



**GSA.8827.A.101111**

## Specification

<b>Part No.</b>	<b>GSA.8827.A.101111 Phoenix</b>
<b>Product Name</b>	2G/3G/4G Ultra-wideband I-Bar Antenna for First-Tier Automotive Application
<b>Feature</b>	<p>LTE / GSM / CDMA /DCS /PCS / WCDMA / UMTS / HSDPA / GPRS / EDGE /GPS /Wi-Fi          698MHz to 960MHz, 1575.42MHz, 1710MHz to 2700Mhz          1M RG.174 cable with SMA(M) connector          Ingress protection rating IP65          Low profile for easy installation          Fully customizable cable length and connector          105mm*30*7.7mm          RoHS compliant</p>



# 1. Introduction

The GSA.8827 Phoenix Ultra-Wideband I-Bar antenna is a robust high efficiency cellular antenna for use with all 2G/3G/4G cellular modules worldwide.

Its slim-line design allows for covert and convenient installation in automotive vehicles, its omni-directional gain across all bands ensures constant reception and transmission. GSA.8827 is manufactured and tested in a TS16949 first tier

automotive approved facility, and it has gone through full PPAP design, reliability and quality audits.

The Phoenix finds its application particularly in first-tier automotive application, aftermarket and telematics.

With its unique ultra-wide band dipole design, the Phoenix has exceptional industry performance characteristics

considering its very low profile at 7.7mm and has a compact size of only 105mm\*30mm.

This antenna is designed to be mounted on glass or plastic (not on metal). It comes with strong 3M double-sided adhesive for a permanent and secure fix to your vehicle interior. The antenna is UV Resistant. Cable lengths and connectors are fully customizable.

# 2. Specification

## Electrical

Frequency (MHz) | 703~803 | 824~894 | 880~960 | 1710~1880 | 1575.42 | 1850~1990 | 1710~2170 | 2490~2690

### Peak Gain (dBi) - Free Space

	703~803	824~894	880~960	1710~1880	1575.42	1850~1990	1710~2170	2490~2690	
<b>Cable length</b>	0.3	1.21	1.46	2.70	2.67	2.99	3.32	3.43	1.67
<b>(Meter)</b>									
	1	2.83	1.71	2.93	1.57	2.14	2.32	2.65	1.49
	2	1.51	1.70	2.87	0.54	0.77	0.78	1.10	-0.38
	3	-0.70	0.49	0.51	-0.93	-0.67	-0.47	-0.36	-1.66

### Average Gain (dBi) - Free Space

	703~803	824~894	880~960	1710~1880	1575.42	1850~1990	1710~2170	2490~2690	
<b>Cable length</b>	0.3	-3.36	-2.99	-2.08	-1.09	-1.53	-1.29	-1.08	-3.24
<b>(Meter)</b>									
	1	-1.62	-3.06	-1.79	-2.09	-2.17	-2.20	-1.99	-4.02
	2	-3.30	-4.20	-3.81	-3.29	-3.68	-3.76	-3.59	-5.71
	3	-5.73	-4.83	-4.25	-4.35	-4.84	-4.87	-4.75	-7.17

### Efficiency (%) - Free Space

	703~803	824~894	880~960	1710~1880	1575.42	1850~1990	1710~2170	2490~2690	
<b>Cable length</b>	0.3	46.38	49.09	62.06	77.13	70.38	74.65	78.23	47.89
<b>(Meter)</b>									
	1	69.63	52.93	67.41	61.68	59.94	61.68	63.92	39.71
	2	47.75	37.61	44.04	47.39	42.40	42.62	44.36	26.91
	3	26.88	34.17	37.59	37.10	32.35	33.07	33.64	19.28

**Peak Gain (dBi) - On glass**

<b>Cable length</b>	0.3	0.91	0.74	0.98	2.35	3.75	4.56	5.34	3.50
<b>(Meter)</b>	1	2.79	1.90	-0.13	1.54	3.25	4.56	4.34	3.44
	2	0.34	1.47	1.65	0.97	1.53	2.30	2.69	1.47
	3	0.16	-0.43	-0.55	-0.28	0.51	0.84	1.13	-0.55

**Average Gain (dBi) - On glass**

<b>Cable length</b>	0.3	-2.63	-2.49	-2.67	-1.29	-1.35	-1.10	-1.03	-2.91
<b>(Meter)</b>	1	-2.25	-3.14	-2.96	-2.22	-2.04	-1.98	-1.99	-3.85
	2	-3.78	-4.63	-3.65	-3.27	-3.63	-3.46	-3.50	-5.73
	3	-4.51	-4.90	-5.12	-4.59	-5.12	-5.02	-5.06	-7.62

**Efficiency (%) - On glass**

<b>Cable length</b>	0.3	54.84	56.39	54.13	74.28	73.29	77.81	80.31	51.78
<b>(Meter)</b>	1	59.84	48.85	50.97	59.95	62.47	77.81	63.36	41.57
	2	42.41	34.53	43.29	47.10	43.36	45.17	44.80	26.95
	3	35.51	32.33	30.85	34.73	30.80	31.64	31.24	17.43

<b>Impedance</b>	50Ω
<b>Polarization</b>	Linear
<b>Radiation Pattern</b>	Omni
<b>Input Power</b>	50 W

**Mechanical**

<b>Casing</b>	UV Resistant PC/ABS
<b>Connector</b>	SMA Male (customizable)
<b>Cable</b>	RG-174
<b>Dimensions</b>	105*30*7.7mm
<b>Waterproof</b>	IP-65

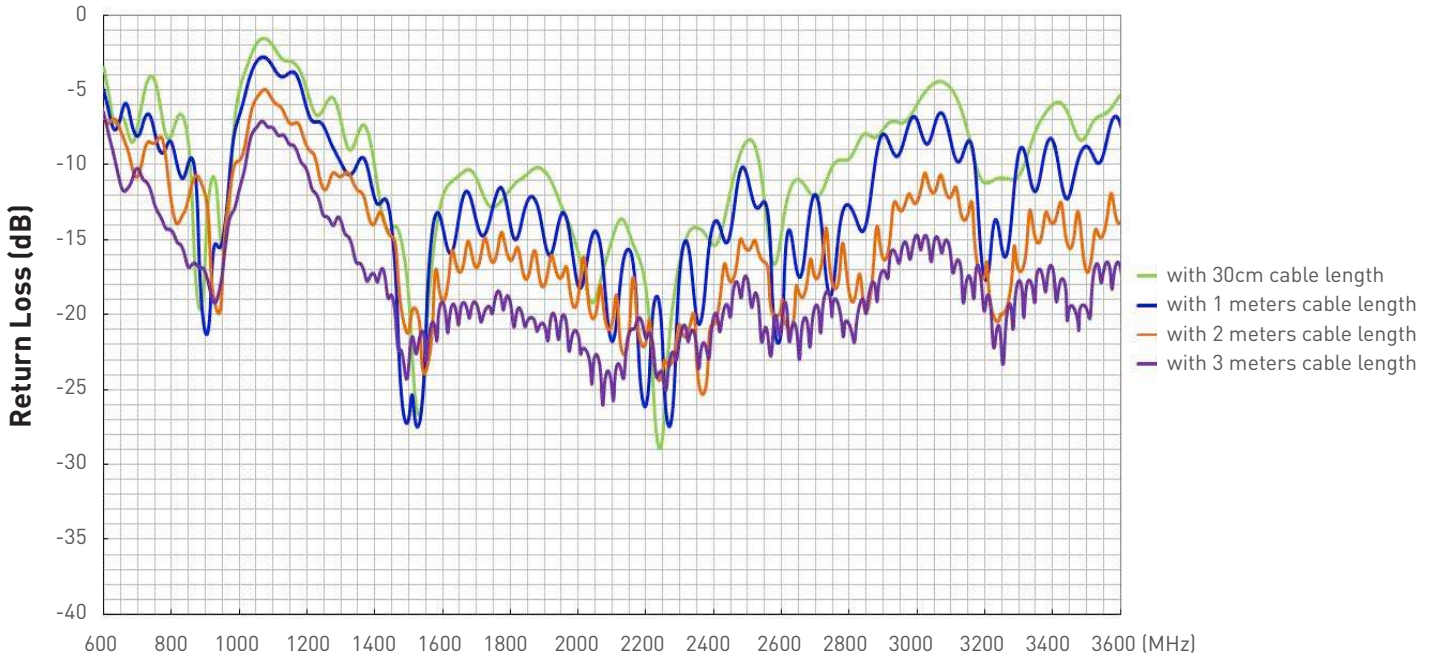
**Environmental**

<b>Temp. Range</b>	-40°C to 85°C
<b>Humidity</b>	Non-condensing 65°C 95% RH

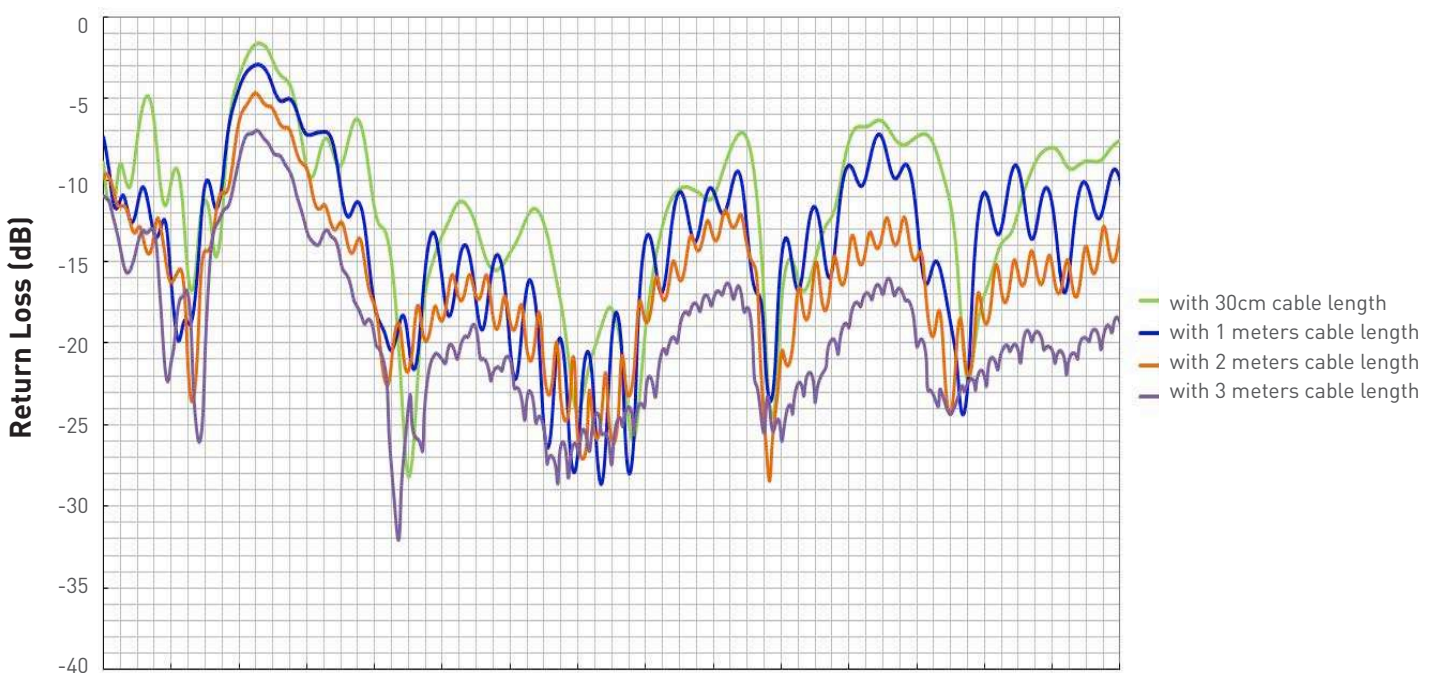
\* After comparison, the antenna performance on the plastic base is the same with free space.

### 3. Antenna Characteristics

#### 3.1.1 Return Loss (in free space)

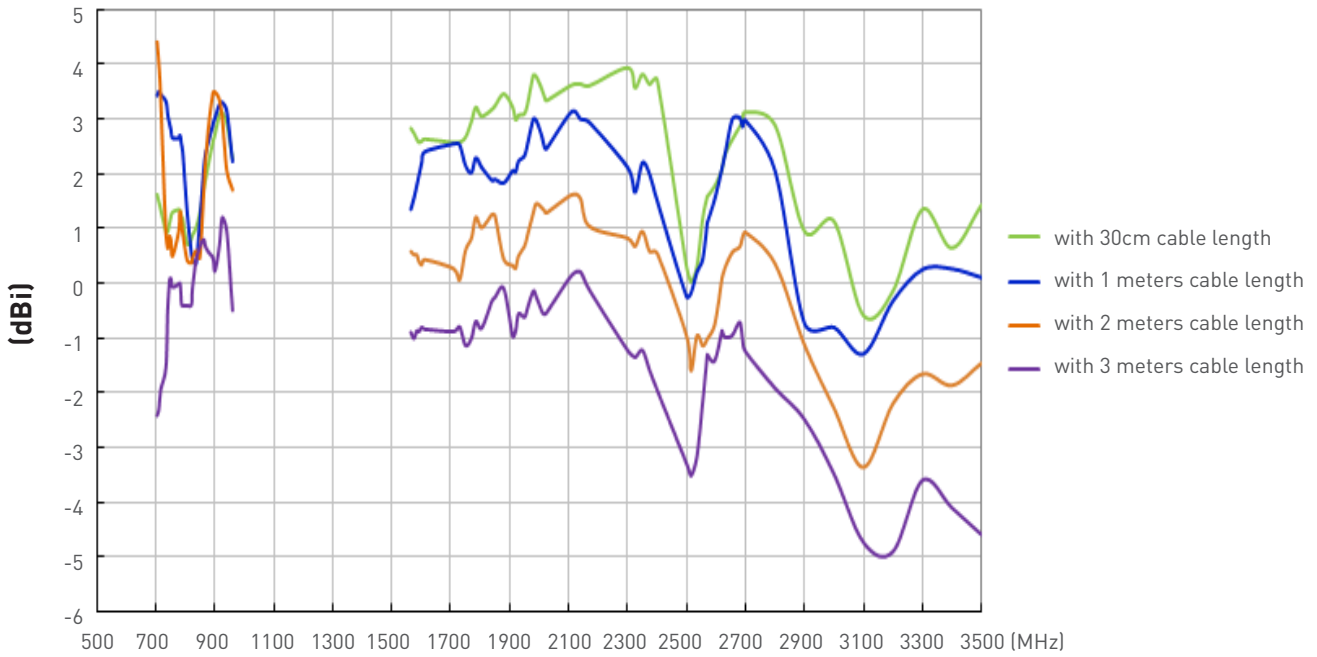


#### 3.1.2 Return Loss (on glass)

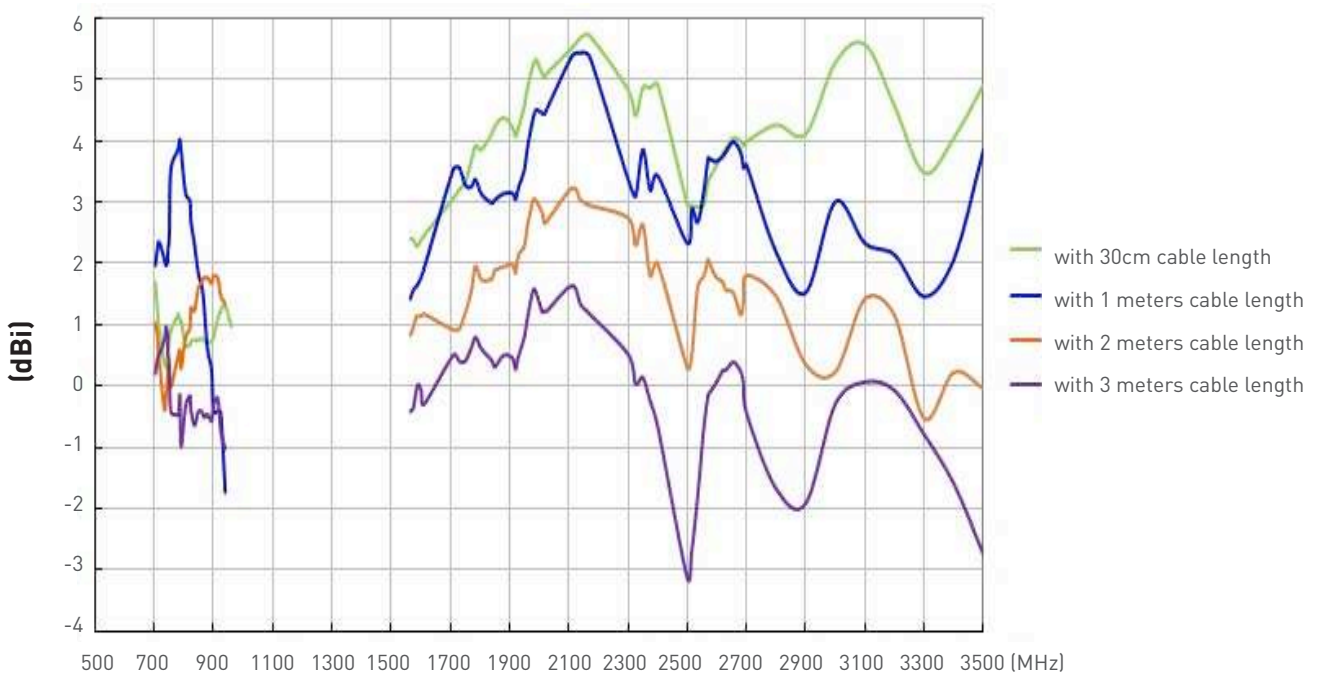


### 3. Antenna Characteristics

#### 3.2.1 Maximum Gain (in free space)

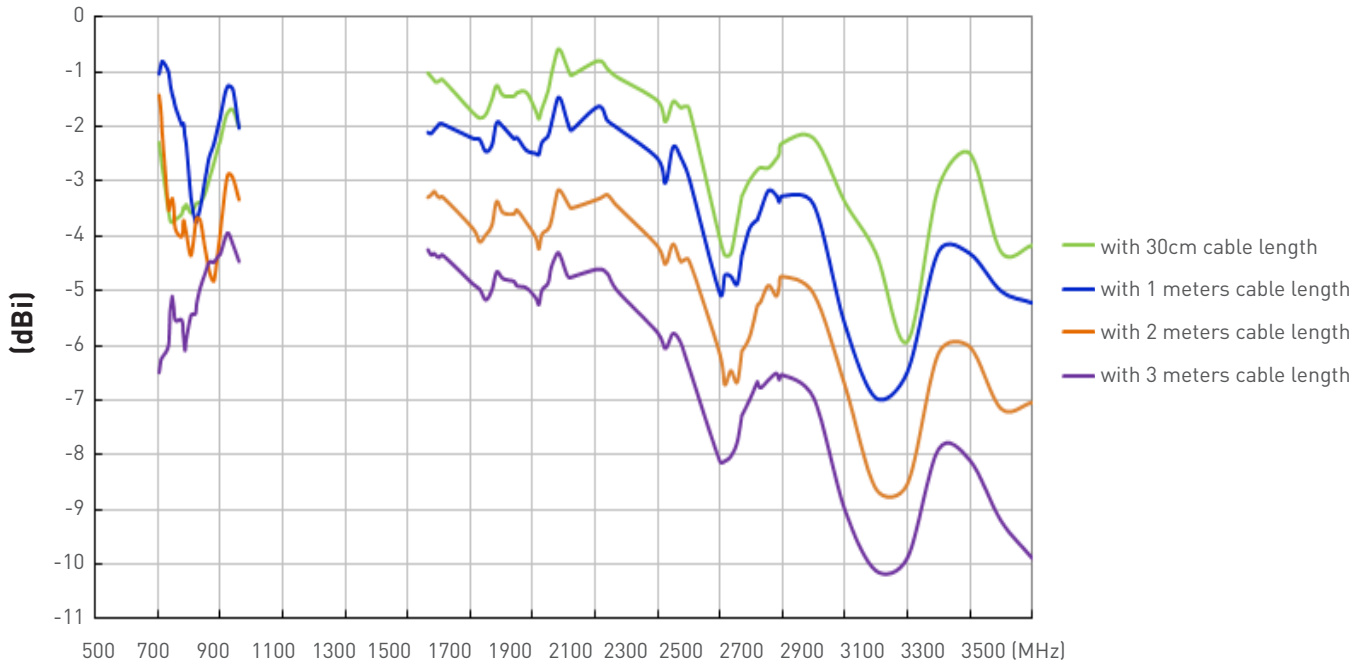


#### 3.2.2 Maximum Gain (on glass)

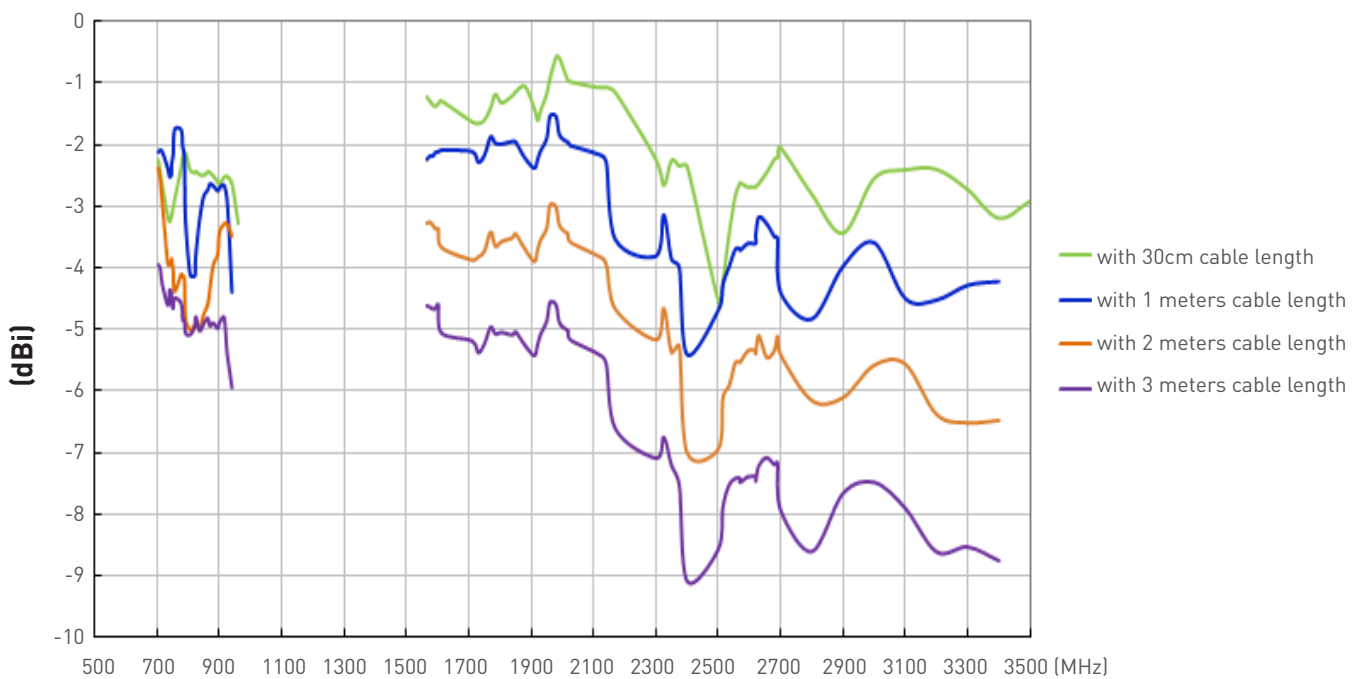


### 3. Antenna Characteristics

#### 3.3.1 Average Gain (in free space)

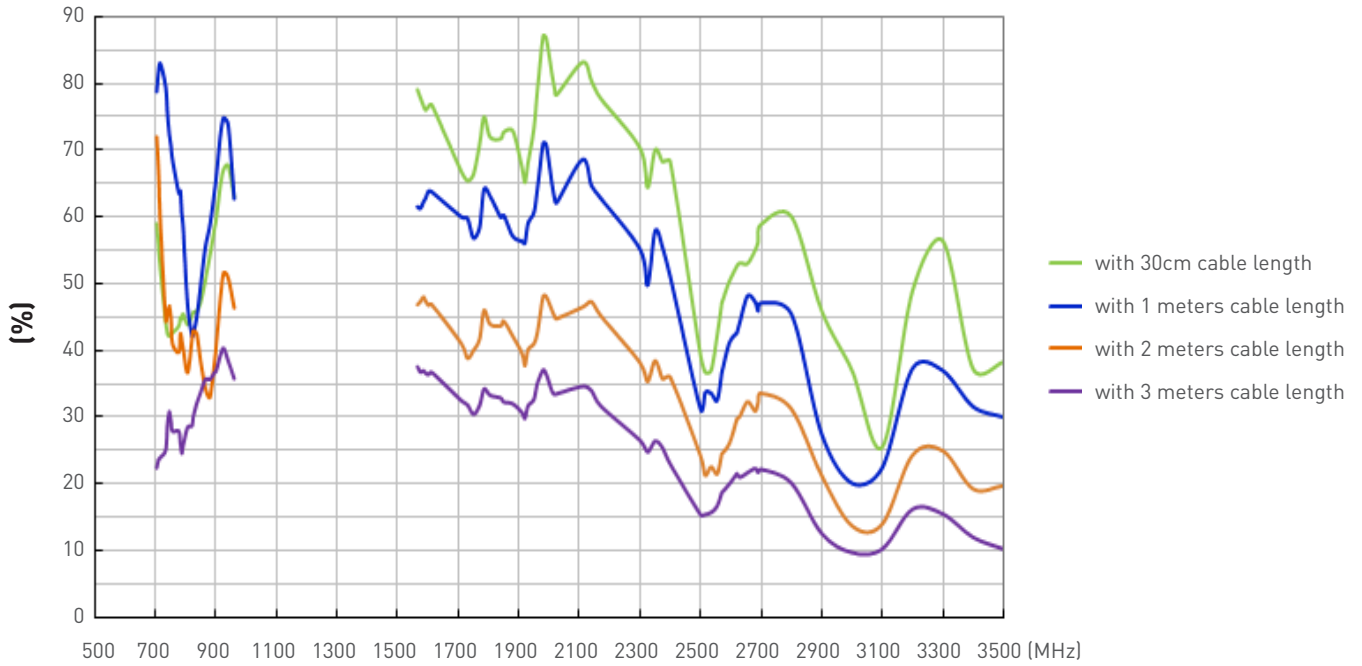


#### 3.3.2 Average Gain (on glass)

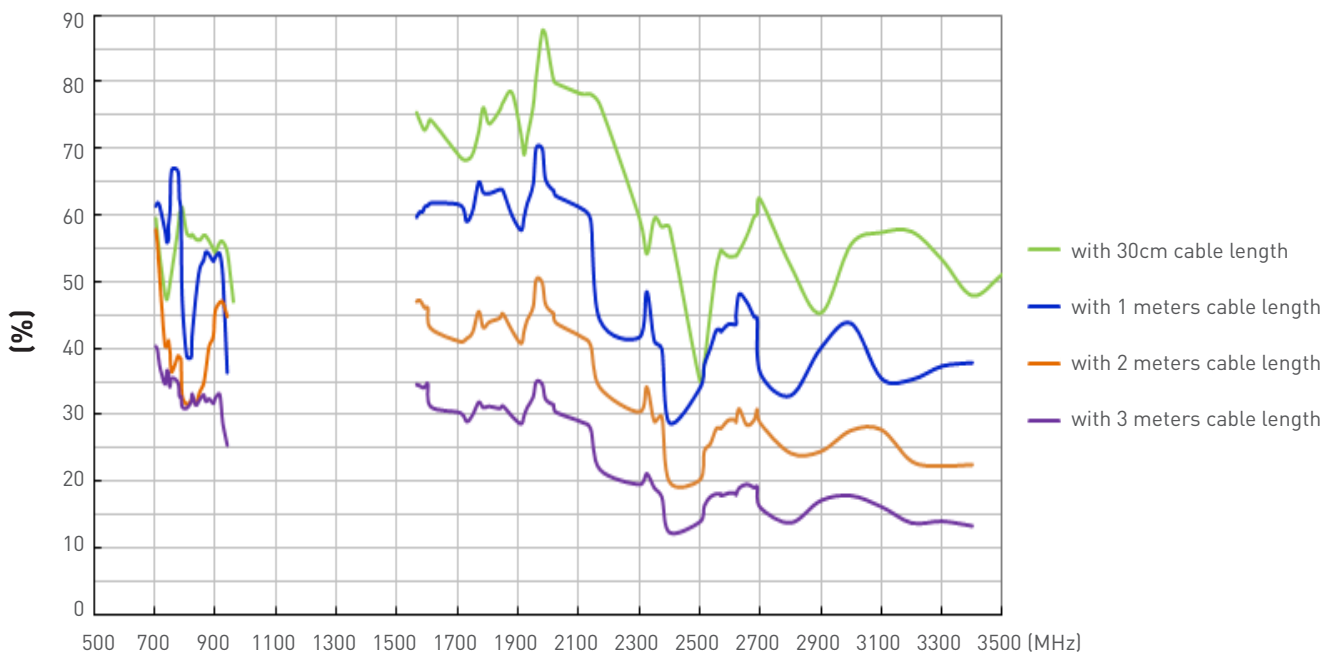


### 3. Antenna Characteristics

#### 3.4.1 Efficiency (in free space)

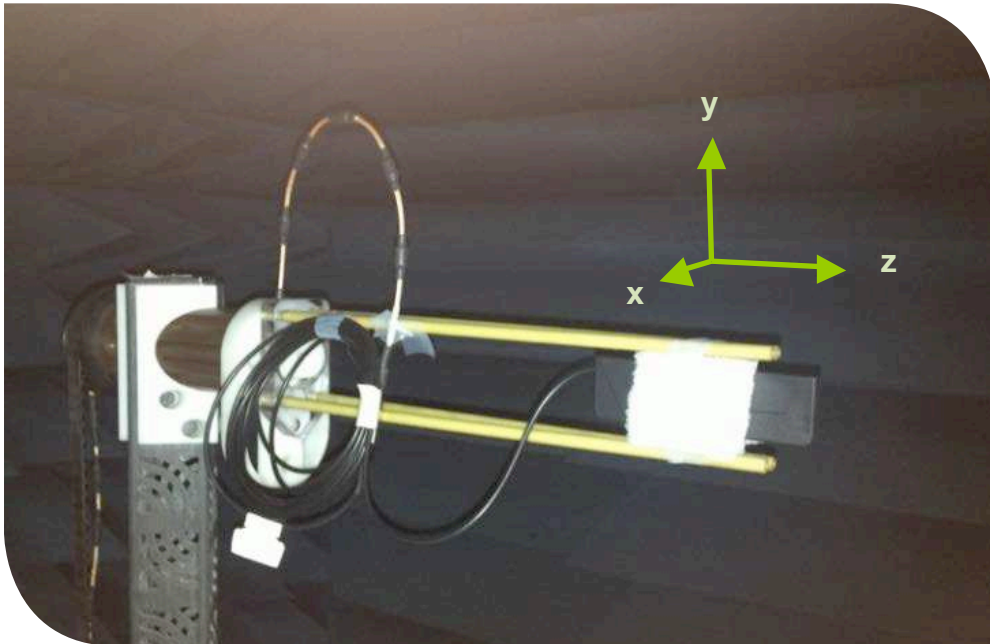


#### 3.4.2 Efficiency (on glass)



## 4. Antenna Radiation Patterns

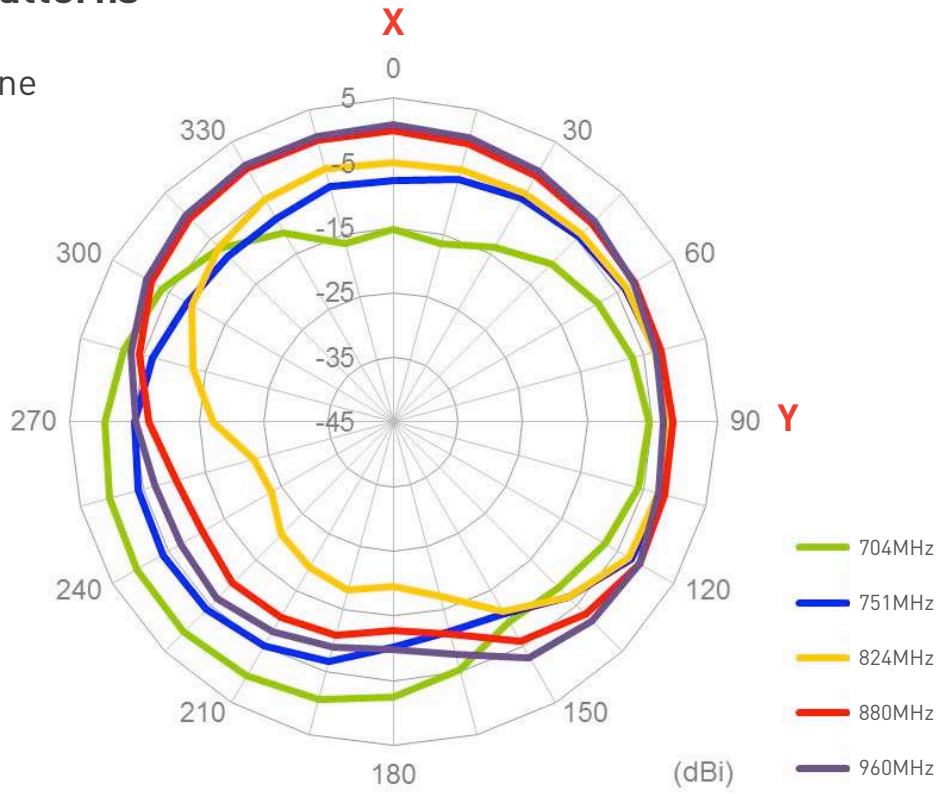
### 4.1 Antenna setup (Free space with 1 meter cable length)



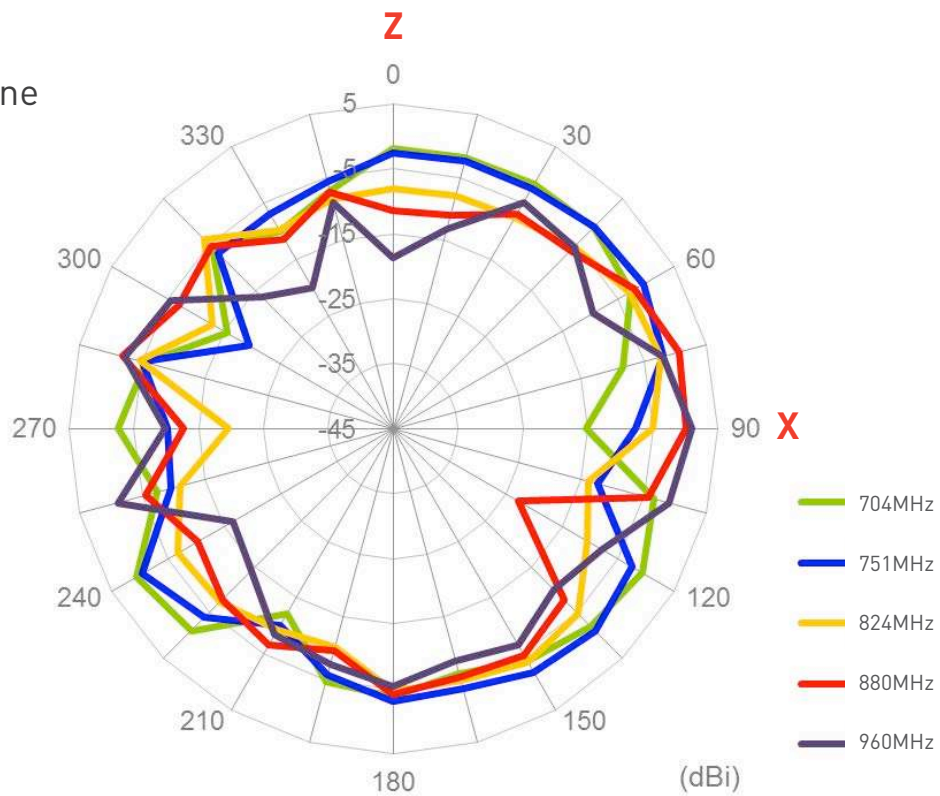


# Radiation patterns

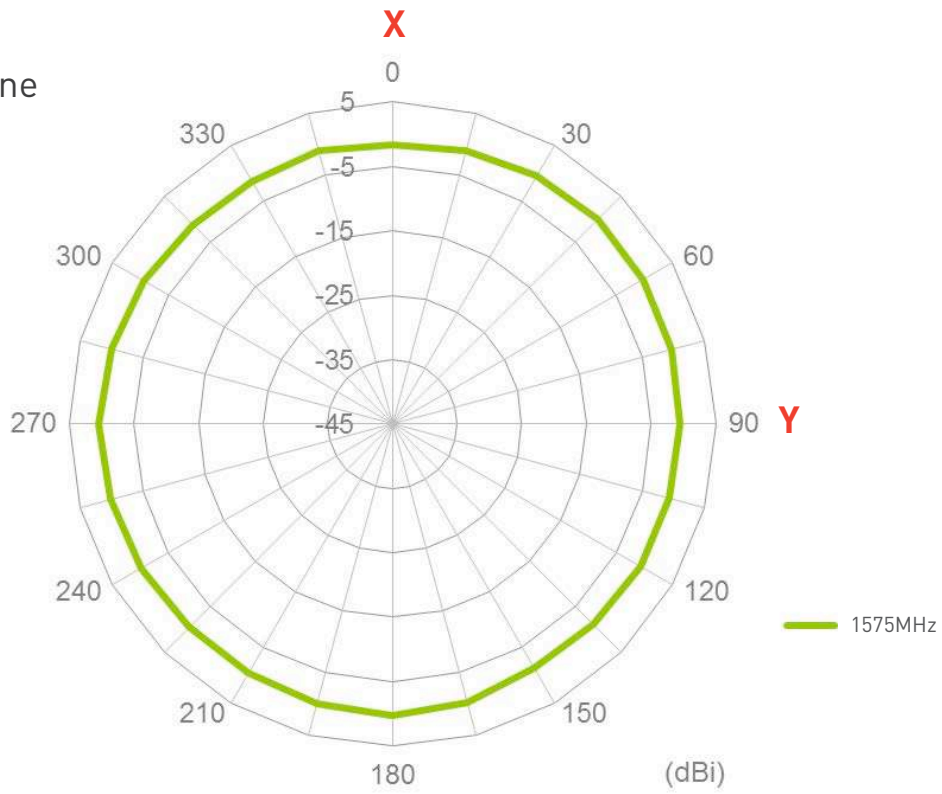
XY Plane



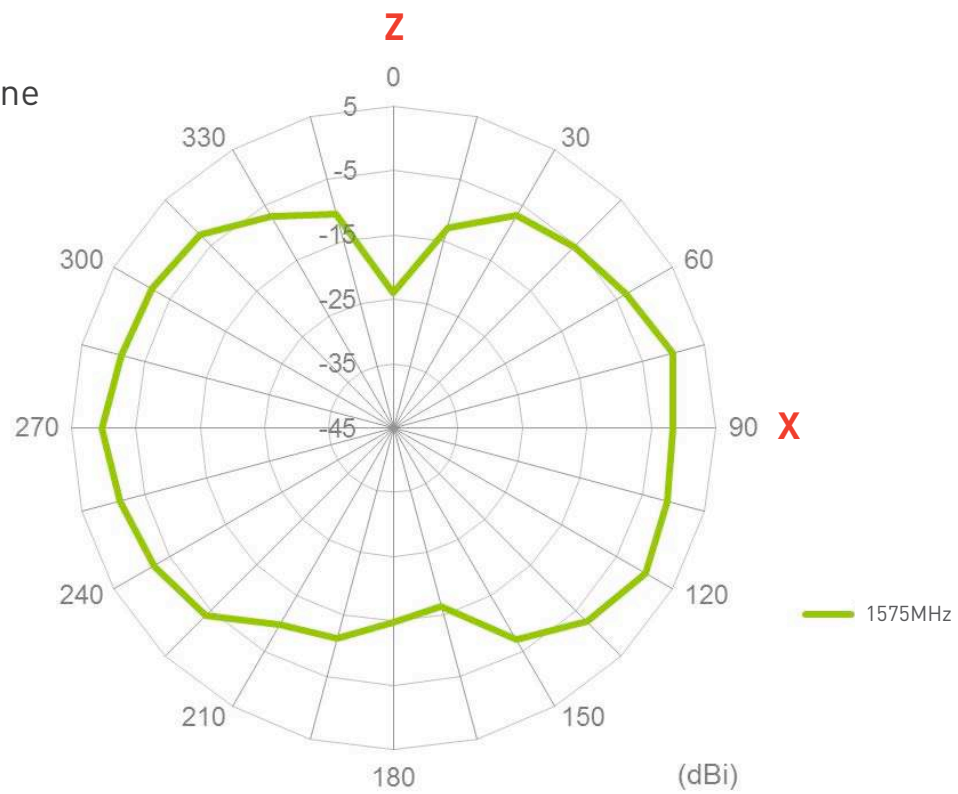
XZ Plane



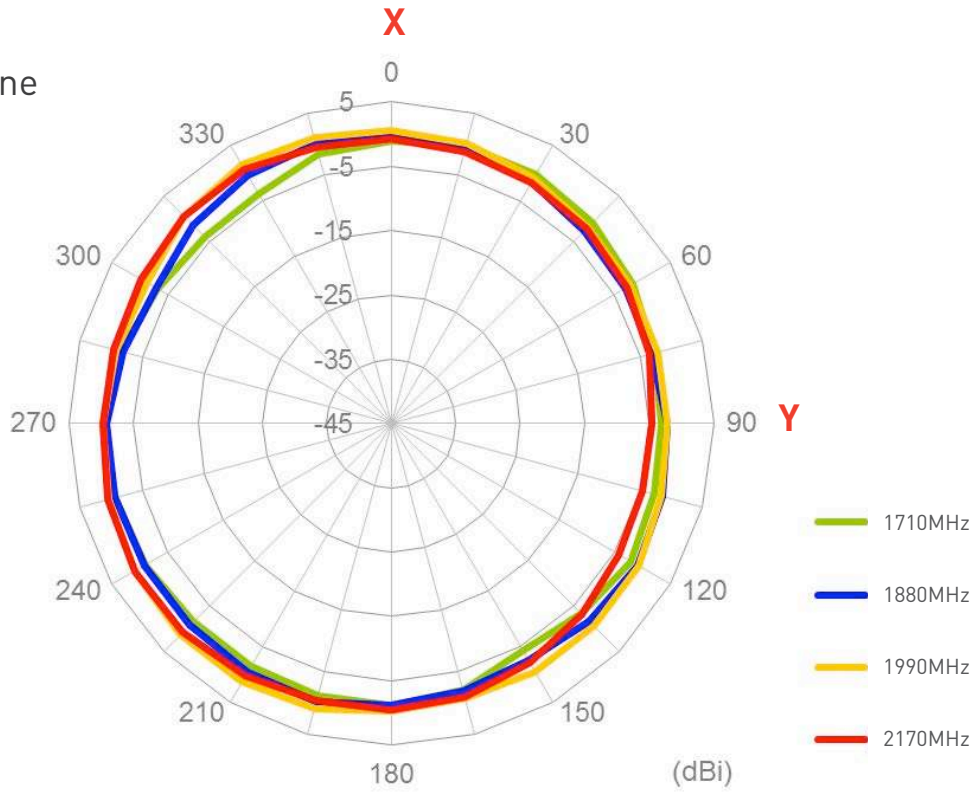
XY Plane



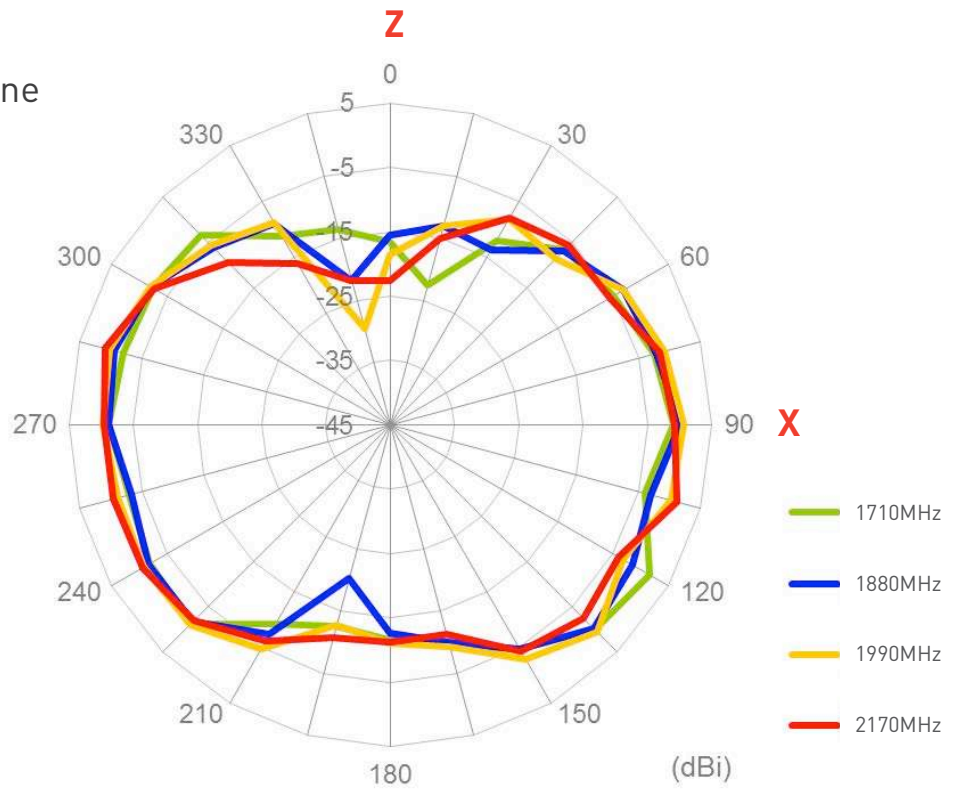
XZ Plane



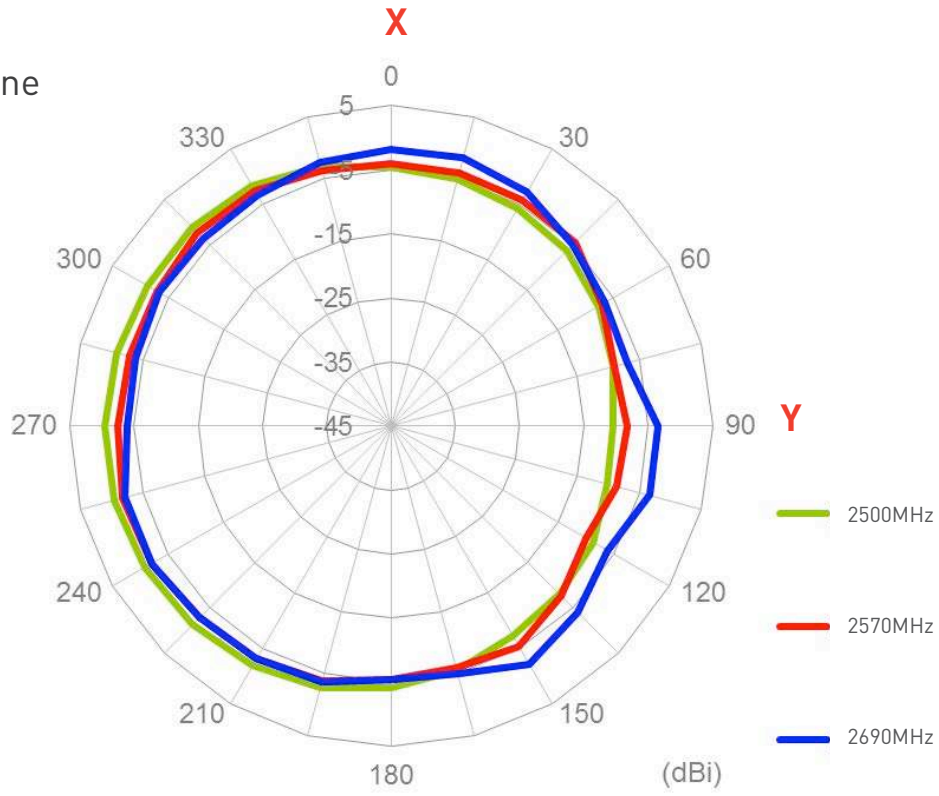
XY Plane



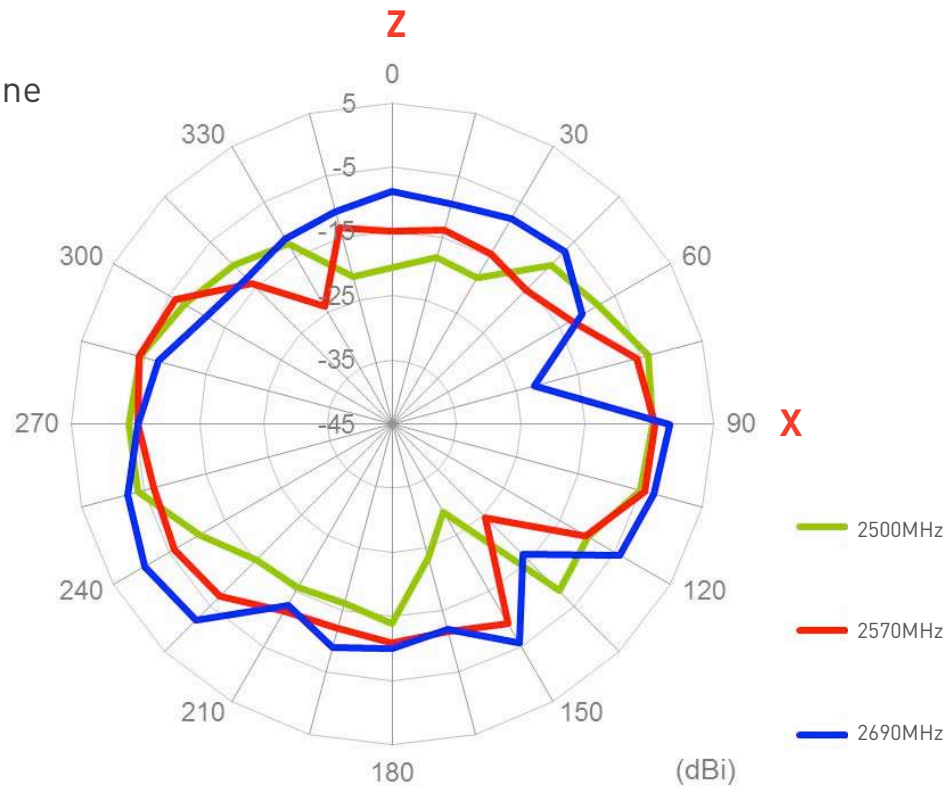
XZ Plane



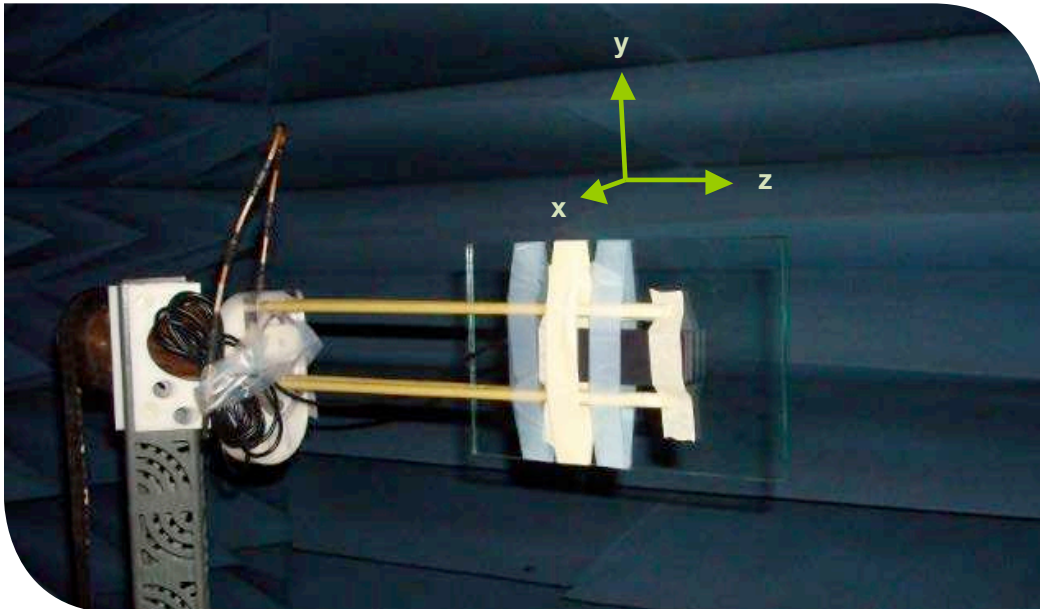
XY Plane



XZ Plane

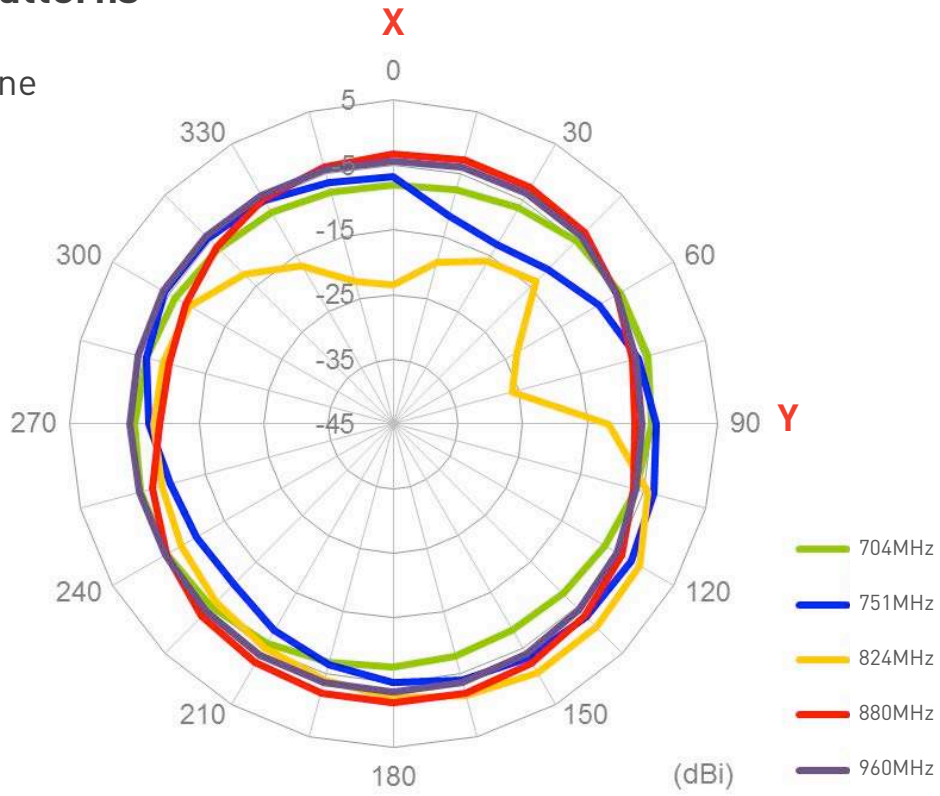


## 4.2 Antenna setup (Mounted on Glass with 1 meter cable length)

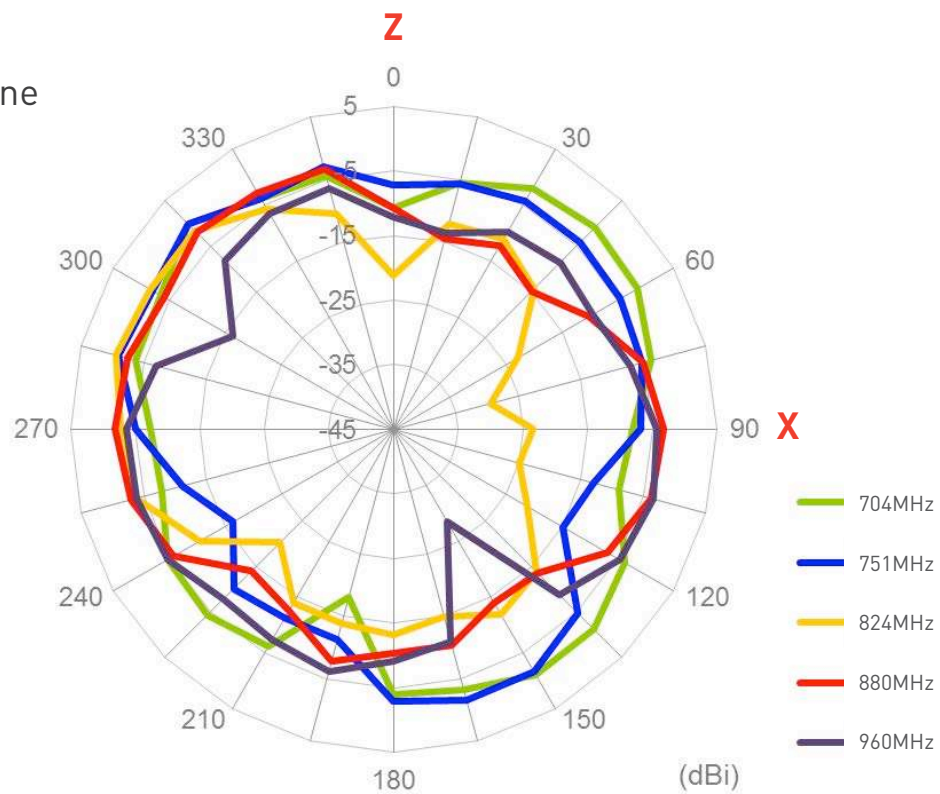


# Radiation patterns

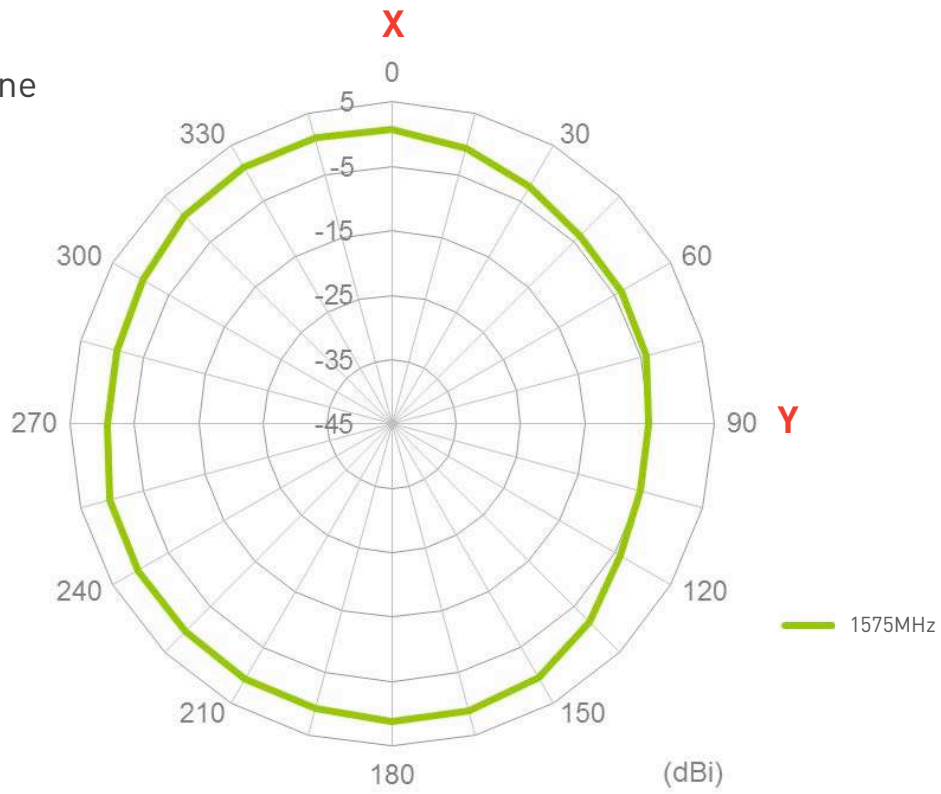
XY Plane



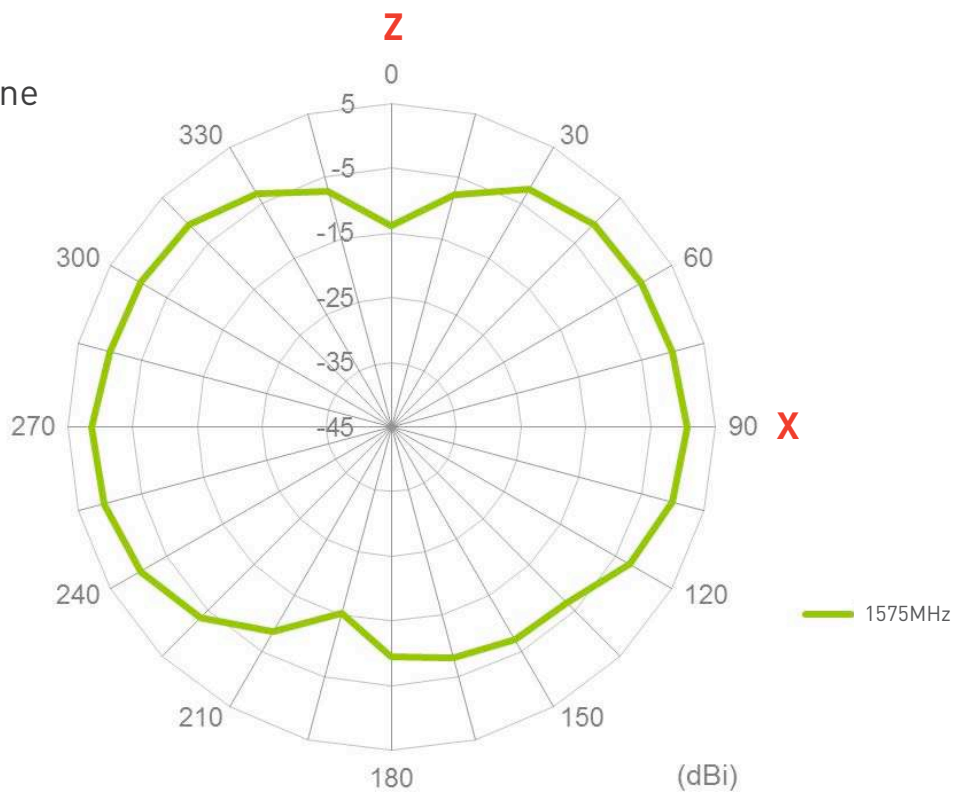
XZ Plane



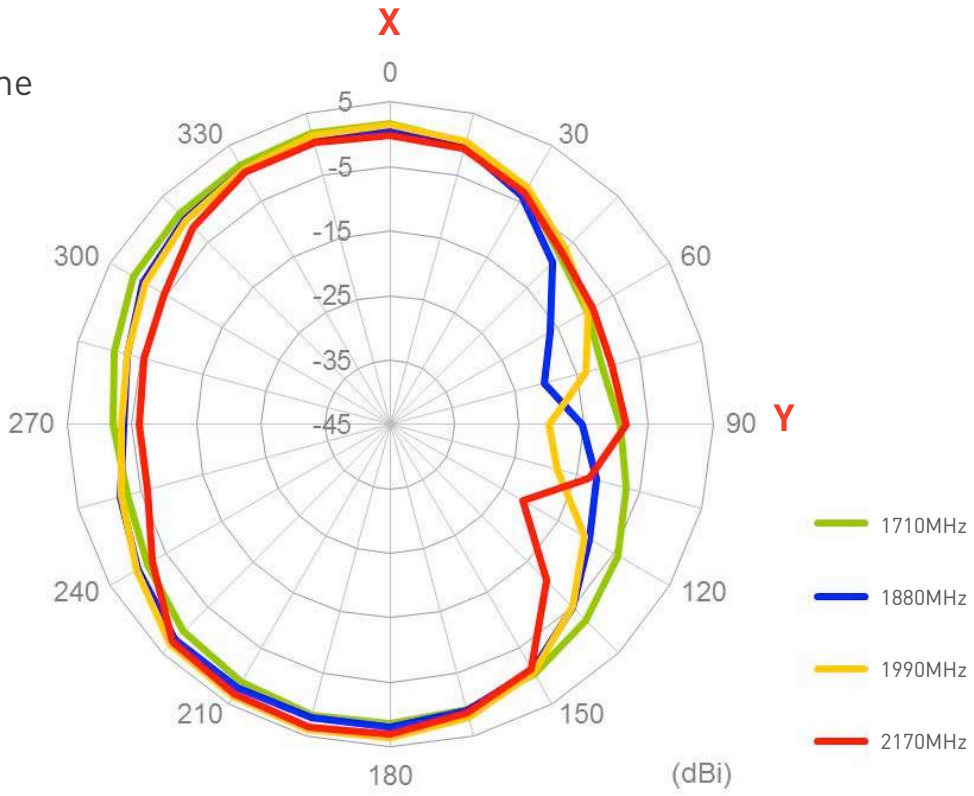
XY Plane



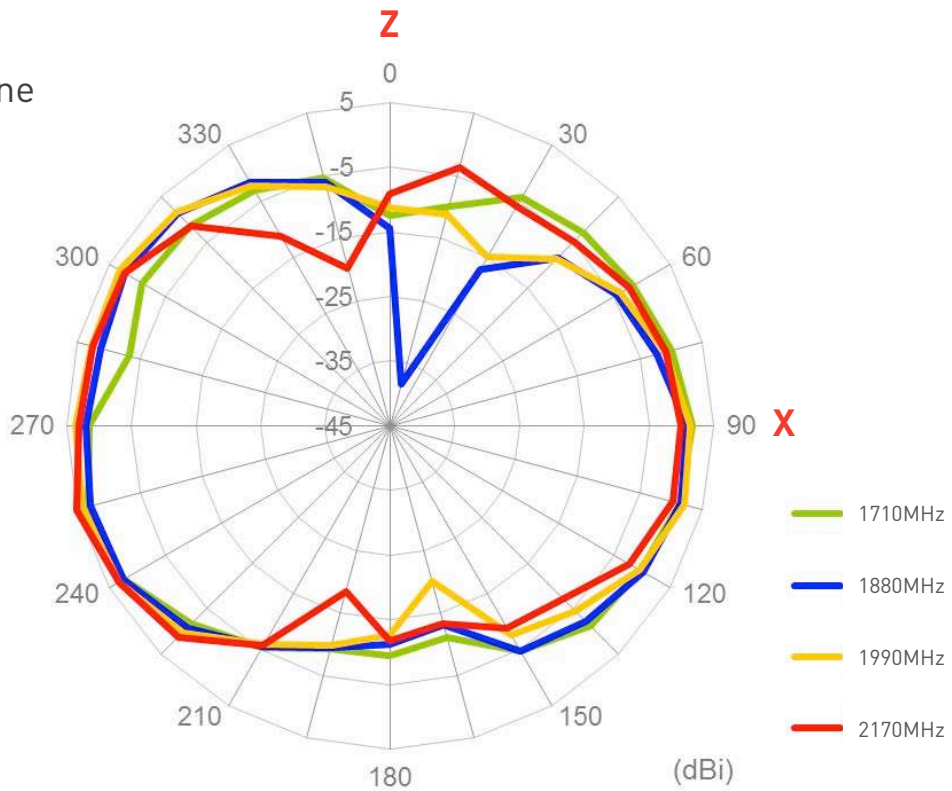
XZ Plane



XY Plane

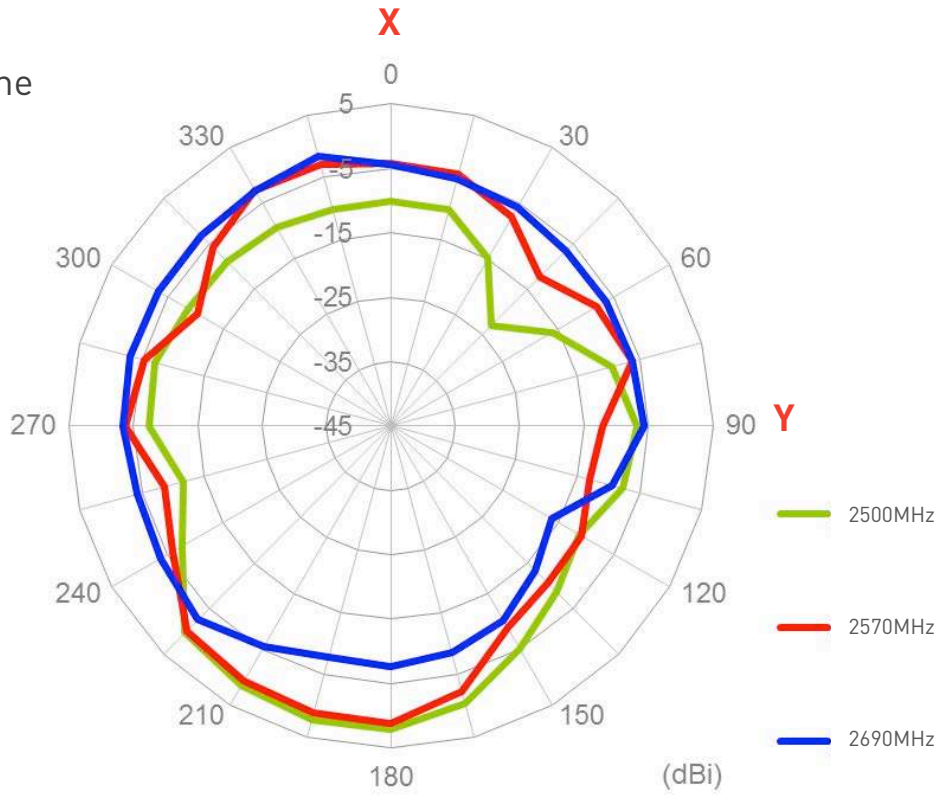


XZ Plane

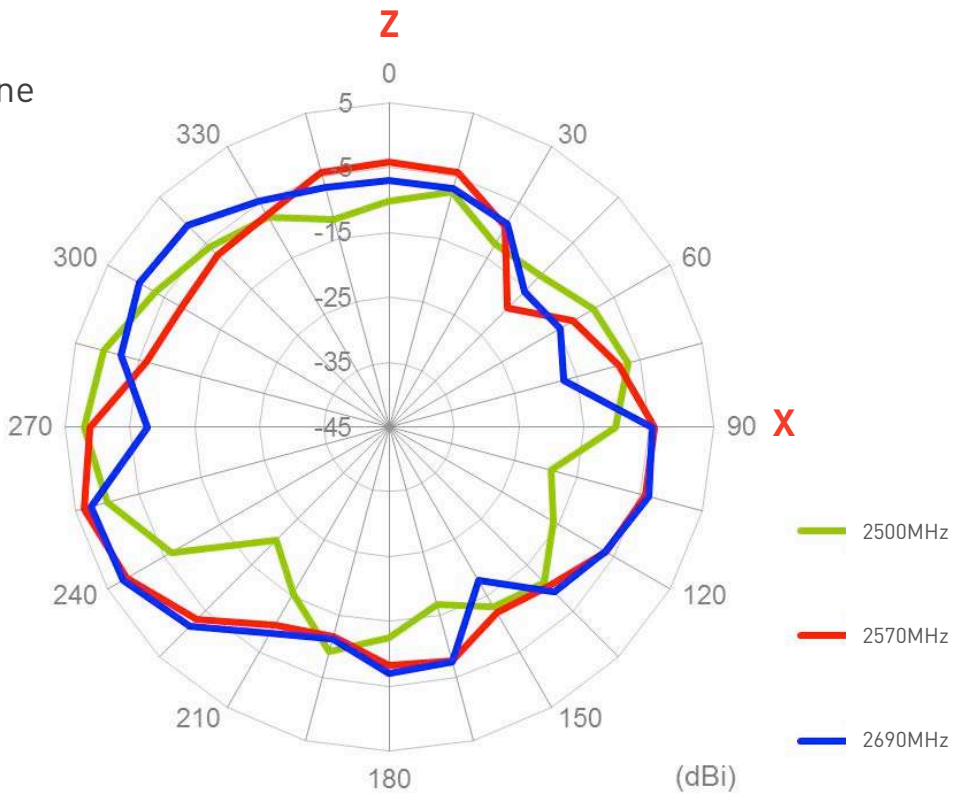




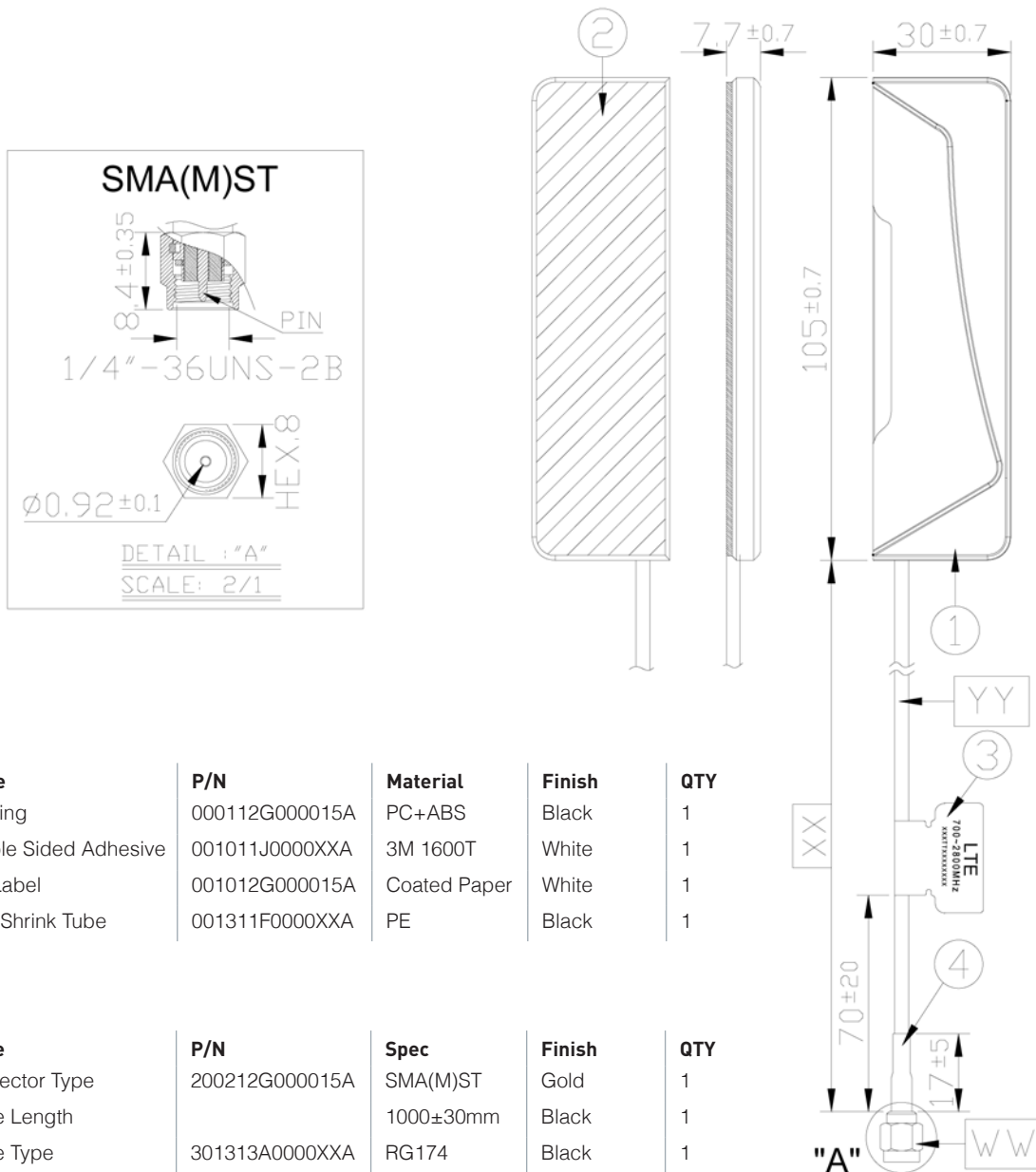
XY Plane



XZ Plane



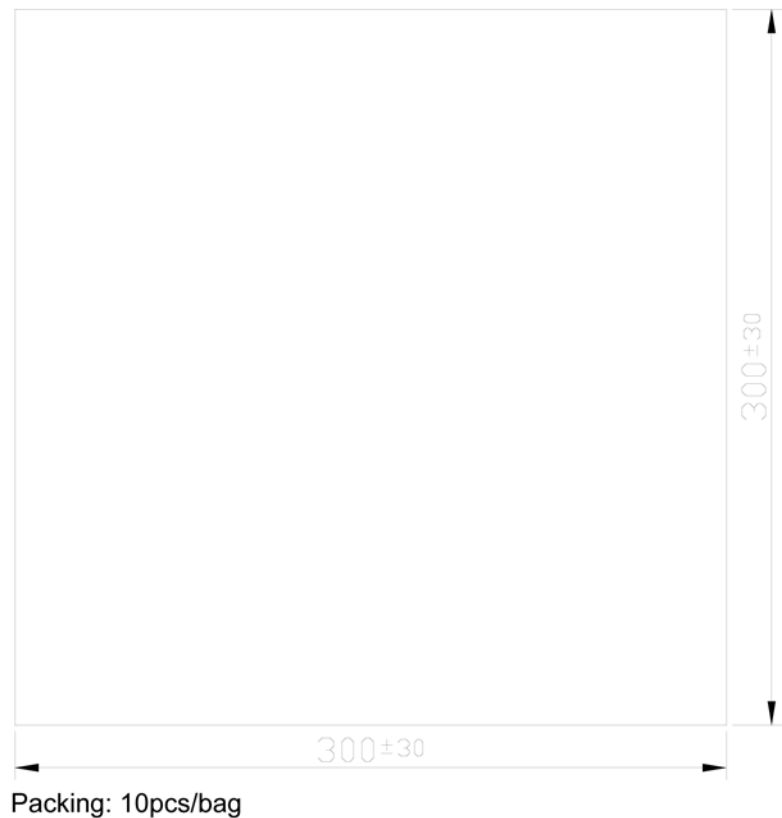
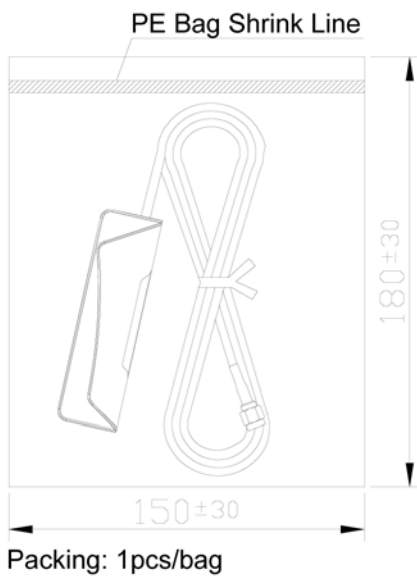
## 5. Technical Drawing



## 6. Packaging

- 1pcs antenna per small PE bag
- 10 small PE bags per big PE bag

Unit : mm



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