TAOGLAS

Datasheet

Apex Magforce Magnetic Mount 5G/4G Antenna

Part No:
MB.TG30.A.305111

Features:

- High Efficiency and Peak Gain
- Wideband Cellular 5G/4G
- 600-6000MHz Operational
- Straight Fixed Dipole Terminal Antenna
- Strong Magnetic Bond to Metal Surfaces
- 3 Meters TGC-200 Low Loss Coaxial Cable
- SMA(M) Connector
- Cable length and connector customizable
- RoHS and REACH Compliant

1.	Introduction	3
2.	Specifications	4
3.	Antenna Characteristics	6
4.	Radiation Patterns	9
5.	Mechanical Drawing	20
6.	Packaging	21
	Changelog	22

1. Introduction

The Apex Magforce MB.TG30.A.305111 Magnetic Mounted LTE Antenna with cable and connector is primarily designed for use with 5G/4G modules that require highest possible efficiency and peak gain to deliver best in class throughput on all major LTE bands worldwide for terminal applications. The antenna can be easily mounted on any metal plate.

This Magnetic Mount LTE antenna utilizes the highly successful TG.30 antenna as its main element, providing an ultra wide-band response so it can also be used for other cellular and wireless applications such as fallback to 3G, WI-FI, and assisted GPS. With its unique ultra-wideband dipole design, best in industry performance characteristics is provided, with up to 90% efficiency. It is the recommended solution for products that require highest standard network certifications. The radiation patterns are Omni-directional and stable across all bands.

It has a quality robust IP67 housing (connector and magnetic base is IP65) for use with wireless devices. The antenna comes as standard with 3 meters TGC-200 low loss coaxial cable and a SMA male connector. A super magnet in the base provides a strong magnetic bond (max magnetic Pull Force 2.92kgf) to the metal surface it is mounted on.

Cable length and connector type are customizable for a minimum order quantity. For further information please contact your regional Taoglas customer support team.

2. Specifications

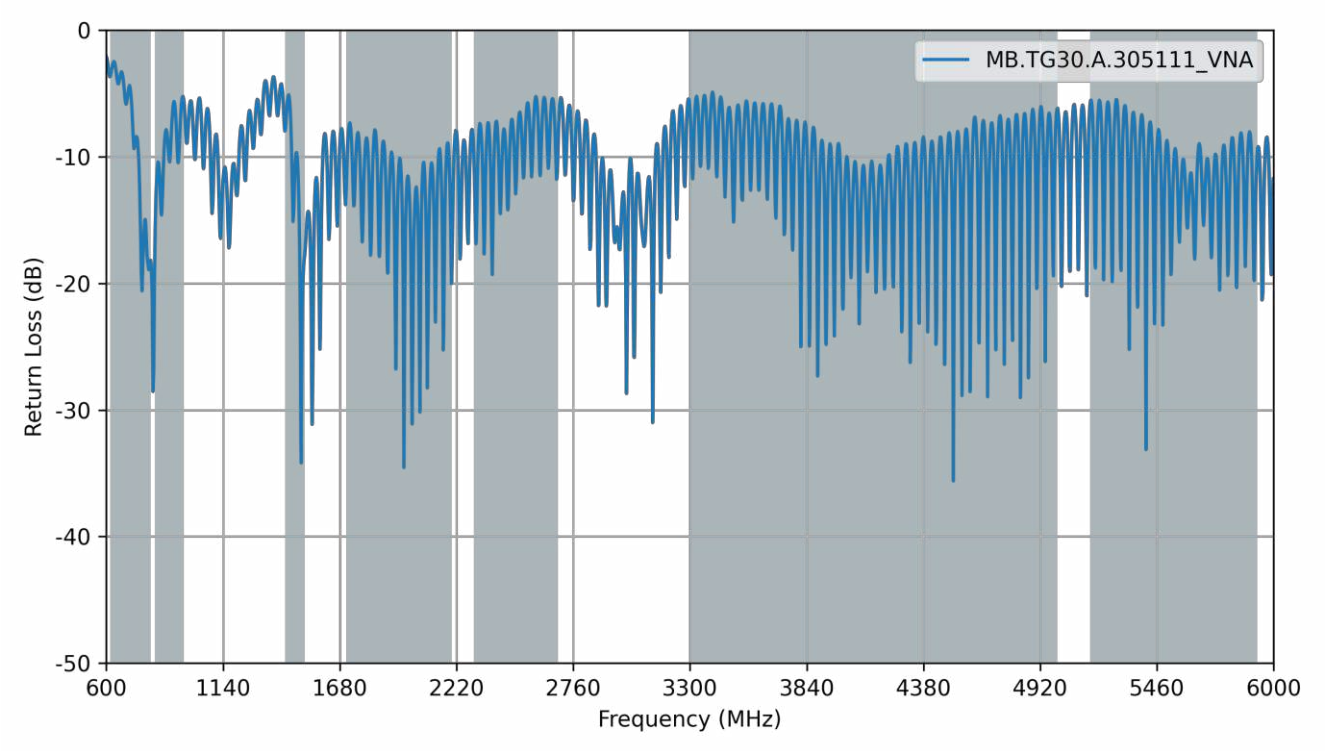
LTE Electrical								
Band	Frequency (MHz)	Efficiency (%)	Average Gain (dB)	Peak Gain (dBi)	Impedance	Polarization	Radiation Pattern	Max. input power
5GNR/4G Band71	617-698	19.1	-7.20	-1.92	50 Ω	Linear	Omni	2W
4G/3G Band 12,13,14,17,28,29	698-806	54.6	-2.62	2.54				
4G/3G/NB-IoT/Cat M Band 5,8,18,19,20,26,27	824-960	54.5	-2.64	2.86				
5GNR/4G Band 21,32,74,75,76	1427-1518	48.0	-3.18	3.47				
4G/3G Band 1,2,3,4,9,23,25,35,39,66	1710-2200	50.3	-2.99	2.75				
4G/3G Band 7,30,38,40,41	2300-2690	34.0	-4.69	2.15				
5GNR/4G Band 22,42,48,77,78,79	3300-5000	36.5	-4.38	4.33				
LTE5200/Wi-Fi5800	5150-5925	29.5	-5.30	3.01				

Mechanical		
Casing	ABS	
Cable type	TGC-200	
Cable Length	3 Meters, Standard	
Connector	SMA Male, Standard	
Weight	Antenna Main Body:40g	Magnetic Mounted Base:370g
Water Proof	IP67 for Antenna Casing, IP65 for Total part	
Magnetic Pulling Force	2.92Kgf	
Environmental		
Storage Temperature Range	-40°C to 85°C	
Operation Temperature Range	-40°C to 85°C	
Humidity	Non-condensing 65°C 95% RH	

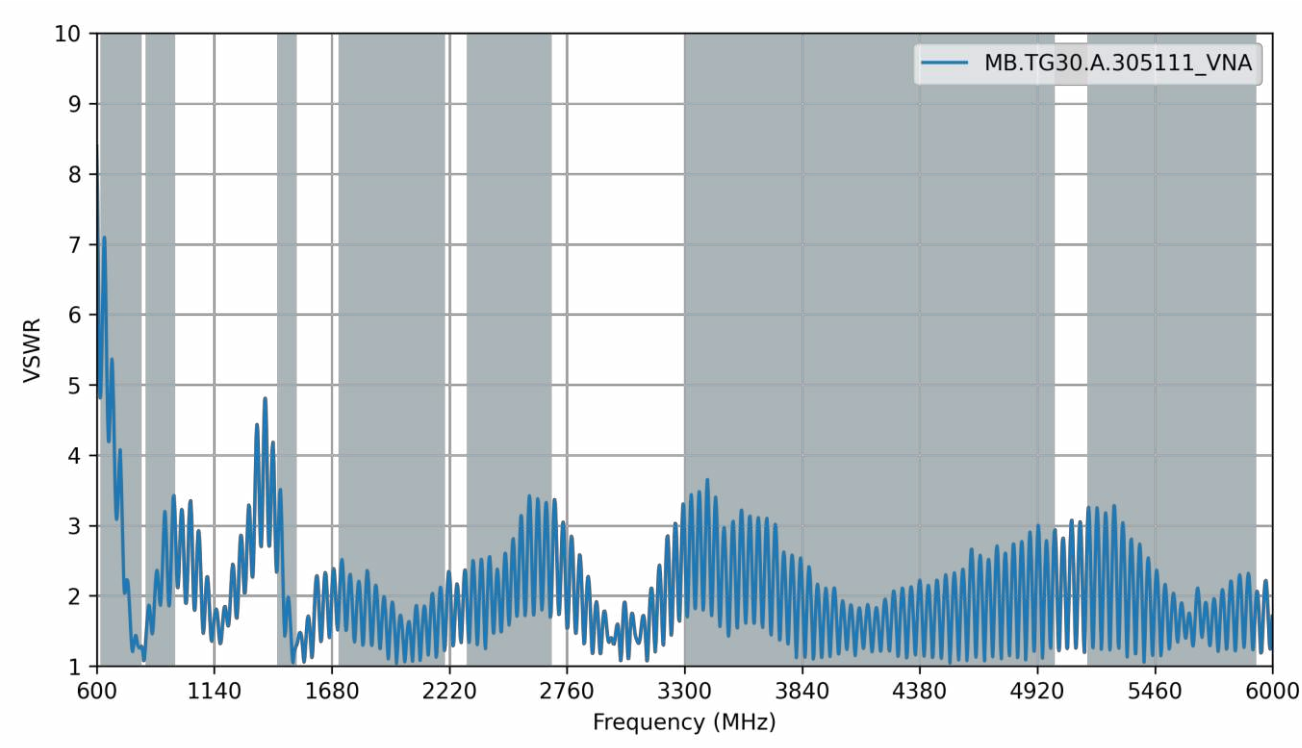
5G/4G Bands			
Band Number	**5GNR / FR1 / LTE / LTE-Advanced / WCDMA / HSPA / HSPA+ / TD-SCDMA**		
	Uplink	**Downlink**	**Covered**
B1	1920 to 1980	2110 to 2170	✓
B2	1850 to 1910	1930 to 1990	✓
B3	1710 to 1785	1805 to 1880	✓
B4	1710 to 1755	2110 to 2155	✓
B5	824 to 849	869 to 894	✓
B7	2500 to 2570	2620 to 2690	✓
B8	880 to 915	925 to 960	✓
B9*	1749.9 to 1784.9	1844.9 to 1879.9	✓
B11	1427.9 to 1447.9	1475.9 to 1495.9	✓
B12	699 to 716	729 to 746	✓
B13	777 to 787	746 to 756	✓
B14	788 to 798	758 to 768	✓
B17	704 to 716	734 to 746	✓
B18	815 to 830	860 to 875	✓
B19	830 to 845	875 to 890	✓
B20	832 to 862	791 to 821	✓
B21	1447.9 to 1462.9	1495.9 to 1510.9	✓
B22*	3410 to 3490	3510 to 3590	✗
B23*	2000 to 2020	2180 to 2200	✓
B24	1626.5 to 1660.5	1525 to 1559	✓
B25	1850 to 1915	1930 to 1995	✓
B26	814 to 849	859 to 894	✓
B27*	807 to 824	852 to 869	✓
B28	703 to 748	758 to 803	✓
B29	717 to 728		✓
B30	2305 to 2315	2350 to 2360	✓
B31	452.5 to 457.5	462.5 to 467.5	✓
B32	1452 to 1496		✓
B34	2010 to 2025		✓
B35	1850 to 1910		✓
B36	1930 to 1990		✓
B37	1910 to 1930		✓
B38	2570 to 2620		✓
B39	1880 to 1920		✓
B40	2300 to 2400		✓
B41	2496 to 2690		✓
B42	3400 to 3600		✗
B43	3600 to 3800		✓
B45	1447 to 1467		✓
B46	5150 to 5925		✓
B47	5855 to 5925		✓
B48	3550 to 3700		✓
B49	3550 to 3700		✓
B50	1432 to 1517		✓
B51	1427 to 1432		✓
B52	3300 to 3400		✗
B53	2483.5 to 2495		✓
B65	1920 to 2010	2110 to 2200	✓
B66	1710 to 1780	2110 to 2200	✓
B68	698 to 728	753 to 783	✓
B69	2570 to 2620		✓
B70	1695 to 1710	1995 to 2020	✓
B71	663 to 698	617 to 652	✗
B72	451 to 456	461 to 466	✓
B73	450 to 455	460 to 465	✓
B74	1427 to 1470	1475 to 1518	✓
B75	1432 to 1517		✓
B76	1427 to 1432		✓
B77	3300 to 4200		✓
B78	3300 to 3800		✗
B79	4400 to 5000		✓
B85	698 to 716	728 to 746	✓
B87	410 to 415	420 to 425	✓
B88	412 to 417	422 to 427	✓

3. Antenna Characteristics

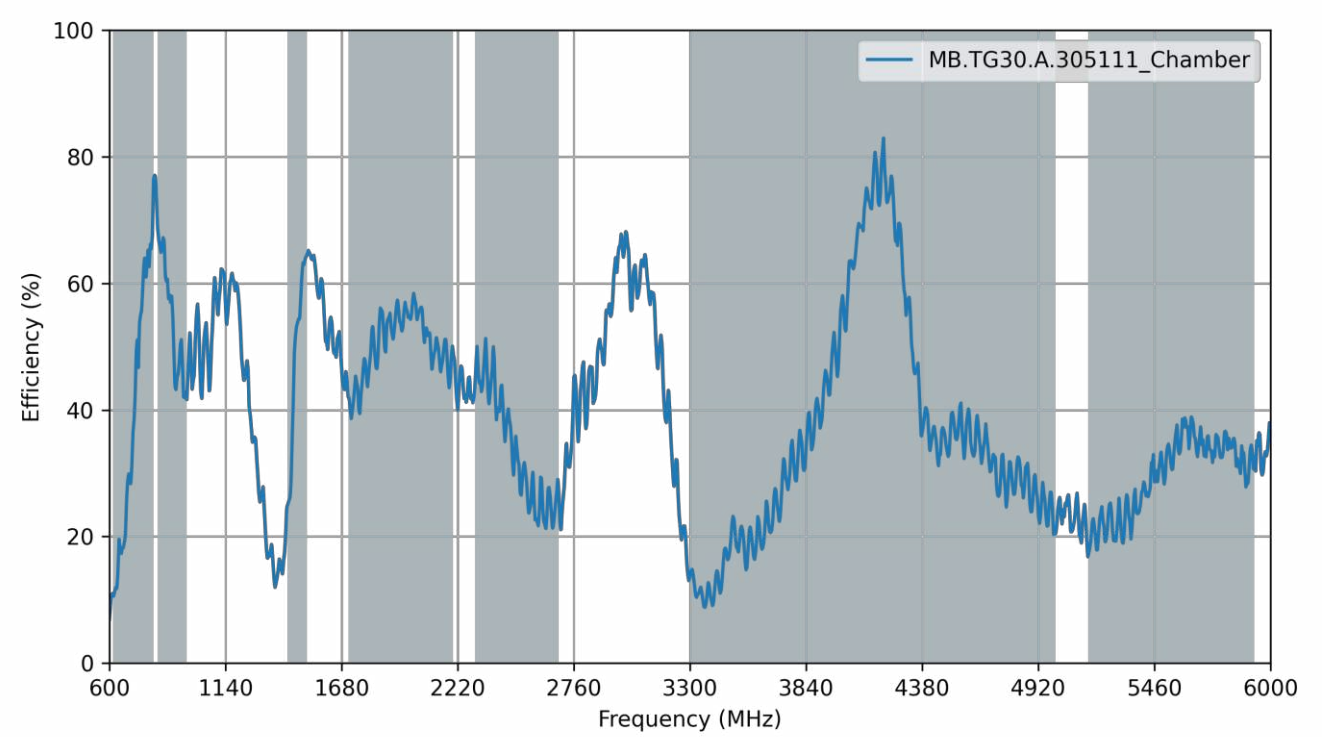
3.1 Return Loss



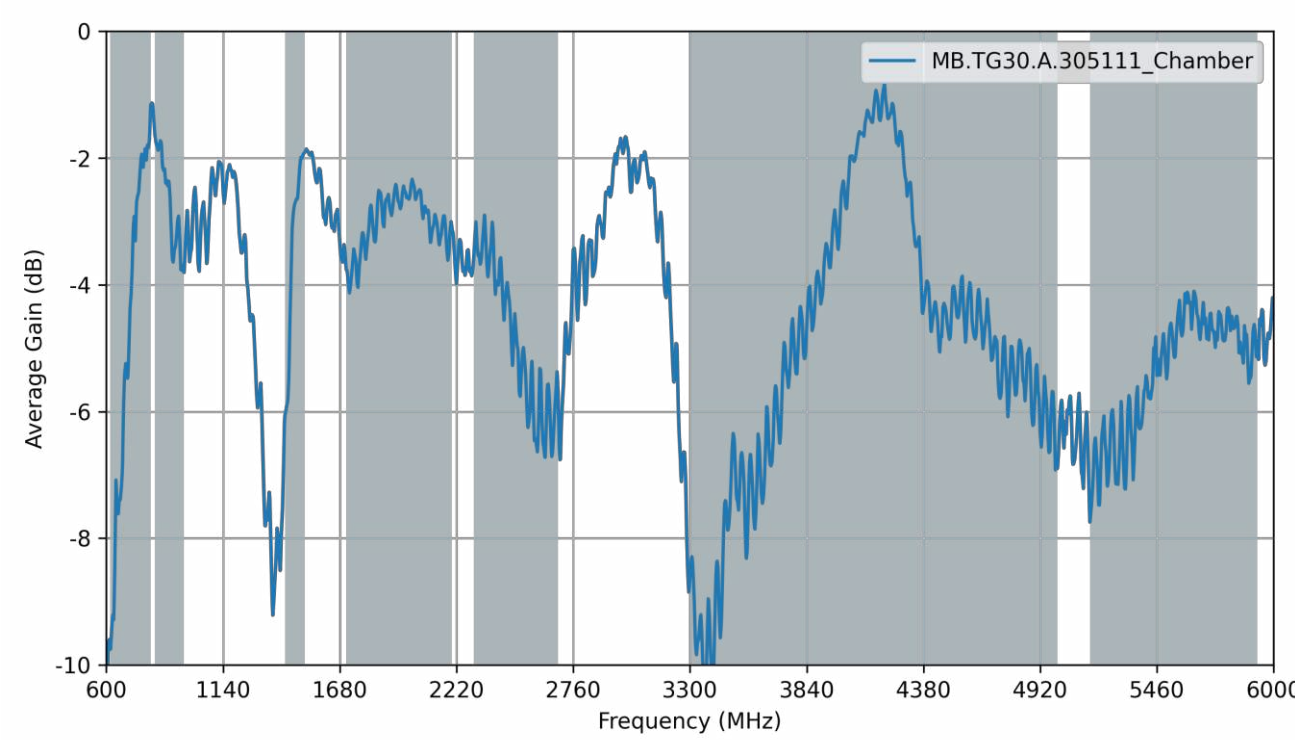
3.2 VSWR



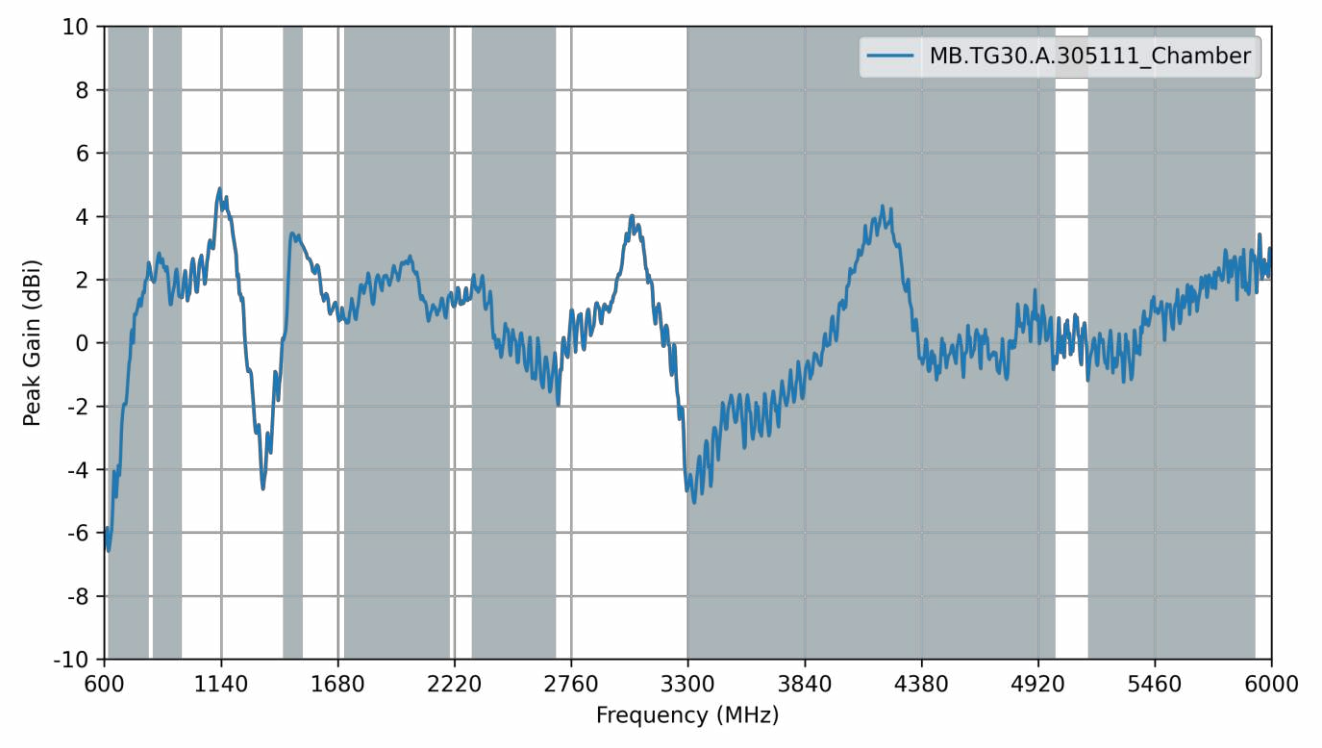
3.3 Efficiency



3.4 Average Gain

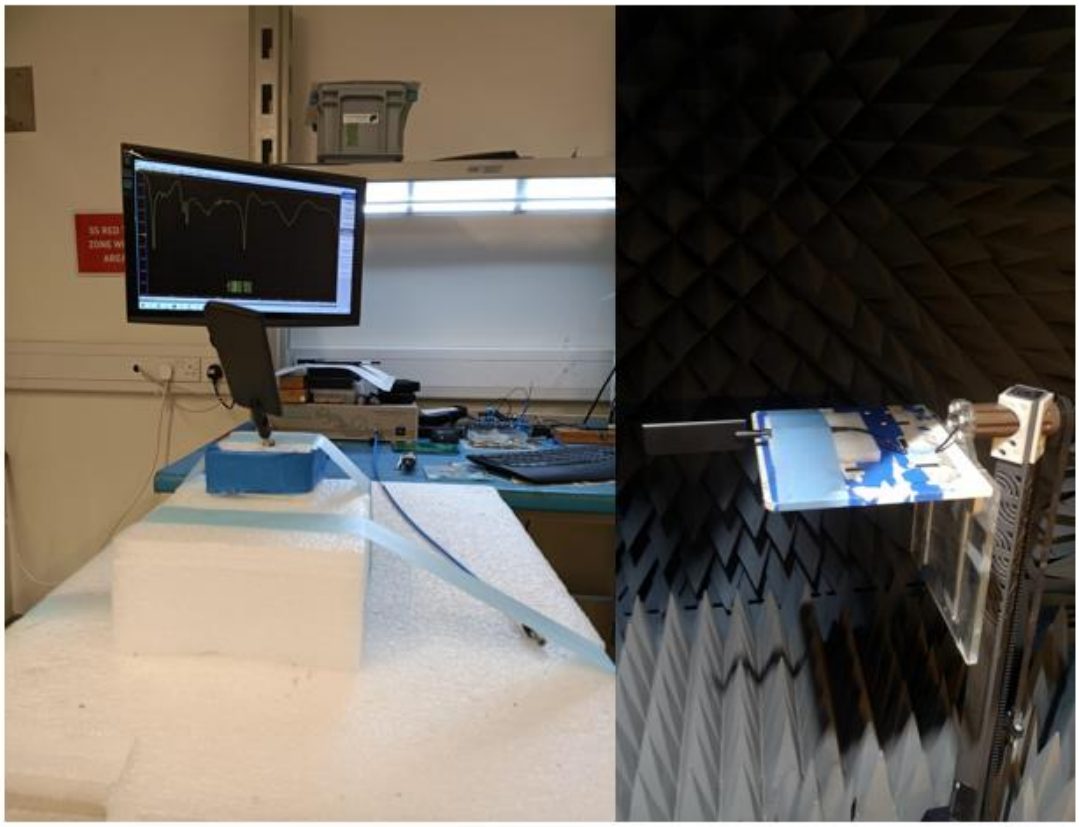


3.5 Peak Gain


MB.TG30.A.305111_Chamber
Peak Gain (dBi)
10
8
6
4
2
0
-2
-4
-6
-8
-10
600
1140
1680
2220
2760
3300
3840
4380
4920
5460
6000
Frequency (MHz)

4. Radiation Patterns

4.1 Test Setup – Freespace

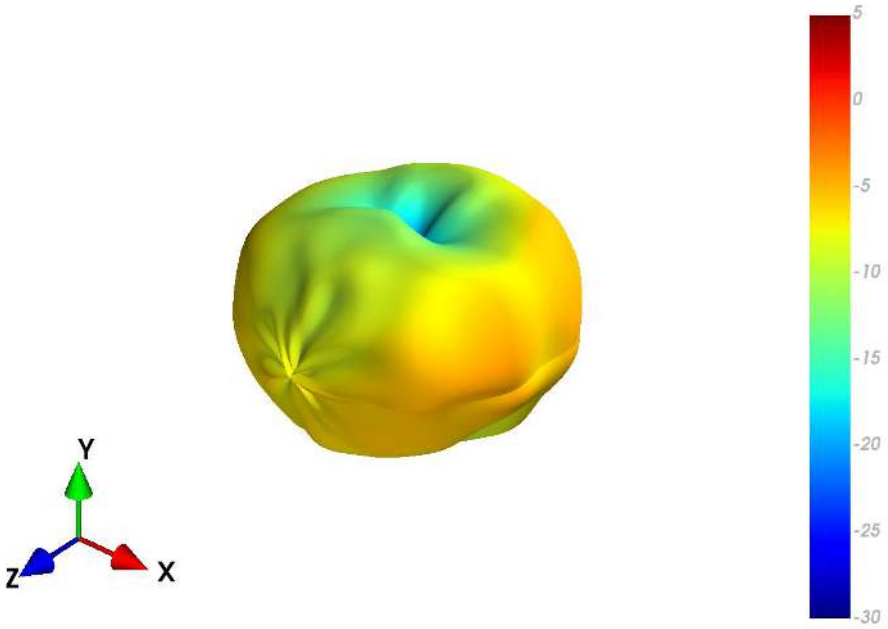


VNA Setup in Freespace

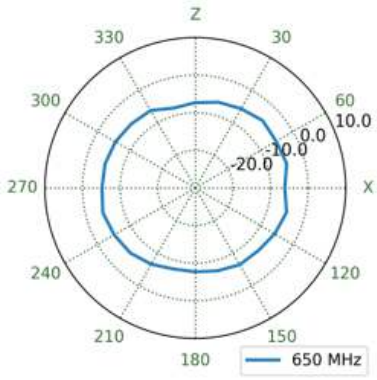
Chamber Setup in Freespace

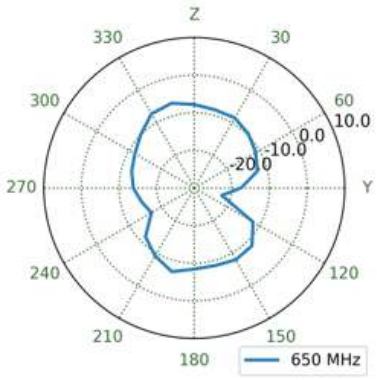
4.2 Freespace 2D & 3D Radiation Patterns

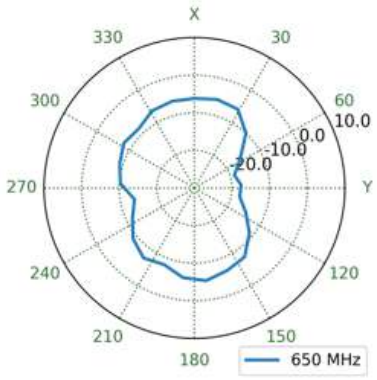
650MHz



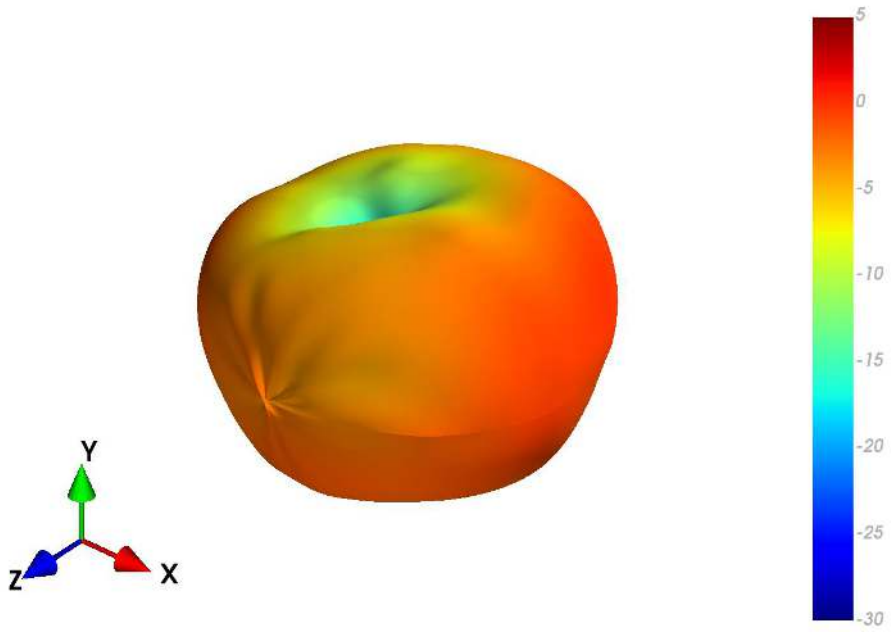
XZ Plane	YZ Plane	XY Plane



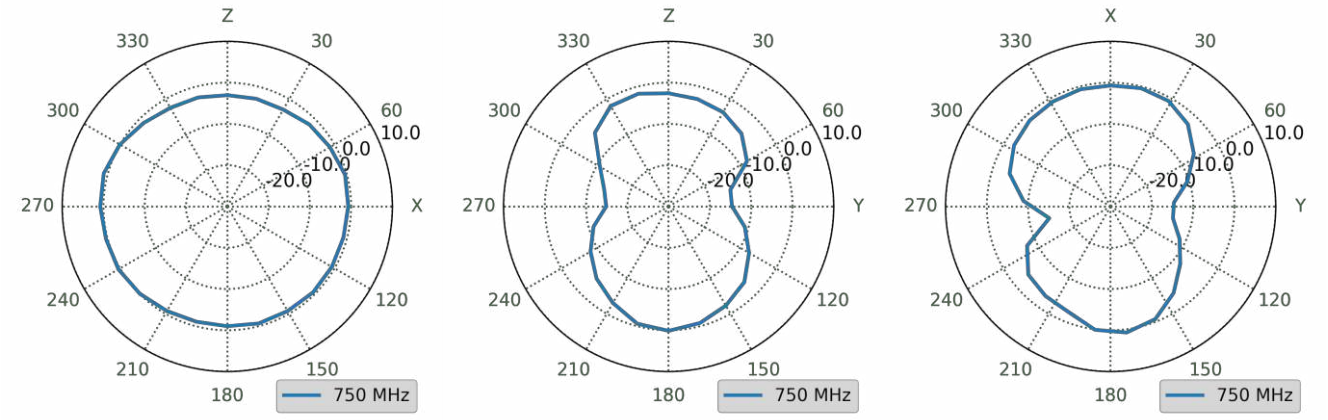




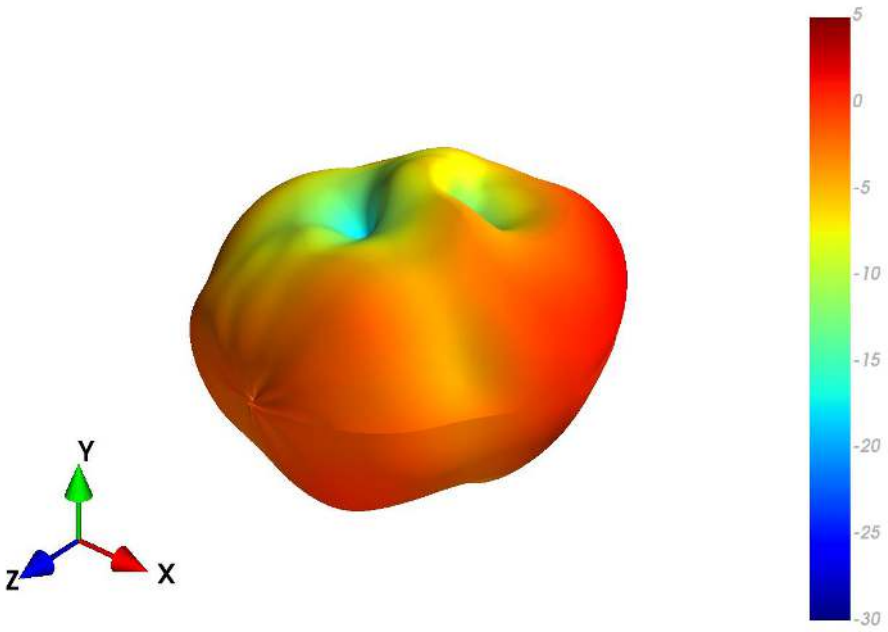
750MHz



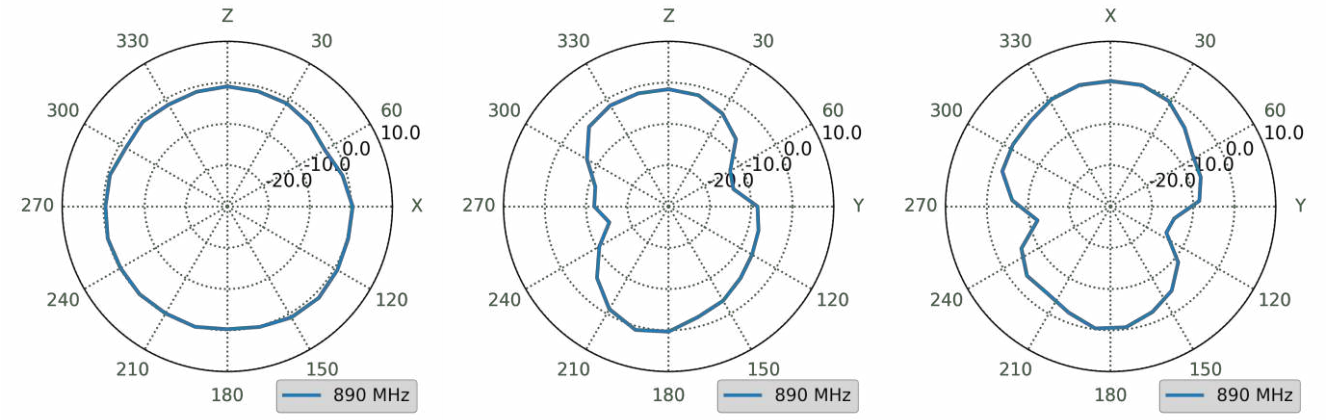
XZ Plane	YZ Plane	XY Plane



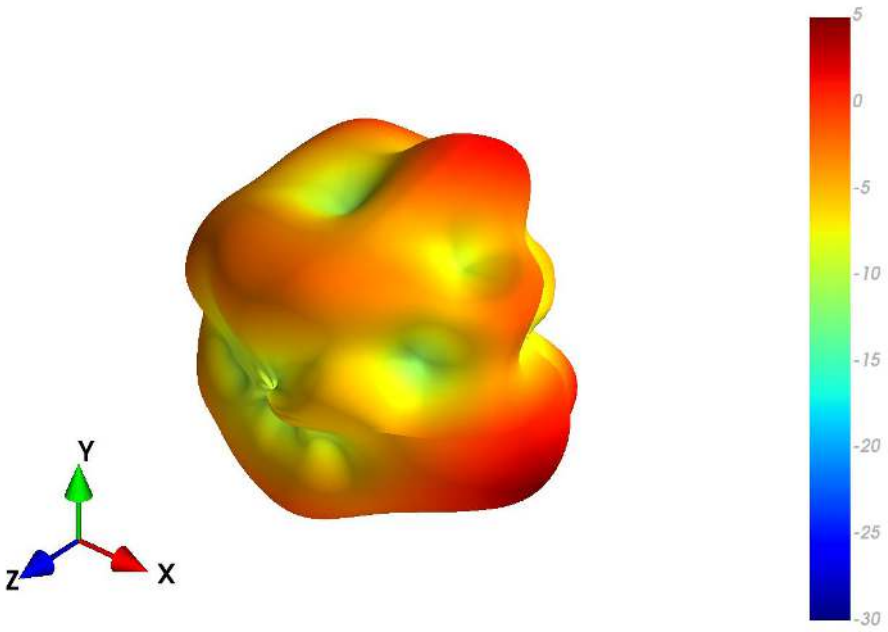
890MHz



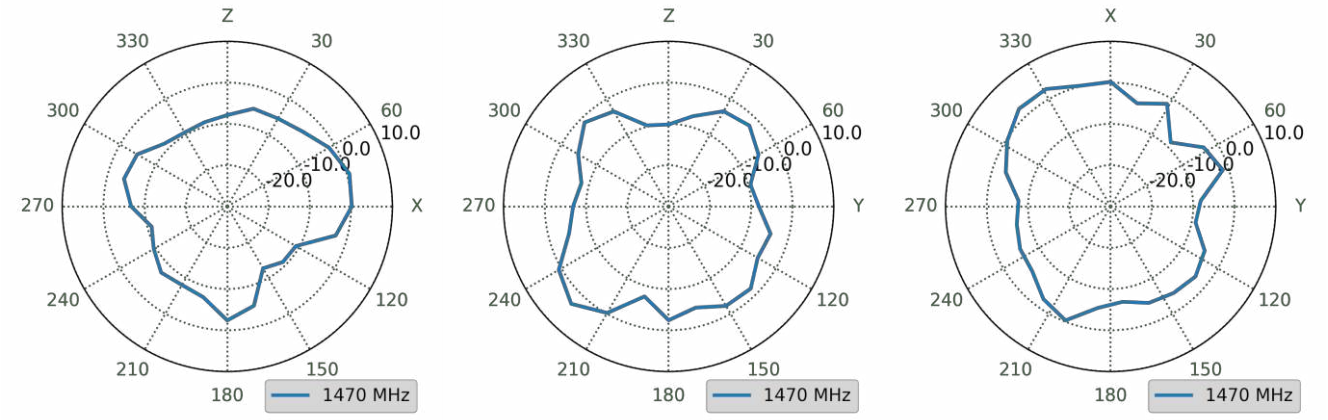
XZ Plane	YZ Plane	XY Plane



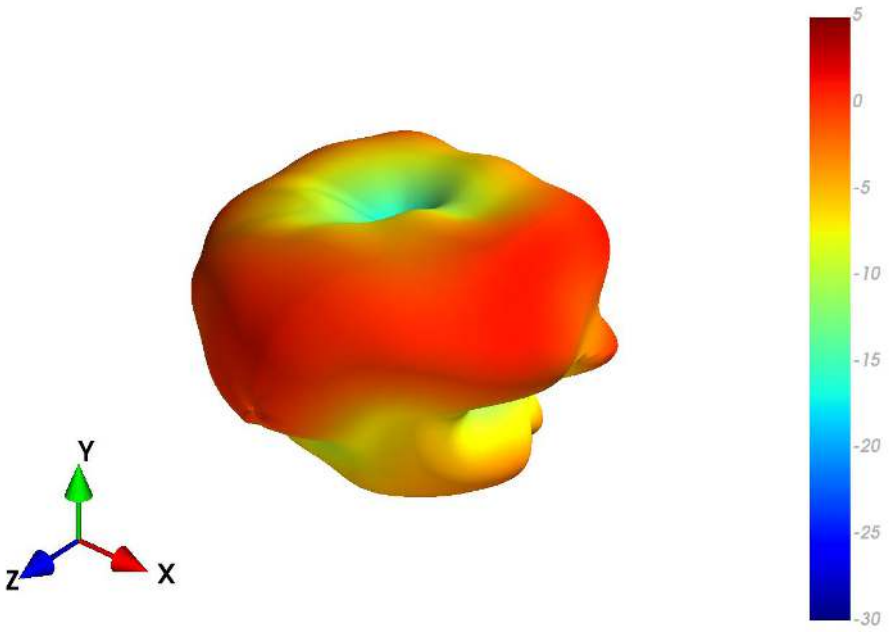
1470MHz



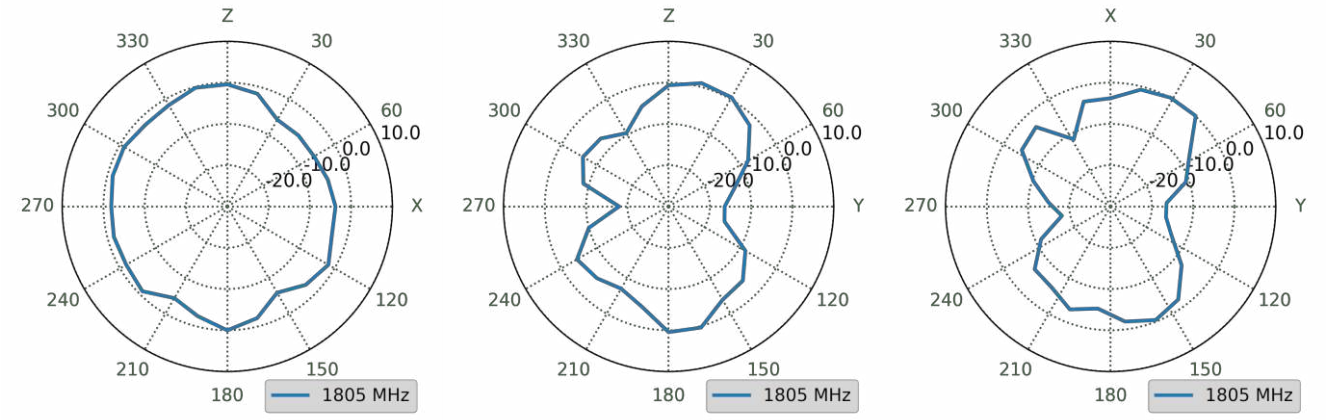
XZ Plane	YZ Plane	XY Plane



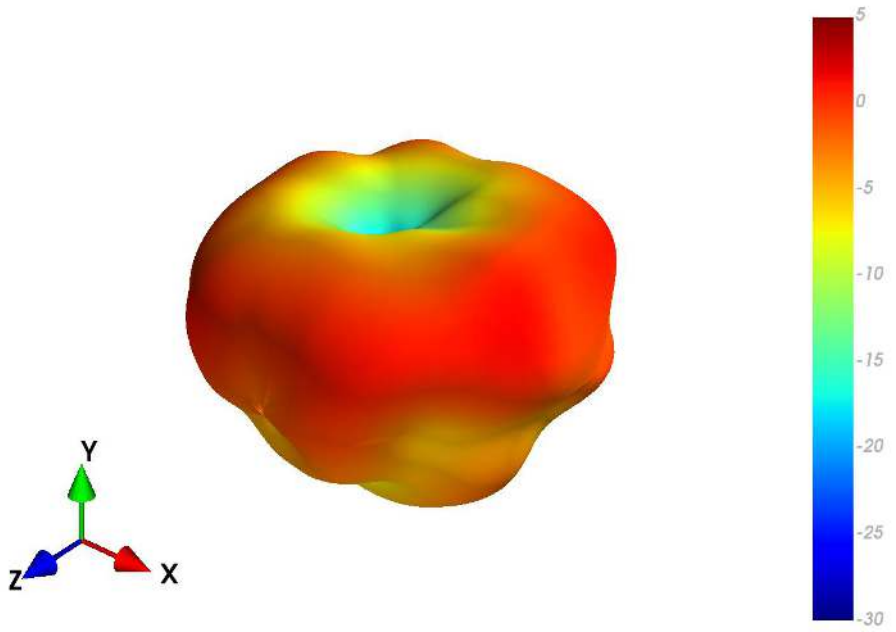
1805MHz



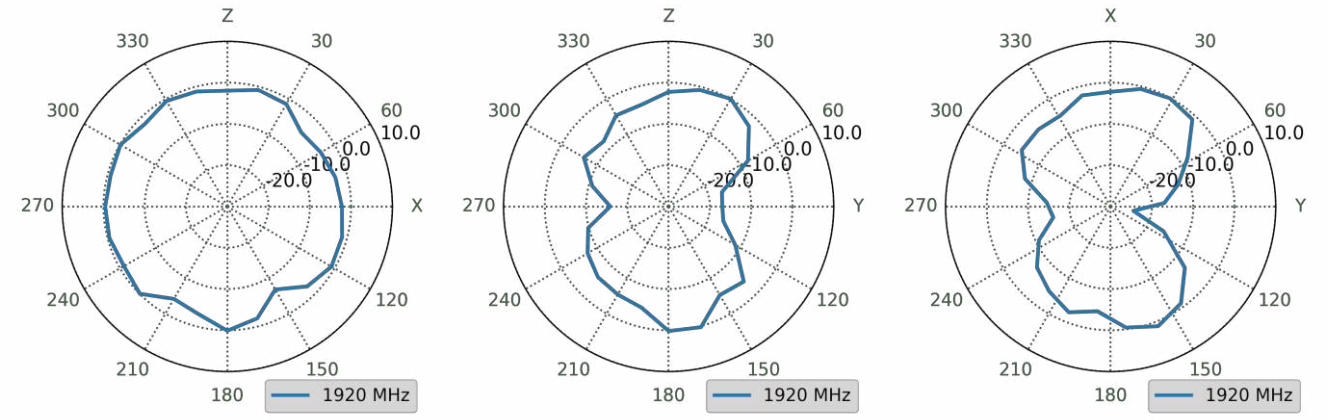
XZ Plane	YZ Plane	XY Plane



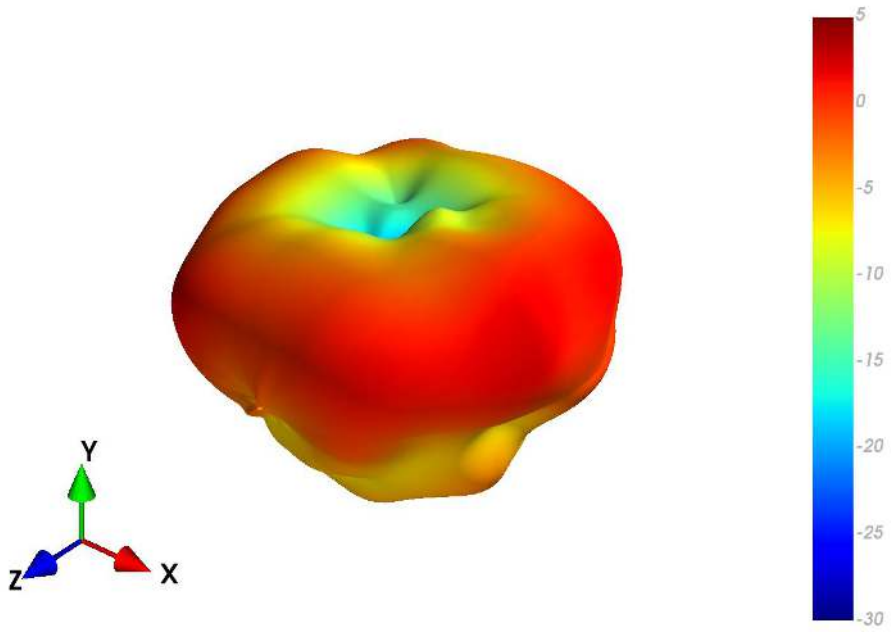
1920MHz



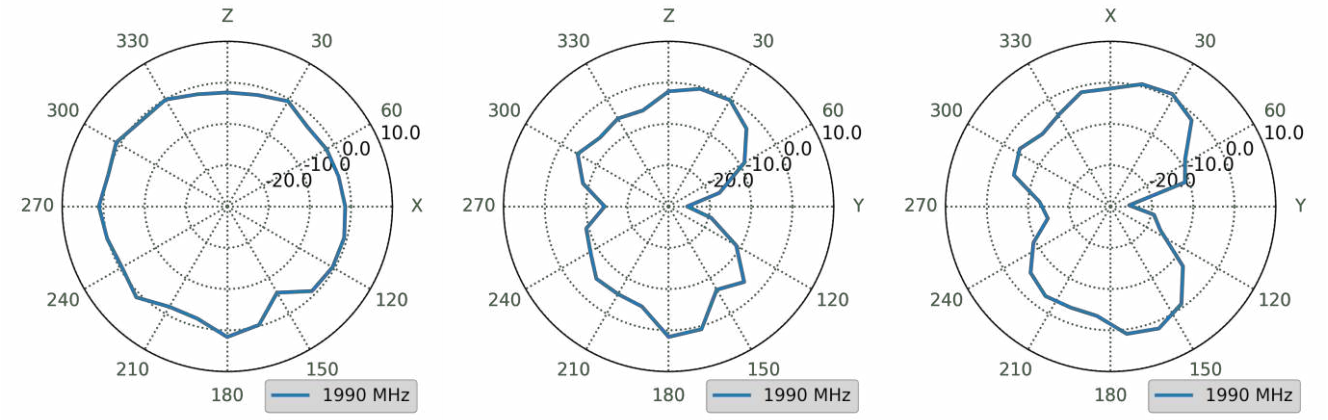
XZ Plane	YZ Plane	XY Plane



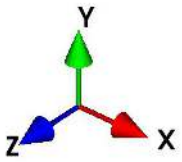
1990MHz

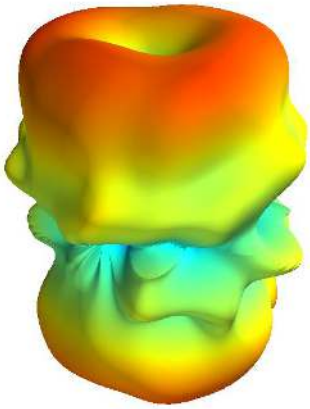


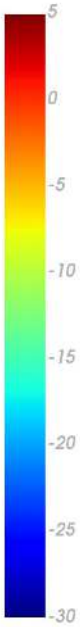
XZ Plane	YZ Plane	XY Plane



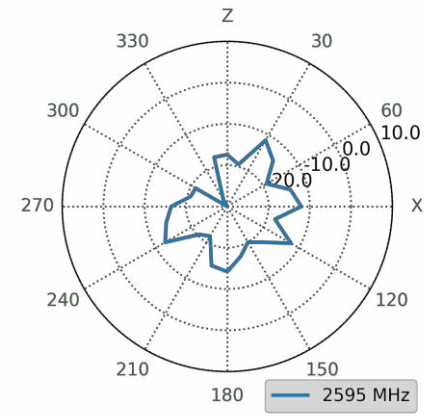
2595MHz

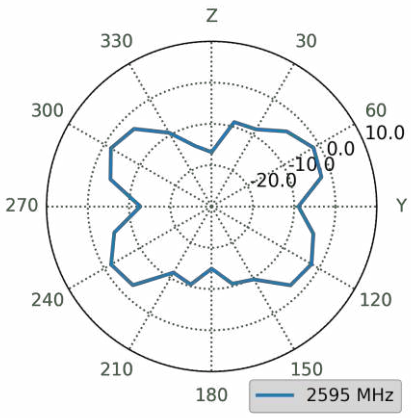


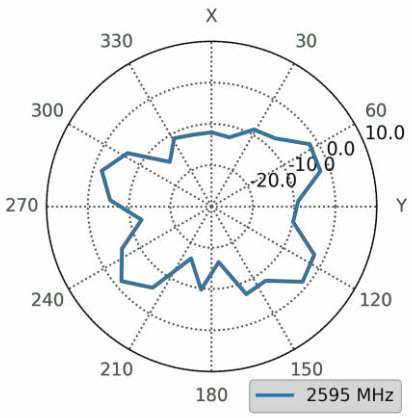




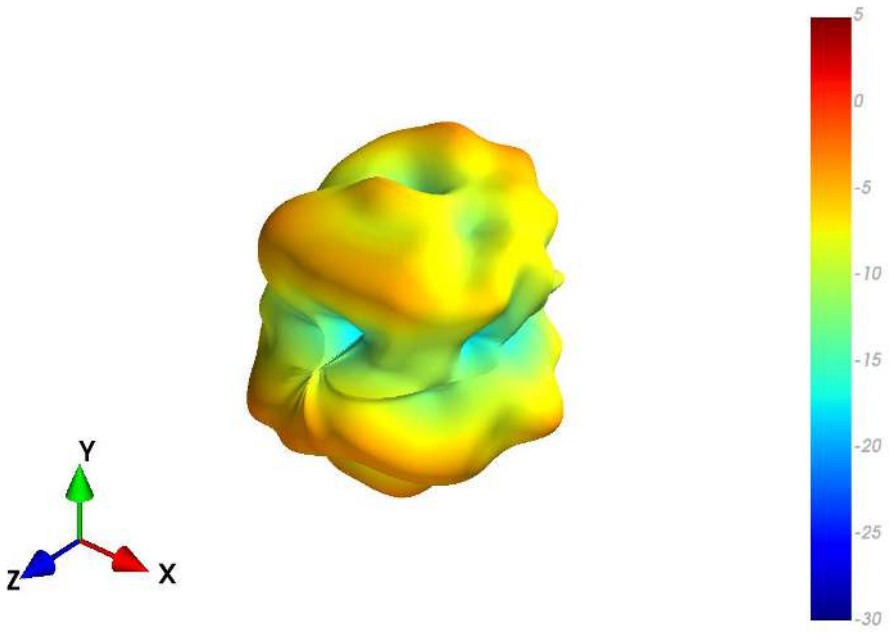
XZ Plane	YZ Plane	XY Plane



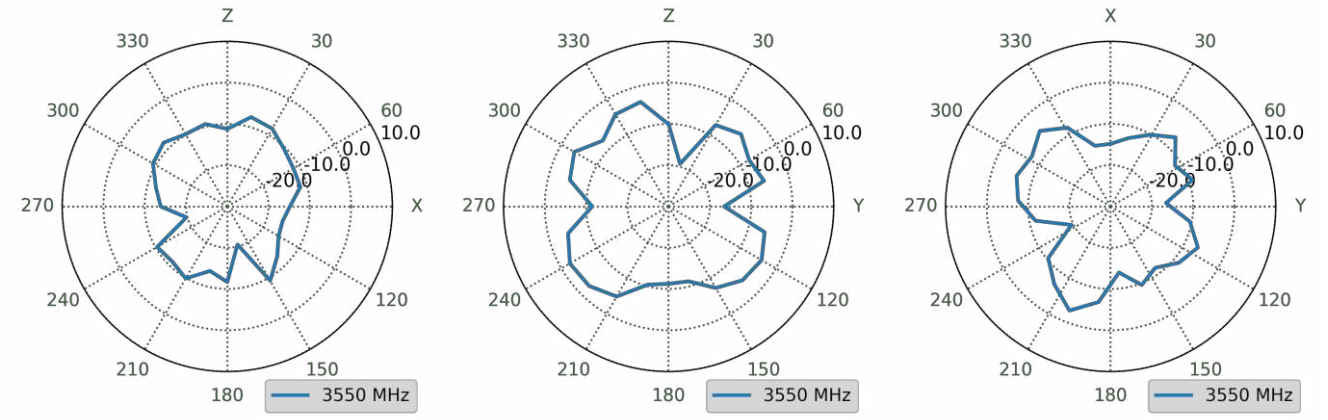




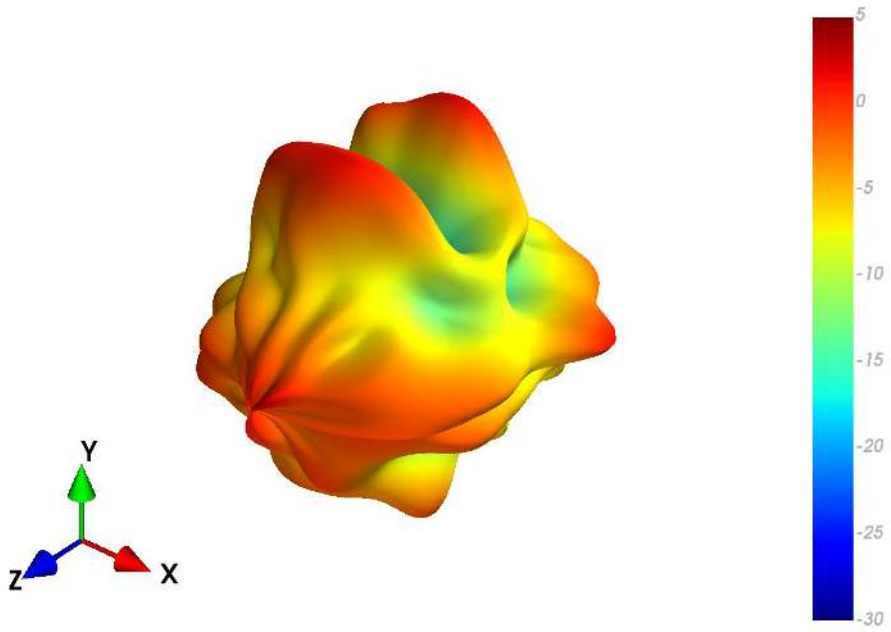
3550MHz



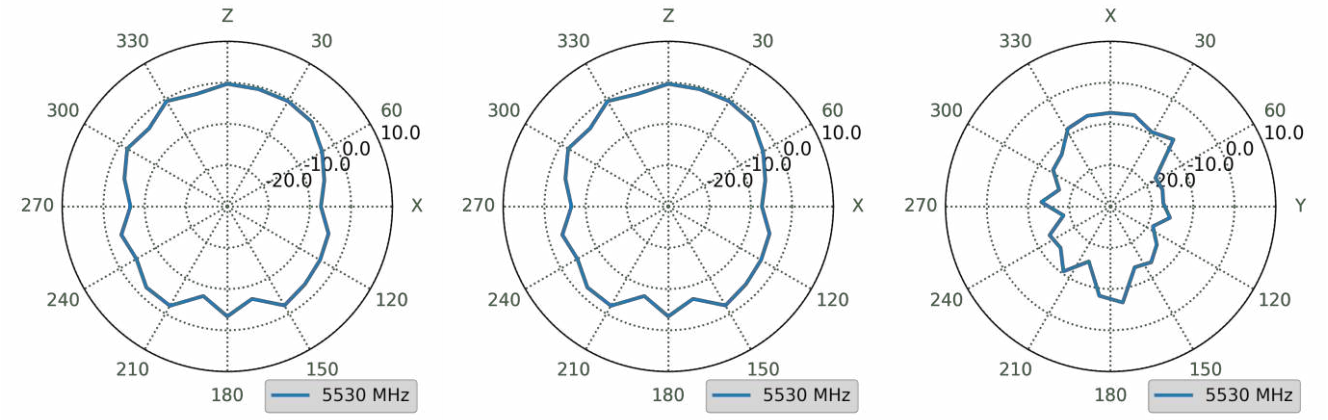
XZ Plane	YZ Plane	XY Plane



5530MHz



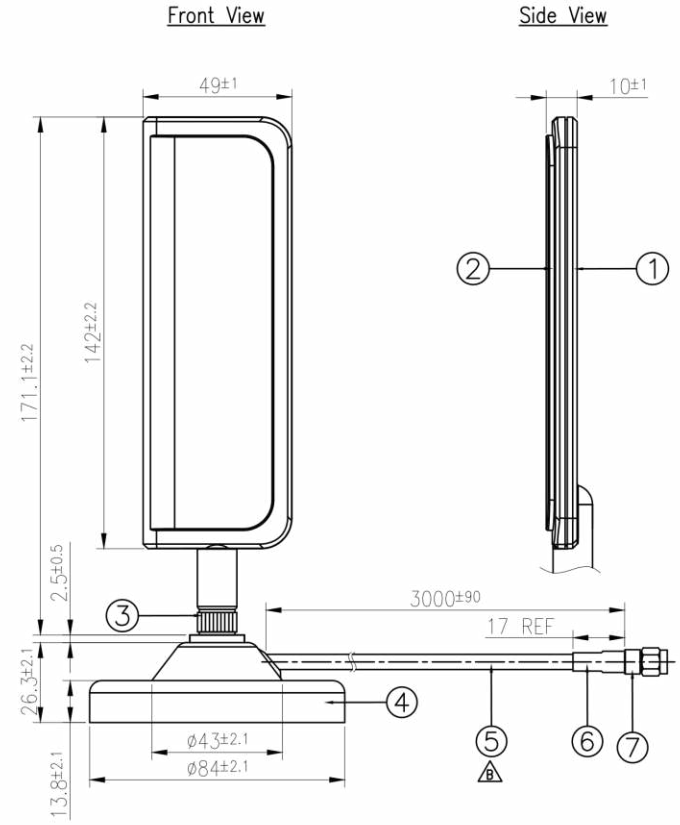
XZ Plane	YZ Plane	XY Plane



5. Mechanical Drawing (Units: mm)

REV	ZONE	DESCRIPTION	ENG	APPROVED	ISSUED DATE
A	ALL	Initial Design	Eva	Paul	2018/10/31
B	ALL	Substitute TGC200 for CFD200 <ECR-19-8-111>	Karry	Aaron	2022/10/28

ISO NO: EDW-18-8-1405 <Release>



NOTES:
1. All material must be RoHS compliant.
2. Open/short, insertion loss QC required.
3. The connectors have a fixed orientation to each other.

	Name	P/N	Material	Finish	QTY
1	Housing_Bottom_ST_B	000112E050020A	ABS	Black	1
2	Housing_Top_B	000112E000020A	ABS	Black	1
3	SMA(M)ST	210212G010002A	Brass	Black	1
4	SMA(F)Magnet Mount	211513E000002A	ASA	Black	1
5	TGC-200 Coaxial Cable	306718E000000A	PE	Black	1
6	Heat Shrink Tube	001315C030000A	PE	Black	1
7	SMA(M)ST	200212G020002A	Brass	Au Plated	1

UNLESS OTHERWISE SPECFIED TOLERANCES ON: .X± 0.2 XX.± 0.5 .XX± 0.1 X.± 0.3 .XXX± 0.05

DATE: 2018/10/31 | MAT'L:

UNIT: mm | FINISH:

THIRD ANGLE PROJECTION | SCALE: 1/2

APPROVED BY:	CHECKED BY:	DRAWN BY:	CUSTOMERS SIGNATURE / DATE
Paul	Paul	Eva	

TAOGLAS. TW Design Centre

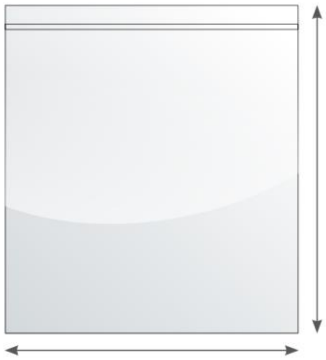
REV B

TITLE. : Apex Magforce TG.30.8111 2G/3G/4G Terminal Antenna on Magnetic Base 3M TGC-200 SMA(M)

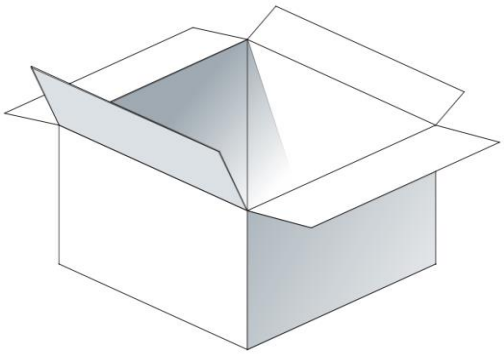
PART NO. : MB.TG30.A.305111

6. Packaging

MB.TG30.A.305111
1 pcs / Small PE Bag



MB.TG30.A.305111 - 18 PCS / Carton
Dimension: 430x380x280mm



Changelog for the datasheet

SPE-14-8-086 - MB.TG30.A.305111

Revision: C (Current Version)	
Date:	2022-12-19
Changes:	Updated specifications
Changes Made by:	Cesar Sousa

Previous Revisions

Revision: B	
Date:	2017-04-04
Changes:	
Changes Made by:	Technical Writer

Revision: A (Original First Release)	
Date:	2014-08-14
Notes:	
Author:	Technical Writer

TAOGLAS®

www.taoglas.com