

SPECIFICATION

Ultra-Wideband Adhesive Type External Antenna

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

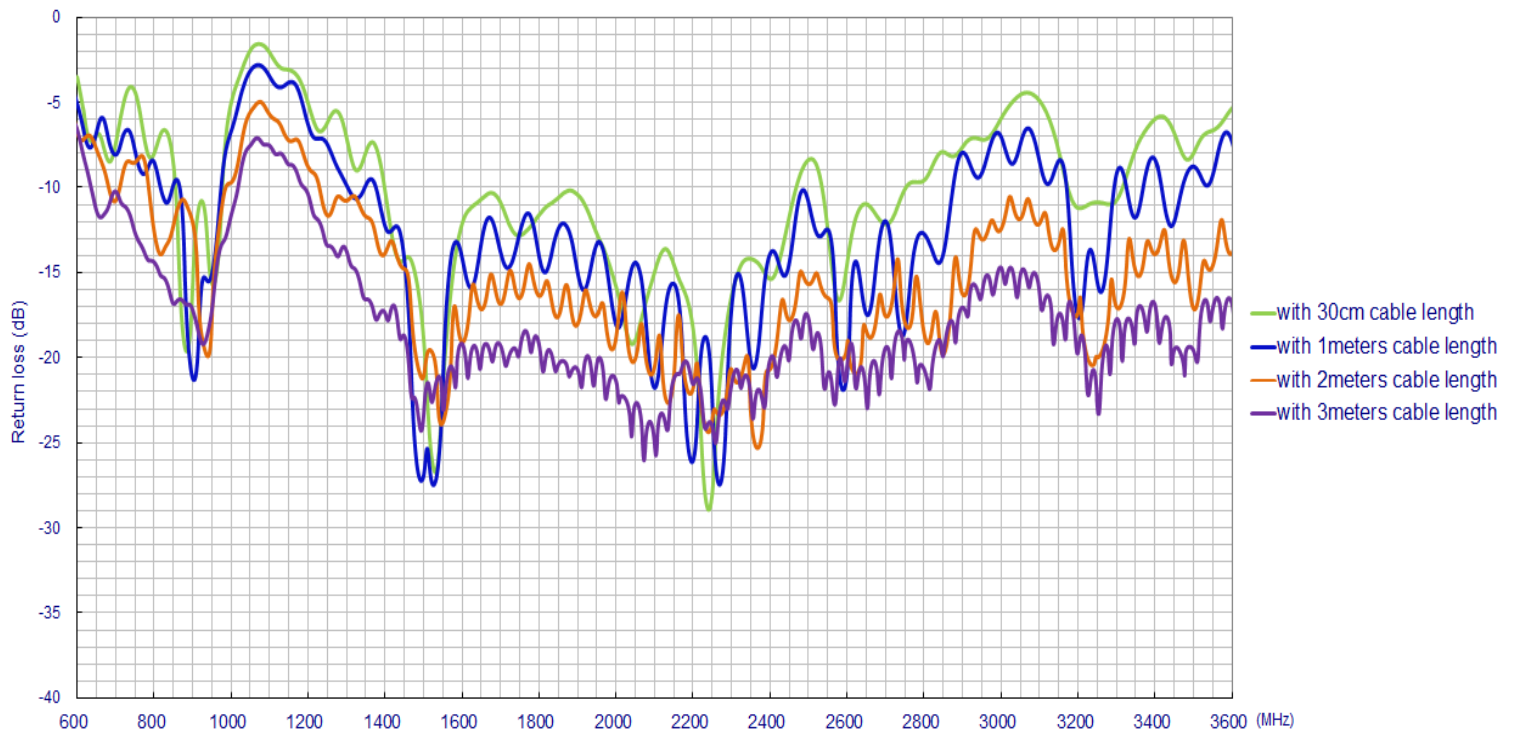
ELECTRICAL									
Frequency (MHz)	703~803	824~894	880~960	1710 ~ 1880	1575.42	1850 ~ 1990	1710 ~ 2170	2490~2690	
Free Space Peak Gain (dBi)									
Cable length (meter)	0.3	1.21	1.46	2.70	2.67	2.99	3.32	3.43	1.67
	1	2.83	1.71	2.93	1.57	2.14	2.32	2.65	1.49
	2	1.51	1.70	2.87	0.54	0.77	0.78	1.10	-0.38
	3	-0.70	0.49	0.51	-0.93	-0.67	-0.47	-0.36	-1.66
Free Space Average Gain (dBi)									
Cable length (meter)	0.3	-3.36	-2.99	-2.08	-1.09	-1.53	-1.29	-1.08	-3.24
	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
Free Space Efficiency (%)									
Cable length (meter)	0.3	46.38	49.09	62.06	77.13	70.38	74.65	78.23	47.89
	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
On glass Peak Gain (dBi)									
Cable length (meter)	0.3	0.91	0.74	0.98	2.35	3.75	4.56	5.34	3.50
	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
On glass Average Gain (dBi)									
Cable length (meter)	0.3	-2.63	-2.49	-2.67	-1.29	-1.35	-1.10	-1.03	-2.91
	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
On glass Efficiency (%)									
Cable length (meter)	0.3	54.84	56.39	54.13	74.28	73.29	77.81	80.31	51.78
	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
Weight	50g
ENVIRONMENTAL	
Temperature Range	-40°C to 85°C
Humidity	Non-condensing 65°C 95% RH
Shock (Drop Test)	1m drop on concrete 6 axes
Cable Pull	8kgf

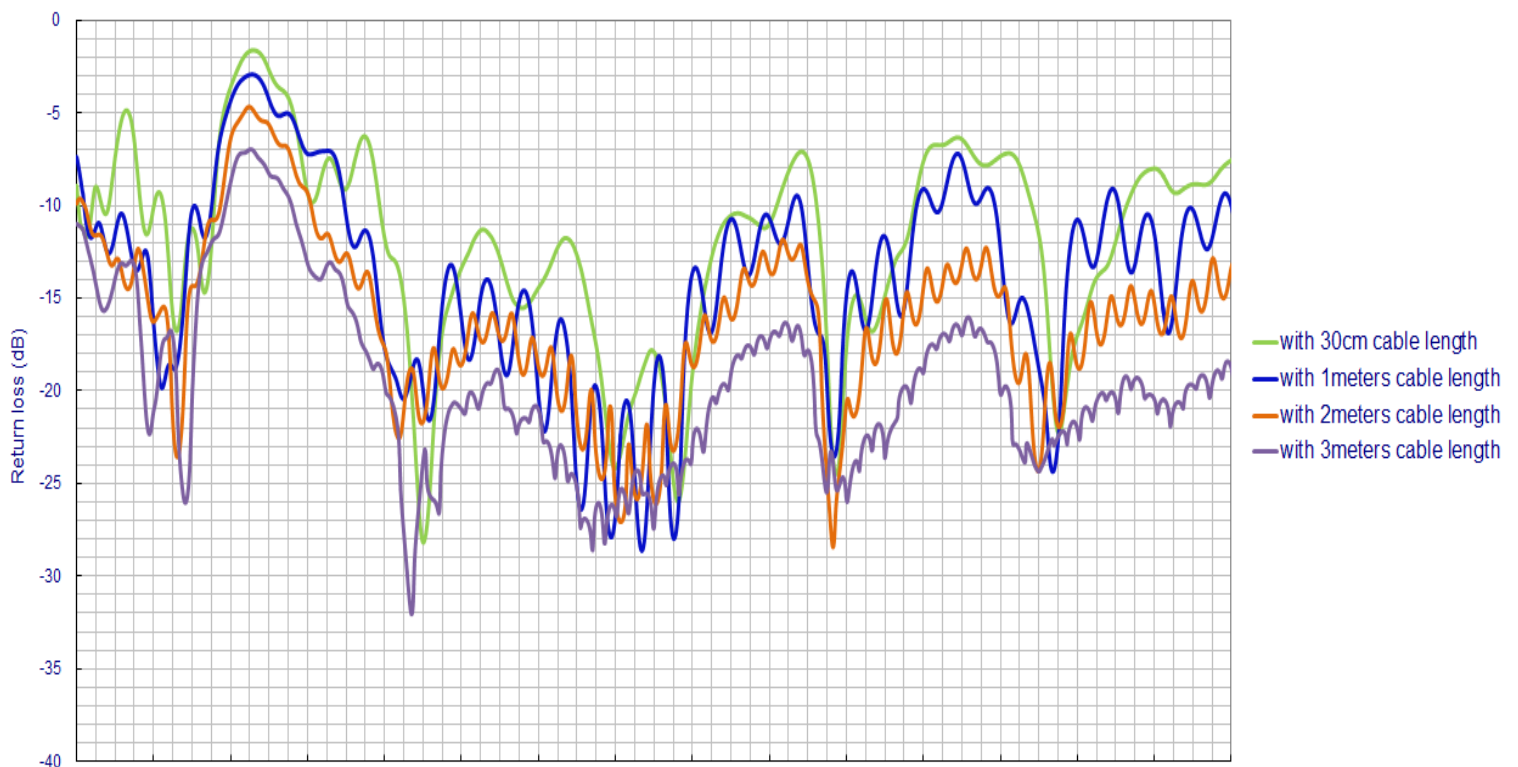
* After comparison, the antenna performance on the plastic base is the same with free space.

3. Antenna Characteristics

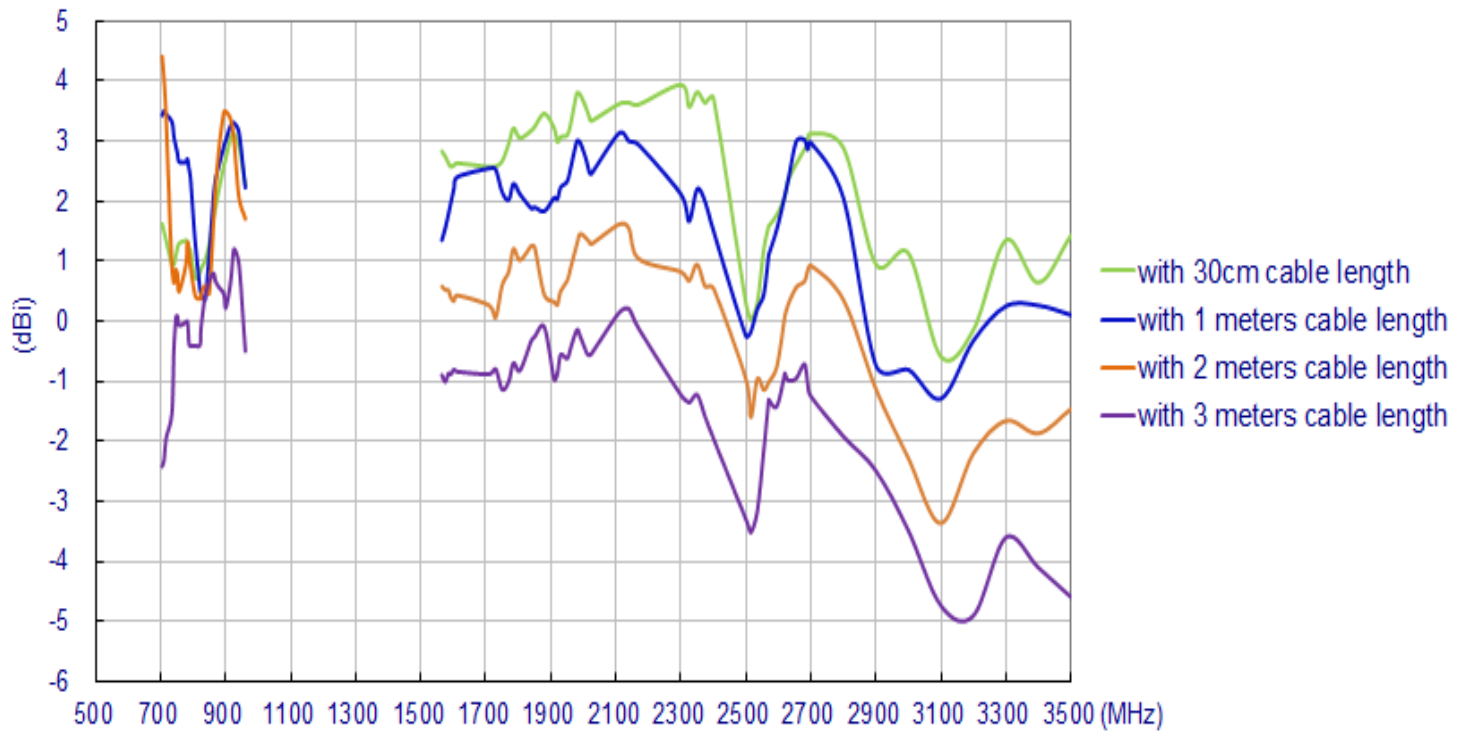
3.1. 1 Return Loss (in free space)



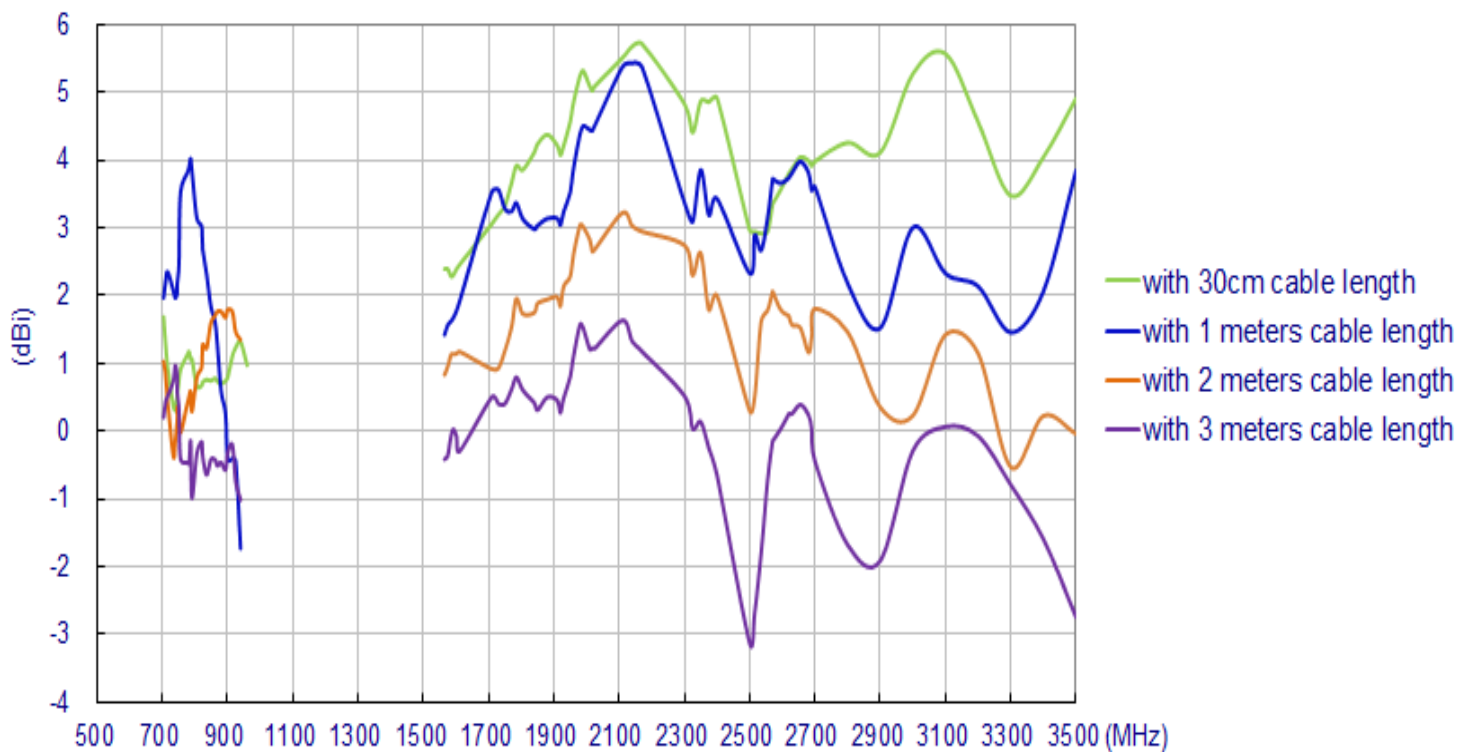
3.1.2 Return Loss (on glass)



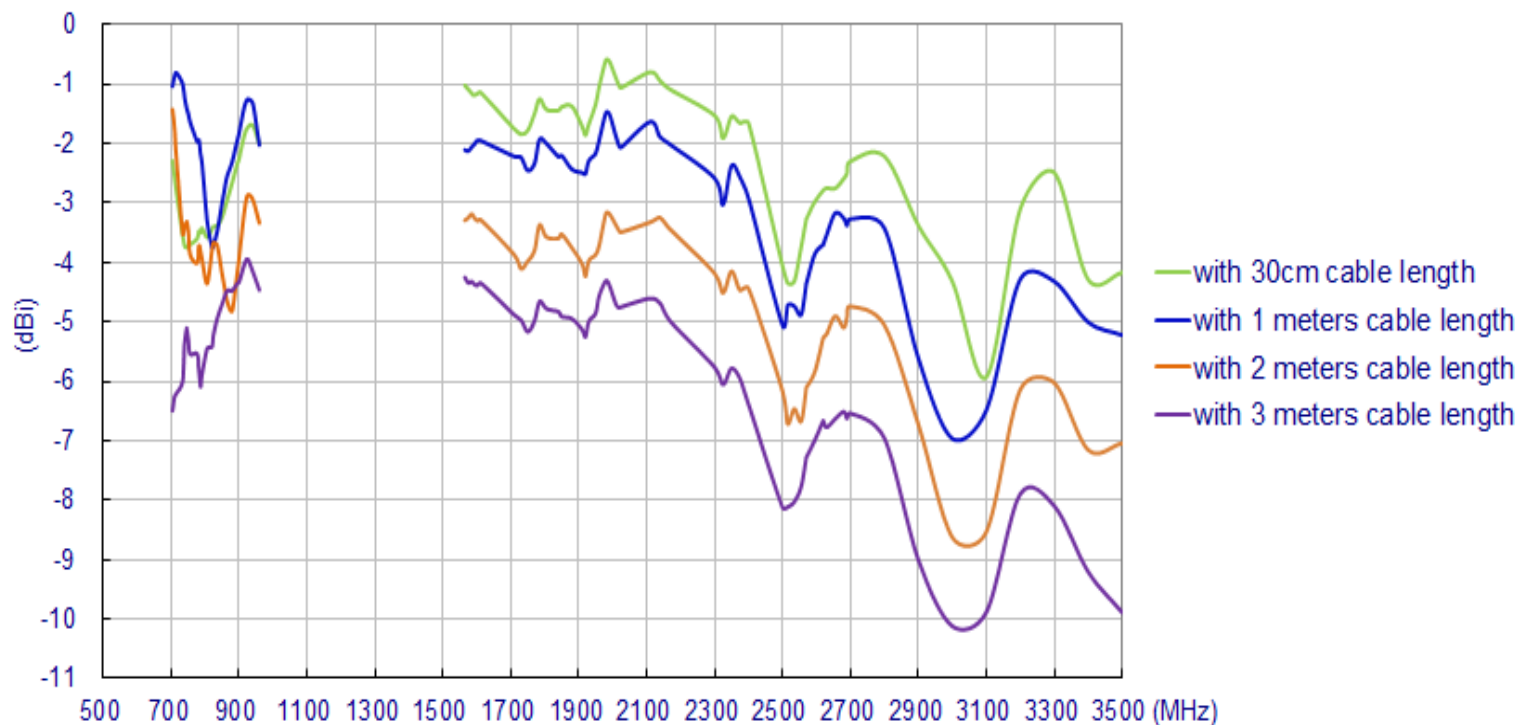
3.2.1 Peak Gain (in free space)



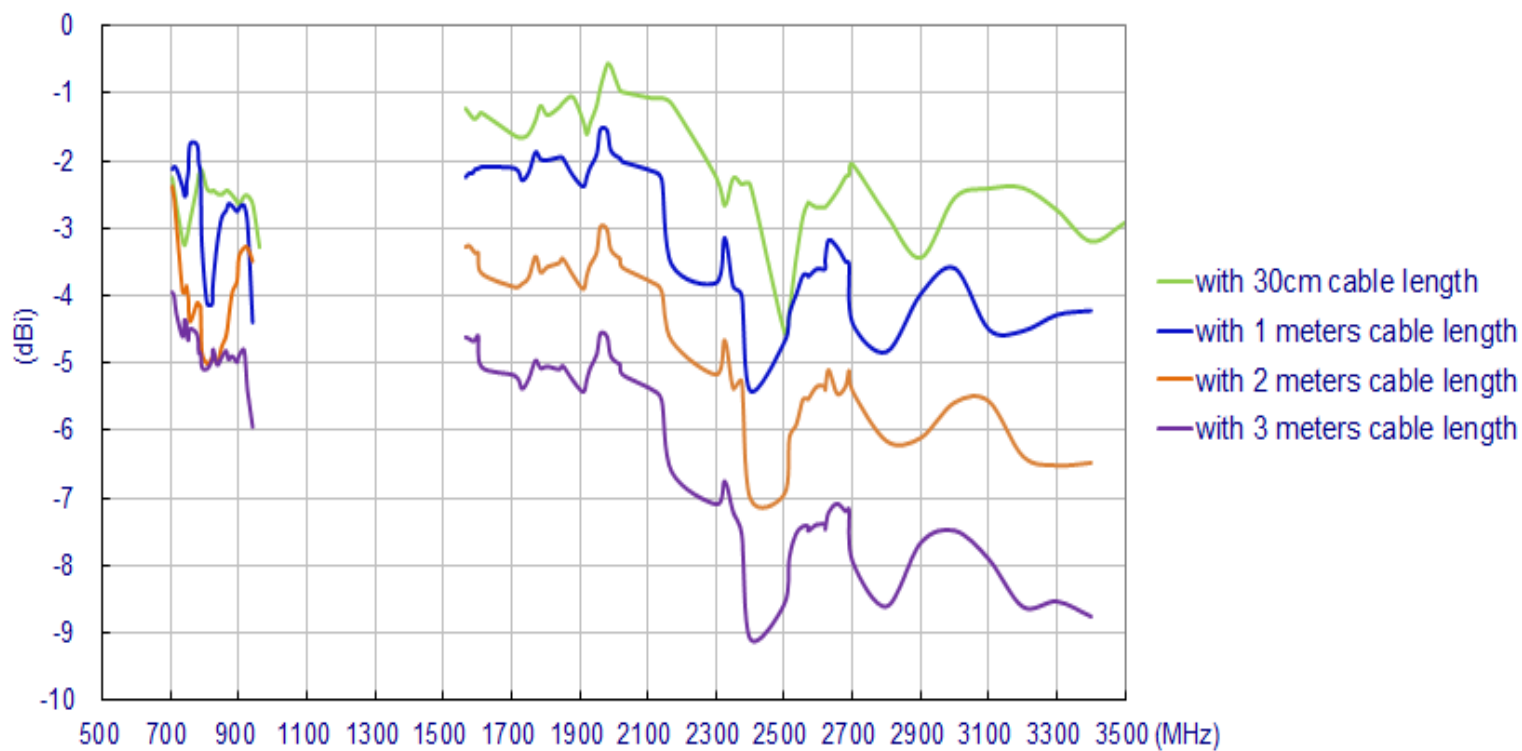
3.2.2 Peak Gain (on glass)



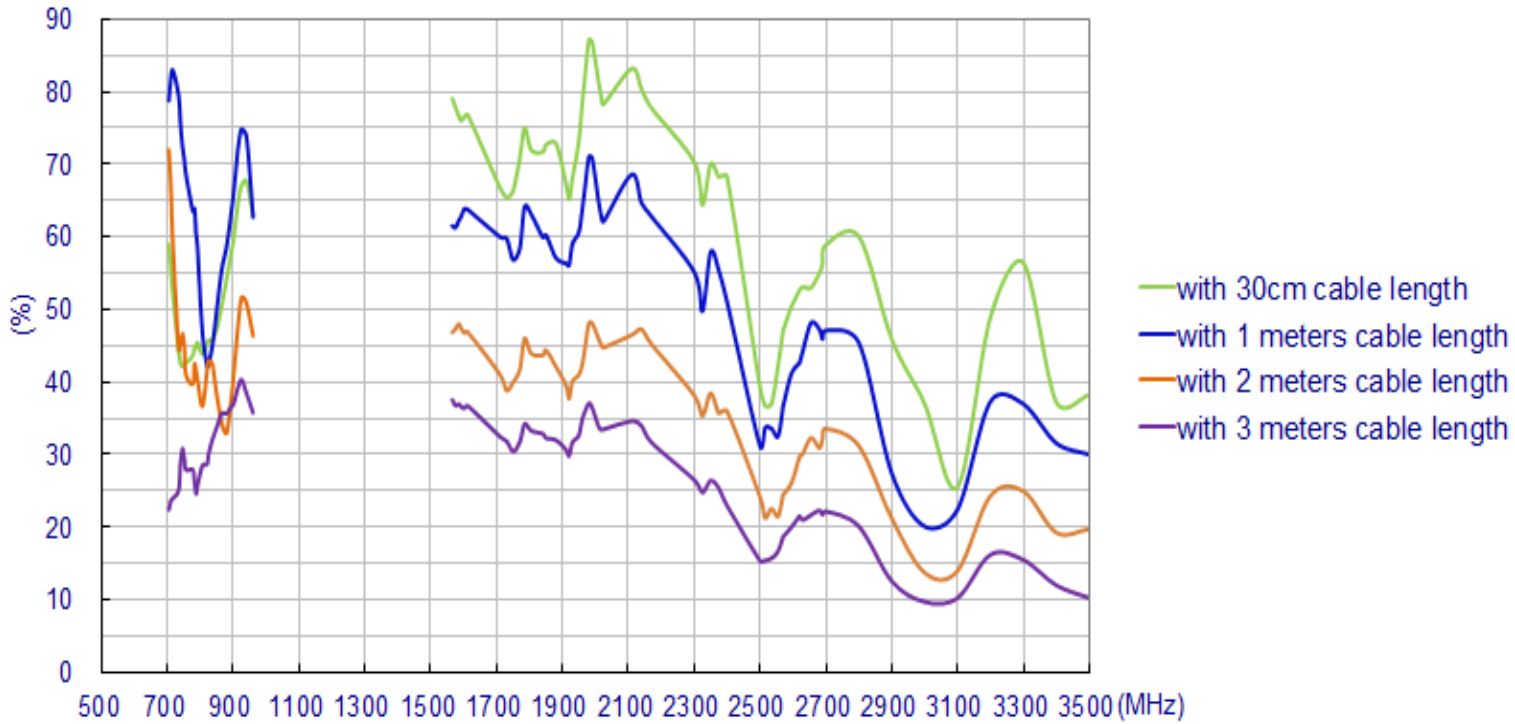
3.3.1 Average Gain (in free space)



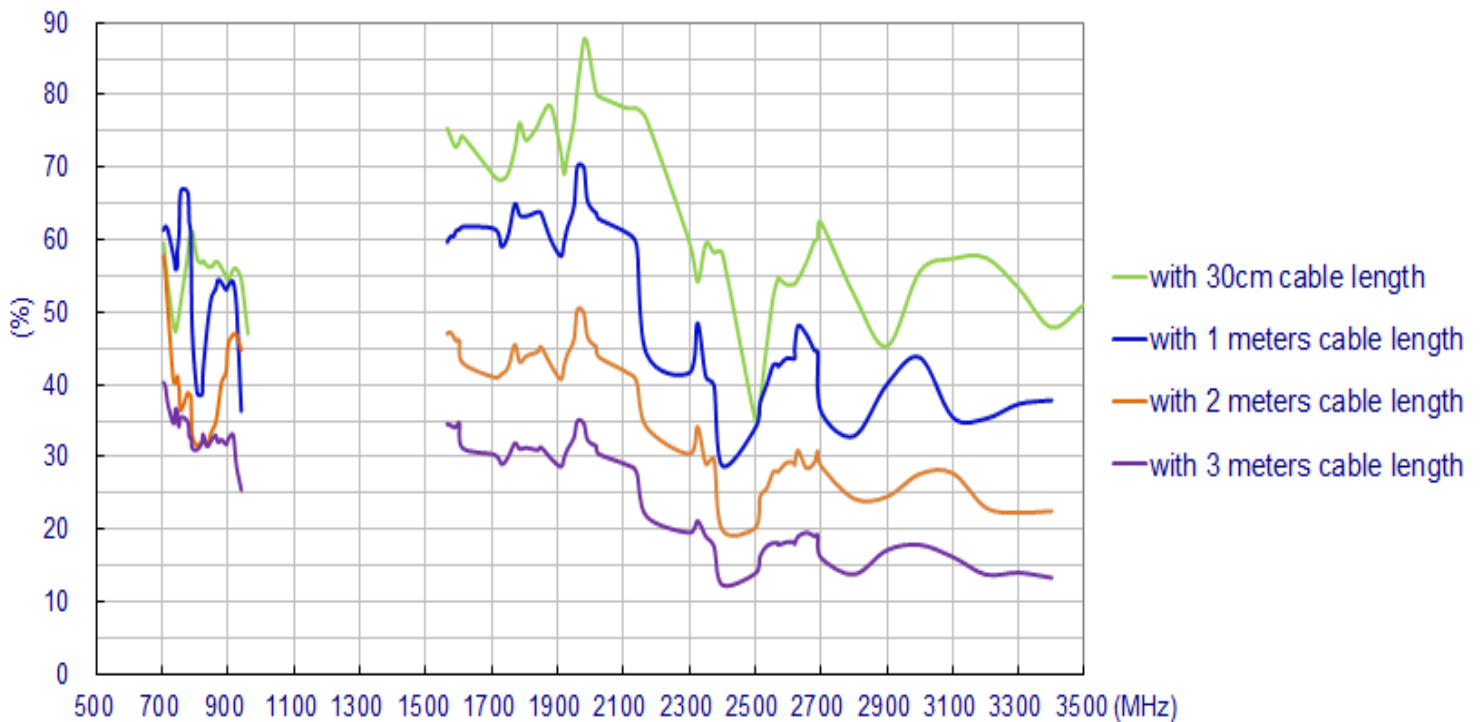
3.3.2 Average Gain (on glass)



3.4.1 Efficiency (in free space)

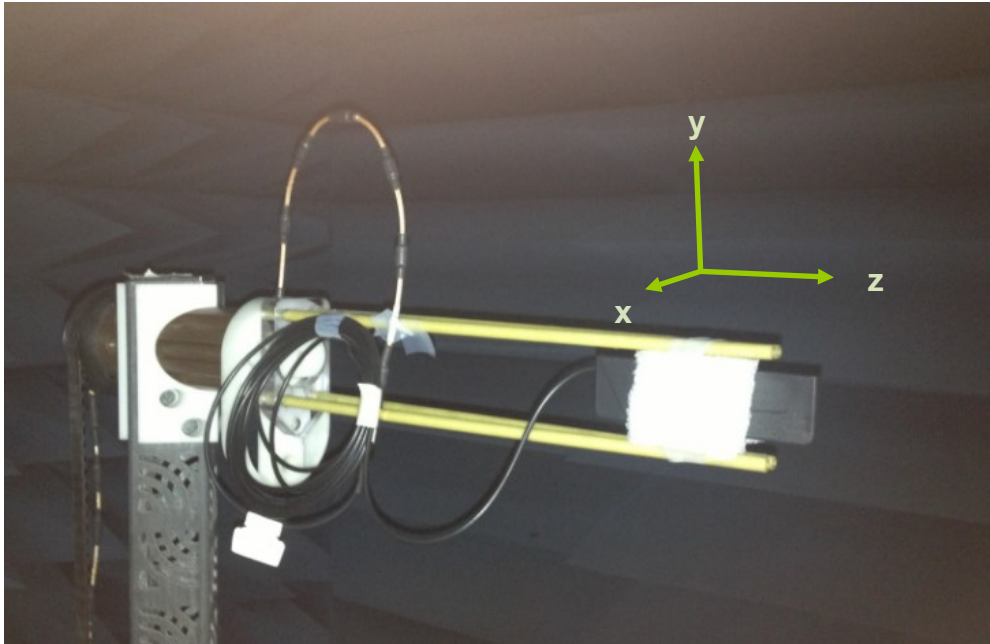


3.4.1 Efficiency (on glass)



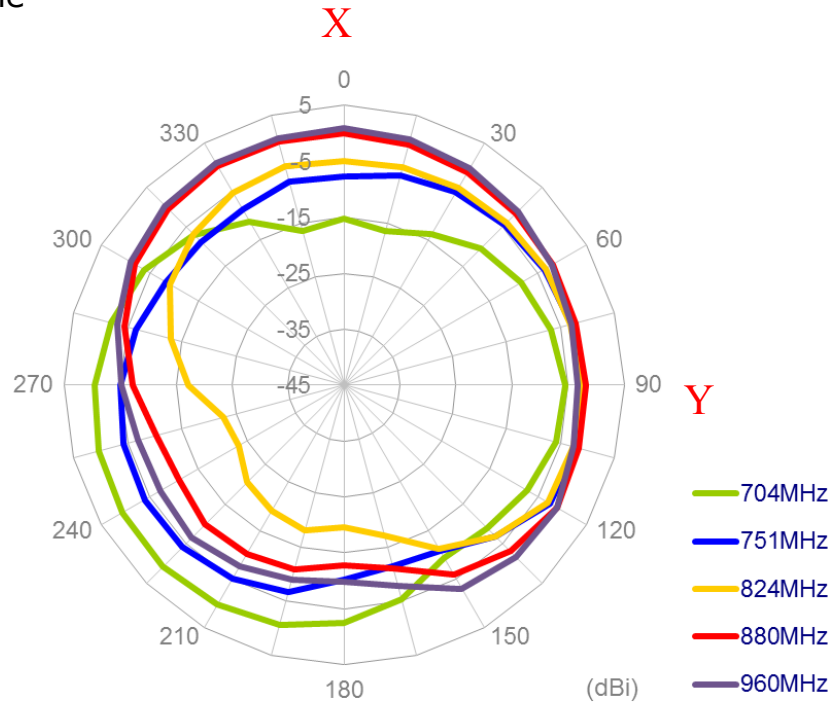
4. Antenna Radiation Patterns

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

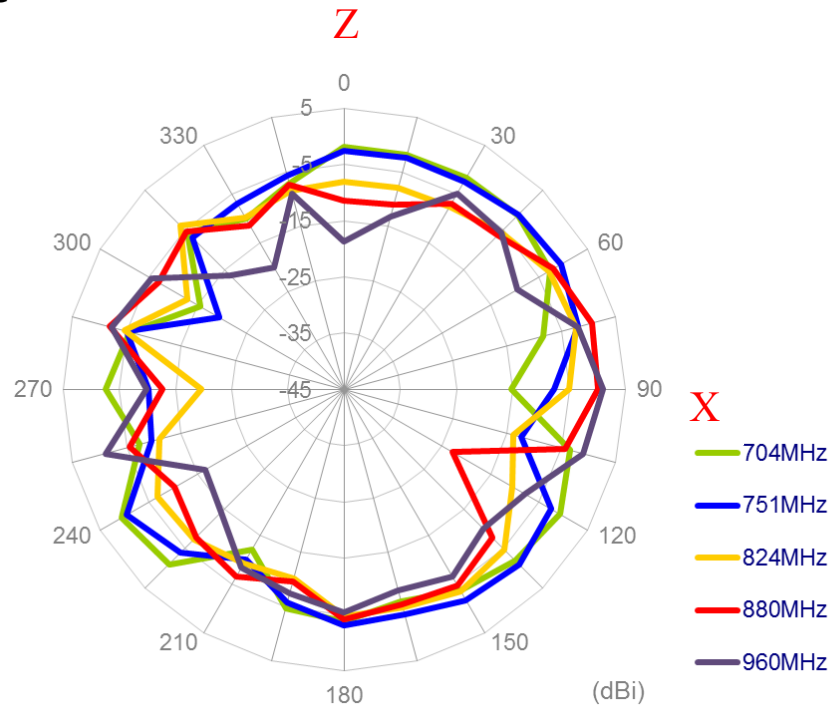


Radiation patterns

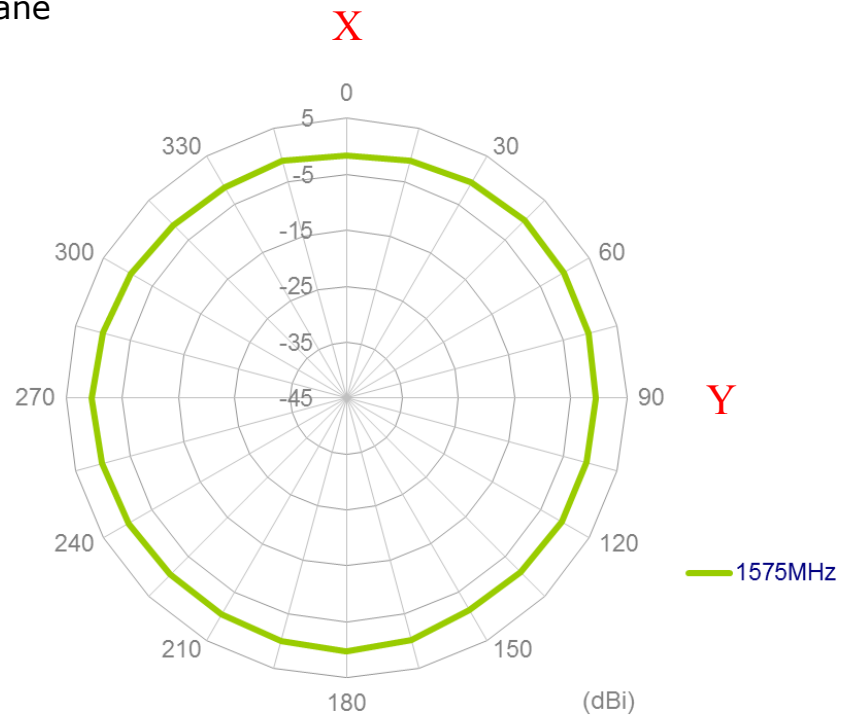
Horizontal XY Plane



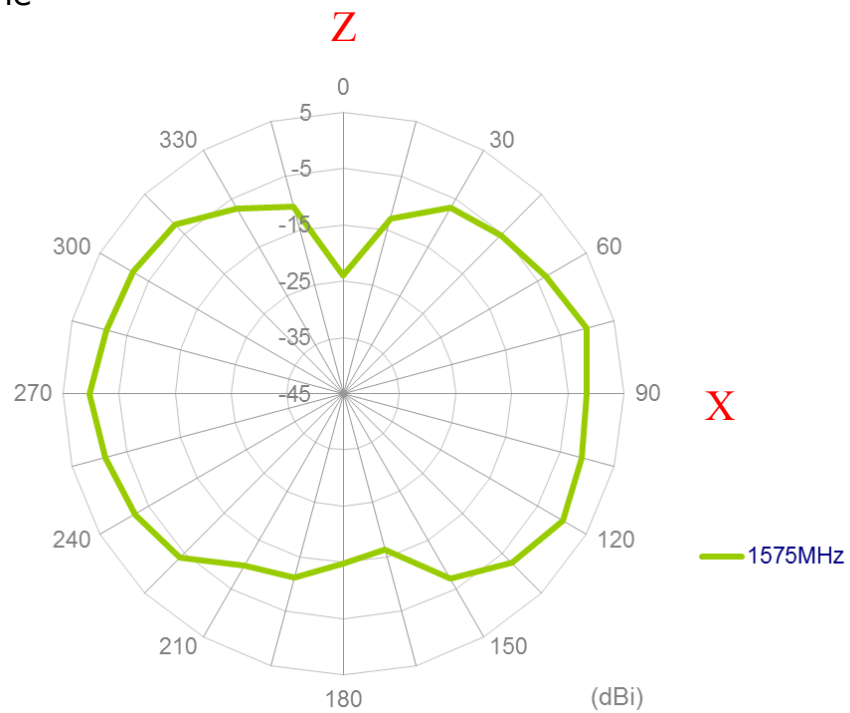
Vertical XZ Plane



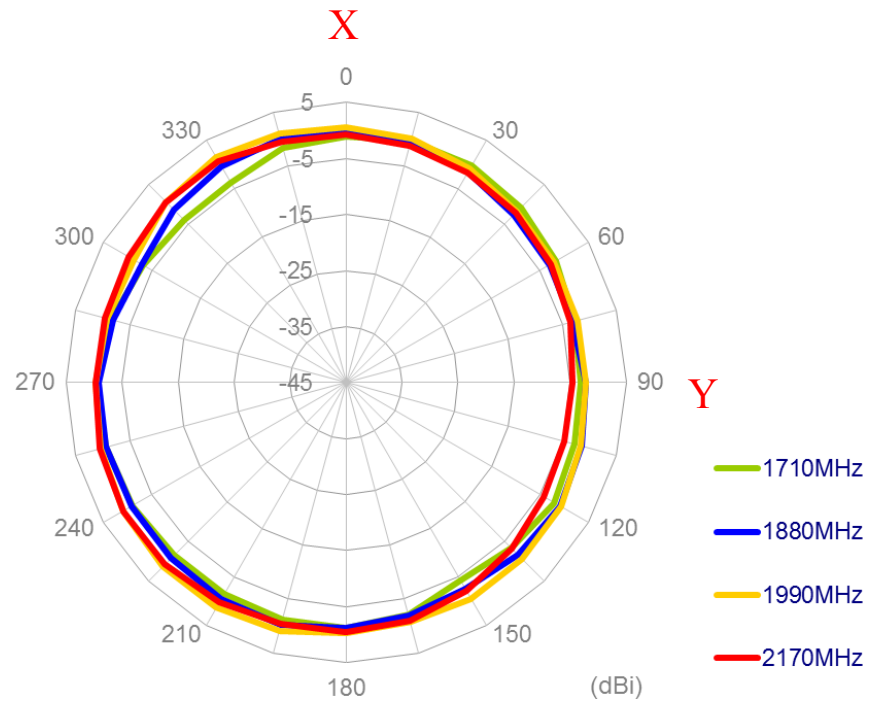
Horizontal XY Plane



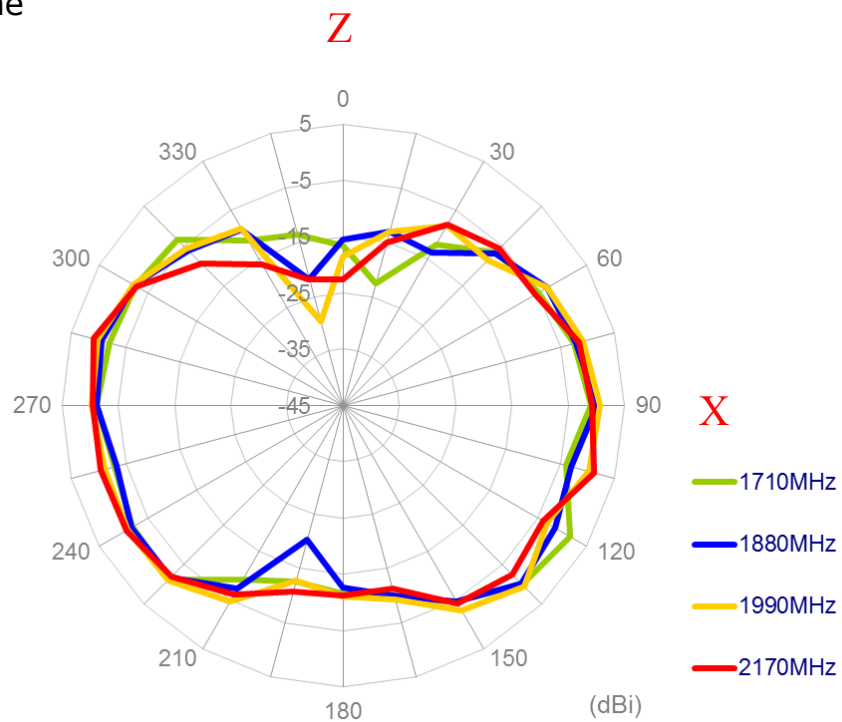
Vertical XZ Plane



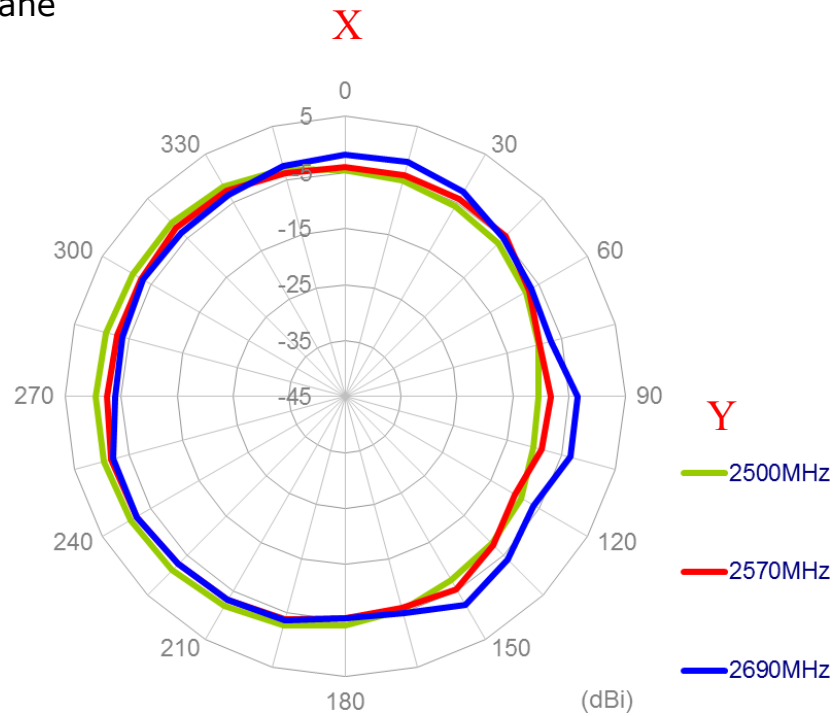
Horizontal XY Plane



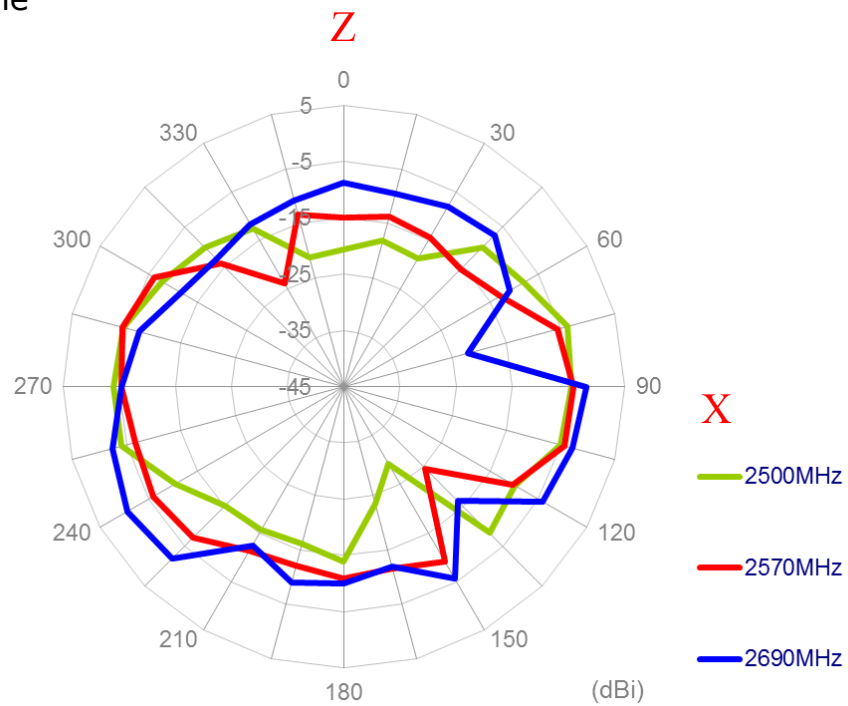
Vertical XZ Plane



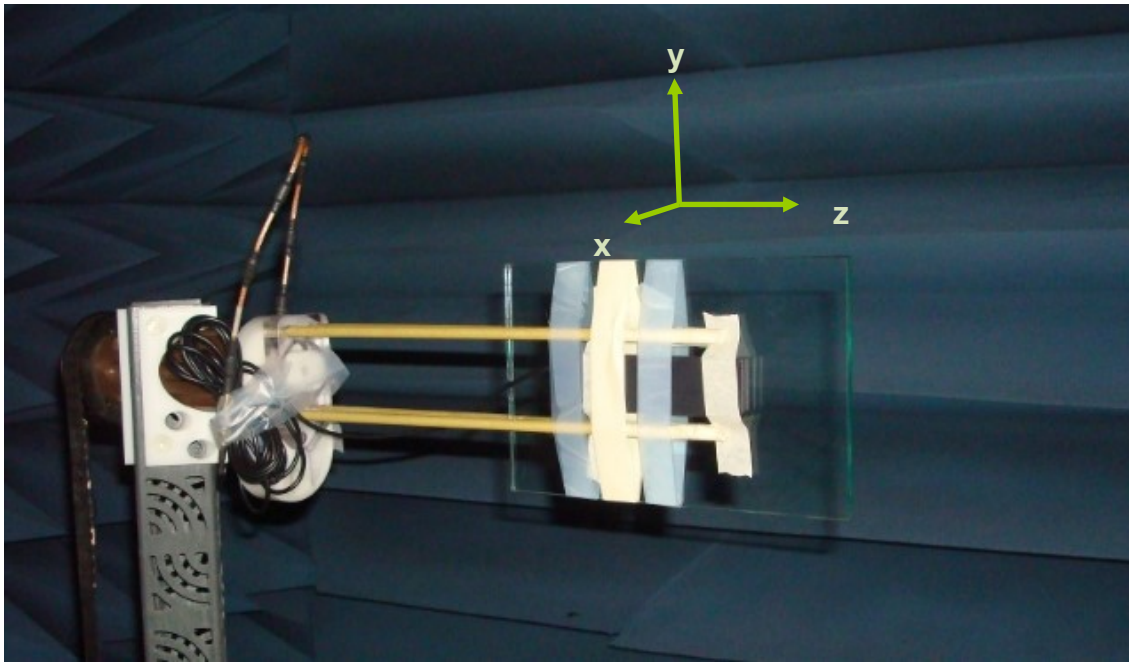
Horizontal XY Plane



Vertical XZ Plane

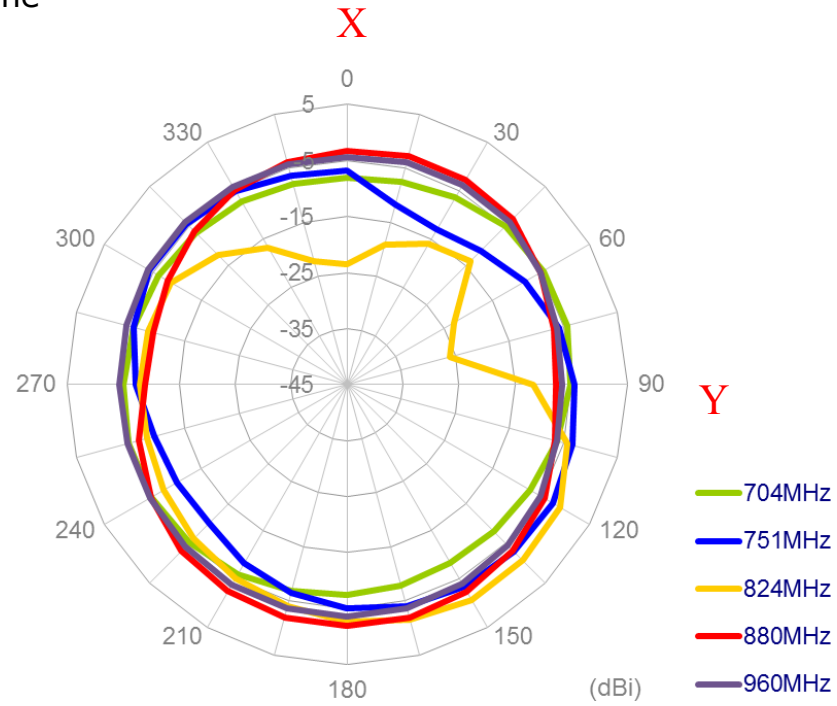


4.2 Antenna setup (Mounted on Glass with 1 meter cable length)

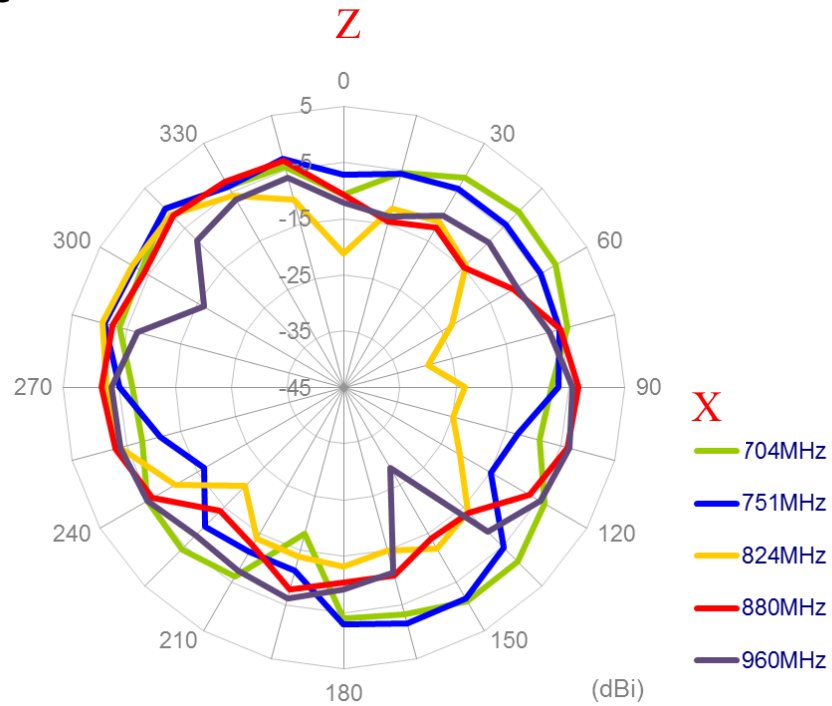


Radiation patterns

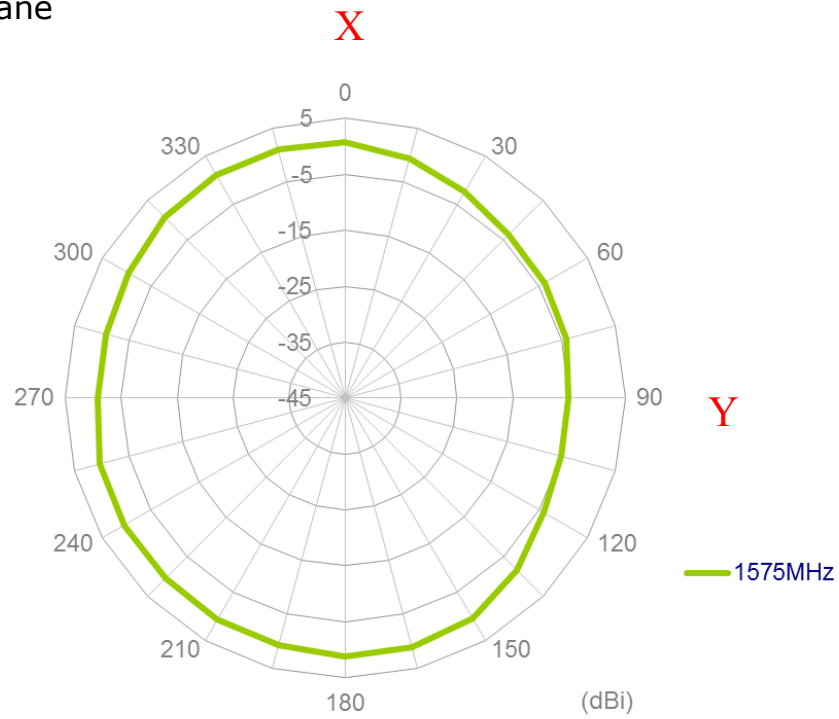
Horizontal XY Plane



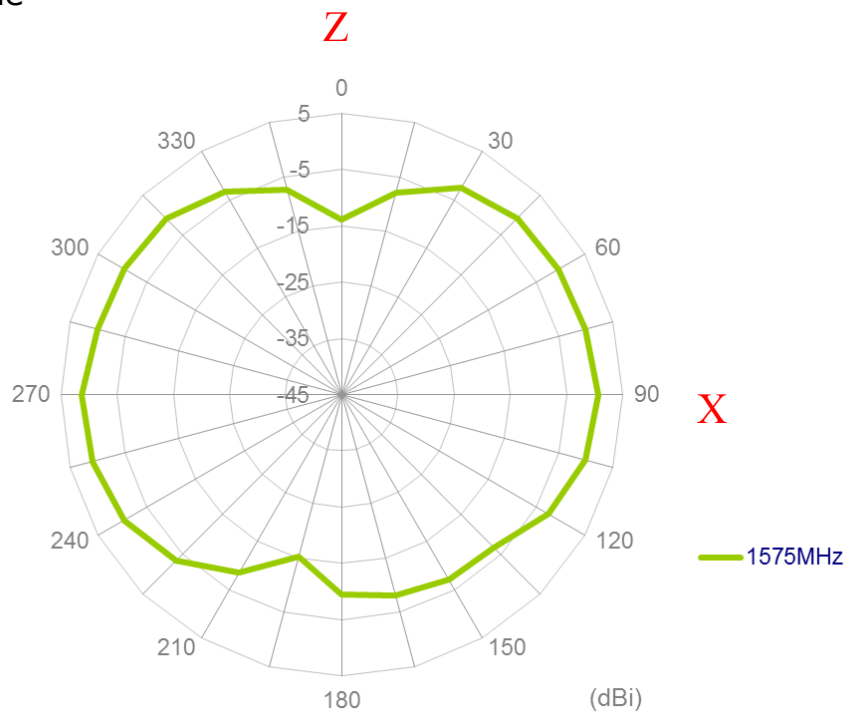
Vertical XZ Plane



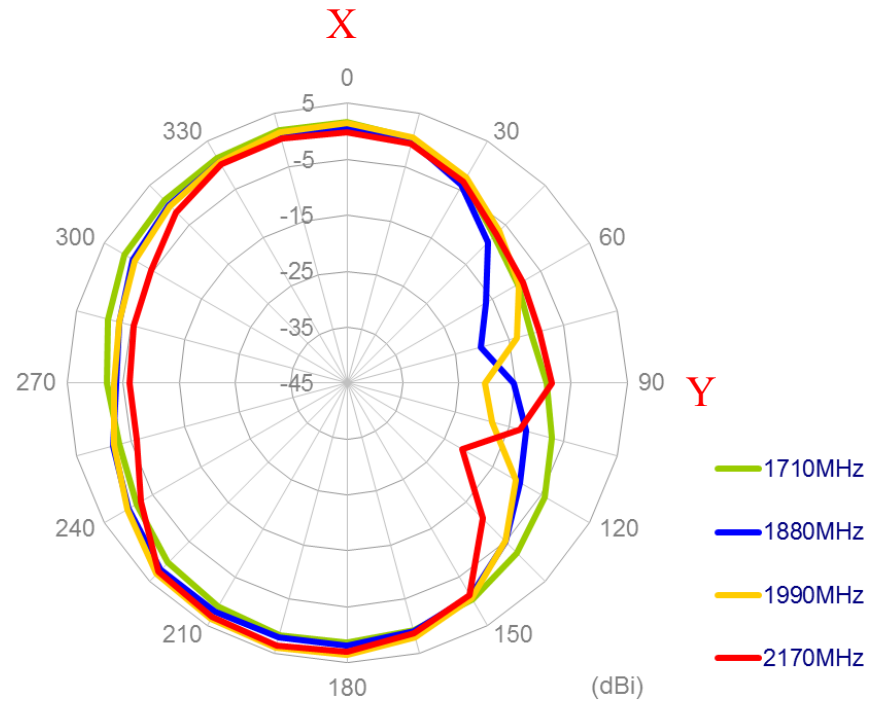
Horizontal XY Plane



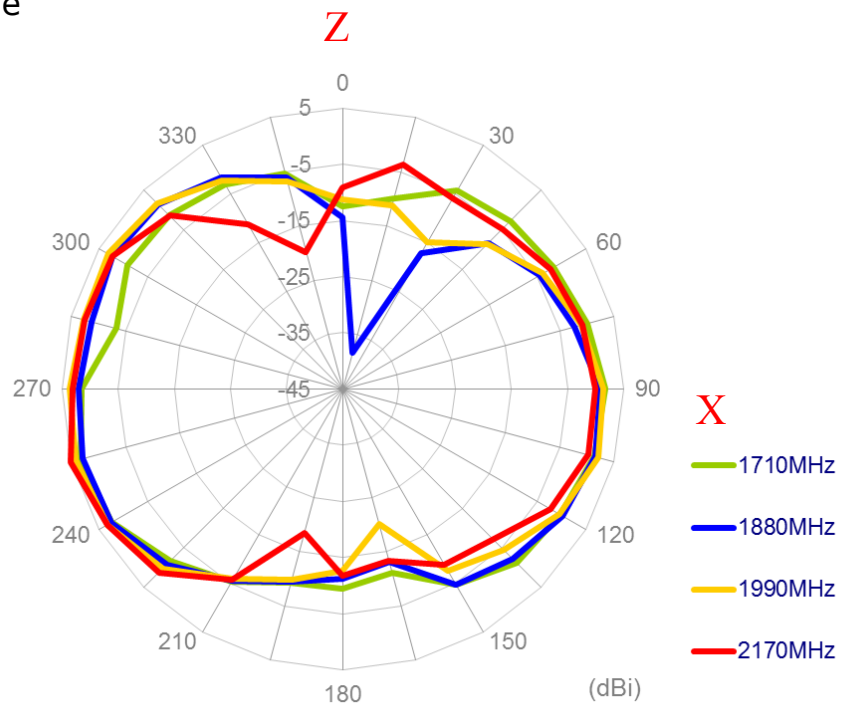
Vertical XZ Plane



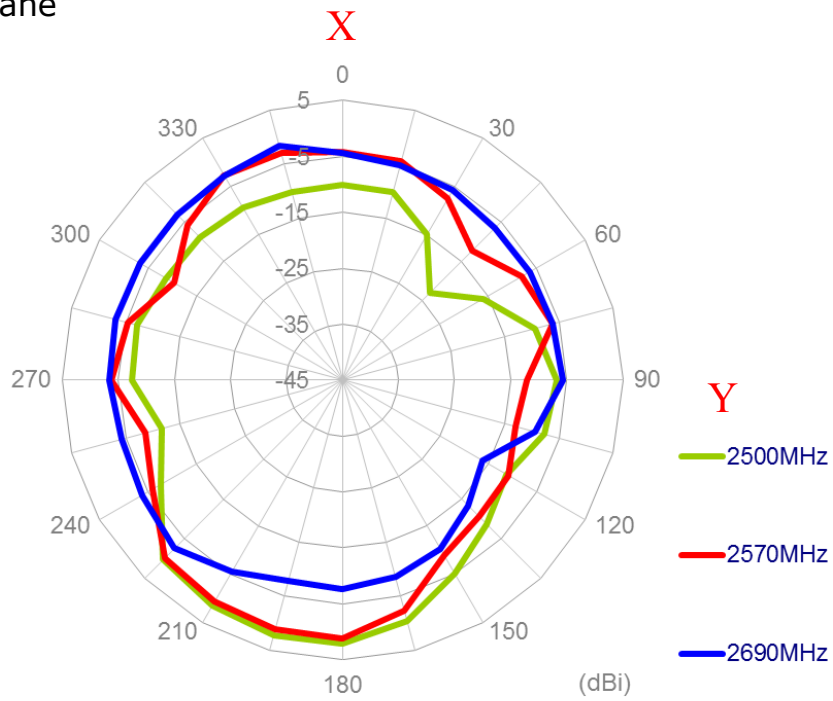
Horizontal XY Plane



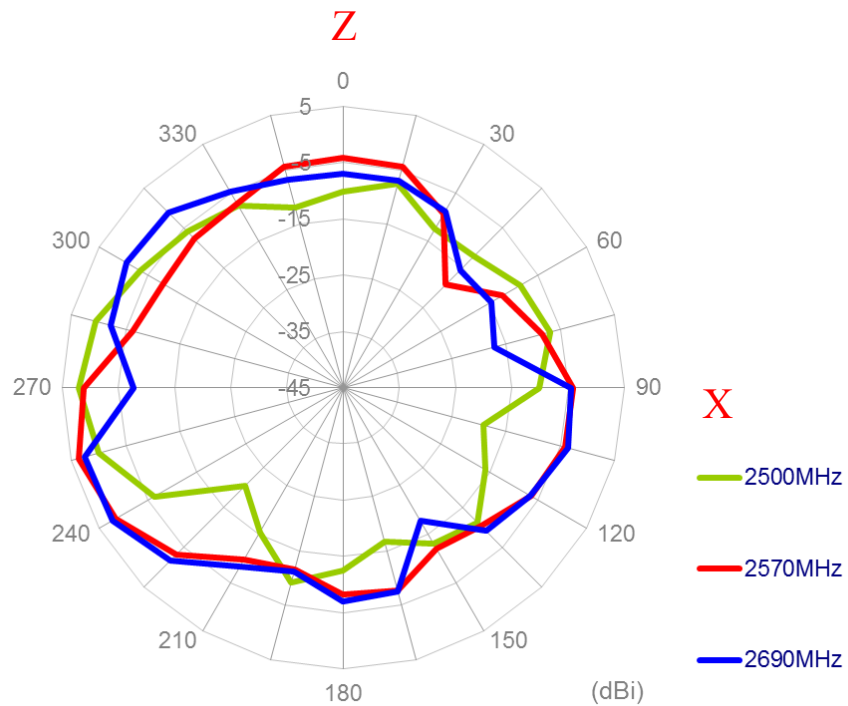
Vertical XZ Plane



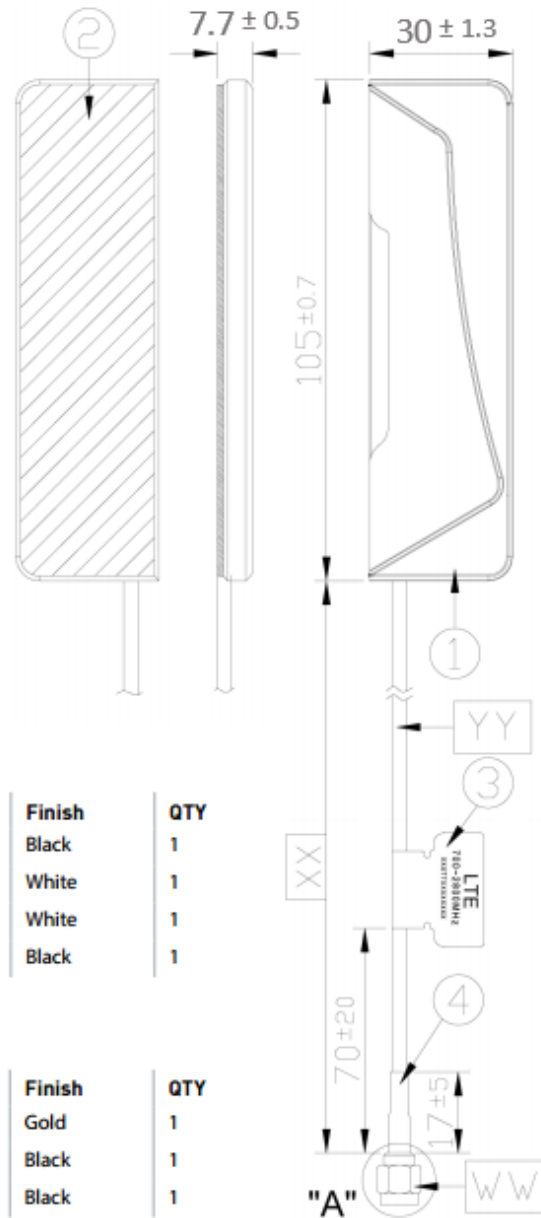
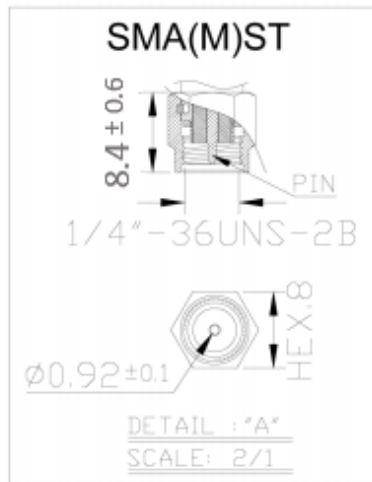
Horizontal XY Plane



Vertical XZ Plane



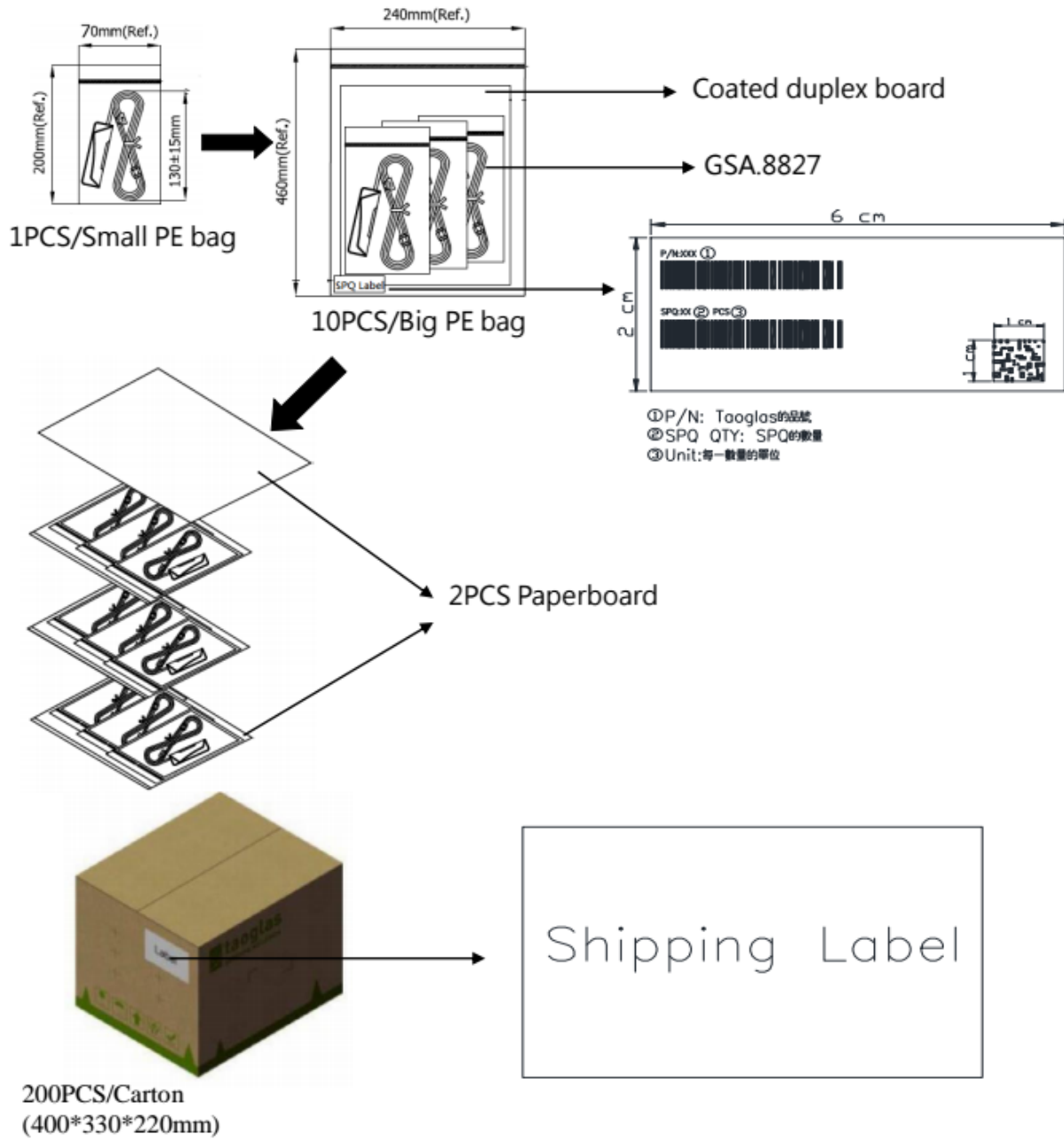
5 Drawing



	Name	P/N	Material	Finish	QTY
1	Housing	000112G000015A	PC+ABS	Black	1
2	Double Sided Adhesive	001011J0000XXA	3M 1600T	White	1
3	LTE Label	001012G000015A	Coated Paper	White	1
4	Heat Shrink Tube	001311F0000XXA	PE	Black	1

	Name	P/N	Spec	Finish	QTY
WW	Connector Type	200212G000015A	SMA(M)ST	Gold	1
XX	Cable Length		1000±30mm	Black	1
YY	Cable Type	301313A0000XXA	RG174	Black	1

6 Packaging



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