.56	1.53				
			3M	51.59	-2.89	1.23				
			5M	43.62	-3.62	0.53				
		On 2mm ABS Base	0.3M	56.81	-2.46	1.66				
			1M	54.25	-2.66	1.46				
			2M	49.48	-3.06	1.06				
			3M	45.90	-3.39	0.76				
			5M	38.81	-4.12	0.06				
		On Glass Base	0.3M	53.07	-2.82	1.78				
			1M	50.71	-3.02	1.58				
			2M	46.25	-3.42	1.18				
			3M	42.94	-3.75	0.88				
			5M	36.30	-4.47	0.18				
DCS	1710-1880	In free space	0.3M	71.41	-1.46	2.83				
			1M	65.15	-1.86	2.43				
			2M	58.06	-2.36	1.93				
			3M	51.62	-2.87	1.43				
			5M	40.68	-3.91	0.43				
		On 2mm ABS Base	0.3M	61.27	-2.13	2.24				
			1M	55.89	-2.53	1.84				
			2M	49.81	-3.03	1.34				
			3M	44.29	-3.54	0.84				
			5M	34.91	-4.58	-0.26				
		On Glass Base	0.3M	66.77	-1.76	4.94				
			1M	60.90	-2.16	4.54				
			2M	54.28	-2.66	4.04				
			3M	48.25	-3.17	3.44				
			5M	38.04	-4.20	2.44				

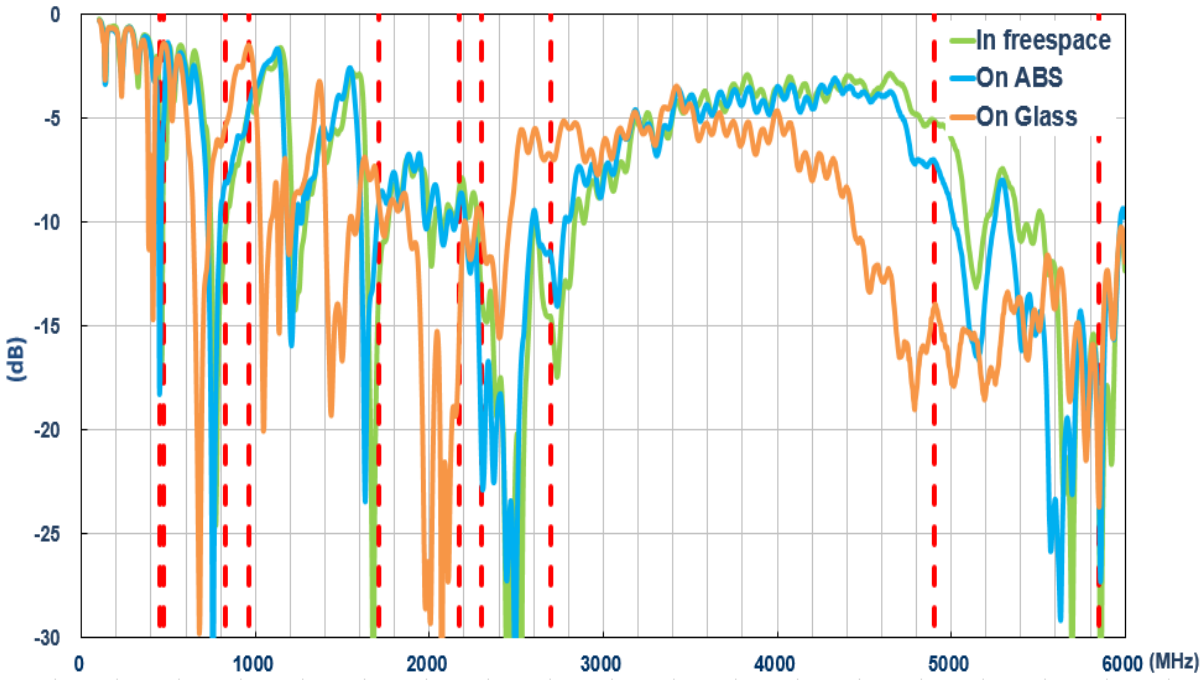
PCS	1850-1990	In free space	0.3M	60.60	-2.20	2.71				
			1M	55.27	-2.60	2.31				
			2M	48.66	-3.16	1.81				
			3M	43.04	-3.69	1.31				
			5M	33.74	-4.74	0.21				
		On 2mm ABS Base	0.3M	56.23	-2.51	2.60				
			1M	51.26	-2.91	2.20				
			2M	45.13	-3.46	1.68				
			3M	39.90	-4.00	1.10				
			5M	31.30	-5.05	0.10				
		On Glass Base	0.3M	66.14	-1.80	5.34				
			1M	60.30	-2.20	4.94				
			2M	53.08	-2.76	4.40				
			3M	46.93	-3.29	3.84				
			5M	36.82	-4.34	2.84				
UMTS1	1920-2170	In free space	0.3M	66.79	-1.80	4.25				
			1M	61.44	-2.17	3.85				
			2M	53.84	-2.74	3.35				
			3M	47.59	-3.27	2.75				
			5M	37.06	-4.36	1.65				
		On 2mm ABS Base	0.3M	59.11	-2.30	3.65				
			1M	54.34	-2.66	3.34				
			2M	47.62	-3.24	2.75				
			3M	42.10	-3.77	2.15				
			5M	32.80	-4.86	1.05				
		On Glass Base	0.3M	67.56	-1.71	5.34				
			1M	62.12	-2.07	4.94				
			2M	54.43	-2.65	4.36				
			3M	48.12	-3.18	3.84				
			5M	37.50	-4.27	2.84				
LTE 2600	2300-2690	In free space	0.3M	74.19	-1.32	3.95				
			1M	67.65	-1.72	3.55				
			2M	58.57	-2.34	2.95				
			3M	50.96	-2.95	2.25				
			5M	38.51	-4.17	1.05				
		On 2mm ABS Base	0.3M	59.92	-2.25	2.95				
			1M	54.64	-2.65	2.55				
			2M	47.33	-3.27	1.95				
			3M	41.20	-3.88	1.35				
			5M	31.13	-5.10	0.15				
		On Glass Base	0.3M	57.39	-2.47	4.51				
			1M	52.35	-2.87	4.11				
			2M	45.38	-3.50	3.41				
			3M	39.52	-4.10	2.81				
			5M	29.88	-5.32	1.51				
C-Band	3400-3800	In free space	0.3M							
			1M	29.12	-4.96	0.59				
			2M							
			3M							
			5M							
		On 2mm ABS Base	0.3M							
			1M	33.6	-4.84	1.76				
			2M							
			3M							
			5M							
		On Glass Base	0.3M							
			1M	37.6	-4.28	3.22				
			2M							
			3M							
			5M							
WIFI 5G	4900-5850	In free space	0.3M	62.65	-2.10	6.02				
			1M	53.79	-2.76	5.32				
			2M	43.57	-3.67	4.42				
			3M	35.29	-4.58	3.52				
			5M	23.13	-6.41	1.72				
		On 2mm ABS Base	0.3M	59.13	-2.31	5.63				
			1M	50.80	-2.97	4.93				
			2M	41.16	-3.88	4.03				
			3M	33.36	-4.79	3.13				
			5M	21.88	-6.62	1.33				
		On Glass Base	0.3M	49.94	-3.04	4.94				
			1M	42.92	-3.69	4.24				
			2M	34.76	-4.61	3.34				
			3M	28.18	-5.52	2.44				
			5M	18.48	-7.35	0.64				

Mechanical	
Casing	ABS
Coaxial Cable	TGC-200 Low Loss Cable
Cable Length	1 Meter Standard, Fully Customizable
Connector	SMA Male Standard, Fully Customizable
Adhesive	3M9448+CR4305 Double Sided Adhesive
Weight	127g

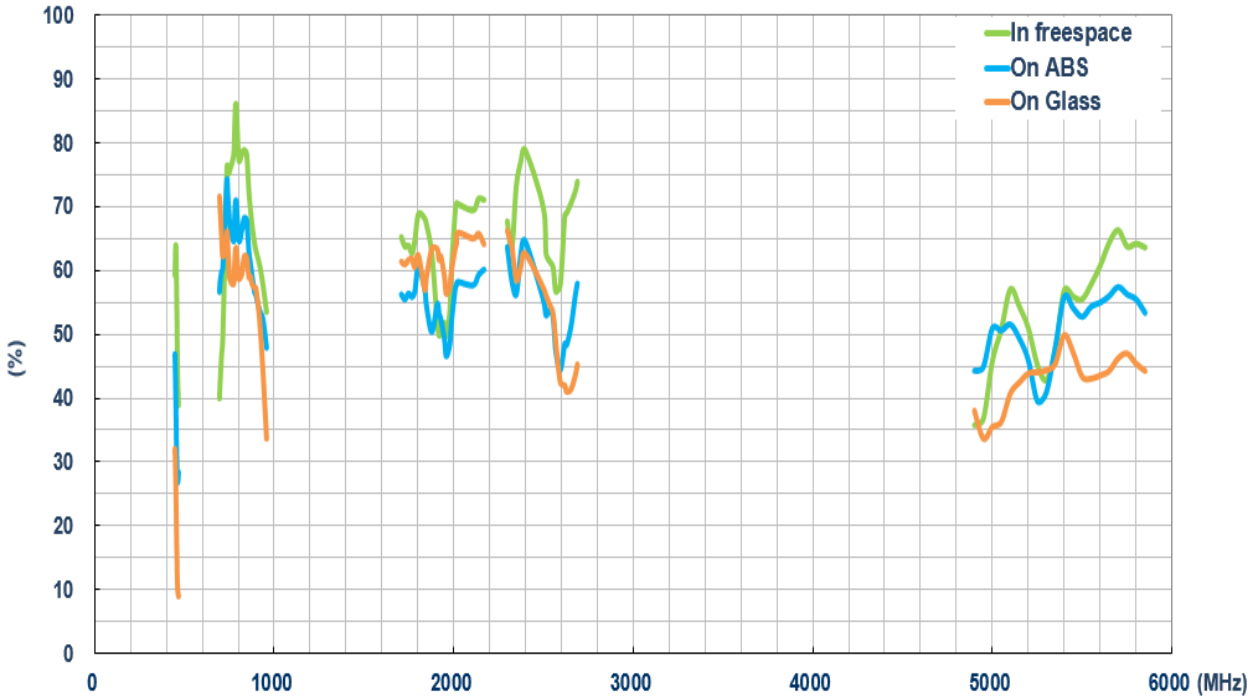
Environmental	
Ingress Protection	IP67
Operation Temperature Range	-40°C to 85°C
Storage Temperature Range	-40°C to 85°C
Humidity	Non-condensing 65°C 95% RH

3. Antenna Characteristics

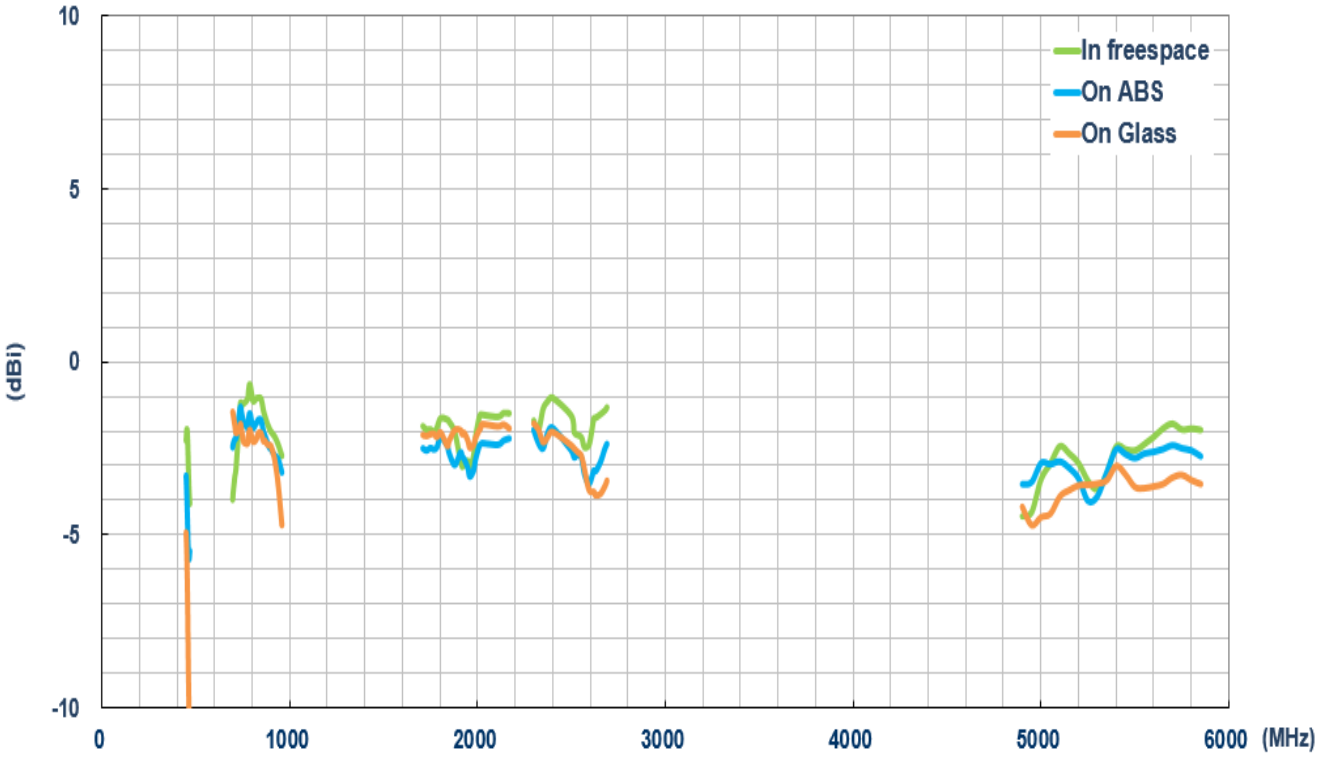
3.1 Return Loss



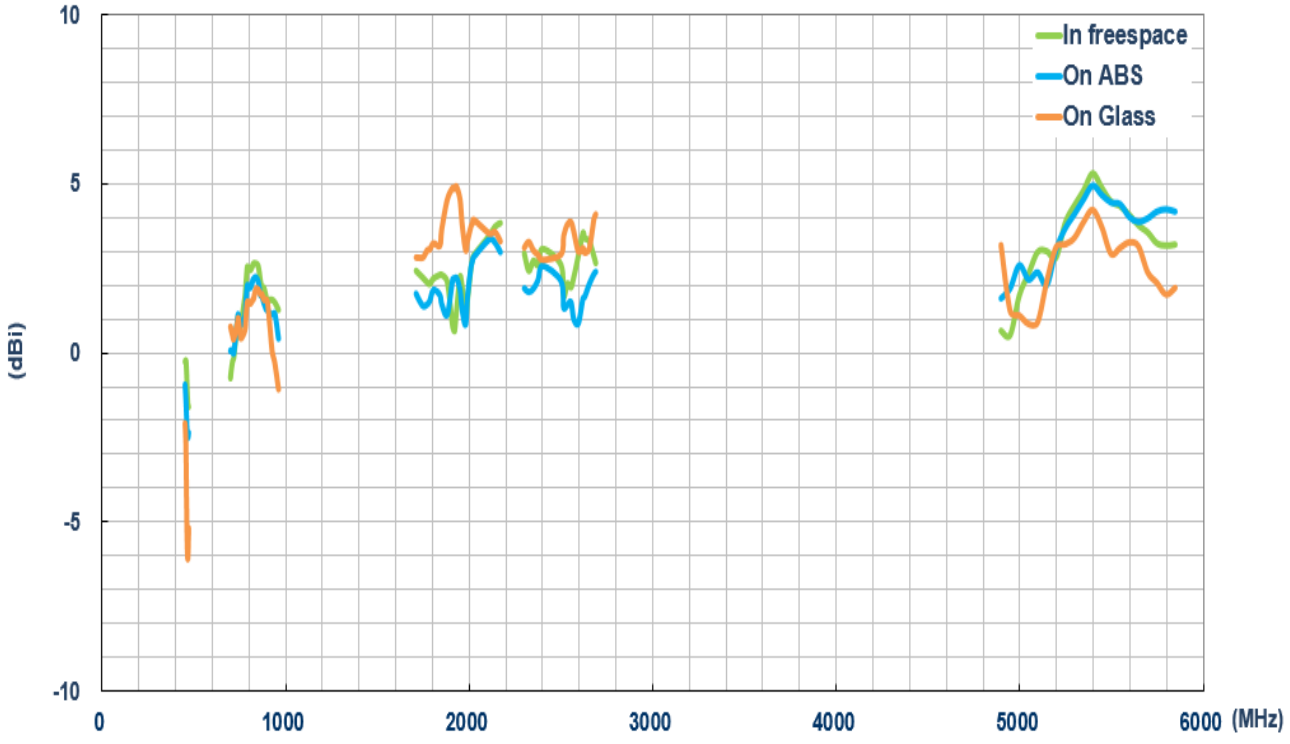
3.2 Efficiency



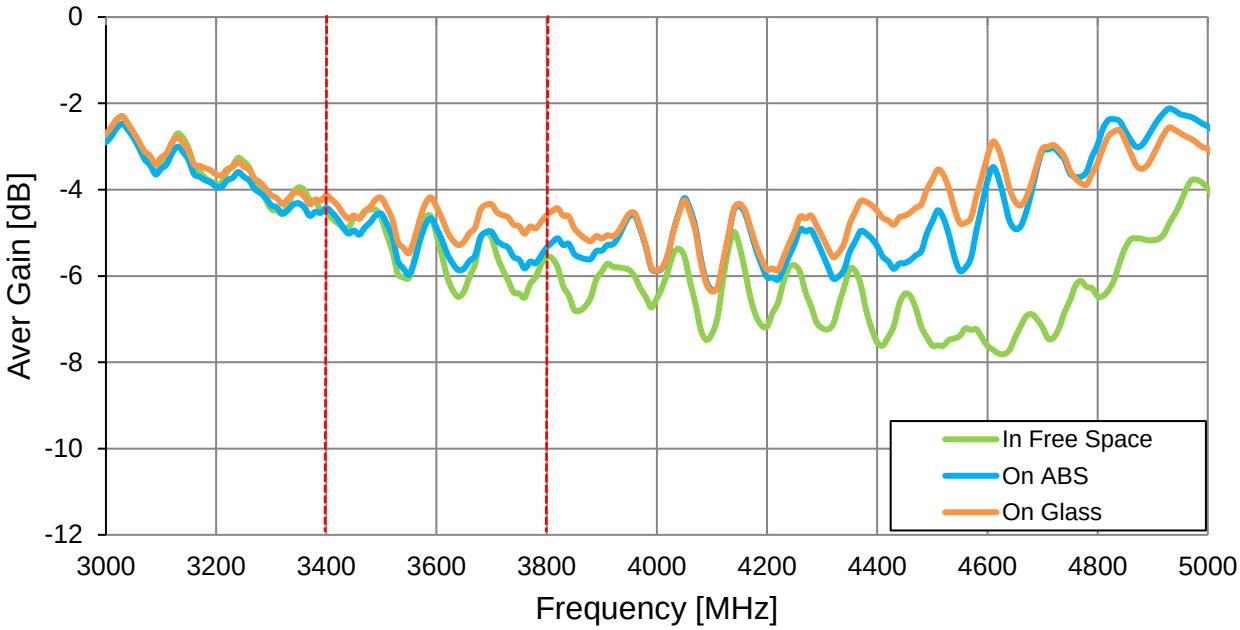
3.3 Average Gain



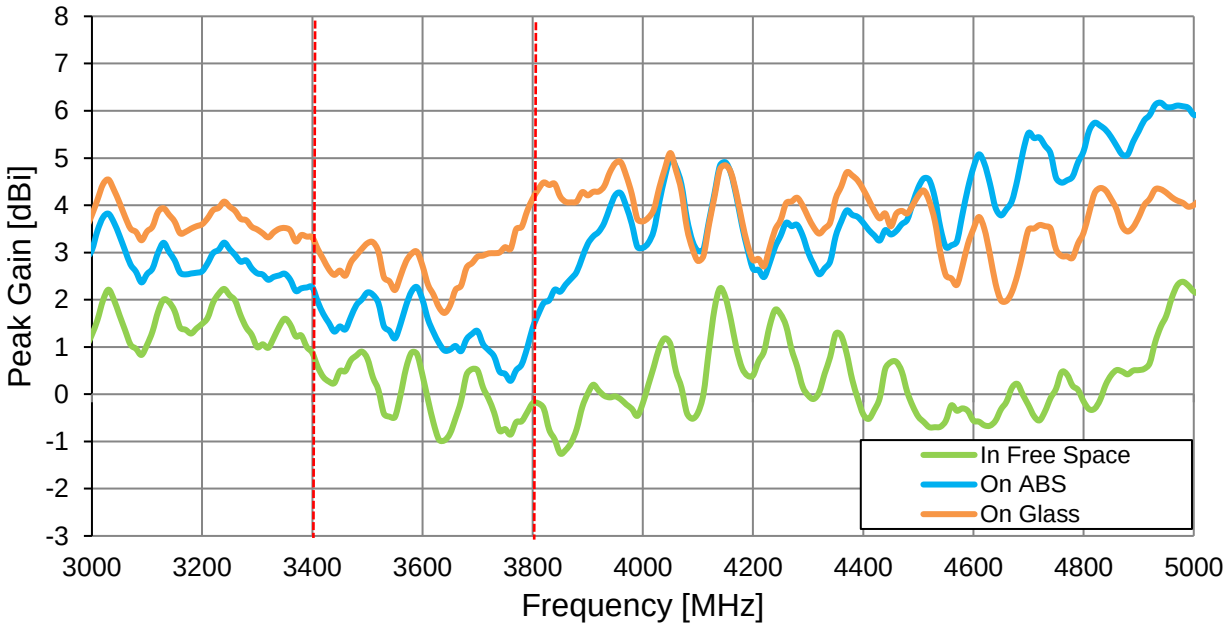
3.4 Peak Gain



3.5 Average Gain (3000-5000MHz)

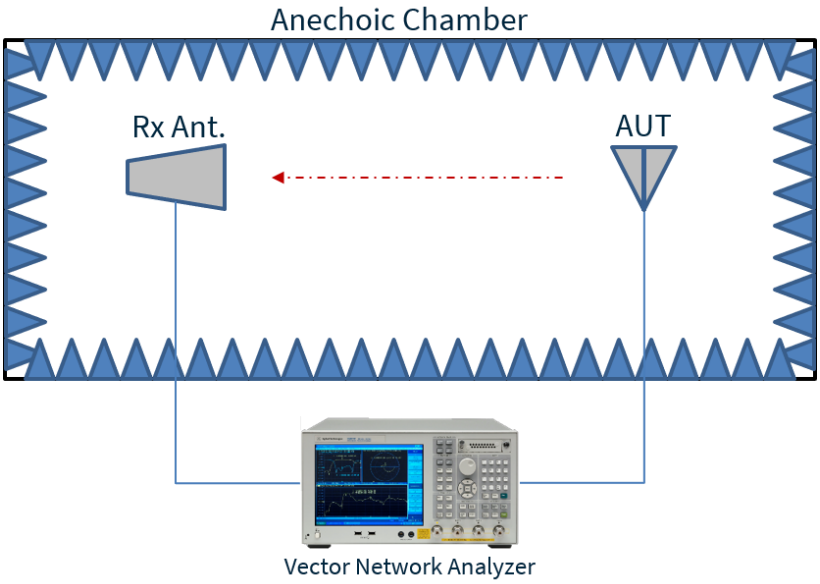


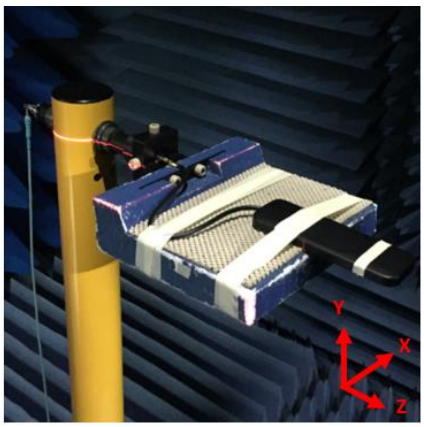
3.6 Peak Gain (3000-5000MHz)



4. Radiation Patterns

4.1 Test Setup



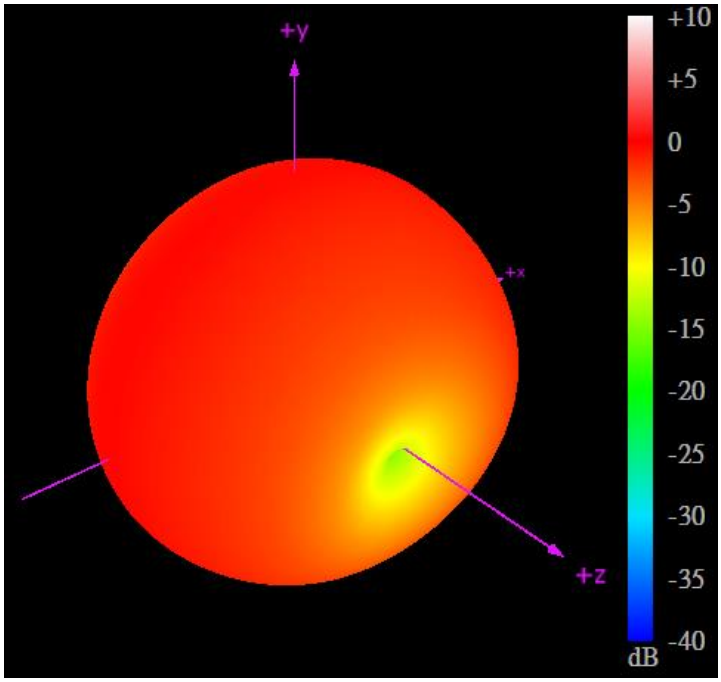


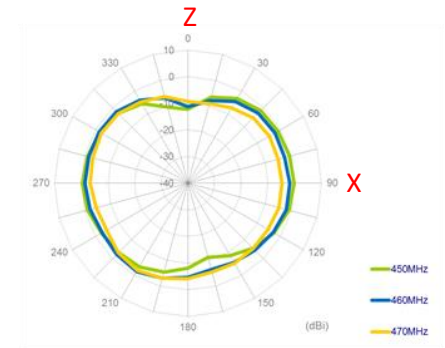
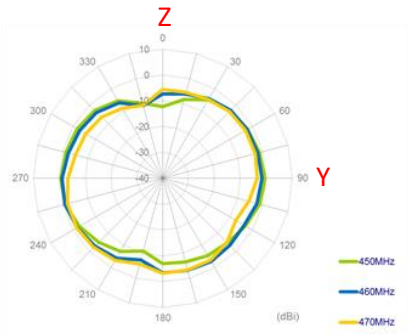
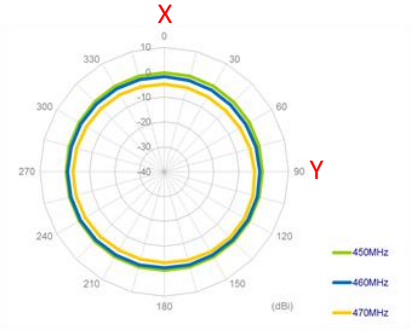
In Free space

On 2mm ABS

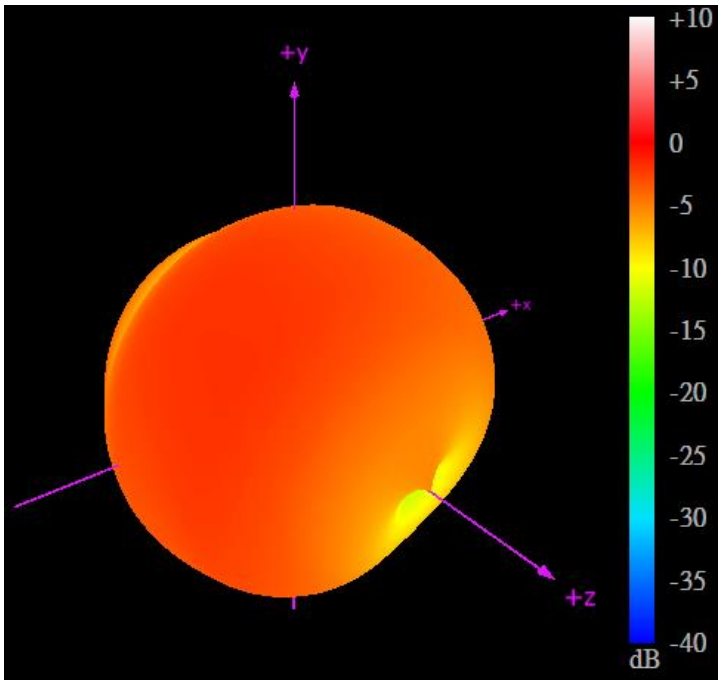
On Glass

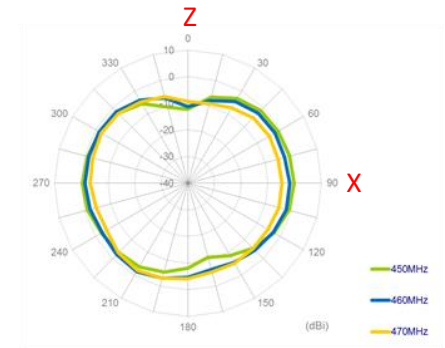
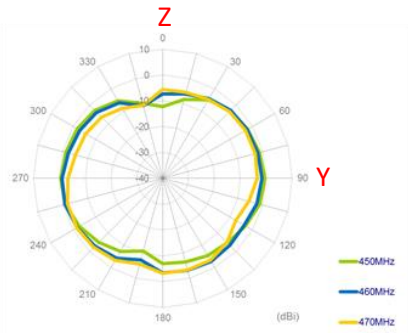
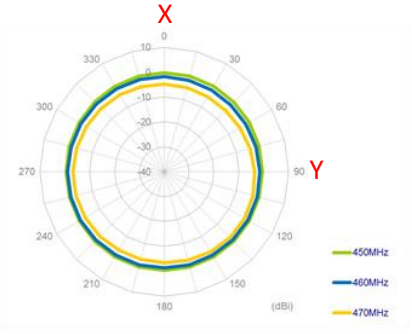
4.2 Free space (1m Cable) Patterns at 450 MHz



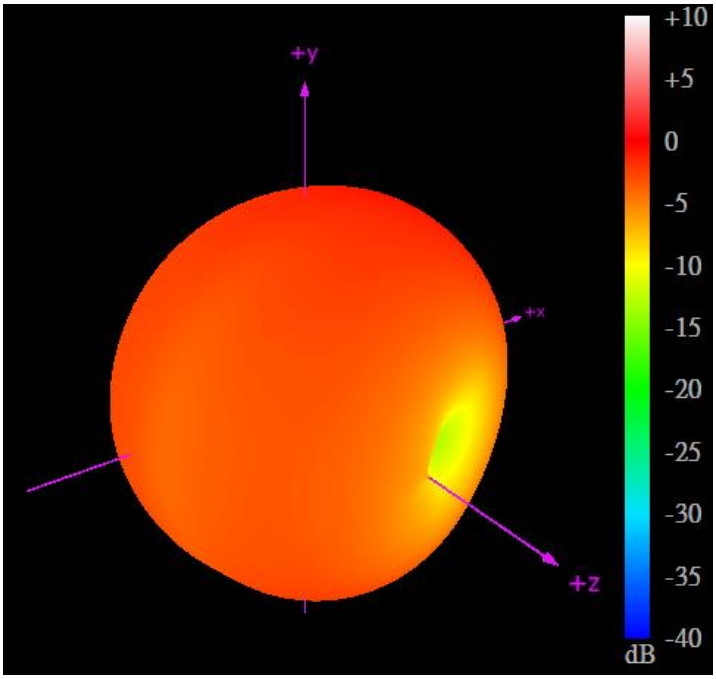
XZ Plane	YZ Plane	XY Plane
		

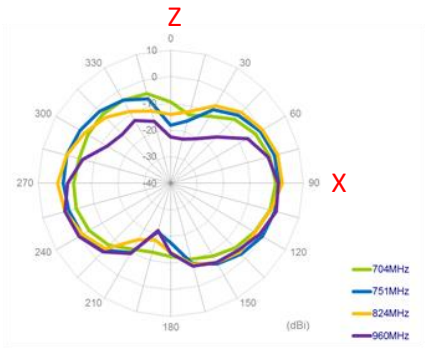
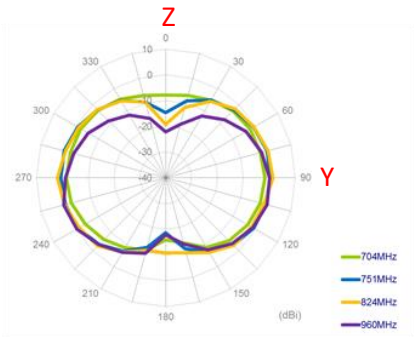
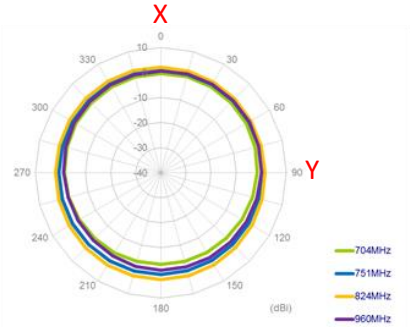
4.3 Free space (1m Cable) Patterns at 470 MHz



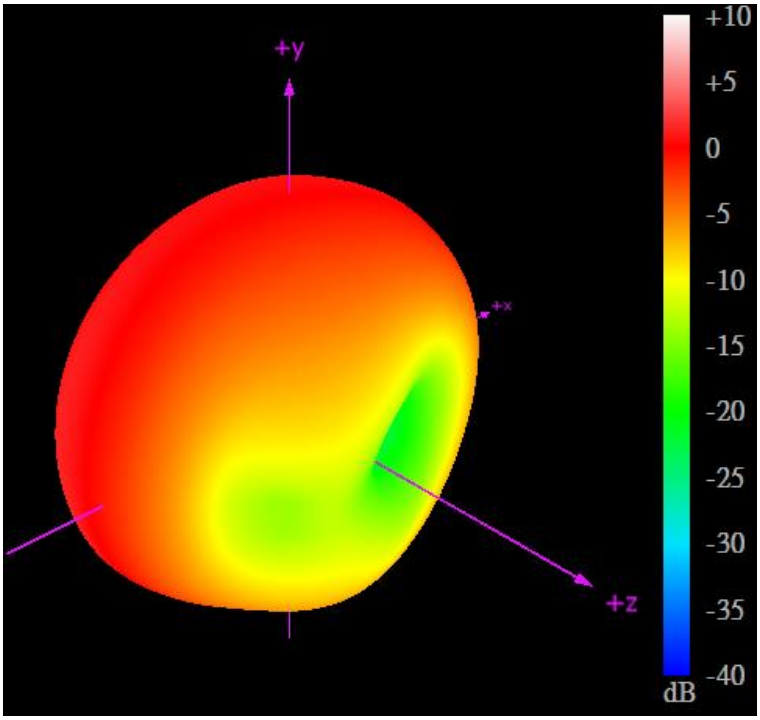
XZ Plane	YZ Plane	XY Plane
		

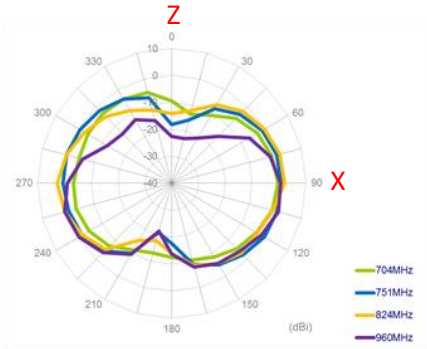
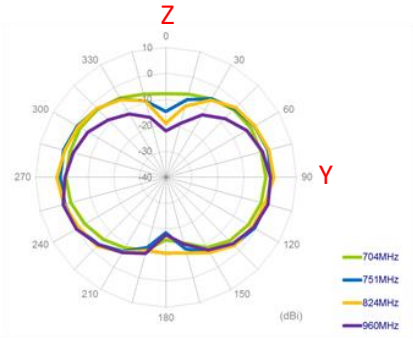
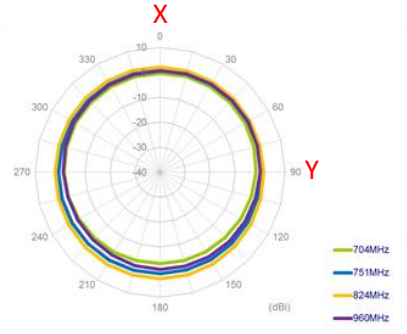
4.4 Free space (1m Cable) Patterns at 704MHz



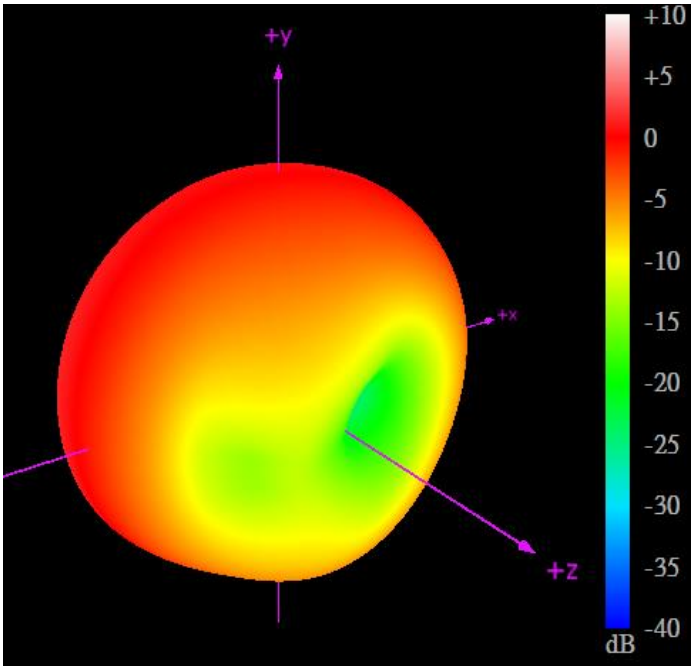
XZ Plane	YZ Plane	XY Plane
		

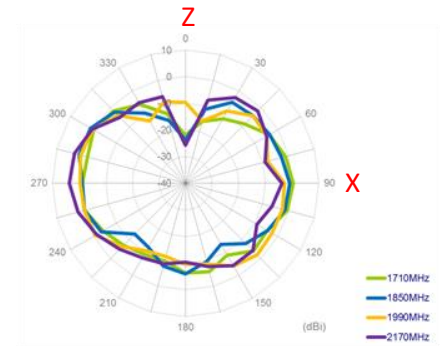
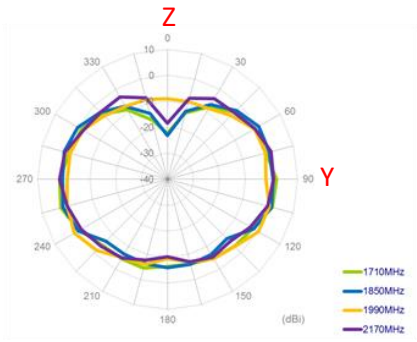
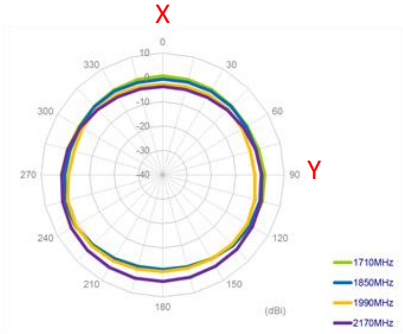
4.5 Free space (1m Cable) Patterns at 960MHz



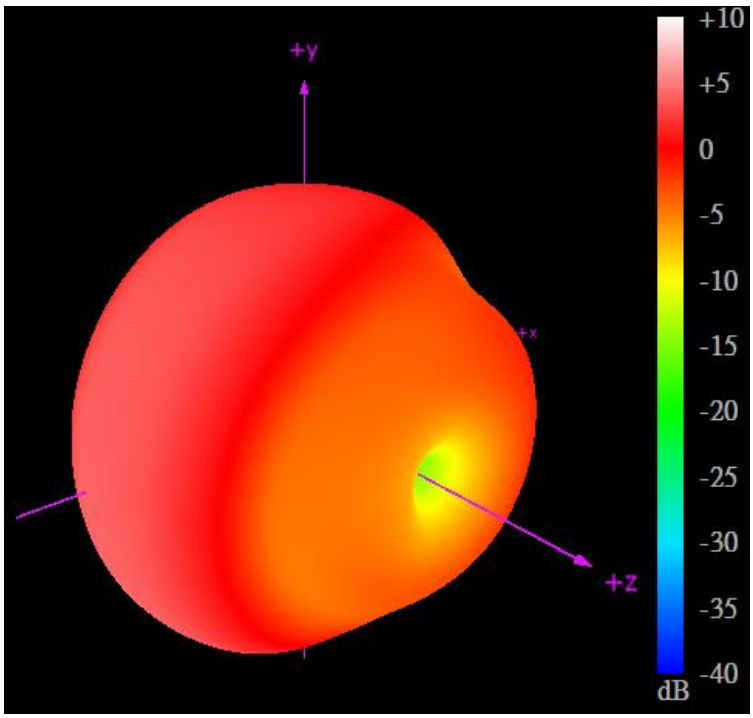
XZ Plane	YZ Plane	XY Plane
		

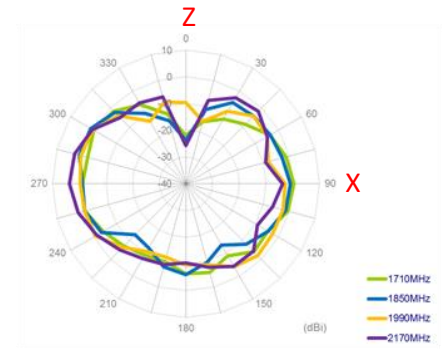
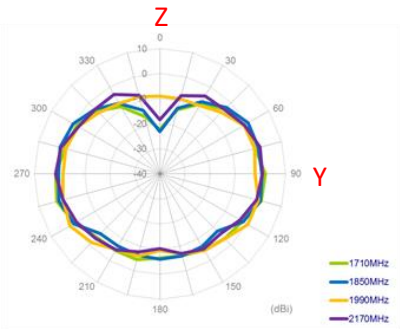
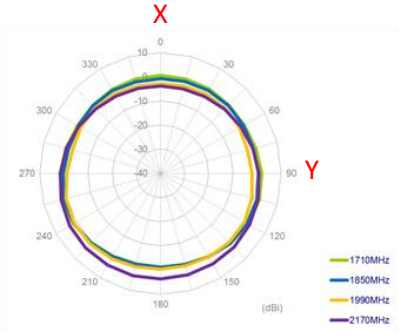
4.6 Free space (1m Cable) Patterns at 1710MHz



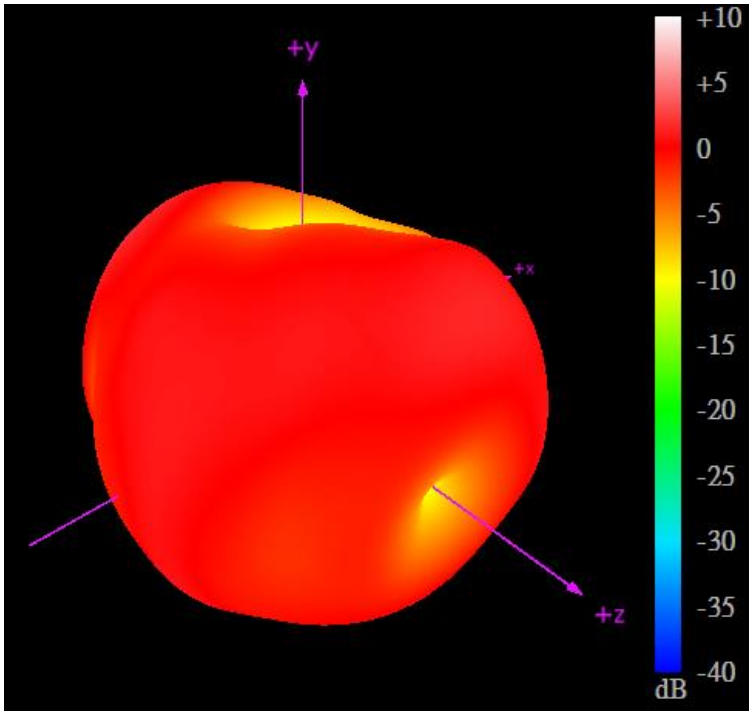
XZ Plane	YZ Plane	XY Plane
		

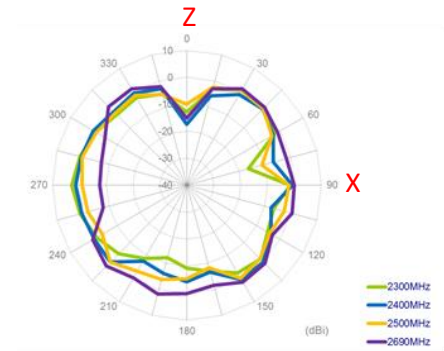
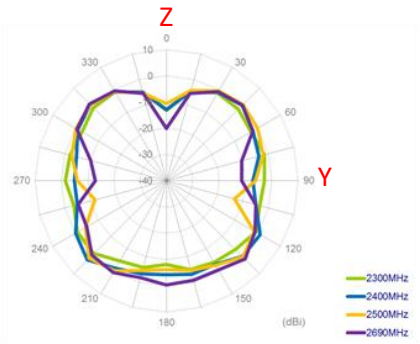
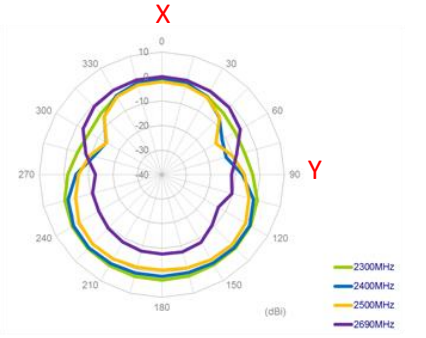
4.7 Free space (1m Cable) Patterns at 2170MHz



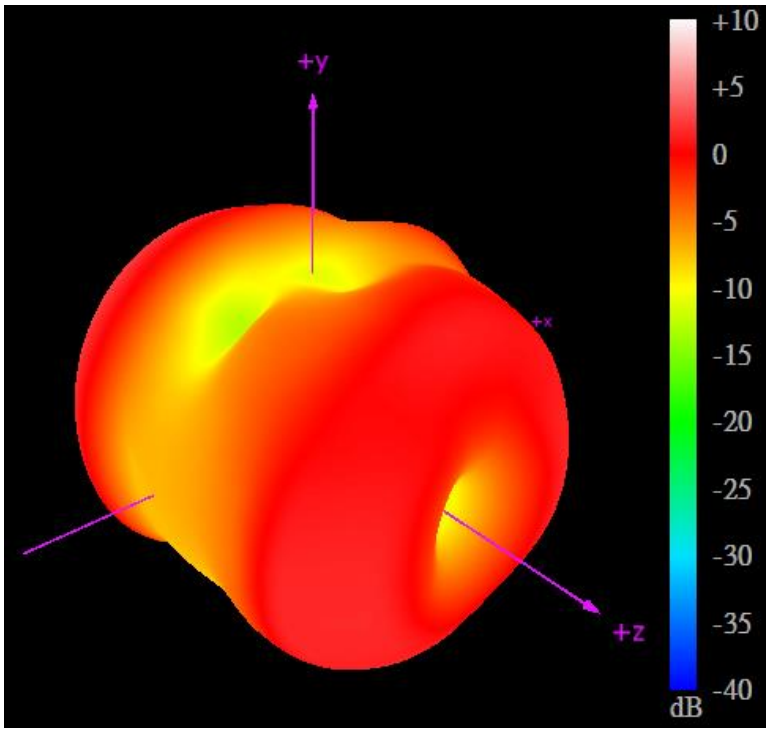
XZ Plane	YZ Plane	XY Plane
		

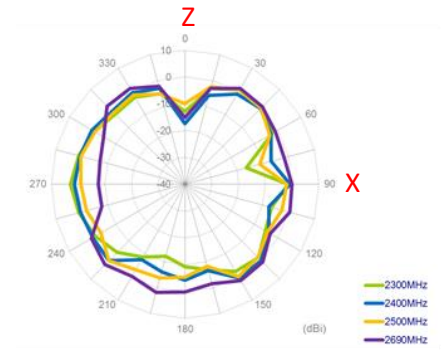
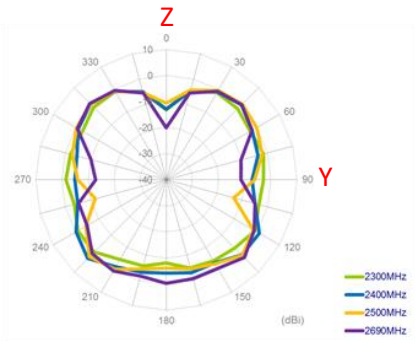
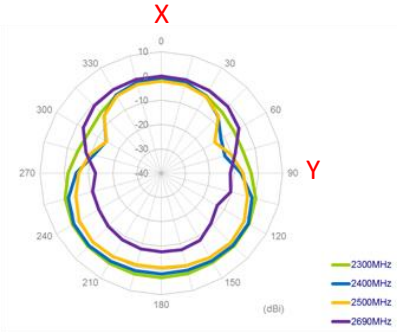
4.8 Free space (1m Cable) Patterns at 2500MHz



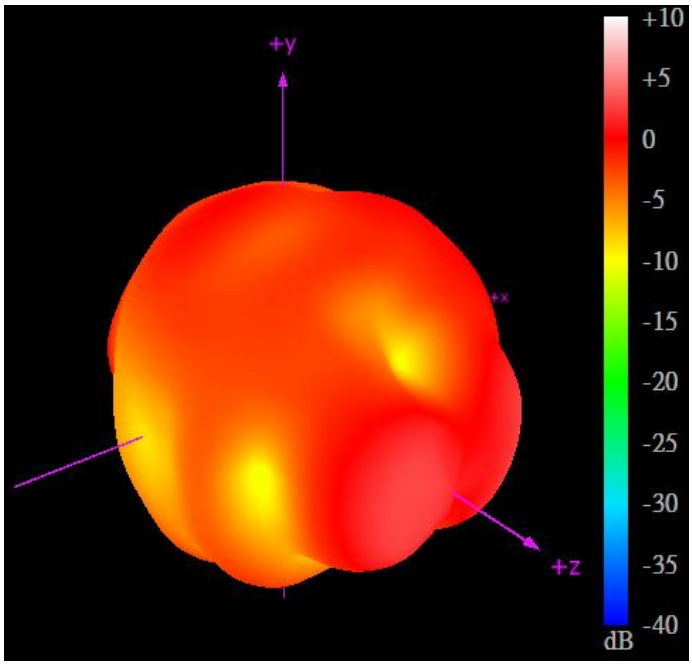
XZ Plane	YZ Plane	XY Plane
		

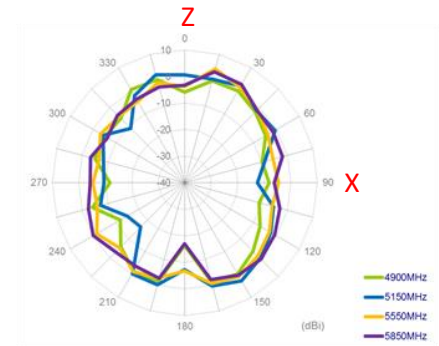
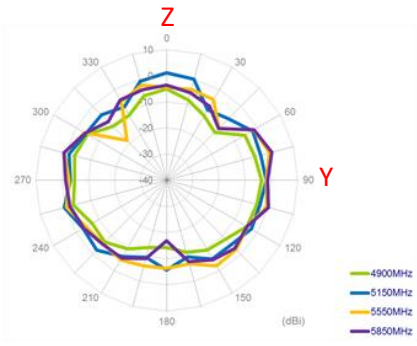
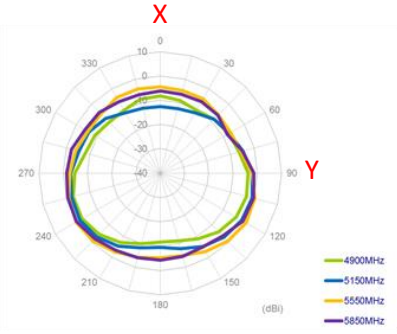
4.9 Free space (1m Cable) Patterns at 2690MHz



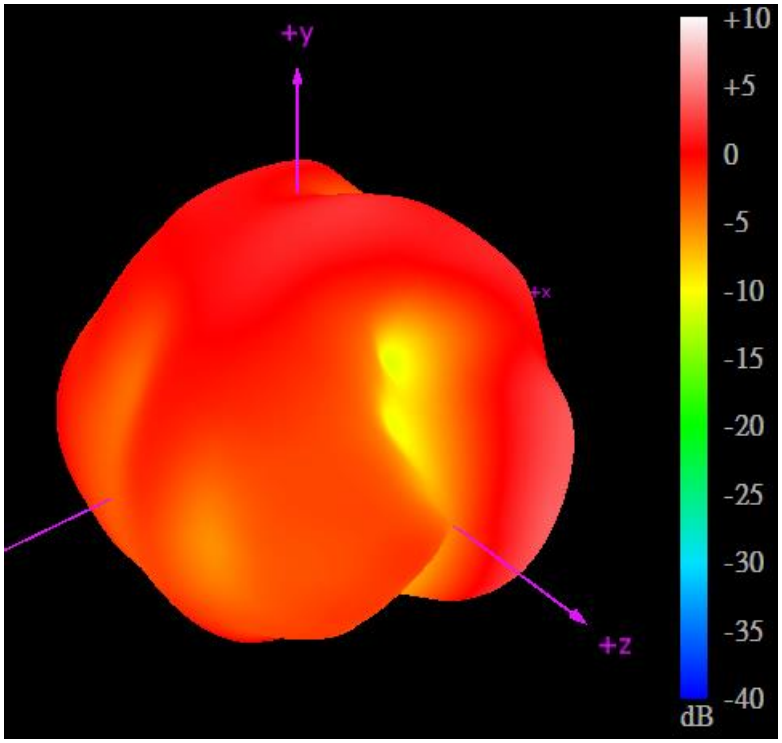
XZ Plane	YZ Plane	XY Plane
		

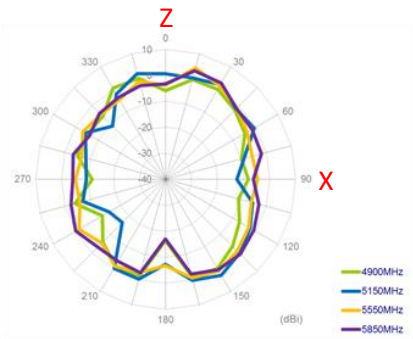
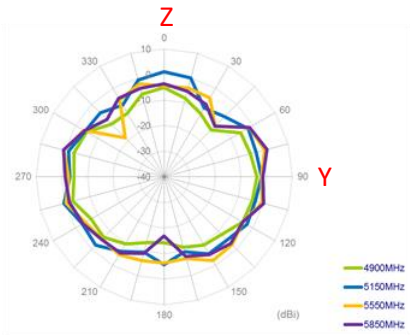
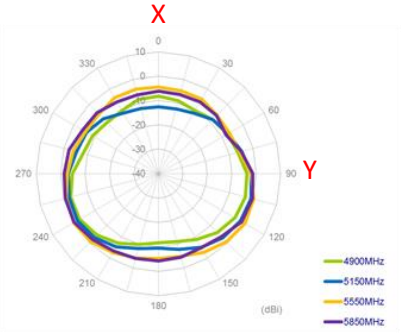
4.10 Free space (1m Cable) Patterns at 5150MHz



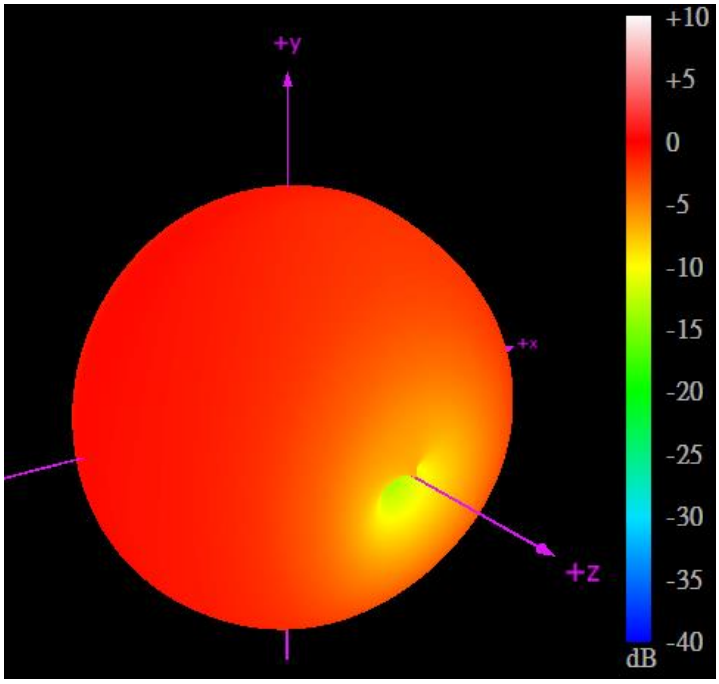
XZ Plane	YZ Plane	XY Plane
		

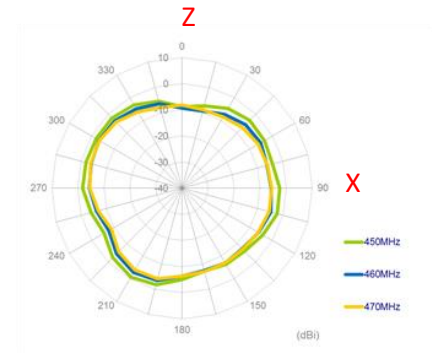
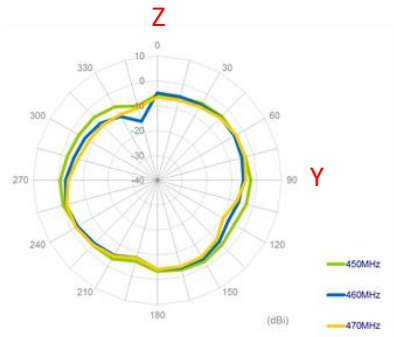
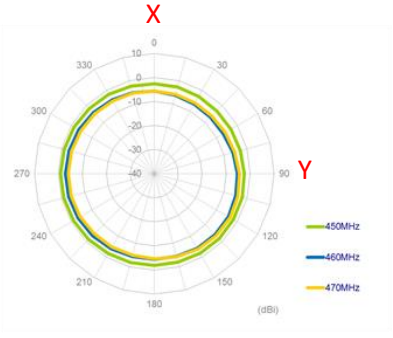
4.11 Free space (1m Cable) Patterns at 5850MHz



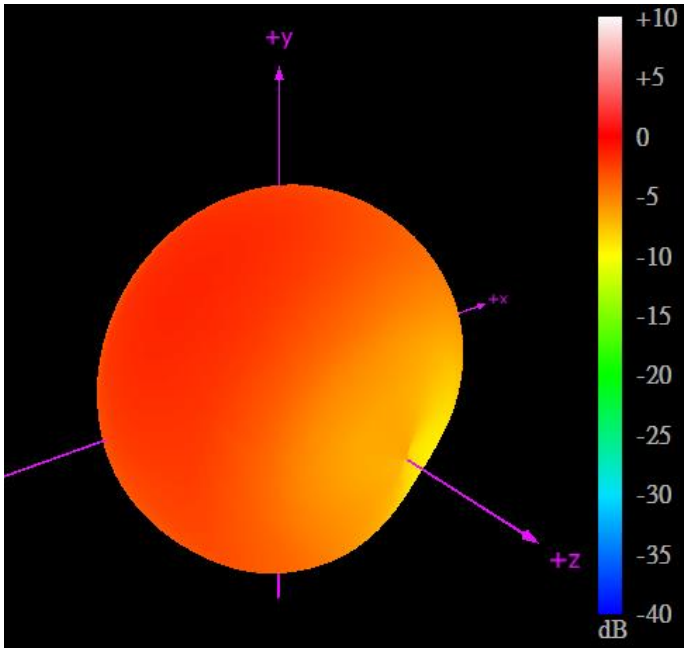
XZ Plane	YZ Plane	XY Plane
		

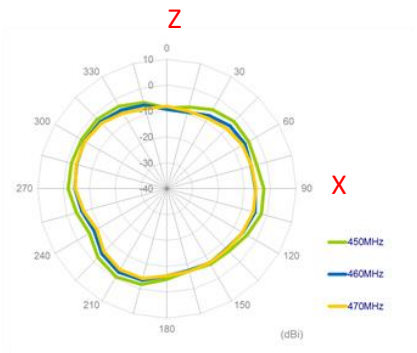
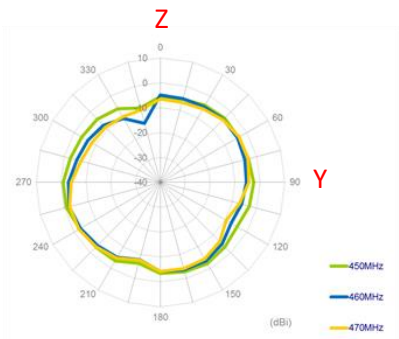
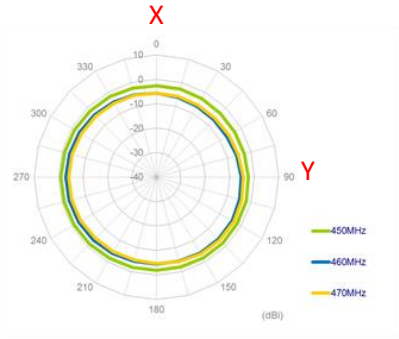
4.12 2mm ABS (1m Cable) Patterns at 450 MHz



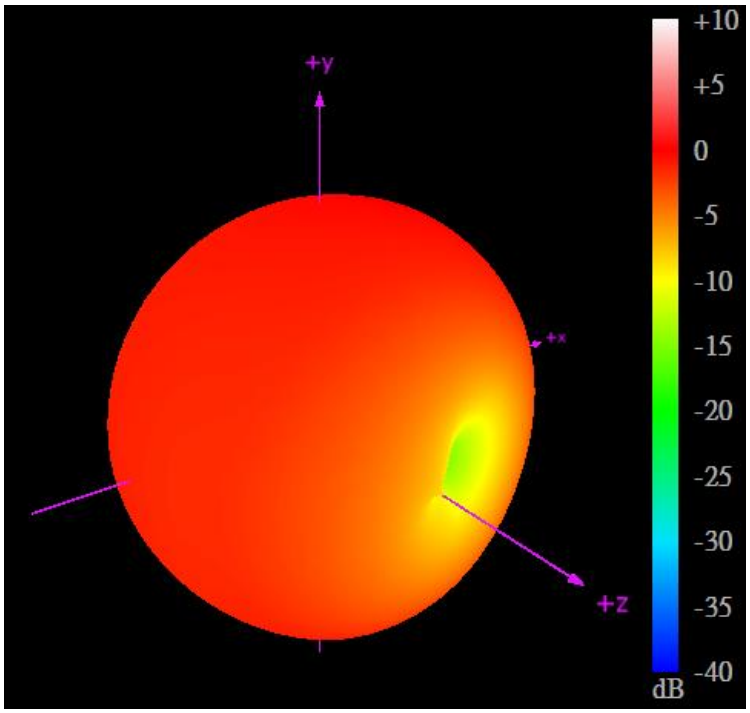
XZ Plane	YZ Plane	XY Plane
		

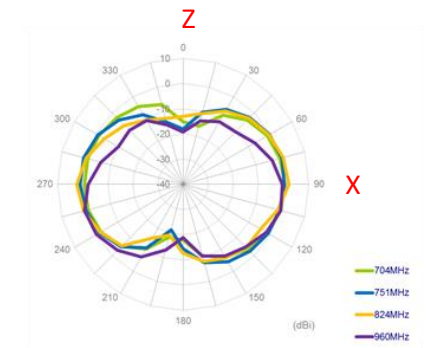
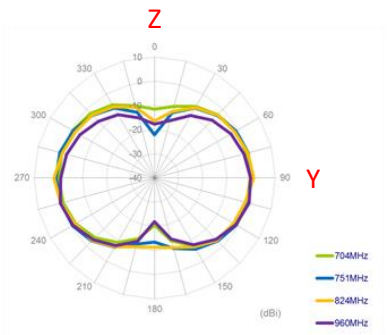
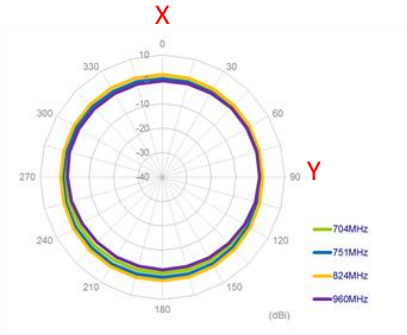
4.13 2mm ABS (1m Cable) Patterns at 470 MHz



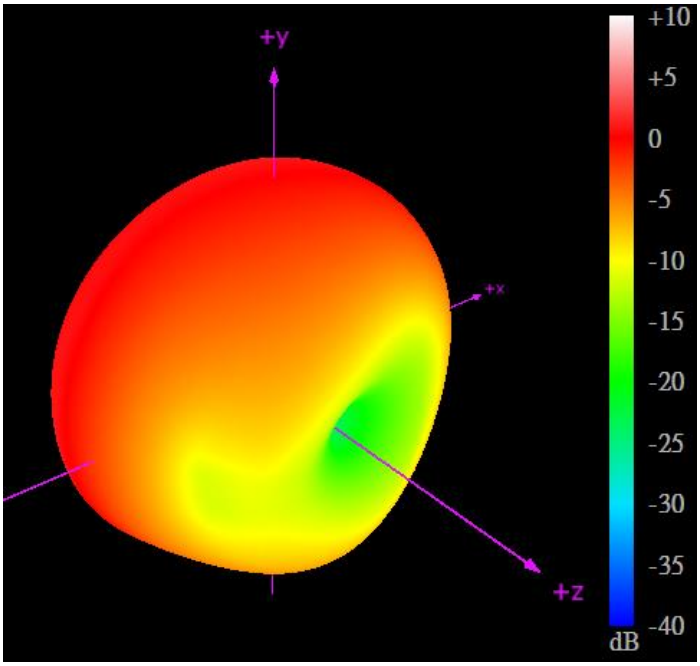
XZ Plane	YZ Plane	XY Plane
		

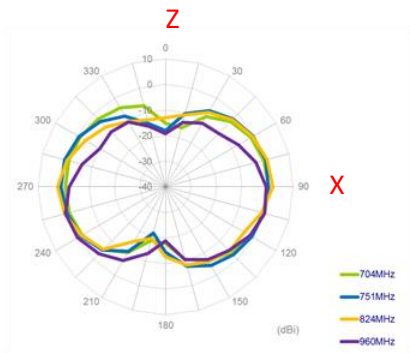
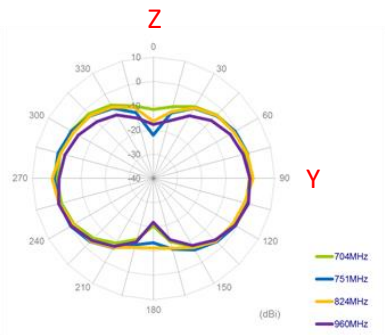
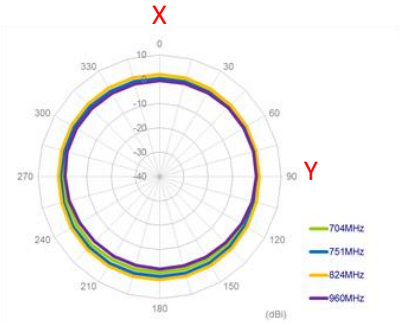
4.14 2mm ABS (1m Cable) Patterns at 704MHz



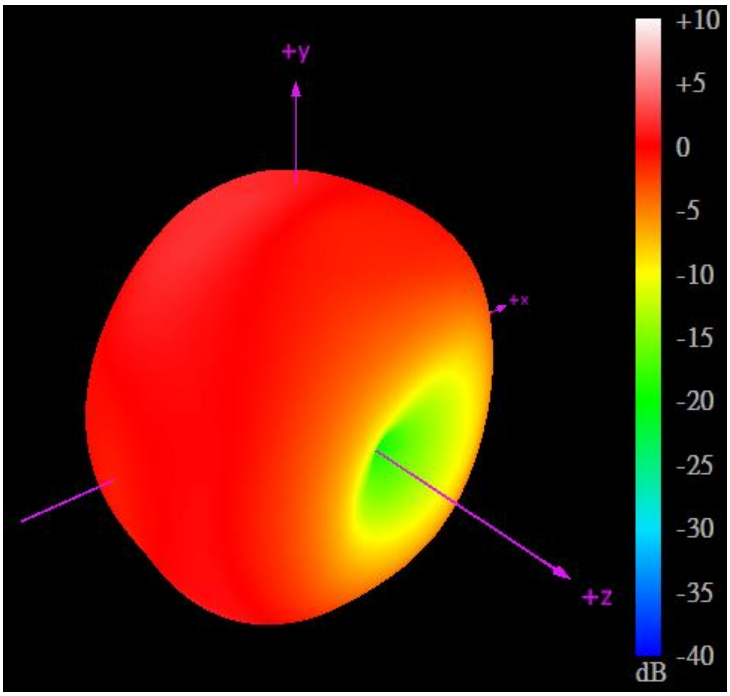
XZ Plane	YZ Plane	XY Plane
		

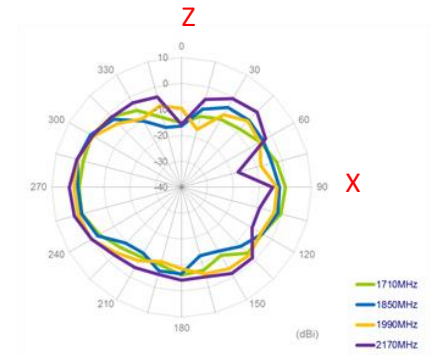
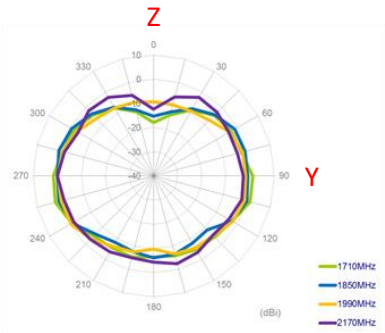
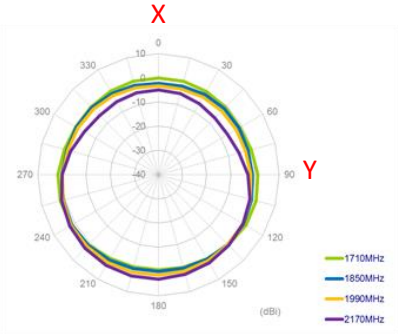
4.15 2mm ABS (1m Cable) Patterns at 960MHz



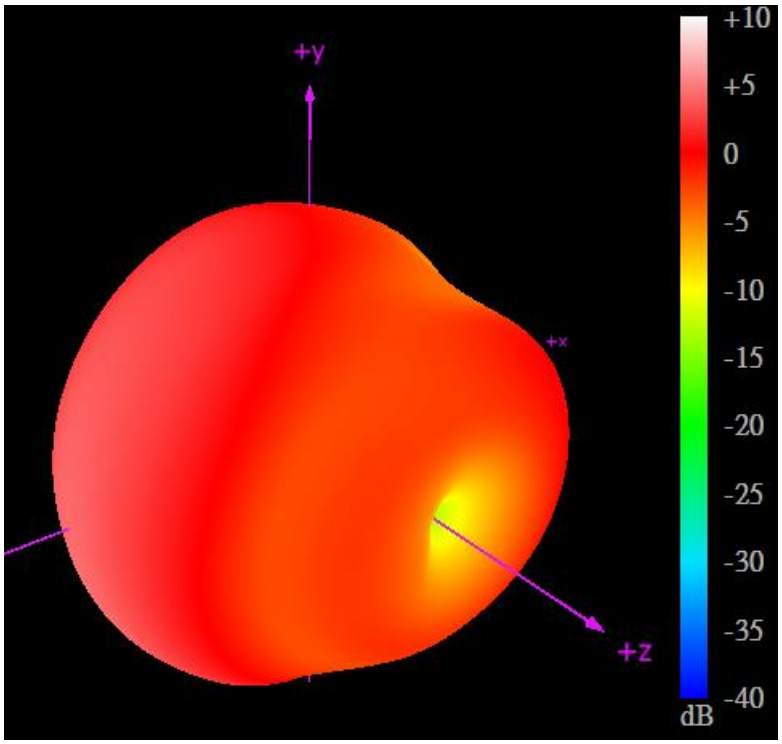
XZ Plane	YZ Plane	XY Plane
		

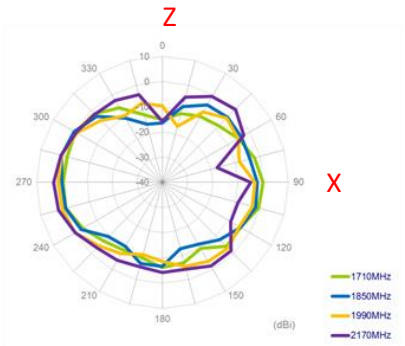
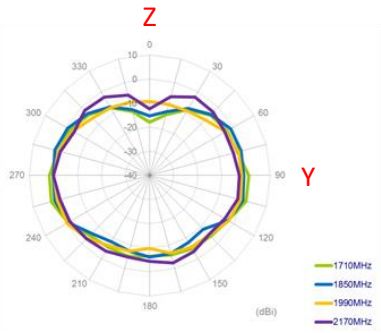
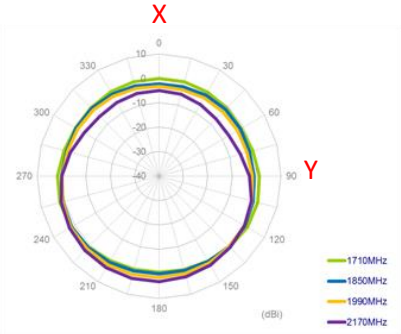
4.16 2mm ABS (1m Cable) Patterns at 1710MHz



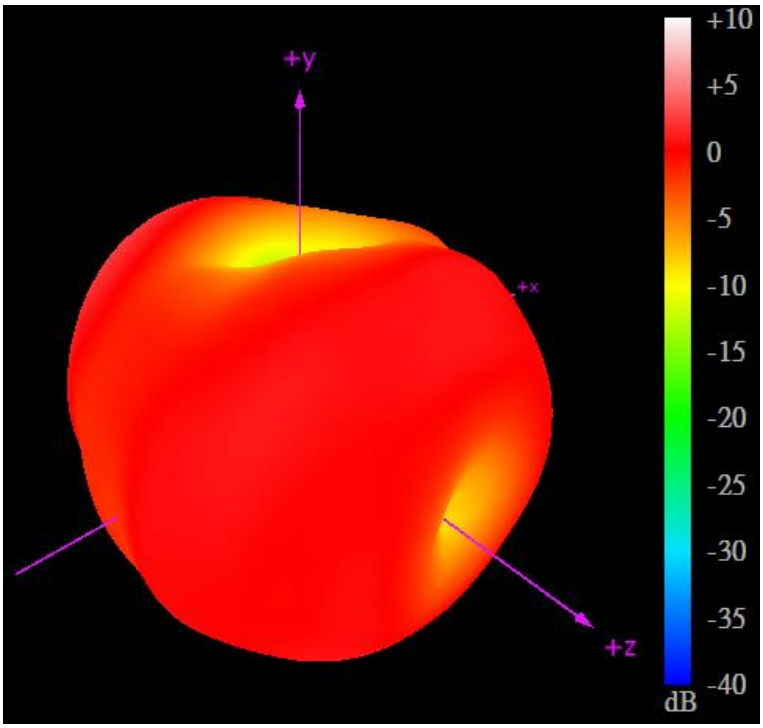
XZ Plane	YZ Plane	XY Plane
		

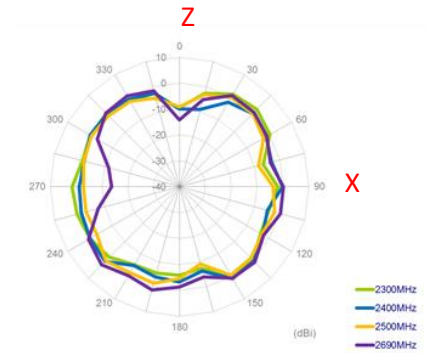
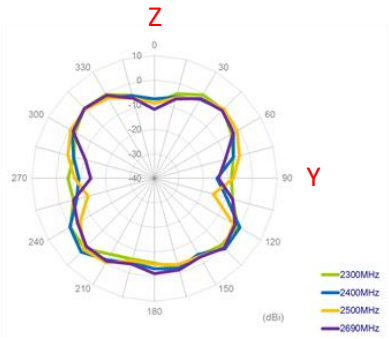
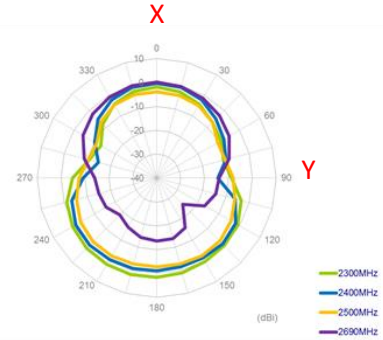
4.17 2mm ABS (1m Cable) Patterns at 2170MHz



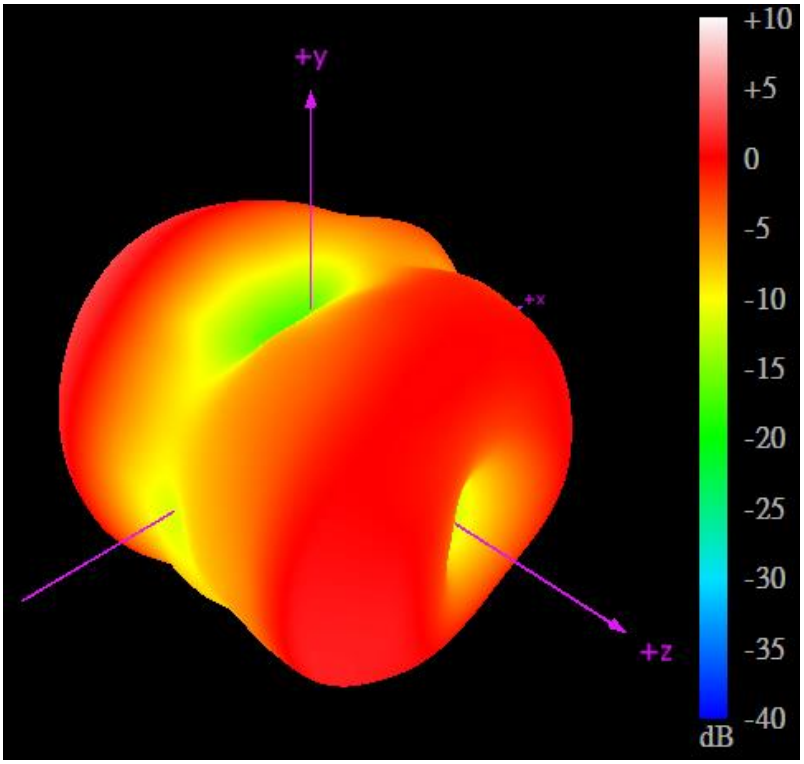
XZ Plane	YZ Plane	XY Plane
		

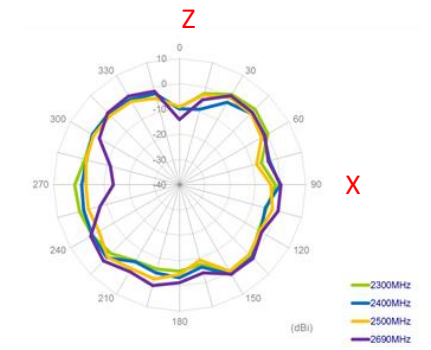
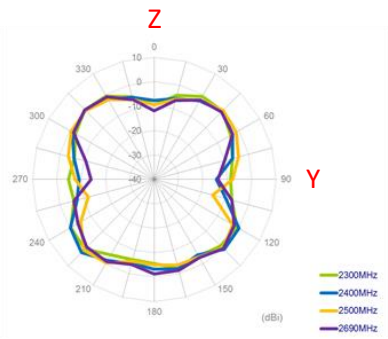
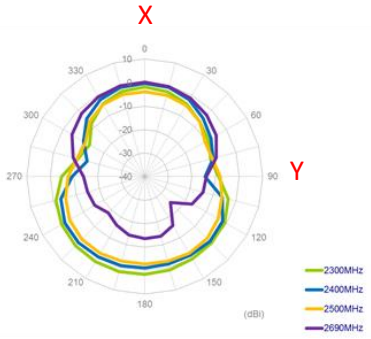
4.18 2mm ABS (1m Cable) Patterns at 2500MHz



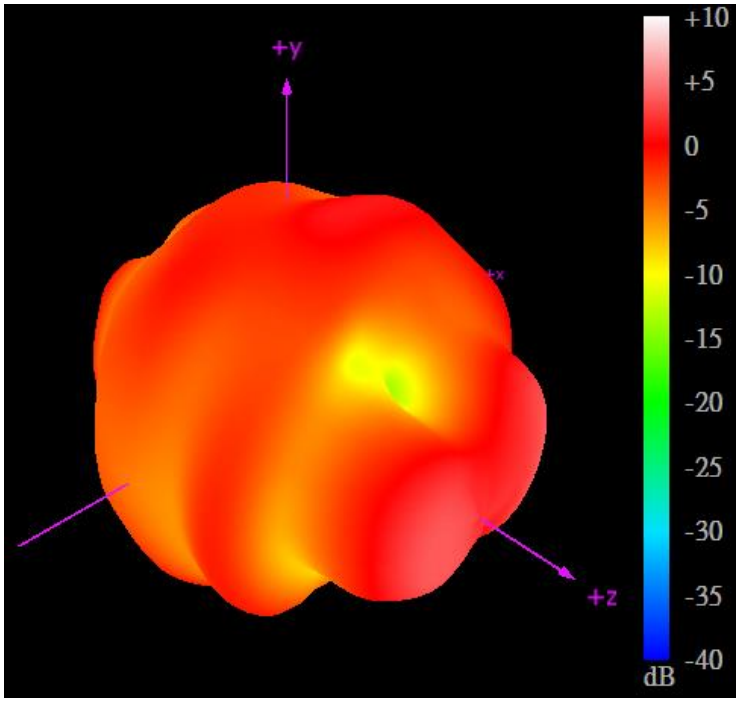
XZ Plane	YZ Plane	XY Plane
		

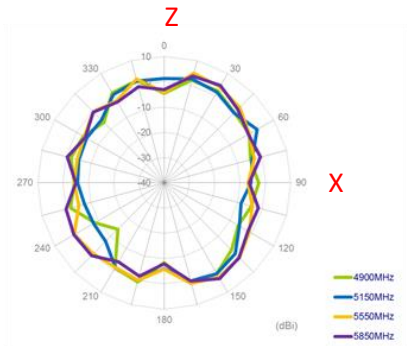
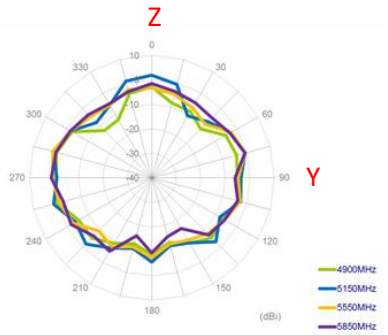
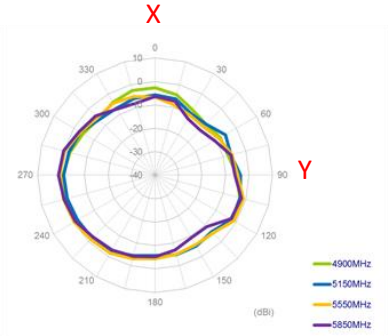
4.19 2mm ABS (1m Cable) Patterns at 2690MHz



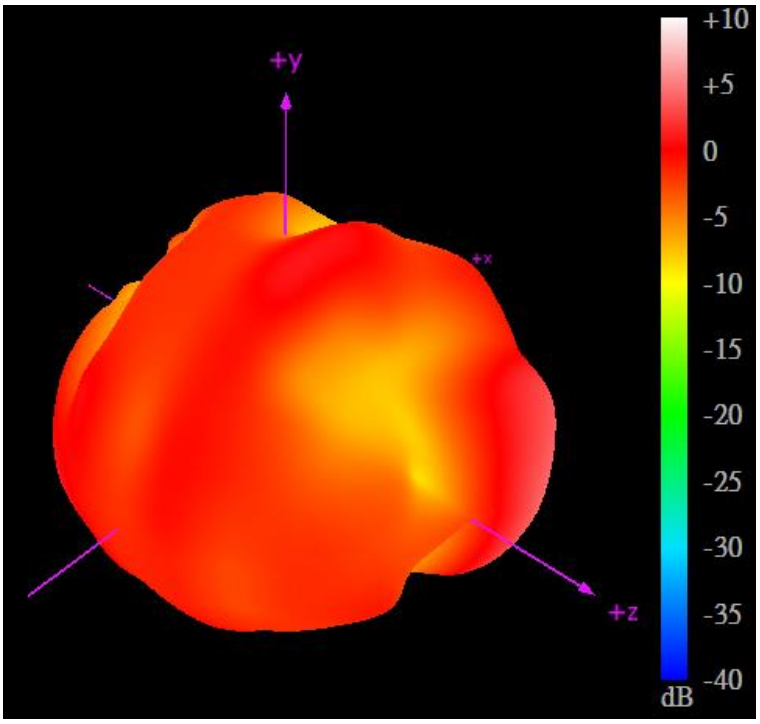
XZ Plane	YZ Plane	XY Plane
		

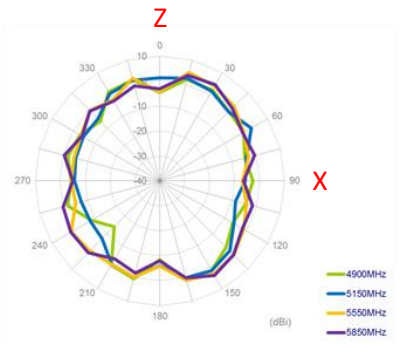
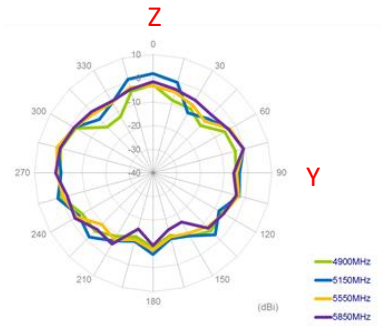
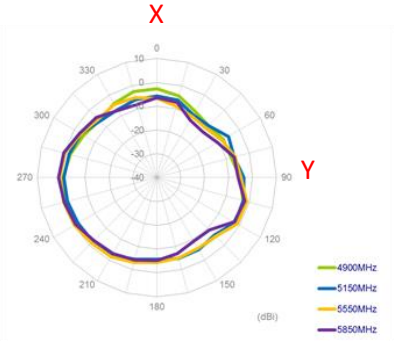
4.20 2mm ABS (1m Cable) Patterns at 5150MHz



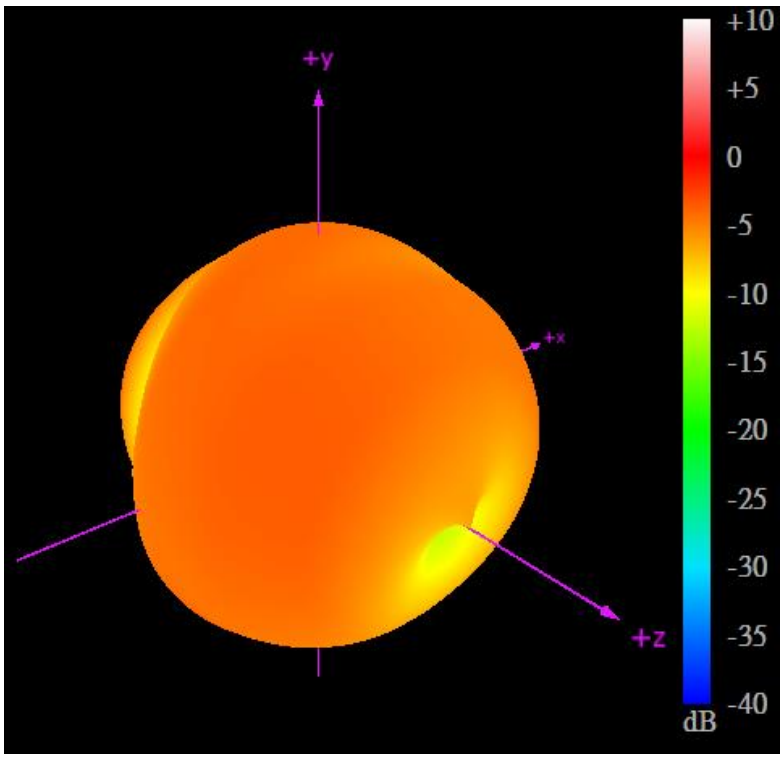
XZ Plane	YZ Plane	XY Plane
		

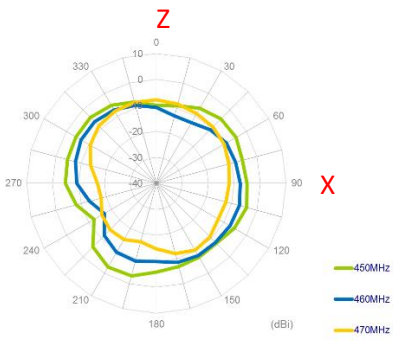
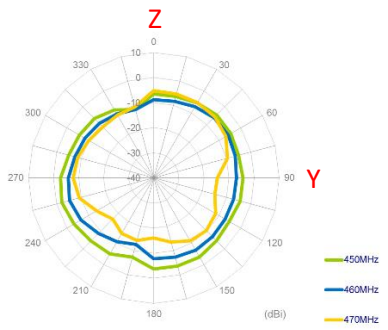
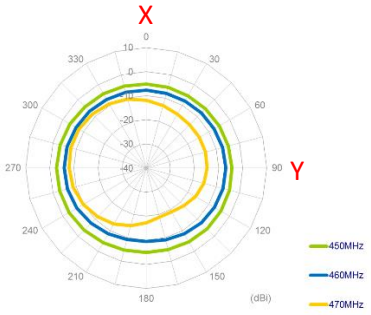
4.21 Free space (1m Cable) Patterns at 5850MHz



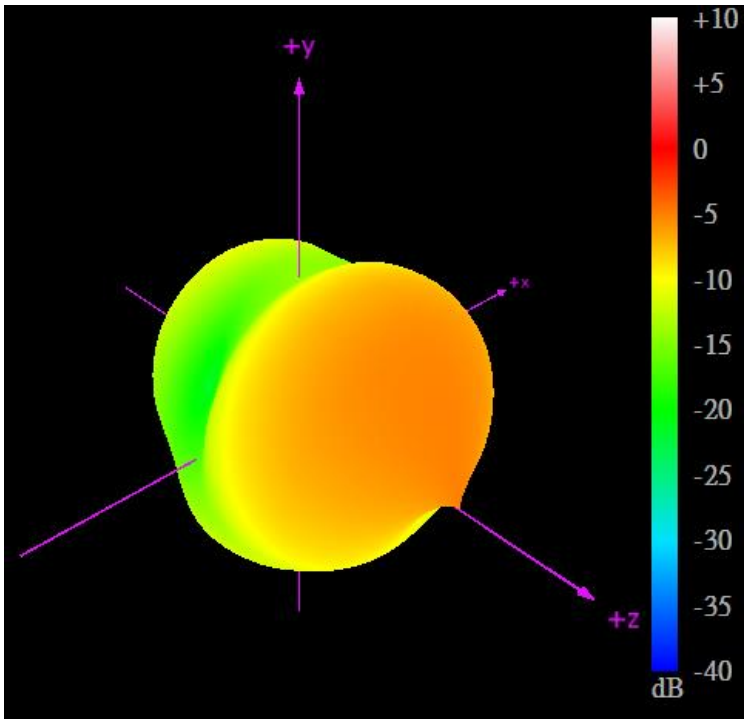
XZ Plane	YZ Plane	XY Plane
		

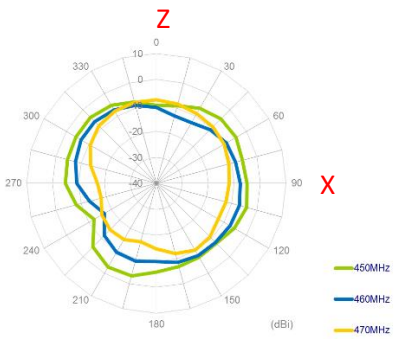
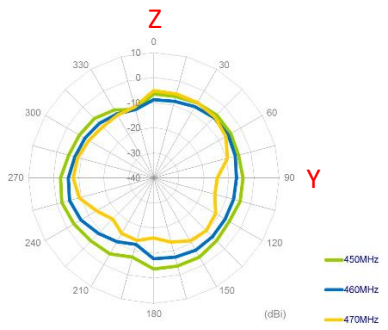
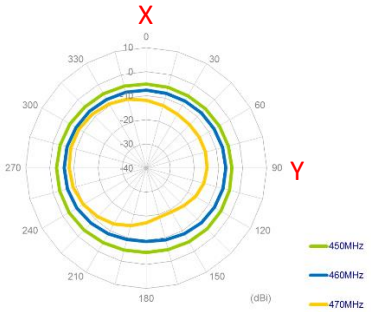
4.22 On Glass (1m Cable) Patterns at 450 MHz



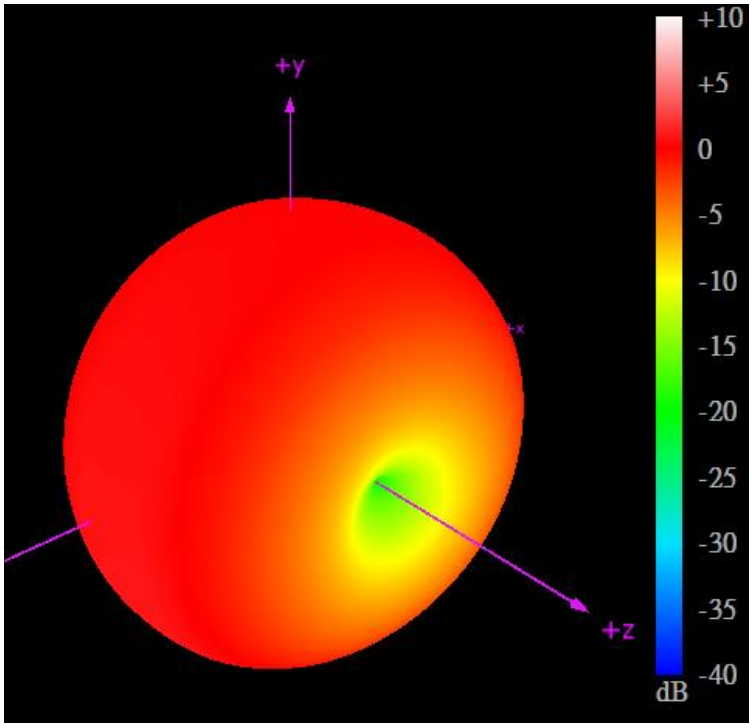
XZ Plane	YZ Plane	XY Plane
		

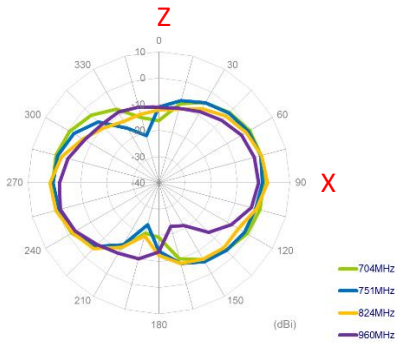
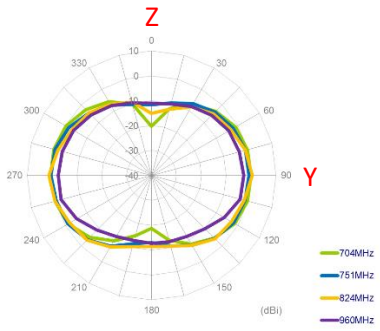
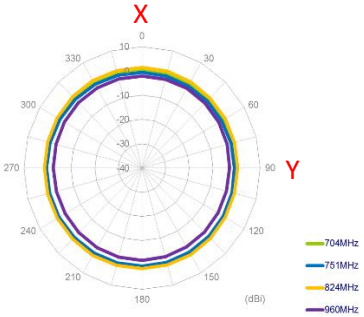
4.23 On Glass (1m Cable) Patterns at 470 MHz



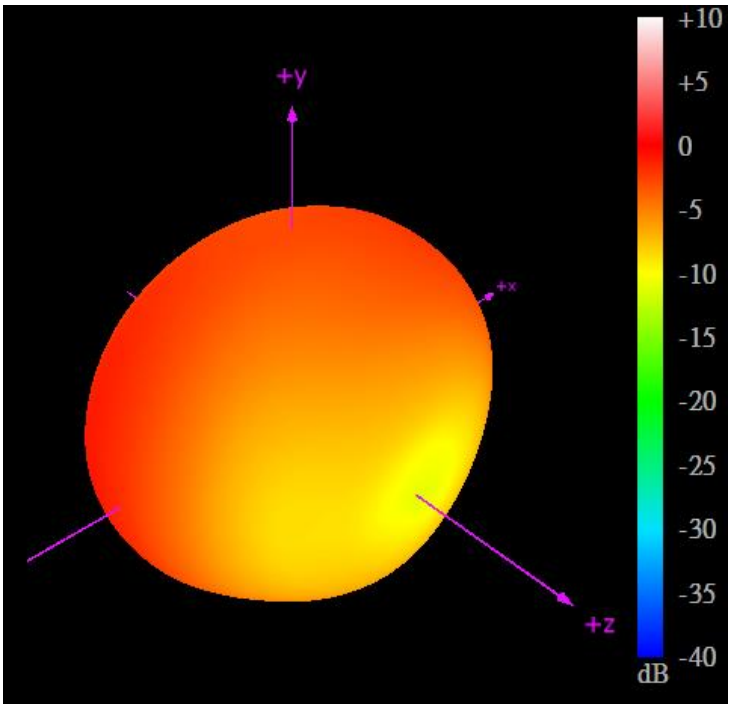
XZ Plane	YZ Plane	XY Plane
		

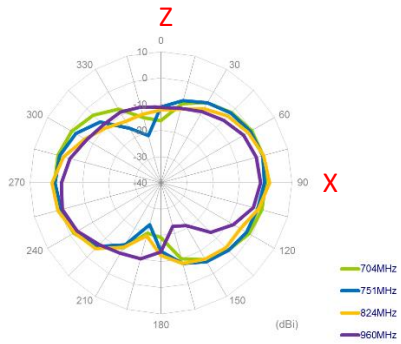
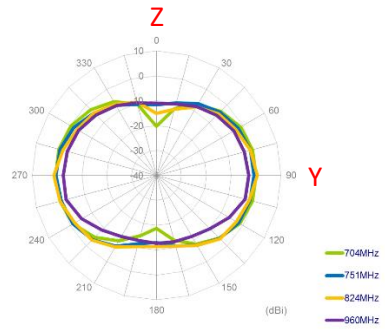
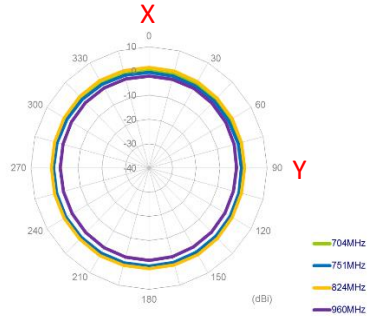
4.24 On Glass (1m Cable) Patterns at 704MHz



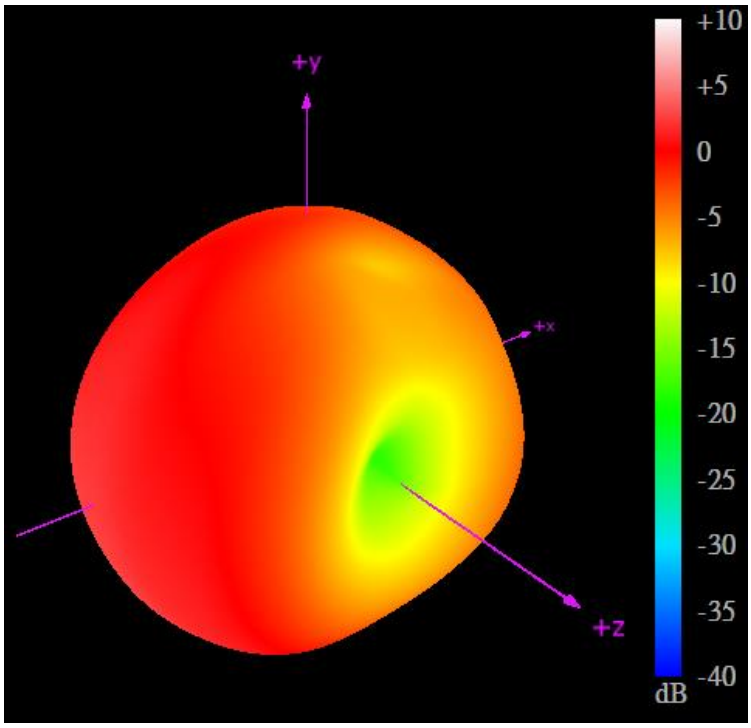
XZ Plane	YZ Plane	XY Plane
		

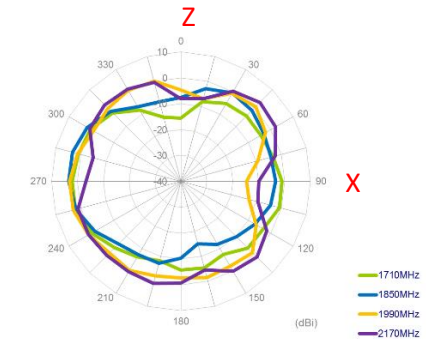
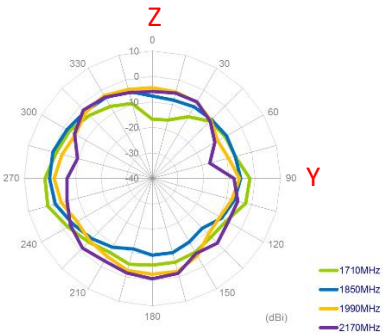
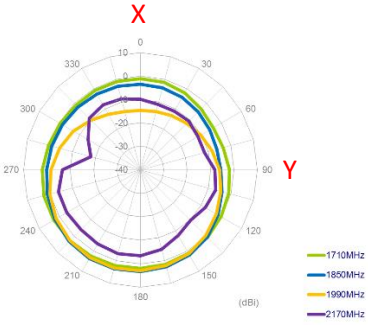
4.25 On Glass (1m Cable) Patterns at 960MHz



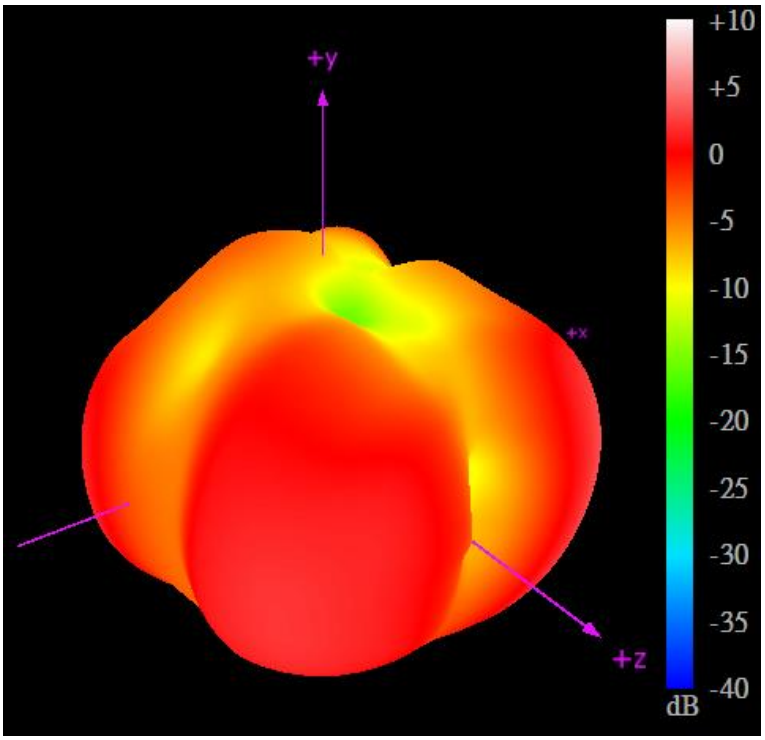
XZ Plane	YZ Plane	XY Plane
		

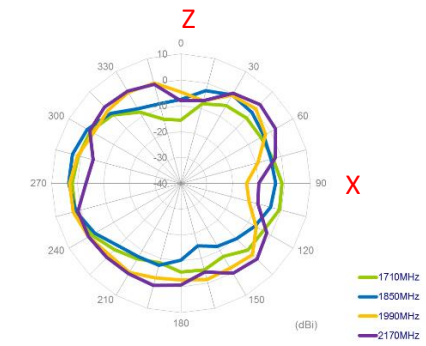
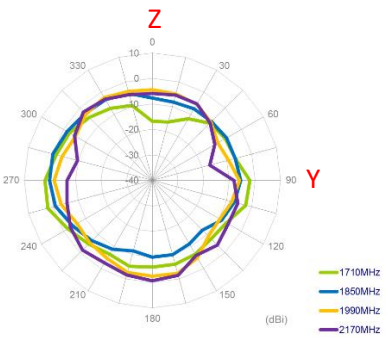
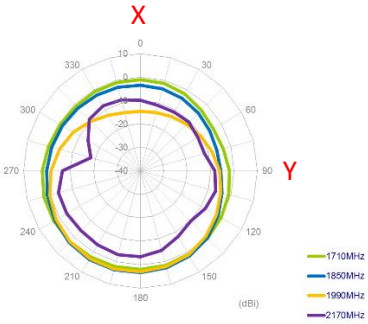
4.26 On Glass (1m Cable) Patterns at 1710MHz



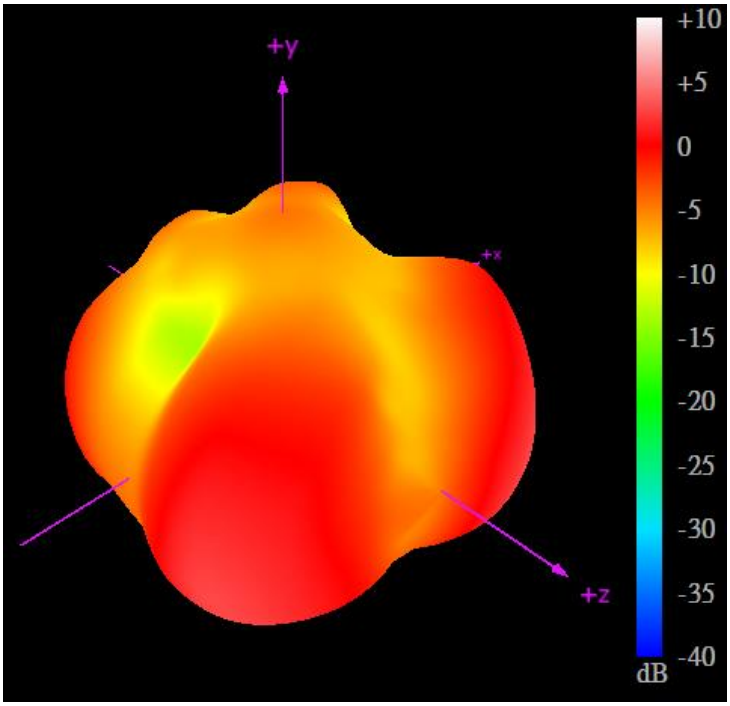
XZ Plane	YZ Plane	XY Plane
		

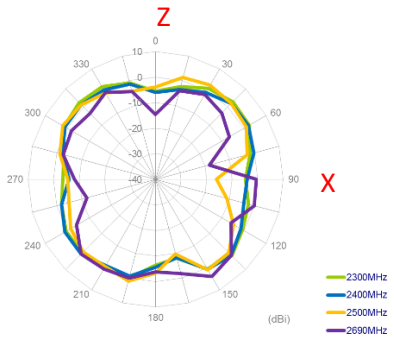
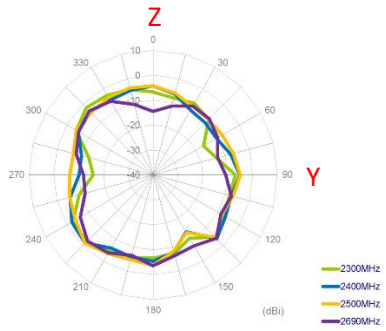
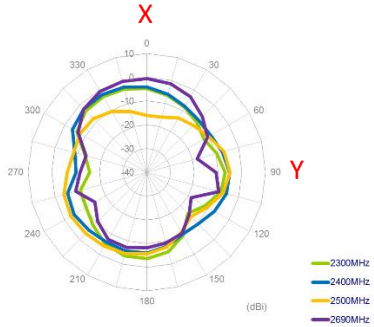
4.27 On Glass (1m Cable) Patterns at 2170MHz



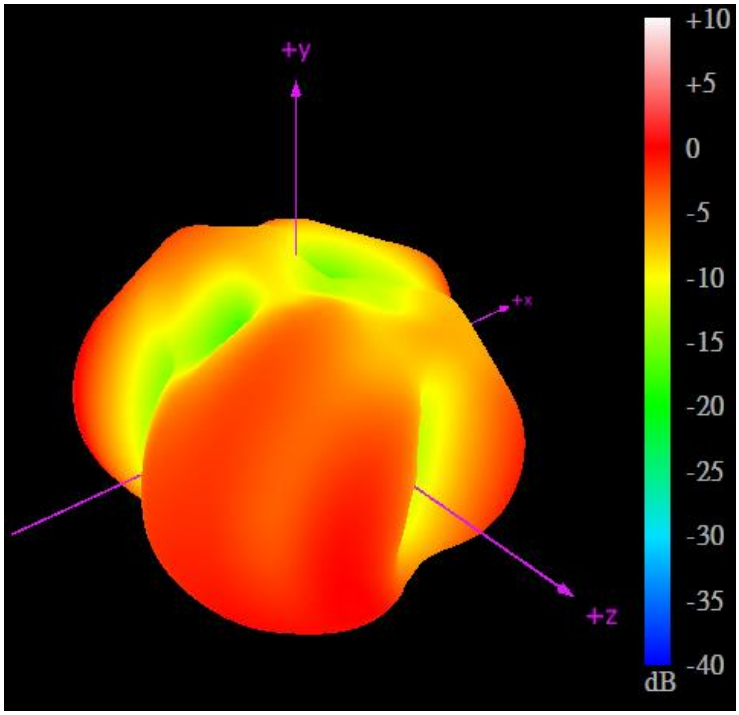
XZ Plane	YZ Plane	XY Plane
		

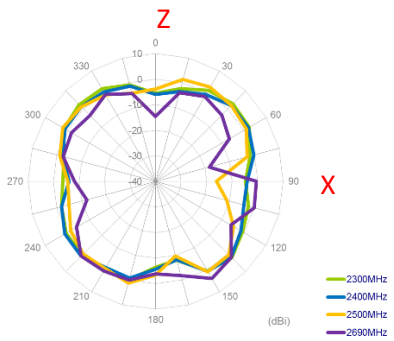
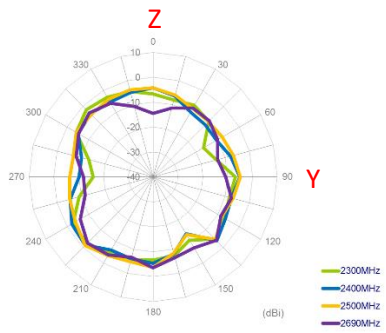
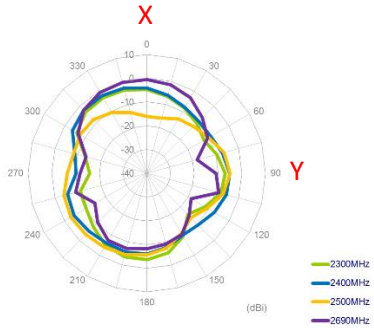
4.28 On Glass (1m Cable) Patterns at 2500MHz



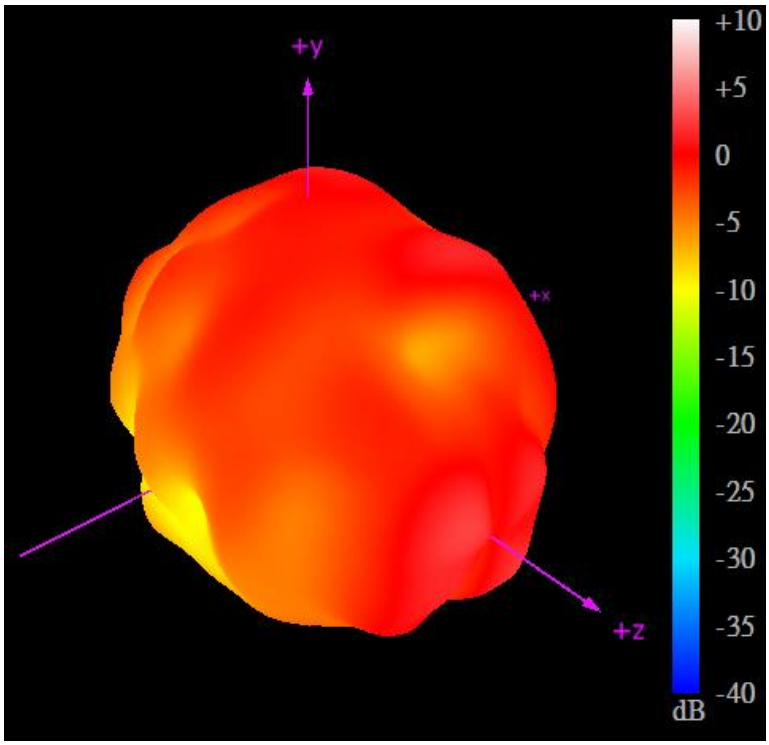
XZ Plane	YZ Plane	XY Plane
		

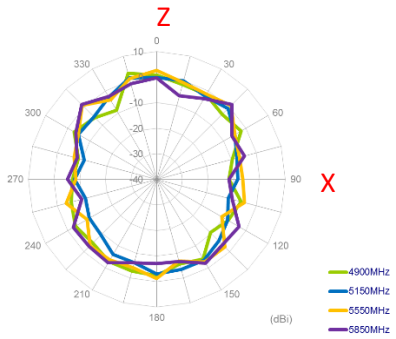
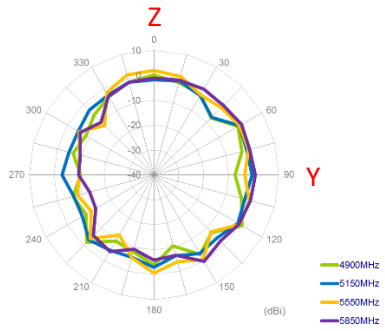
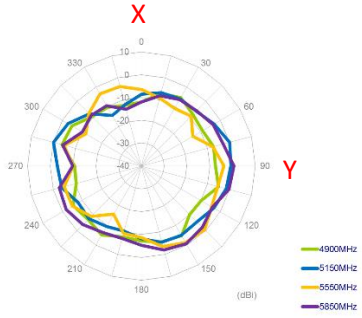
4.29 On Glass (1m Cable) Patterns at 2690MHz



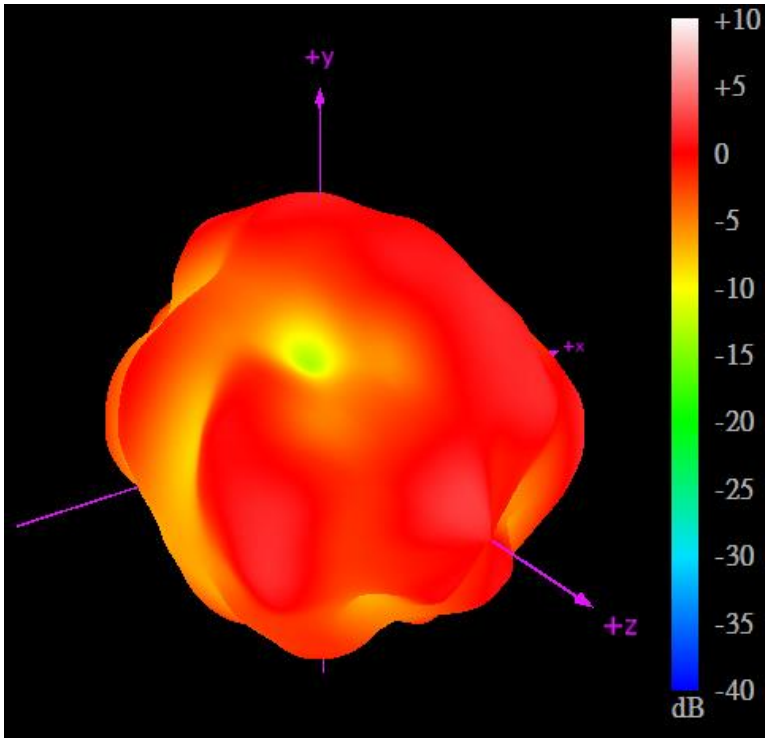
XZ Plane	YZ Plane	XY Plane
		

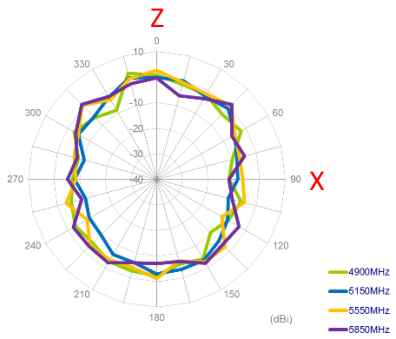
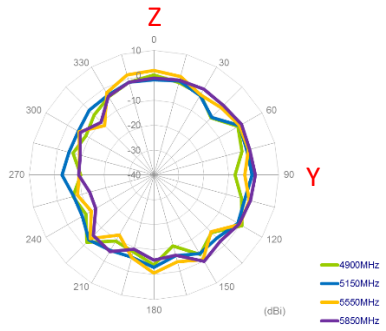
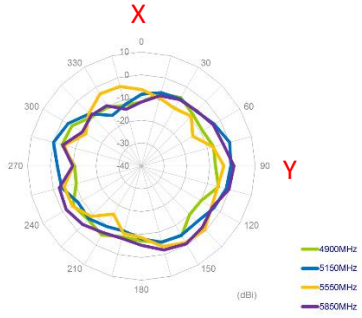
4.30 On Glass (1m Cable) Patterns at 5150MHz



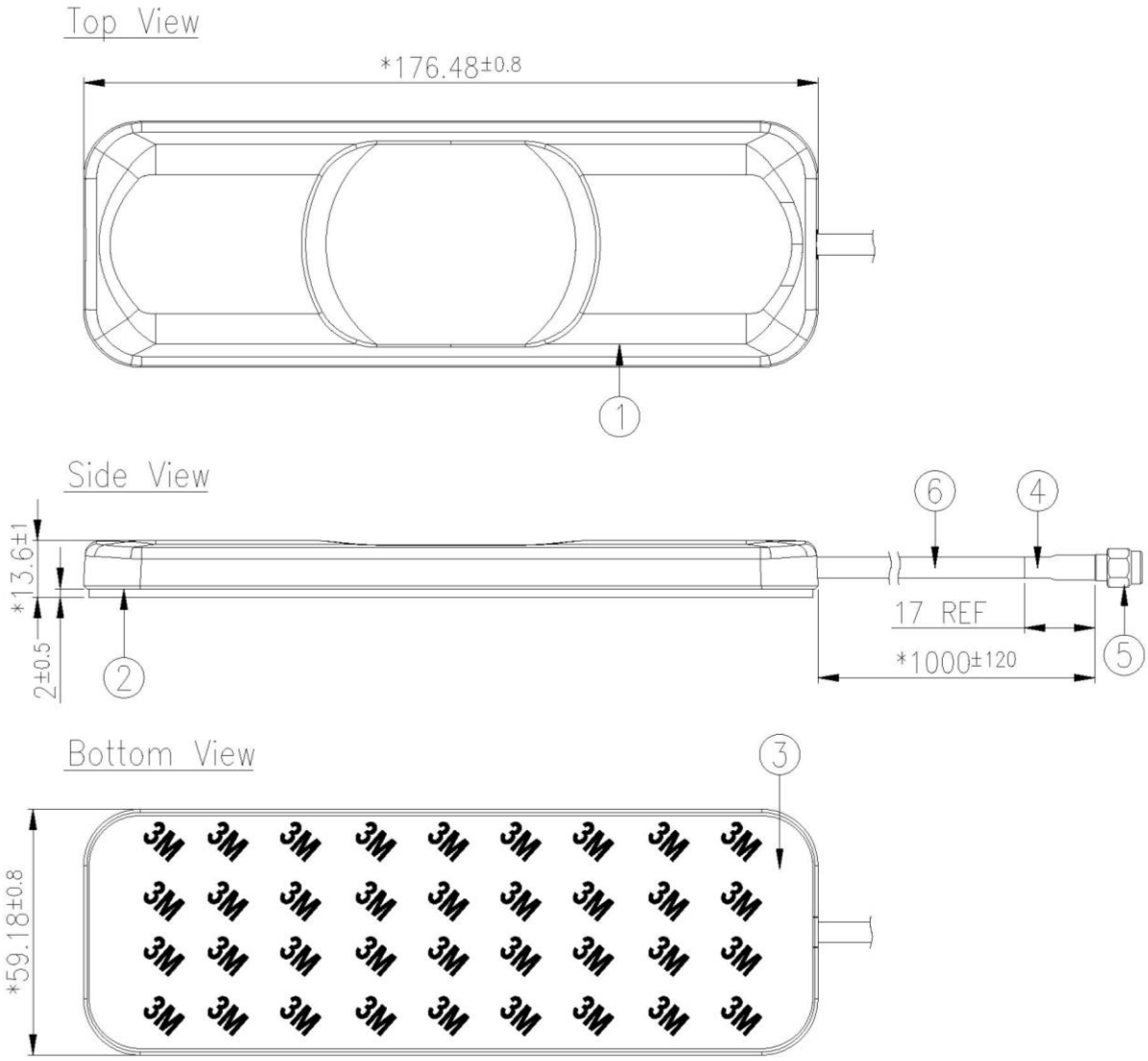
XZ Plane	YZ Plane	XY Plane
		

4.31 On Glass (1m Cable) Patterns at 5850MHz



XZ Plane	YZ Plane	XY Plane
		

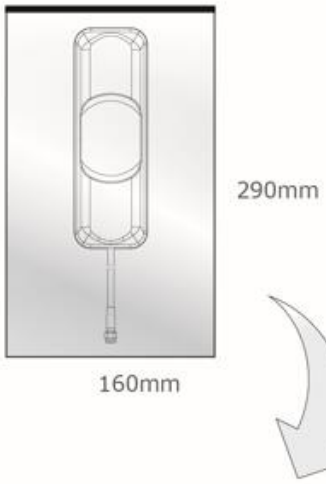
5. Mechanical Drawing



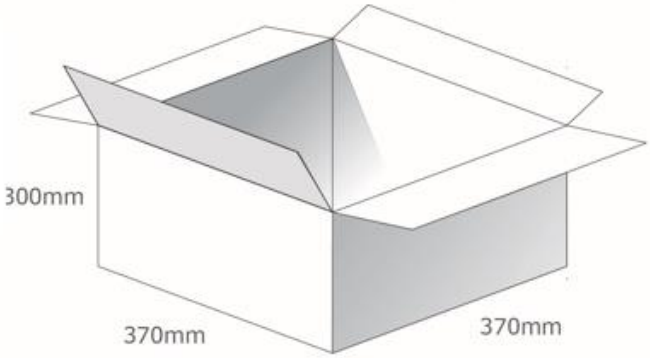
	Name	P/N	Material	Finish	QTY
1	Housing Top GSA8841	000113J020066A	ABS	Black	1
2	Housing Bottom GSA8841	000113J030066A	ABS	Black	1
3	Double Sided Adhesive With Foam(Black Foam)	001014C020039A	3M9448HK+CR4305	White Liner	1
4	Heat Shrink Tube	001315C030000A	PE	Black	1
5	SMA(M) ST	200216F020013A	Brass	Au Plated	1
6	TGC200 Coaxial Cable	306718E000000A	PE	Black	1

6. Packaging

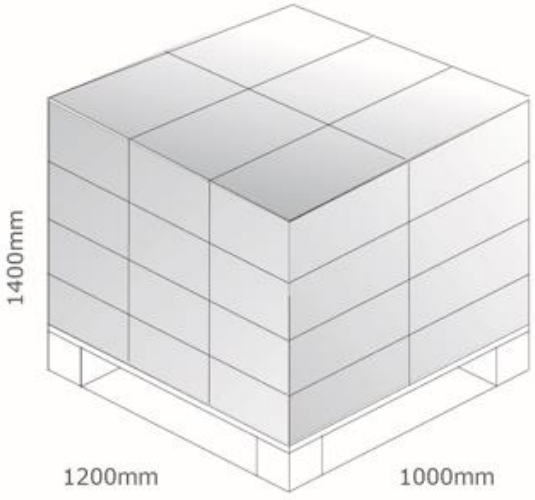
1pc GSA.8846.A.105111 per PE bag
Bag Dimensions – 290*160mm
Weight – 124g



40pcs GSA.8846.A.105111 per carton
Carton Dimensions – 370*370*300mm
Weight – 6.4Kg



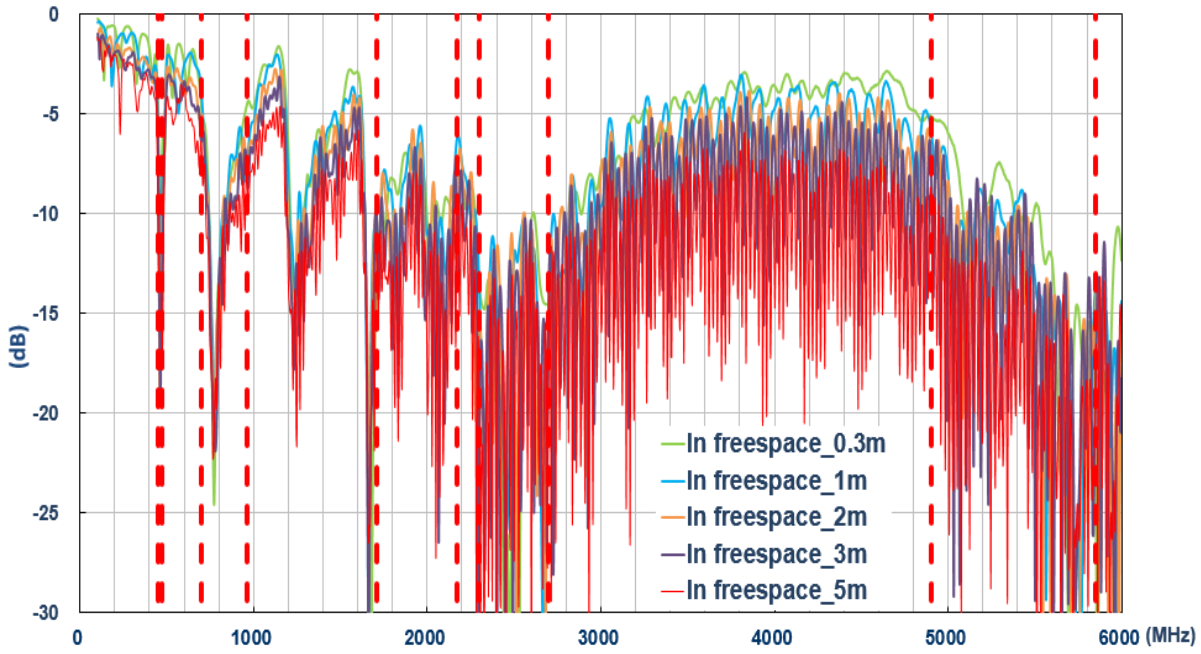
Pallet Dimensions – 1200*1000*1400mm
24 Cartons per pallet
6 Cartons per layer
4 Layers



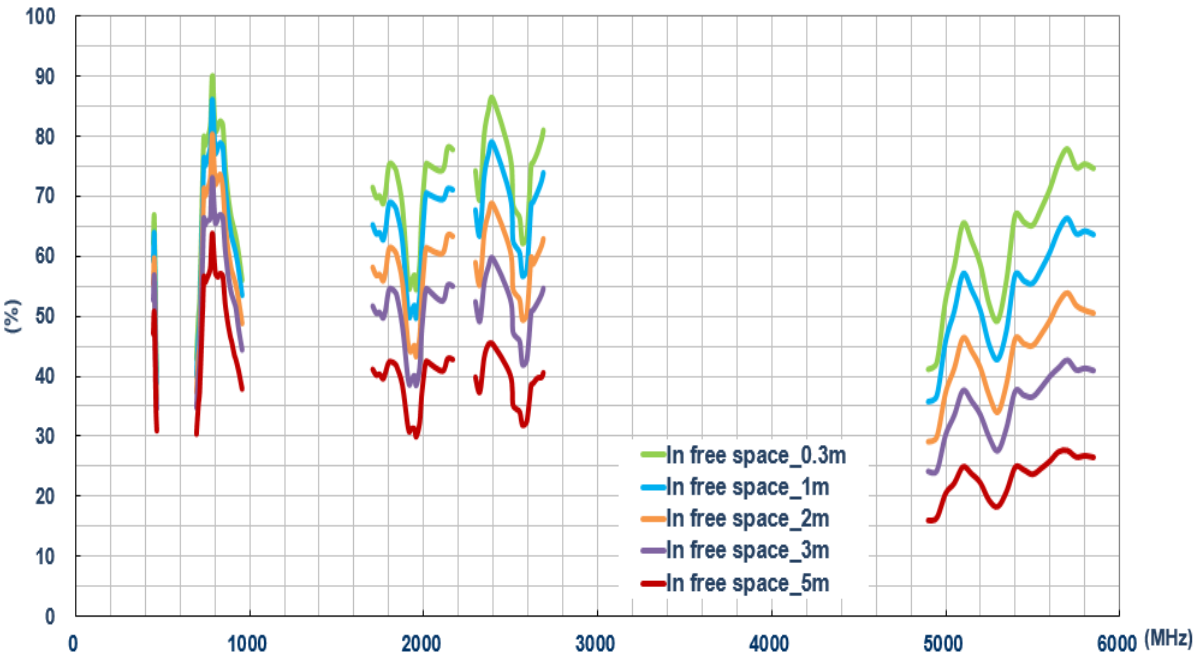
7. Application Note

The GSA.8845 antenna performance with different cable lengths and different mounting environments is shown below.

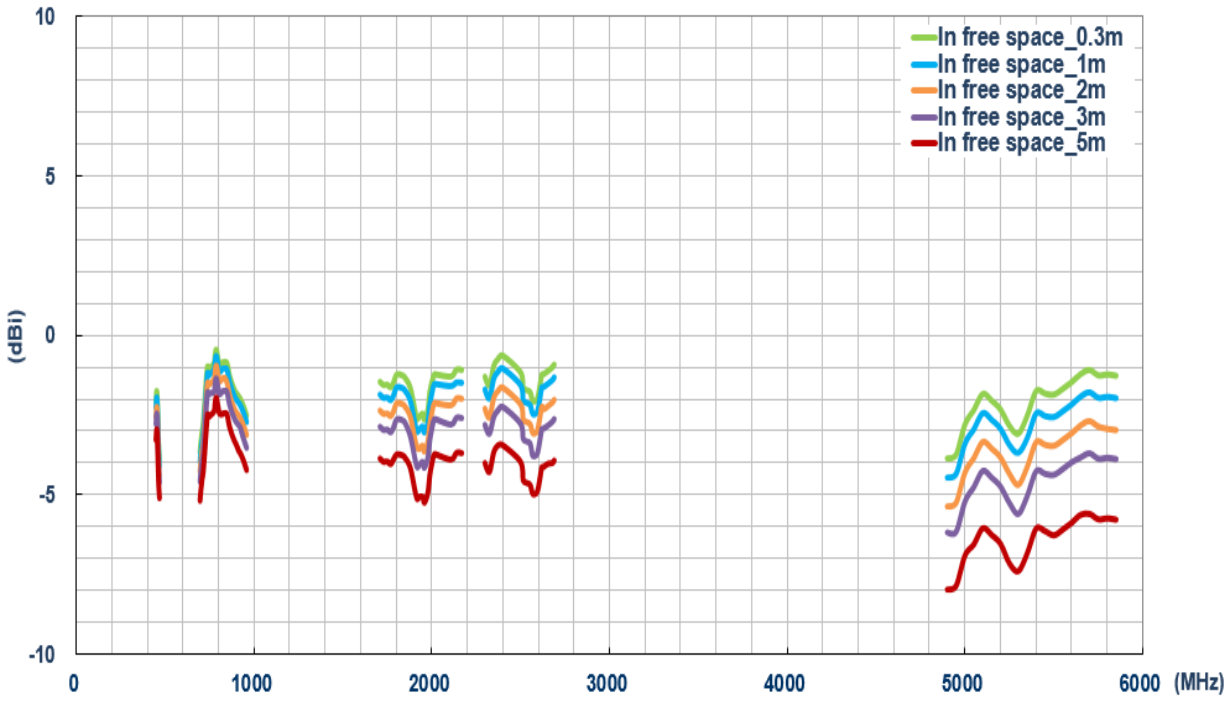
7.1 Return Loss – Free space



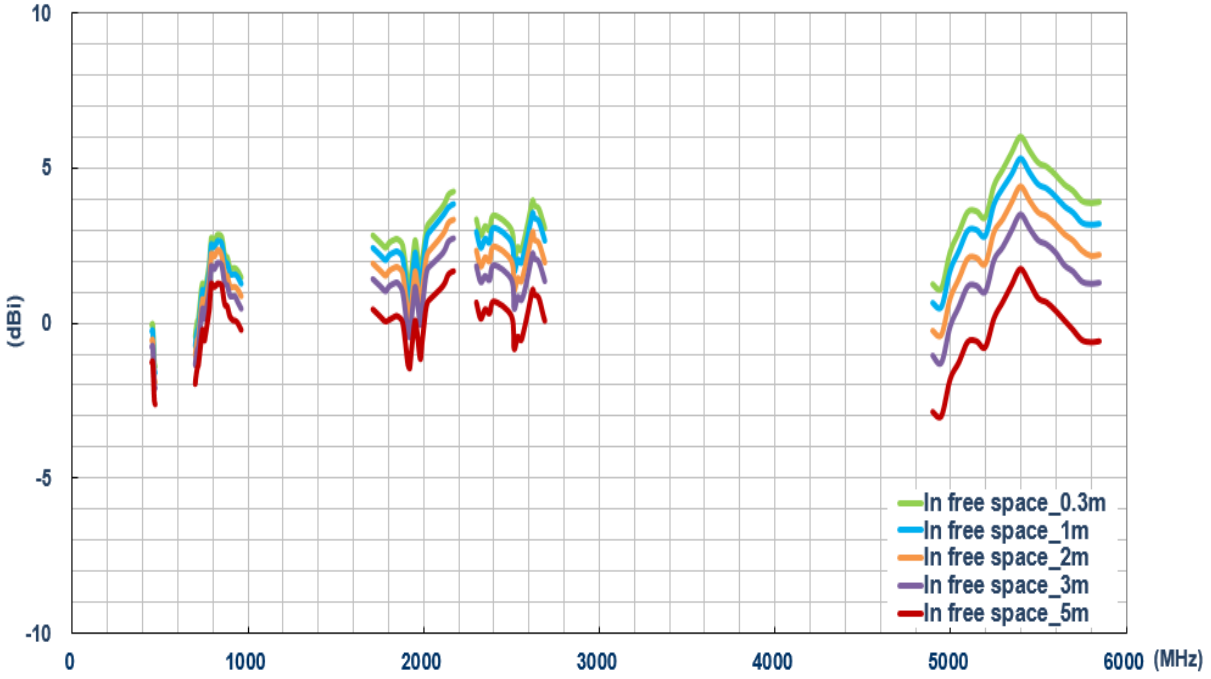
7.2 Efficiency – Free space



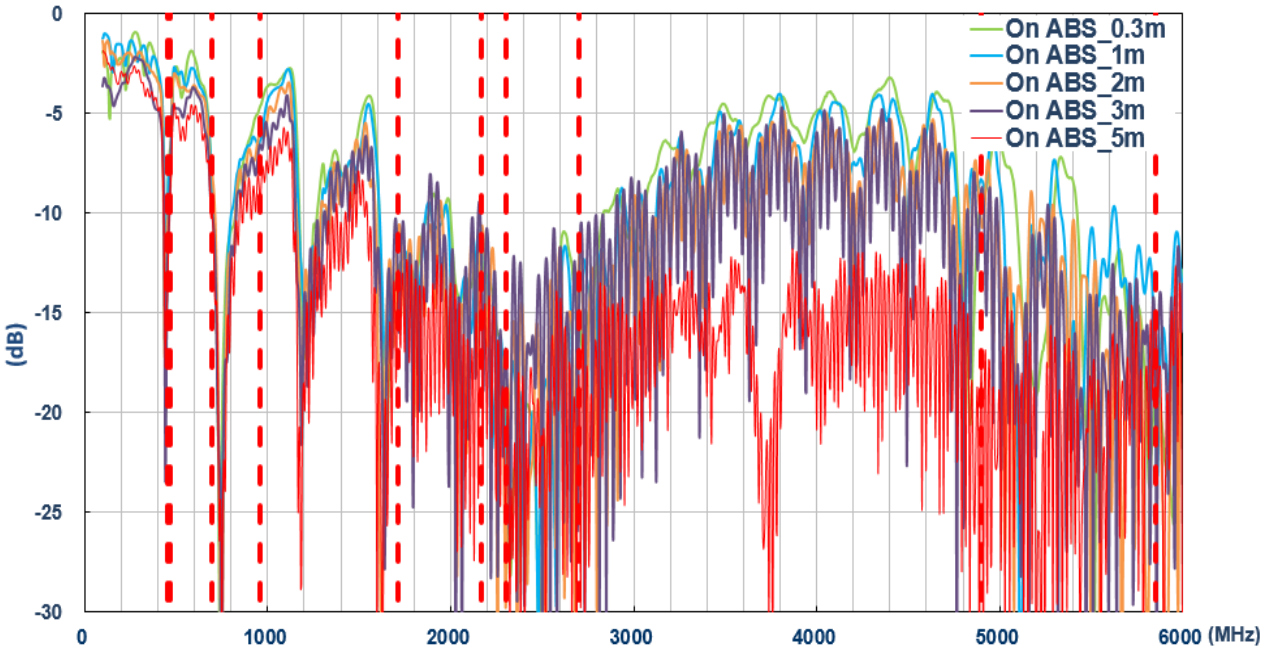
7.3 Average Gain – Free space



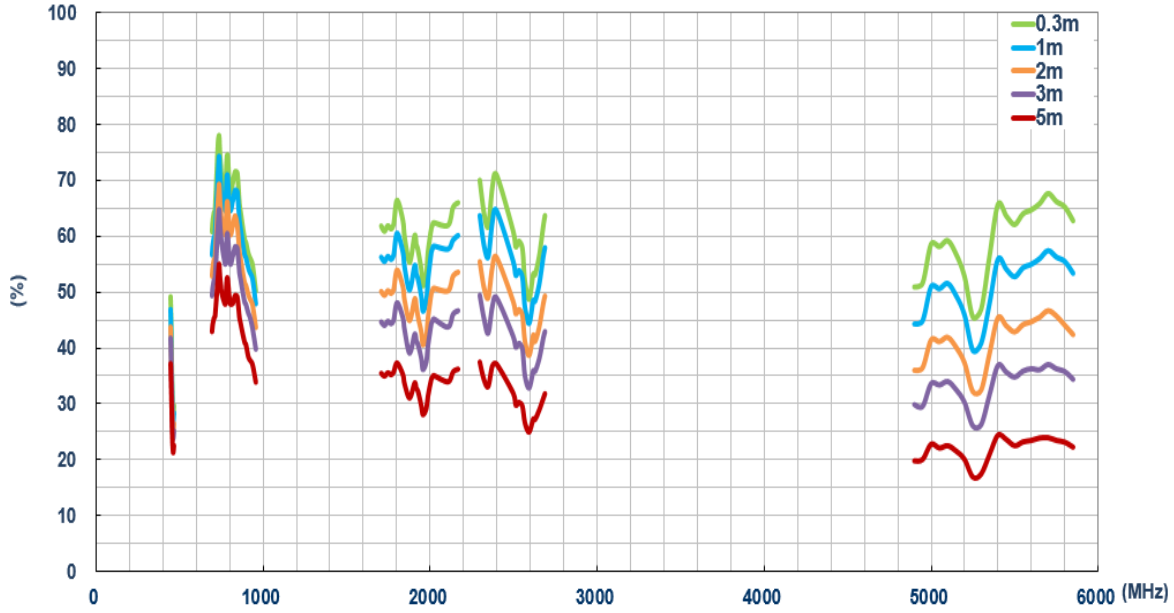
7.4 Peak Gain – Free space



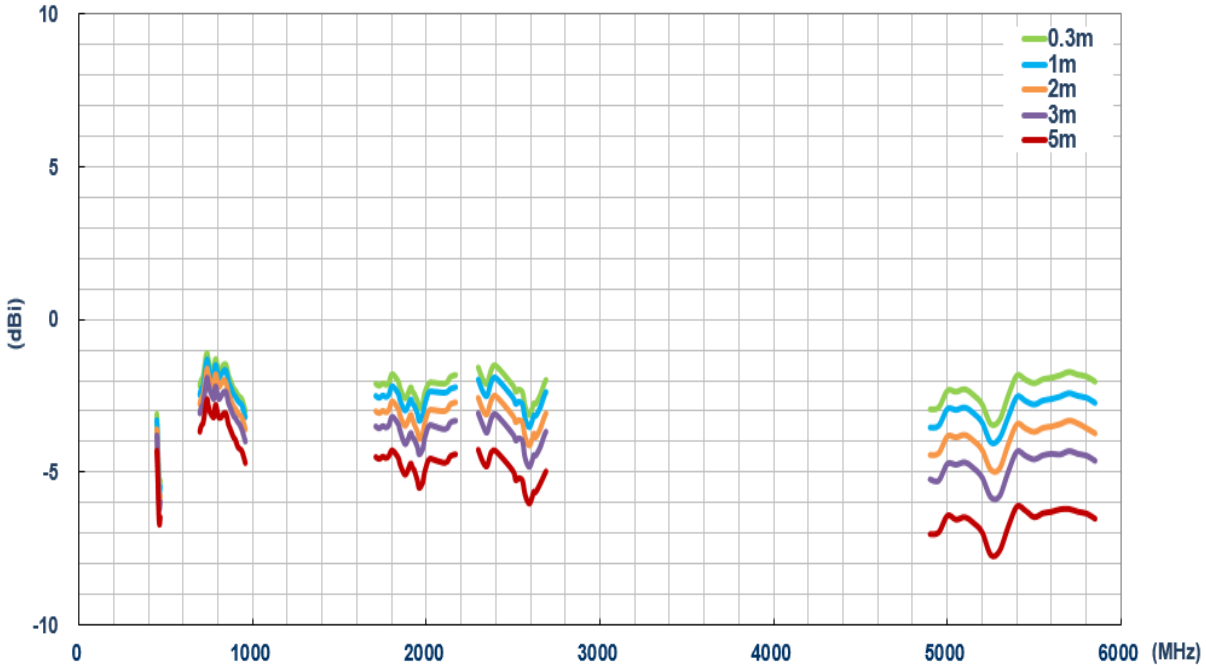
7.5 Return Loss – 2mm ABS



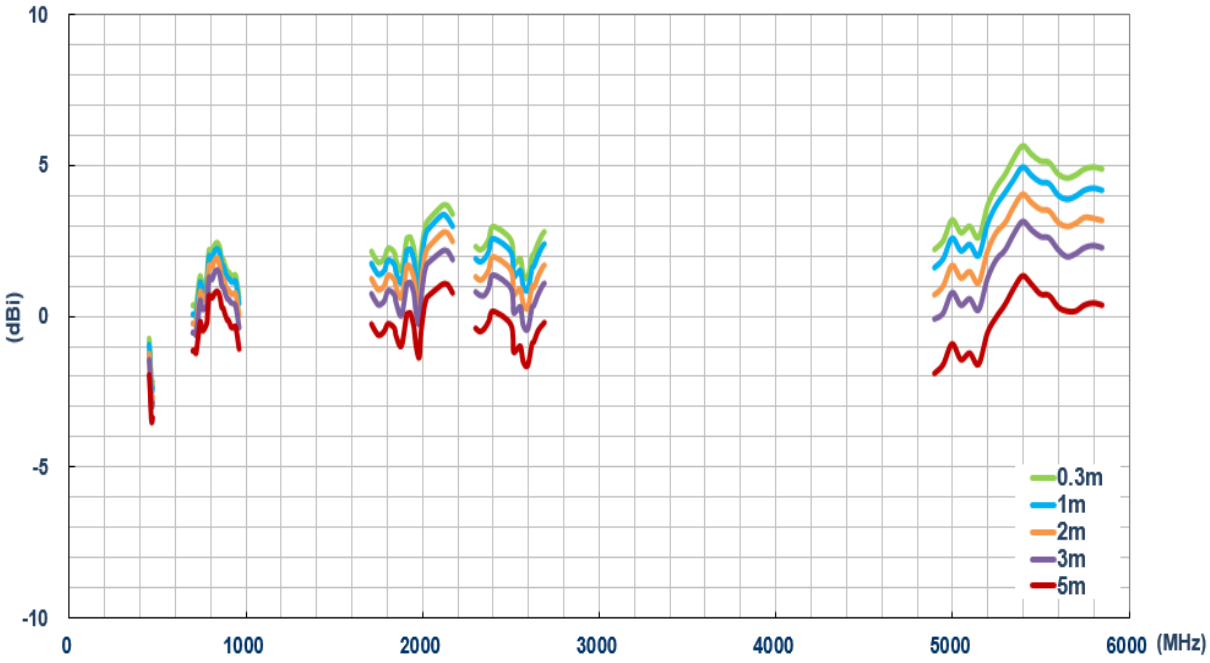
7.6 Efficiency – 2mm ABS



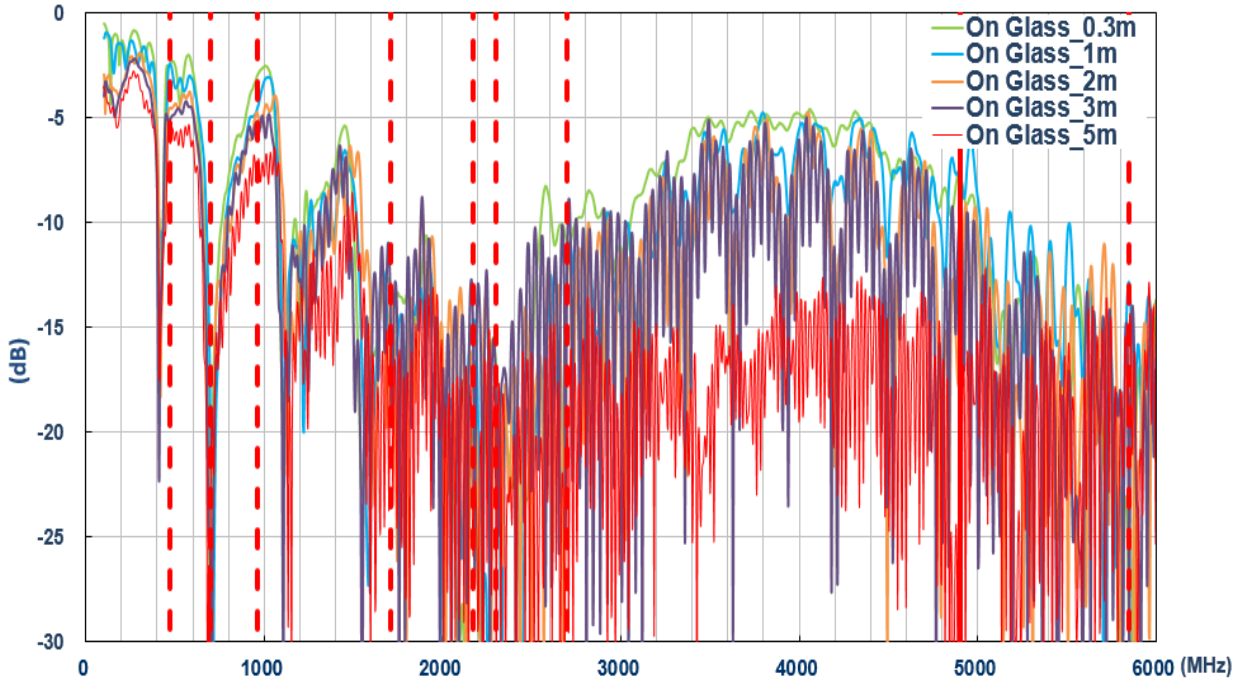
7.7 Average Gain – 2mm ABS



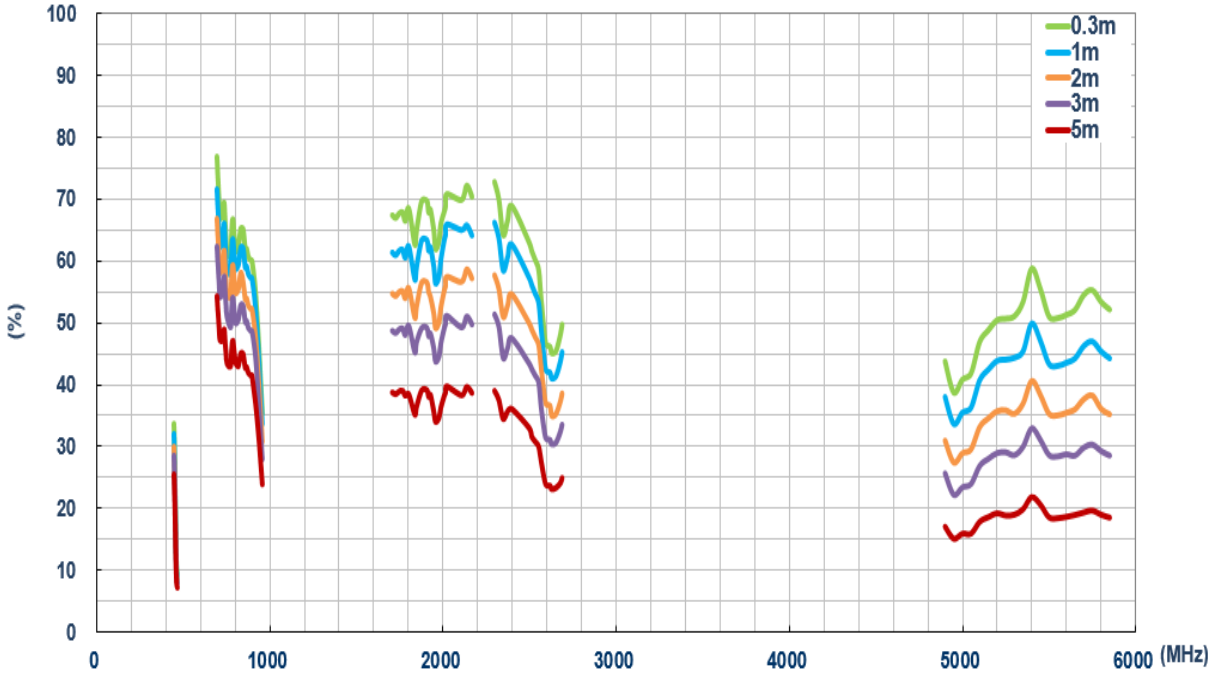
7.8 Peak Gain – 2mm ABS



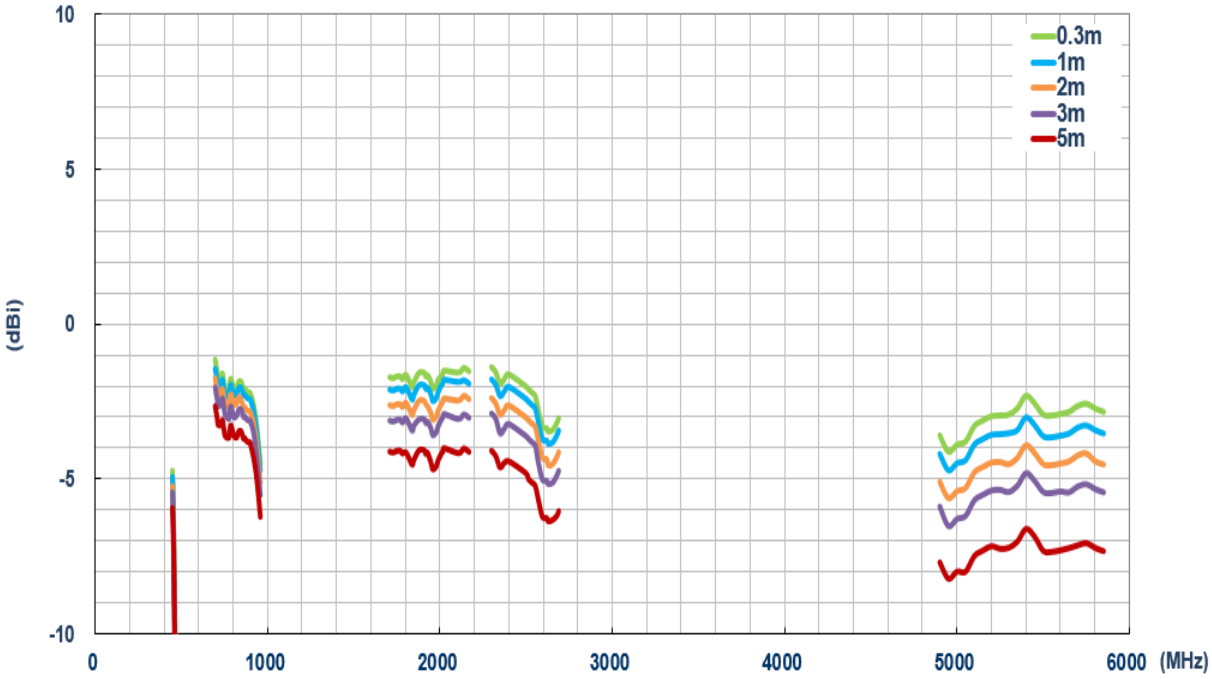
7.9 Return Loss – On Glass



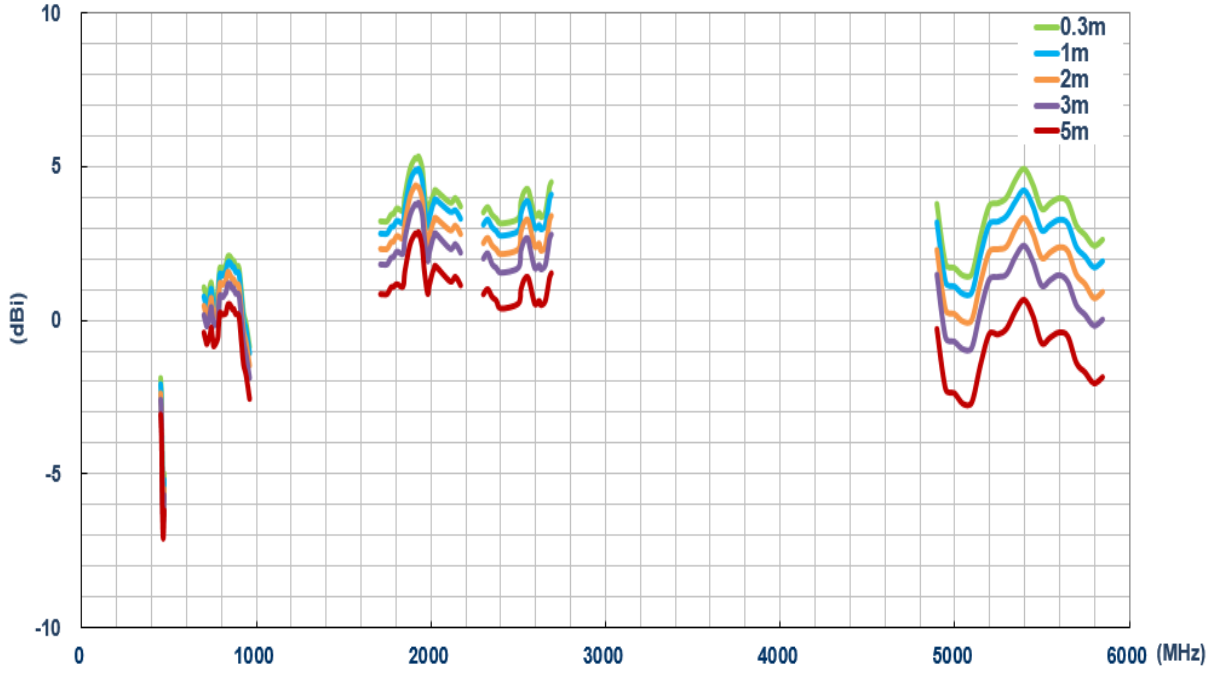
7.10 Efficiency – On Glass



7.11 Average Gain – On Glass



7.12 Peak Gain – On Glass



Changelog for the datasheet

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Previous Revisions

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