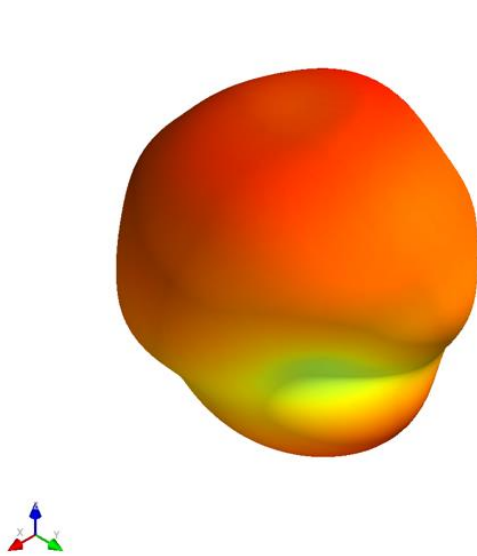
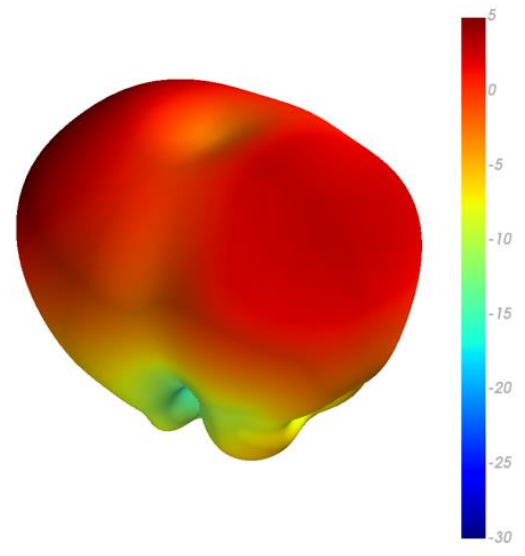
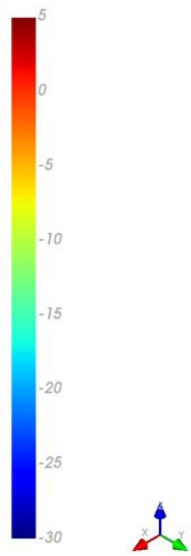


1602MHz



A40 Passive Free Space

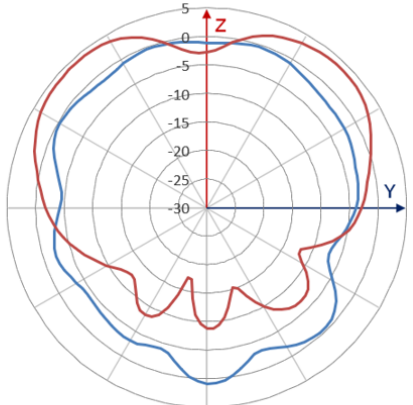
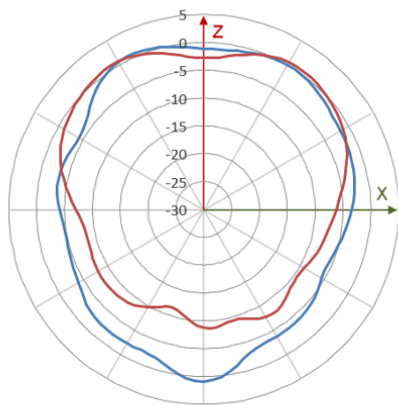
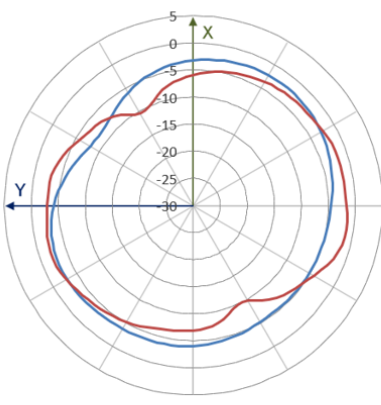


A40 Passive Ground Plane

XY Plane

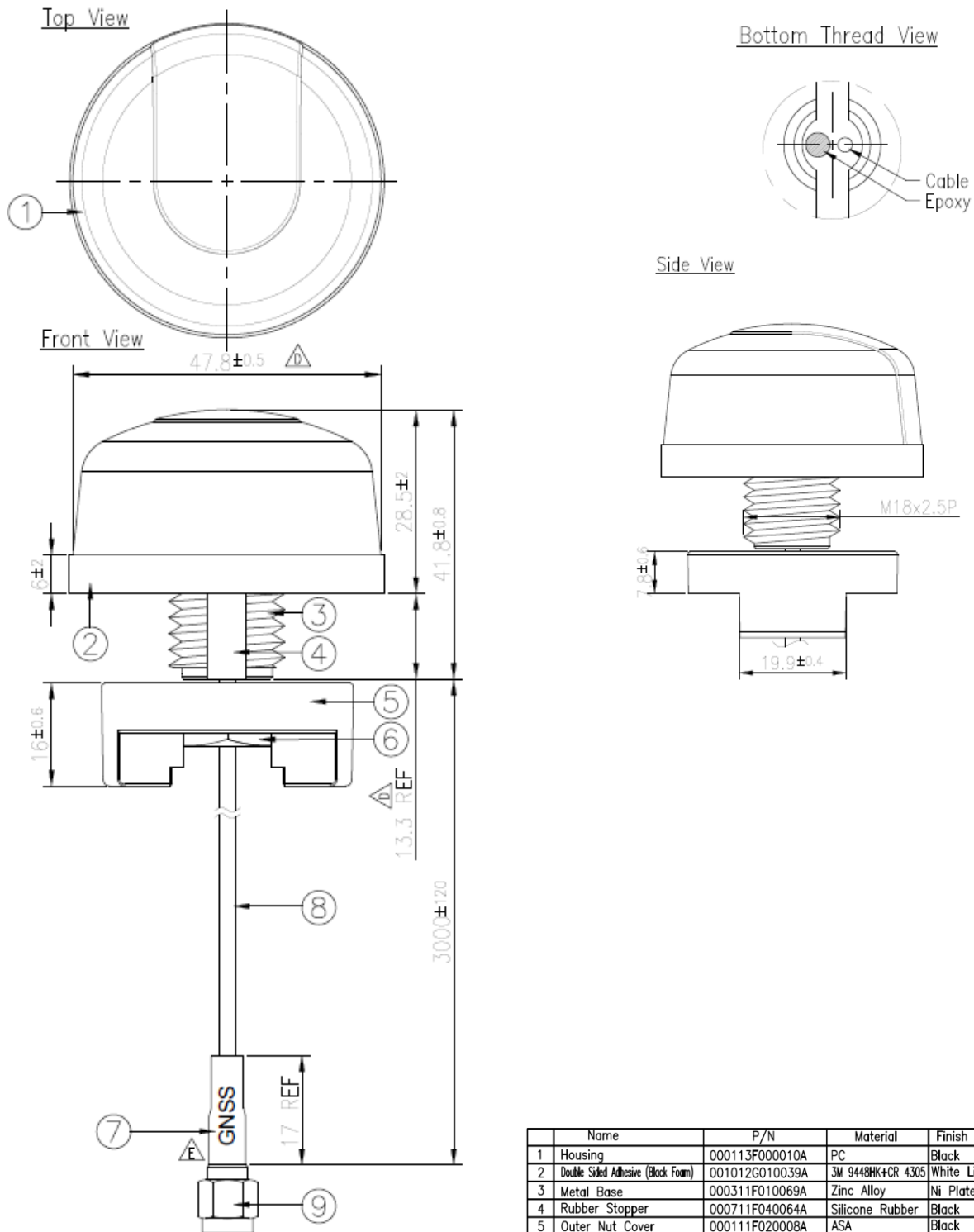
XZ Plane

YZ Plane



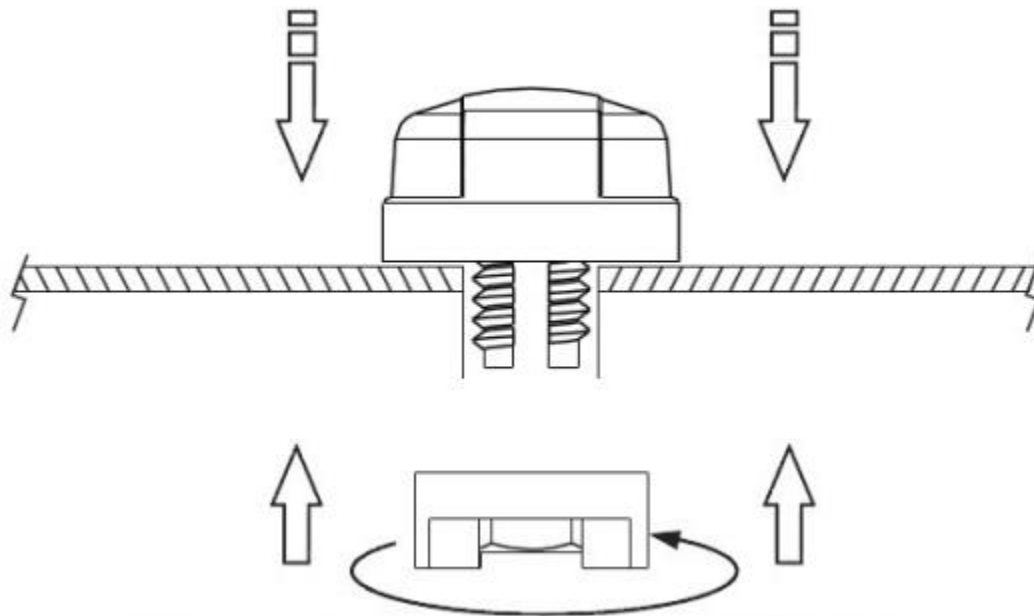
— A40 Passive Free Space — A40 Passive Ground Plane

6. Mechanical Drawing (Units: mm)



Name	P/N	Material	Finish	QTY
1 Housing	000113F000010A	PC	Black	1
2 Double Sided Adhesive (Black Foam)	001012G010039A	3M 9448HK+CR 4305	White Liner	1
3 Metal Base	000311F010069A	Zinc Alloy	Ni Plated	1
4 Rubber Stopper	000711F040064A	Silicone Rubber	Black	1
5 Outer Nut Cover	000111F020008A	ASA	Black	1
6 M18 Inner Nut	000413F010061A	Steel Carbon	Zn Plated	1
7 Heat Shrink Tube(GNSS)	001316C000000A	PE	Blue Tube/White Tex	1
8 RG174 Coaxial Cable	301315C000000A	PVC	Black	1
9 SMA(M)ST	200212G000013A	Brass	Au Plated	1

7. Installation

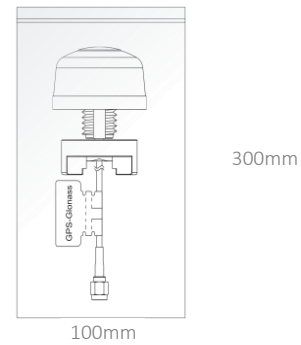


Recommended torque for mounting: 5-7Nm

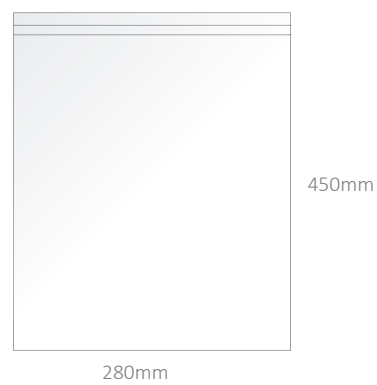
(Torque value obtained with antenna mounted on 1mm thick SUS-316 bracket)

8. Packaging

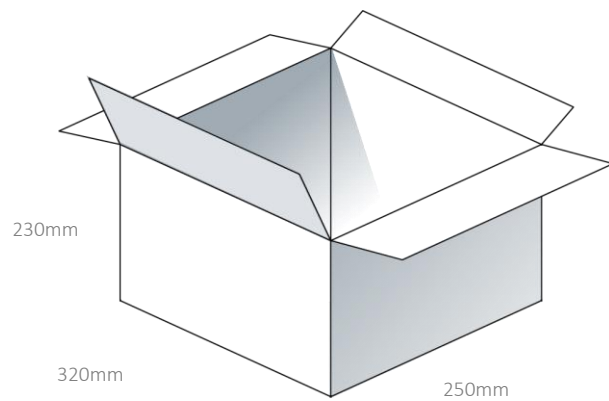
1pc A.40.A.301111 per PE Bag
 Dimensions: 100*300mm
 Weight: 151g



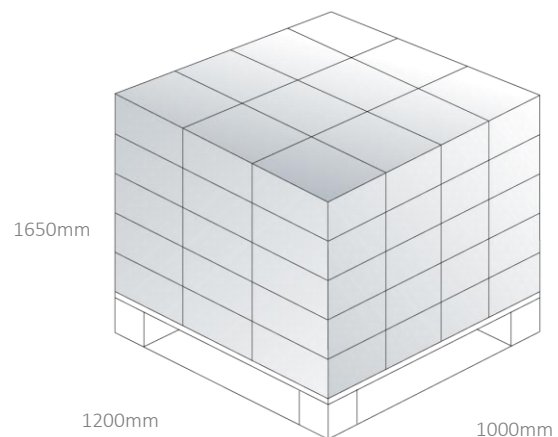
10 pcs A.40.A.301111 per Large PE Bag
 Dimensions: 280*450mm
 Weight: 1.524Kg



60pcs A.40.A.301111 per carton
 Dimensions - 320*250*230mm
 Weight – 9.8Kg



Pallet Dimensions:
 1200*1000*1650mm
 60 Cartons per Pallet
 12 Cartons per Layer, 5 Layers



Changelog for the datasheet

SPE-13-8-053 – A.40.A.301111

Revision: L (Current Version)

Date:	2022-10-13
Changes:	Added LNA Block diagram
Changes Made by:	Cesar Sousa

Previous Revisions

Revision: K

Date:	2022-02-23
Changes:	Updated data
Changes Made by:	Gary West

Revision: F

Date:	2019-01-22
Changes:	Amended Drawing
Changes Made by:	Jack Conroy

Revision: J

Date:	2021-02-09
Changes:	Updated IP rating
Changes Made by:	Erik Landi

Revision: E

Date:	2018-12-12
Changes:	Amended Heatshrink Drawing
Changes Made by:	Jack Conroy

Revision: I

Date:	2021-02-09
Changes:	Updated waterproof rating
Changes Made by:	Jack Conroy

Revision: D

Date:	2016-06-01
Changes:	Amended Packaging and Info
Changes Made by:	Aine Doyle

Revision: H

Date:	2020-03-27
Changes:	Updated Packaging and Template
Changes Made by:	Jack Conroy

Revision: C

Date:	2014-08-26
Changes:	Removed Saw info
Changes Made by:	Aine Doyle

Revision: G

Date:	2019-11-07
Changes:	Amended Drawing
Changes Made by:	Jack Conroy

Revision: B

Date:	2014-08-11
Changes:	Updated Torque Info
Changes Made by:	Aine Doyle

Revision: A (Original First Release)	
Date:	2013-07-26
Notes:	
Author:	Wayne Yang



www.taoglas.com





Quality control tested One by One
Package included the Test report

Compact Size

High-Gain



Light Weight

Direct mount

Electrical

Frequency:	2.4 - 2.5GHz 5.1 - 5.9GHz
V.S.W.R:	<1.7:1
Antenna Type:	Patch Directional
Gain:	8 dBi
Polarization:	Vertical Horizontal
Vertical Beam-with:	40 degree
Horizontal Beam-with:	90 degree
Connector:	N Female

Mechanical

Dimension	94.8*116.8*30.8mm
Antenna Weight	220g
Mount Style	Direct mount on device
Mounting Option * Sell separately *	Wall mount Pole mount

Package Contents

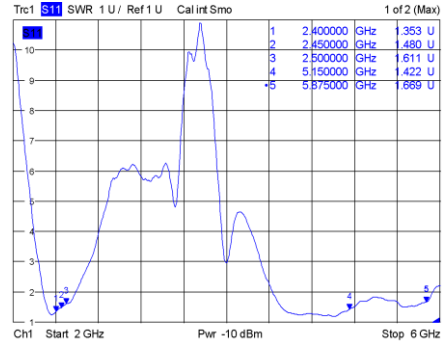
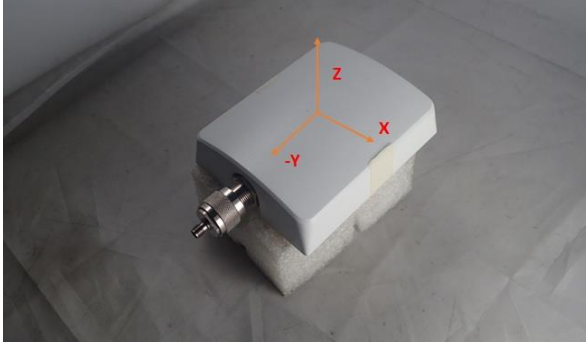
Environment Friendly Package



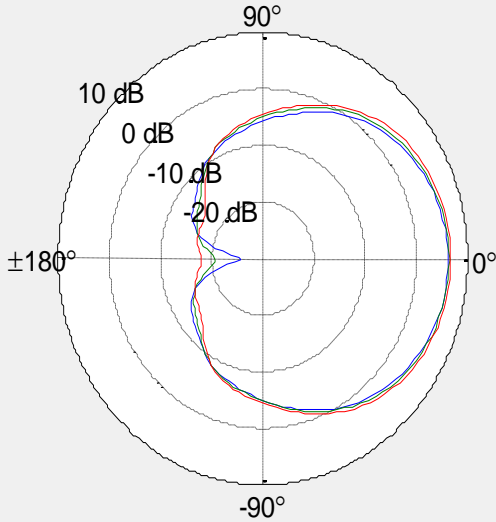
Antenna

Test Report

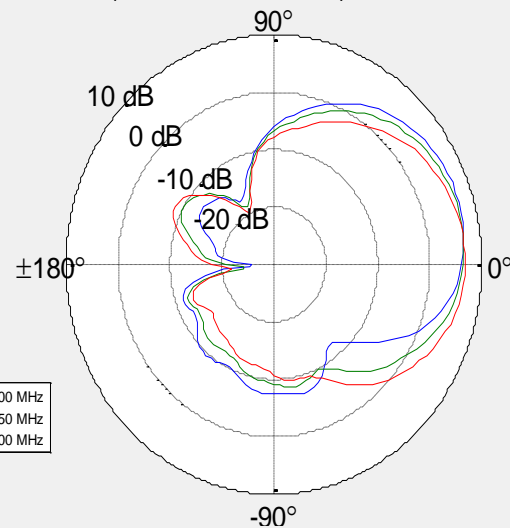
Radiation & VSWR Report



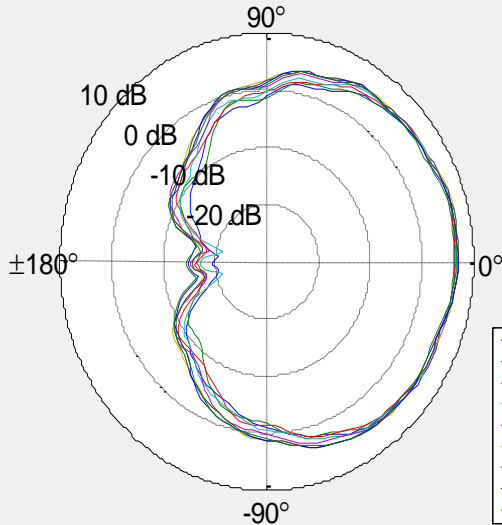
ZX Plane (+Z = 0°, +X = +90°) / Azimuth = 0°



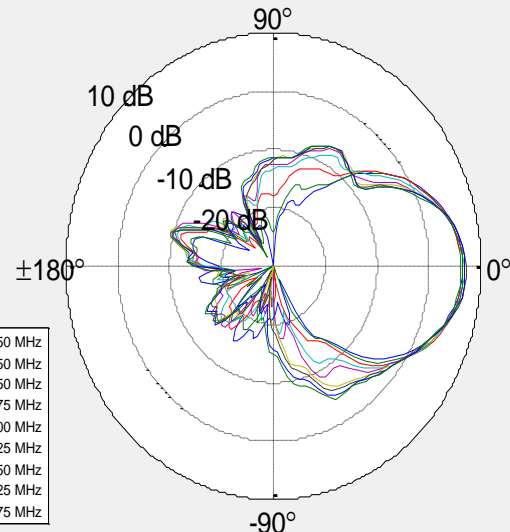
YZ Plane (+Z = 0°, +Y = +90°) / Azimuth = 90°

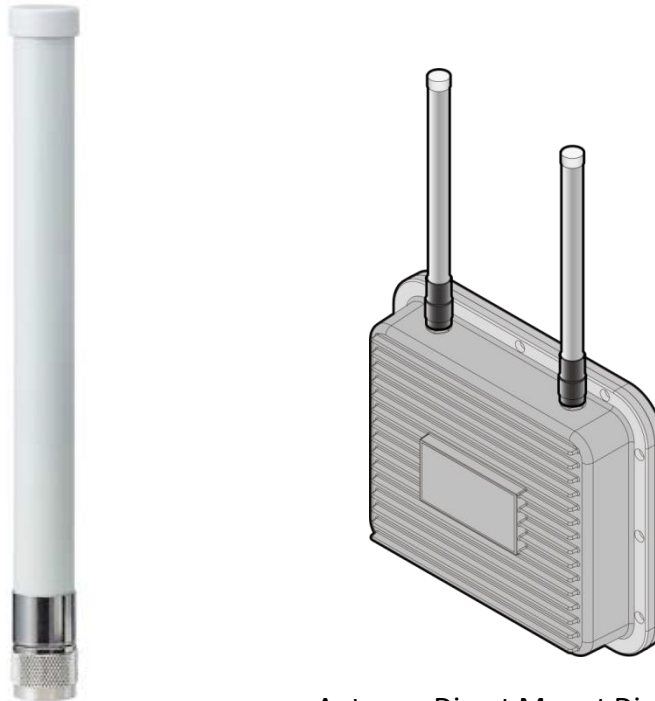


ZX Plane (+Z = 0°, +X = +90°) / Azimuth = 0°



YZ Plane (+Z = 0°, +Y = +90°) / Azimuth = 90°



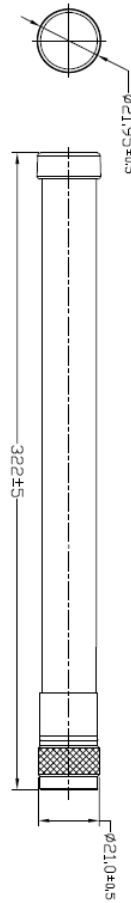


Antenna Direct Mount Diagram

Specifications

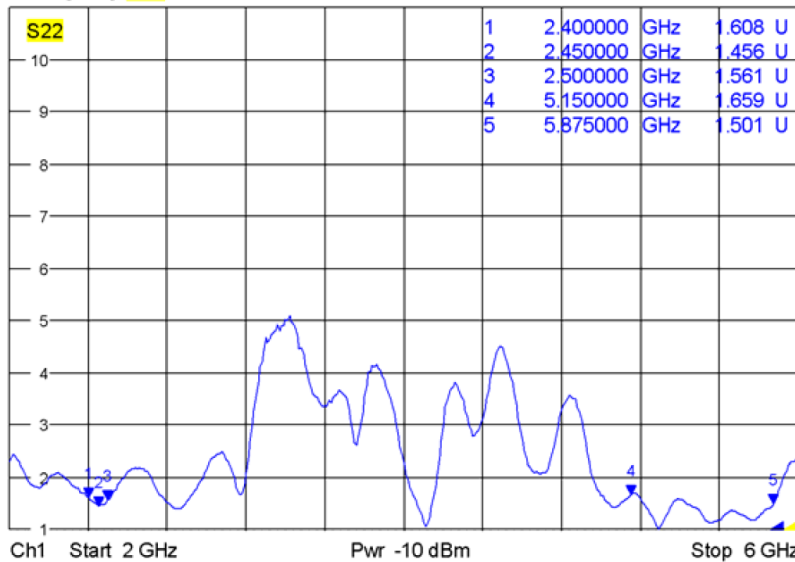
Frequency Range	2400 – 2500 MHz 5150 – 5875 MHz
Gain	7 dBi @ 2400 – 2500 MHz 9 dBi @ 5150 – 5875 MHz
VSWR	2.0 : 1 Max.
Polarization	Linear, Vertical
Power handling	2W
Impedance	50 ohm
Connector	N male
Antenna Length	322 mm
Operating Temperature	-40°C ~ 85°C
Operating Humidity	5% ~ 95% (Non-condensing)

2D Drawing Dimension

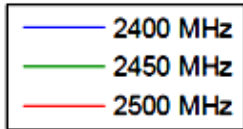


VSWR

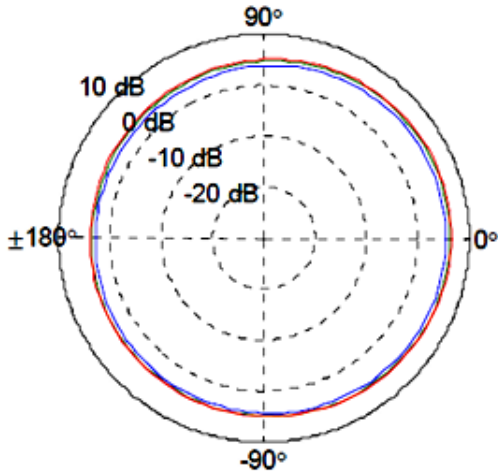
Trc2 **S22** SWR 1 U / Ref 1 U Cal int 2 of 2 (Max)
 Mem3[Trc2] **S22** SWR 1 U / Ref 1 U Invisible



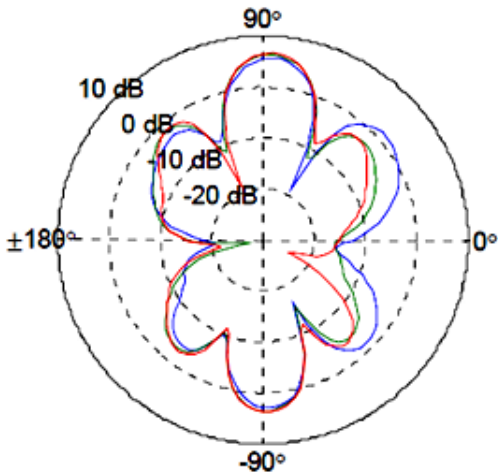
Radiation Pattern



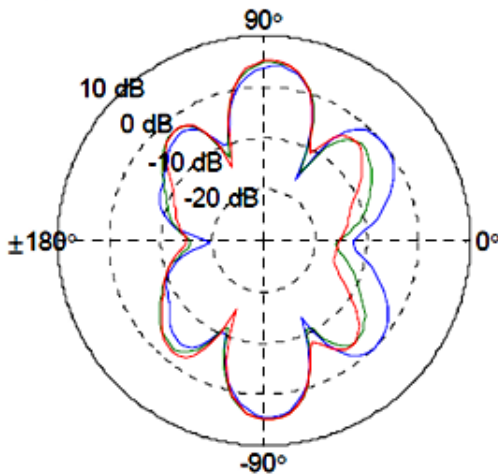
XY Plane



ZX Plane

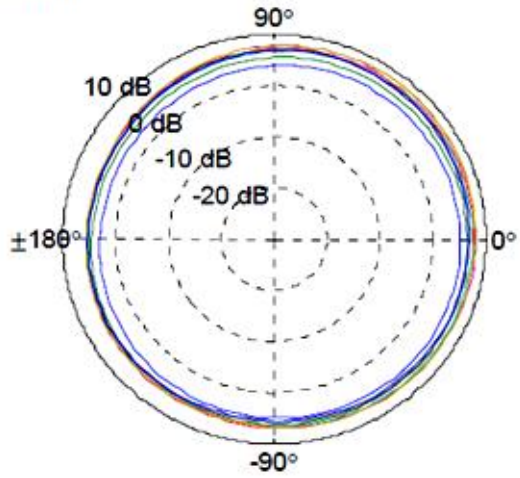


YZ Plane

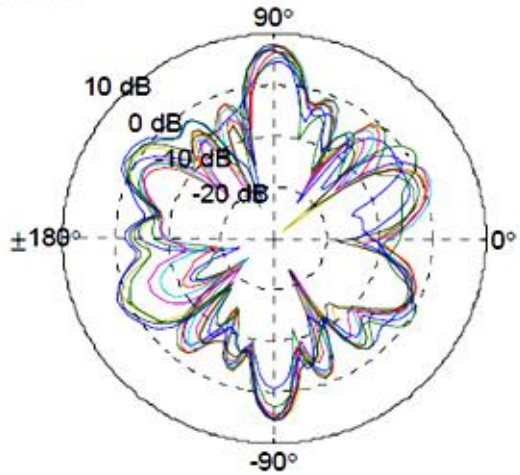


- 5150 MHz
- 5250 MHz
- 5350 MHz
- 5475 MHz
- 5600 MHz
- 5725 MHz
- 5750 MHz
- 5825 MHz
- 5875 MHz

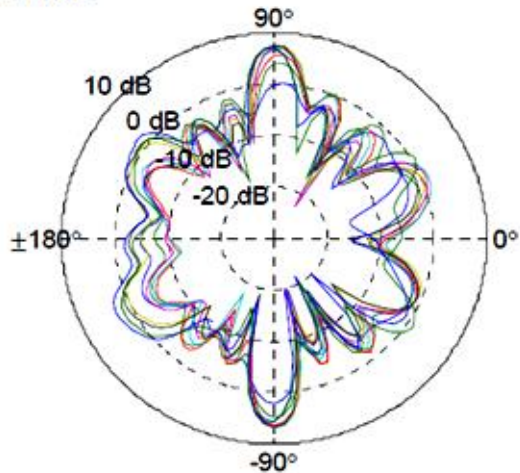
XY Plane



ZX Plane



YZ Plane



2.4 GHz to 2.5 GHz / 5.8 GHz 3.5/4 dBi Dual Band
Omnidirectional Antenna - N Type Male Connector



HGV-2458-03U-NM

Features

- All weather operation
- Durable UV-Stable fiberglass radome with vented end cap and drain holes in base
- Mounts directly to the radio, access point or terminal
- Integral N-Male connector
- High Performance in a compact lightweight design

Applications

- 2.4 GHz and 5.8 GHz wireless video systems
- 2.4/4.9/5.1/5.3/5.4/5.8 GHz Wireless LAN systems
- Homeland security and public safety services
- Ideal for Multi-Band radios (802.11a, 802.11b, 802.11g, 802.11n and 802.11ac)
- IEEE 802.11a/b/g/n and 802.11ac applications

Description

The L-com brand HGV-2458-03U-NM is an economical, yet high performance dual band omnidirectional antenna designed for operation in the 2.4 GHz (2400 to 2500 MHz) and 4.9-5.8 GHz (4900 to 5850 MHz) band. Compact and lightweight, these 3 dBi omni antennas are ideally suited multipoint applications where wide coverage is desired.

The HGV-2458-03U-NM from L-com features omnidirectional patterns and an integral N Type Male connector that can mount directly to a radio or access point. A vented end cap and drain holes in the base help prevent moisture build-up inside the antenna. These features allow the antenna to be mounted in up or down positions.

This WLAN 2.4 GHz to 5.8 GHz 3 dBi omni antenna with Male Type N connector, as well as our wide selection of superior quality RF parts, ships same day. Contact our knowledgeable and friendly technical support and sales staff for your answers on antennas or other L-com products.

Configuration

Design	Portable
Band Type	Single
Radiation Pattern	Omnidirectional
Polarization	Vertical
Connector Type	N Male
Lightning Protection	DC Short

Electrical Specifications

Description	Minimum	Typical	Maximum	Units
Input VSWR			2:1	
Impedance		50		Ohms
Horizontal (Azimuth) HPBW		Omnidirectional		
Vertical (Elevation) HPBW		20		Degrees
Input Power			50	Watts

Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications:
[2.4 GHz to 2.5 GHz / 5.8 GHz 3.5/4 dBi Dual Band Omnidirectional Antenna - N Type Male Connector HGV-2458-03U-NM](#)

2.4 GHz to 2.5 GHz / 5.8 GHz 3.5/4 dBi Dual Band
Omnidirectional Antenna - N Type Male Connector



HGV-2458-03U-NM

Specifications by Band

Description	Band 1	Band 2	Band 3	Band 4	Band 5	Units
Range	2,400-2,500	4,900-5,850				MHz
Gain	3.5	4				dBi
Horizontal HPBW	360					Degrees
Vertical HPBW	55					Degrees
Maximum Input Power	50					Watts

Mechanical Specifications

Radome Material	Fiberglass
Size	
Base Diameter	1.27 in [32.26 mm]
Radome Diameter	0.75 in [19.05 mm]
Length	4.7 in [119.38 mm]
Width	0.75 in [19.05 mm]
Height	0.75 in [19.05 mm]
Mounting Mast Diameter	1.2 to 2 in [30.48 to 50.80 mm]
Weight	1.16 lbs [526.17 g]

Environmental Specifications

Temperature	
Operating Range	-40 to +85 deg C

Compliance Certifications (see [product page](#) for current document)

Plotted and Other Data

Notes:

2.4 GHz to 2.5 GHz / 5.8 GHz 3.5/4 dBi Dual Band Omnidirectional Antenna - N Type Male Connector from L-com has same day shipment for domestic and International orders. Our portfolio includes coaxial cable assemblies, connectors, adapters and custom products as well as lightning and surge protectors, NEMA rated enclosures, and an RF product line which includes antennas, amplifiers, passive, and active components.

The information contained within this document is accurate to the best of our knowledge and representative of the part described herein. It may be necessary to make modifications to the part and/or the documentation of the part in order to implement improvements. L-com reserves the right to make such changes as required. Unless otherwise stated, all specifications are nominal. L-com does not make any representation or warranty regarding the suitability of the part described herein for any particular purpose, and L-com does not assume liability arising out of the use of any part or document.



TAOGLAS®



Datasheet

Shockwave

Part No:
TLS.01.1F21

Description:

Shockwave Wideband 5G/4G Direct Mount External Antenna
With N Type(F) connector

Features:

Applicable for 5G/4G cellular bands
600-6000MHz Wideband Operational
Over 45% efficiency and 2.3 dBi gain
Mechanically robust for indoor/outdoor applications
Height: 79.45mm (3.13")
Diameter: 42mm (1.65")
IP67 Waterproof
N type(F) connector
RoHS & Reach Compliant

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2. Specifications	4
3. Antenna Characteristics	6
4. Radiation Patterns	8
5. Mechanical Drawing	18
6. Installation Guide	19
7. Packaging	20
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Changelog	21

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1. Introduction



The Shockwave TLS.01.1F21 is a permanent mount, waterproof, external 5G/4G cellular operating at the wideband 600-6000MHz frequency with an N type Female direct mount 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 90% efficiency and with a minimum 2.3dBi 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, where an N type female connector juts out from a metal panel. Waterproof O-rings around the bottom base prevent water from leaking under the antenna.

The TLS.01 antenna is IP67 waterproof resistant against high pressure water jets in commercial cleaning environments, which makes the antenna ideal for 5G/4G/3G/Cat M/NB-IoT applications either in indoor or in harsh outdoor environments. For more information contact your regional Taoglas customer support team.

2. Specifications

Electrical								
Band	Frequency (MHz)	Efficiency (%)	Average Gain (dB)	Peak Gain (dBi)	Impedance	Max Input Power	Polarization	Radiation Pattern
5G NR/4G Band 71	617~698	46.5	-3.2	-1	50 Ω	100W	Vertical	Omni-Directional
4G/3G Band 12,13,14,17,28,29	698~806	95.2	-0.2	3.1				
4G/3G/NB-IoT/Cat M Band 5,8,18,19,20,26,27	824~960	84.5	-0.7	3.2				
5G NR/4G Band 21,32,74,75,76	1427~1518	71.9	-1.4	2.9				
4G/3G Band 1,2,3,4,9,23,25,35,39,66	1710~2200	65.5	-1.8	2.7				
4G/3G Band 7,38,41	2490~2690	62.7	-2	3.4				
5G NR/4G Band 22,42,48,77,78	3300~3800	41.1	-4.1	2.5				
LTE5200/ Wi-Fi 5800	5150~5925	45.9	-3.4	5.3				

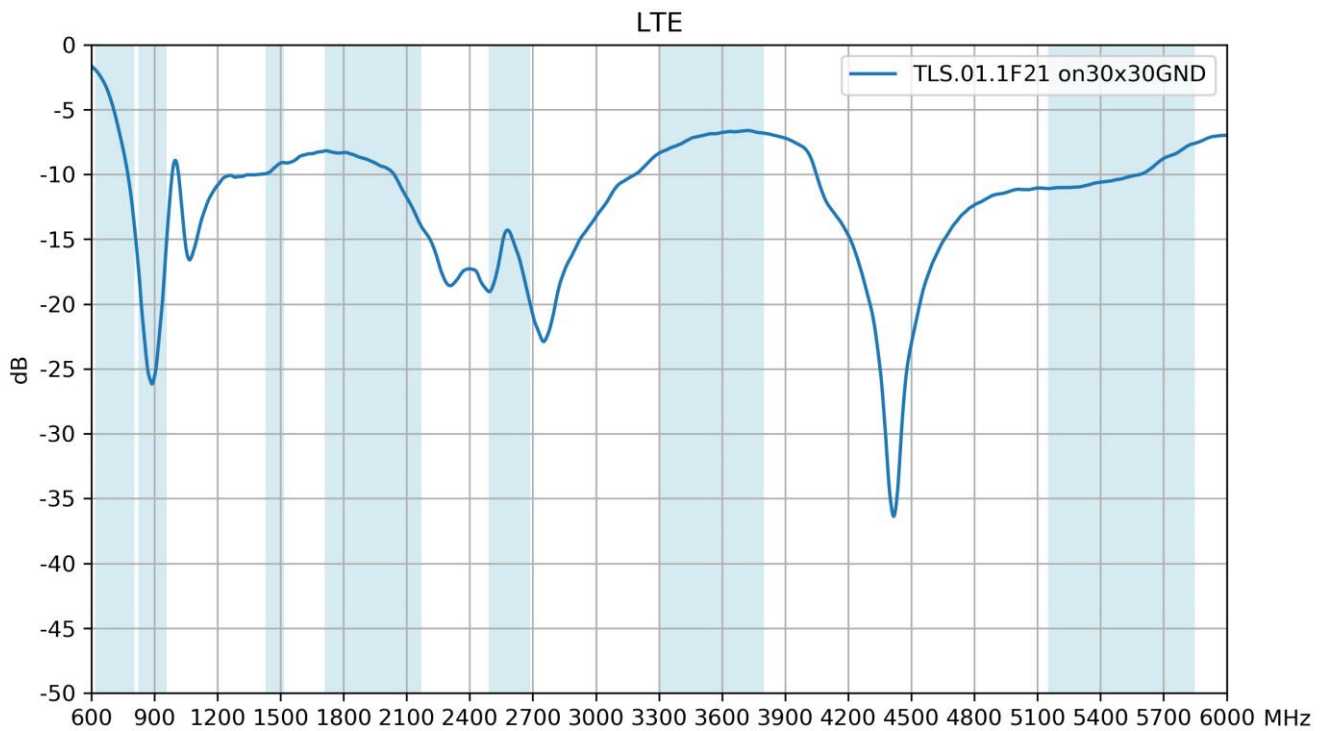
*Measured on 30*30cm ground plane

Mechanical	
Dimension (mm)	Height: 79.45mm(3.13") ; Diameter : 42mm(1.65")
Connector	Direct Mount N type (F)
Housing Material	UV Resistant ABS
Base Material	Nickel Plated Zinc Alloy
Weight (g)	130
Rec. Torque for Mounting	4.018 N·m
Max. Torque for Mounting	9.8 N·m
Waterproof Rating	IP67
Operation Temperature	-40°C to 85°C
Humidity	Non-condensing 65°C 95% RH
Housing Rating	IK10

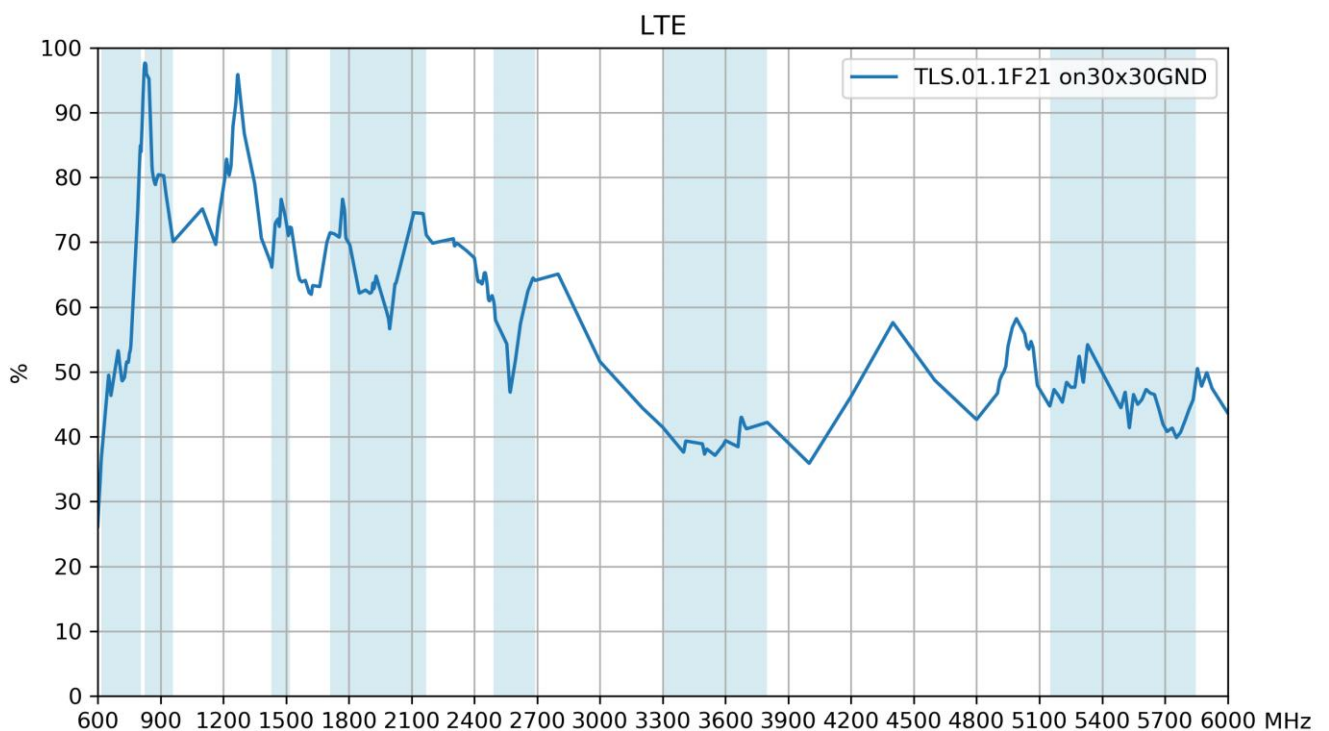
5G/4G Bands			
Band Number	5G NR / FR1 / LTE / LTE-Advanced / WCDMA / HSPA / HSPA+ / TD-SCDMA / Cat M / NB-IoT		
	Uplink	Downlink	Covered
1	UL: 1920 to 1980	DL: 2110 to 2170	✓
2	UL: 1850 to 1910	DL: 1930 to 1990	✓
3	UL: 1710 to 1785	DL: 1805 to 1880	✓
4	UL: 1710 to 1755	DL: 2110 to 2155	✓
5	UL: 824 to 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	✓

3. Antenna Characteristics

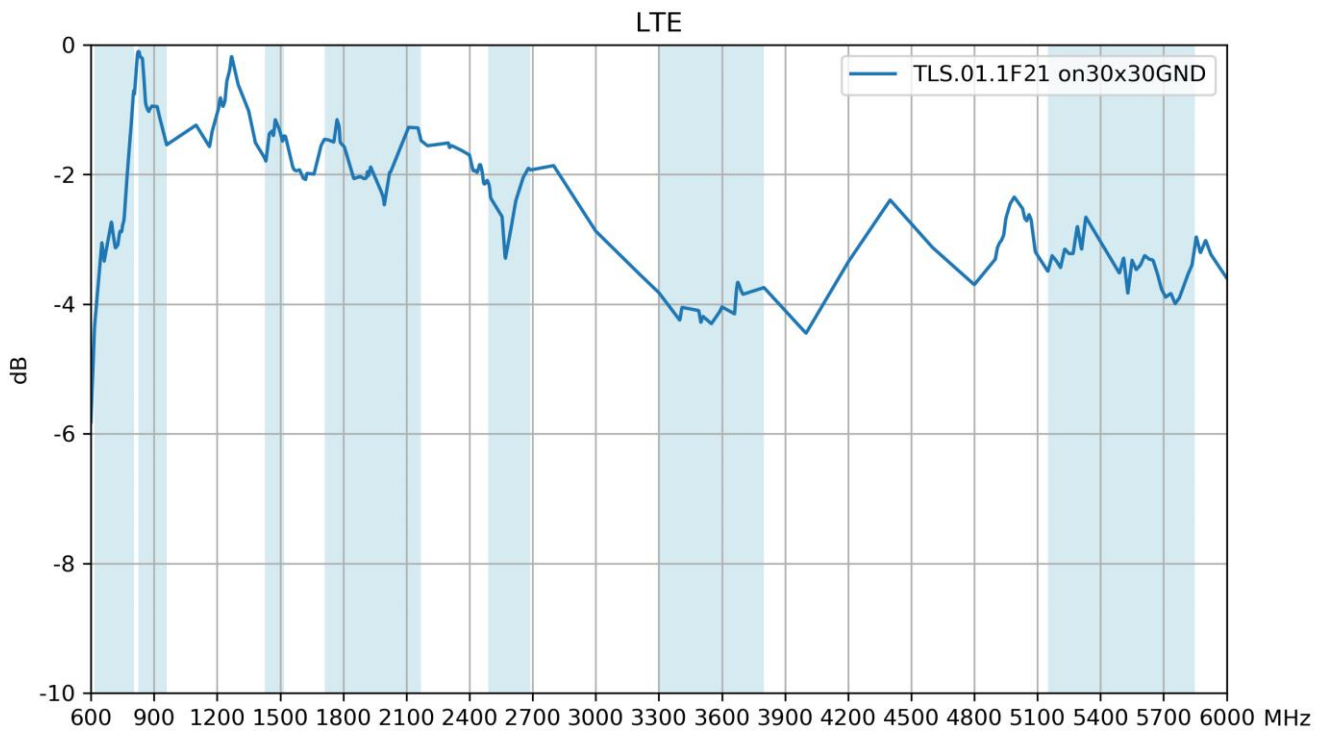
3.1 Return Loss



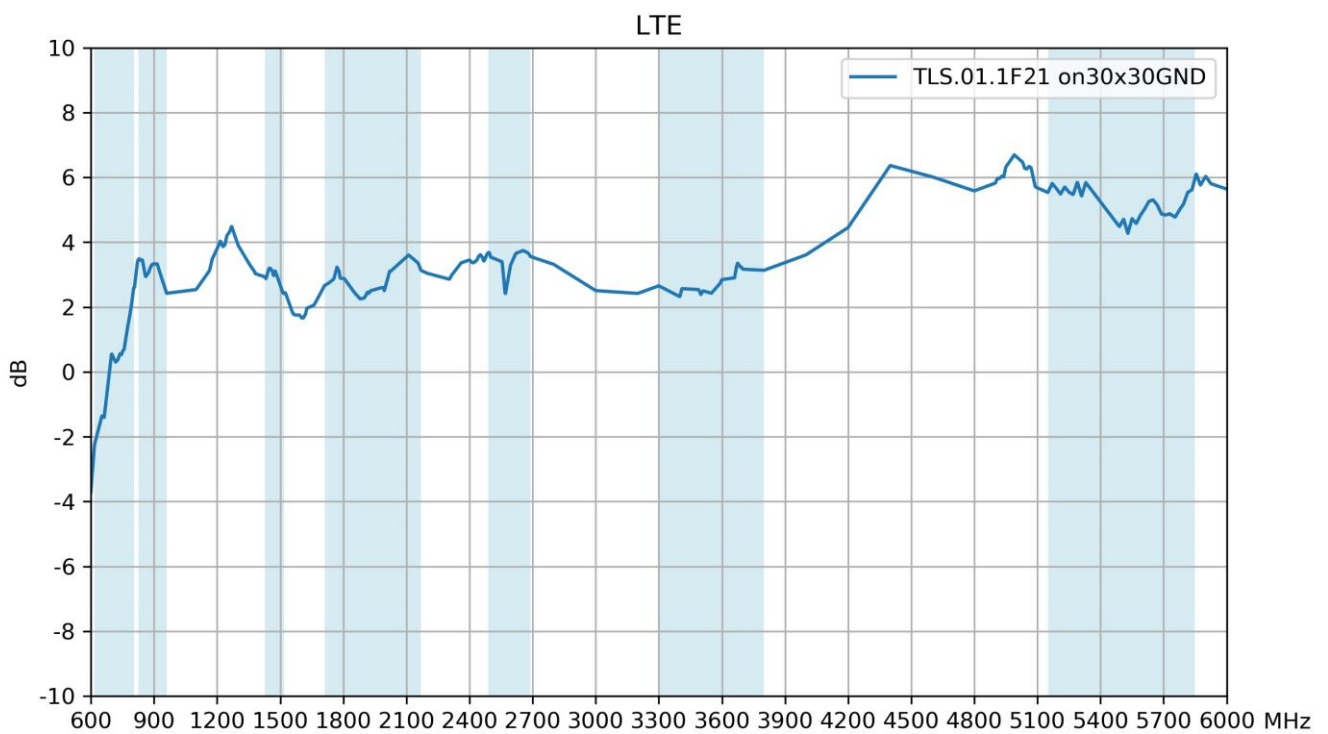
3.2 Efficiency



3.3 Average Gain

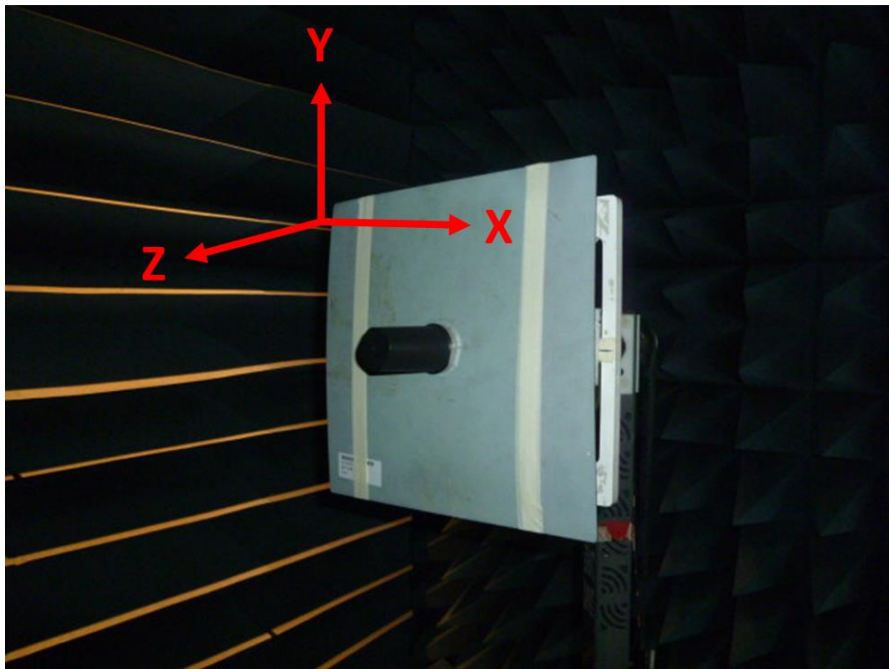


3.4 Peak Gain



4. Radiation Patterns

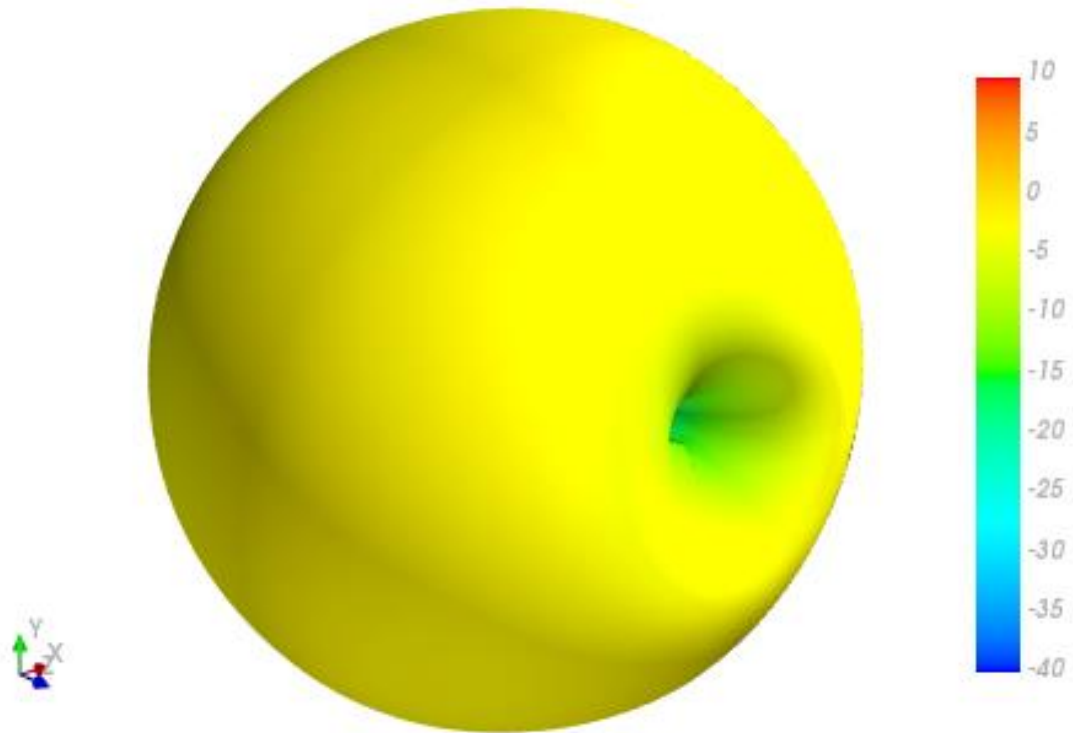
4.1 Test Setup



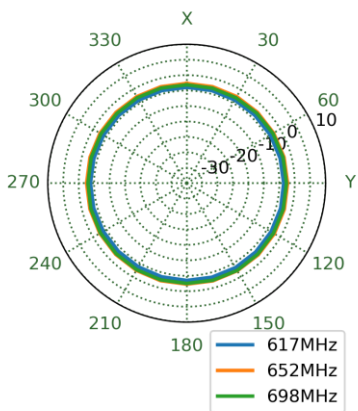
On 30*30cm Ground Plane

4.2 3D and 2D Radiation Patterns

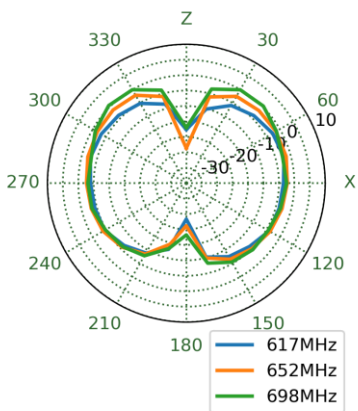
652MHz



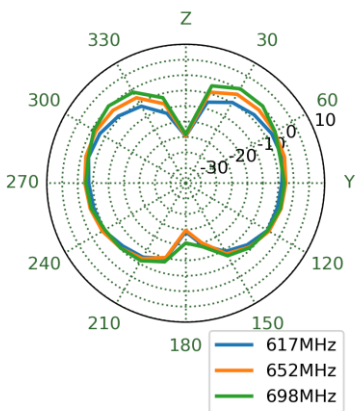
XY Plane



XZ Plane



YZ Plane



751MHz

