TAOGLAS

Datasheet

Olympian MA140

2-in-1 GPS/GLONASS/GALILEO 4G Permanent Mount Antenna

Part No:
MA140.A.LB.001

Features:

Permanent Mount Robust Housing

Dimensions: 48mm Height/50mm Diameter

IP67 Waterproof

LTE 1m RG-316 SMA(M)

GPS/GLONASS/Galileo 1m RG-RG-174 SMA(M)

Cables and Connectors Customizable

RoHS & REACH Compliant

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1. Introduction

The Olympian MA140 is a high-performance combination 4G/LTE and GPS/GLONASS/GALILEO screw mount antenna in a compact housing, for external use on vehicles and outdoor assets worldwide. The LTE antenna functions equally well on 2G and 3G. The GPS/GLONASS/Galileo antenna has stable gain and radiation patterns on both bands.

The antenna can be mounted on metal and plastic structures. Customized cable length and connectors are available.

Durable UV resistant IP67 ABS housing is resistant to vandalism and direct attack. A rubber O-ring is provided under the antenna to prevent water entering under the antenna. If the lower frequency bands are required the antenna functions best when mounted on a metal ground-plane, but can still work well with short cable lengths below 1 meters on plastic structures and is locked from the inside of the structure by a nut. The thread is extra small, allowing for installation in the tightest of environments.

Customized cable length and connectors are available. Taoglas recommends minimum of 1m cable length for stable antenna performance. When mounted on a ground-plane, the antenna can function well at all frequencies up to 3 meters cable length. Generally, antenna efficiency of less than 20% at the connector would lead to unreliable wireless system performance.

For better efficiency, especially on longer cable lengths up to 5 meters, a short 300mm cable can be used as standard, and then add a low loss 5 meter CFD200 extension cable SMA(F) to SMA(M) [CAB.0149].

If your device requires certification for PTCRB or US/Canadian network operators please contact your regional Taoglas customer support team for further information.

2. Specifications

GNSS Frequency Bands Covered							
GPS/QZSS	L1 1575.42MHz	L2 1227.6MHz	L5 1176.45MHz	L6 1278.75MHz			
	■	□	□	□			
GLONASS	L5R 1176.45MHz	L3PT 1201.5MHz	L2PT 1246MHz	L1CR 1575.42MHz	L1PT 1602MHz		
	□	□	□	■	■		
Galileo	E5a 1176.45MHz	E5b 1201.5MHz	E4 1215MHz	E3 1256MHz	E6 1278.75MHz	E2 1561MHz	L1 1575.42MHz
	□	□	□	□	□	■	■
BeiDou	B1 1561MHz	B2 1207.14MHz	B3 1268.52MHz				
	■	□	□				
Compass	E5B(B2)/ E6(B3) 1268.56MHz	E2(B1) 1561MHz					
	□	□					
SBAS	Omnistar 1542.5MHz	WAAS/EGN OS 1575.42MHz					
	□	■					

GNSS Electrical		
Frequency (MHz)	GPS/GALILEO : 1575.42	GLONASS : 1602
VSWR (max.)	2.0:1	2.0:1
Ex-band Attenuation	35dB@CF±50MHz/50dB@CF±100MHz	
Gain	>23dB	
DC Power Input	2.2~5V DC	
Noise Figure	< 3dB	
Power Consumption	5~15mA	
Polarization	RHCP	
Impedance	50 Ω	
Cable	1M RG174 standard, fully customizable	
Connector	SMA(M) standard, fully customizable	

LNA and Filter Electrical Properties		
Frequency (MHz)	1575.42	1602
VSWR (max.)	2.0:1	2.0:1
Gain@1.8V (Typ.)	25.23dB	23.65dB
Gain@3.0V (Typ.)	27.86dB	26.63dB
Gain@5.5V (Typ.)	28.04dB	26.69dB
Noise@1.8V (Typ.)	2.26dB	2.99dB
Noise@3.0V (Typ.)	2.16dB	2.74dB
Noise@5.5V (Typ.)	2.08dB	2.78dB

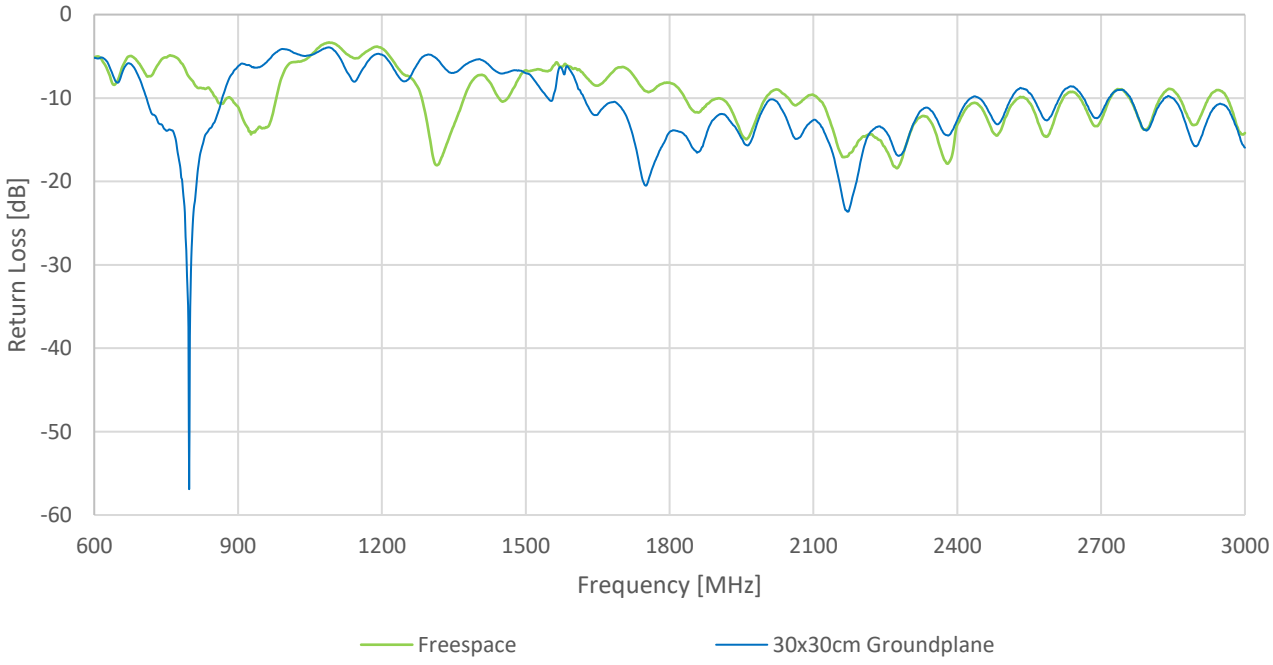
Mechanical	
Dimensions	48 mm(Height) x 50mm(Diameter)
Cable (LTE)	RG316/1M
Cable (GNSS)	RG174/1M
Casing	UV Resistant ABS
Connector	SMA(M)
Base and Thread	Nickel Plated Copper
Thread Diameter	11.5 mm
Sealant	Rubber Stopper
Weight	160g

Environmental	
Temperature Range	-40°C to 85°C
Humidity	.Non-condensing 65°C 95% RH
Vibration	10 to 55Hz with 1.5mm amplitude 2hours
Cable Pull	8Kgf(* 1 meters)

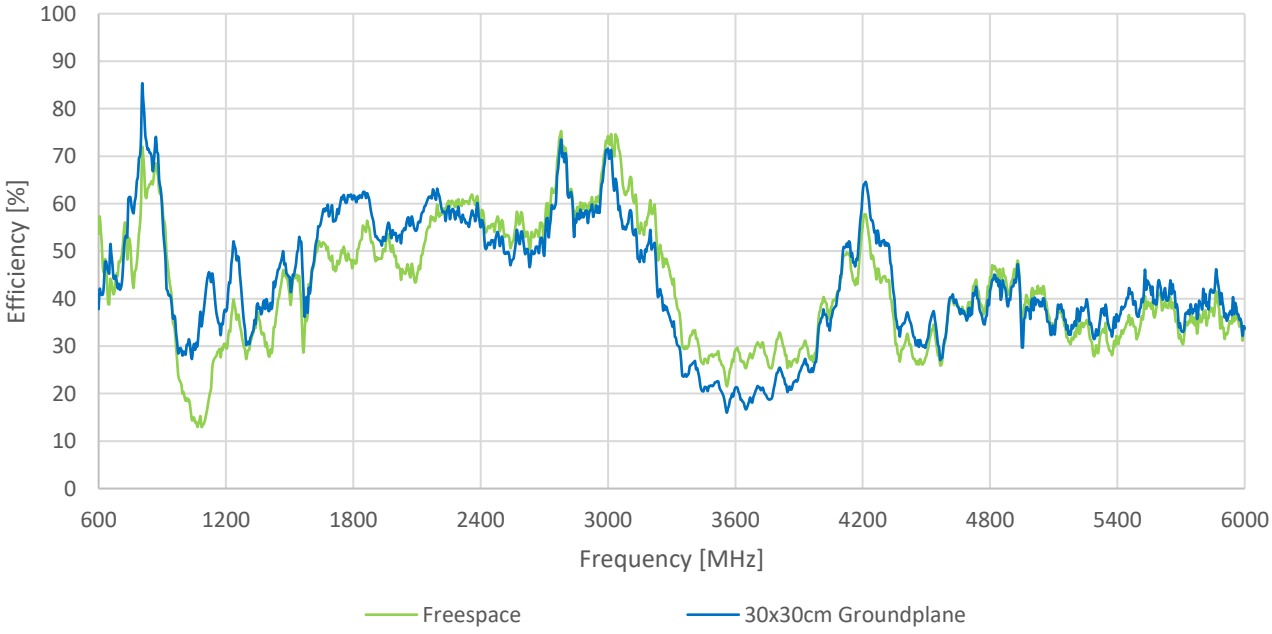
Cellular						
Frequency (MHz)	824~896	880~960	1710~1880	1850~1990	1920~2170	2400~2500
Peak Gain (dBi)						
Free Space	3.6	3.1	4.8	4.8	4.7	5.6
30x30cm Groundplane	4.0	3.7	2.7	2.4	3.7	2.4
Average Gain (dB)						
Free Space	-1.9	-3.1	-3.0	-2.9	-3.1	-2.5
30x30cm Groundplane	-1.6	-3.3	-2.2	-2.6	-2.6	-2.8
Efficiency (%)						
Free Space	64.4	49.9	50.1	51.3	48.9	55.8
30x30cm Groundplane	69.4	48.5	60.6	55.6	55.5	52.6
Impedance	50Ω					
Polarization	Linear					
Radiation Pattern	Omni-Directional					
Input Power	5 W					
Mechanical						
Height	48 mm					
Base Diameter	50 mm					
Cable (LTE)	RG316/1M					
Cable (GNSS)	RG174/1M					
Casing	UV Resistant ABS					
Connector	SMA Male					
Environmental						
Temperature Range	-40°C to 85°C					
Humidity	Non-condensing 65°C 95% RH					

3. Antenna Characteristics

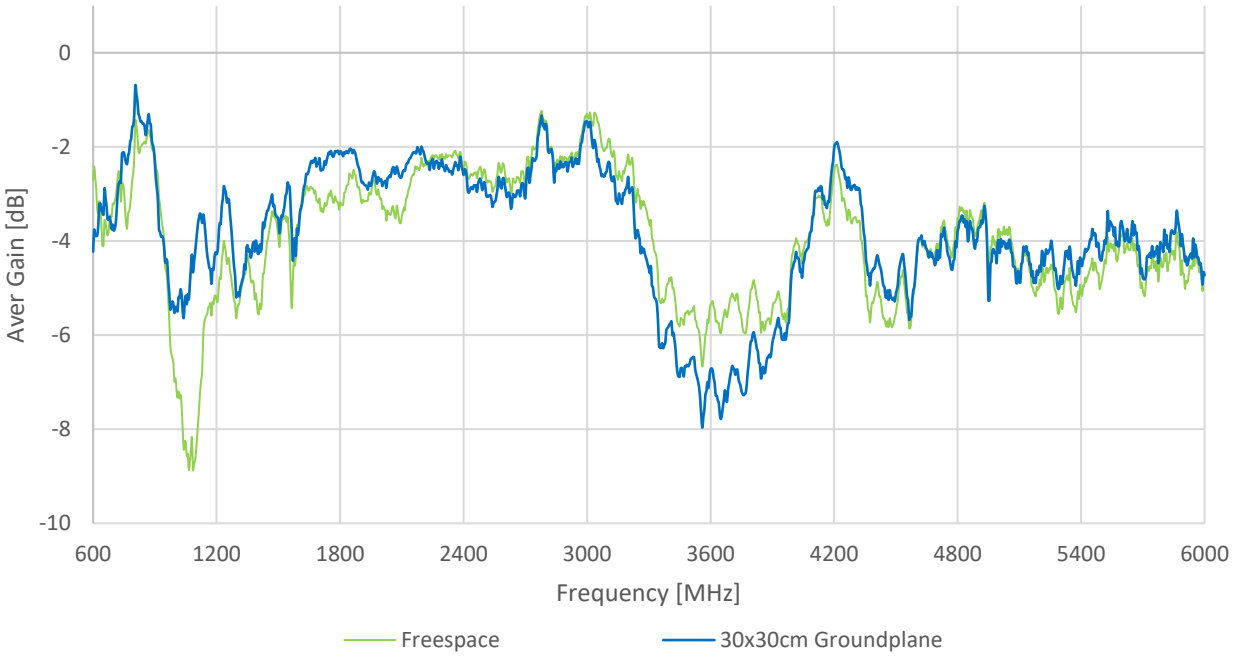
3.1 Return Loss



3.2 Efficiency



3.3 Average Gain



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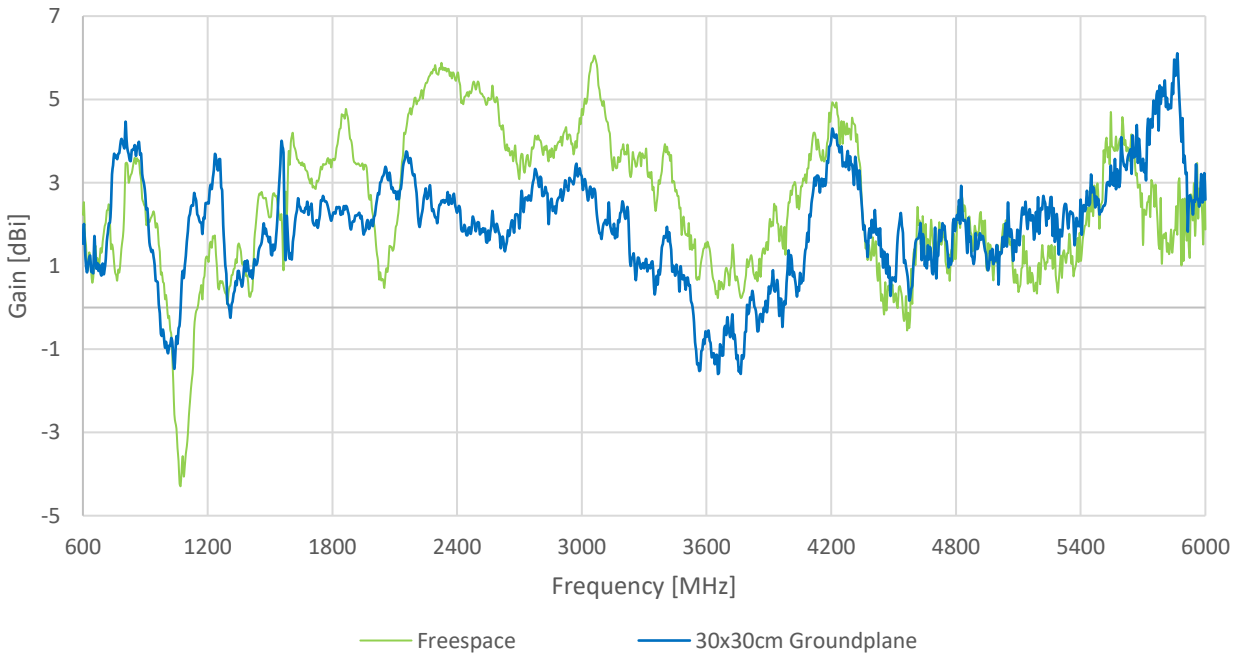
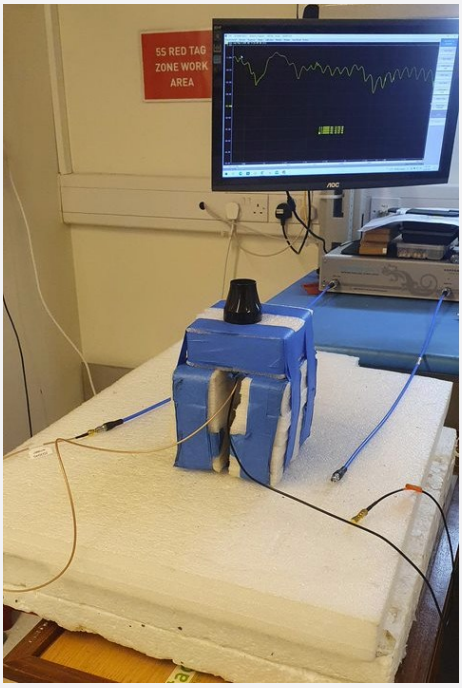
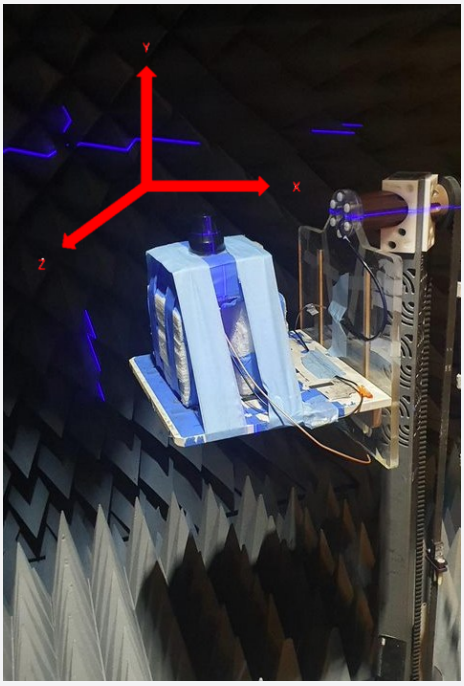


4. Radiation Patterns

4.1 Test Setup Freespace

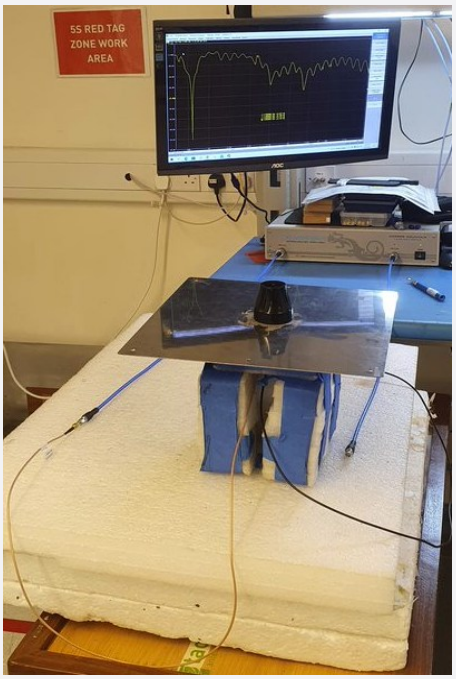


VNA Setup



Chamber Setup

4.2 Test Setup 30x30cm Groundplane

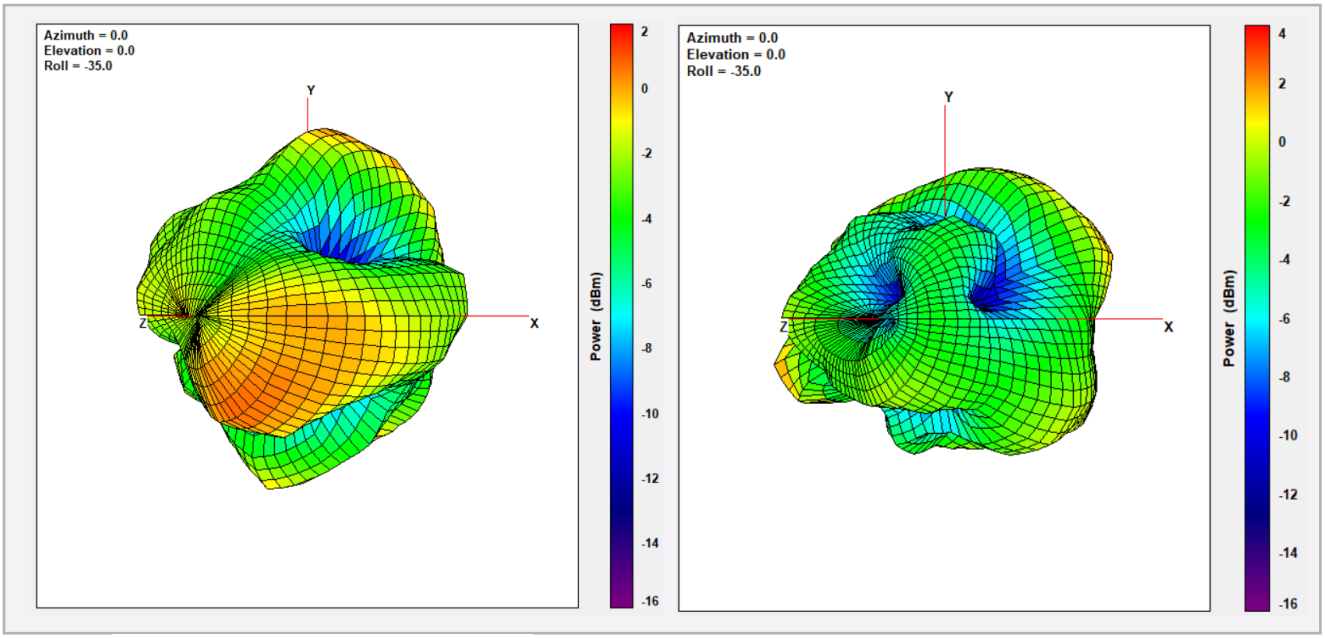


VNA Setup

Chamber Setup

4.3 Freespace 2D & 3D Radiation Patterns

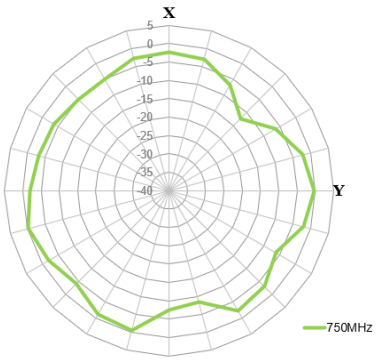
750MHz

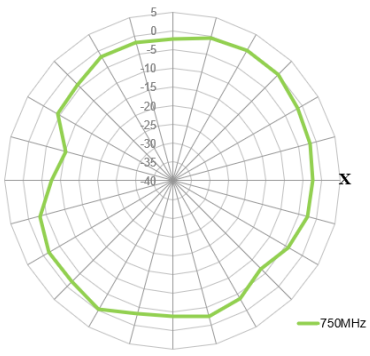


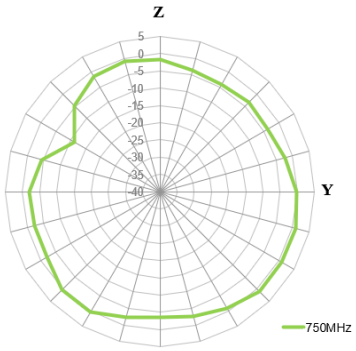
Freespace | 30x30cm Groundplane

XY Plane	XZ Plane	YZ Plane

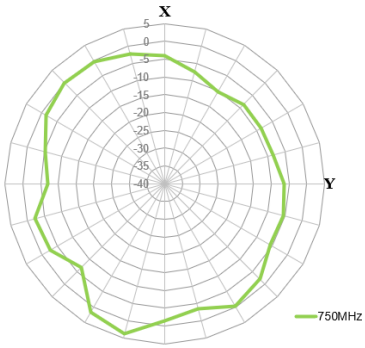
Freespace

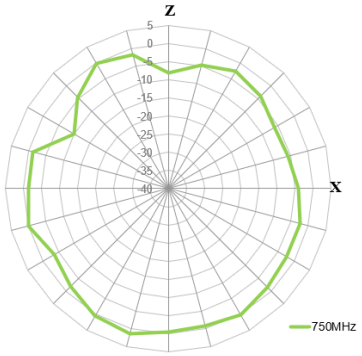


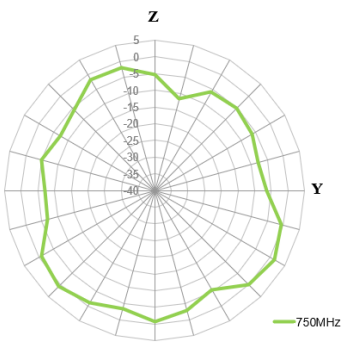




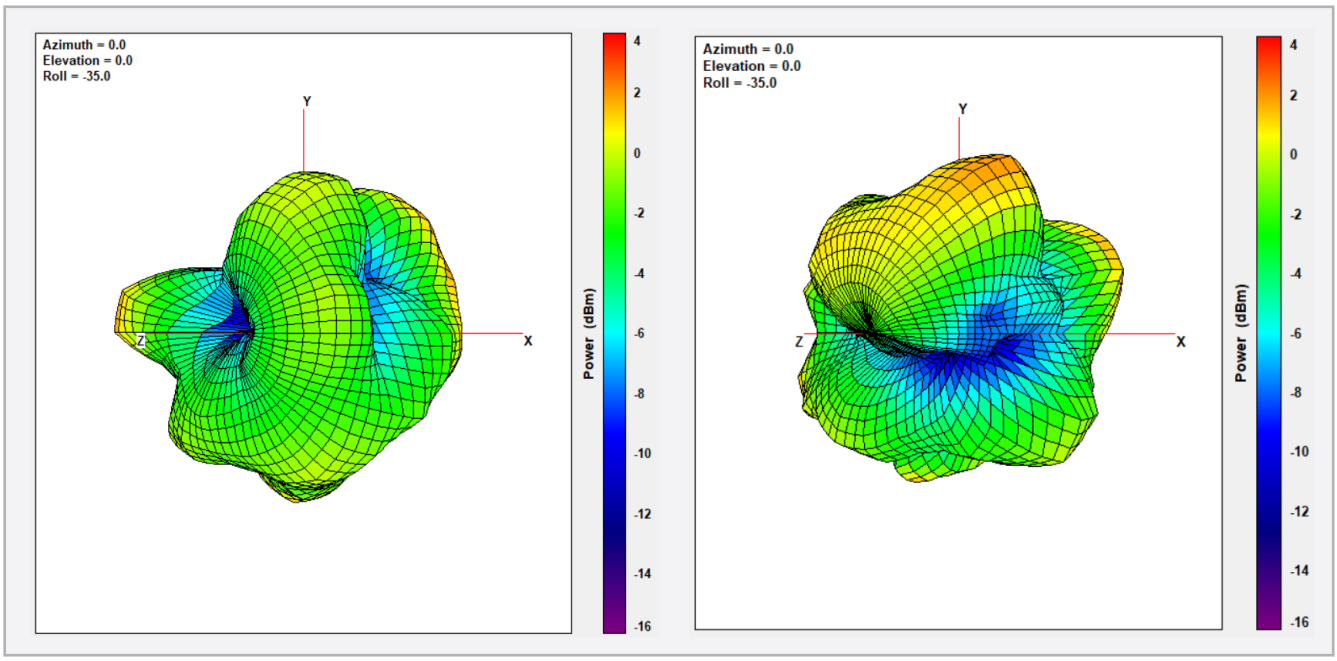
30x30cm Groundplane







850MHz

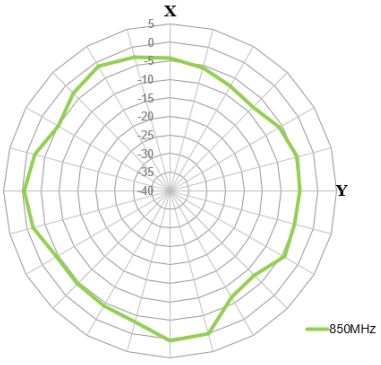


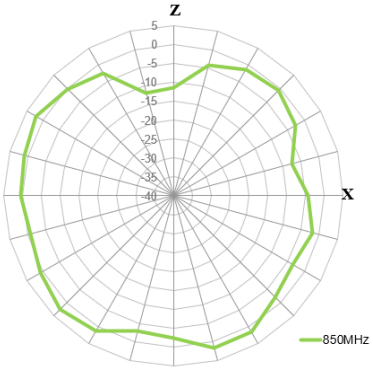
Freespace

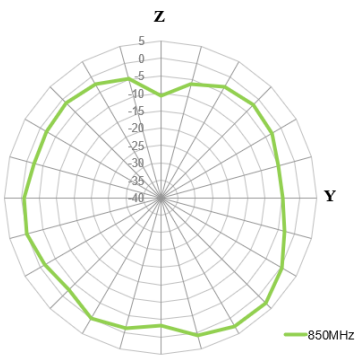
30x30cm Groundplane

XY Plane	XZ Plane	YZ Plane

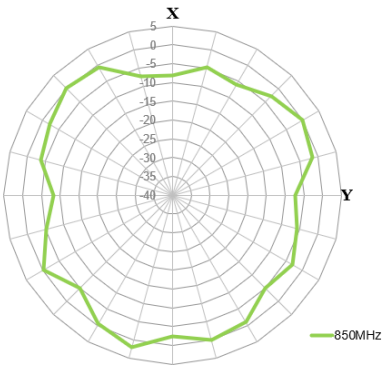
Freespace

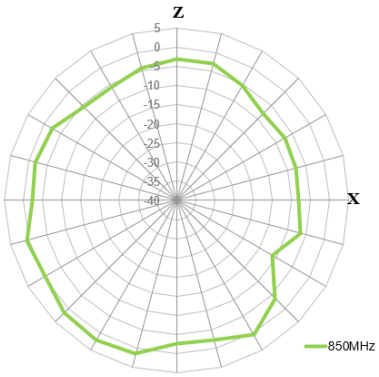


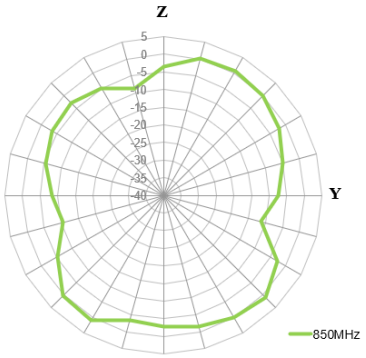




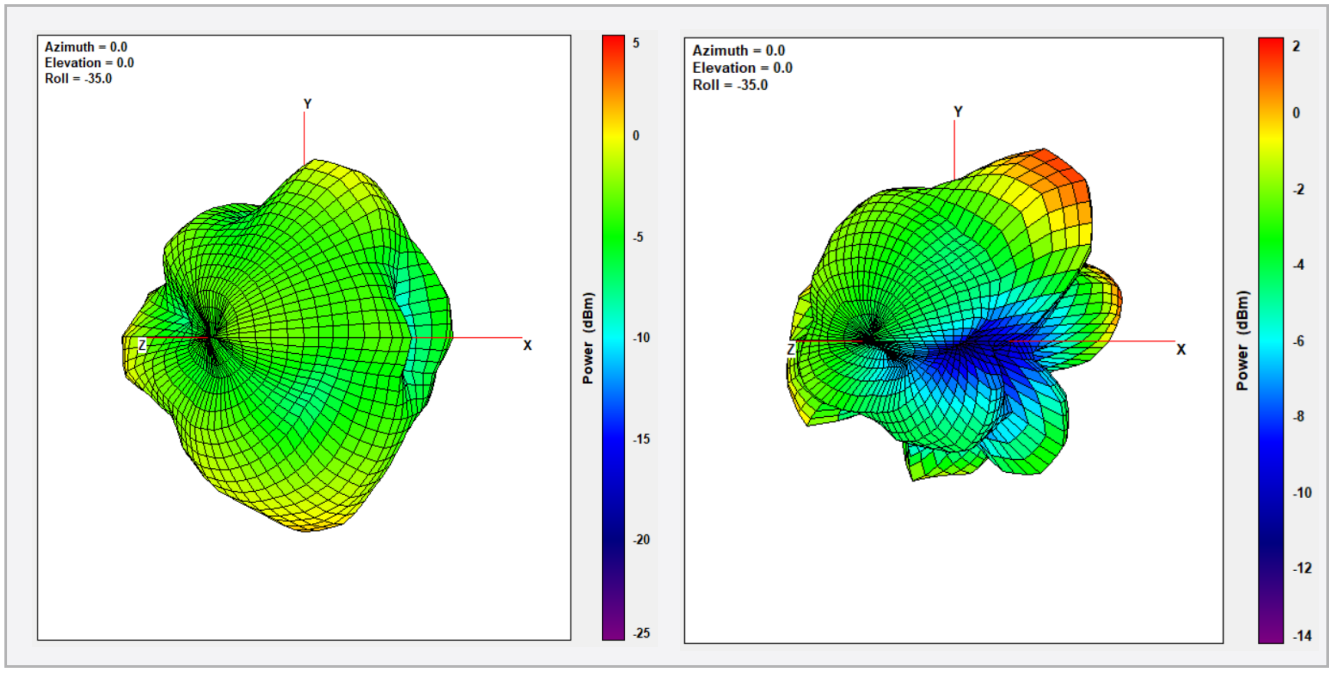
30x30cm Groundplane







915MHz

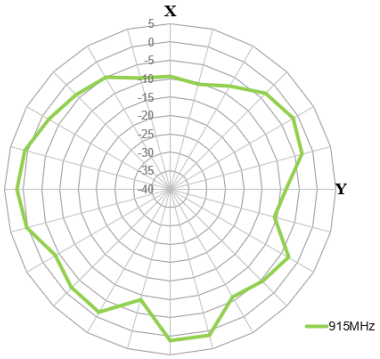


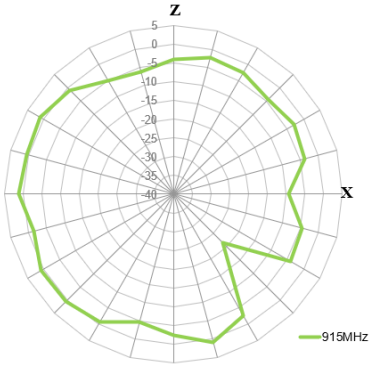
Freespace

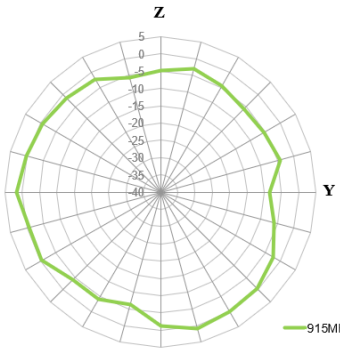
30x30cm Groundplane

XY Plane	XZ Plane	YZ Plane

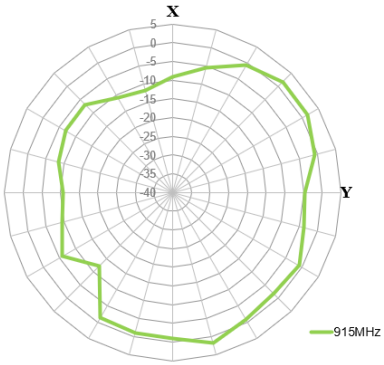
Freespace

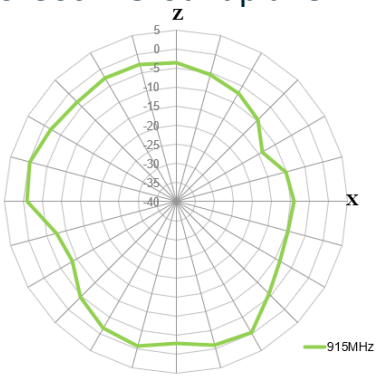


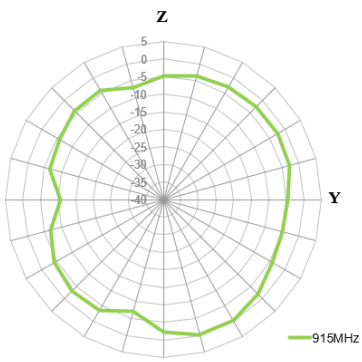




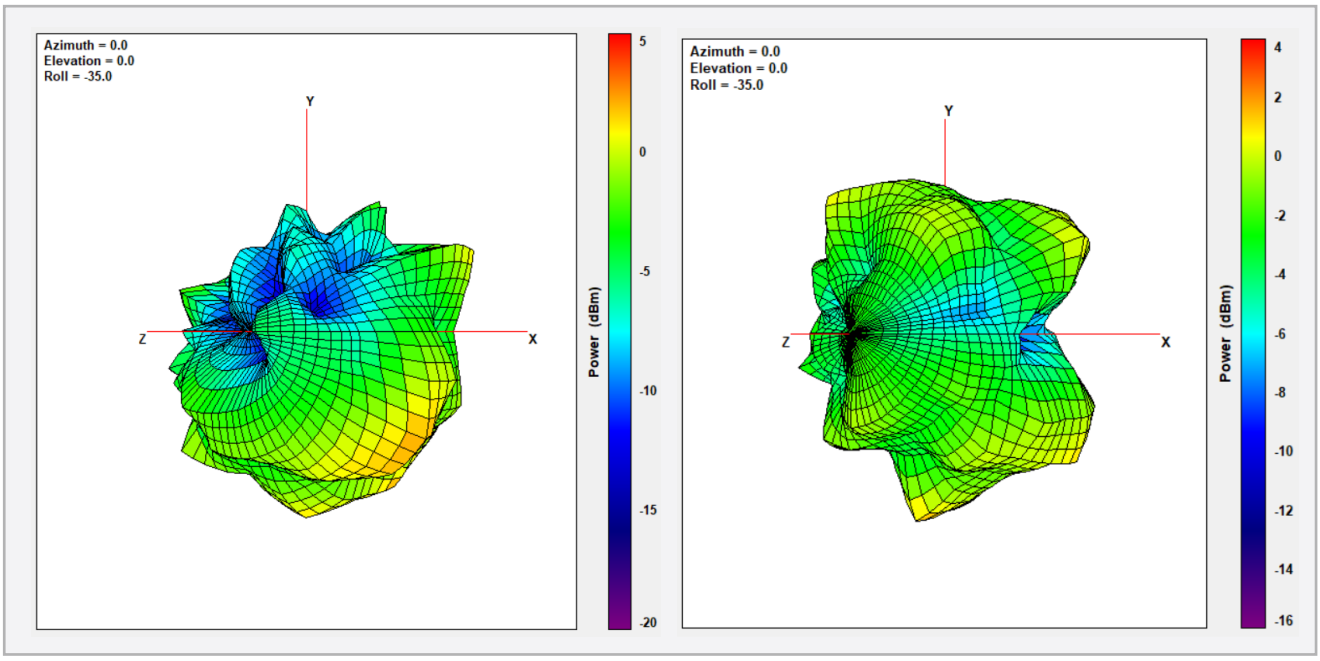
30x30cm Groundplane







1710MHz

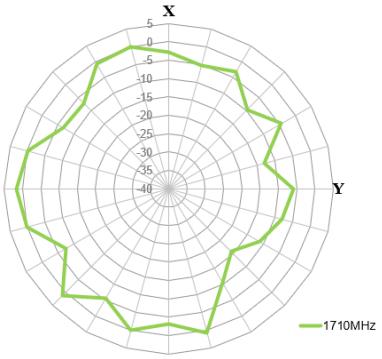


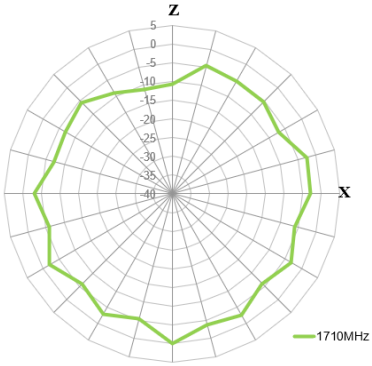
Freespace

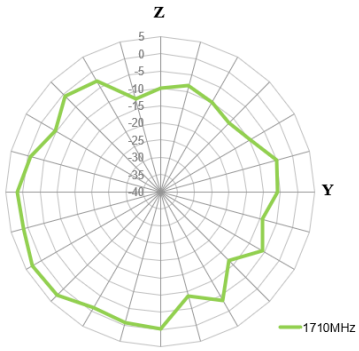
30x30cm Groundplane

XY Plane	XZ Plane	YZ Plane

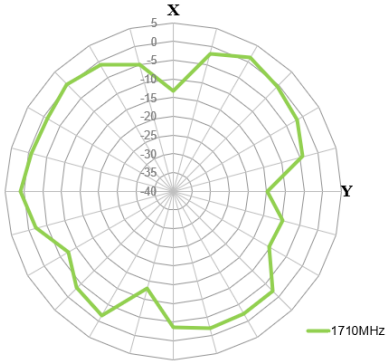
Freespace

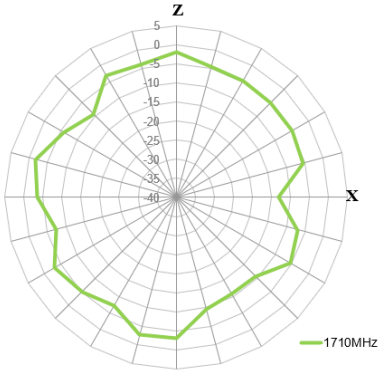


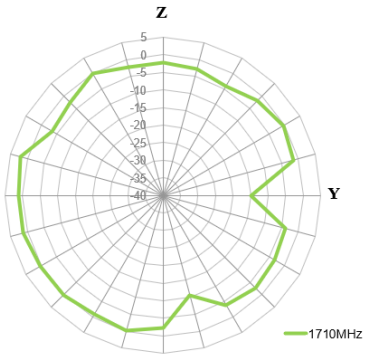




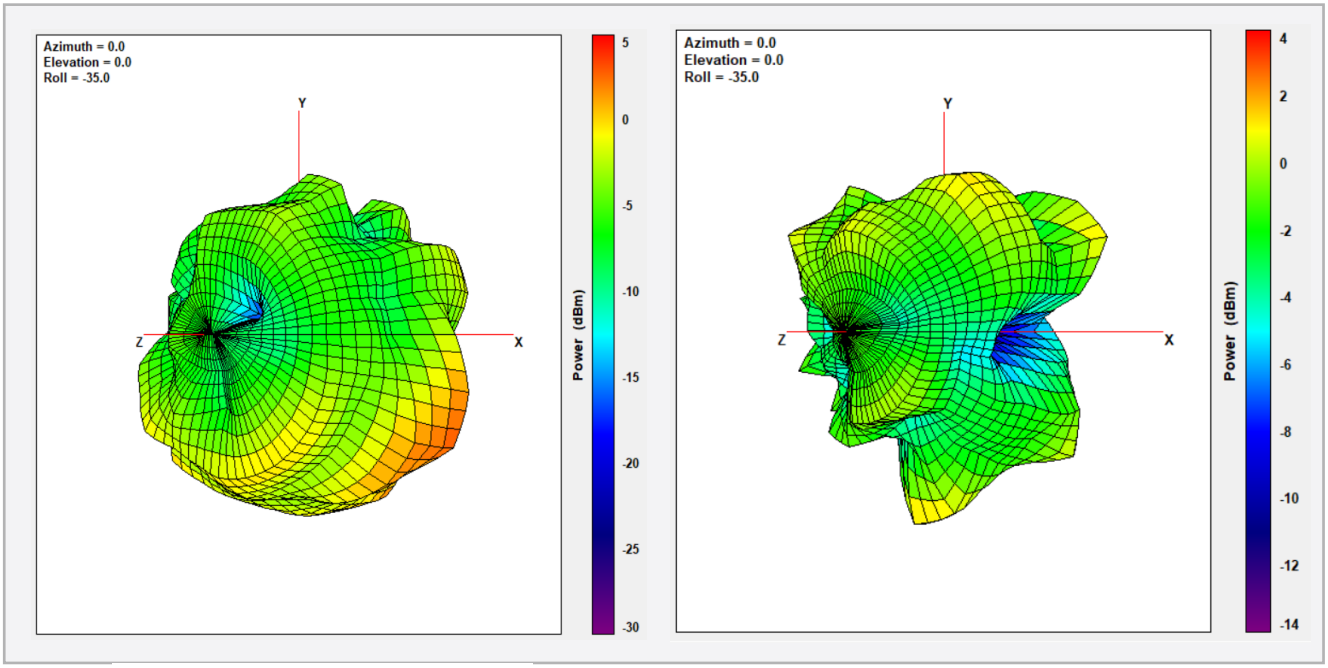
30x30cm Groundplane







1805MHz

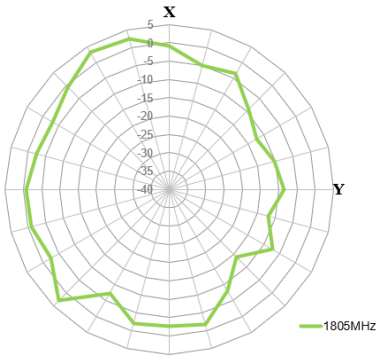


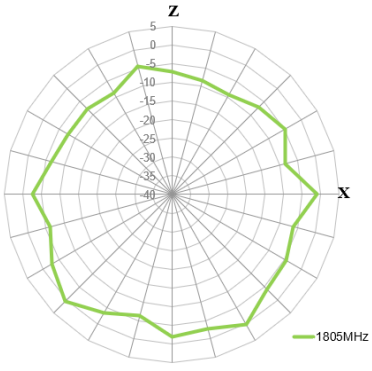
Freespace

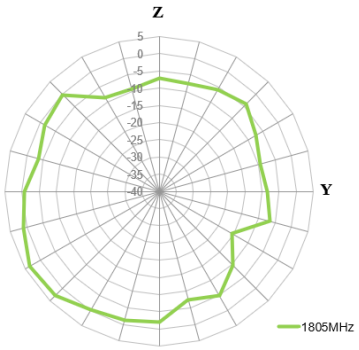
30x30cm Groundplane

XY Plane	XZ Plane	YZ Plane

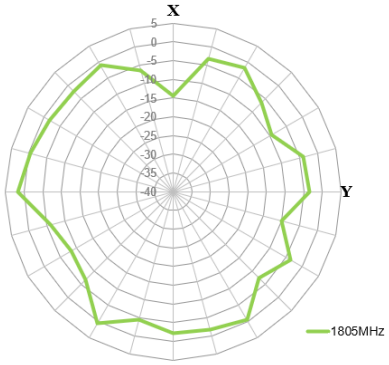
Freespace

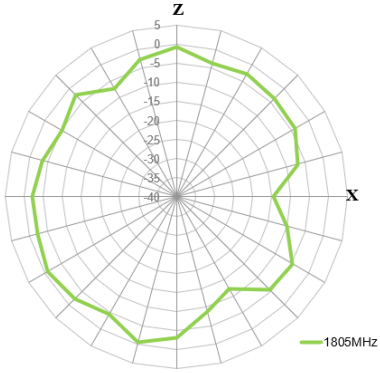


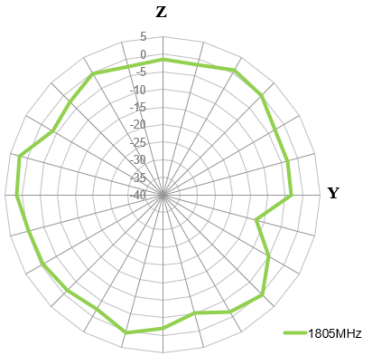




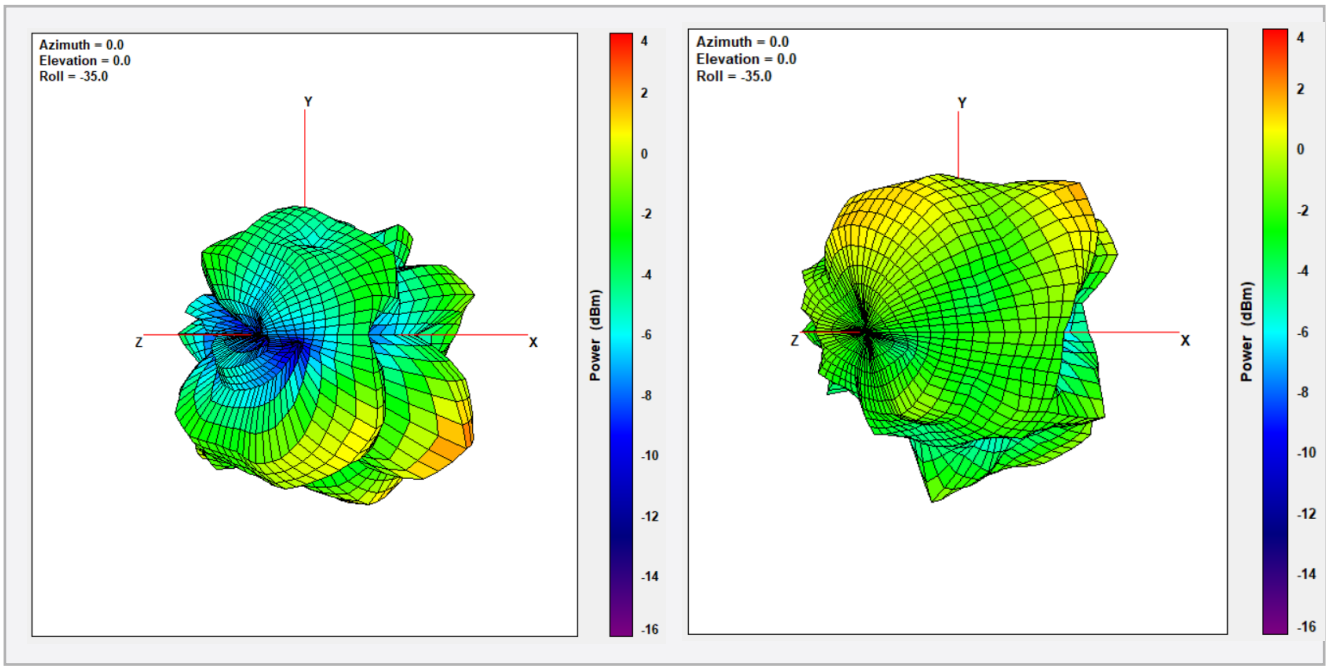
30x30cm Groundplane







1910MHz

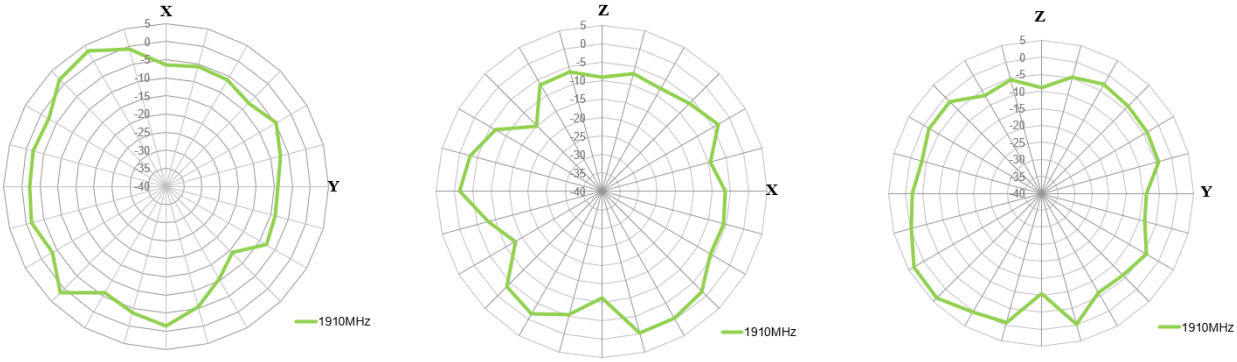


Freespace

30x30cm Groundplane

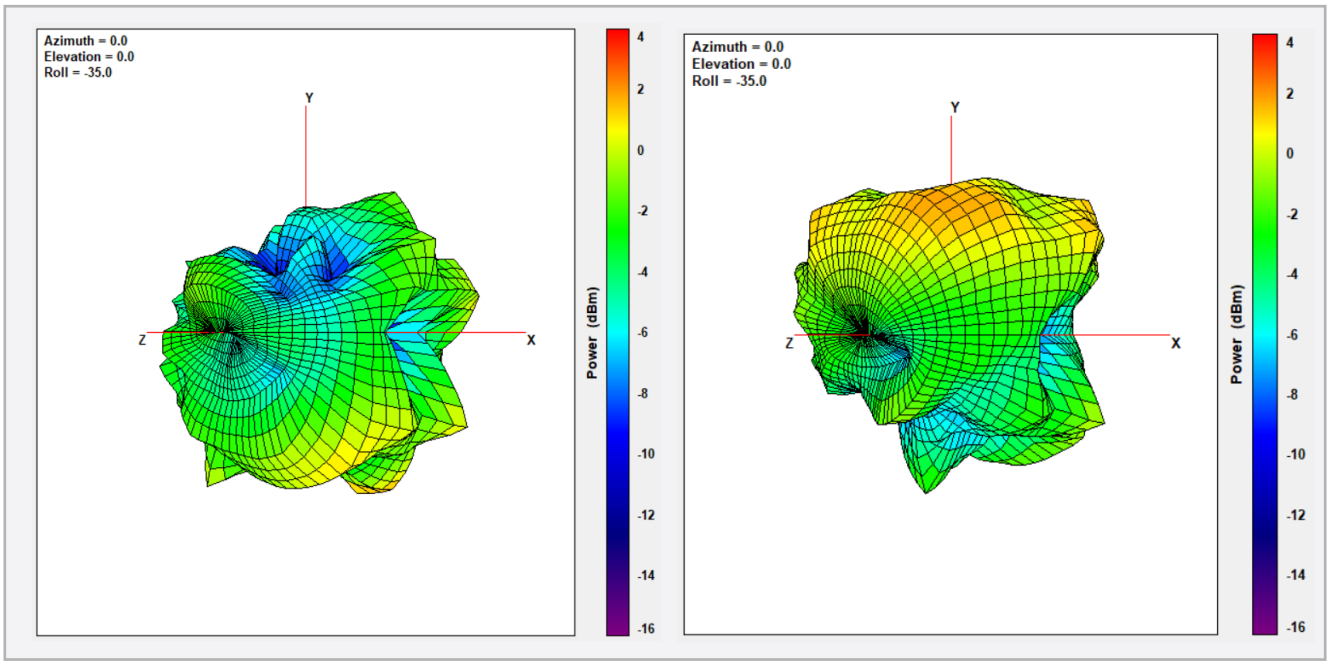
XY Plane	XZ Plane	YZ Plane

Freespace



30x30cm Groundplane

1990MHz

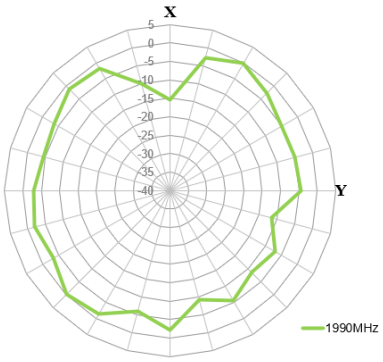


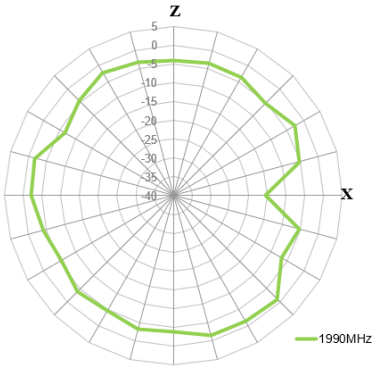
Freespace

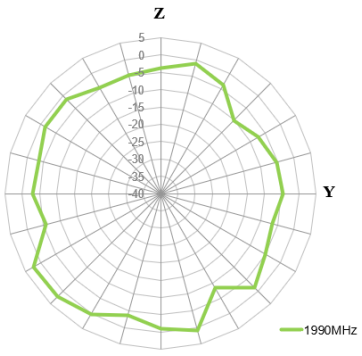
30x30cm Groundplane

XY Plane	XZ Plane	YZ Plane

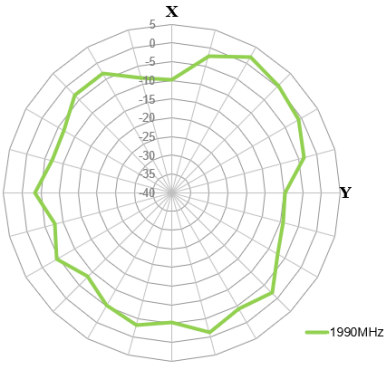
Freespace

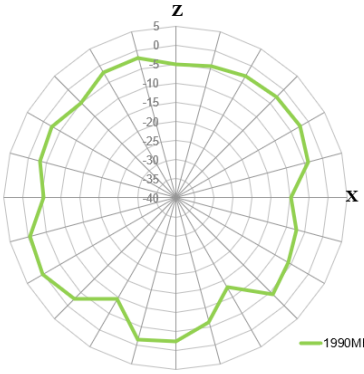


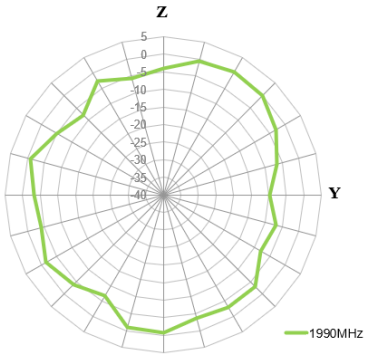




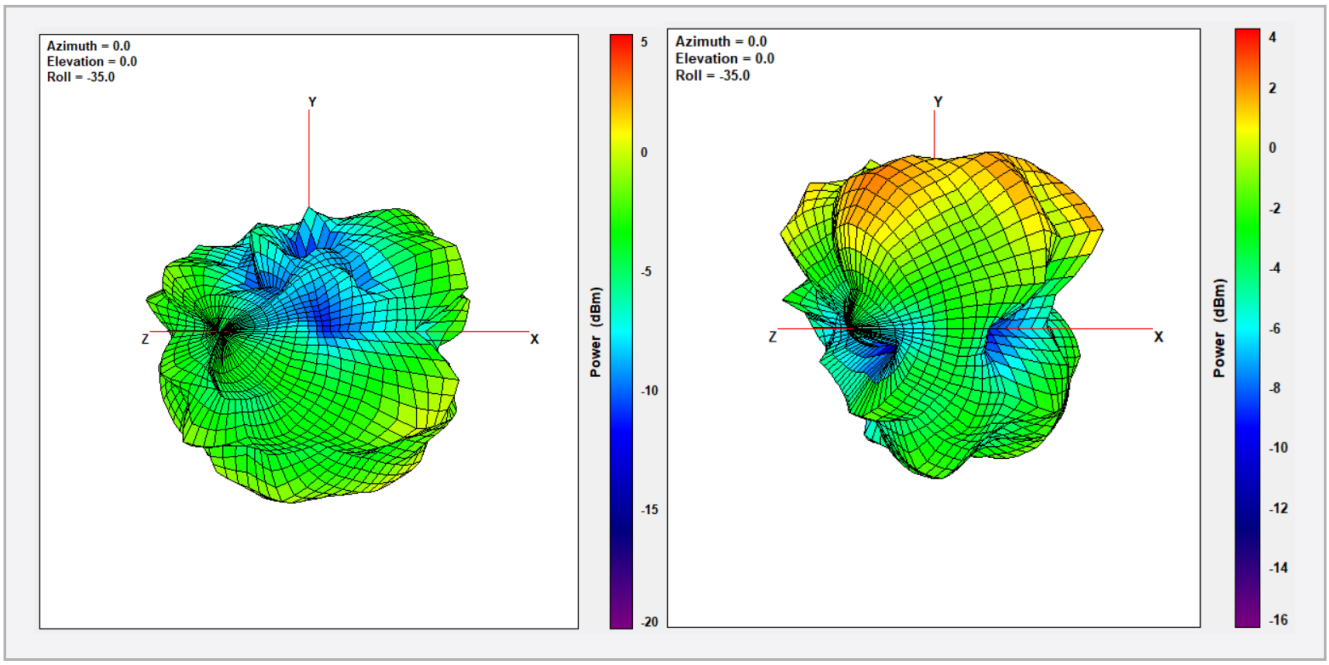
30x30cm Groundplane







2110MHz

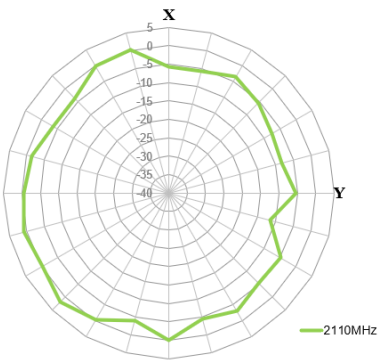


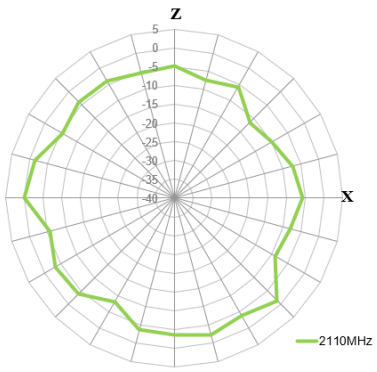
Freespace

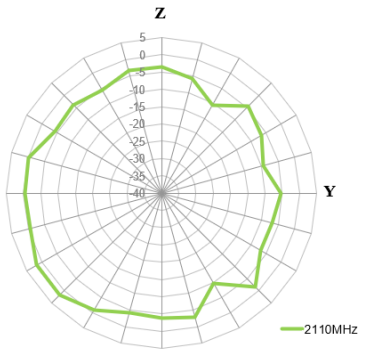
30x30cm Groundplane

XY Plane	XZ Plane	YZ Plane

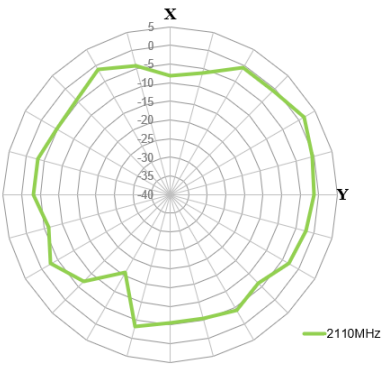
Freespace

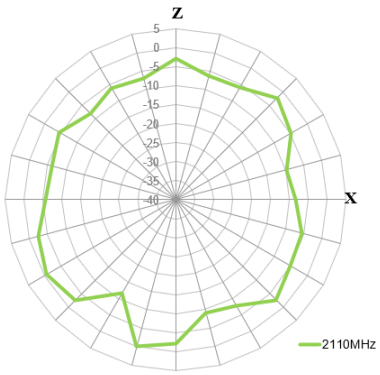


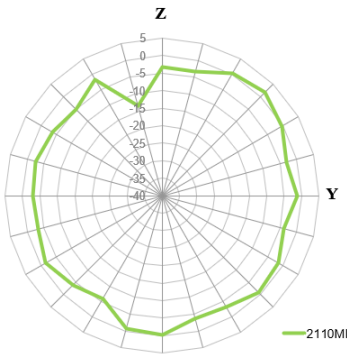




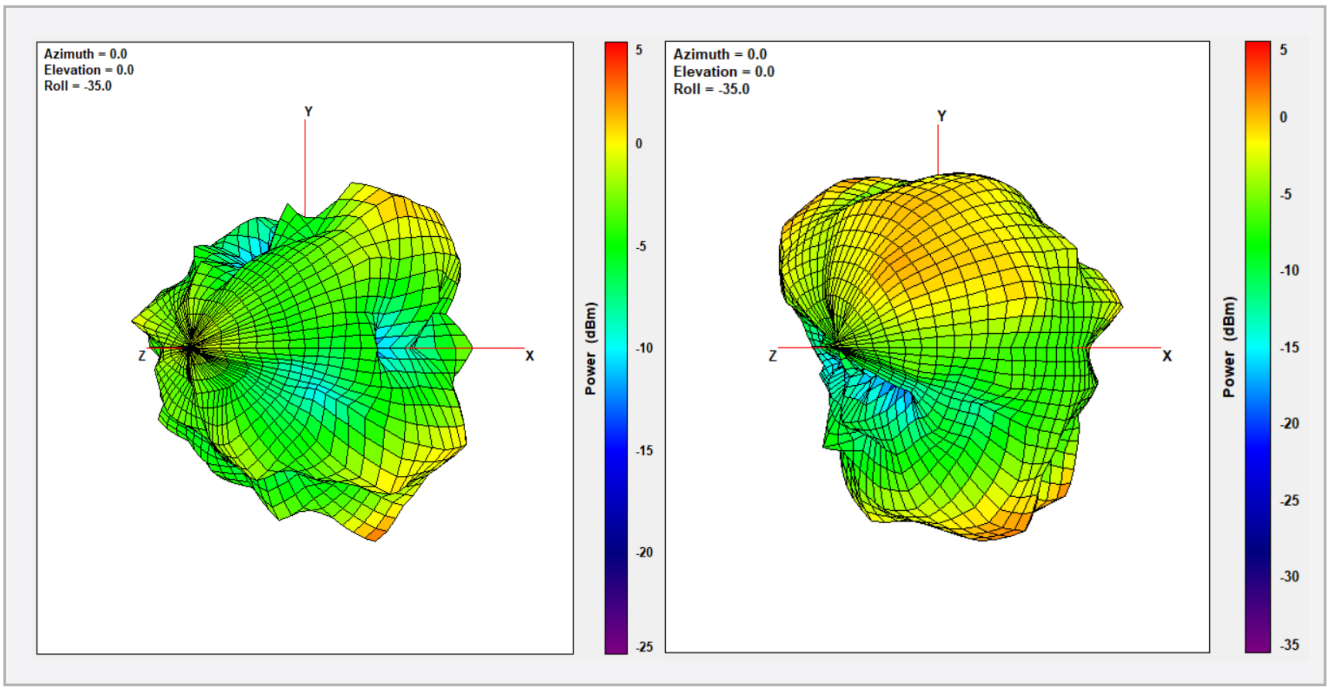
30x30cm Groundplane







5595MHz

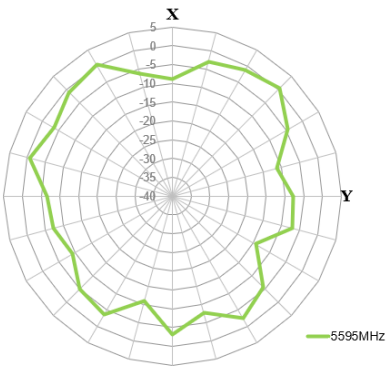


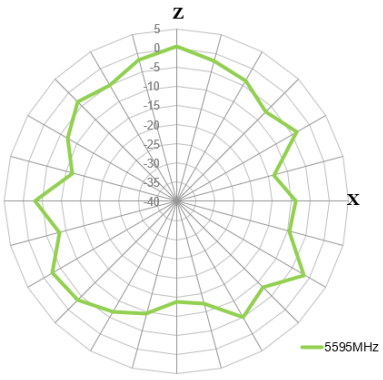
Freespace

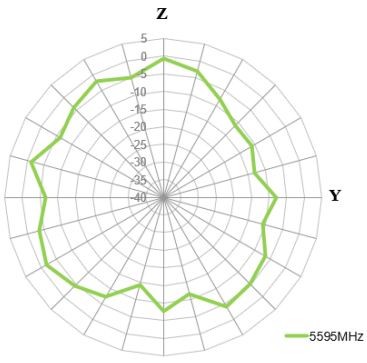
30x30cm Groundplane

XY Plane	XZ Plane	YZ Plane

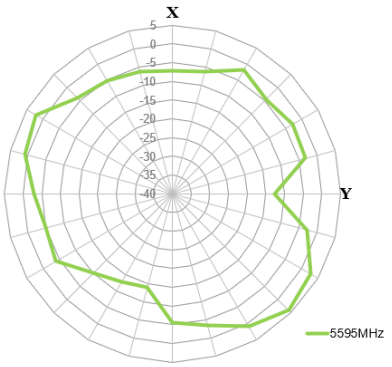
Freespace

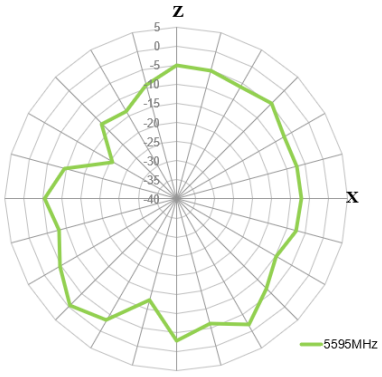


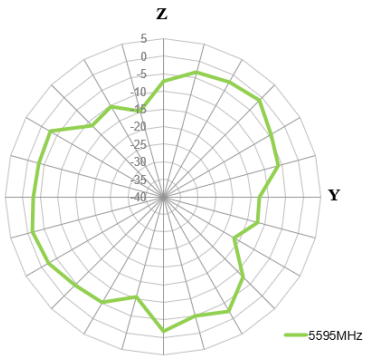




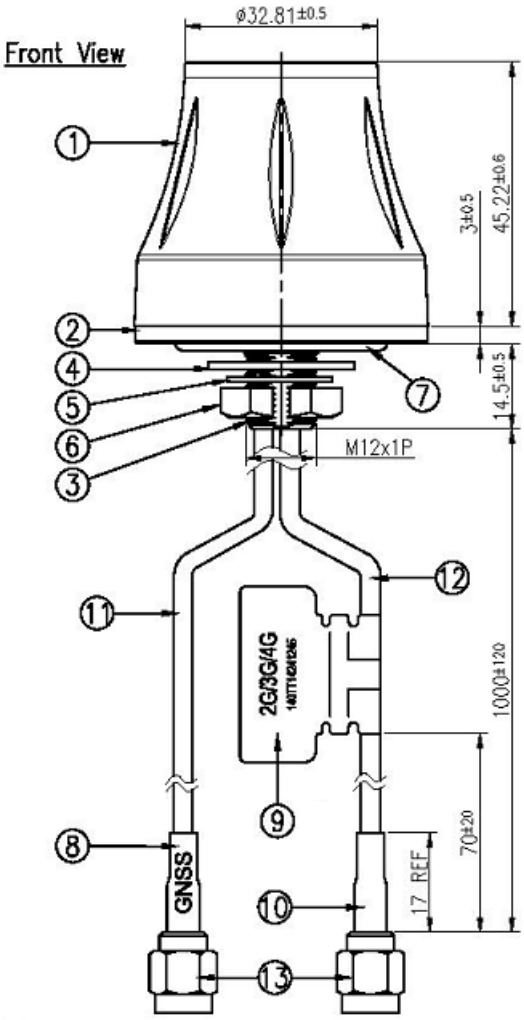
30x30cm Groundplane

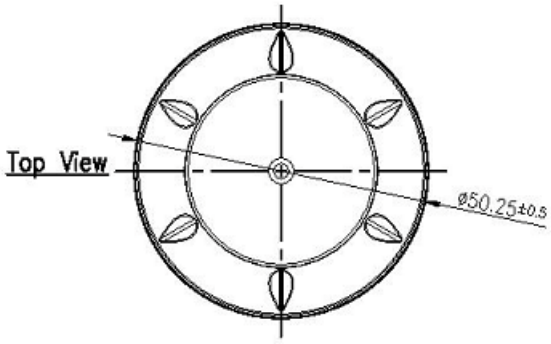






5. Mechanical Drawing (Units: mm)

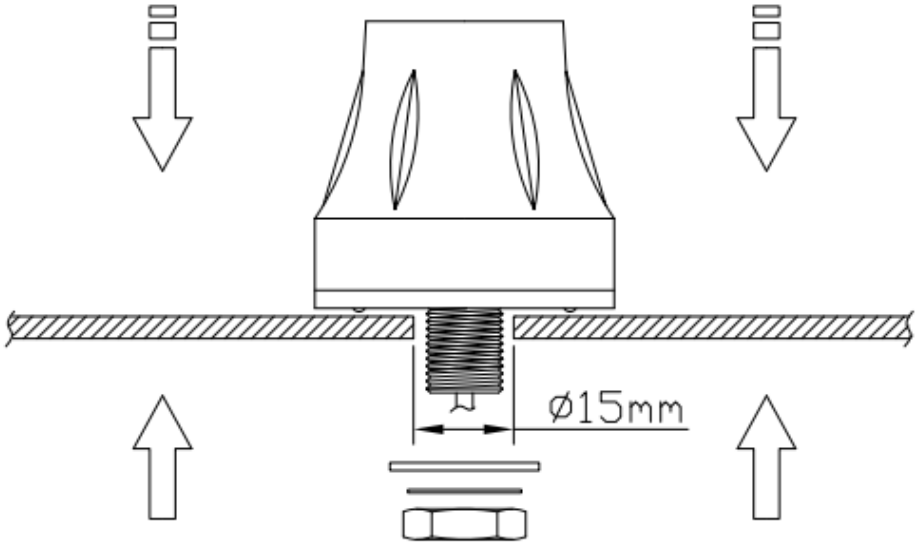




	Name	P/N	Material	Finish	QTY
1	Housing Top	000117C000000A	ABS	Black	1
2	Housing Bottom	000117C000000A	ABS	Black	1
3	Thread_Short	000217C000000A	Brass	Ni Plated	1
4	Gasket	000417C020000A	POM	Red	1
5	Multi Tooth Washer	000417C000000A	Iron	Ni Plated	1
6	Nut M12_Cut	000417C010000A	Copper	Ni Plated	1
7	O-Ring	000717C000000A	Silicone	Black	1
8	Heat Shrink Tube (GNSS)	001316C000000A	PE	Blue Tube/White Text	1
9	MA140 Label	001018E220000A	PEPA	White	1
10	Heat Shrink Tube	001315C020000A	PE	Black	1
11	RG174 Coaxial Cable	301315C000000A	PVC	Black	1
12	RG316 Coaxial Cable	301615C000000A	FEP	Brown	1
13	SMA(M)ST	200216D00009BA	Brass	Au Plated	1

Download Drawing Download 3D Model

6. Installation



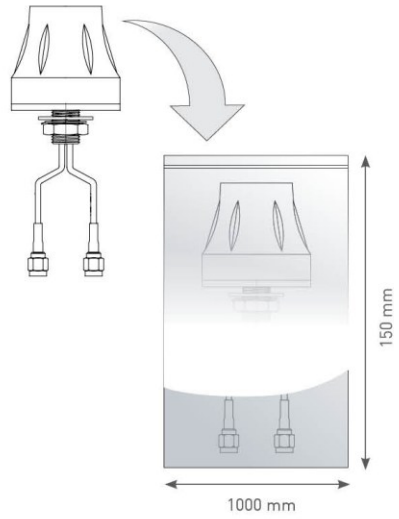
Recommended torque for mounting: 2.8~3.8Nm

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

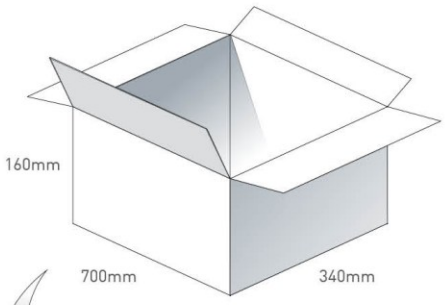
***For high-vibration applications, thread-locking adhesive is recommended for secure fastening.**

7. Packaging

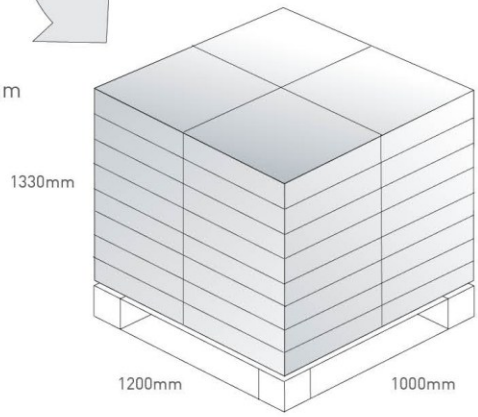
1pc MA140.A.LB.001 per PE bag
Carton Dimensions - 150*100mm
Total Weight - 94g



120 pcs MA140.A.LB.001 per carton
Carton Dimensions - 700*340*160mm
Total Weight - 12.1kg



Pallet Dimensions 1200mm*1000mm*1330mm
32 Cartons per pallet
4 Cartons per layer
8 Layers



Changelog for the datasheet

SPE–14-8-117- MA140.A.LB.001

Revision: G (Current Version)	
Date:	2026-09-30
Changes:	Updated recommended torque
Changes Made by:	Cesar Sousa

Previous Revisions

Revision: F	
Date:	2022-06-07
Changes:	Full Datasheet update
Changes Made by:	Evan Murphy

Revision: A (Original First Release)	
Date:	
Notes:	
Author:	Technical Writer

Revision: E	
Date:	2020-11-02
Changes:	
Changes Made by:	Dan Cantwell

Revision: D	
Date:	
Changes:	
Changes Made by:	Technical Writer

Revision: C	
Date:	
Changes:	
Changes Made by:	Technical Writer

Revision: B	
Date:	
Changes:	
Changes Made by:	Technical Writer

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