# 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

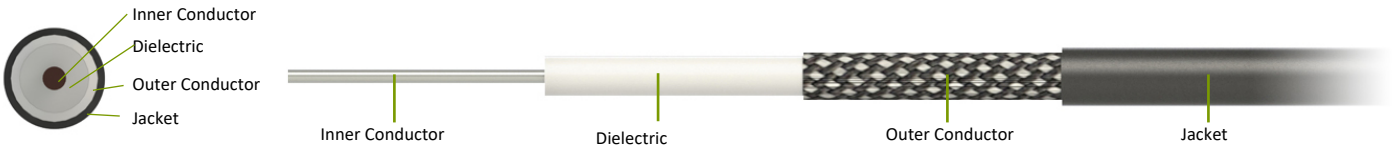
## 2.1 Antenna Specifications

| 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 Frquency (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 |

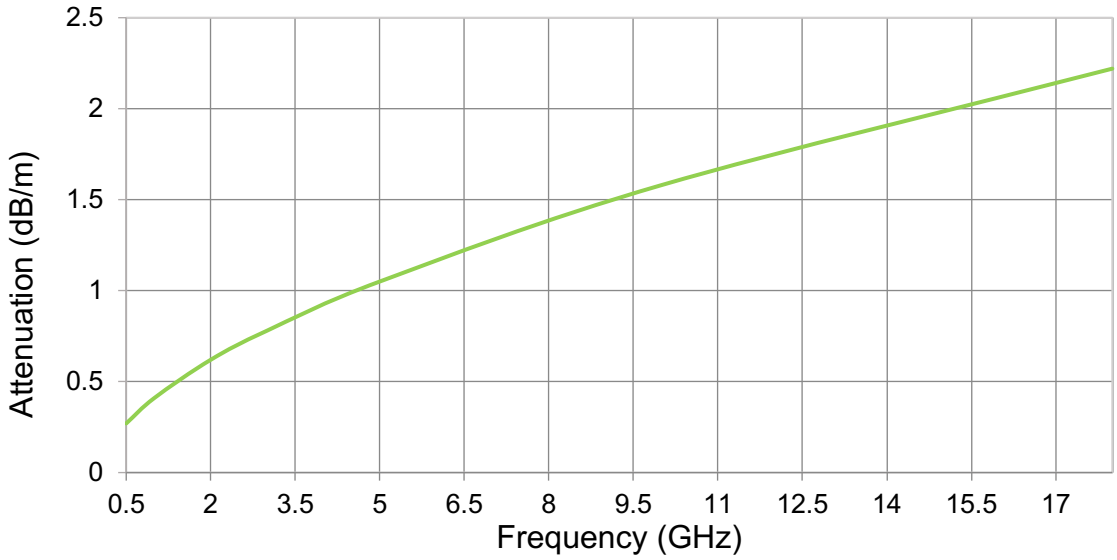



**Figure 1** Attenuation vs. Frequency

# 3.Test Setup

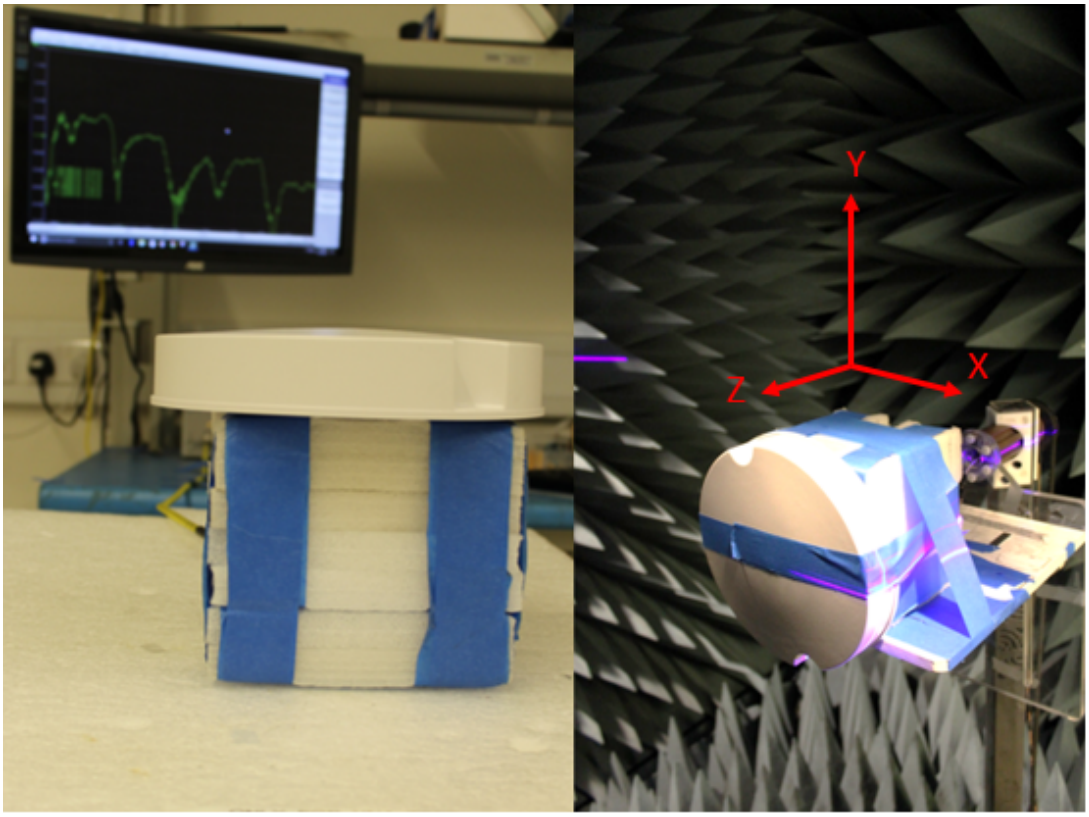



**Figure 2.** VNA test setup (left) and anechoic chamber test setup (right)

# 4.Antenna Performance

## 4.1 Return loss S11 (dB)

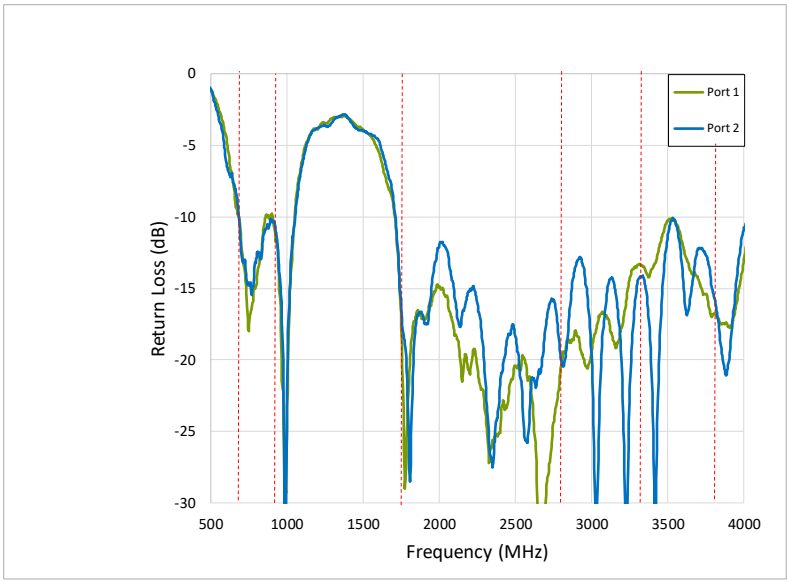



**Figure 3.** Return Loss (dB) S11

## 4.2 Isolation S21(dB)

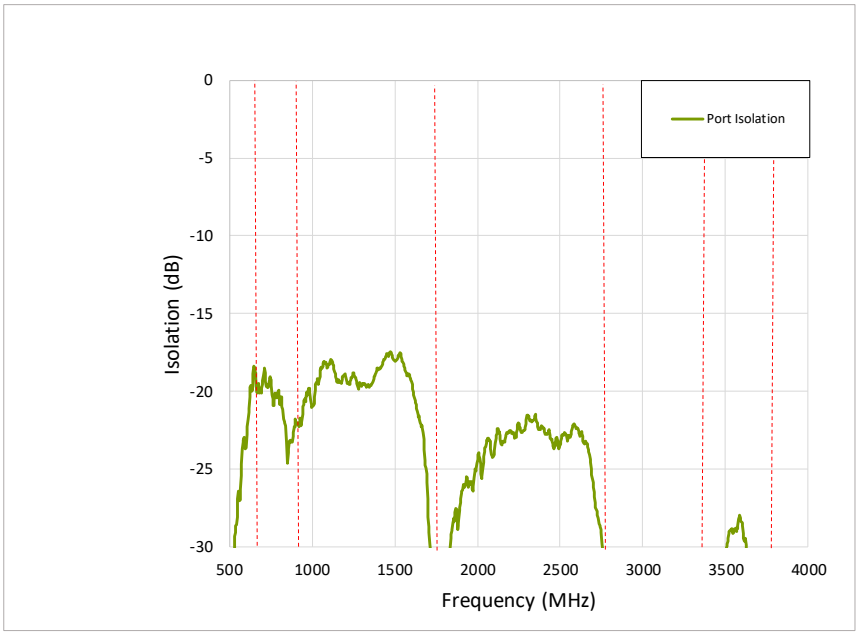



**Figure 4.** Isolation (dB) S21

## 4.3 Envelope Correlation Coeffiient

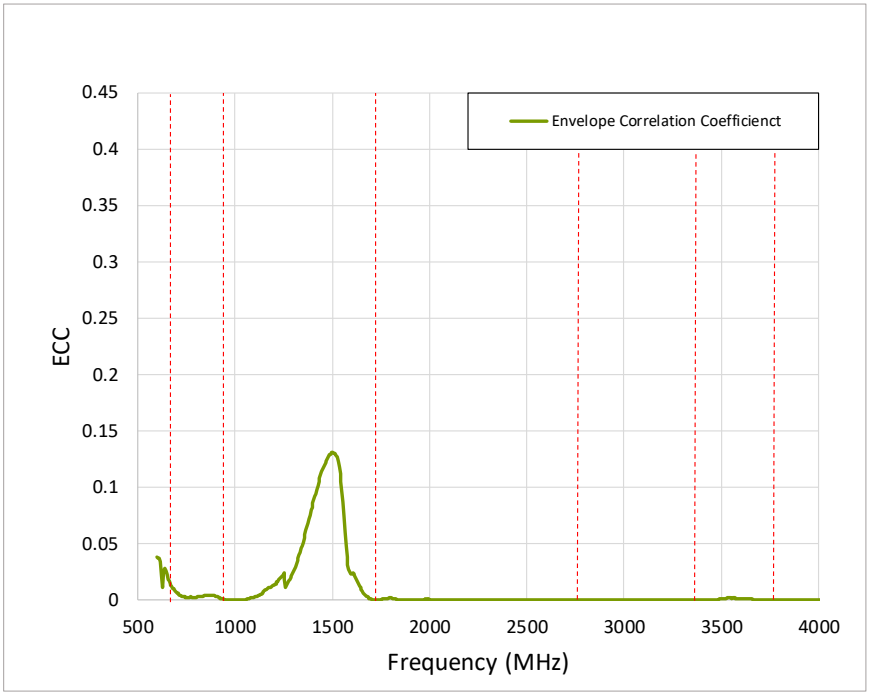



**Figure 5.** Envelope Correlation Coefficient (ECC)

## 4.4 Efficiency (%)

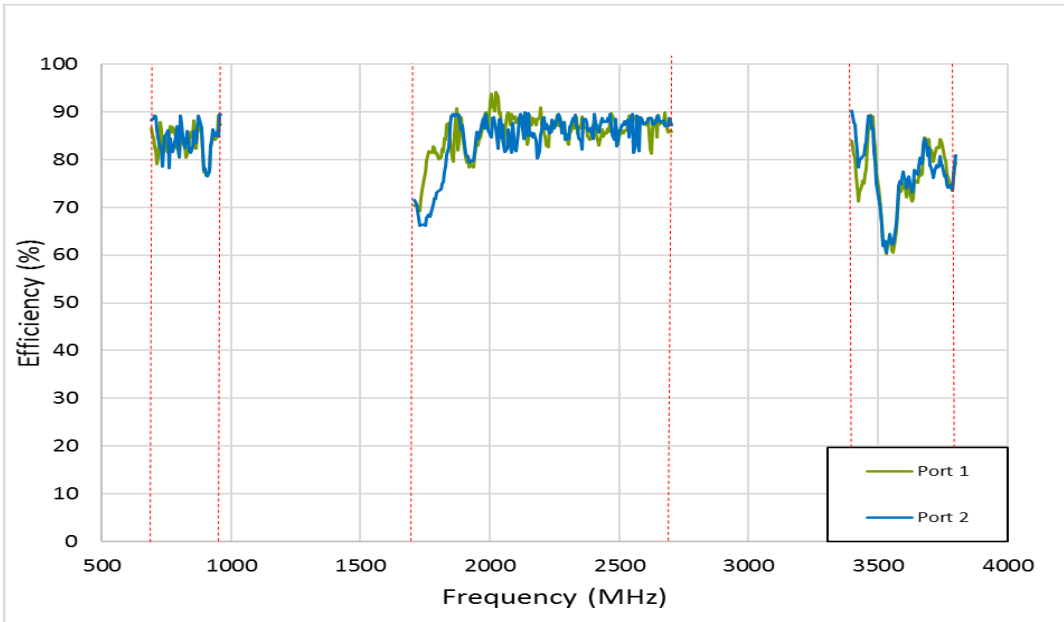



**Figure 6.** Efficiency (%)

## 4.5 Peak Gain (dBi)

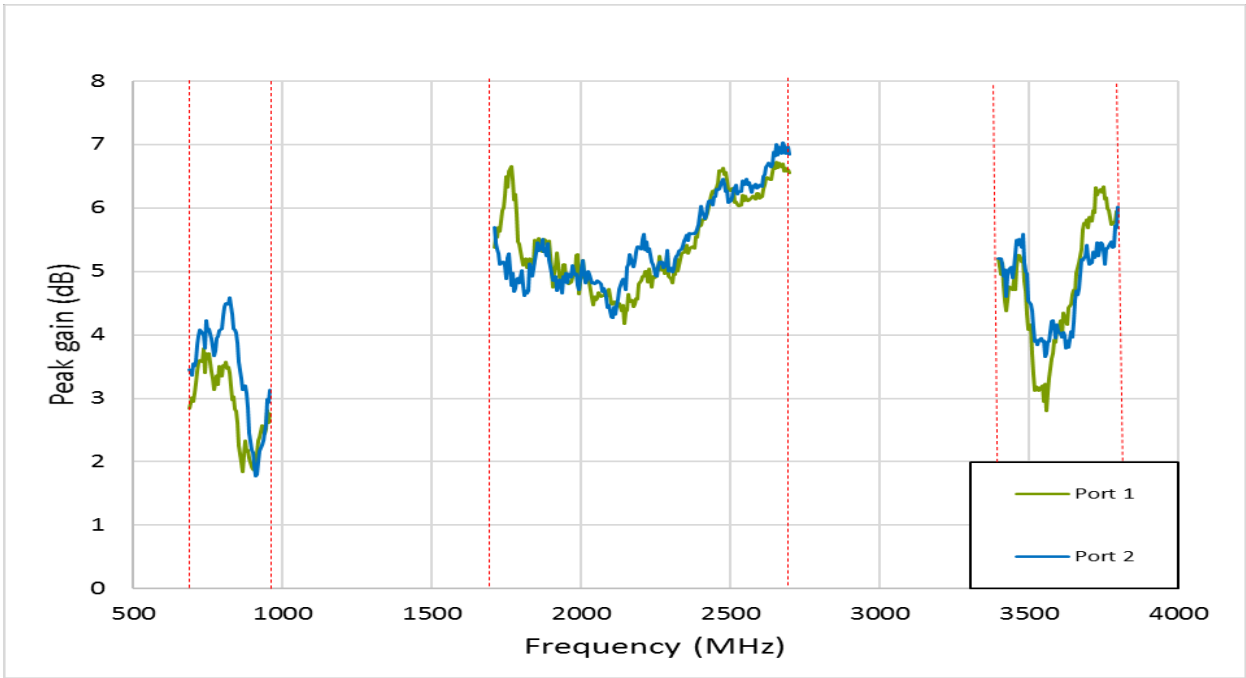



**Figure 7.** Peak gain (dBi)

## 4.6 Average gain (dB)

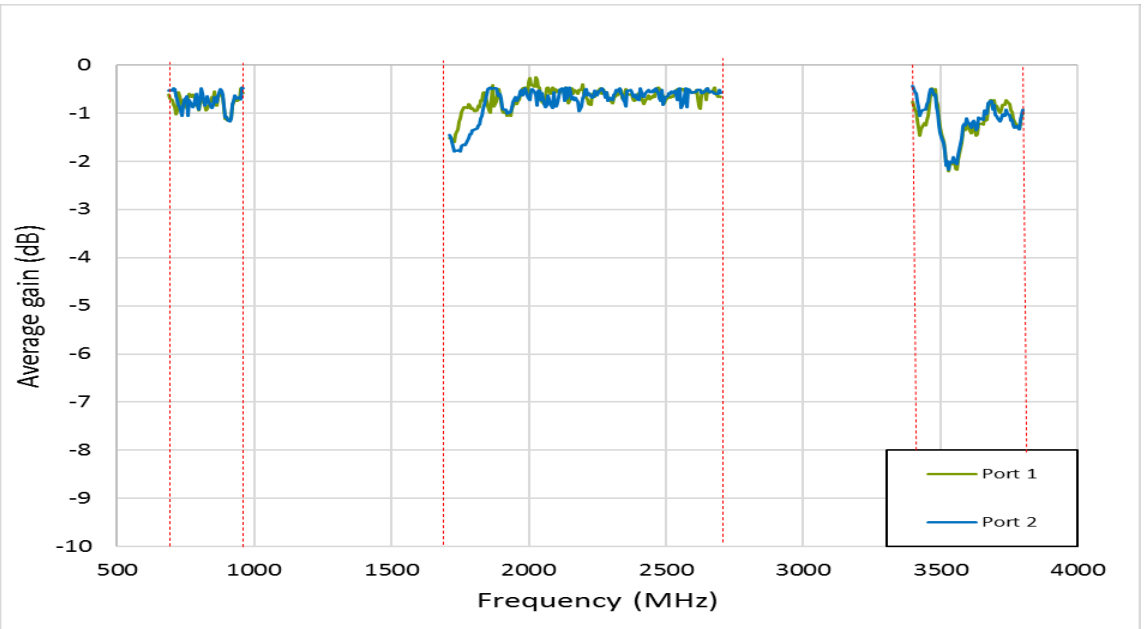



**Figure 8.** Average gain (dB)

# 5.2D Radiation Patterns

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

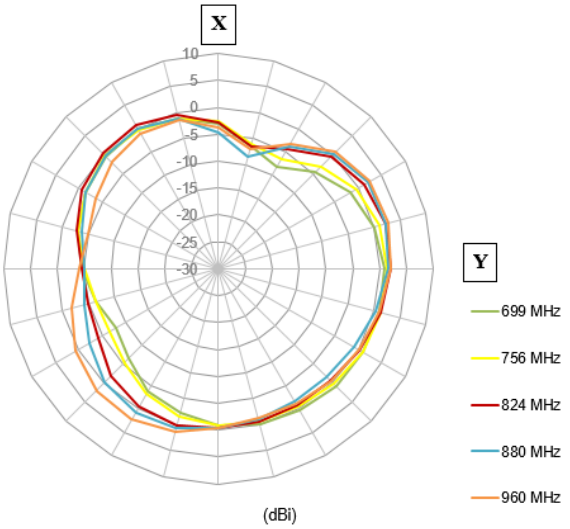



**Figure 9.** X-Y polar plot showing target bands

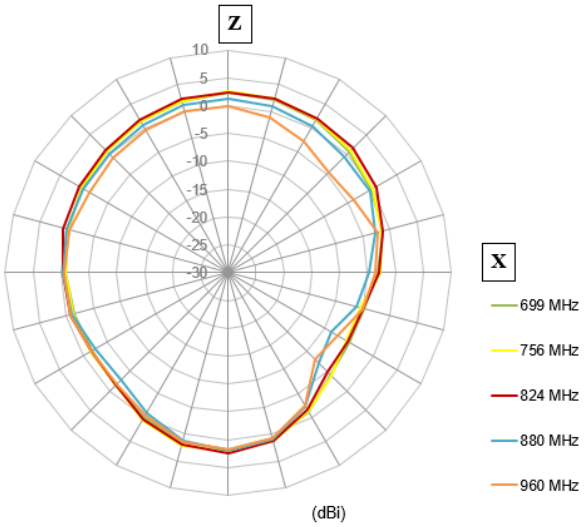



**Figure 10.** Z-X polar plot showing target bands

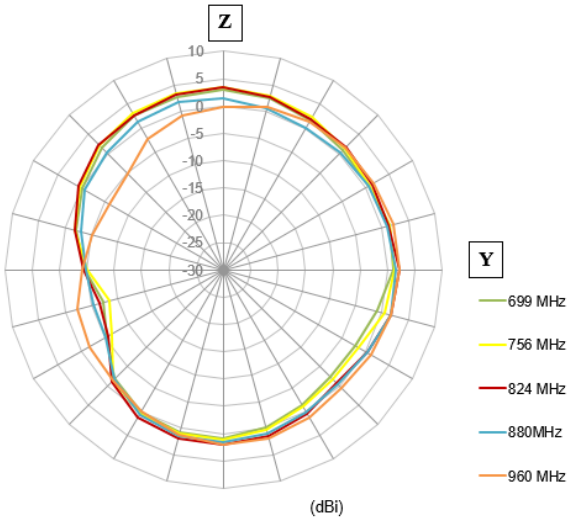



**Figure 11.** Z-Y polar plot showing target bands

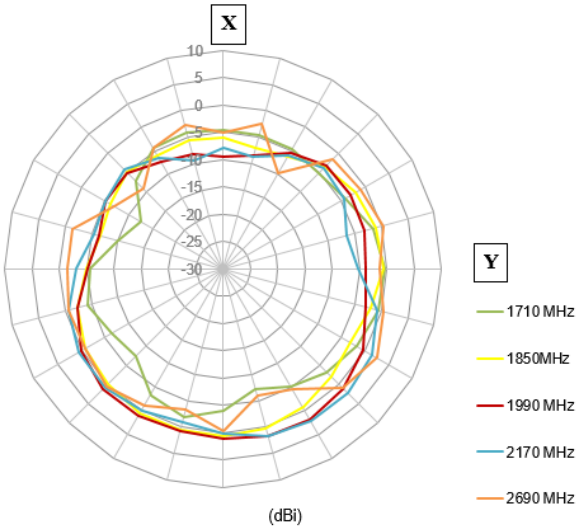



**Figure 12.** X-Y polar plots showing target bands

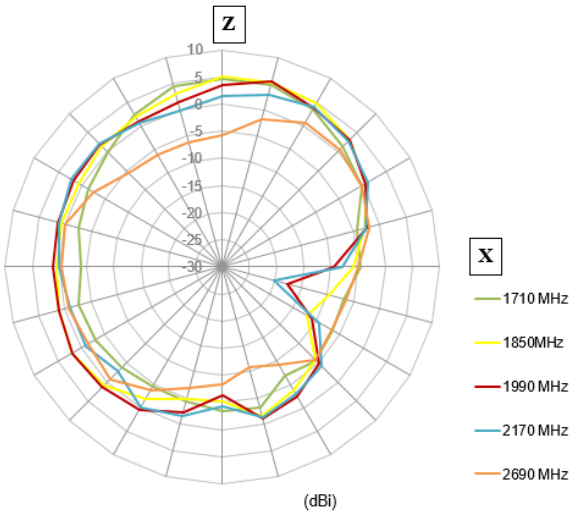



**Figure 13.** Z-X polar plots showing target bands

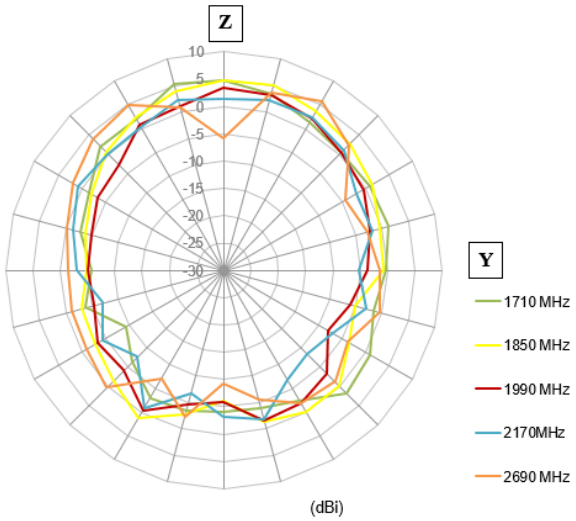



**Figure 14.** Z-Y polar plots showing target bands

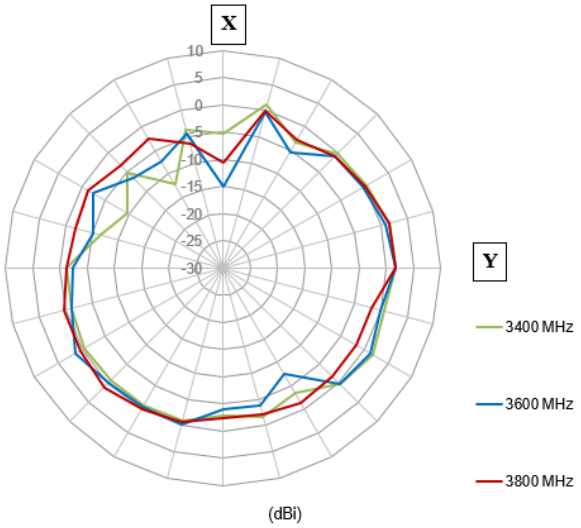



**Figure 15.** X-Y polar plots showing target bands

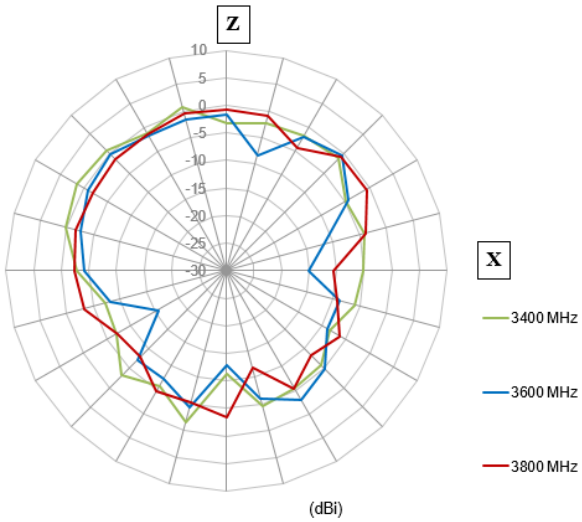



**Figure 16.** Z-X polar plot showing target bands

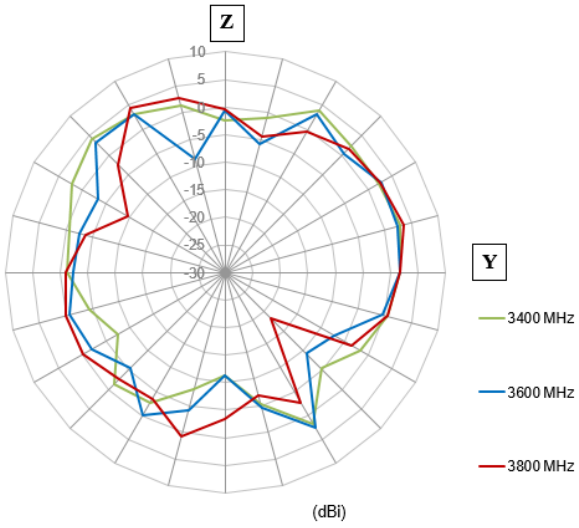



**Figure 17.** Z-Y polar plot showing target bands

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

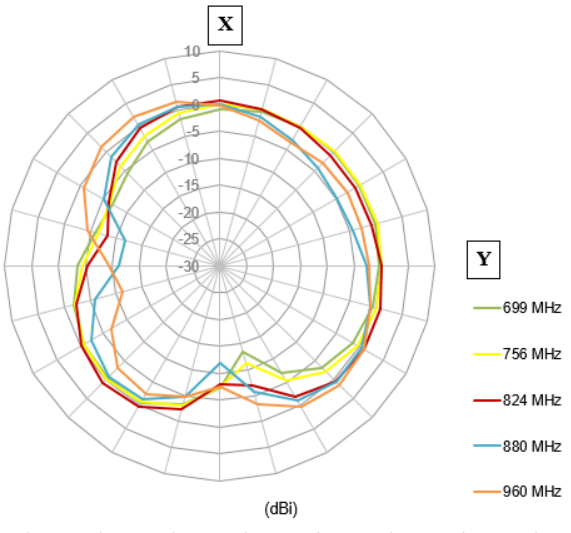



**Figure 18.** X-Y polar plots showing target bands

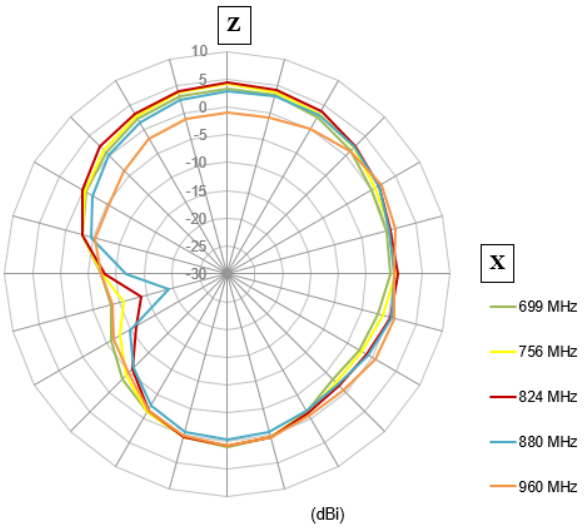



**Figure 19.** Z-X polar plots showing target bands

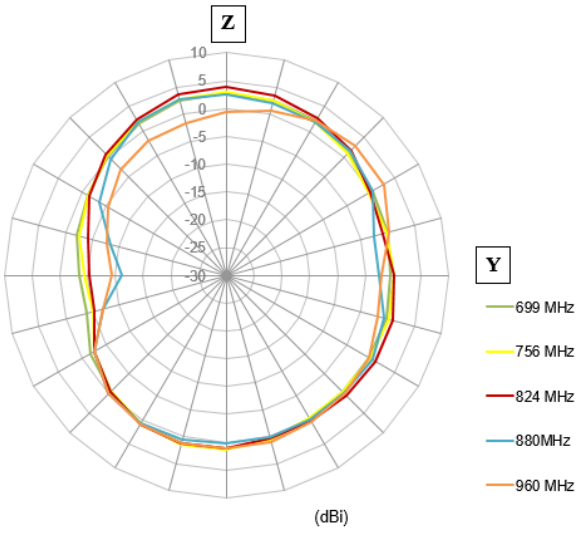



**Figure 20.** Z-Y polar plot showing target bands

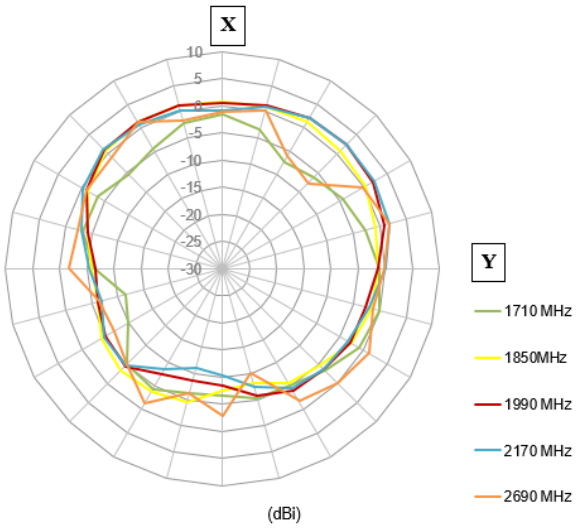



**Figure 21.** X-Y polar plot showing target bands

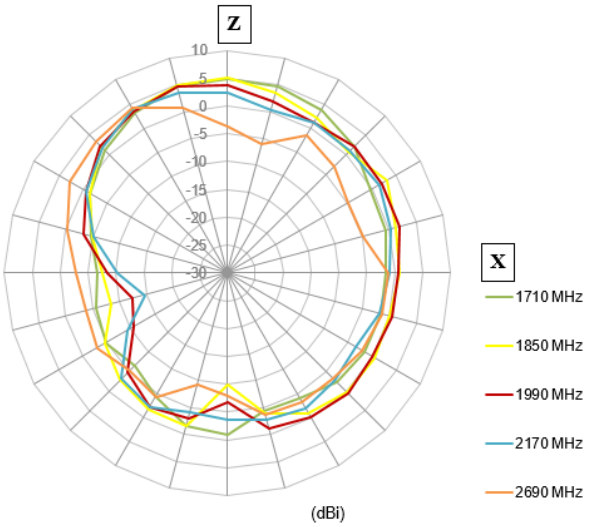



**Figure 22.** Z-X polar plot showing target bands

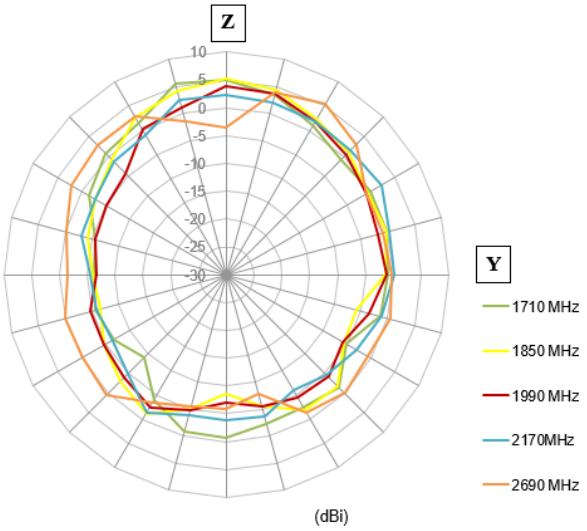



**Figure 23.** Z-Y polar plot showing target bands

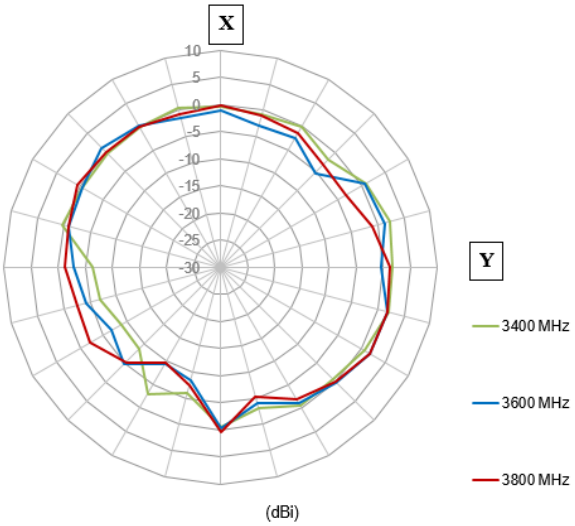



**Figure 24.** X-Y polar plot showing target bands

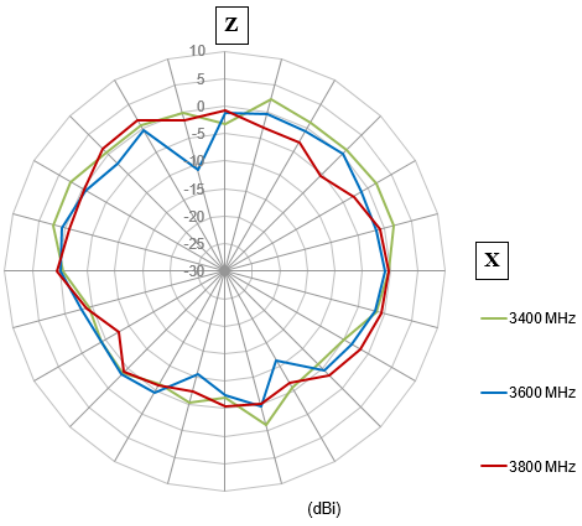



**Figure 25.** Z-X polar plot showing target bands

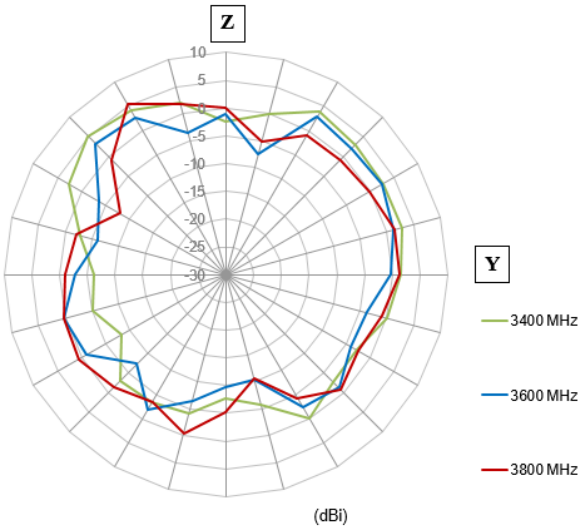
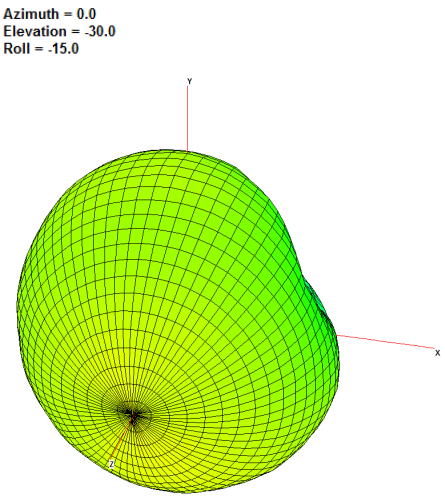


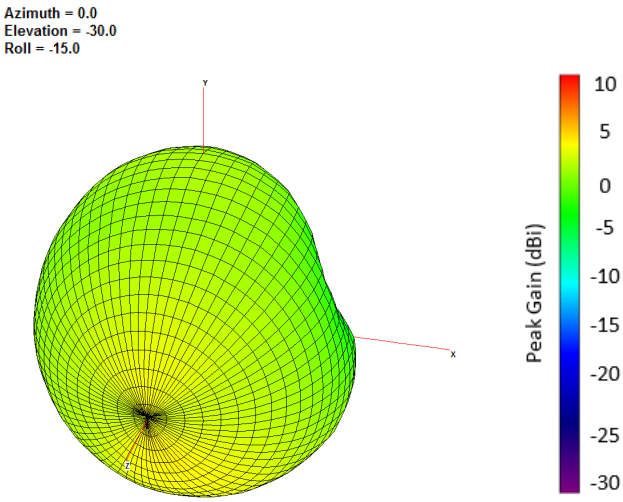

**Figure 26.** Z-Y polar plot showing target bands

# 6. 3D Radiation Patterns

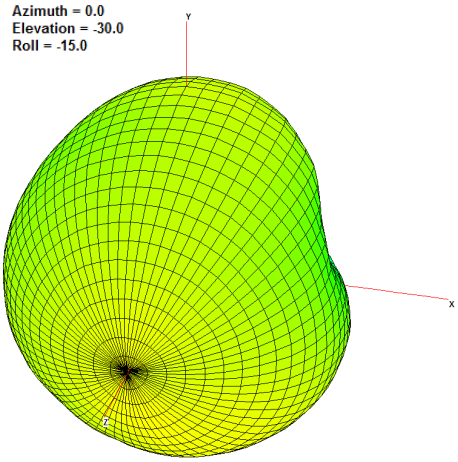
## 6.1 3D Radiation Patterns Port 1



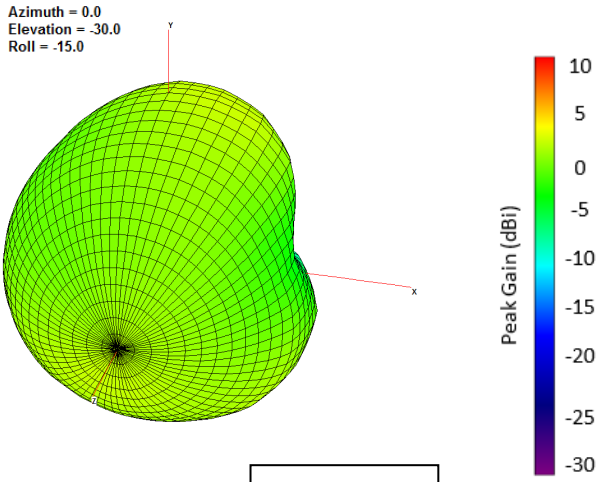

699MHz



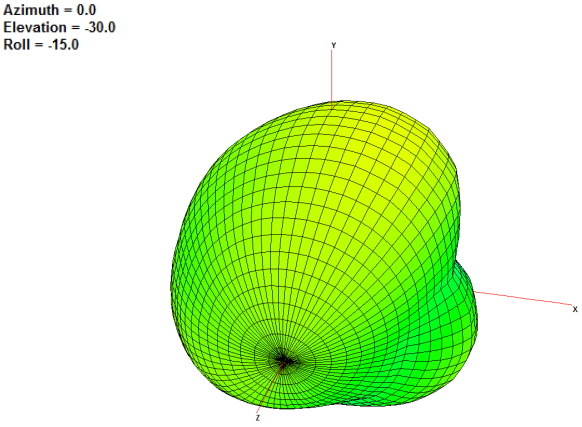

756MHz



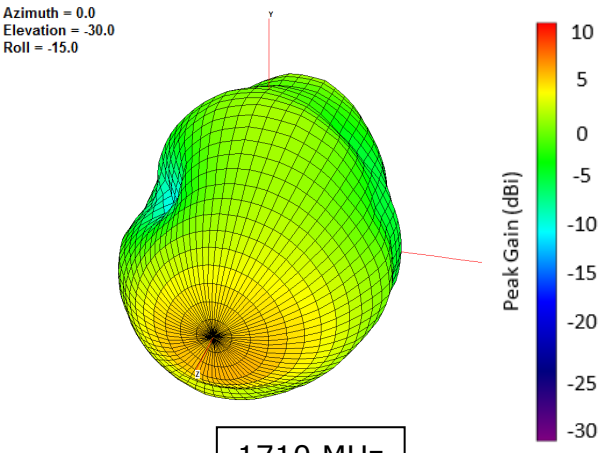

824MHz



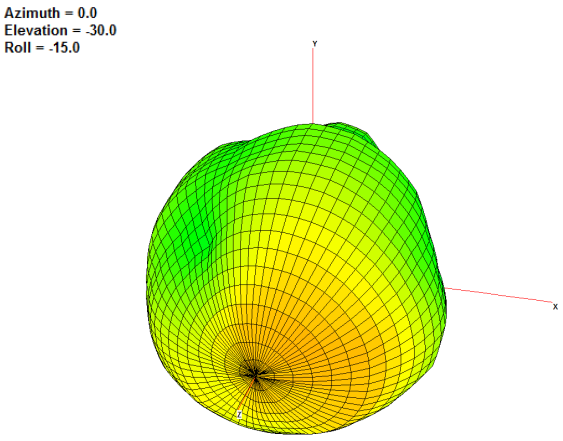

880 MHz



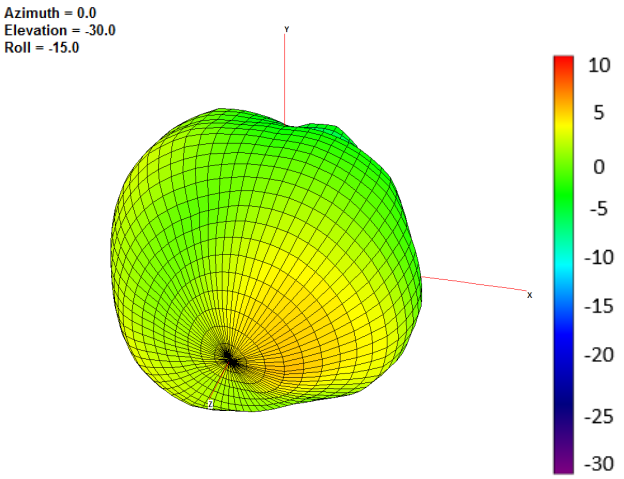

960 MHz



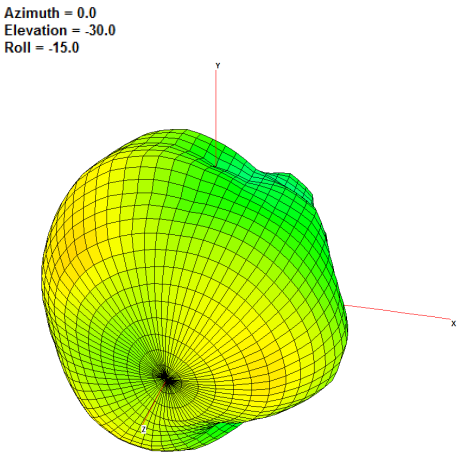

1710 MHz



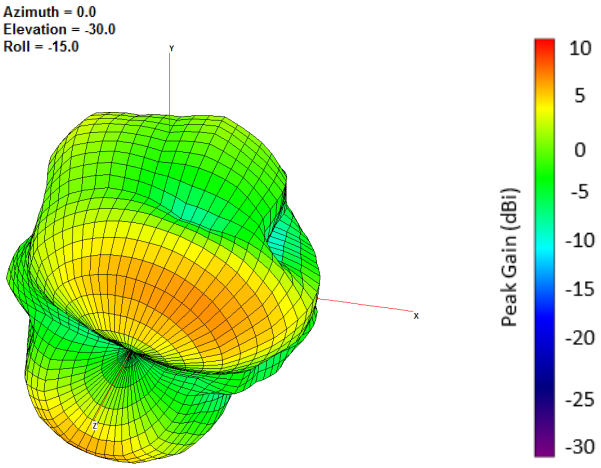

1850 MHz



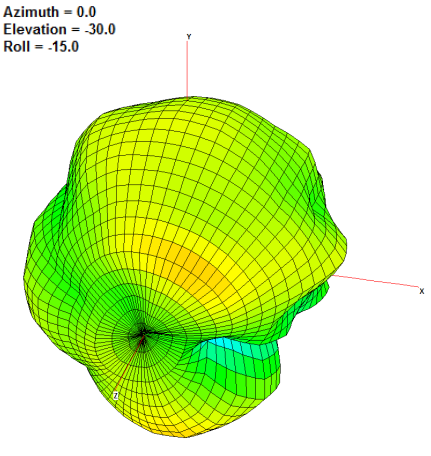

1990 MHz



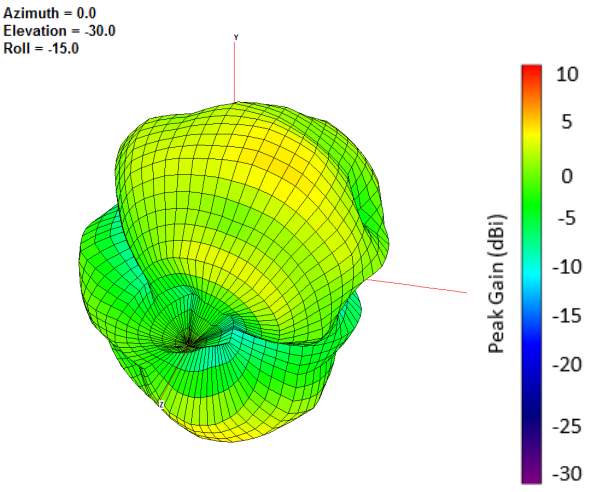

2170 MHz



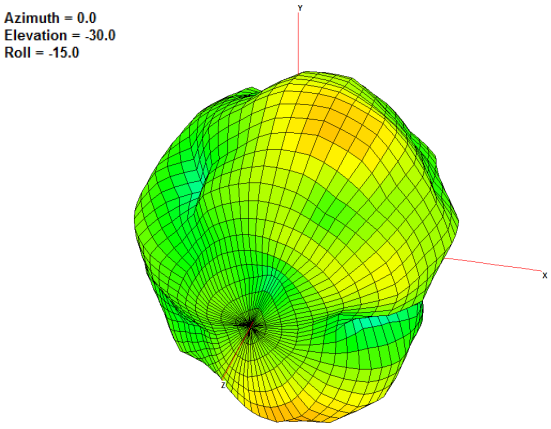

2690 MHz

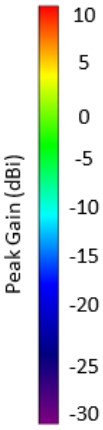



3400 MHz



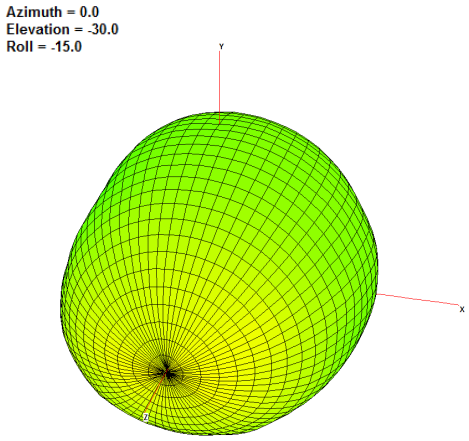

3600 MHz


Azimuth = 0.0
Elevation = -30.0
Roll = -15.0
Y
X
Z

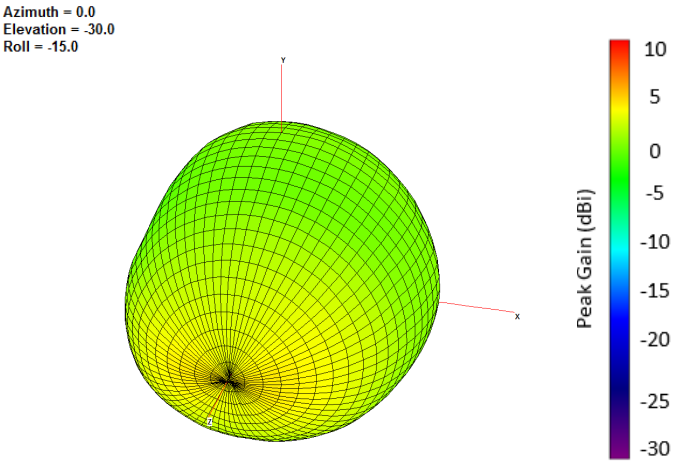

Peak Gain (dBi)
10
5
0
-5
-10
-15
-20
-25
-30

3800 MHz

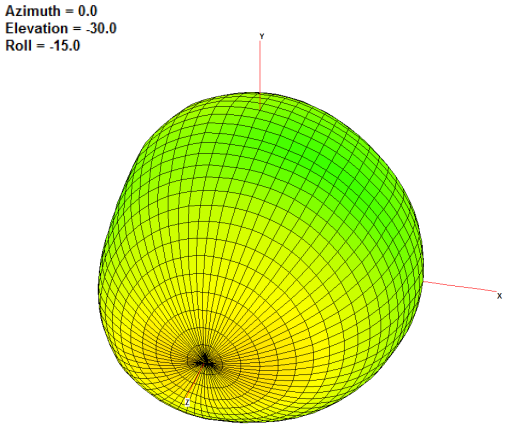
## 6.2 3D Radiation Patterns Port 2



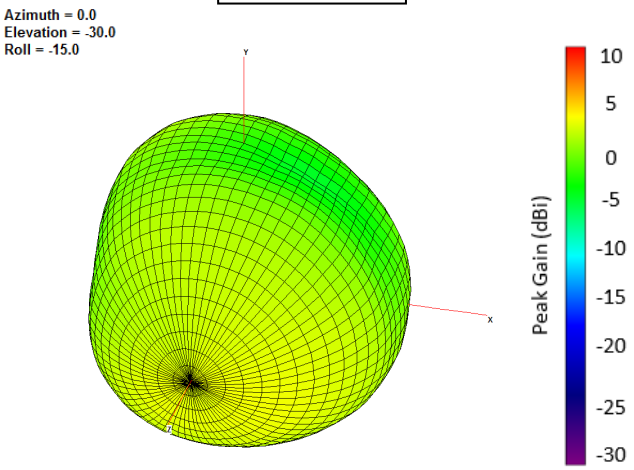

699 MHz



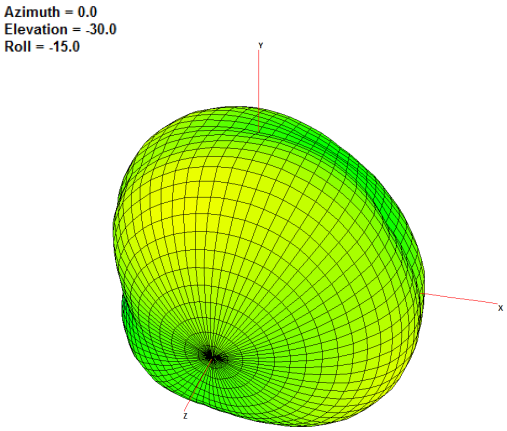

756 MHz



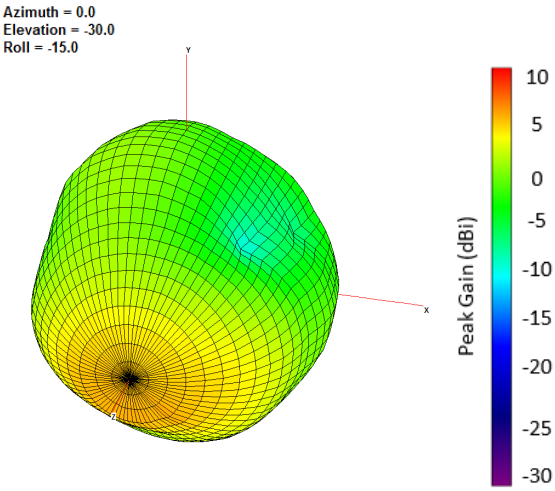

824 MHz



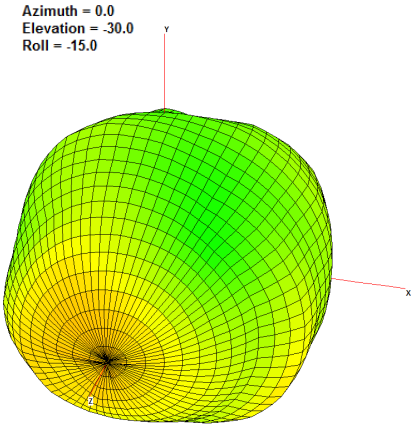

880 MHz



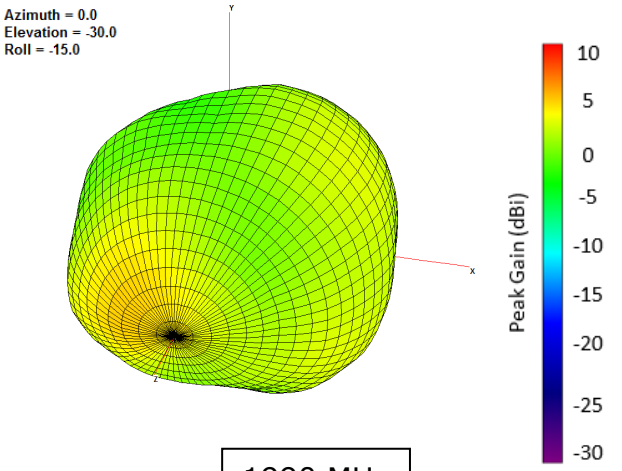

960 MHz



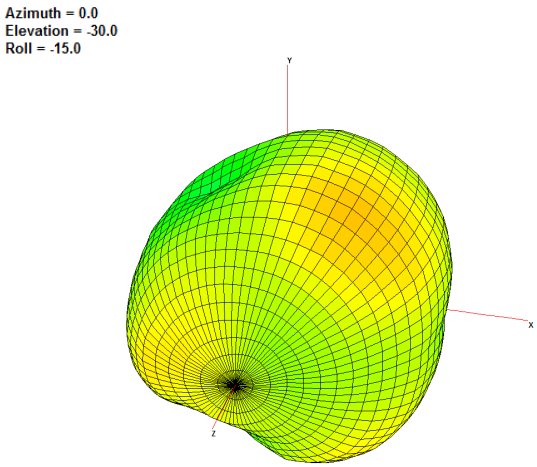

1710 MHz



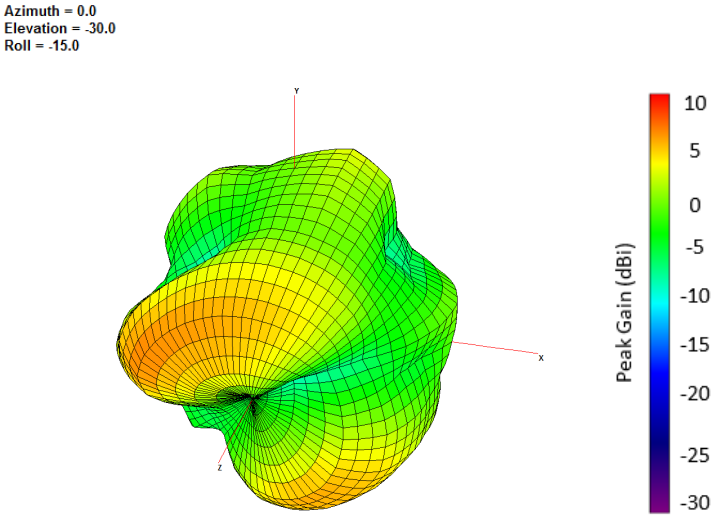

1850 MHz



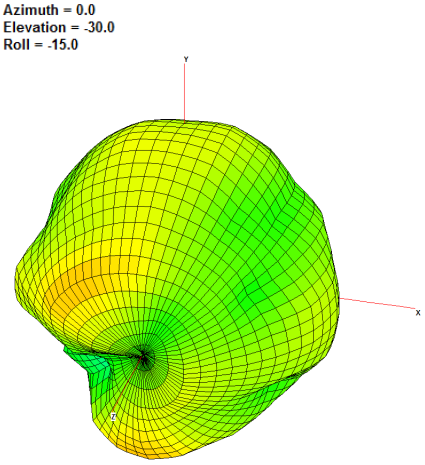

1990 MHz



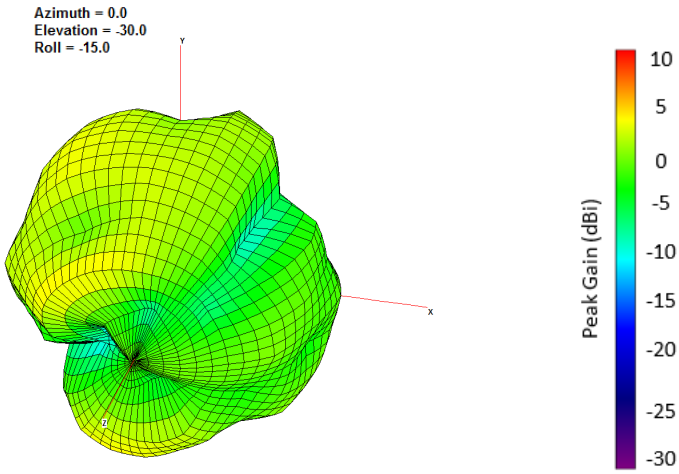

2170 MHz




2690 MHz

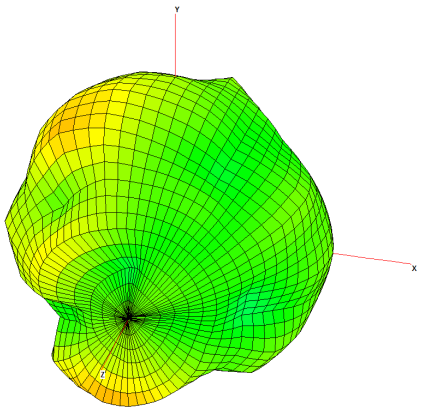


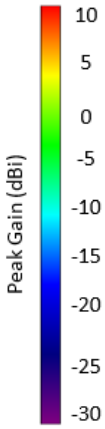

3400 MHz




3600 MHz

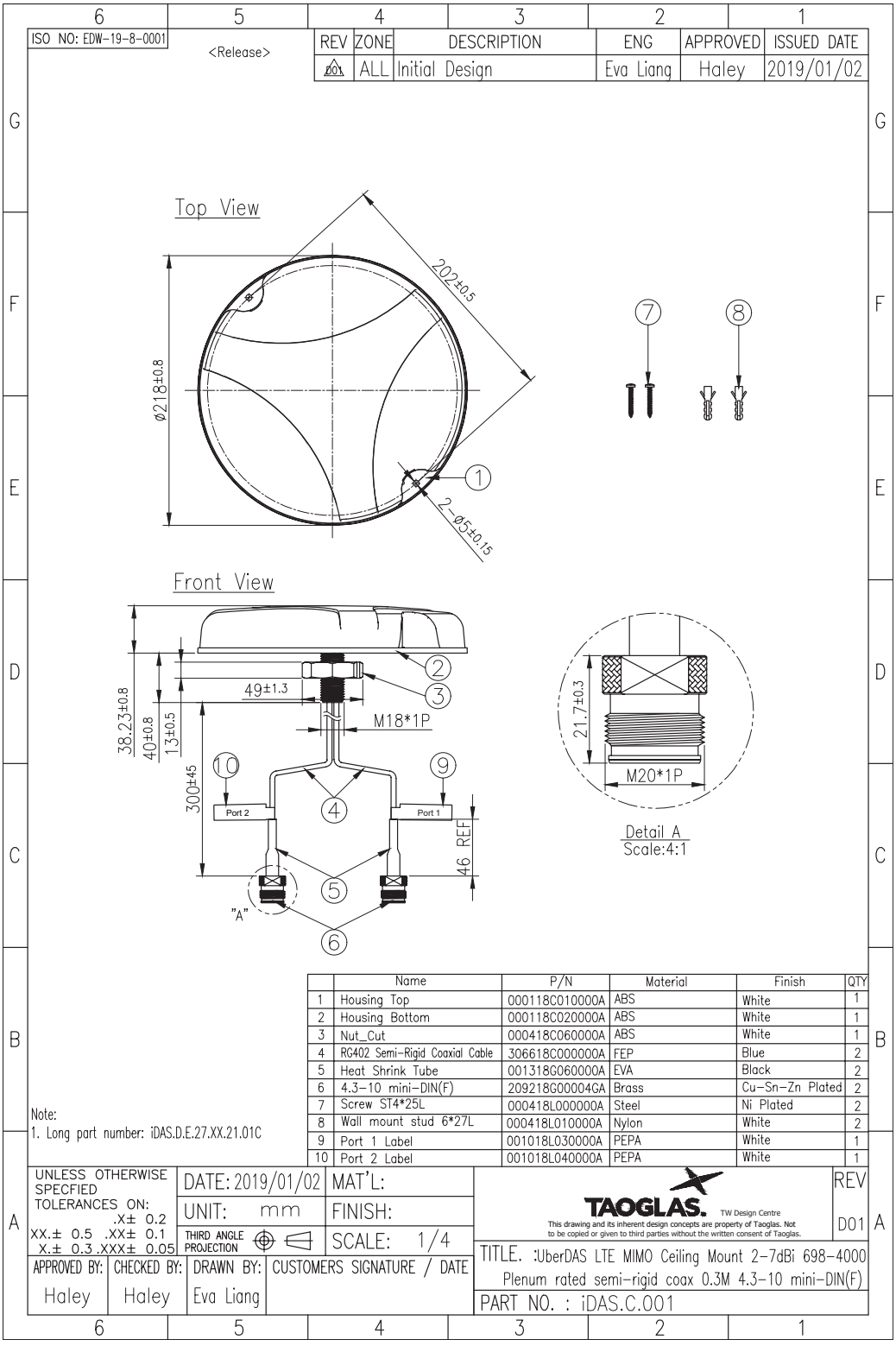
Azimuth = 0.0
Elevation = -30.0
Roll = -15.0






3800 MHz

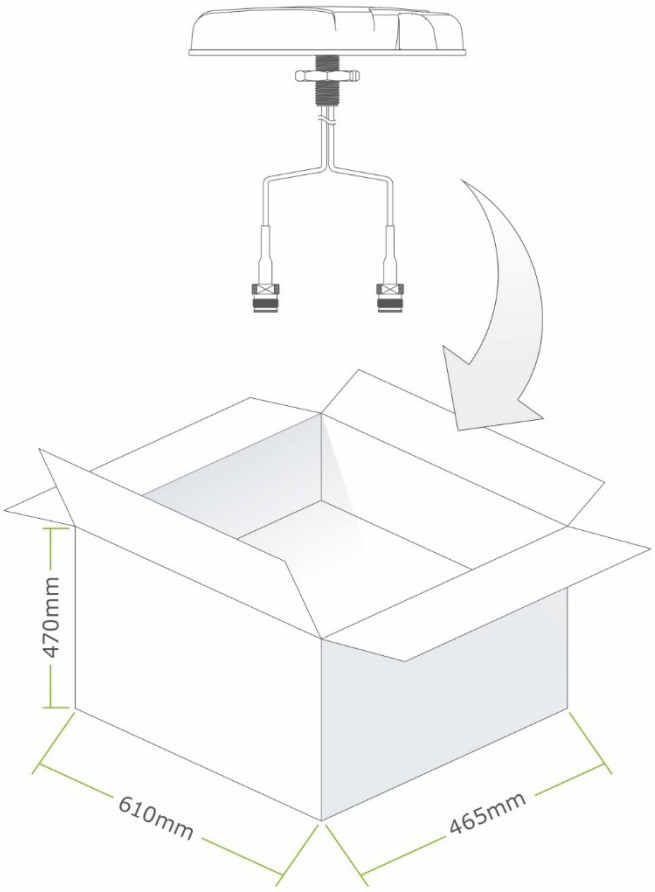
# 7. Mechanical Drawing (Unit: mm)




| | Name | P/N | Material | Finish | QTY |
|---|---|---|---|---|---|
| 1 | Housing Top | 000118C010000A | ABS | White | 1 |
| 2 | Housing Bottom | 000118C020000A | ABS | White | 1 |
| 3 | Nut_Cut | 000418C060000A | ABS | White | 1 |
| 4 | RG402 Semi-Rigid Coaxial Cable | 306618C000000A | FEP | Blue | 2 |
| 5 | Heat Shrink Tube | 001318G060000A | EVA | Black | 2 |
| 6 | 4.3-10 mini-DIN(F) | 209218G00004GA | Brass | Cu-Sn-Zn Plated | 2 |
| 7 | Screw ST4*25L | 000418L000000A | Steel | Ni Plated | 2 |
| 8 | Wall mount stud 6*27L | 000418L010000A | Nylon | White | 2 |
| 9 | Port 1 Label | 001018L030000A | PEPA | White | 1 |
| 10 | Port 2 Label | 001018L040000A | PEPA | White | 1 |

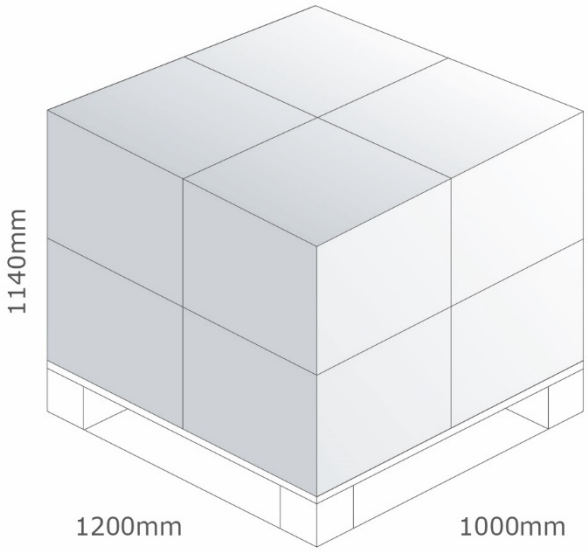
# 8. Packaging

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



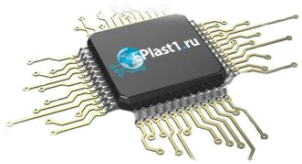
Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits,General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.




**Как с нами связаться**

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**Факс:** 8 (812) 320-02-42
**Электронная почта:** org@eplast1.ru
**Адрес:** 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.