TAOGLAS

Datasheet

Shockwave

Part No:
TLS.01.305111

Description:

Shockwave 600-6000MHz Permanent Mount External Antenna with 3m TGC-200 SMA(M)

Features:

Applicable for 5G/4G, Cat M1 & NB-IoT bands

Over 45% efficiency and 2.2 dBi gain

Mechanically robust for indoor/outdoor applications

Height: 79.45mm (3.13"); Diameter: 42mm (1.65")

IP67 Waterproof

IK10 Rated Enclosure

Cable: Low loss TGC-200 cable, 3 meters

Connector: SMA(M)

RoHS & Reach Compliant

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Ireland & USA ISO 9001:2015 Certified

Taiwan ISO 9001:2015 Certified

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1. Introduction

The Shockwave TLS.01.305111 is a permanent mount, waterproof, external 5G/4G cellular wideband antenna operating at 600-6000MHz with an SMA male connector. It has been designed to be used on a Ground Plane. It can be used in mobile and fixed applications for 5G/4G wireless such as:

- Public safety
- HD Video Streaming
- Utilities and Smart Cities
- Fleet Management
- Agricultural
- Industrial

This antenna has superior performance over wide-bands compared to traditional whip antennas. Up to 77% efficiency and with a minimum 2.2dBi peak gain over all cellular bands result when mounted on a 30x30 cm ground plane. Stable radiation patterns over low angles provides consistent gain in the horizontal plane, meaning that it is especially suitable for cellular applications.

A unique indent tab on the base of the antenna allows a wrench to be used to solidly lock the antenna on top of its mounting location while tightening up the nut beneath the metal panel. Waterproof O-rings around the bottom base prevent water from leaking under the antenna.

The TLS.01 antenna is IP67 waterproof against short periods of immersion in water jets in commercial cleaning environments, which makes the antenna ideal for 5G/4G applications either in indoor or in harsh outdoor environments. For more information contact your regional Taoglas customer support team.

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2. Specifications

Electrical								
Band	**Frequency (MHz)**	**Efficiency (%)**	**Average Gain (dB)**	**Peak Gain (dBi)**	**Impedance**	**Max Input Power**	**Polarization**	**Radiation Pattern**
5GNR/4G Band 71	617~698	43	-3.2	-1	50 Ω	35 W	Vertical	Omni-Directional
4G/3G Band 12,13,14,17,28,29	698~806	57.7	-0.2	3.1				
4G/3G/NB-IoT/Cat M Band 5,8,18,19,20,26,27	824~960	71.4	-0.7	3.2				
5GNR/4G Band 21,32,74,75,76	1427~1518	56.8	-1.4	2.9				
4G/3G Band 1,2,3,4,9,23,25,35,39,66	1710~2200	45.9	-1.8	2.7				
4G/3G Band 7,38,41	2490~2690	42.9	-2	3.4				
5GNR/4G Band 22,42,48,77,78,79	3300~5000	26.8	-4.1	2.5				
LTE5200/ Wi-Fi 5800	5150~5925	8.9	-3.4	5.3				

*Measured on 30*30cm ground plane

Mechanical	
Dimension (mm)	Height: 79.45mm(3.13") ; Diameter : 42mm(1.65")
Connector	SMA(M)ST
Cable	3m TGC-200
Housing Material	UV Resistant ABS
Base Material	Nickel Plated Zinc Alloy
Weight (g)	270
Rec. Torque for Mounting	4.018 N·m
Max. Torque for Mounting	9.8 N·m
Environmental	
Waterproof Rating	IP67 enclosure
Operation Temperature	-40°C to 85°C
Humidity	Non-condensing 65°C 95% RH
Impact Rating	IK10

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5G/4G Bands			
Band Number	5GNR / FR1 / LTE / LTE-Advanced / WCDMA / HSPA / HSPA+ / TD-SCDMA / Cat M / NB-IoT		
	Uplink	**Downlink**	**Covered**
1	UL: 1920 to 1980	DL: 2110 to 2170	✓
2	UL: 1850 to 1910	DL: 1930 to 1990	✓
3	UL: 1710 to 1785	DL: 1805 to 1880	✓
4	UL: 1710 to 1755	DL: 2110 to 2155	✓
5	UL: 824 to 849	DL: 869 to 894	✓
7	UL: 2500 to 2570	DL:2620 to 2690	✓
8	UL: 880 to 915	DL: 925 to 960	✓
9	UL: 1749.9 to 1784.9	DL: 1844.9 to 1879.9	✓
11	UL: 1427.9 to 1447.9	DL: 1475.9 to 1495.9	✓
12	UL: 699 to 716	DL: 729 to 746	✓
13	UL: 777 to 787	DL: 746 to 756	✓
14	UL: 788 to 798	DL: 758 to 768	✓
17	UL: 704 to 716	DL: 734 to 746	✓
18	UL: 815 to 830	DL: 860 to 875	✓
19	UL: 830 to 845	DL: 875 to 890	✓
20	UL: 832 to 862	DL: 791 to 821	✓
21	UL: 1447.9 to 1462.9	DL: 1495.9 to 1510.9	✓
22	UL: 3410 to 3490	DL: 3510 to 3590	✓
23	UL:2000 to 2020	DL: 2180 to 2200	✓
24	UL:1625.5 to 1660.5	DL: 1525 to 1559	✓
25	UL: 1850 to 1915	DL: 1930 to 1995	✓
26	UL: 814 to 849	DL: 859 to 894	✓
27	UL: 807 to 824	DL: 852 to 869	✓
28	UL: 703 to 748	DL: 758 to 803	✓
29	UL: -	DL: 717 to 728	✓
30	UL: 2305 to 2315	DL: 2350 to 2360	✓
31	UL: 452.5 to 457.5	DL: 462.5 to 467.5	✗
32	UL: -	DL: 1452 – 1496	✓
35	1850 to 1910		✓
38	2570 to 2620		✓
39	1880 to 1920		✓
40	2300 to 2400		✓
41	2496 to 2690		✓
42	3400 to 3600		✓
43	3600 to 3800		✓
48	3550 to 3700		✓
66	UL: 1710-1780	DL: 2110-2200	✓
71	617 to 698		✓
74/75/76	1427 to 1518		✓
77	3300 to 4200		✓
78	3300 to 3800		✓
79	4400 to 5000		✓

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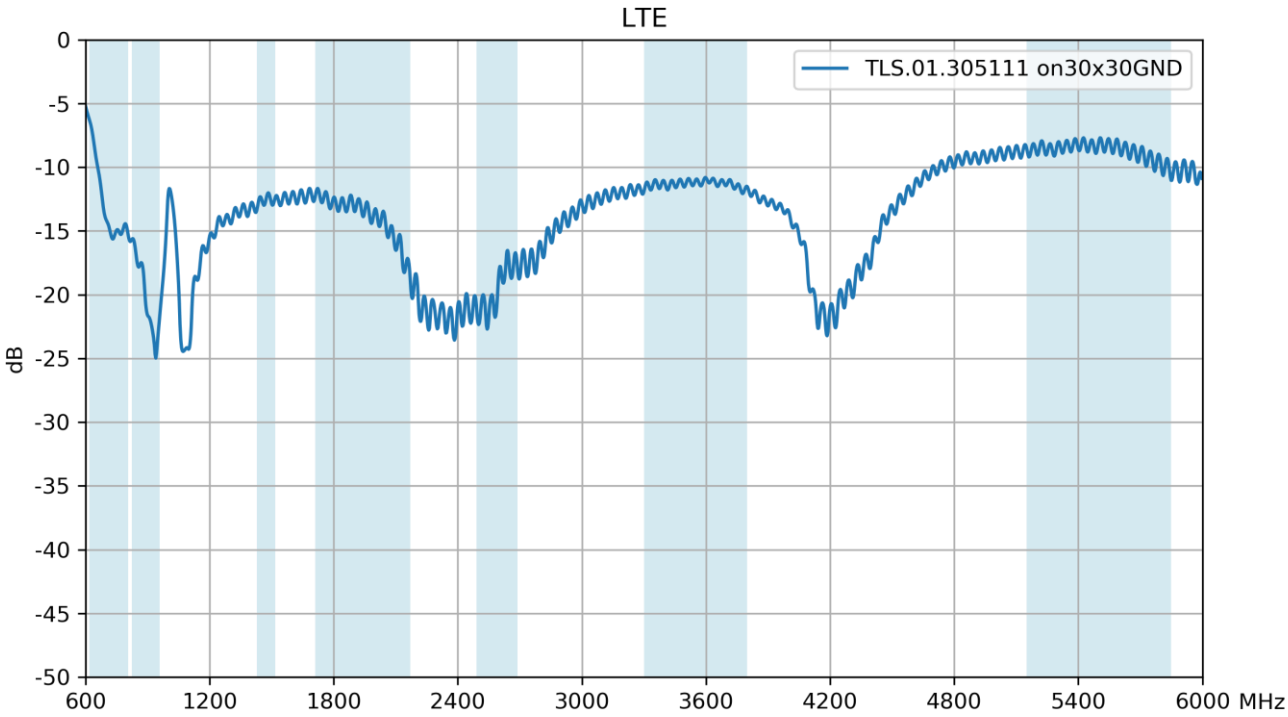
3. Antenna Characteristics

3.1 Return Loss



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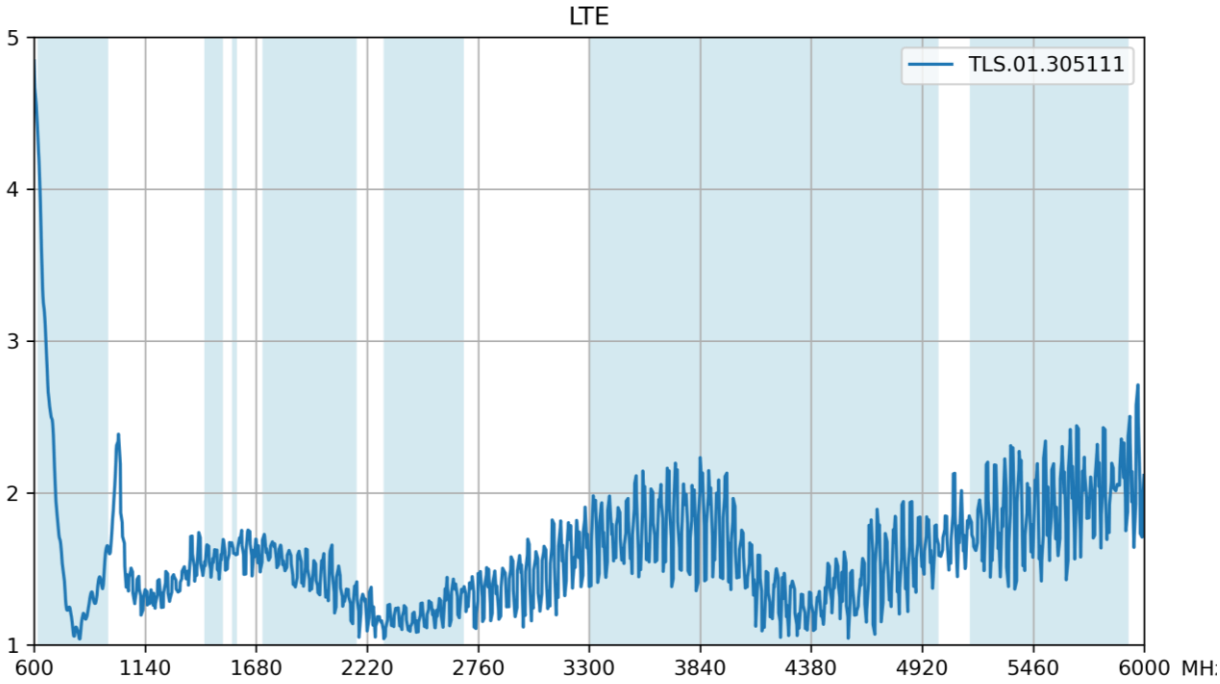

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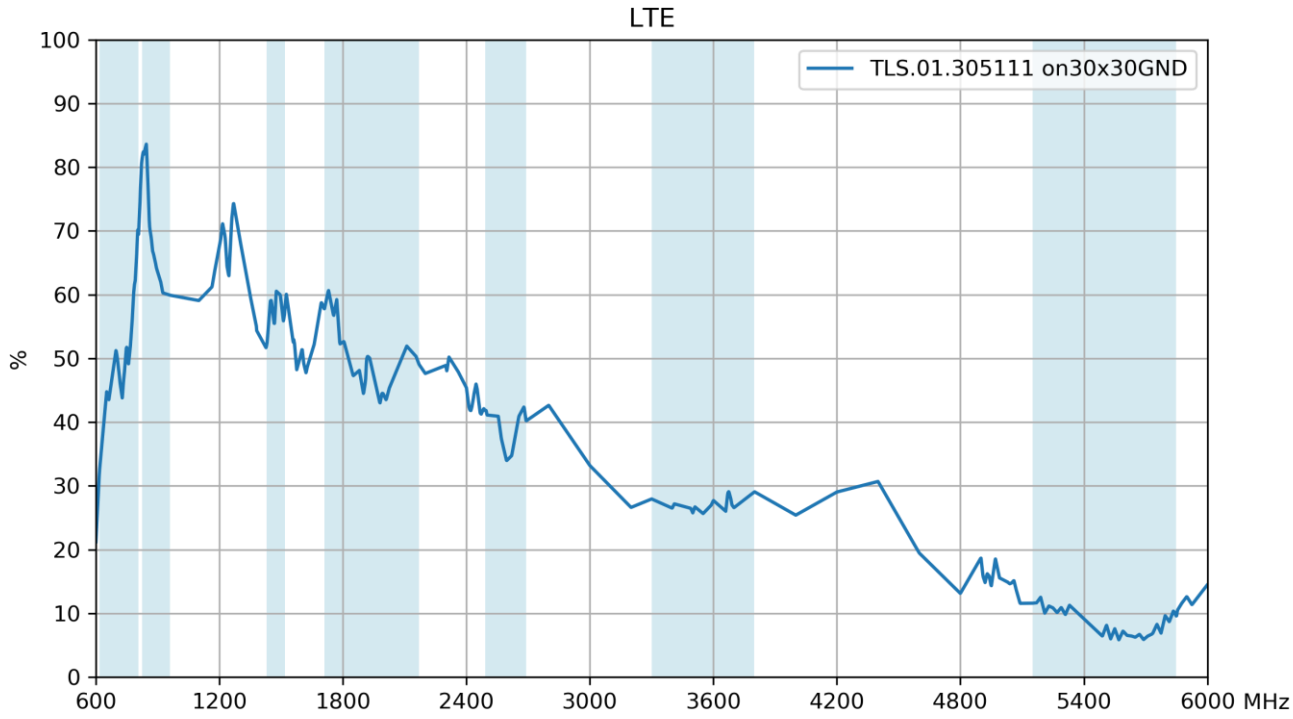

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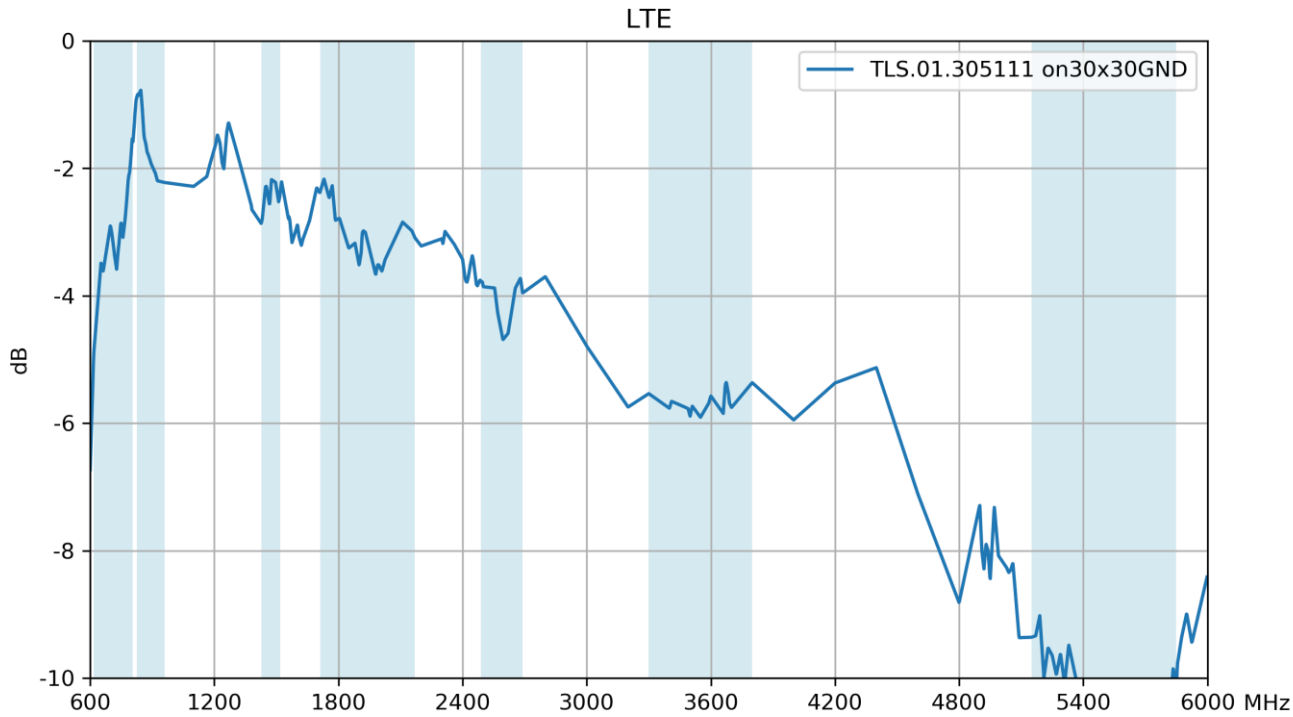

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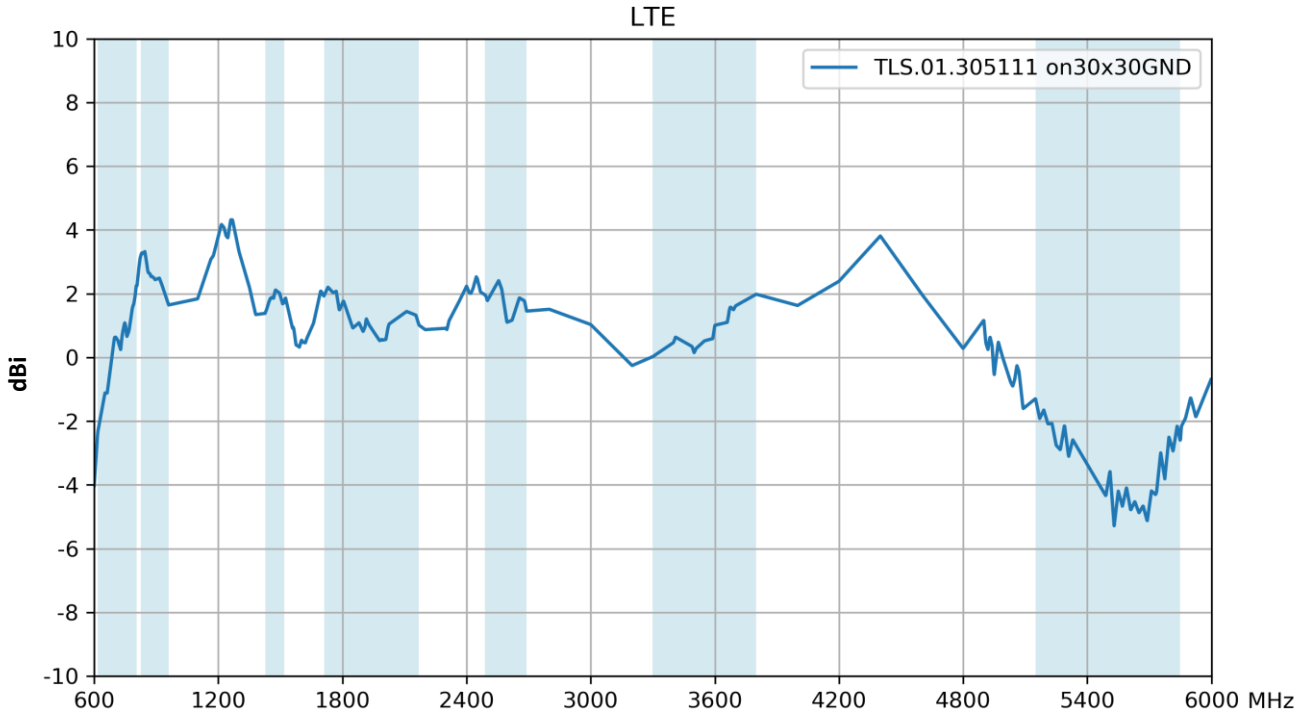

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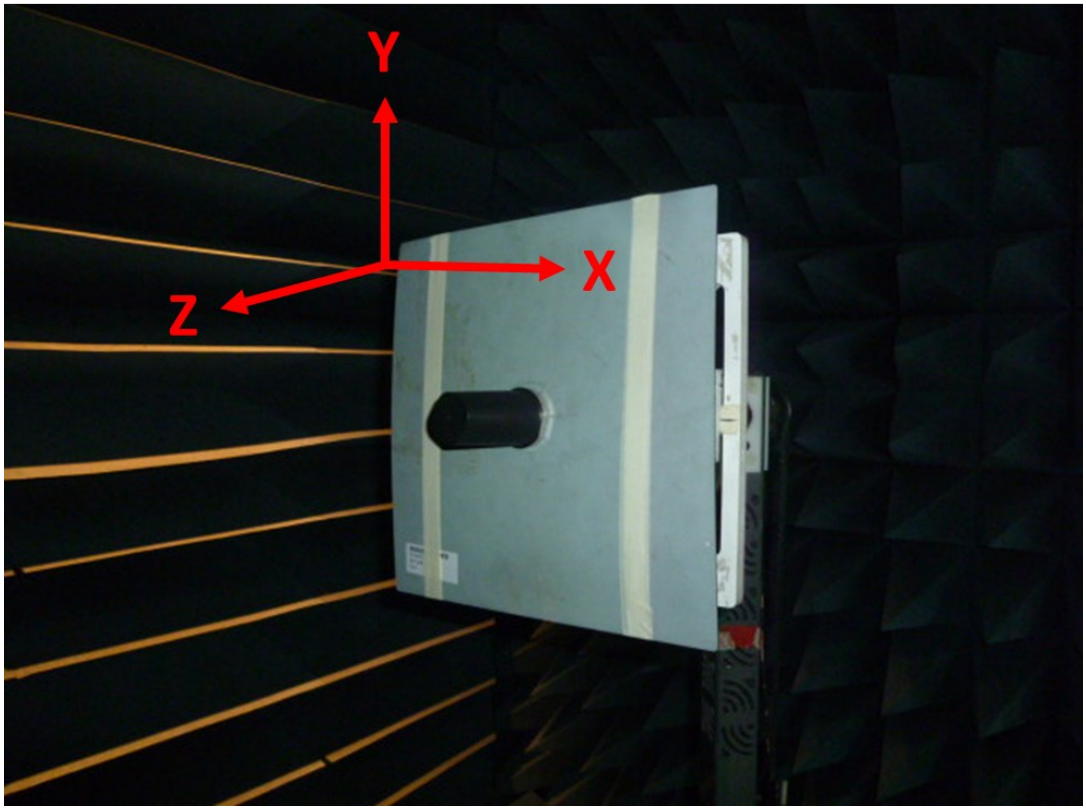
4. Radiation Patterns

4.1 Test Setup



30*30cm Ground Plane

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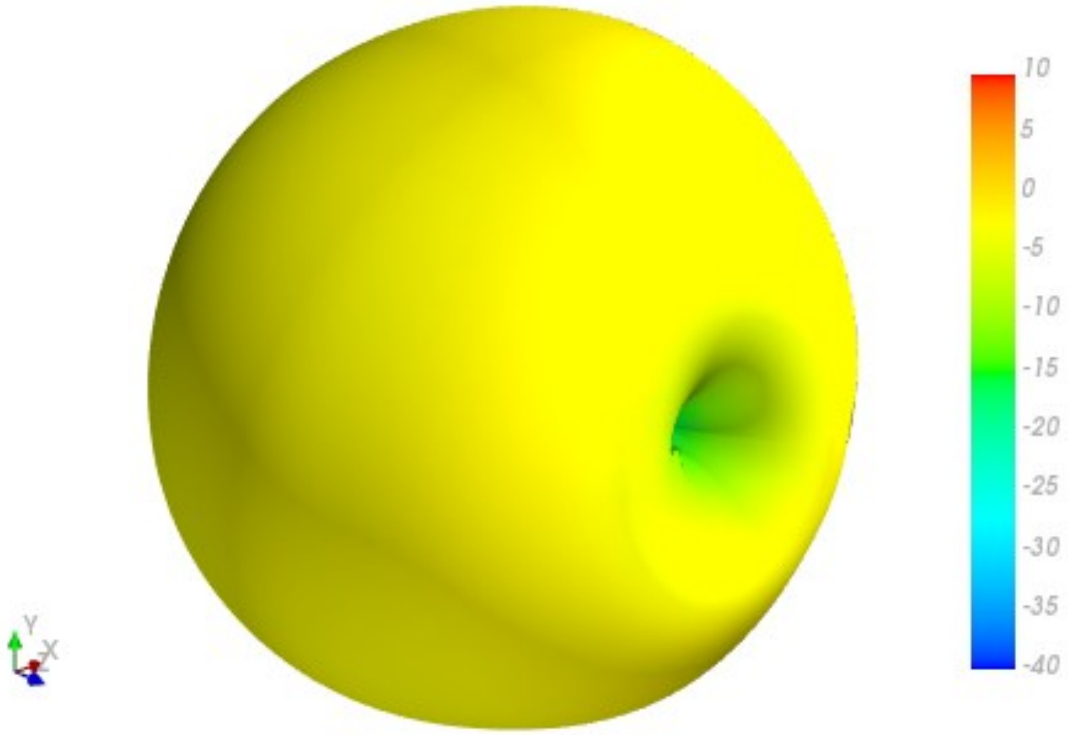
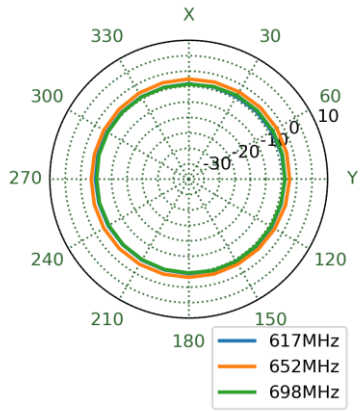
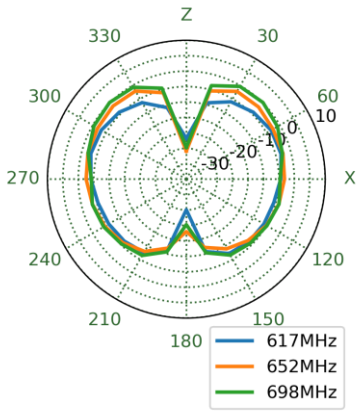
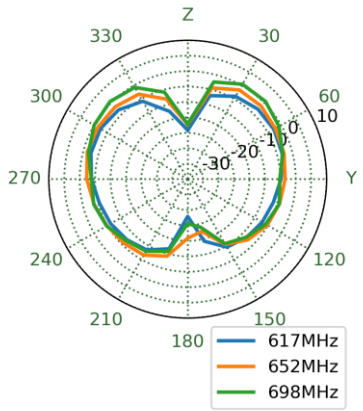
4.2 652MHz 3D and 2D Radiation Patterns



XY Plane	XZ Plane	YZ Plane







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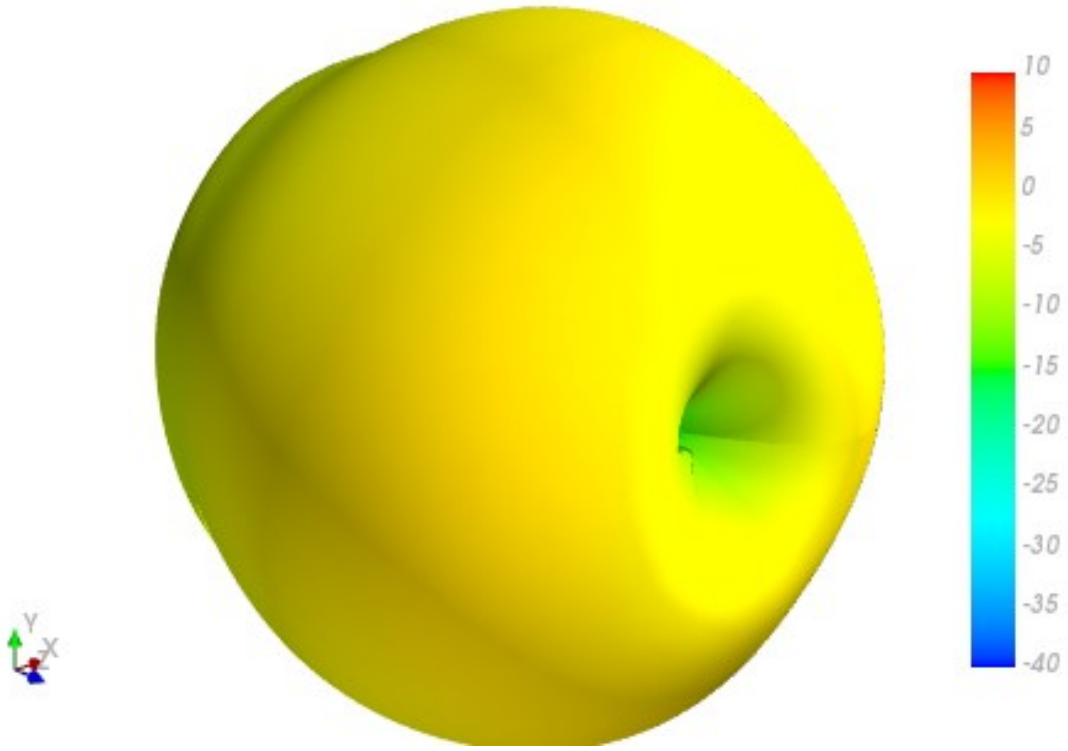
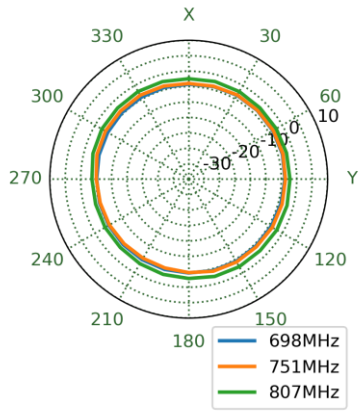
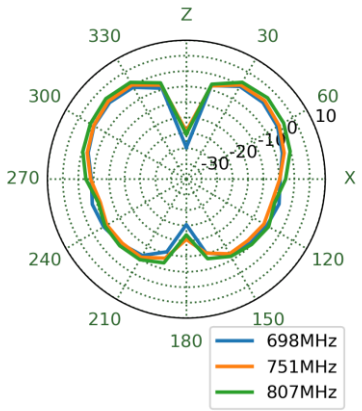
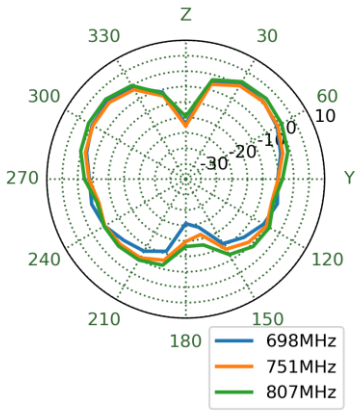
4.3 751MHz 3D and 2D Radiation Patterns



XY Plane	XZ Plane	YZ Plane







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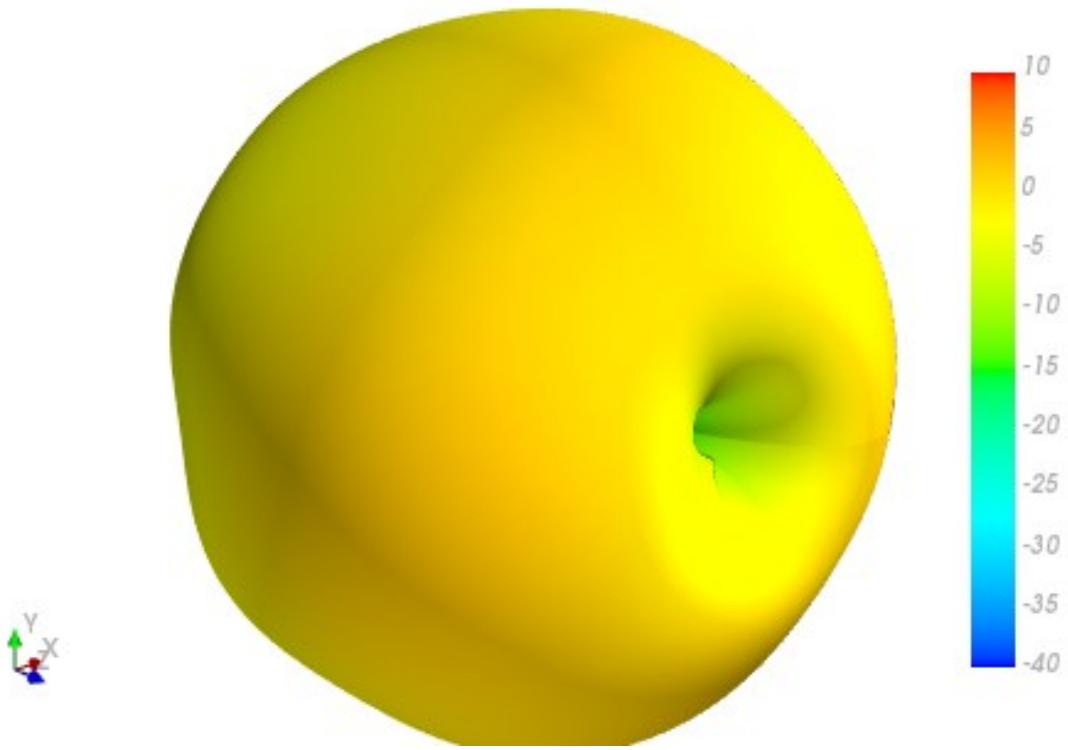
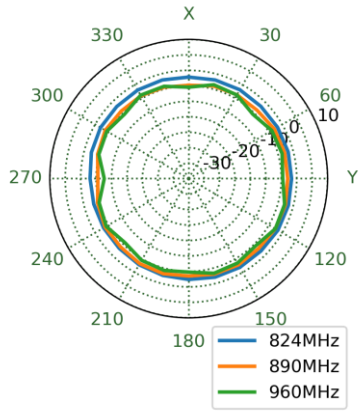
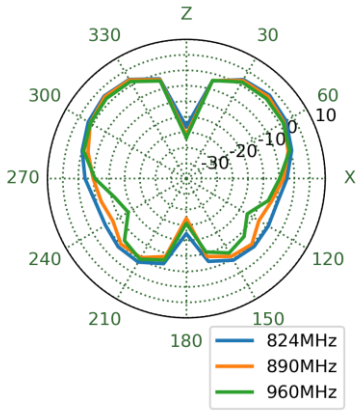
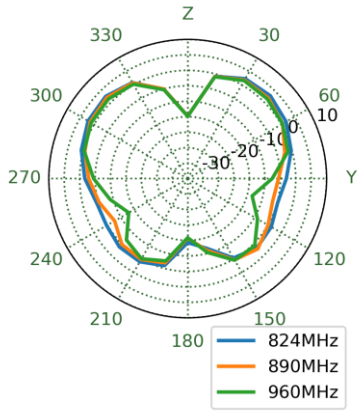
4.4 890MHz 3D and 2D Radiation Patterns



XY Plane	XZ Plane	YZ Plane







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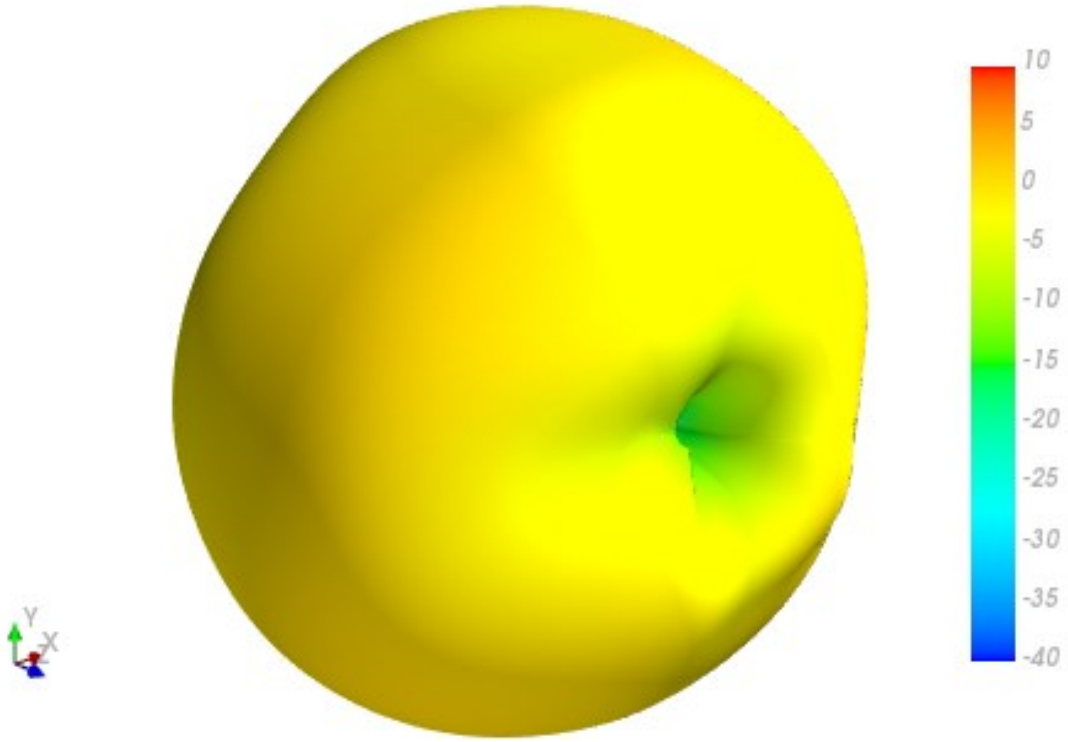
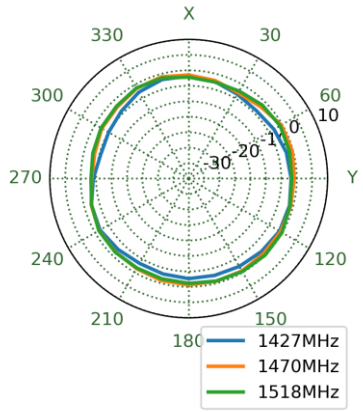
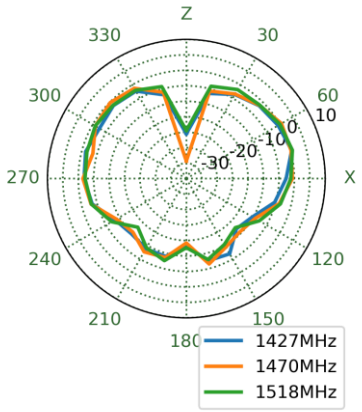
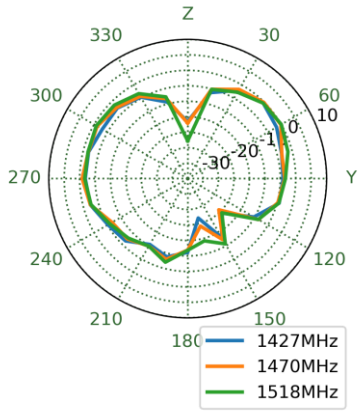
4.5 1470MHz 3D and 2D Radiation Patterns



XY Plane	XZ Plane	YZ Plane







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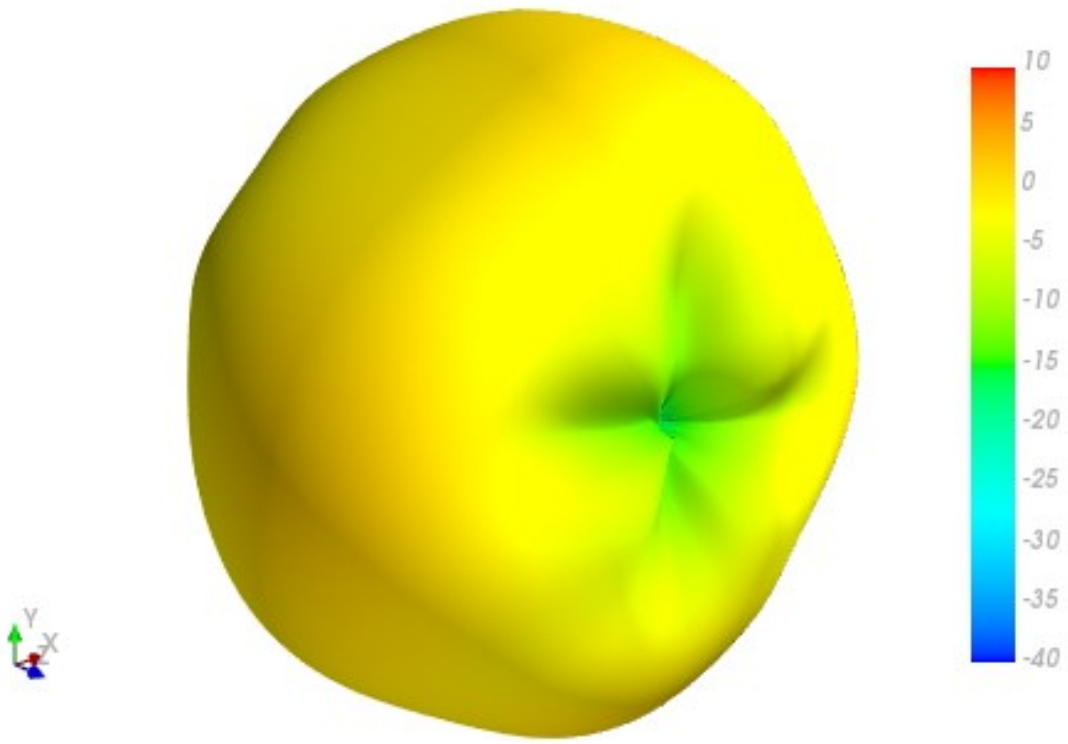
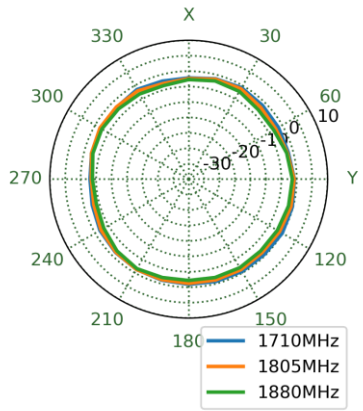
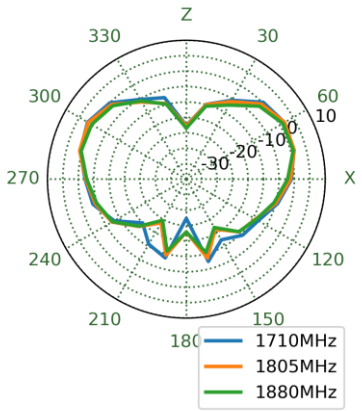
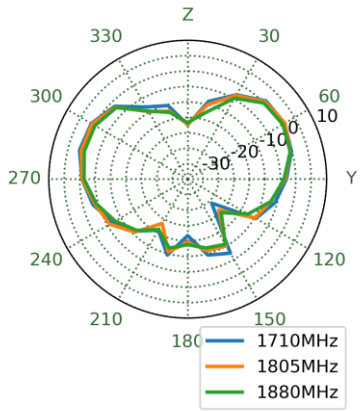
4.6 1805MHz 3D and 2D Radiation Patterns



XY Plane	XZ Plane	YZ Plane







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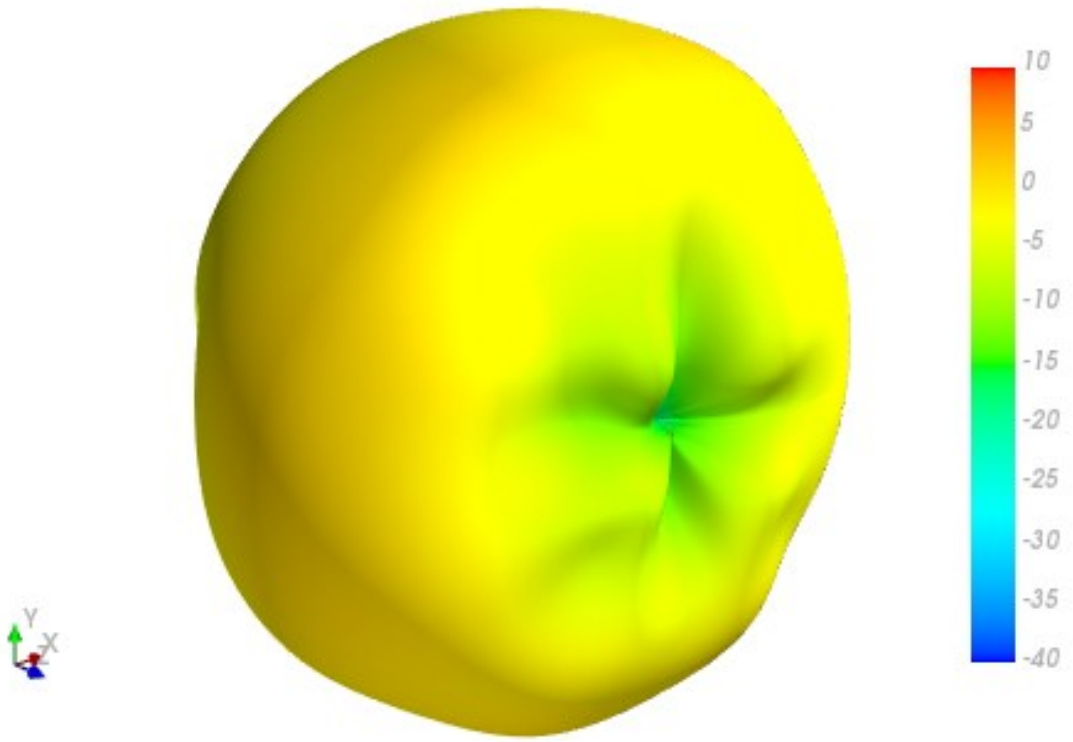
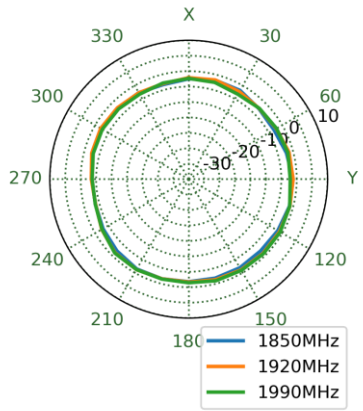
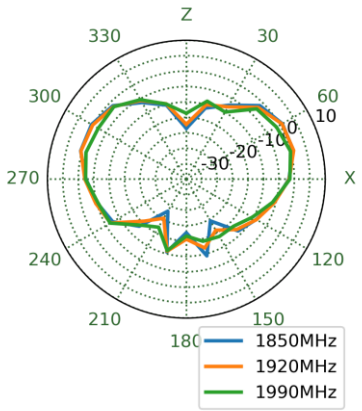
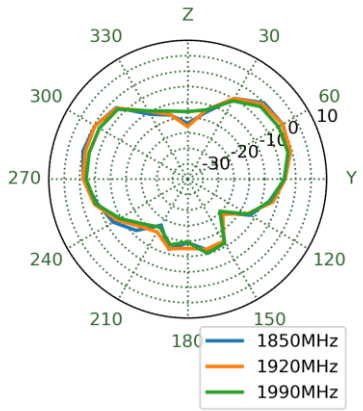
4.7 1920MHz 3D and 2D Radiation Patterns



XY Plane	XZ Plane	YZ Plane







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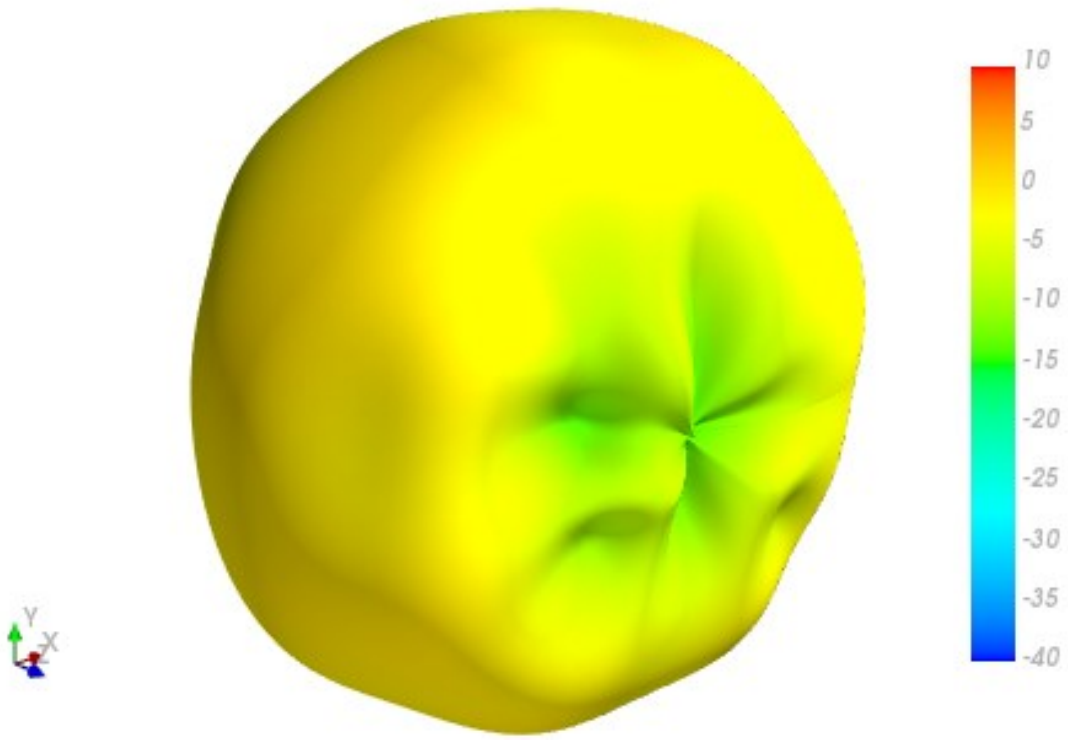
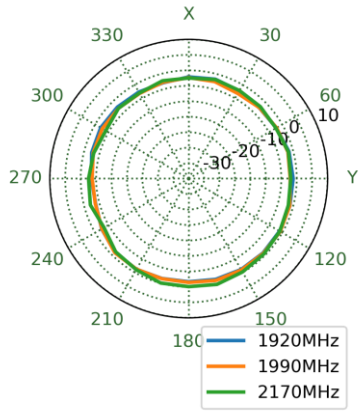
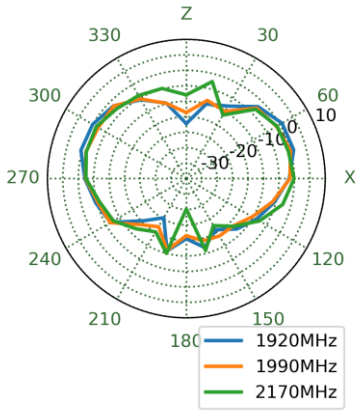
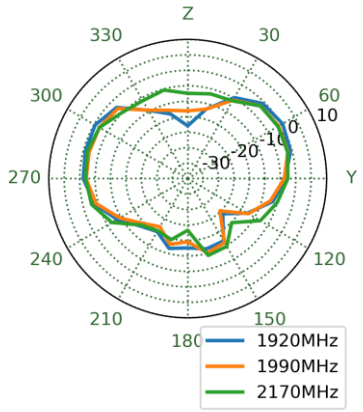
4.8 1990MHz 3D and 2D Radiation Patterns



XY Plane	XZ Plane	YZ Plane







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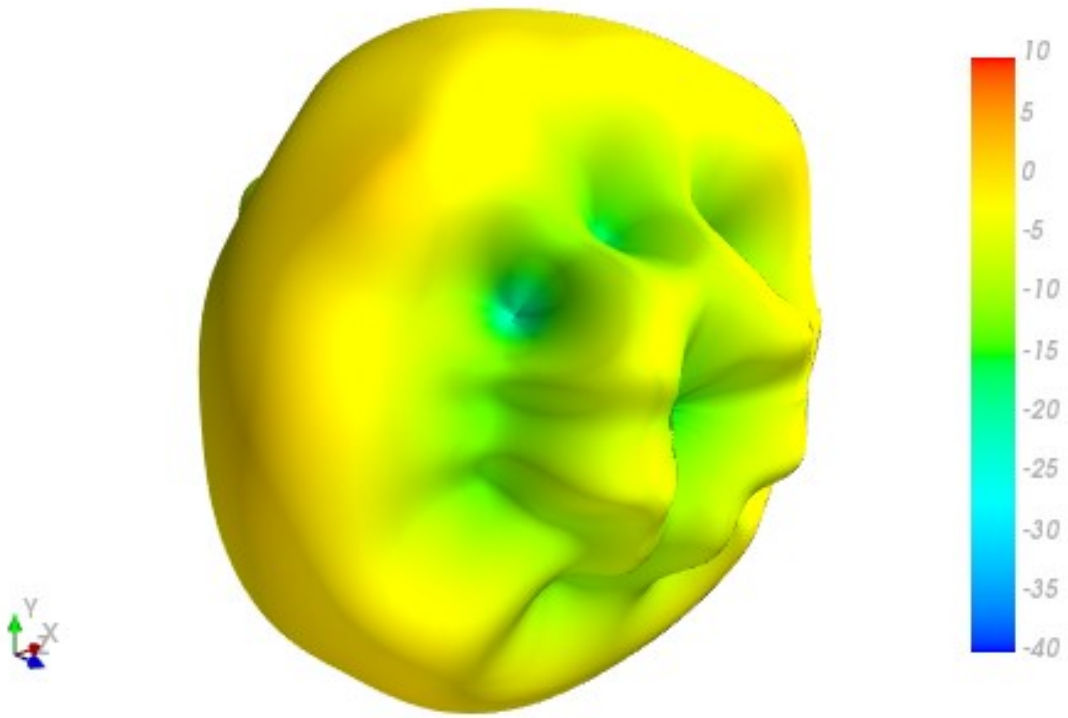
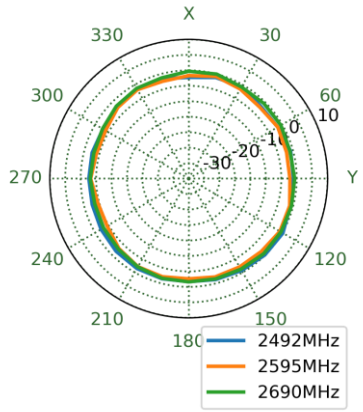
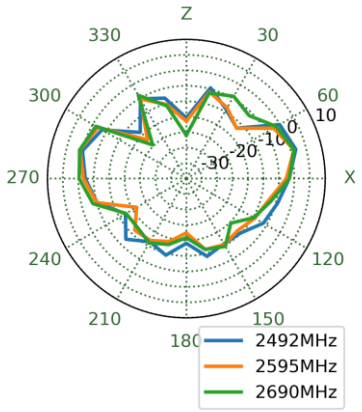
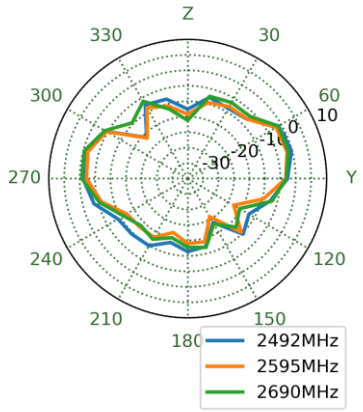
4.9 2595MHz 3D and 2D Radiation Patterns



XY Plane	XZ Plane	YZ Plane







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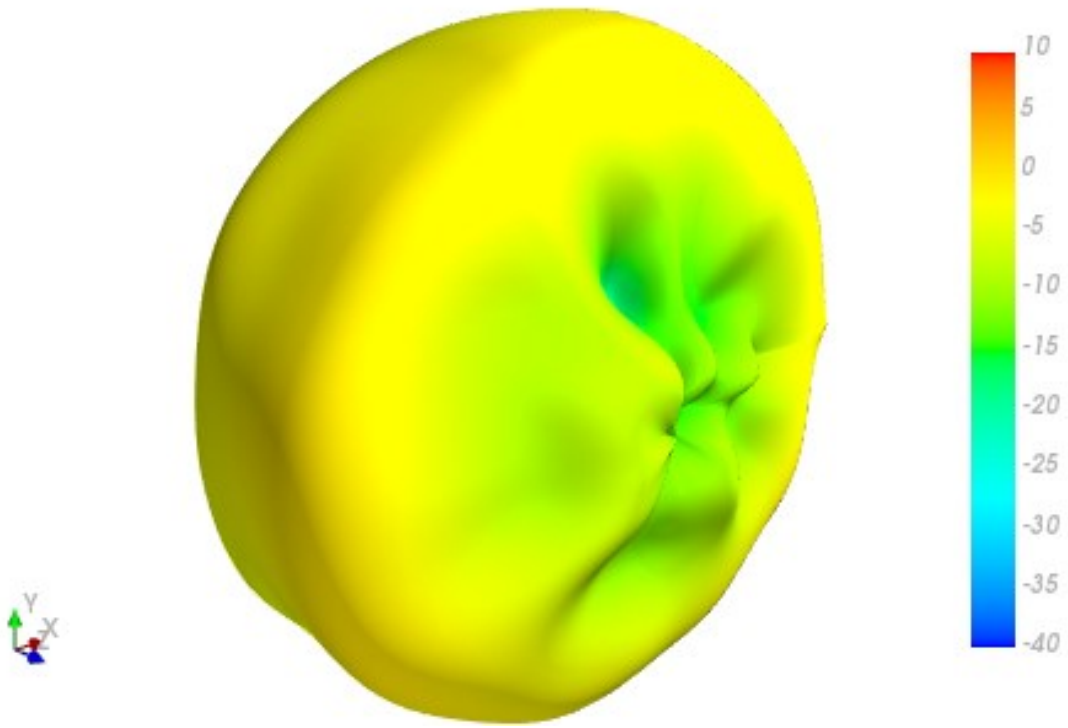
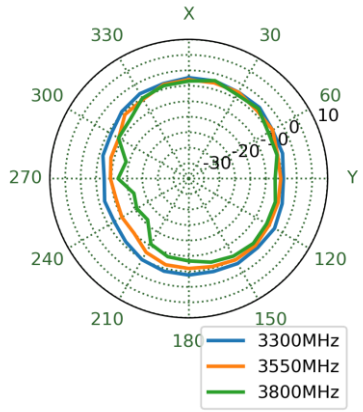
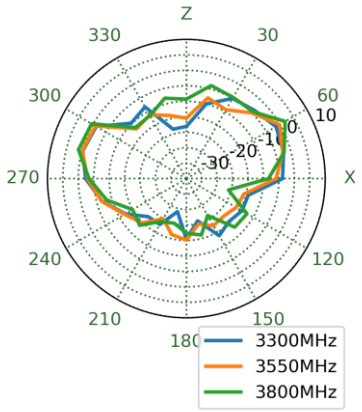
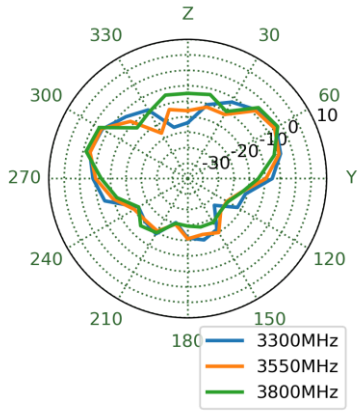
4.10 3550MHz 3D and 2D Radiation Patterns



XY Plane	XZ Plane	YZ Plane







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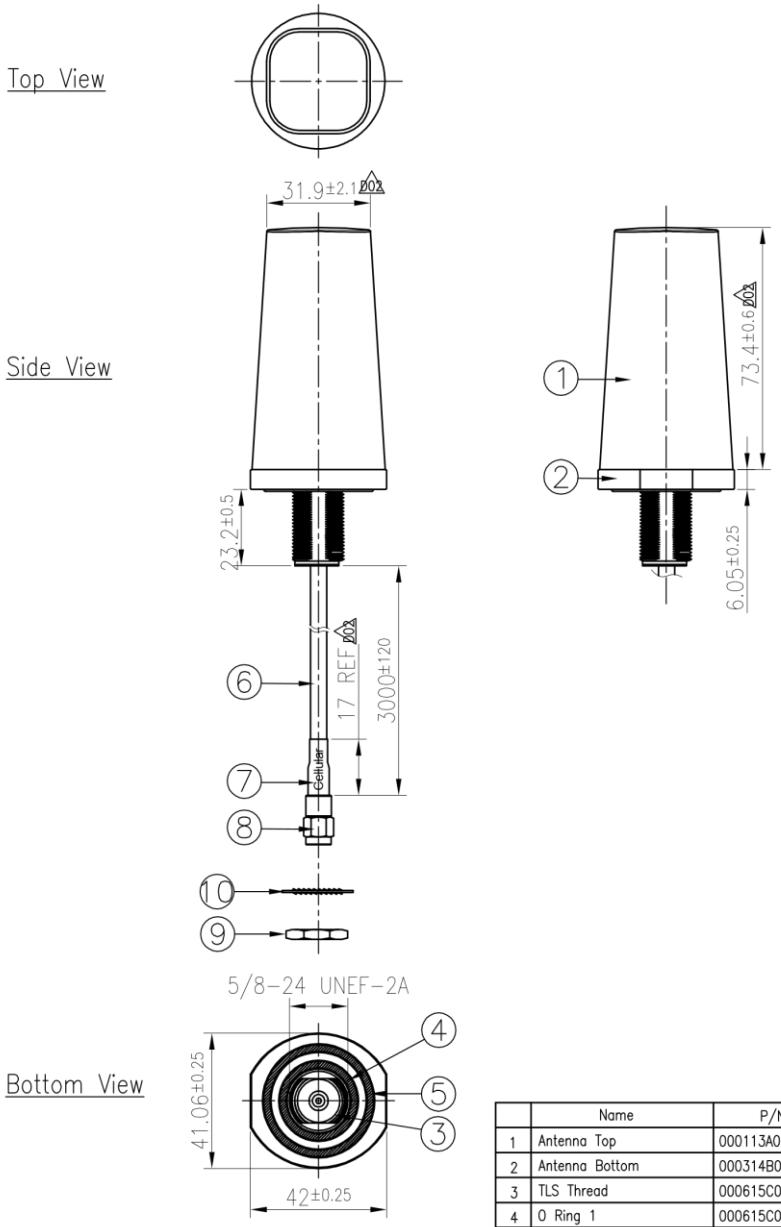
5. Mechanical Drawing (Units: mm)

ISO NO: EDW-15-8-xxxx

<Release>

REV	ZONE	DESCRIPTION	ENG	APPROVED	ISSUED DATE
D01	ALL	Initial Design	Haley	Wayne	2015/03/10
D02	ALL	Amend Label to Printing Heat Shrink Tube/Add Dimension Amend Cable Material/Remove Tolerance/ Amend Tolerance	Haley	Paul	2018/06/12



	Name	P/N	Material	Finish	QTY
1	Antenna Top	000113A020020A	ABS	Black	1
2	Antenna Bottom	000314B000047A	Zinc Alloy	Ni Plated	1
3	TLS Thread	000615C000047A	Brass	Ni Plated	1
4	O Ring 1	000615C000047A	NBR	Black	1
5	O Ring 2	000615C000047A	NBR	Black	1
D02 6	CFD200 Coaxial Cable	301415C010000A	PE	Black	1
D02 7	Heat Shrink Tube(Cellular)	001316L100000A	PE	Blue Tube/White Text	1
8	SMA(M)ST	200212G020002A	Brass	Au Plated	1
9	Nut	000615C000047A	Brass	Ni Plated	1
10	Washer	000615C000047A	Brass	Ni Plated	1

NOTE:
1. All Material Must Be RoHS Compliant.

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

DATE: 2015/03/10 | MAT'L:
UNIT: mm | FINISH:
THIRD ANGLE PROJECTION | SCALE: 1/2

APPROVED BY: Wayne | CHECKED BY: Aine | DRAWN BY: Haley | CUSTOMERS SIGNATURE / DATE

taoglas antenna solutions TW Design Centre

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REV D02

TITLE. : Shockwave 698~960/1710~2700MHz Terminal Robust Antenna 3M CFD-200 SMA(M)

PART NO. : TLS.01.305111

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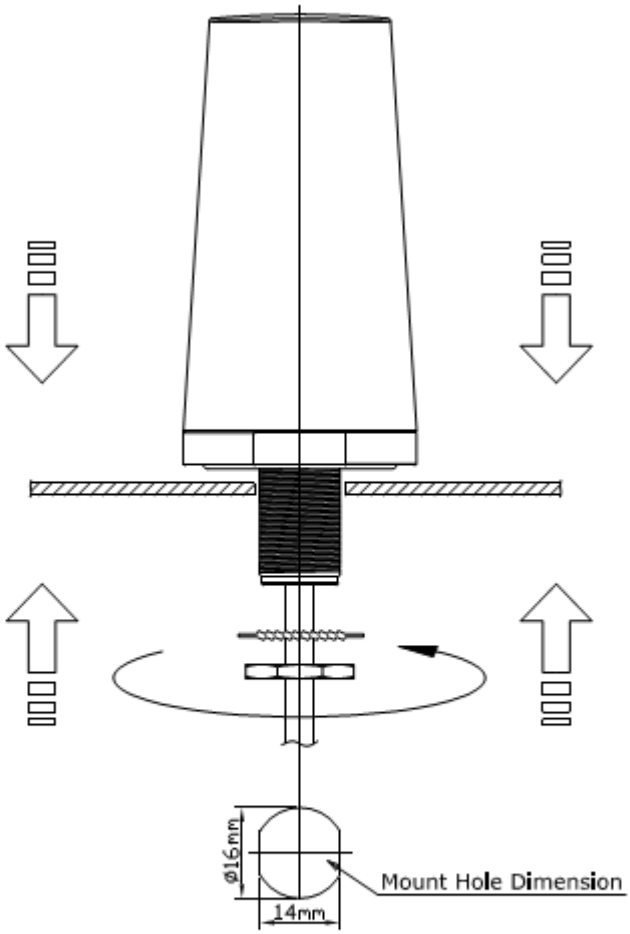
6. Installation Guidelines



Recommended torque for mounting is 4.018 N.m or 41 kgf.cm

Maximum torque for mounting is 9.8 N.m or 100 kgf.cm

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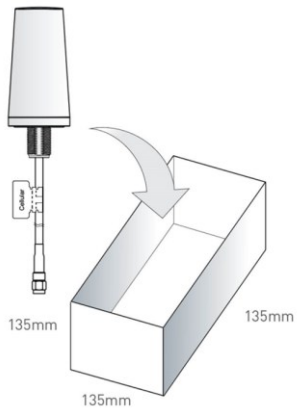
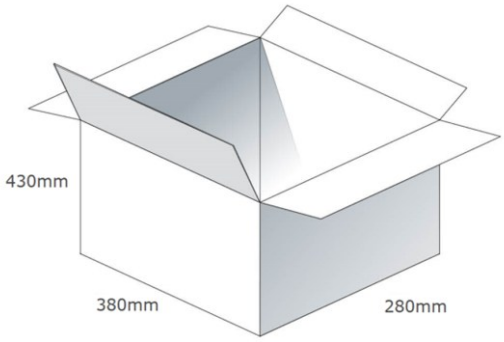
7. Packaging

1 pcs TLS.01.305111 per small box
Box dimensions – 135 x 135 x 135mm
Weight – 370g



12 pcs / Carton
Carton Dimensions – 430 x 380 x 280mm
Weight – 10.2Kg



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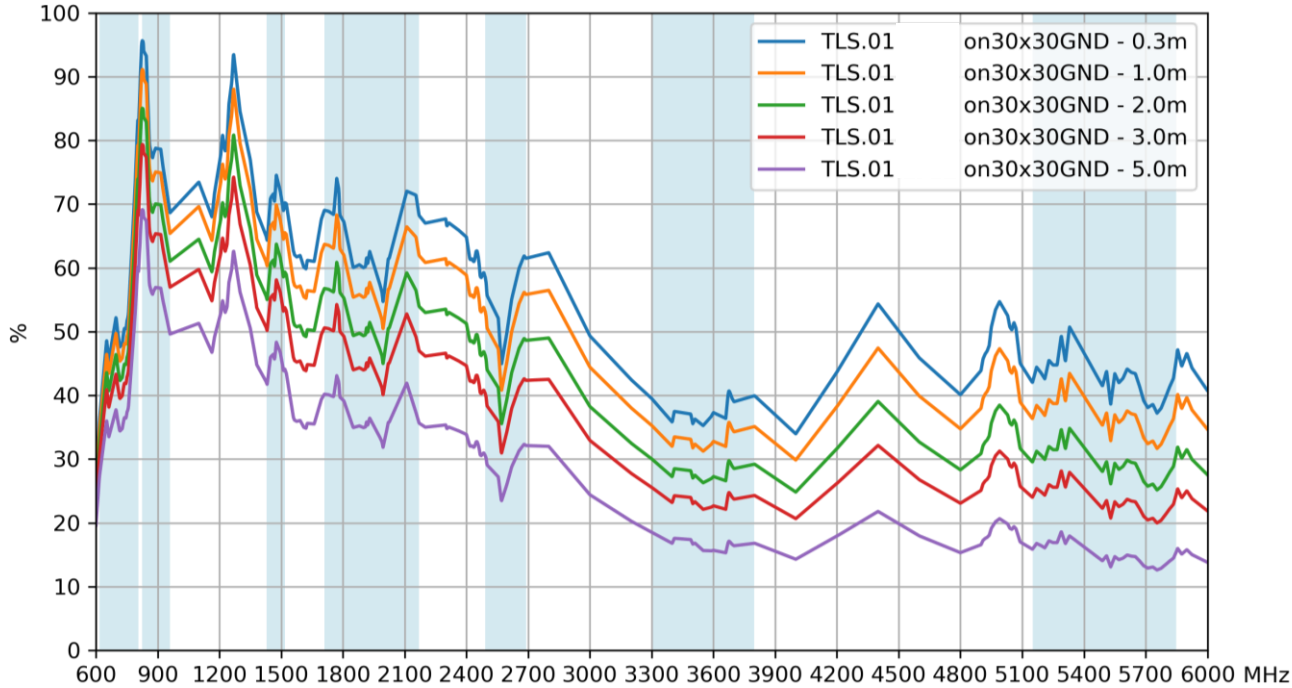
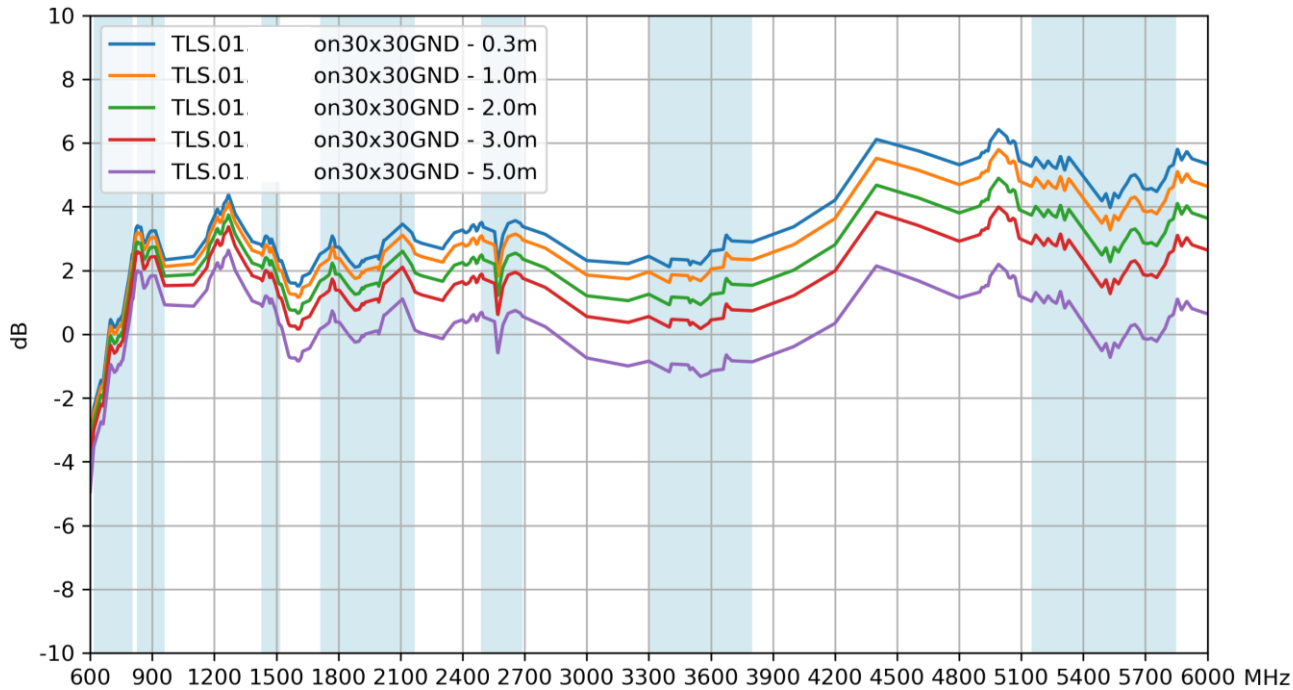
8. Application Note

8.1 Efficiency



8.2 Peak Gain



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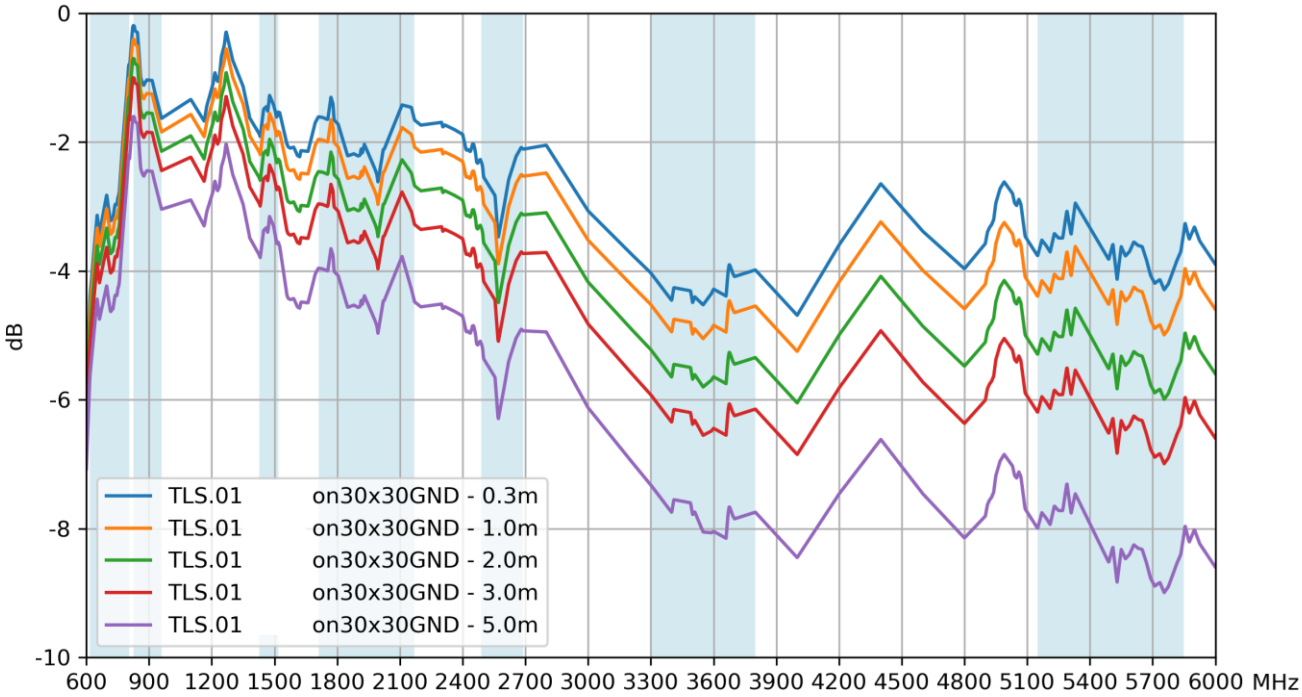
8.3 Average Gain



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Changelog for the datasheet

SPE-15-8-063 – TLS.01.305111

Revision: L (Current Version)	
Date:	2026-09-04
Changes:	Connector wording modification
Changes Made by:	Paul Liu

Previous Revisions

Revision: K	
Date:	2026-06-11
Changes:	Updated Max Input Power
Changes Made by:	Cesar Sousa

Revision: J	
Date:	2024-07-16
Changes:	Updated Packaging details
Changes Made by:	Cesar Sousa

Revision: I	
Date:	2022-08-02
Changes:	Specifications updated
Changes Made by:	Cesar Sousa

Revision: H	
Date:	2022-01-05
Changes:	Add VSWR plot
Changes Made by:	Ham Yang

Revision: G	
Date:	2019-01-21
Changes:	Updated specifications
Changes Made by:	Jack Conroy

Revision: F	
Date:	2019-01-14
Changes:	Updated drawings
Changes Made by:	Jack Conroy

Revision: E	
Date:	2019-01-14
Changes:	Updated specifications
Changes Made by:	Jack Conroy

Revision: D	
Date:	2018-11-27
Changes:	Updated specifications
Changes Made by:	Jack Conroy

Revision: C	
Date:	2017-03-30
Changes:	Updated specifications
Changes Made by:	Changes Made by:

Revision: B	
Date:	Date:
Changes:	Changes:
Changes Made by:	Changes Made by:

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Revision: A (Original First Release)	
Date:	2015-11-27
Notes:	
Author:	Jack Conroy

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