



Datasheet

MA2330 – 3in1 Headliner Adhesive Antenna

Part No:
MA2330.A.ACT.001

Description:
MA2330 - 3in1 GNSS, Wi-Fi & AM/FM

Features:

- 3 in 1 Headliner Adhesive Antenna
- ASA+PC Housing with FM Metalized Film Antenna
- GNSS: FAKRA Code C Blue Connector
- Wi-Fi: FAKRA Code I Beige Connector
- FM/WB: FAKRA Code A Black Connector
- IP21 Waterproof Rated
- Manufactured in TS16949 Automotive Approved Facilities
- RoHS & Reach Compliant

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1. Introduction



The MA2330.A Headliner antenna is a next generation 3in1, embedded solution for vehicles. It's made with robust ABS+PC housing. The antenna is approved for use on heavy-duty trucks and meets the strictest OEM heavy-duty truck standards. It supports the following bands: GNSS (GPS/GLONASS/GALILEO/BeiDou), Wi-Fi (2.4/5.8GHz), and FM/WB.

The antenna is first tier TS16949 heavy-duty truck approved and is an ideal choice for:

- OEM automotive
- Trucks
- Other vehicles and heavy equipment.

The antenna comes with low-loss RG-174 coaxial pigtail cables as standard, terminating in FAKRA SMB code C for GNSS, FAKRA SMB code A for FM, and with FAKRA SMB code I for Wi-Fi. The FM/WB antenna is passive and utilizes a long metalized film to increase receive signal sensitivity. The antenna is manufactured in TS16949 automotive approved facilities.

Contact your local Taoglas customer service team for more information or installation guidelines.

2. Specifications

GNSS Antenna	
Frequency	BeiDou: $1561.098 \pm 2.046\text{MHz}$. GPS: $1575.42 \pm 1.023\text{MHz}$ GLONASS: $1602 \pm 5\text{MHz}$
Return loss (GPS L1 GLONASS L1)	< -10 dB
Efficiency	57%
Passive Gain at Zenith (GPS L1 and GLONASS L1)	+3.3 dBi
Average Gain	-2.4
Polarization	RHCP
Impedance	50 Ω

Wi-Fi Antenna		
Frequency	2400~2500MHz	5000~5830MHz
Return loss	<-27.8dB	<-10dB
Efficiency	60%	60%
Peak Gain	4dBi	3.7dBi
Average Gain	-1.9dB	-1.9dB
Impedance	50 Ω	

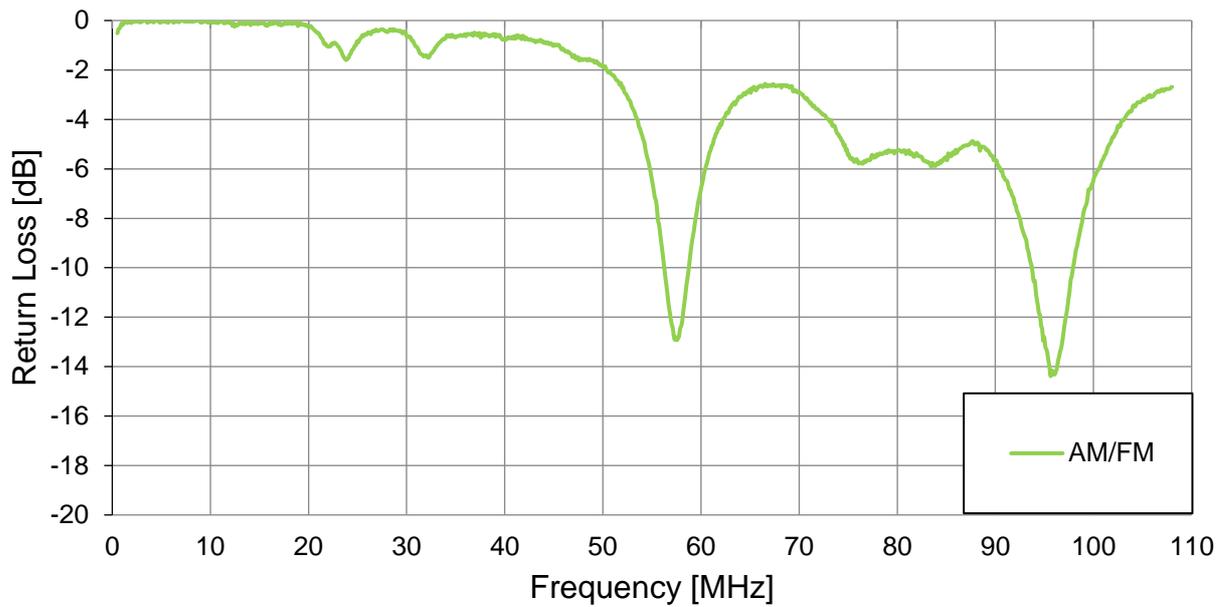
FM Antenna	
FM Radio Bands	
88~108MHz	

Mechanical	
Dimensions	664.33*83.99*14.86mm
Cable	300mm RG-178
Connector	GPS: FAKRA Code C FM: FAKRA Code A Wi-Fi/BT: FAKRA Code I
Casing	ASA+PC w/UV Stabilizer
Adhesive	3M 9448HK on flex 3M VHB 5952 on HSG
Cable Pull	35.59N
Weight	0.145kg
Environmental	
Waterproof	IP21
Temperature Range	-40°C to 85°C
Thermal Shock	IEC 60068-2-14
Humidity	Non-condensing 65°C 95% RH

3. Antenna Characteristics

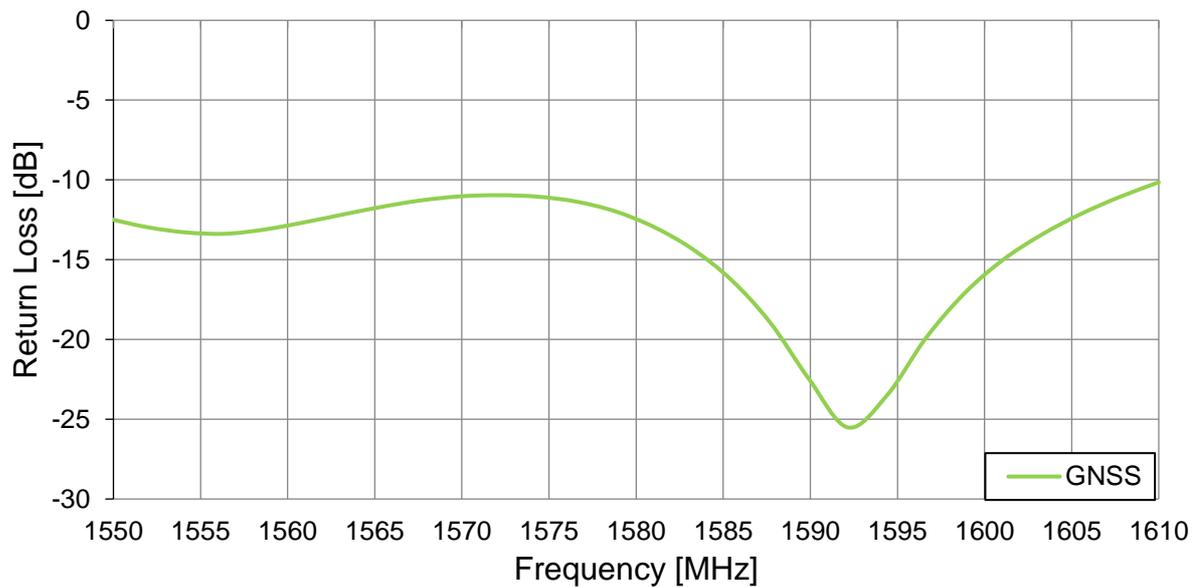
3.1 FM

Return Loss

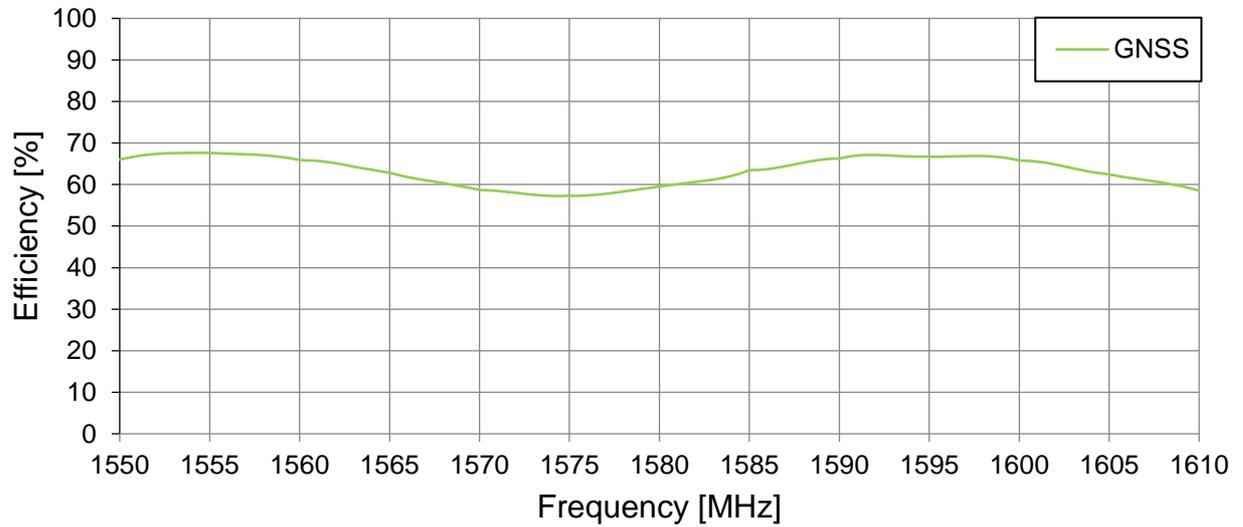


3.2 GNSS

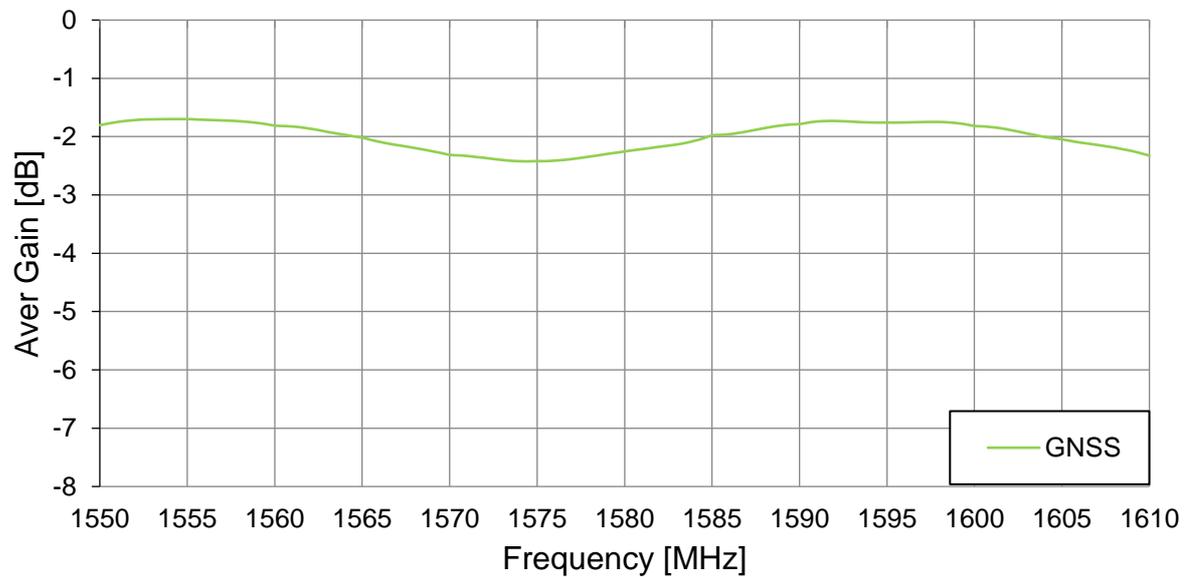
Return Loss



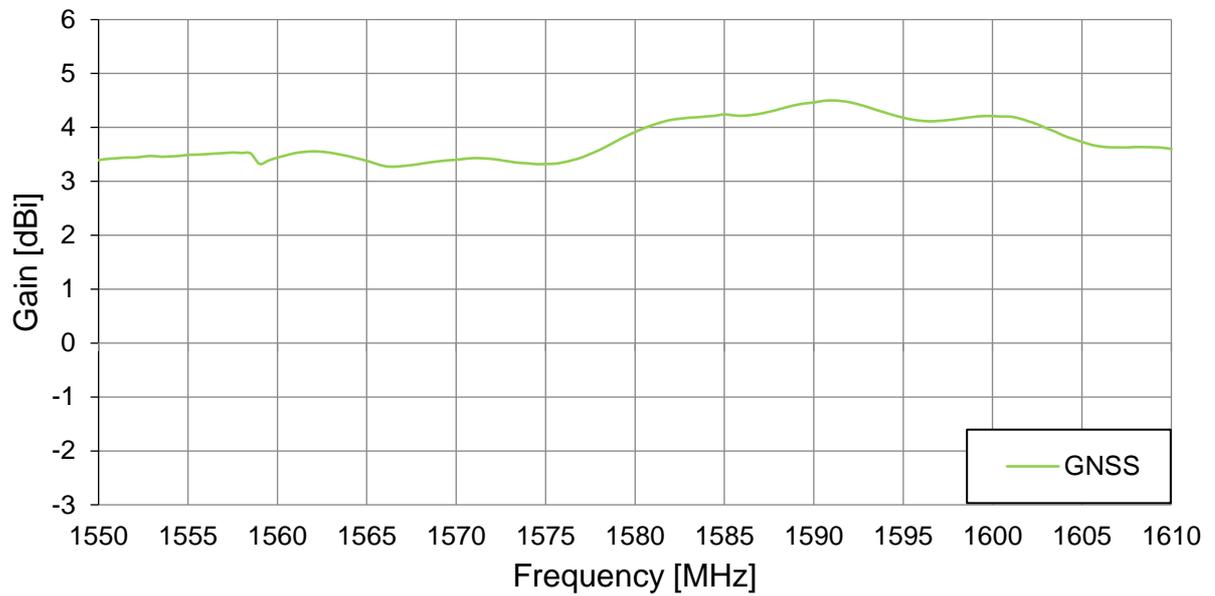
Efficiency



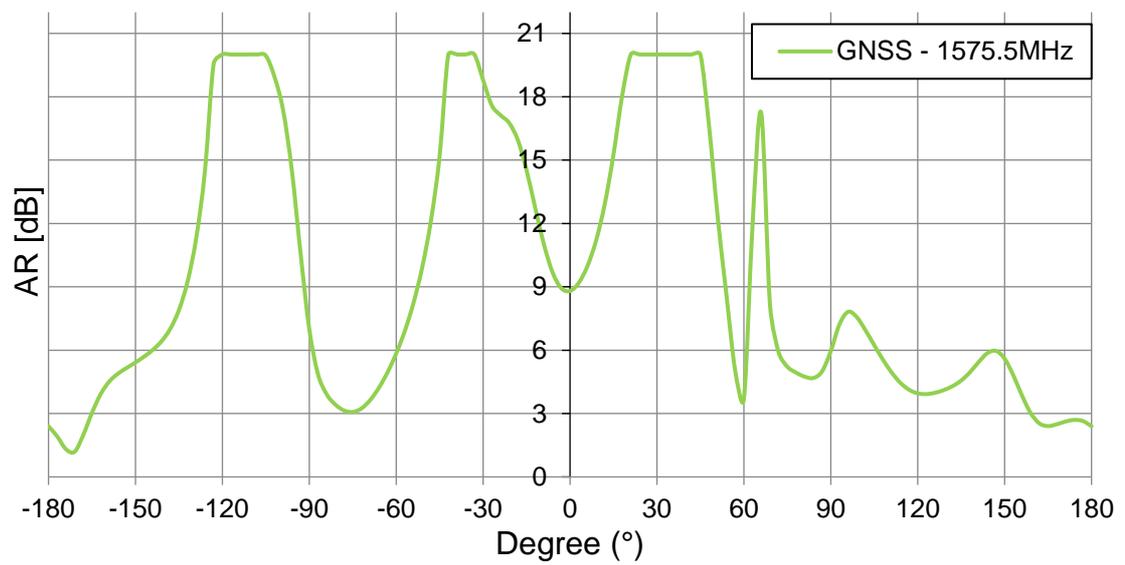
Average Gain



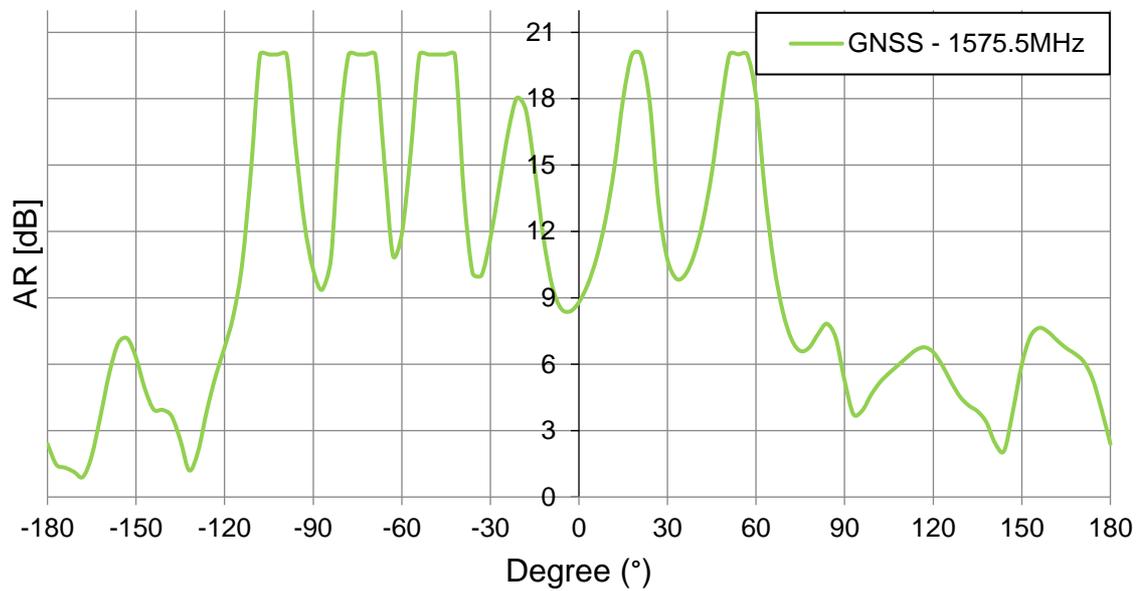
Peak Gain



Axial Ratio XZ Plane @ 1575.5MHz



Axial Ratio YZ Plane @ 1575.5MHz

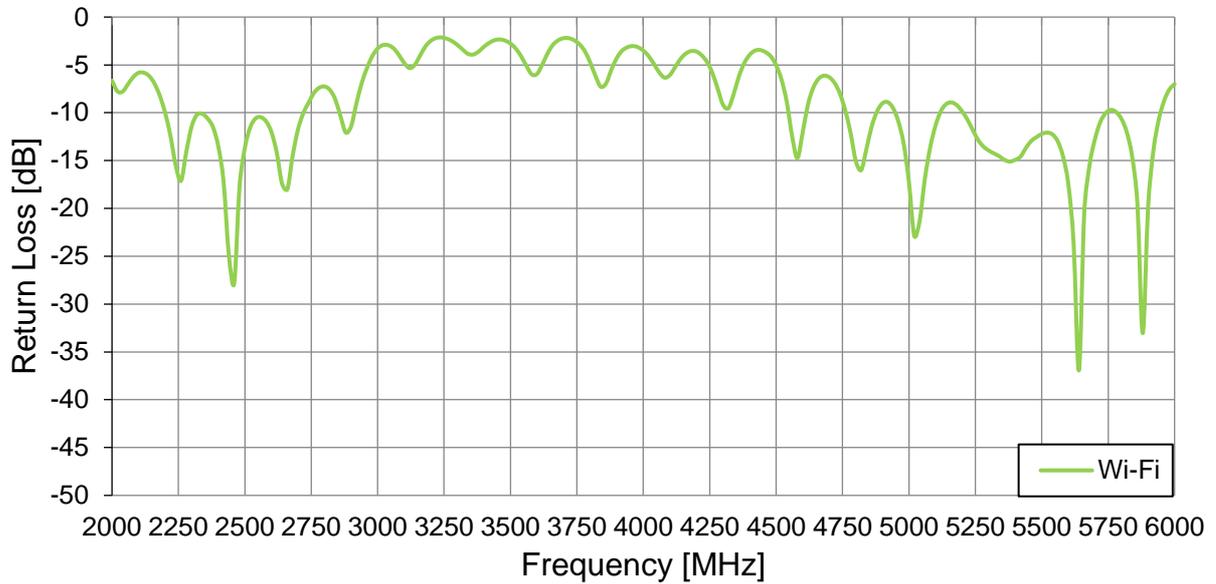


Amplifier

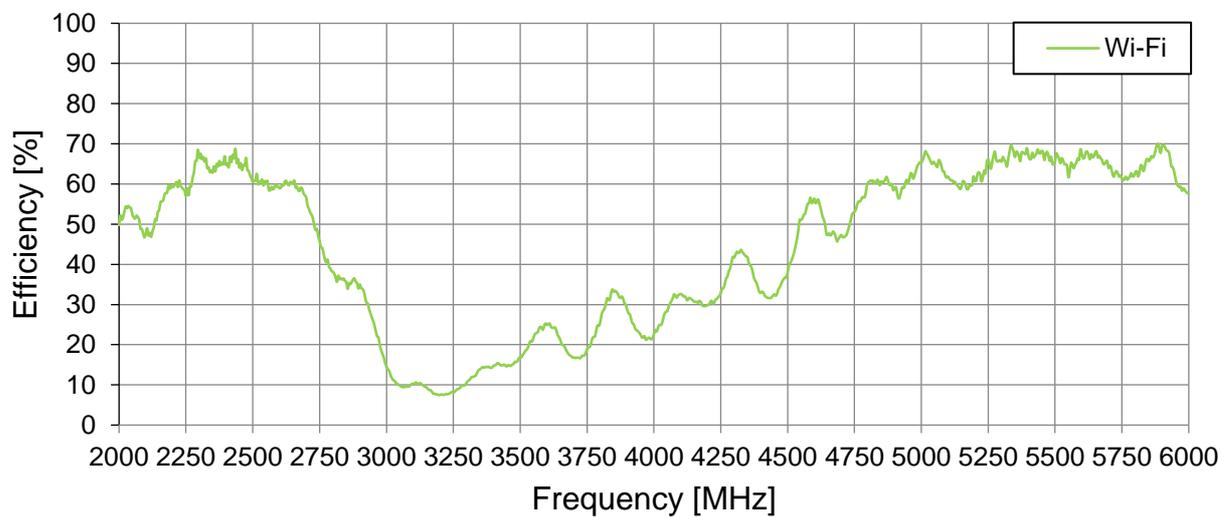
LNA-10	Frequency Range	1584.5.5±25.5MHz
LNA-20	Gain	31dB Typ
LNA-30	Noise Figure	1.5dB Typ
LNA-40	Output 1dB CP	10.0 dBm Typ
LNA-50	Out Band Rejection	f_0 : 1584.5MHz
		$f_0 \pm 20$ MHz 15dB Min
		$f_0 \pm 50$ MHz 30dB Min
		$f_0 \pm 100$ MHz 40dB Min
LNA-60	Output SWR	2:1 Max
Power		
POW-10	Input Voltage	3.5 ~ 5V
POW-20	Current	30mA Typ

3.3 Wi-Fi Antenna

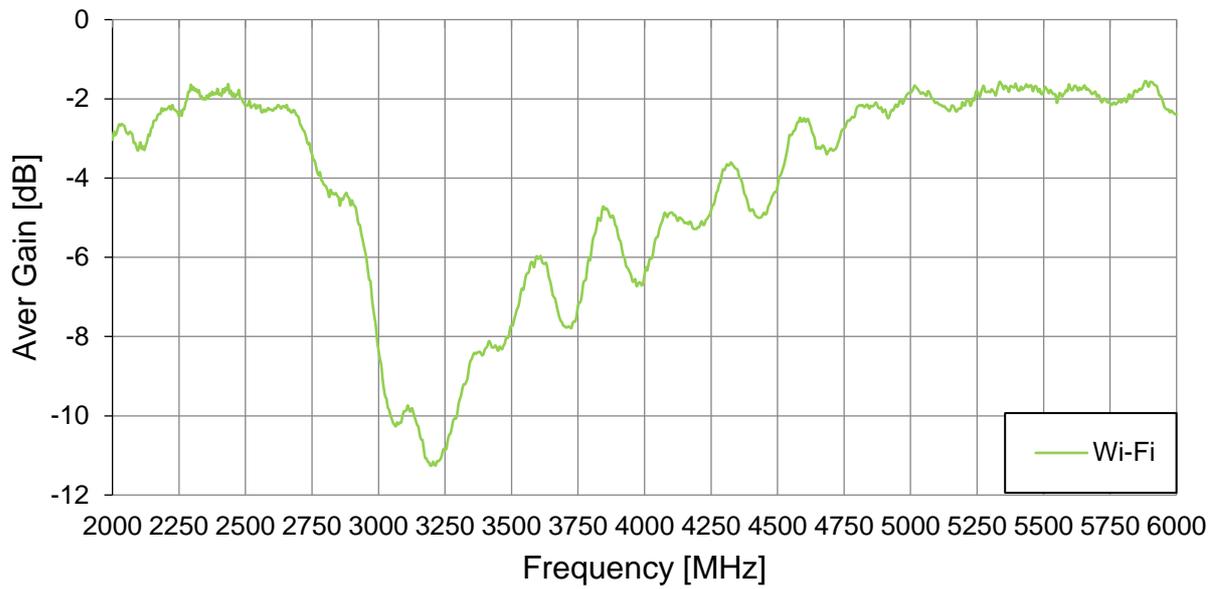
Return Loss



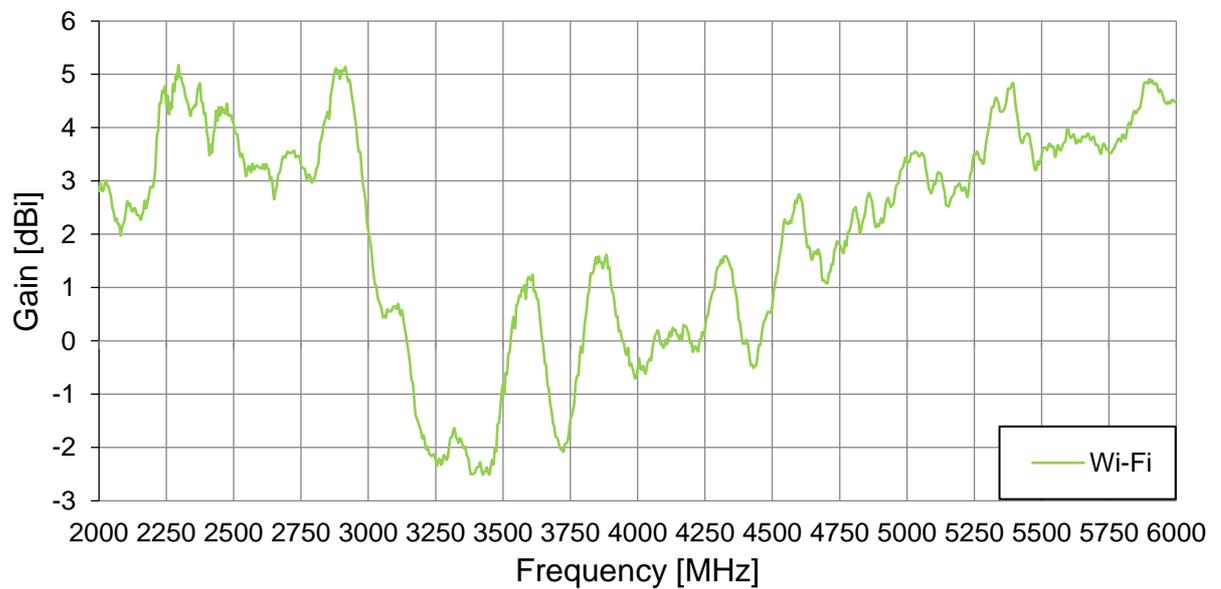
Efficiency



Average Gain

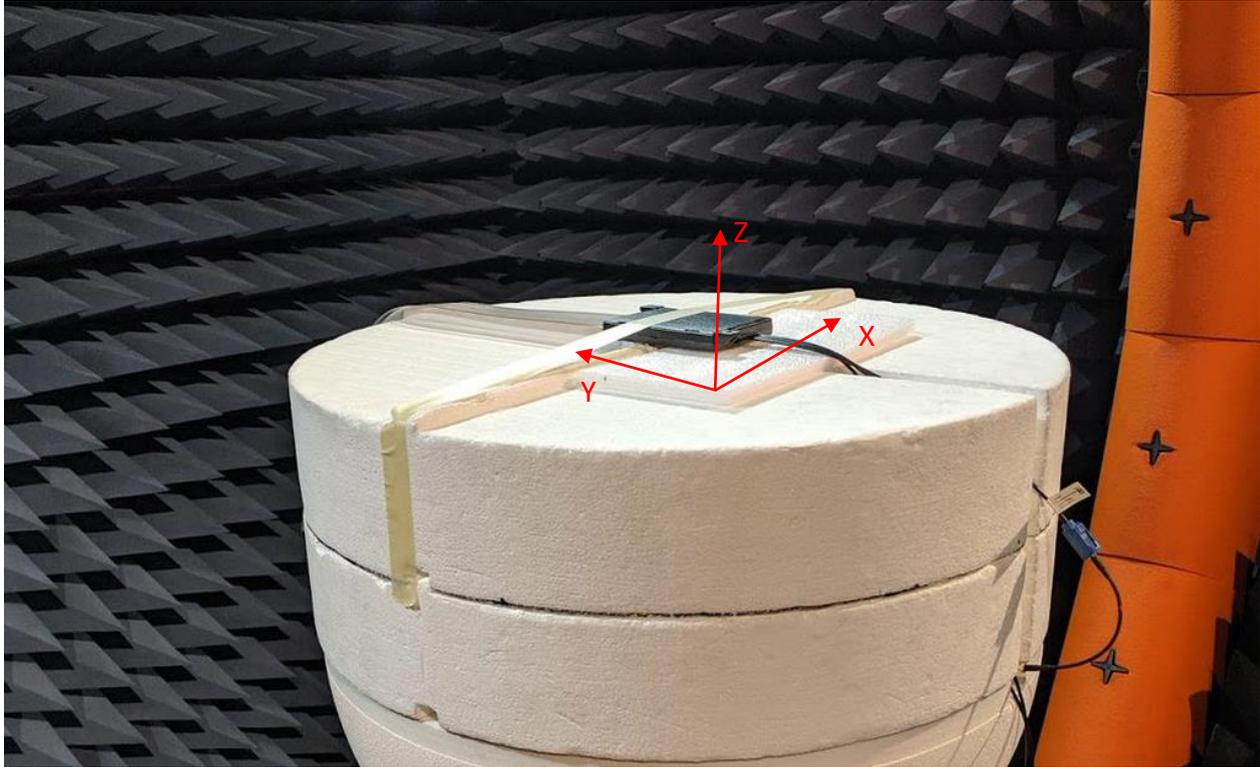


Peak Gain

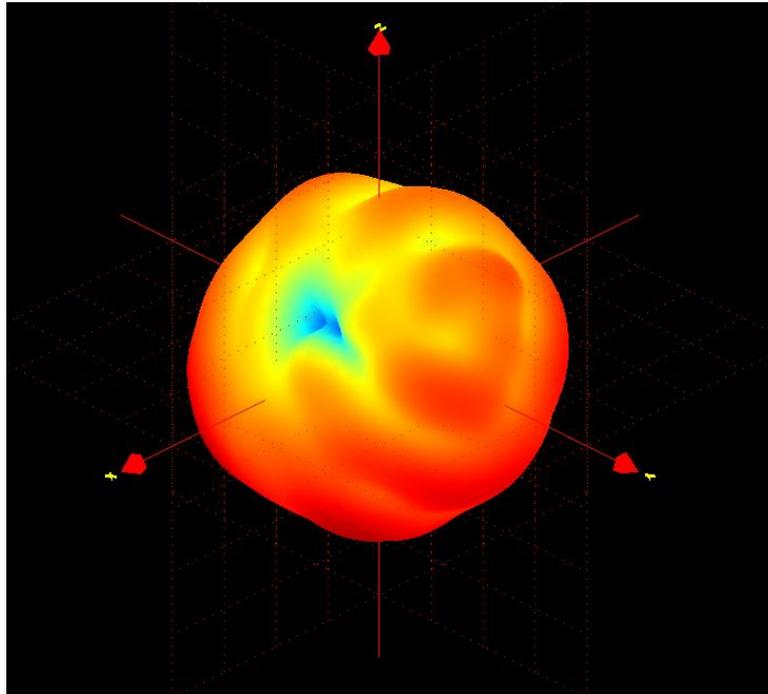


4. Radiation Patterns

4.1 Test Setup



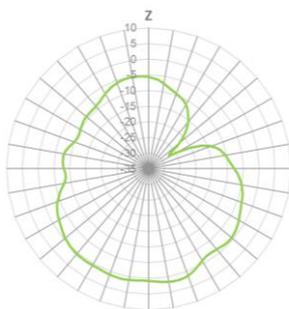
4.2 GNSS 1559MHz 3D and 2D Radiation Patterns



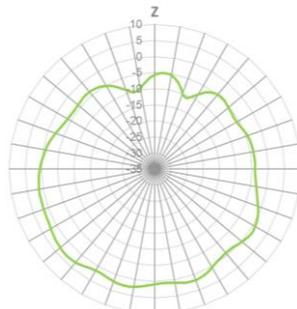
XZ Plane

YZ Plane

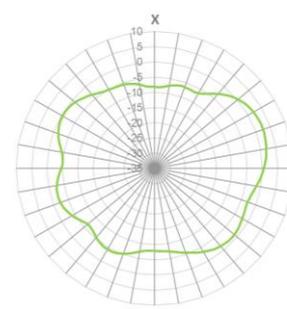
XY Plane



1559 MHz

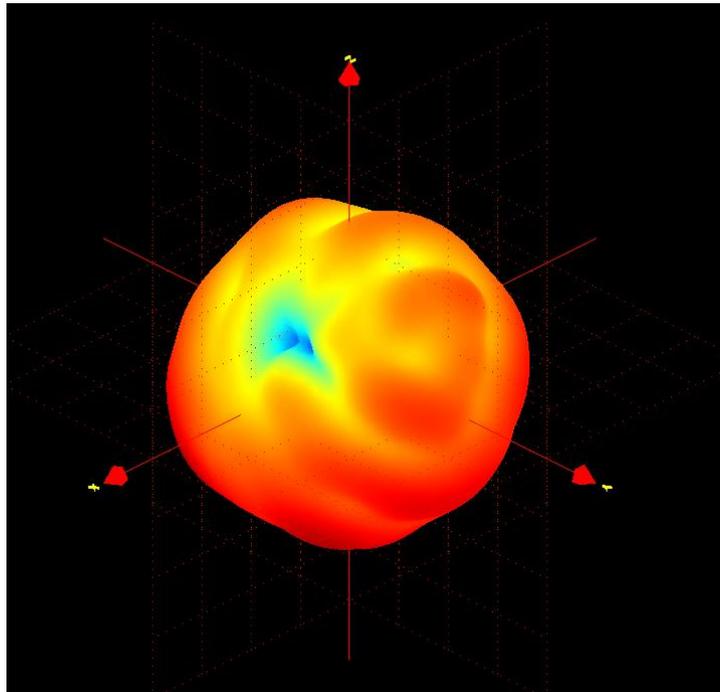


1559 MHz



1559 MHz

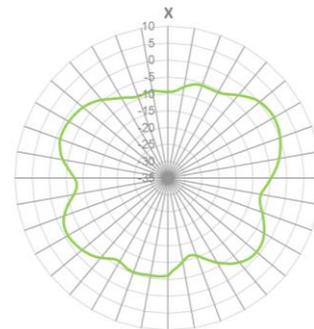
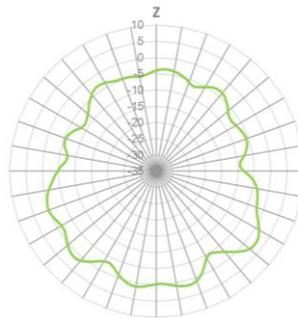
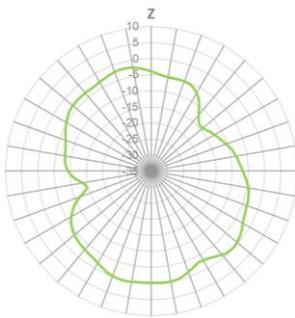
4.3 GNSS 1575MHz 3D and 2D Radiation Patterns



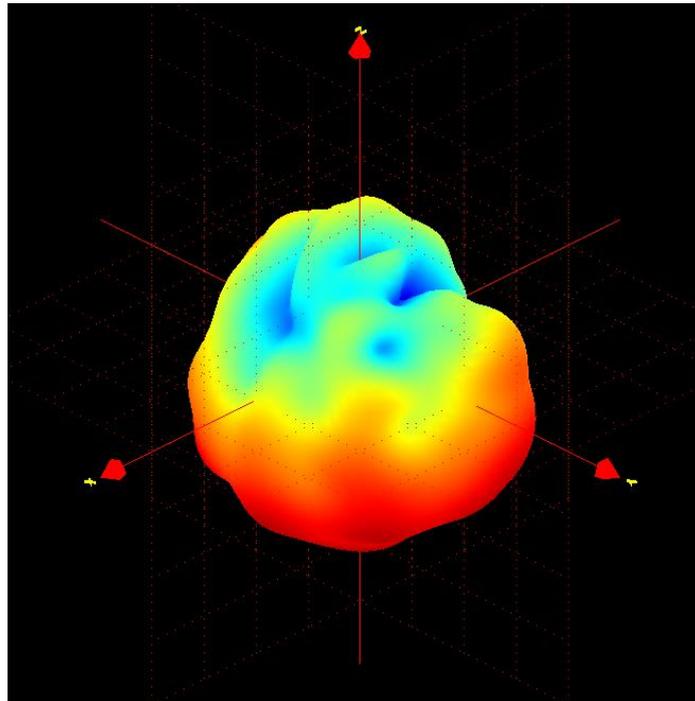
XZ Plane

YZ Plane

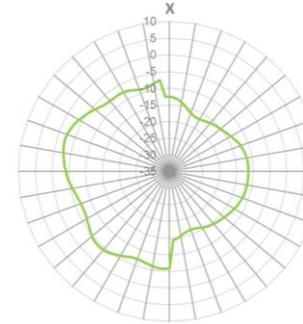
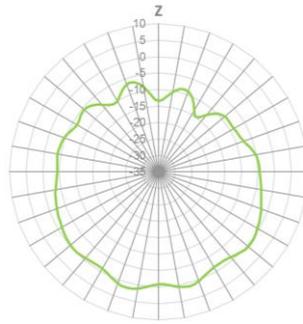
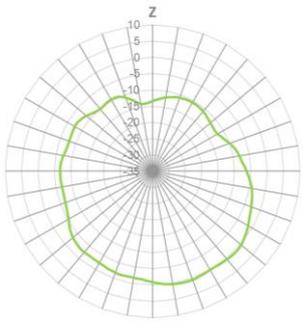
XY Plane



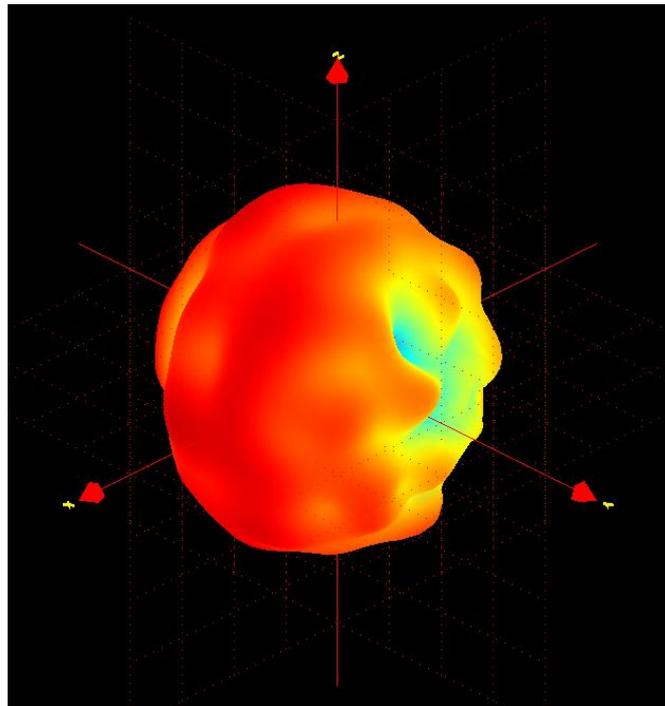
4.4 GNSS 1602MHz 3D and 2D Radiation Patterns



XZ Plane YZ Plane XY Plane



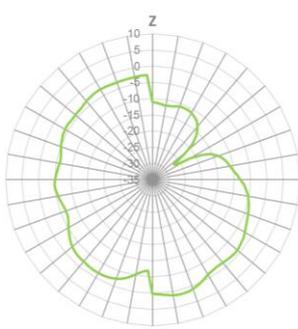
4.5 Wi-Fi 2400MHz 3D and 2D Radiation Patterns



XZ Plane

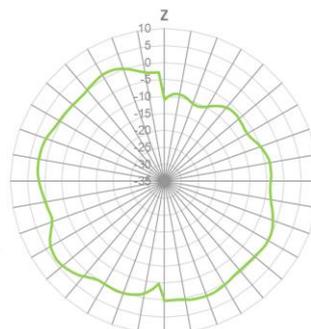
YZ Plane

XY Plane



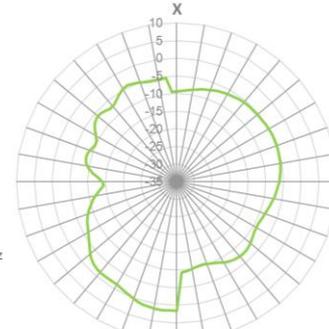
X

— 2400 MHz



Y

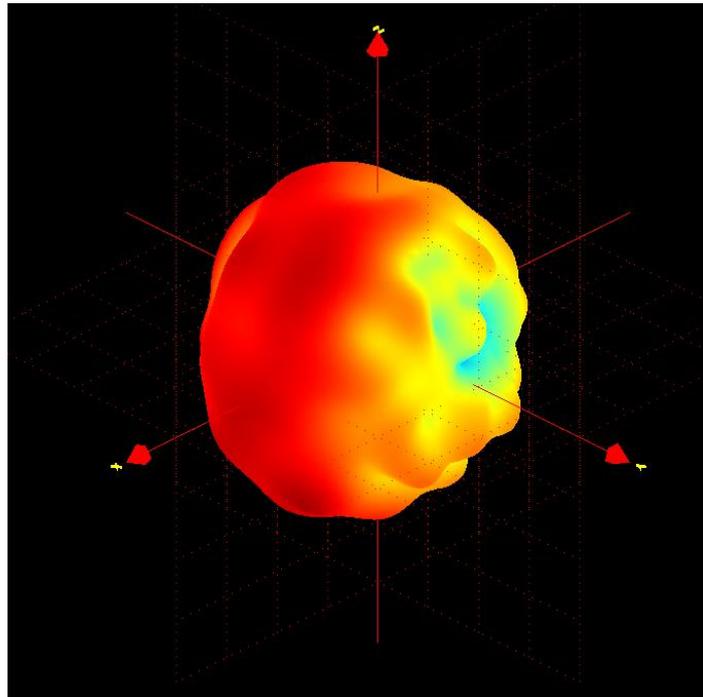
— 2400 MHz



Y

— 2400 MHz

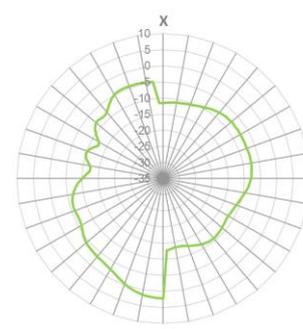
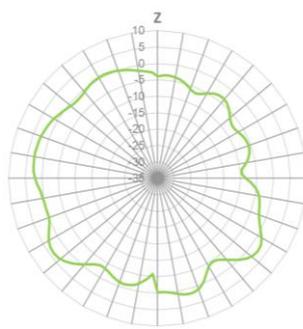
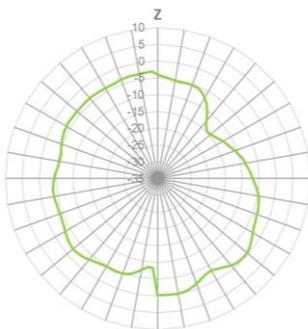
4.6 Wi-Fi 2450MHz 3D and 2D Radiation Patterns



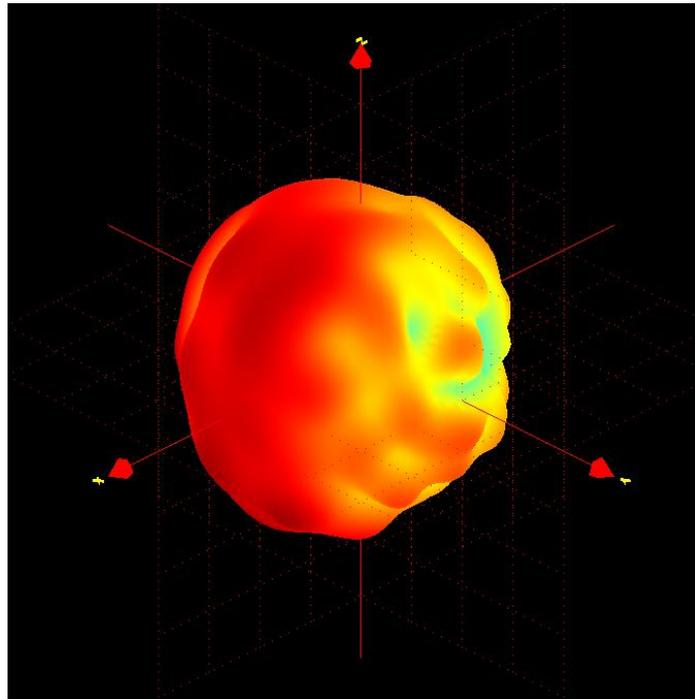
XZ Plane

YZ Plane

XY Plane



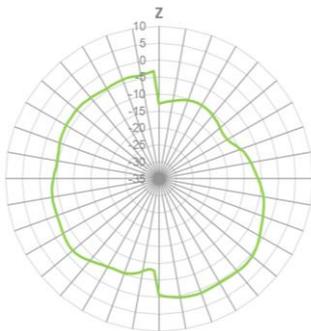
4.7 Wi-Fi 2500MHz 3D and 2D Radiation Patterns



XZ Plane

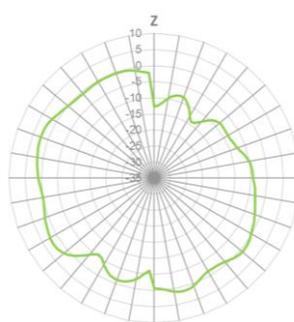
YZ Plane

XY Plane



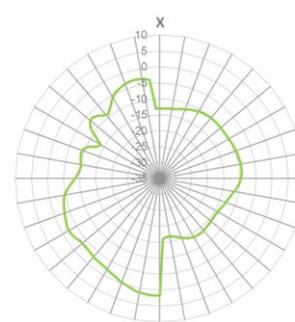
X

2500 MHz



Y

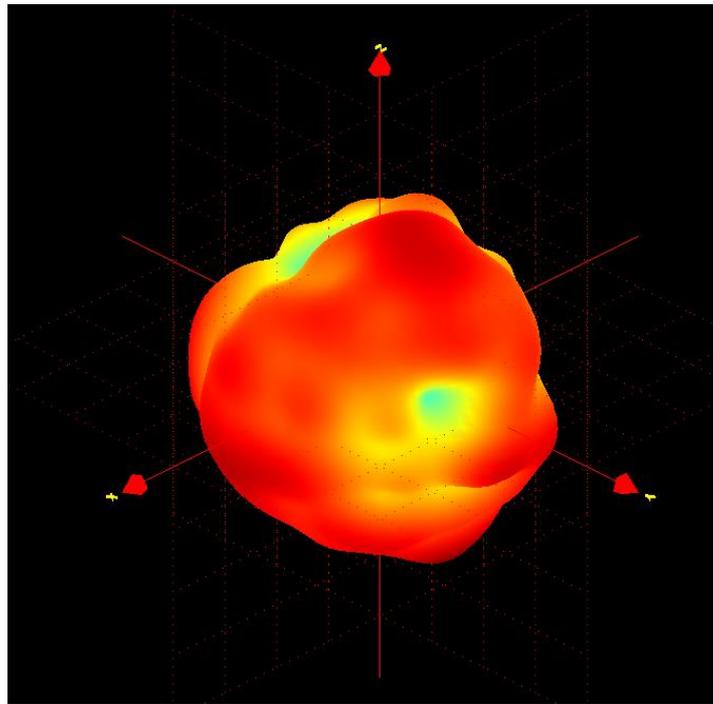
2500 MHz



Y

2500 MHz

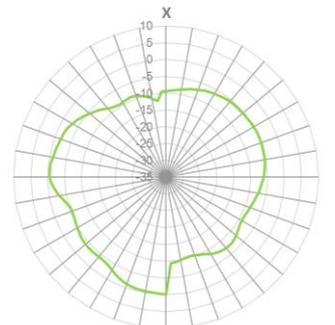
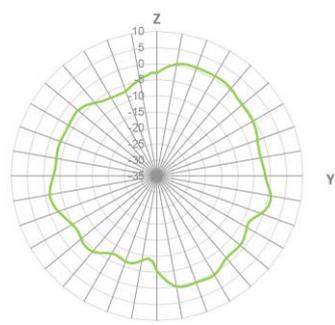
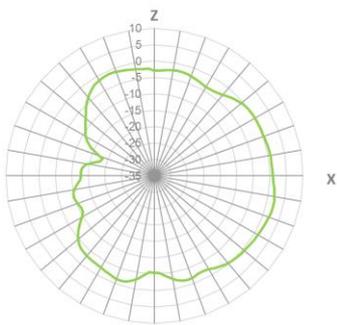
4.8 Wi-Fi 5725MHz 3D and 2D Radiation Patterns



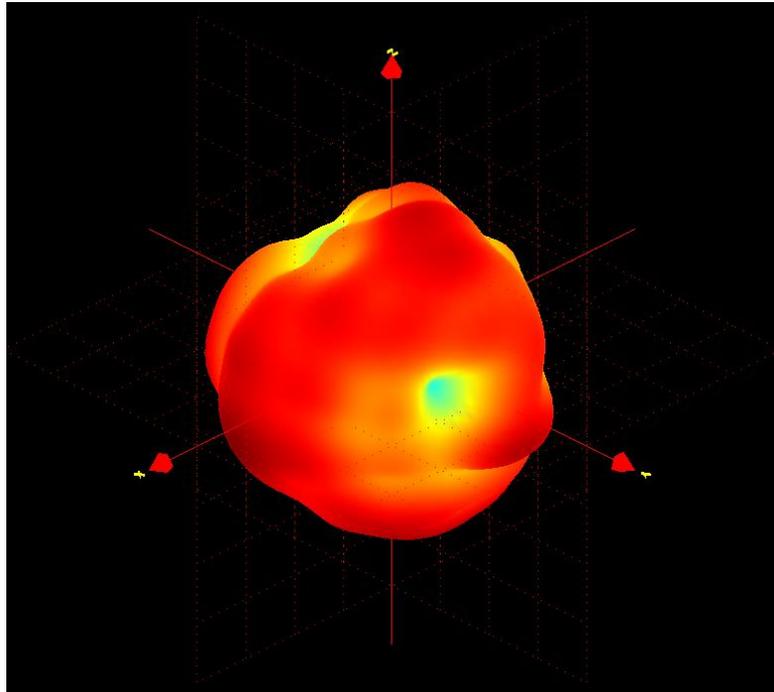
XZ Plane

YZ Plane

XY Plane



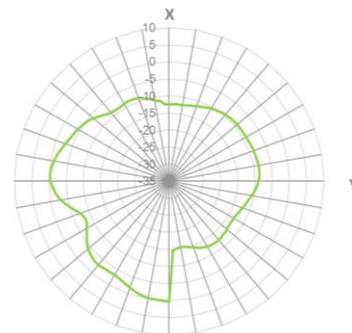
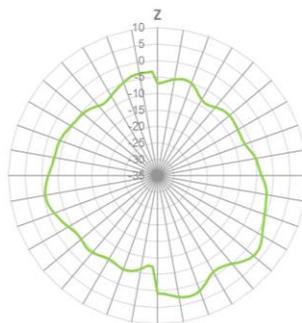
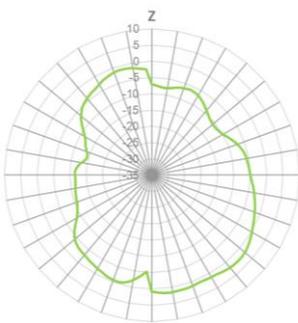
4.9 Wi-Fi 5800MHz 3D and 2D Radiation Patterns



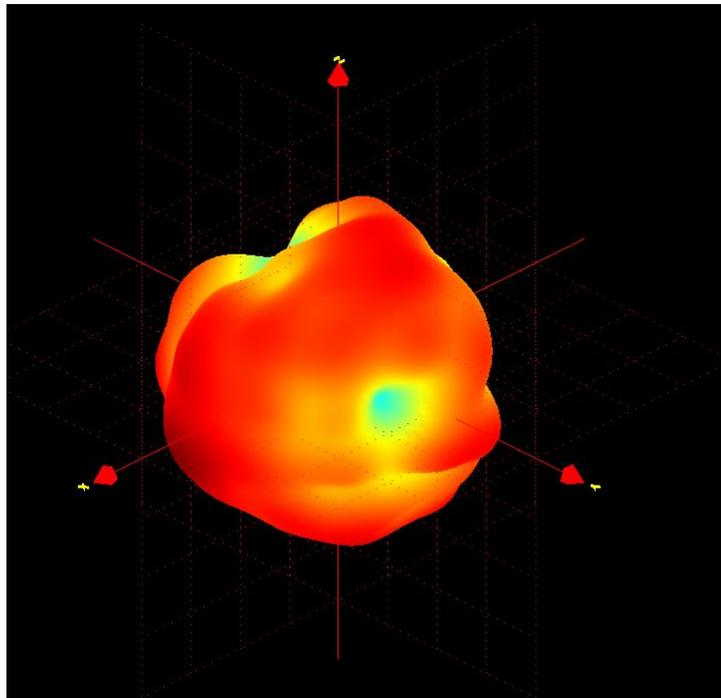
XZ Plane

YZ Plane

XY Plane



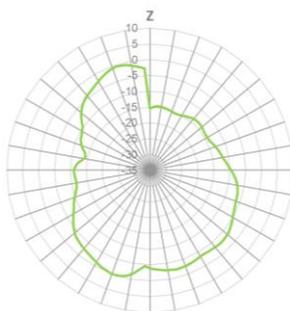
4.10 Wi-Fi 5875MHz 3D and 2D Radiation Patterns



XZ Plane

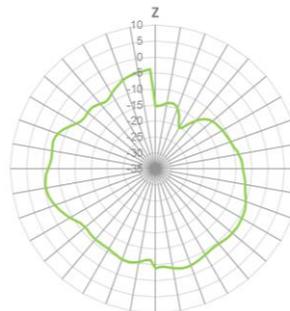
YZ Plane

XY Plane



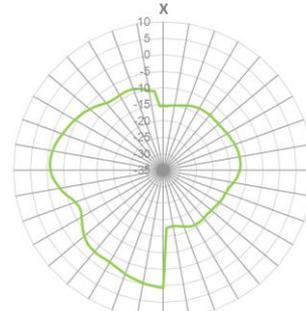
X

5875 MHz



Y

5875 MHz



Y

5875 MHz

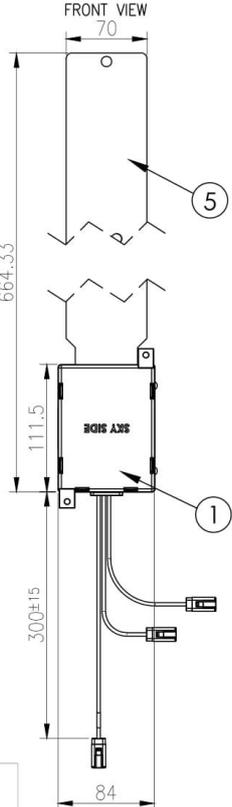
5. Mechanical Drawing (Units: mm)

6	5	4	3	2	1
ISO NO: EDW-19-8-0924		<Release>		REV	1
		ZONE	DESCRIPTION	ENG	APPROVED
		ALL	Initial Design	S.Stanton	Aaron
				ISSUED DATE	2019/09/04

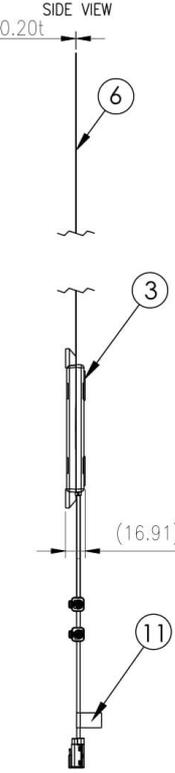


3D VIEW
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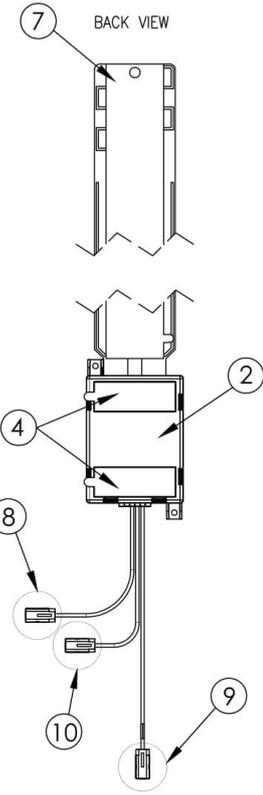
FRONT VIEW



SIDE VIEW



BACK VIEW





⑧ FAKRA C



⑨ FAKRA I



⑩ FAKRA A

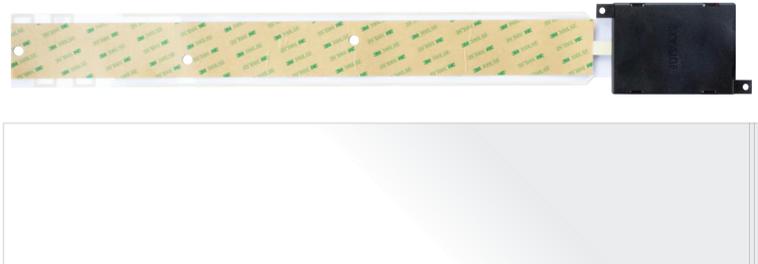
SCALE: 2.5/1

Name	Material	Finish	QTY
1 Top Housing	PC	Black	1
2 Bottom Housing	PC	Black	1
3 Housing Adhesive	3M 5952	Black	2
4 Adhesive Peel Off	PE	Red	1
5 Flex Antenna	PET	Clear	1
6 Flex Antenna Adhesive	3M 300LSE	Clear	2
7 Adhesive Peel Off	PE Coated Paper	Brown	2
8 RG-174 Cable Assembly with FAKRA C (GPS)	PVC	Black & Blue	1
9 RG-174 Cable Assembly with FAKRA I (Wi-Fi)	PVC	Black & Beige	1
10 RG-174 Cable Assembly with FAKRA A (AM/FM)	PVC	Black & Black	1
11 Module Label	Coated Paper	White	1

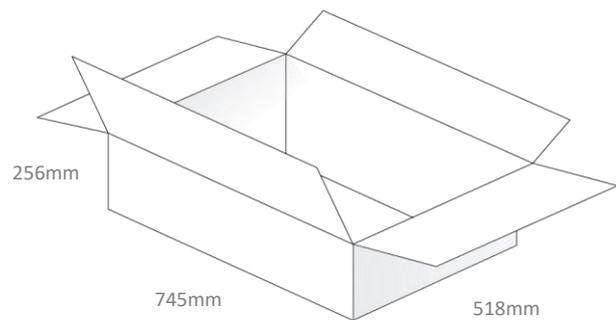
UNLESS OTHERWISE SPECIFIED TOLERANCES ON:	DATE: 2019/09/04	MAT'L:	 <p style="font-size: small;">TW Design Centre This drawing and its inherent design concepts are property of Taoglas. Not to be copied or given to third parties without the written consent of Taoglas.</p>	REV
	UNIT: mm	FINISH:		D01
	THIRD ANGLE PROJECTION	SCALE: 1/1		
	APPROVED BY: Aaron	CHECKED BY: Aaron		
TITLE: ; 3in1 Adhesive Mount 300mm RG-174 GPS FAKRA C WiFi FAKRA I AM/FM FAKRA A			PART NO. : MA2330.A.ACT.002	

6. Packaging

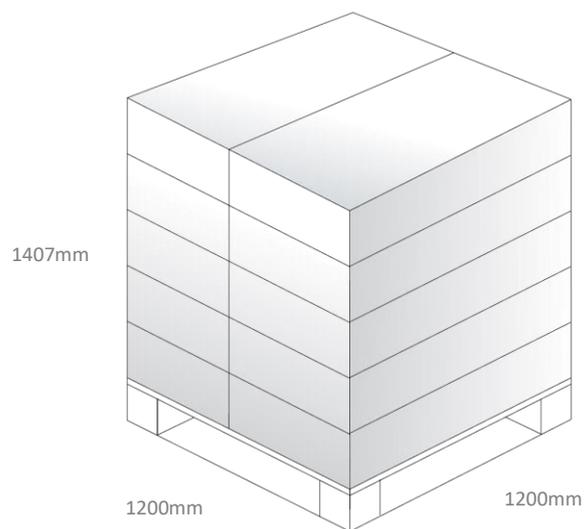
1pc MA2330.A.ACT.002 per Poly Bag
 Weight: 145g



100pcs MA2330.A.ACT.002 per Carton
 Dimensions: 745*518*256mm
 Weight: 14Kg



Pallet Dimensions:
 1407*1200*1200mm
 16 Cartons Per Pallet
 4 Cartons Per Layer, 4 Layers



Changelog for the datasheet

SPE-19-8-116 – MA2330.A.ACT.002

Revision: A (Original First Release)

Date:	2019-08-27
Notes:	Initial Datasheet Release
Author:	Yu Kai Yeung

Previous Revisions



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