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GSA.8827.A.101111

Specification

Part No.	GSA.8827.A.101111 Phoenix
Product Name	2G/3G/4G Ultra-wideband I-Bar Antenna for First-Tier Automotive Application
Feature	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



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
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Peak Gain (dBi) - Free Space

Cable length (Meter)	0.3	1.21	1.46	2.70	2.67	2.99	3.32	3.43	1.67
1	1	2.83	1.71	2.93	1.57	2.14	2.32	2.65	1.49
2	2	1.51	1.70	2.87	0.54	0.77	0.78	1.10	-0.38
3	3	-0.70	0.49	0.51	-0.93	-0.67	-0.47	-0.36	-1.66

Average Gain (dBi) - Free Space

Cable length (Meter)	0.3	-3.36	-2.99	-2.08	-1.09	-1.53	-1.29	-1.08	-3.24
1	1	-1.62	-3.06	-1.79	-2.09	-2.17	-2.20	-1.99	-4.02
2	2	-3.30	-4.20	-3.81	-3.29	-3.68	-3.76	-3.59	-5.71
3	3	-5.73	-4.83	-4.25	-4.35	-4.84	-4.87	-4.75	-7.17

Efficiency (%) - Free Space

Cable length (Meter)	0.3	46.38	49.09	62.06	77.13	70.38	74.65	78.23	47.89
1	1	69.63	52.93	67.41	61.68	59.94	61.68	63.92	39.71
2	2	47.75	37.61	44.04	47.39	42.40	42.62	44.36	26.91
3	3	26.88	34.17	37.59	37.10	32.35	33.07	33.64	19.28


Peak Gain (dBi) - On glass

Cable length	0.3	0.91	0.74	0.98	2.35	3.75	4.56	5.34	3.50
(Meter)	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

Cable length	0.3	-2.63	-2.49	-2.67	-1.29	-1.35	-1.10	-1.03	-2.91
(Meter)	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

Cable length	0.3	54.84	56.39	54.13	74.28	73.29	77.81	80.31	51.78
(Meter)	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

Impedance	50Ω
Polarization	Linear
Radiation Pattern	Omni
Input Power	50 W

Mechanical

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

Environmental

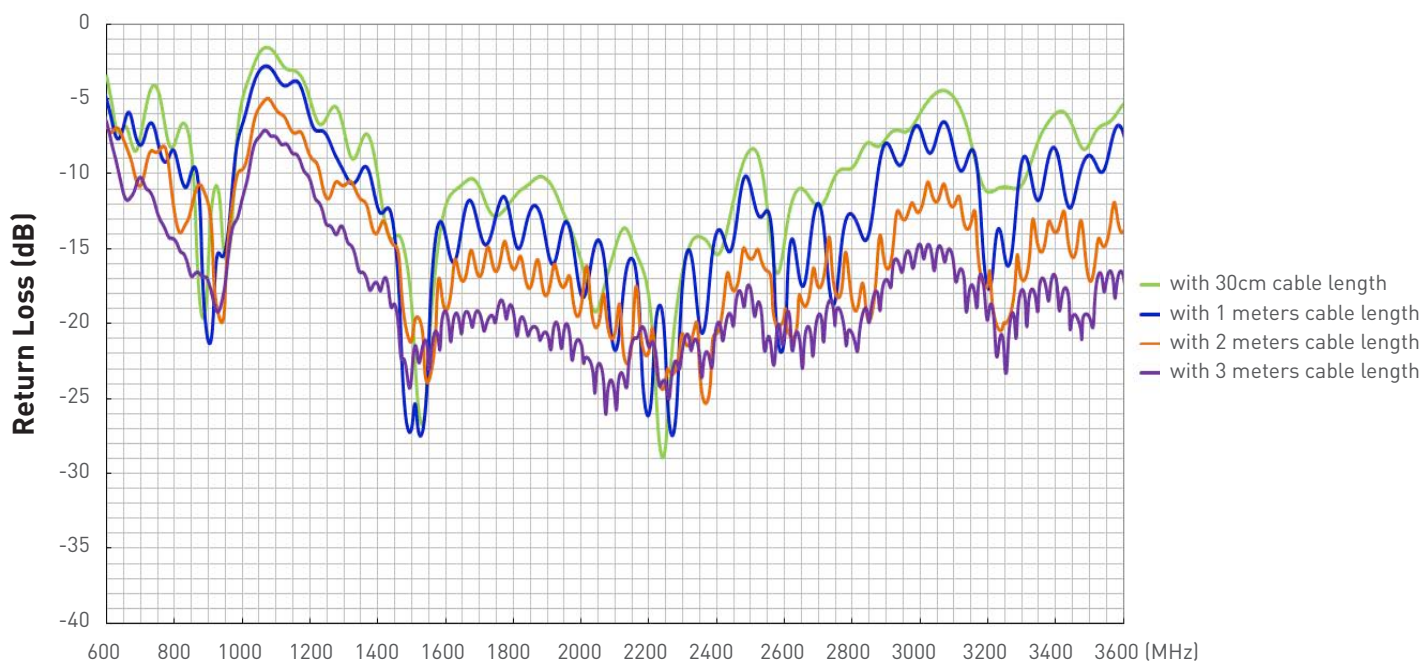
Temp. Range	-40°C to 85°C
Humidity	Non-condensing 65°C 95% RH

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

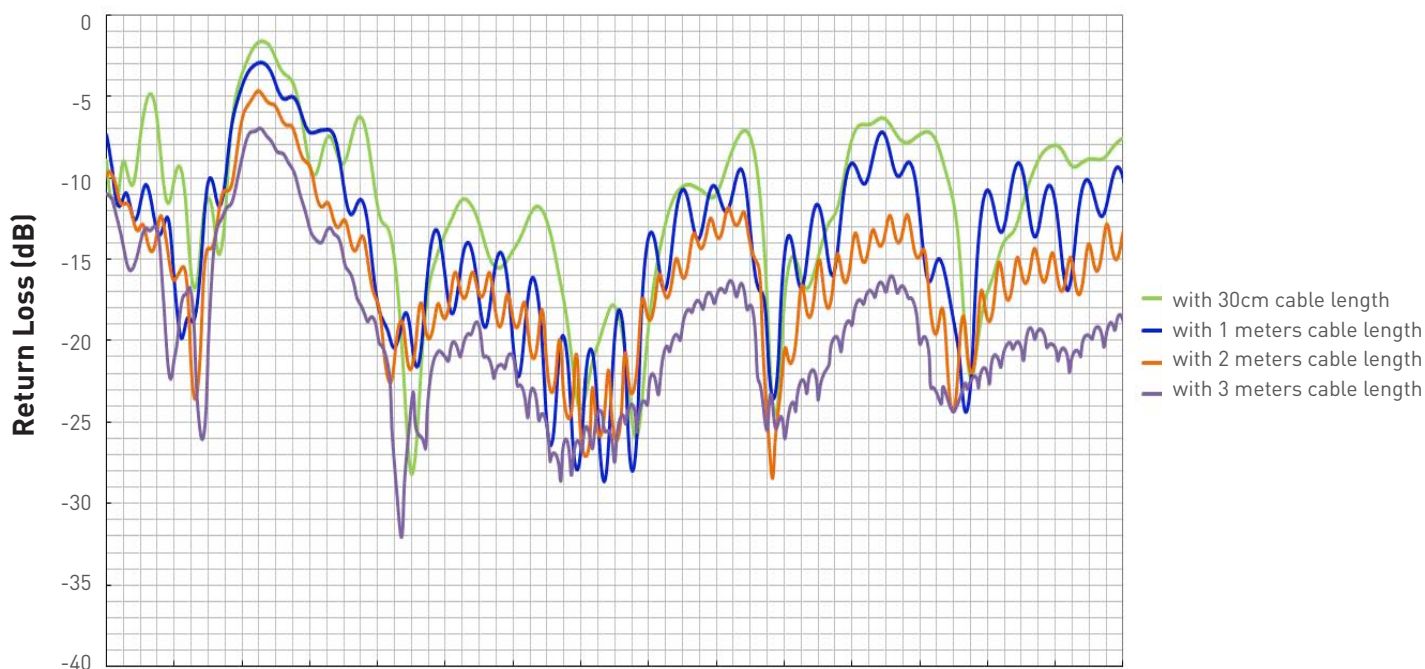


3. Antenna Characteristics

3.1.1 Return Loss (in free space)



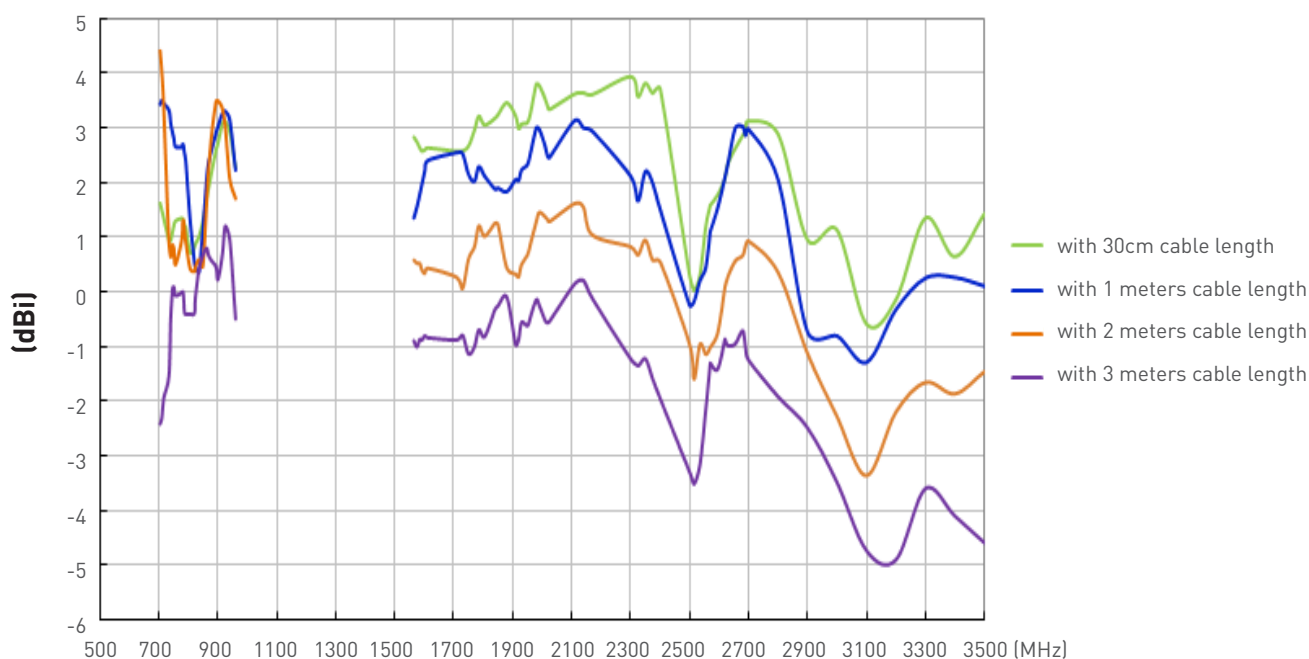
3.1.2 Return Loss (on glass)



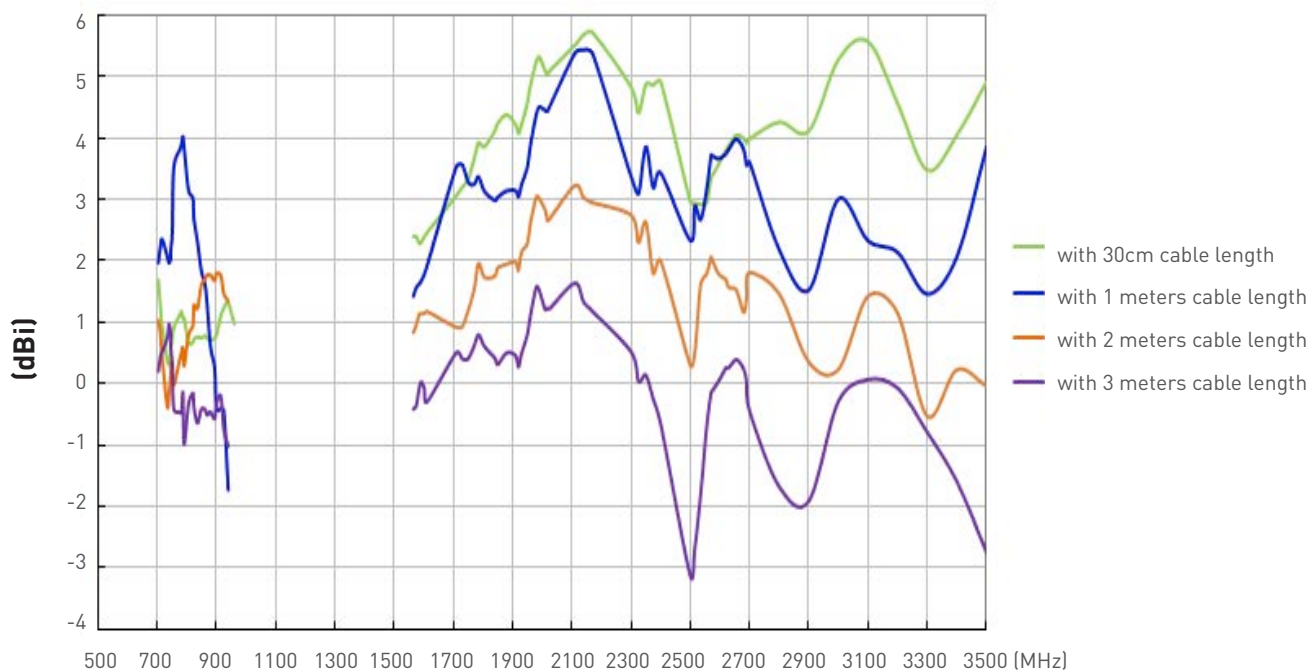


3. Antenna Characteristics

3.2.1 Maximum Gain (in free space)



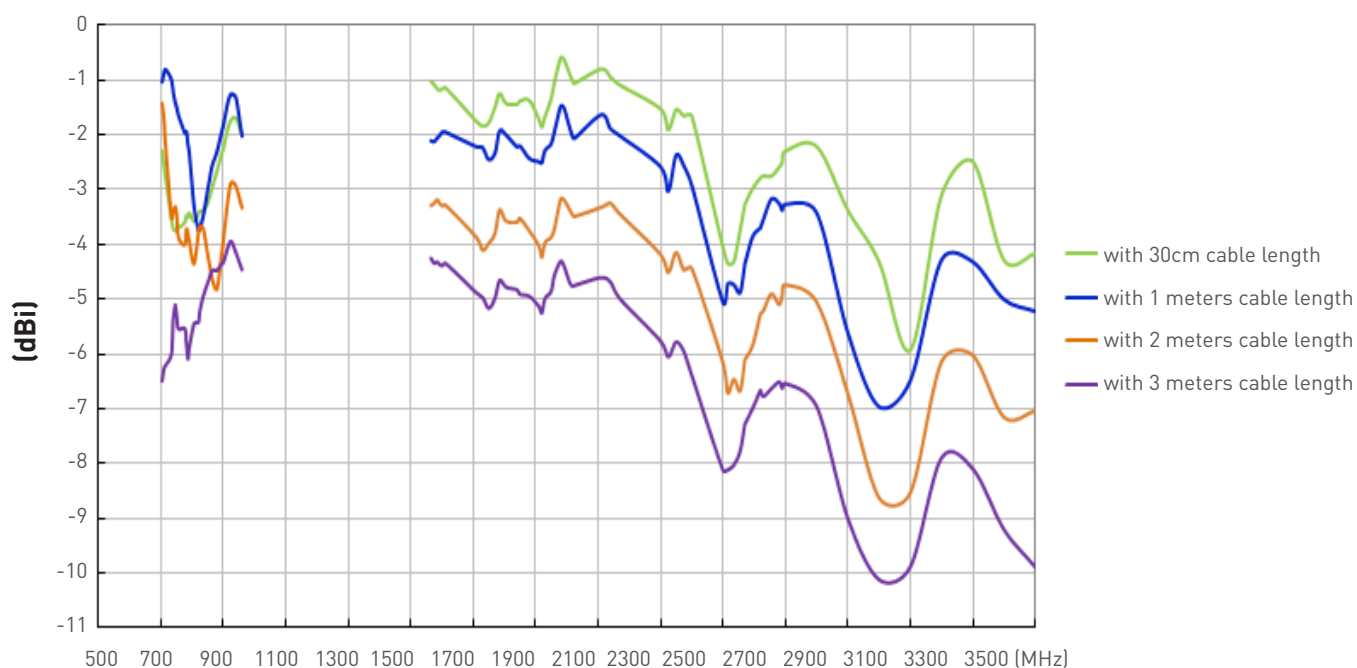
3.2.2 Maximum Gain (on glass)



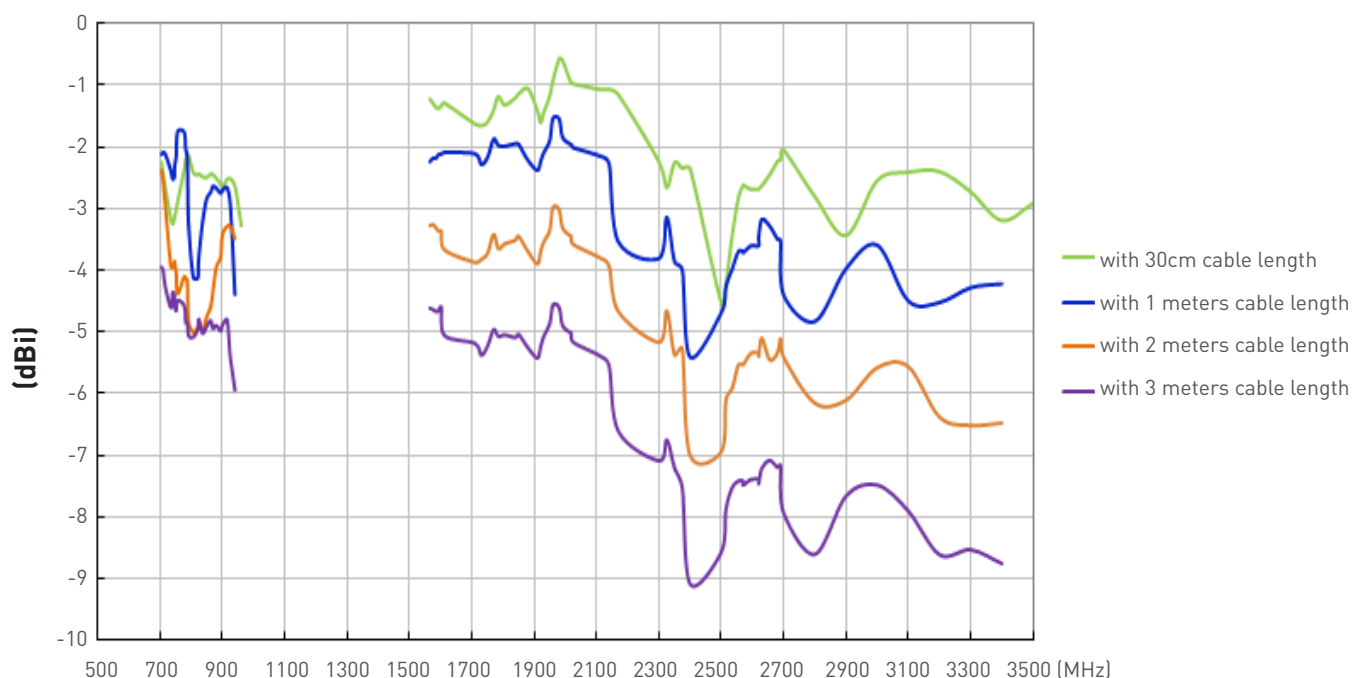


3. Antenna Characteristics

3.3.1 Average Gain (in free space)



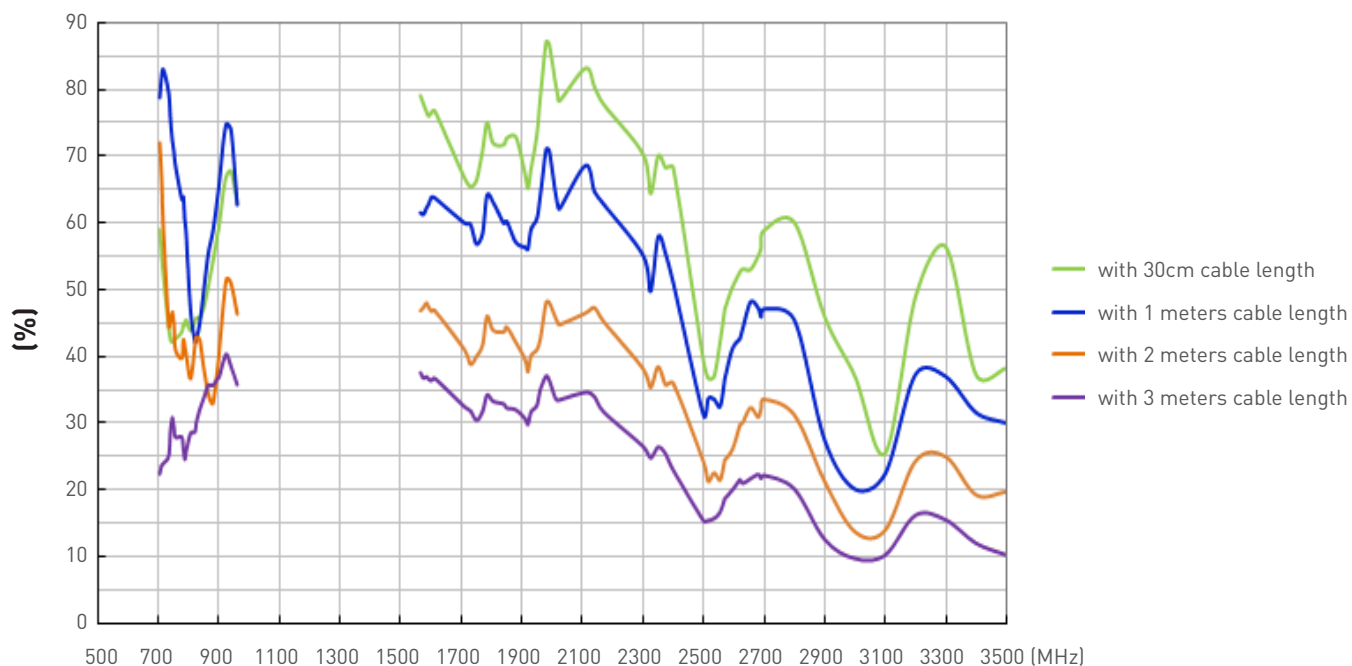
3.3.2 Average Gain (on glass)



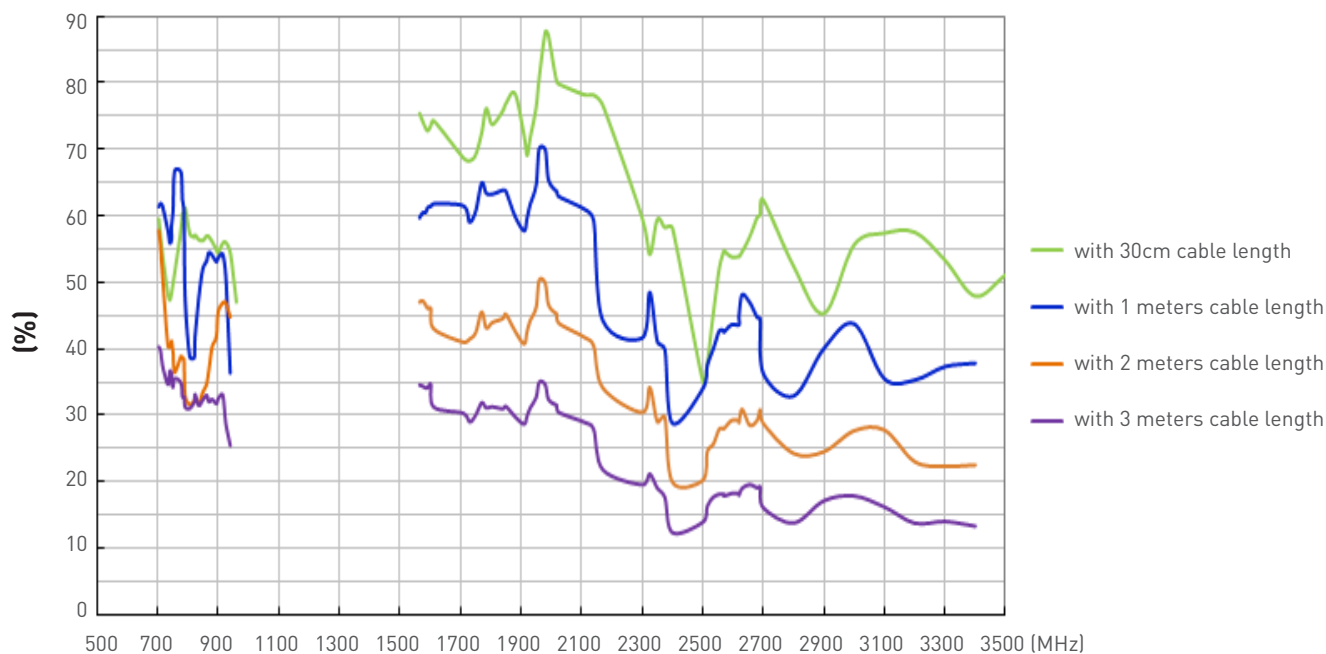


3. Antenna Characteristics

3.4.1 Efficiency (in free space)



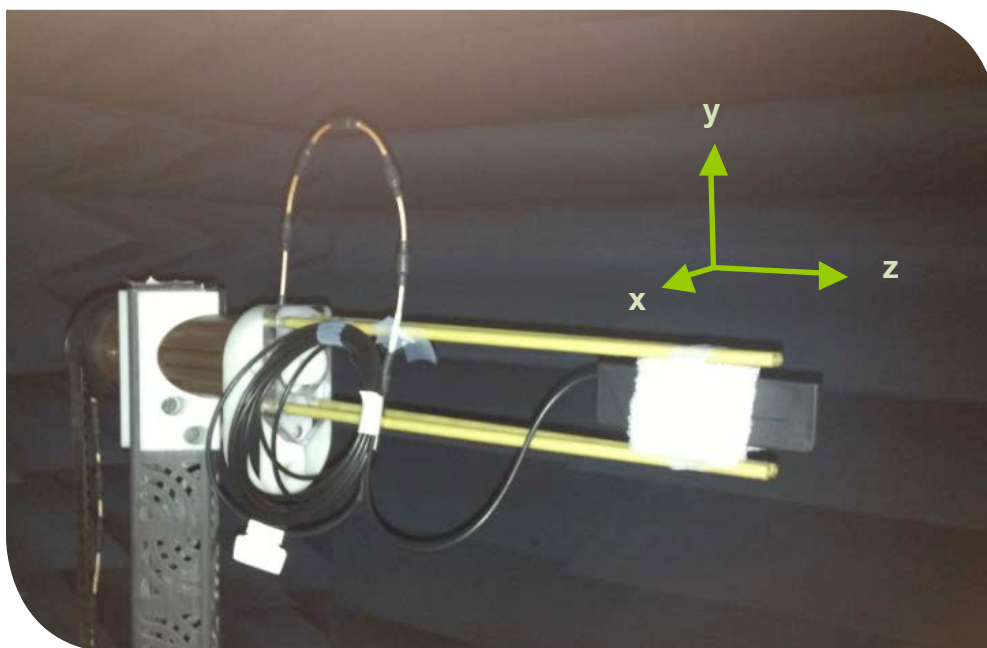
3.4.2 Efficiency (on glass)





4. Antenna Radiation Patterns

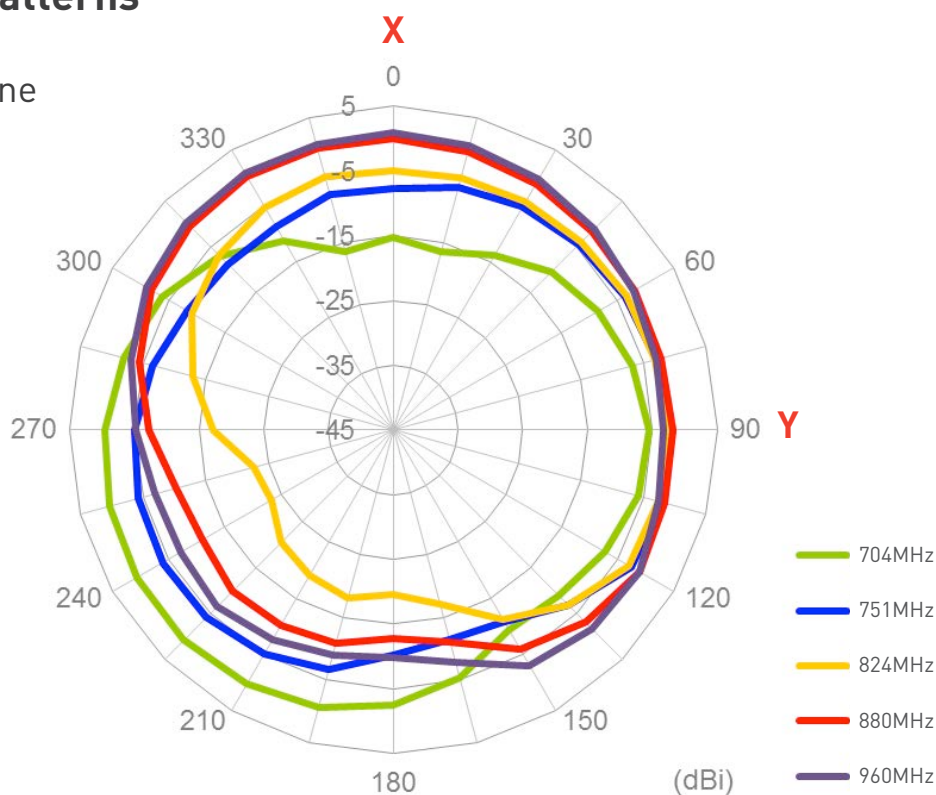
4.1 Antenna setup (Free space with 1 meter cable length)



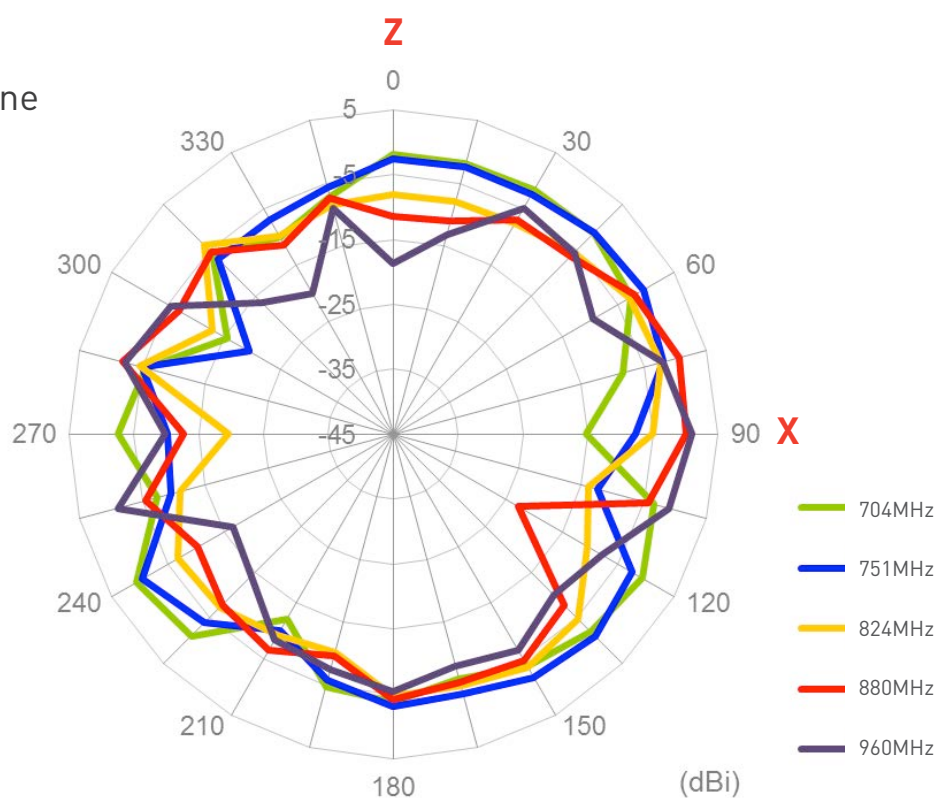


Radiation patterns

XY Plane

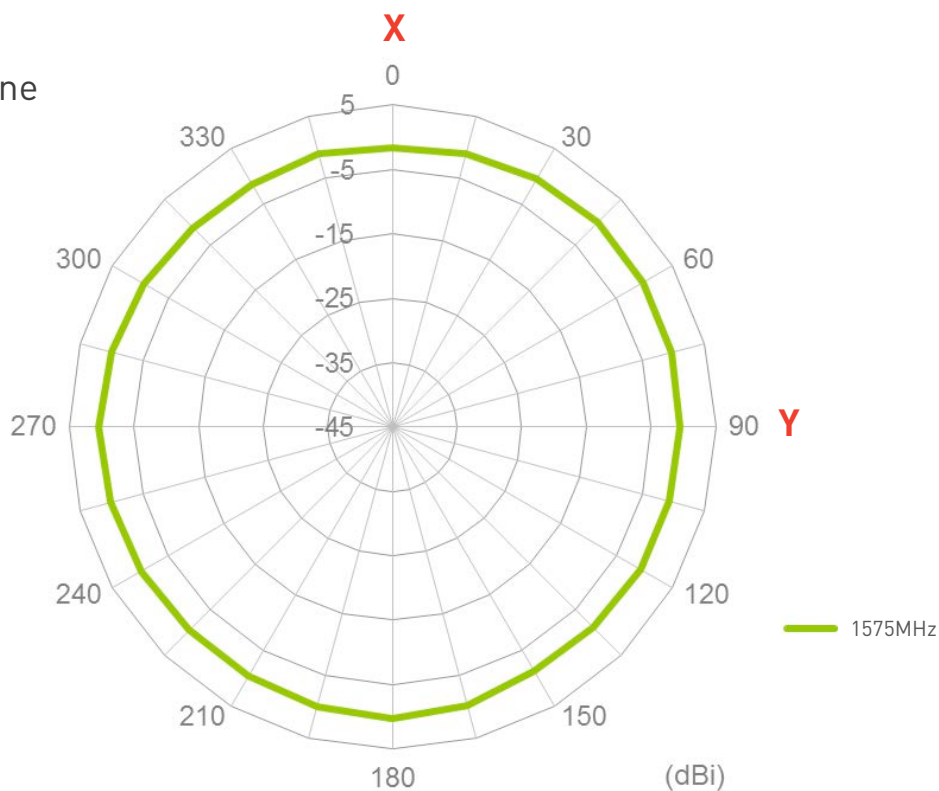


XZ Plane

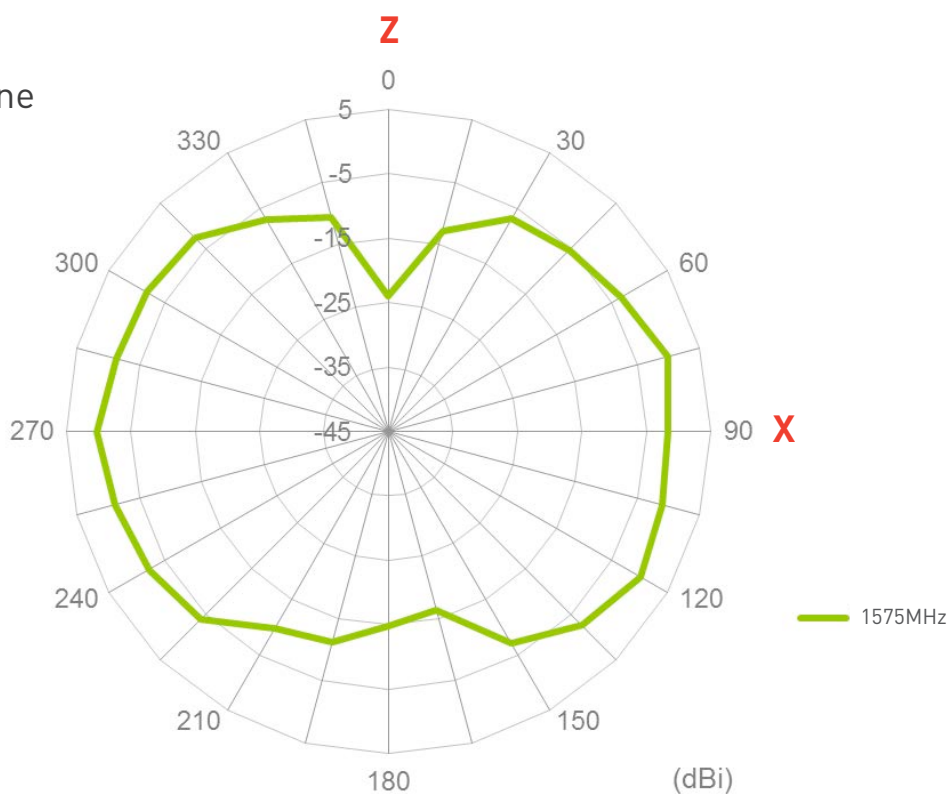




XY Plane

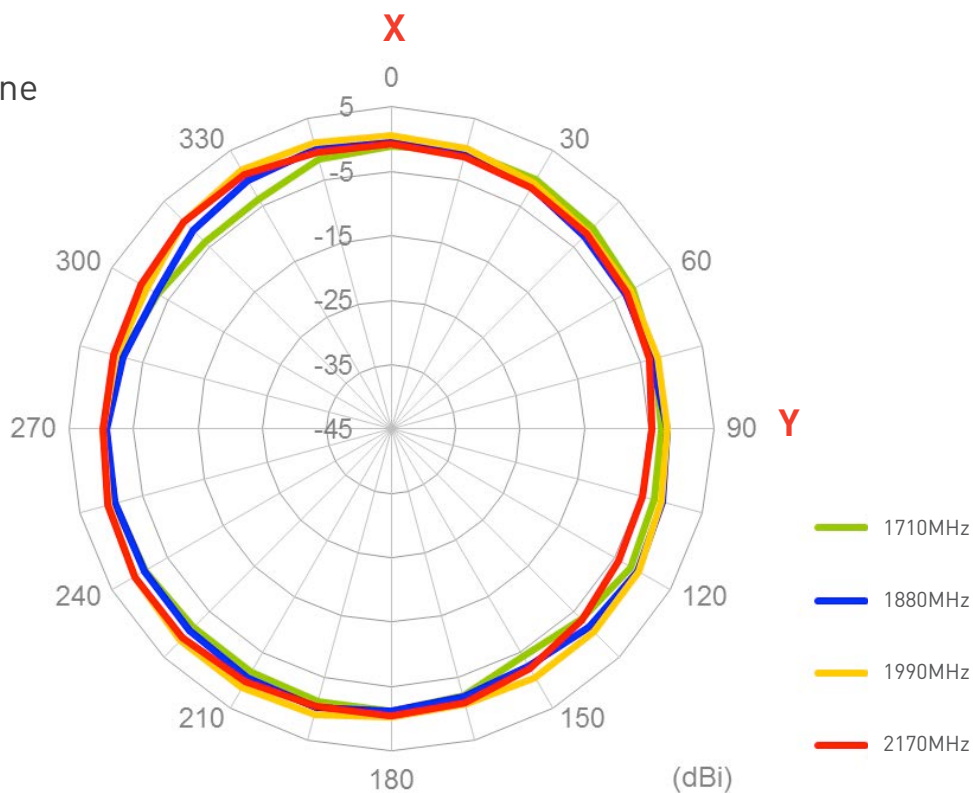


XZ Plane

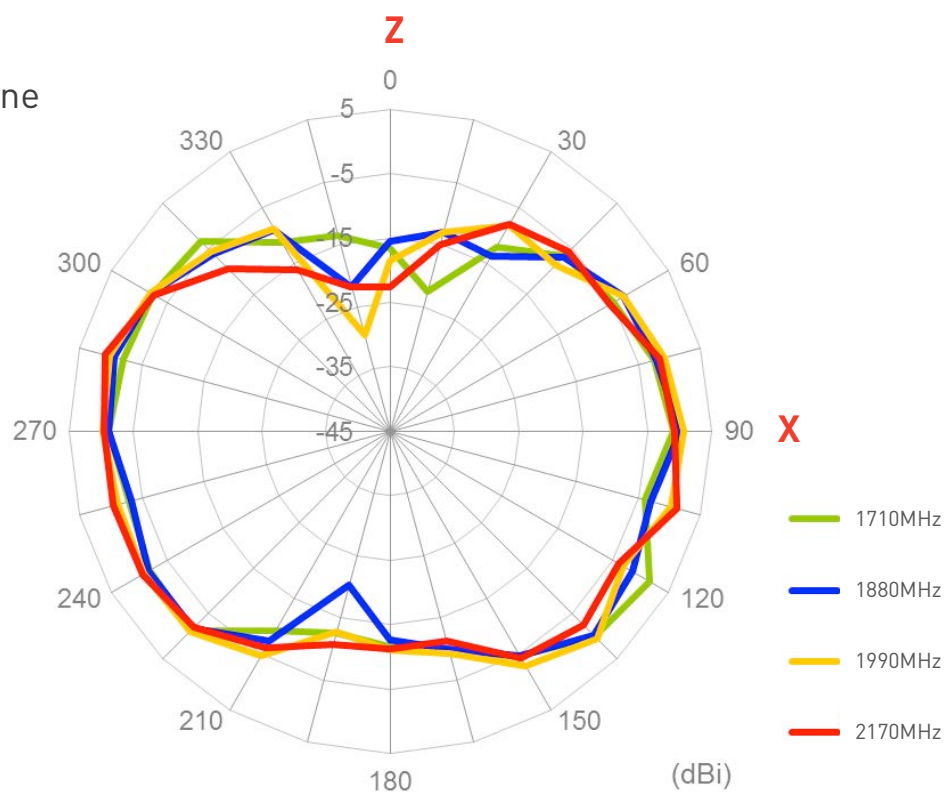




XY Plane

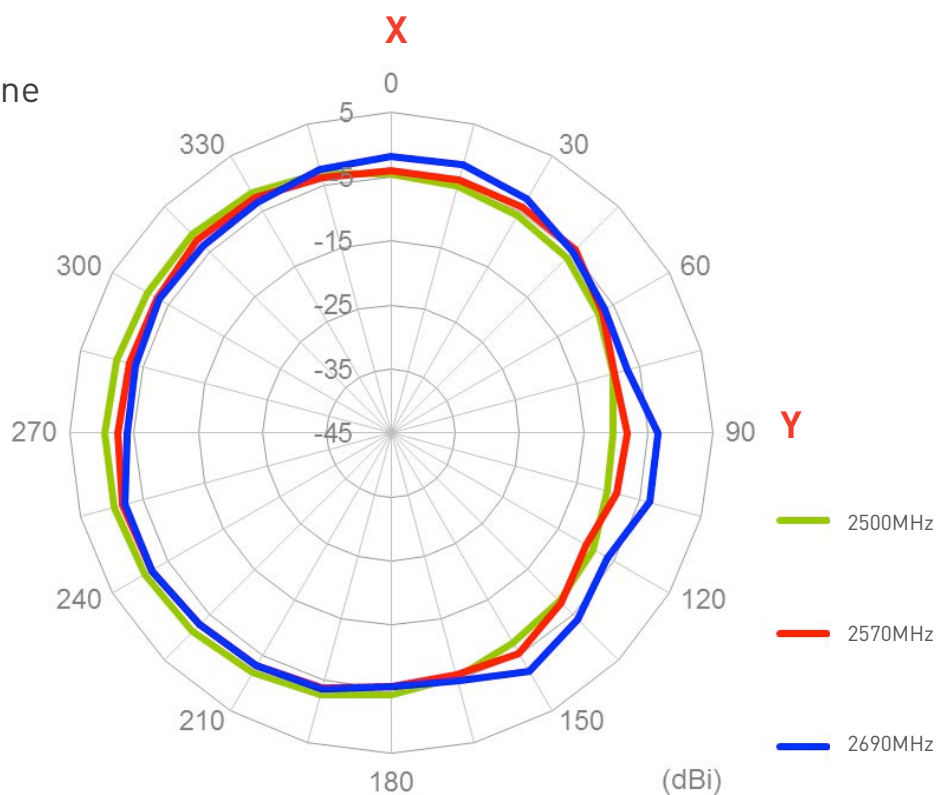


XZ Plane

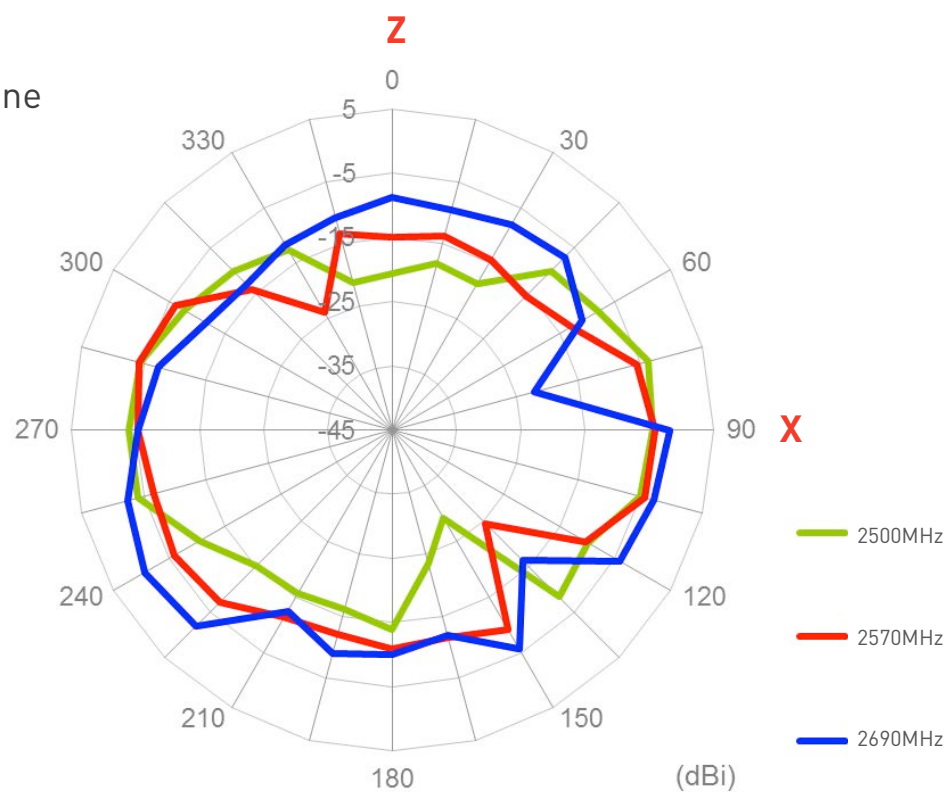




XY Plane

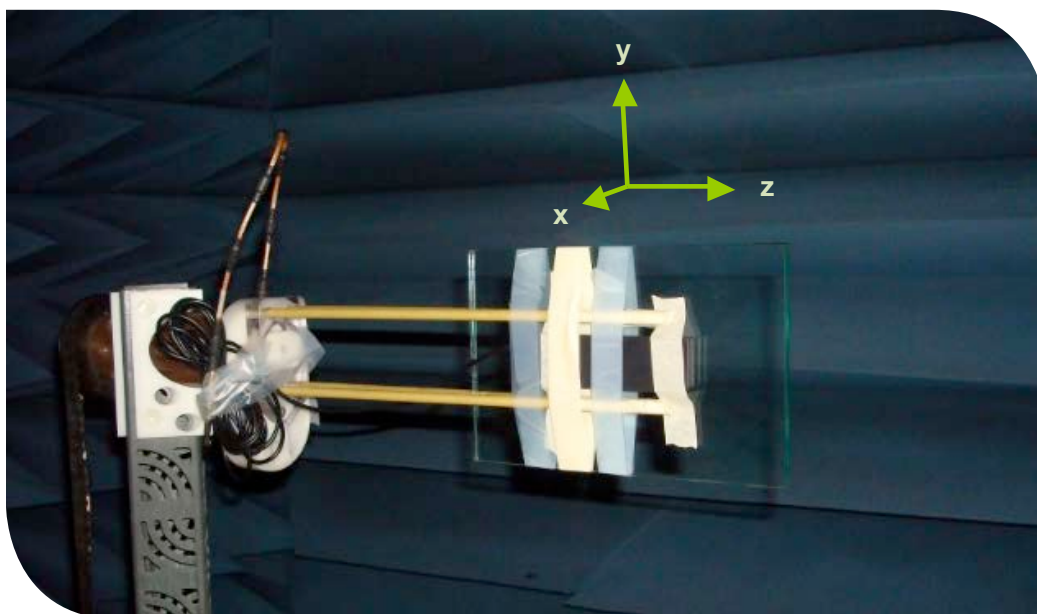


XZ Plane



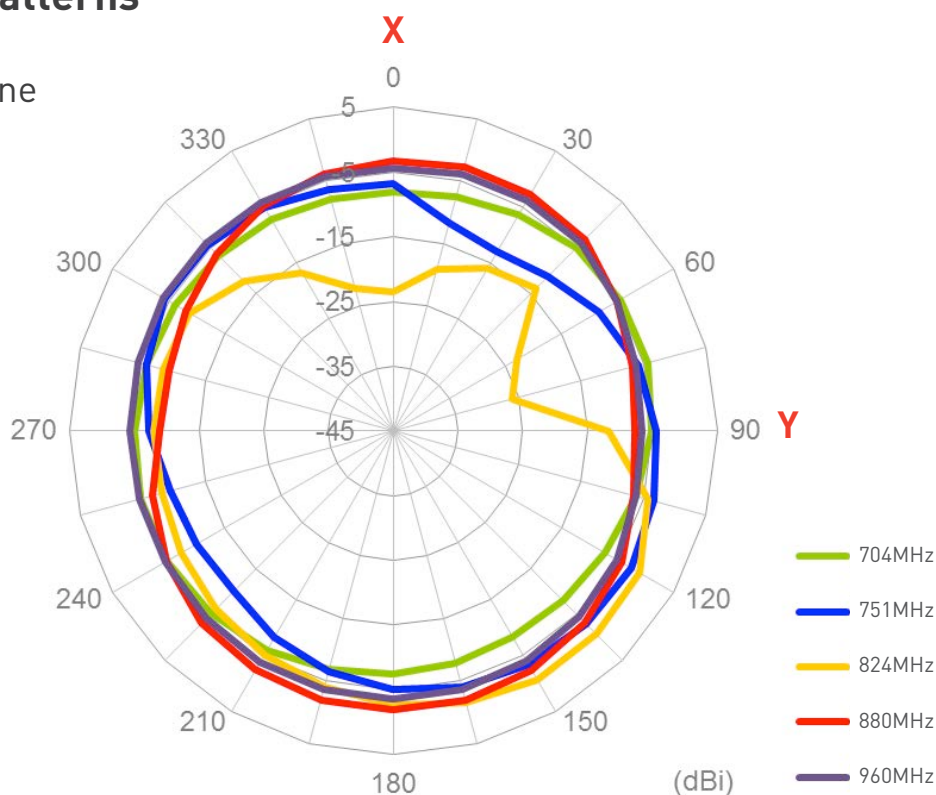


4.2 Antenna setup (Mounted on Glass with 1 meter cable length)

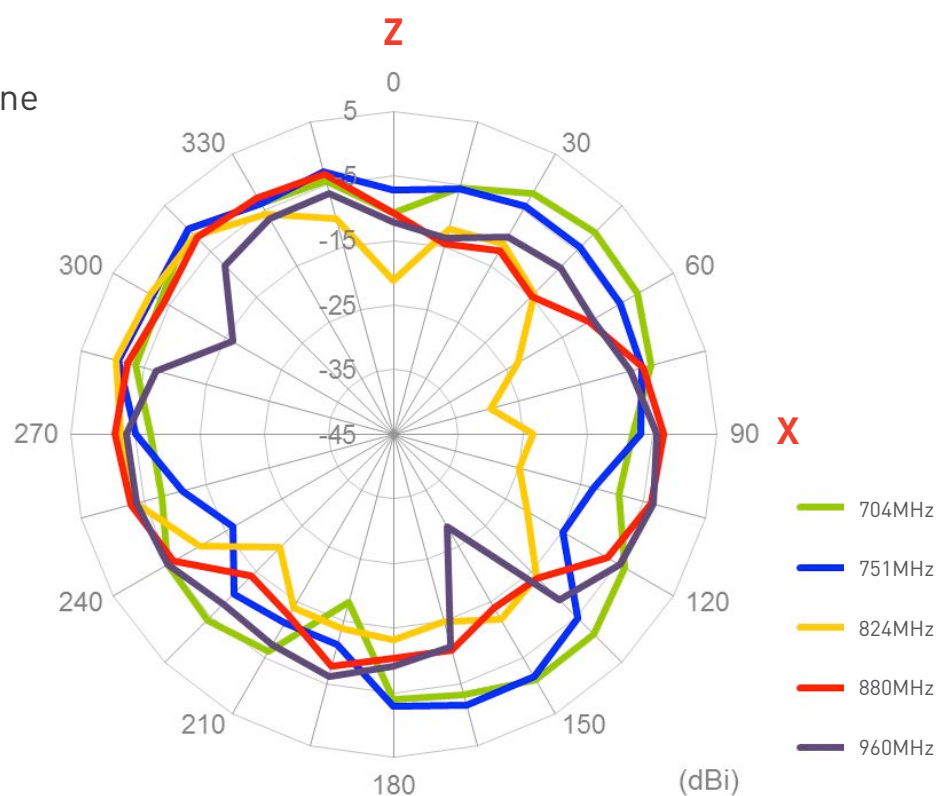


Radiation patterns

XY Plane

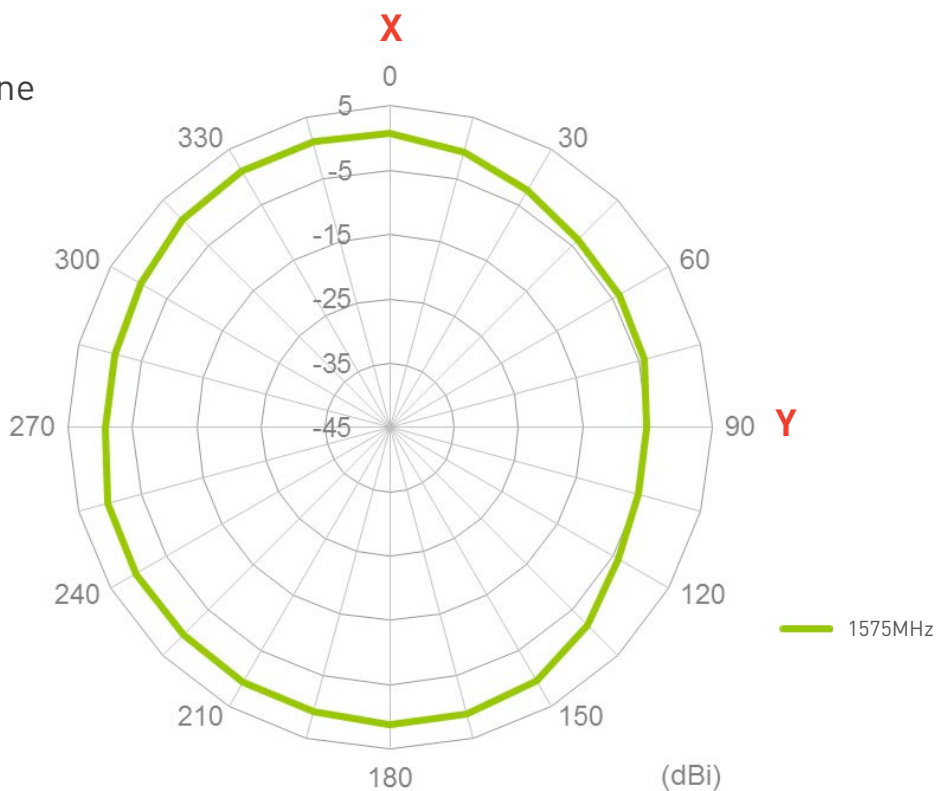


XZ Plane

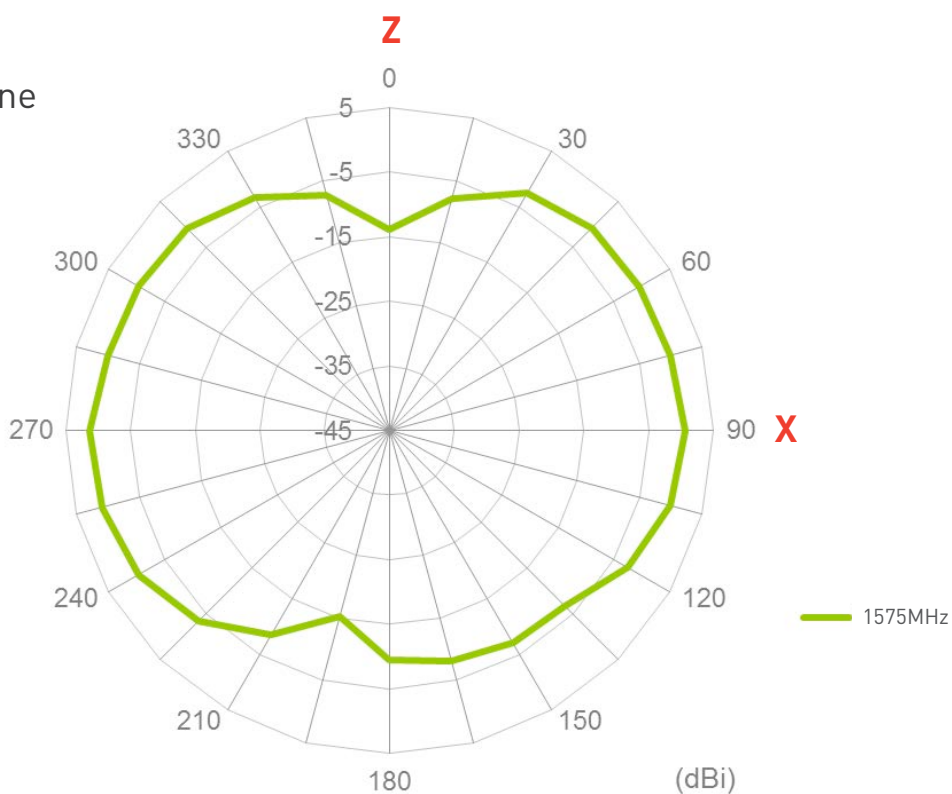




XY Plane

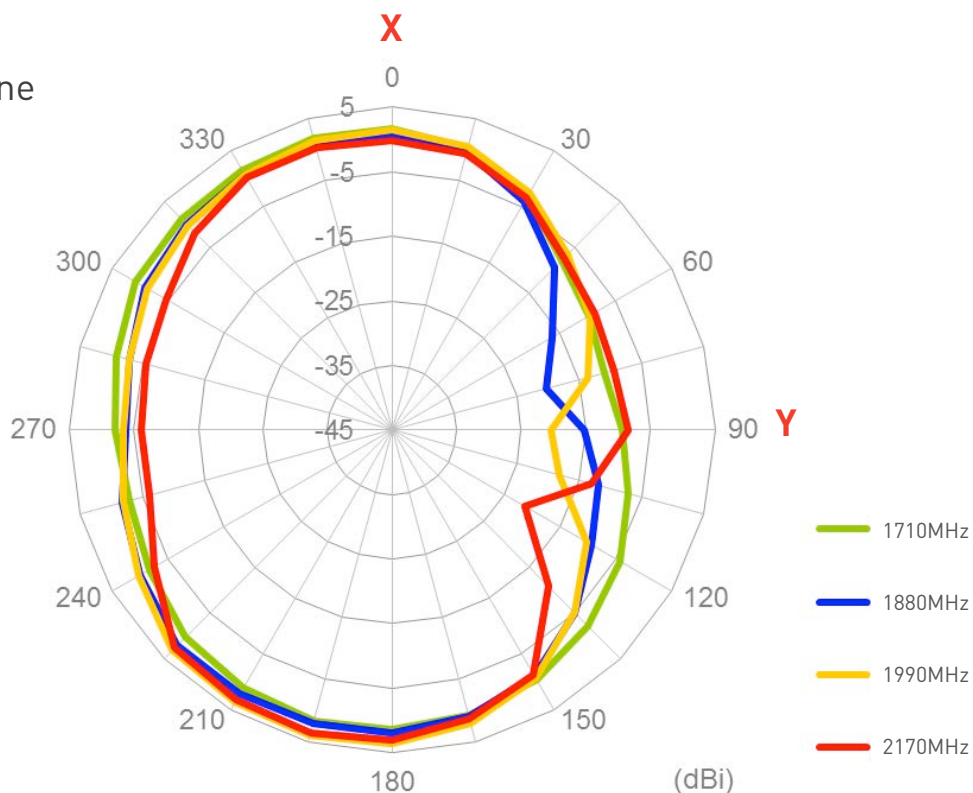


XZ Plane

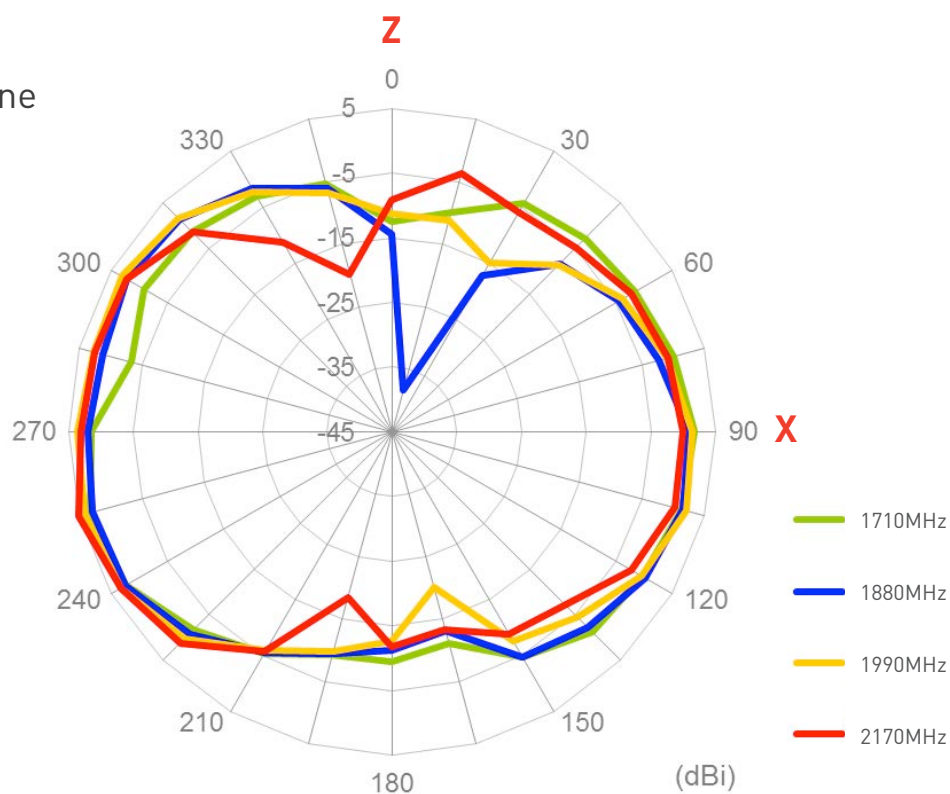




XY Plane

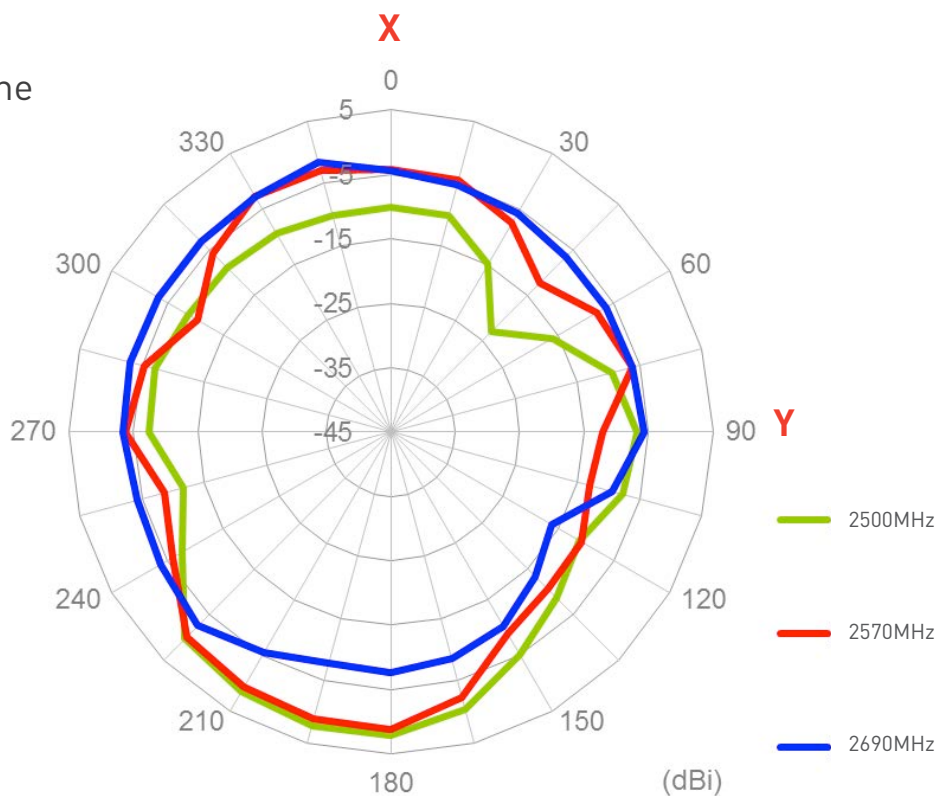


XZ Plane

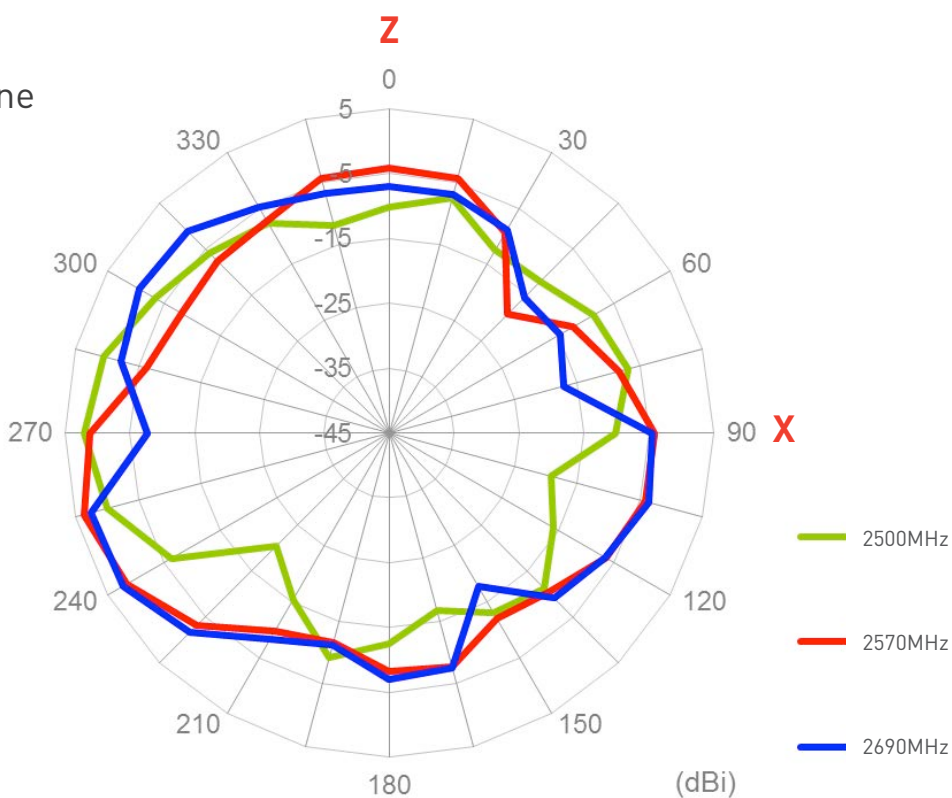




XY Plane

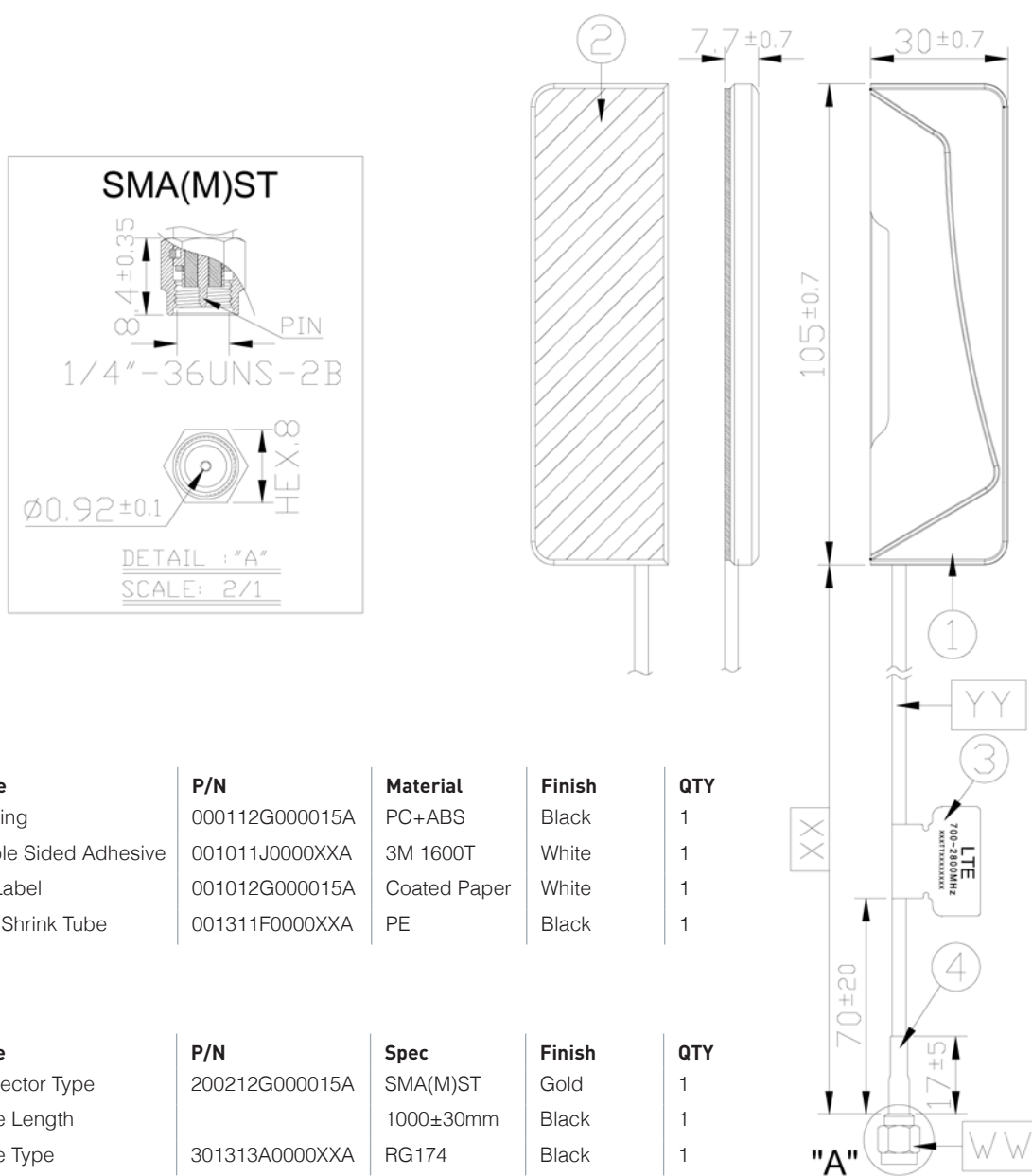


XZ Plane





5. Technical Drawing





6. Packaging

1pcs antenna per small PE bag

10 small PE bags per big PE bag

Unit : mm

