

Specification

Part Number: **iDAS.C.001**

Product Name: iDAS MIMO LTE Ceiling Mount Omni Antenna

Features: 2* LTE MIMO Antenna for Indoor Distributed Antenna Systems

High Performance, Low PIM Antenna

Ceiling Screw Mount, Compact Design

Covers Worldwide LTE Bands (Including 3G/2G)

699-960MHz / 1710-2700MHz / 3400-4000MHz

IP54 Rated Enclosure

Cables: 300mm Low Loss Plenum Rated RG-402 Equivalent

Connector: 4.3-10 mini-DIN [F]

Fully customizable cable and connectors

Dimensions: Ø218 * 38mm

RoHS & REACH Compliant



1.Introduction

The Taoglas iDAS LTE MIMO antenna is a compact circular ceiling mount antenna with high performance and low Passive Inter-Modulation (PIM) designed for use in indoor distributed antenna systems (iDAS) to address in-building coverage problems and increasing demand for constant connectivity.

The iDAS delivers powerful worldwide 4G LTE MIMO coverage while also covering the 3G and 2G bands and features a compact, easy-to-install design.

iDAS networks are an excellent solution to bring LTE coverage to areas traditional base stations cannot reach:

- Stadiums, Arenas, Convention Centers
- Hotels, Shopping Malls, Hospitals
- Factories, Warehouses
- Airports, Train Stations, Bus Stations
- Schools, College Campuses
- Office Buildings, High Density Residential Complexes

LTE 4G applications demand high speed data uplink and downlink. High efficiency and high gain MIMO antennas are necessary to achieve the signal to noise ratio and throughput required to solve these challenges. The iDAS antenna is also designed for high isolation and low PIM between the two MIMO antennas to prevent self-interference. Low loss plenum rated cables are used to keep efficiency high while complying with stringent fire rating standards.

The product ships with an RG-402 equivalent plenum rated cable with a temperature spec of up to 150C. The PTFE/FEP jacket is flexible yet chemical and fire resistant. Taoglas offers customizable cable lengths, cable types and connector types, contact your regional Taoglas sales office for support.

2. Specification

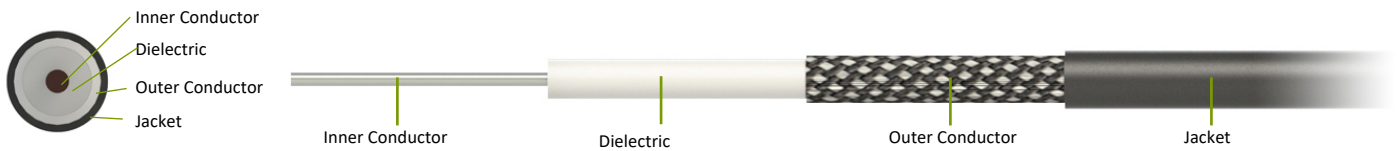
2.1 Antenna Specifications

ELECTRICAL									
Band		LTE 700	GSM	DCS	PCS	UMTS	LTE2600	LTE3500 & LTE 3700	
		Band 12,13	850/900	1800	1900	1700/1800 1900/2100	Band 7	Band 42 & Band 43	
Frequency (MHz)	Port	699~756	824~960	1710~1880	1850~1990	1710~2170	2500~2690	3400~3800	
Peak Gain (dBi)	1	3.4	2.2	5.6	5.1	5.1	6.3	4.7	
	2	3.8	2.9	5.0	5.0	4.9	6.5	4.7	
Average Gain (dB)	1	-0.8	-0.7	-1.0	-0.7	-0.7	-0.6	-1.2	
	2	-0.7	-0.7	-1.4	-0.6	-0.9	-0.5	-1.1	
Return Loss (dB)	1	-15	-11	-18	-16	-17	-25	-13	
	2	-14	-12	-18	-16	-16	-22	-15	
Efficiency (%)	1	83	83	80	84	84	87	76	
	2	85	84	75	86	82	87	77	
Impedance	50 Ω								
Polarisation	Linear(H/V)								
Radiation Pattern	Omni-Directional								
Frequency (MHz)	699~756		824~960	1710~1880		1850~1990		1710~2170	2500~2690
PIM Avg Rating @ 2*43	-163dBc			-164dBc					
PIM Max Rating @ 2*43dBm	-155dBc			-156dBc					
Max input Power	2*50W								

MECHANICAL	
Dimensions	Ø 218*38mm
Casing	UV Resistant ABS
Connector	4.3-10 mini-DIN (F)
Cable	2*300mm Low Loss Plenum Rated RG-402 Equivalent
Weight	0.5Kg
Colour	RAL 9003 White

ENVIRONMENTAL	
Flammability Rating	UL 94-V0
IP rating	IP54
Operating Temperature range	-40°C to +85°C
Storage Temperature range	-40°C to +90°C
Humidity	Non-condensing 65°C 95% RH

2.2 Cable Specifications



Part Designation	Material	Outer Diameter (mm)
Inner Conductor	Silver Plated Copper	0.94±0.01
Dielectric	PTFE	2.98±0.05
Outer Conductor	Tin Plated Copper Wire (16*6*0.12)	3.55±0.05
Jacket	FEP Blue	4.10±0.05

Electrical Characteristics	
Performance Property	Spec.
Capacitance (pF/m)	98
Impedance(Ohm)	50±2
Cutoff Frequency (GHz)	34
Time delay (ns/m)	4.7
Max Operating Voltage (KVrms)	3000

Mechanical Specifications	
Performance Properties	Spec.
Min. bending radius static, single(mm)	8
Weight (kg/km)	48
Environmental Specifications	
Operating Temperature (°C)	-65~150

Attenuation @ 20 °C	
Frequency (GHz)	Attenuation (dB/m)
0.5	0.27
1	0.41
2	0.62
3	0.78
5	1.05
10	1.58
18	2.22

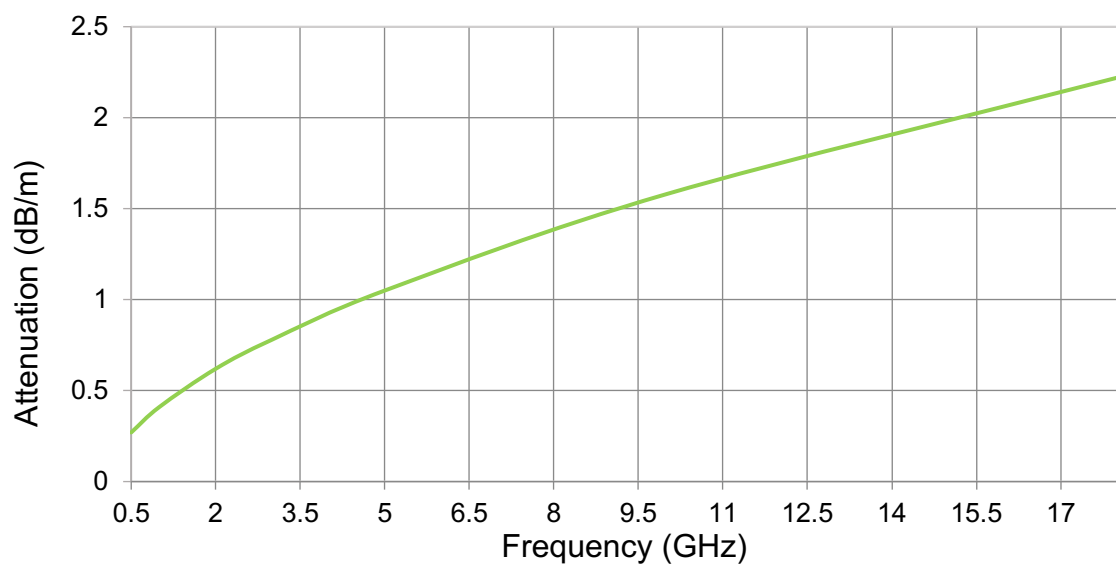


Figure 1 Attenuation vs. Frequency

3. Test Setup

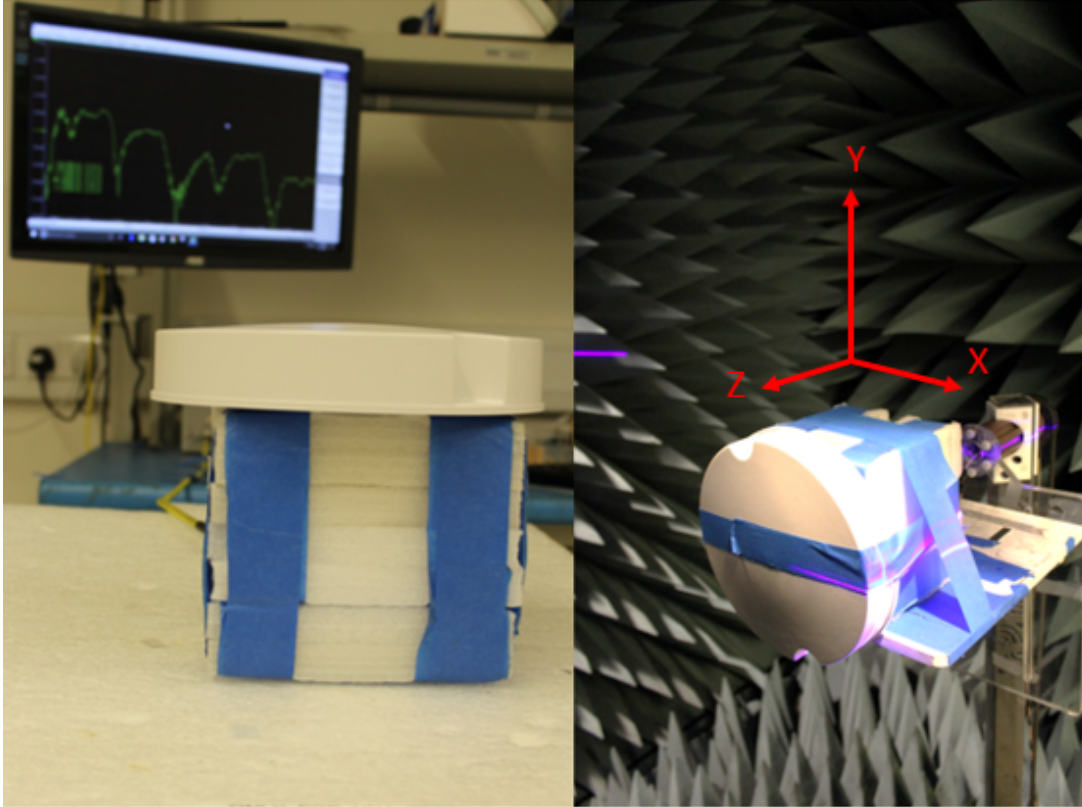


Figure 2. VNA test setup (left) and anechoic chamber test setup (right)

4. Antenna Performance

4.1 Return loss S11 (dB)

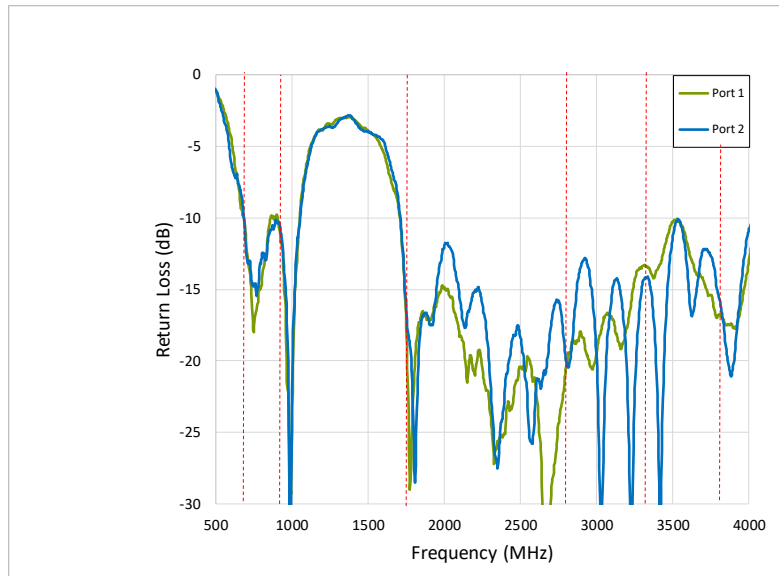


Figure 3. Return Loss (dB) S11

4.2 Isolation S21(dB)

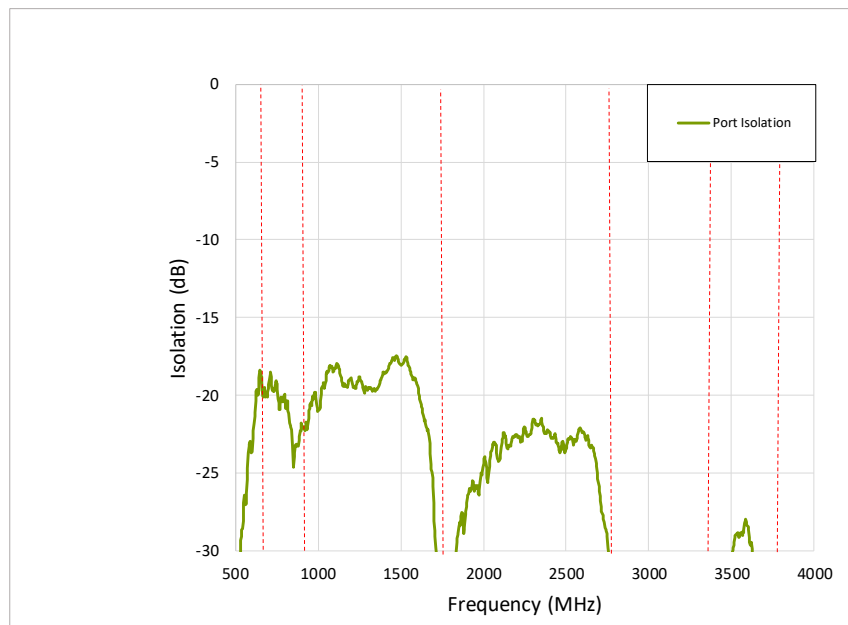


Figure 4. Isolation (dB) S21

4.3 Envelope Correlation Coefficient

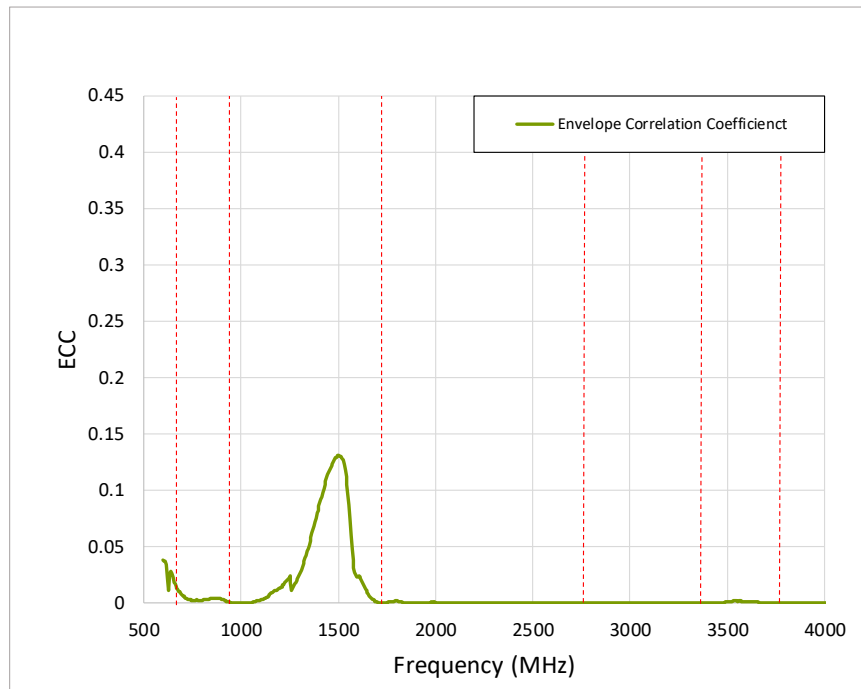


Figure 5. Envelope Correlation Coefficient (ECC)

4.4 Efficiency (%)

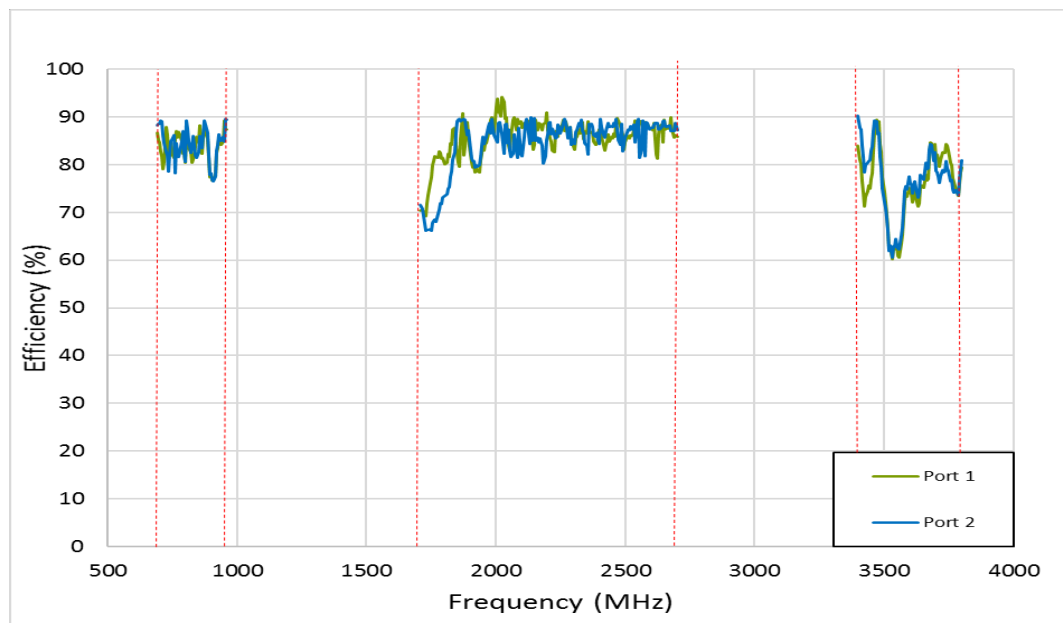


Figure 6. Efficiency (%)

4.5 Peak Gain (dBi)

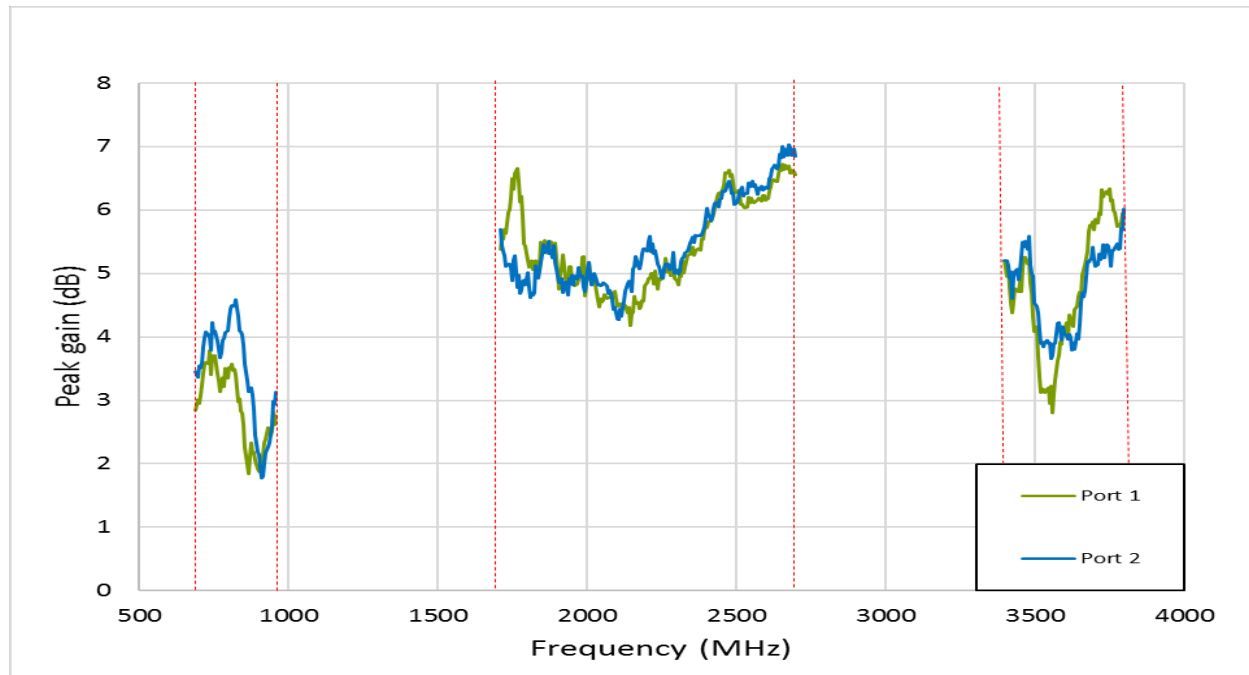


Figure 7. Peak gain (dBi)

4.6 Average gain (dB)

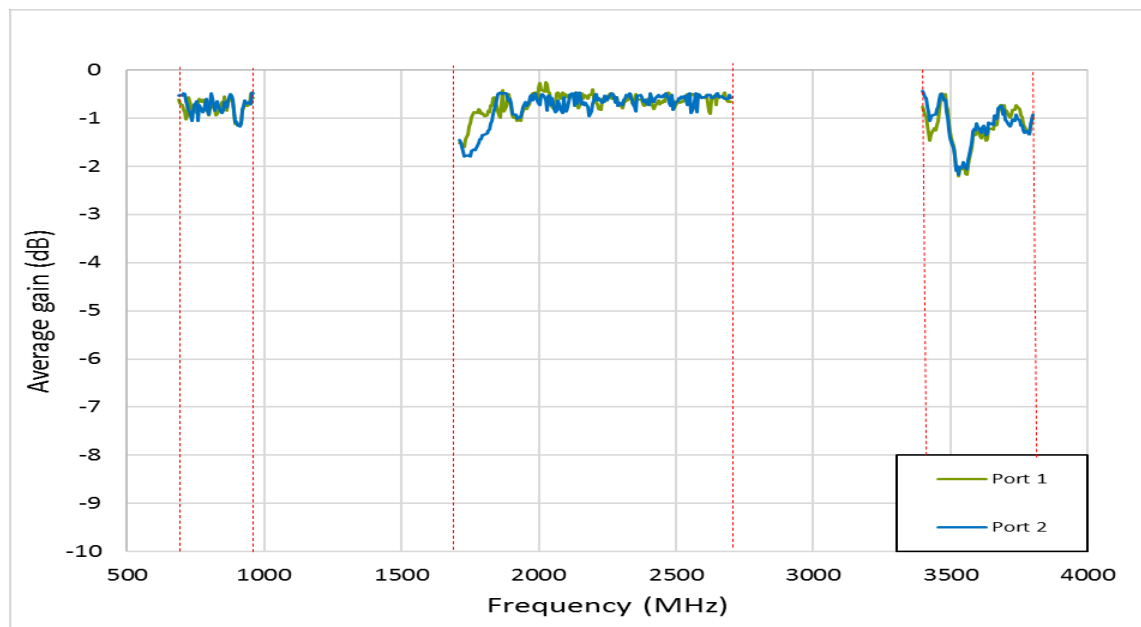


Figure 8. Average gain (dB)

5.2D Radiation Patterns

5.1 2D radiation patterns (freq. range: 698 to 3800 MHz), Port 1

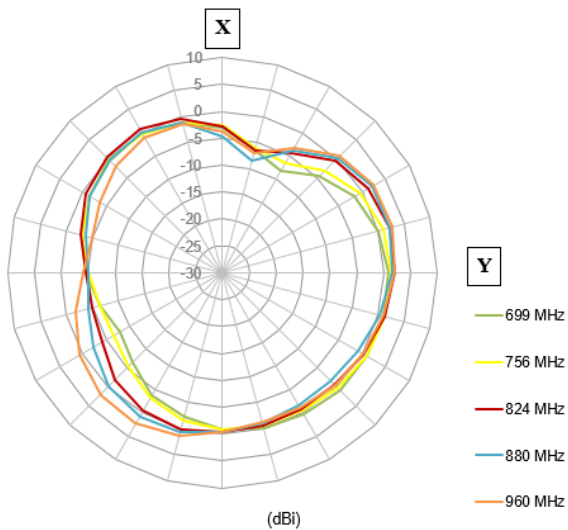


Figure 9. X-Y polar plot showing target bands

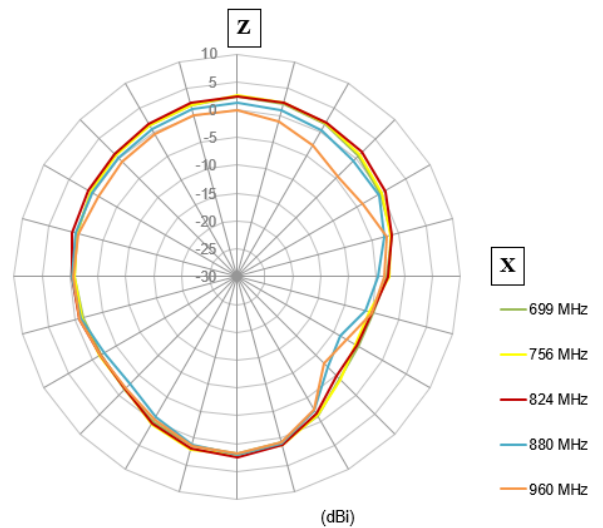


Figure 10. Z-X polar plot showing target bands

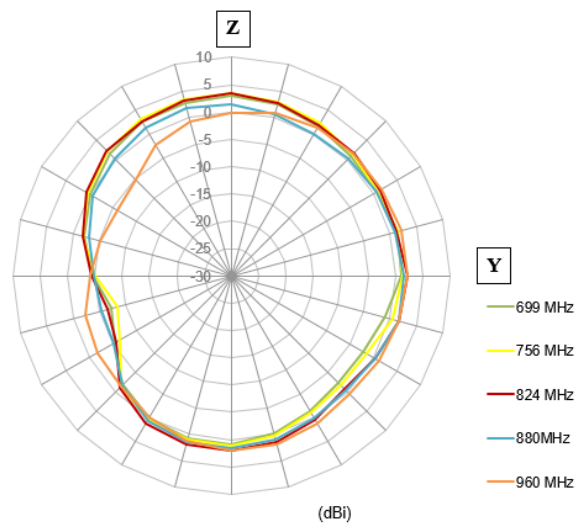


Figure 11. Z-Y polar plot showing target bands

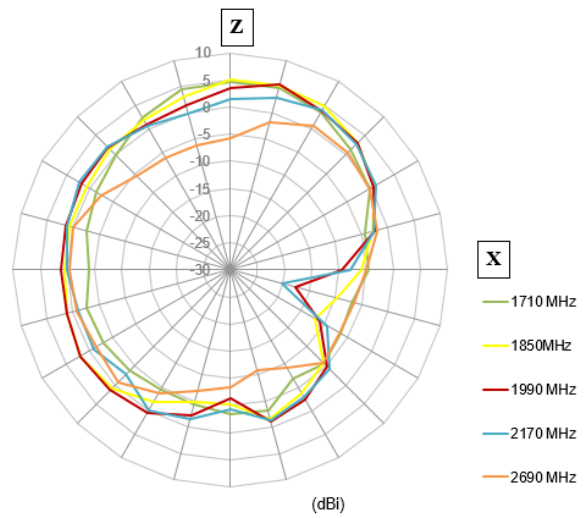
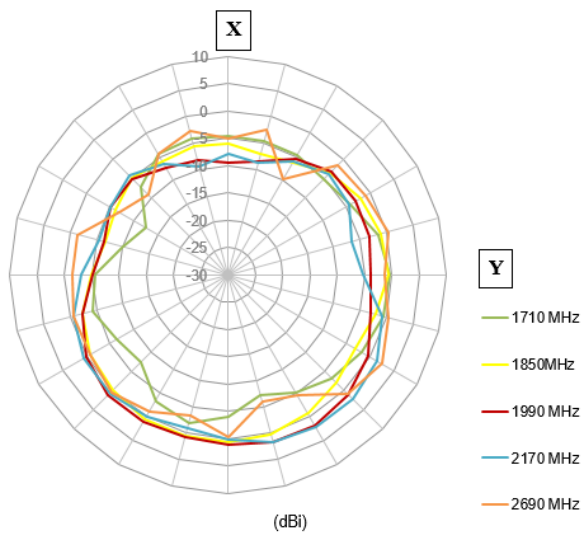


Figure 12. X-Y polar plots showing target bands

Figure 13. Z-X polar plots showing target bands

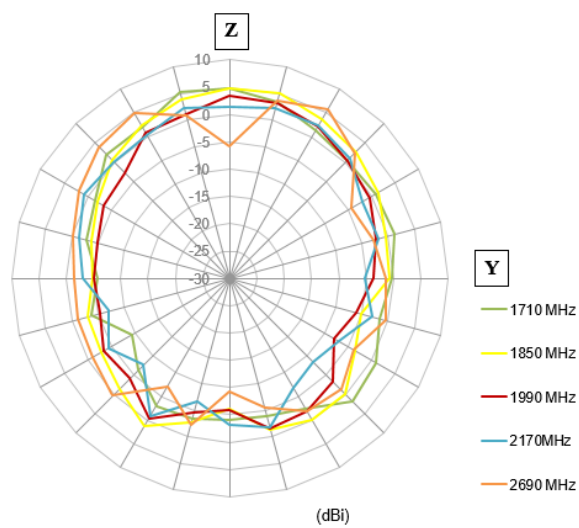


Figure 14. Z-Y polar plots showing target bands

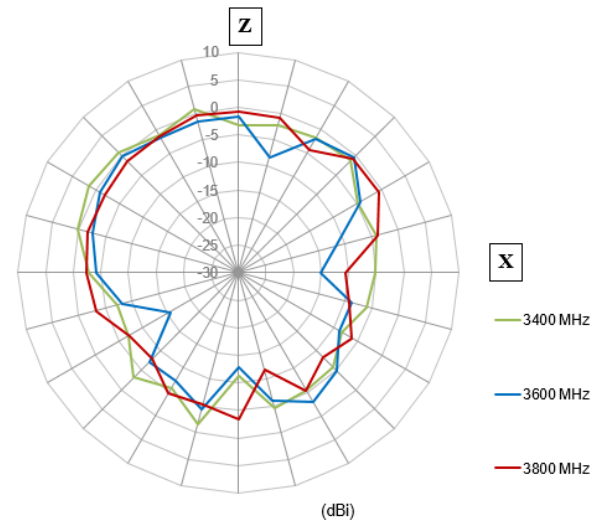
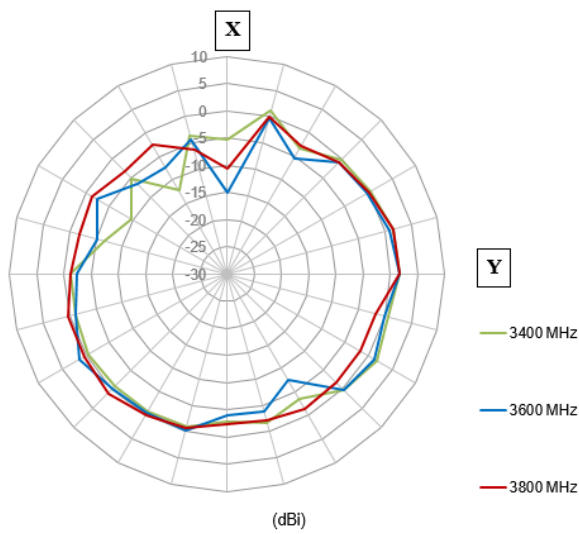


Figure 15. X-Y polar plots showing target bands **Figure 16.** Z-X polar plot showing target bands

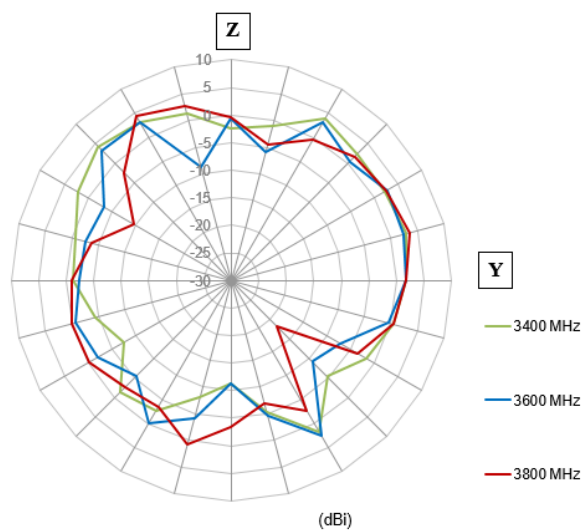


Figure 17. Z-Y polar plot showing target bands

5.2. 2D radiation patterns (Freq. range: 698 to 3800 MHz), Port 2

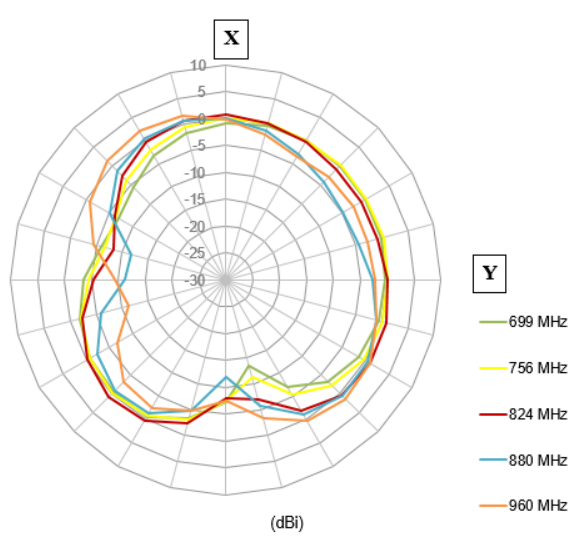


Figure 18. X-Y polar plots showing target bands

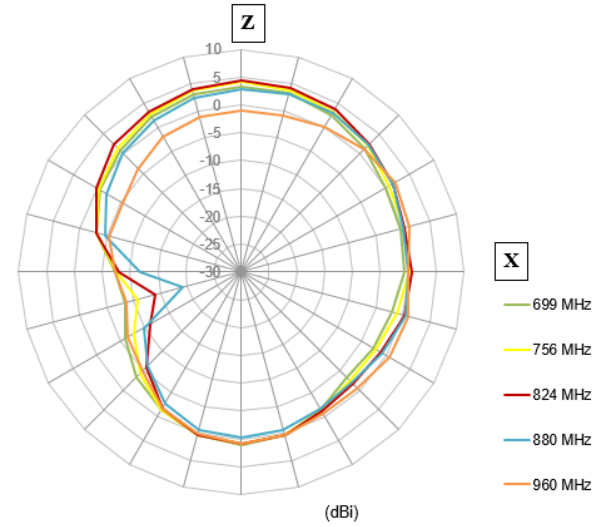


Figure 19. Z-X polar plots showing target bands

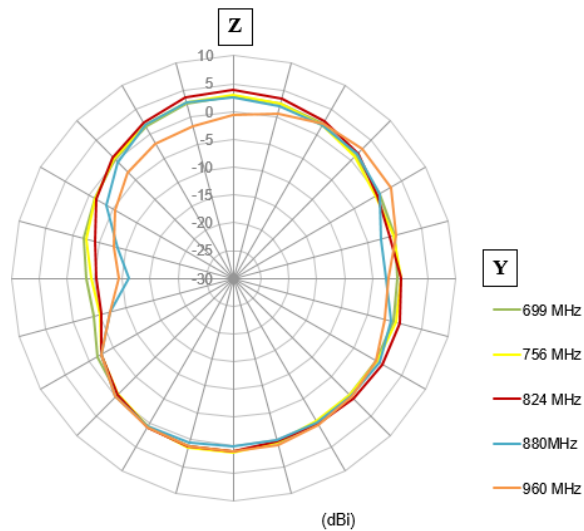


Figure 20. Z-Y polar plot showing target bands

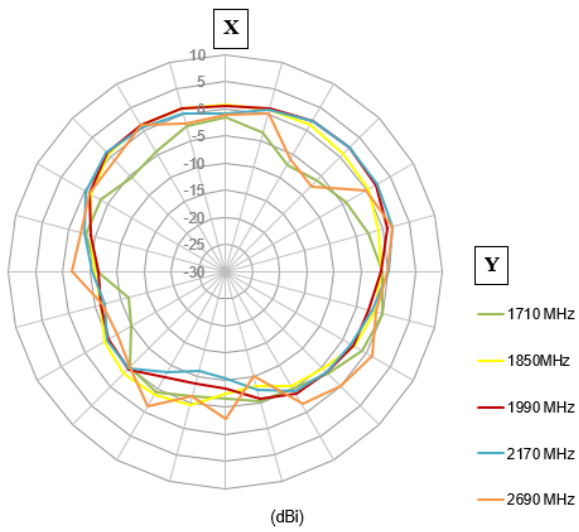


Figure 21. X-Y polar plot showing target bands

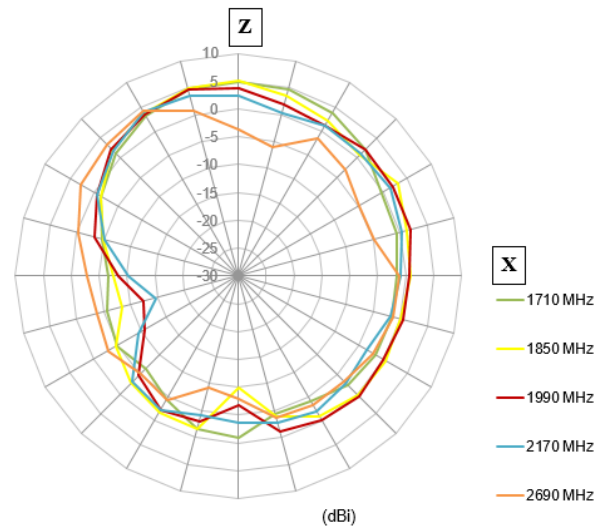


Figure 22. Z-X polar plot showing target bands

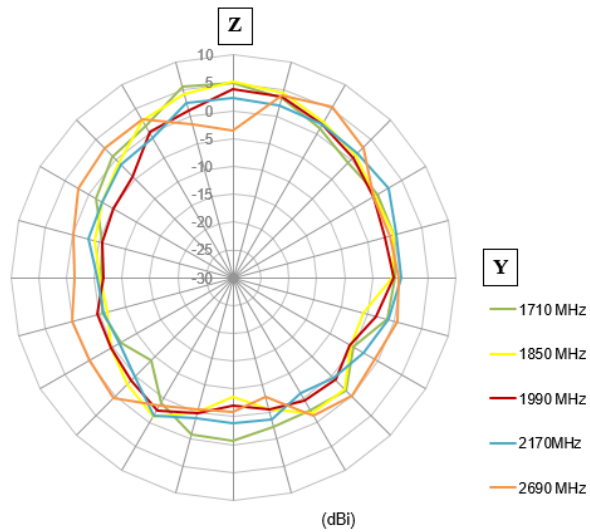


Figure 23. Z-Y polar plot showing target bands

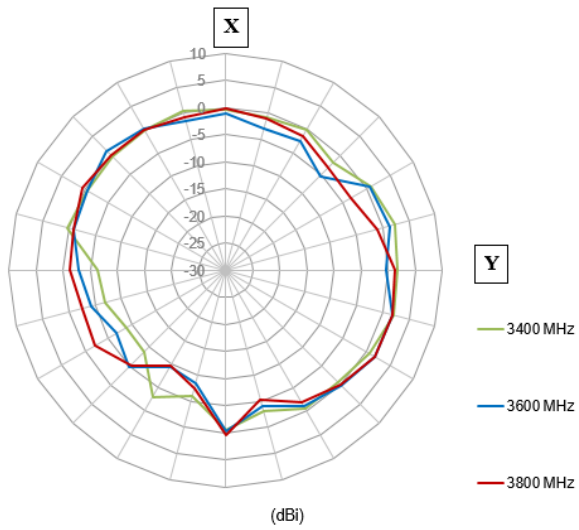


Figure 24. X-Y polar plot showing target bands

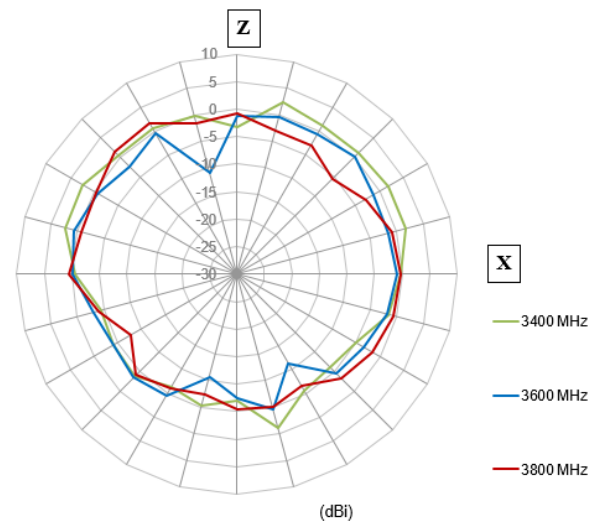


Figure 25. Z-X polar plot showing target bands

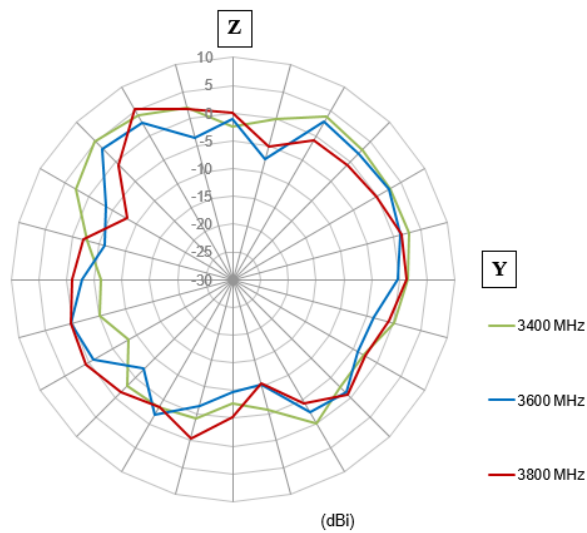
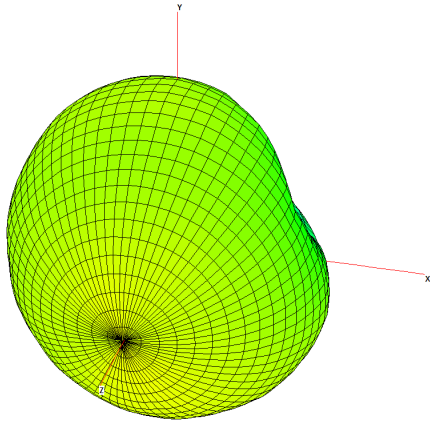


Figure 26. Z-Y polar plot showing target bands

6. 3D Radiation Patterns

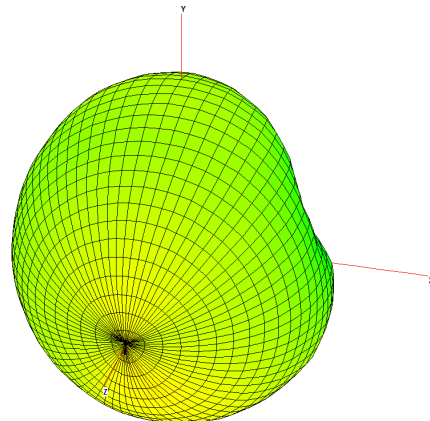
6.1 3D Radiation Patterns Port 1

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Elevation = -30.0
Roll = -15.0



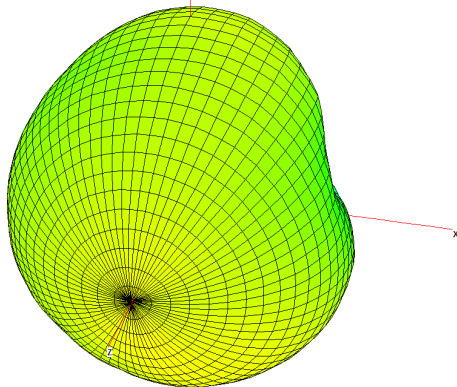
699MHz

Azimuth = 0.0
Elevation = -30.0
Roll = -15.0



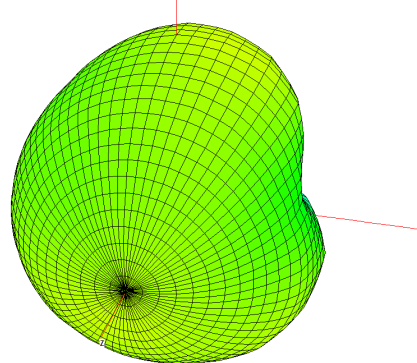
756MHz

Azimuth = 0.0
Elevation = -30.0
Roll = -15.0



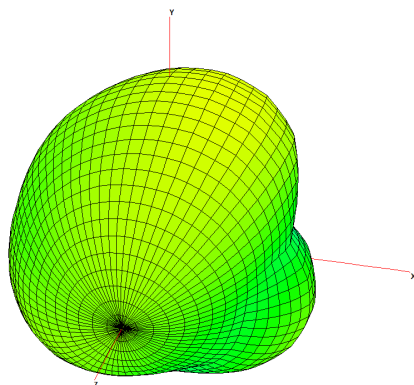
824MHz

Azimuth = 0.0
Elevation = -30.0
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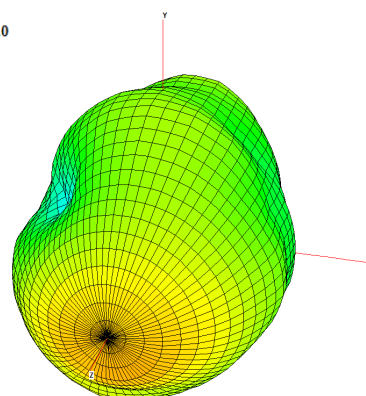
880 MHz

Azimuth = 0.0
Elevation = -30.0
Roll = -15.0



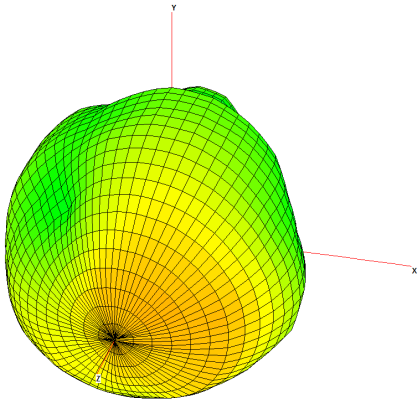
960 MHz

Azimuth = 0.0
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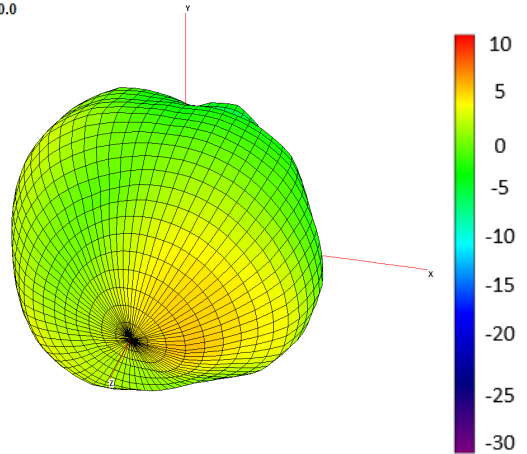
1710 MHz

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Roll = -15.0



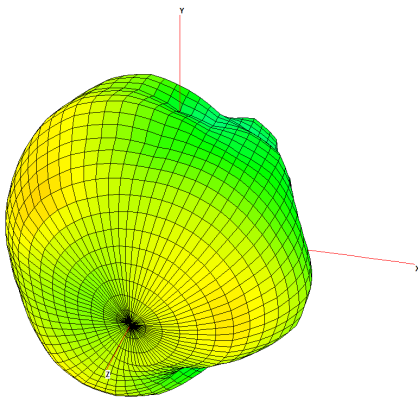
1850 MHz

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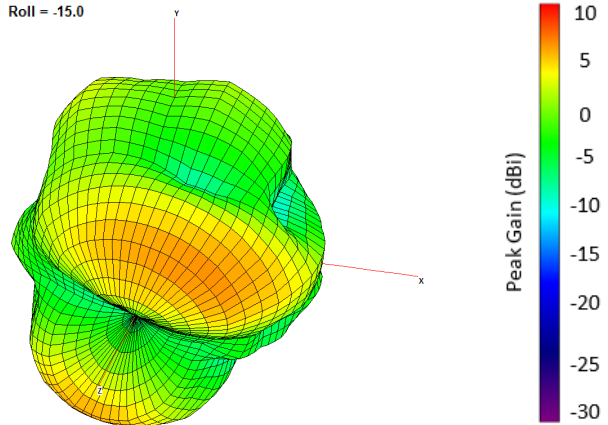
1990 MHz

Azimuth = 0.0
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Roll = -15.0



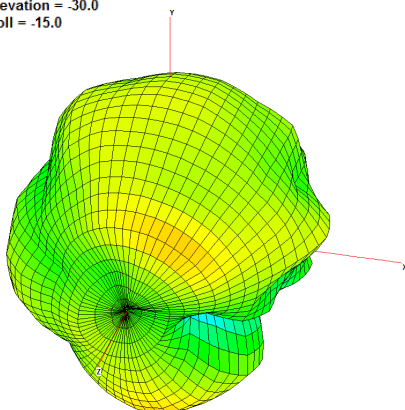
2170 MHz

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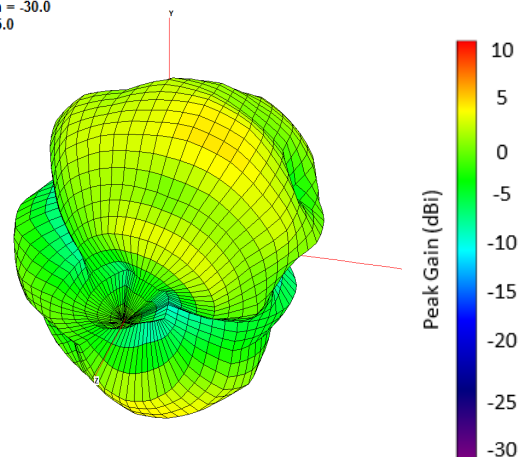
2690 MHz

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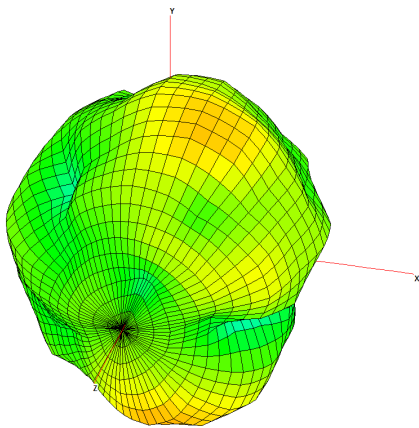
3400 MHz

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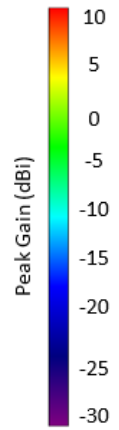


3600 MHz

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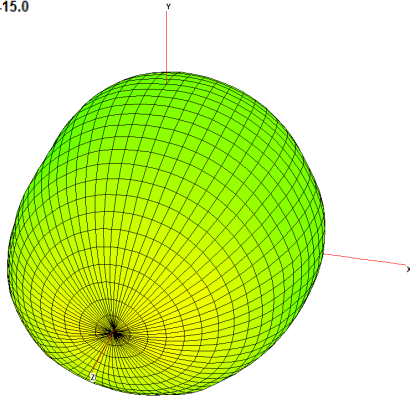


3800 MHz



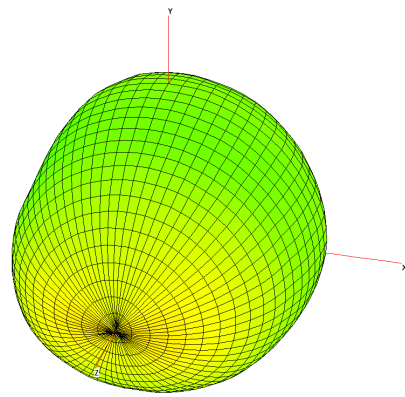
6.2 3D Radiation Patterns Port 2

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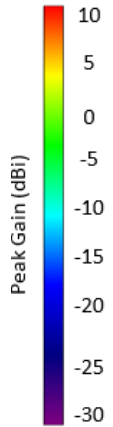


699 MHz

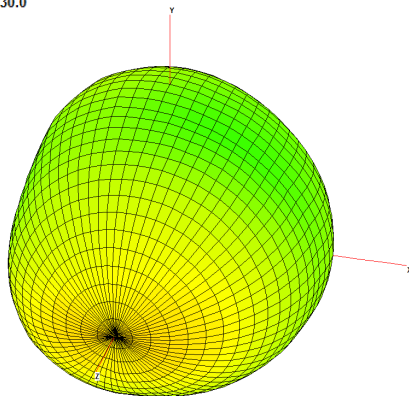
Azimuth = 0.0
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Roll = -15.0



756 MHz

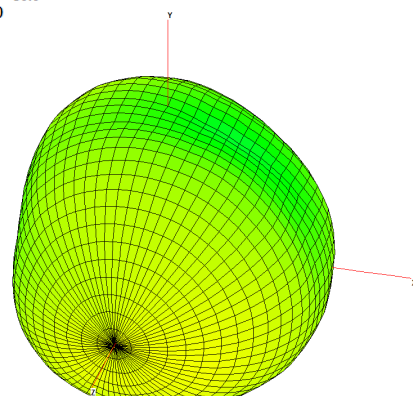


Azimuth = 0.0
Elevation = -30.0
Roll = -15.0

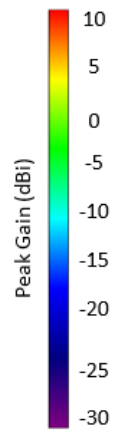


824 MHz

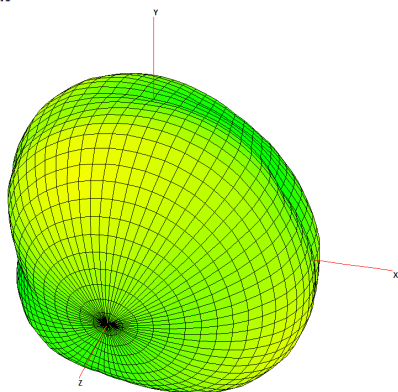
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880 MHz

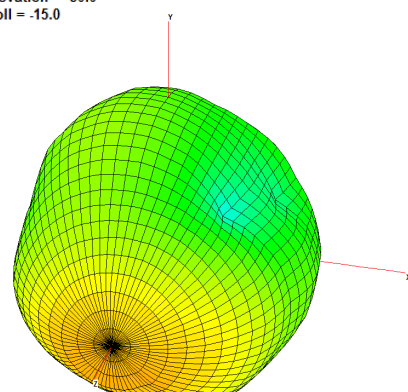


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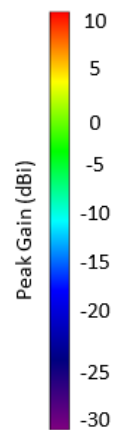


960 MHz

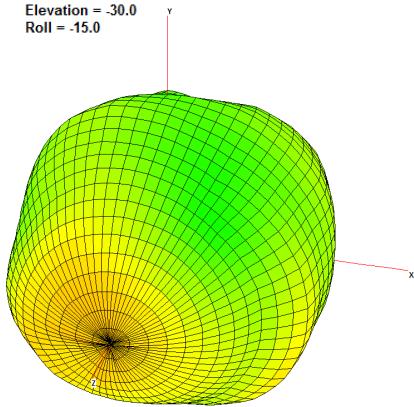
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1710 MHz

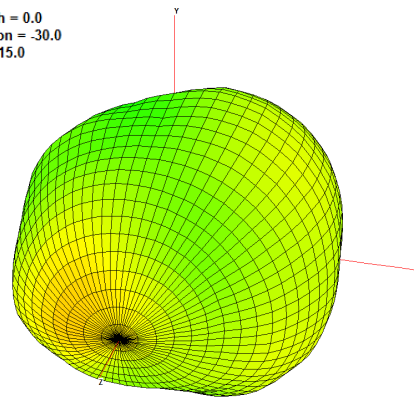


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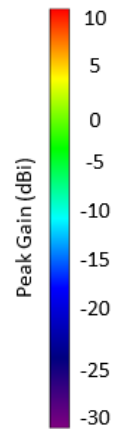


1850 MHz

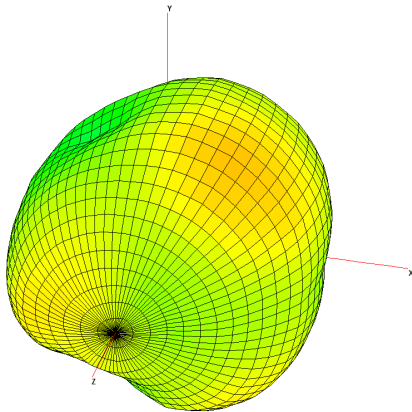
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1990 MHz

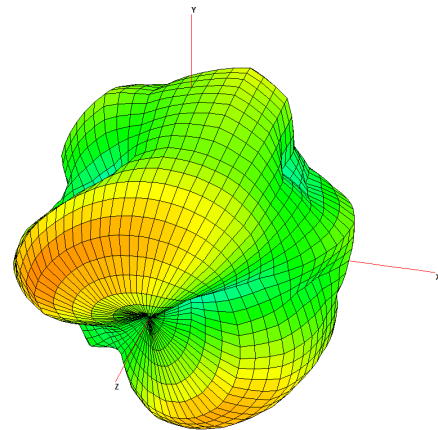


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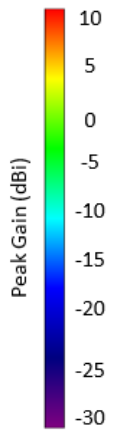


2170 MHz

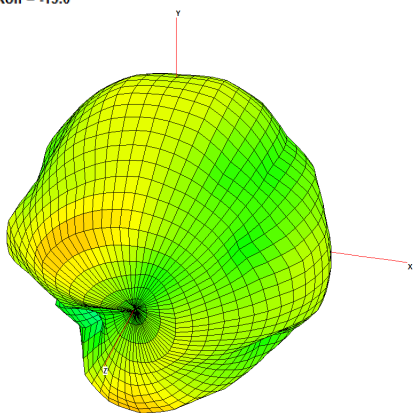
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2690 MHz

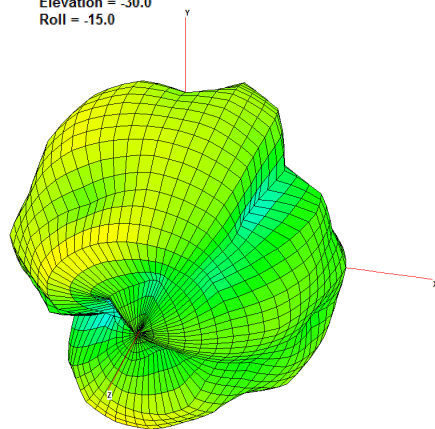


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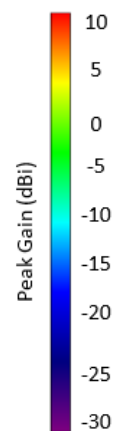


3400 MHz

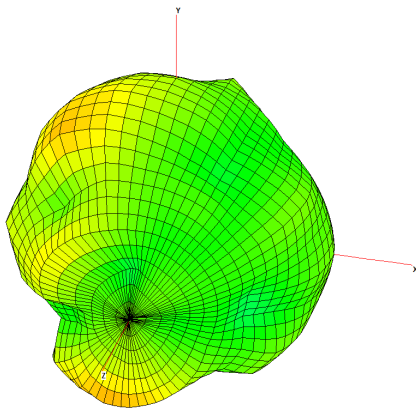
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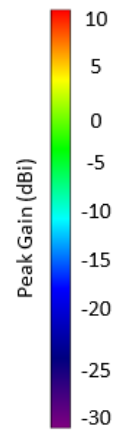
3600 MHz



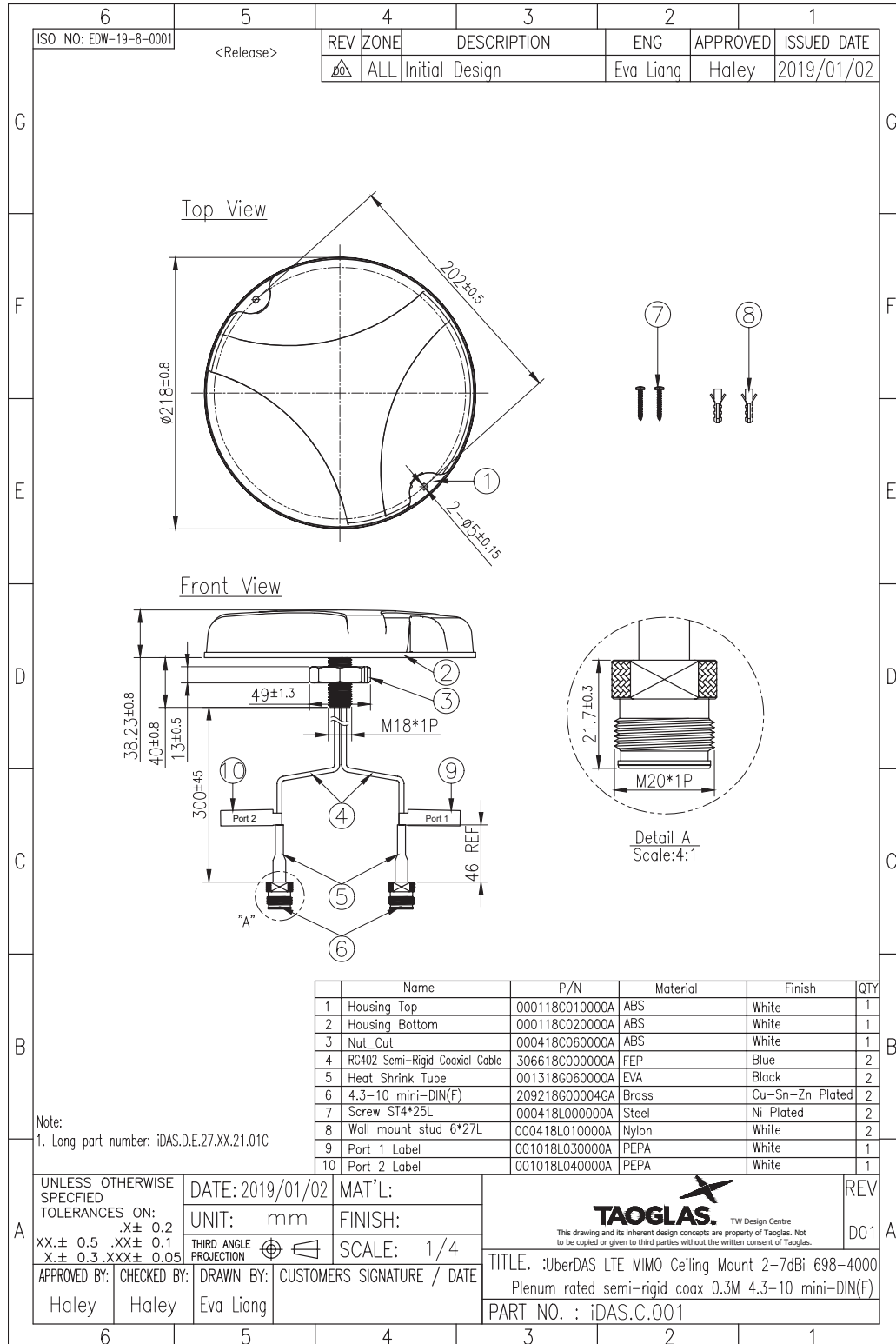
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Elevation = -30.0
Roll = -15.0



3800 MHz



7. Mechanical Drawing (Unit: mm)

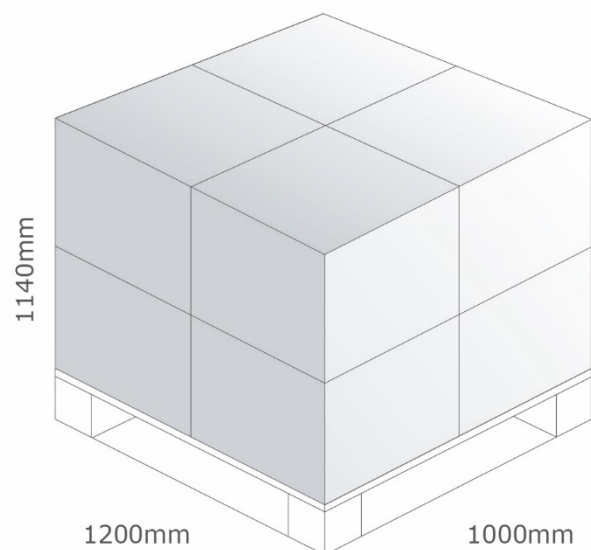
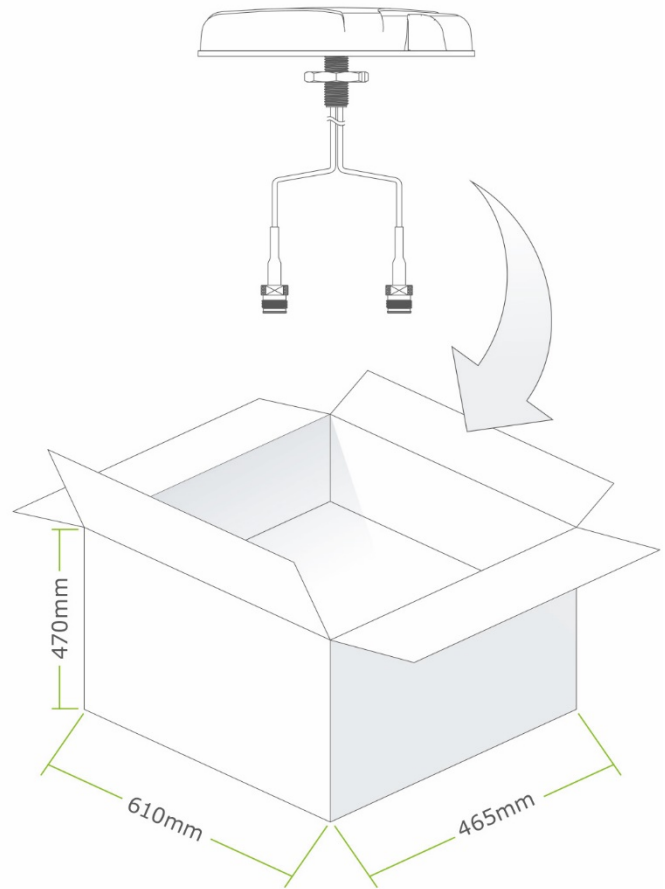


8. Packaging

1pcs iDAS.C.001 per Box
 Dimensions - 220*115*225mm
 Weight - 0.650Kg

20pcs iDAS.C.001 per Carton
 Dimensions - 610*465*470mm
 Weight - 15Kg

Pallet Dimensions:
 1200mm*1000mm*1140mm
 8 Cartons per Pallet
 4 Cartons per Layer, 2 Layers



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