



# TAOGLAS®



Datasheet

**Part No:**  
**G52.A.0616BN11**

**Description:**

Ultra-Flat LTE Antenna 700 to 3000 MHz with 628 mm RG58 Cable  
Knox 50 Connector

**Features:**

Ultra-Flat LTE Antenna covering main LTE Bands for AT&T and Verizon carriers  
Cable: 628 mm RG58 with Knox 50 Connector

RoHS & Reach Compliant

|                            |    |
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## Changelog

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## 1. Introduction



The G52.A.0616BN11 antenna is an ultra-flat antenna for Pit-Lid and similar applications. It was designed to perform in the LTE AT&T and Verizon bands 2, 4, 12 and 13. This is a custom antenna solution and enclosure for water meters and gas meters. The antenna performs on metallic surfaces and non-metallic surfaces although the data presented here is with the metallic plane.

When tested on a 300 mm by 300 mm metal plane, the G52 delivers efficiencies of 52% for B12, 40% for B13, 45% for B4 and 46% for B2. The G52 is designed to be through-hole mounted on metal or plastic surfaces. It is ideal for low profile and resistant to environment applications.

All testing was done at the San Diego engineering facility in the Howland 3100 Anechoic Chamber.

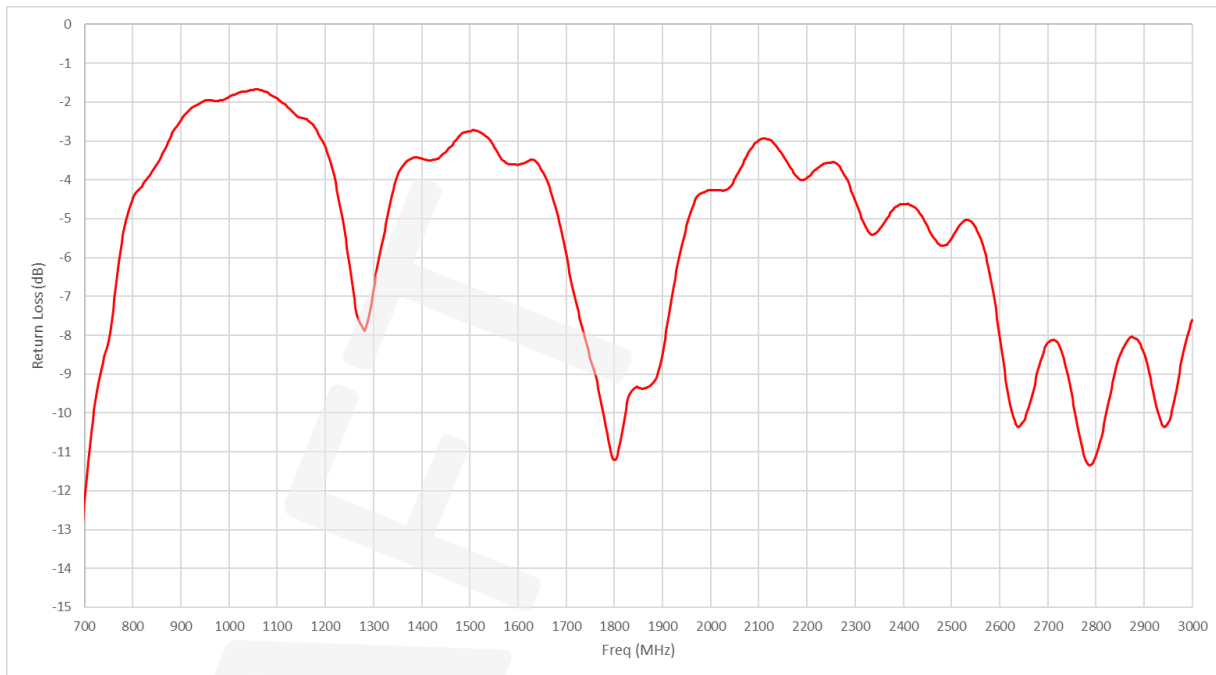
## 2. Specifications

| Electrical            |                            |         |         |             |             |           |
|-----------------------|----------------------------|---------|---------|-------------|-------------|-----------|
| Band                  | Band 12                    | Band 13 | ISM 900 | Band 4 (TX) | Band 4 (RX) | Band 2    |
| Frequency (MHz)       | 699-746                    | 746-787 | 902-928 | 1710-1755   | 2110-2155   | 1850-1990 |
| Return Loss (dB)      | -10                        | -7      | -3      | -8          | -3.5        | -9        |
| Efficiency (%)        | 52                         | 40      | 16      | 45          | 20          | 46        |
| Average Gain (dB)     | -3                         | -4      | -8      | -3.5        | -7          | -3.4      |
| Peak Gain (dBi)       | 5.8                        | 3.9     | -0.8    | 1.9         | 0.4         | 3.2       |
| Radiation Properties  | Omnidirectional            |         |         |             |             |           |
| Max Input Power (W)   | 5                          |         |         |             |             |           |
| Impedance             | 50 $\Omega$                |         |         |             |             |           |
| Polarization          | Linear                     |         |         |             |             |           |
| Mechanical            |                            |         |         |             |             |           |
| Dimensions            | 114.3 mm $\times$ 12.7 mm  |         |         |             |             |           |
| Connector             | Knox 50                    |         |         |             |             |           |
| Cable                 | 628 mm of RG58 Coax        |         |         |             |             |           |
| Weight                | 1.9 g                      |         |         |             |             |           |
| Environmental         |                            |         |         |             |             |           |
| Operation Temperature | -40°C to 85°C              |         |         |             |             |           |
| Storage Temperature   | -40°C to 85°C              |         |         |             |             |           |
| Humidity              | Non-condensing 65°C 95% RH |         |         |             |             |           |

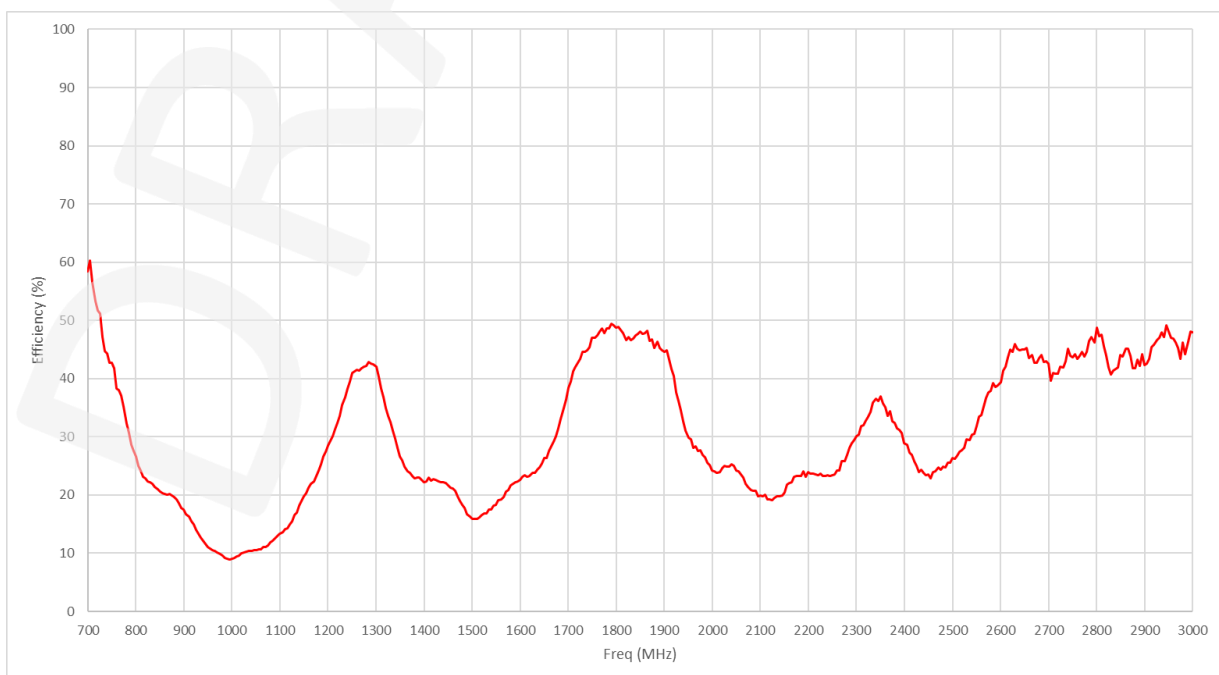
\*All testing done on a 300 mm by 300 mm metal plane

## 3. Antenna Characteristics

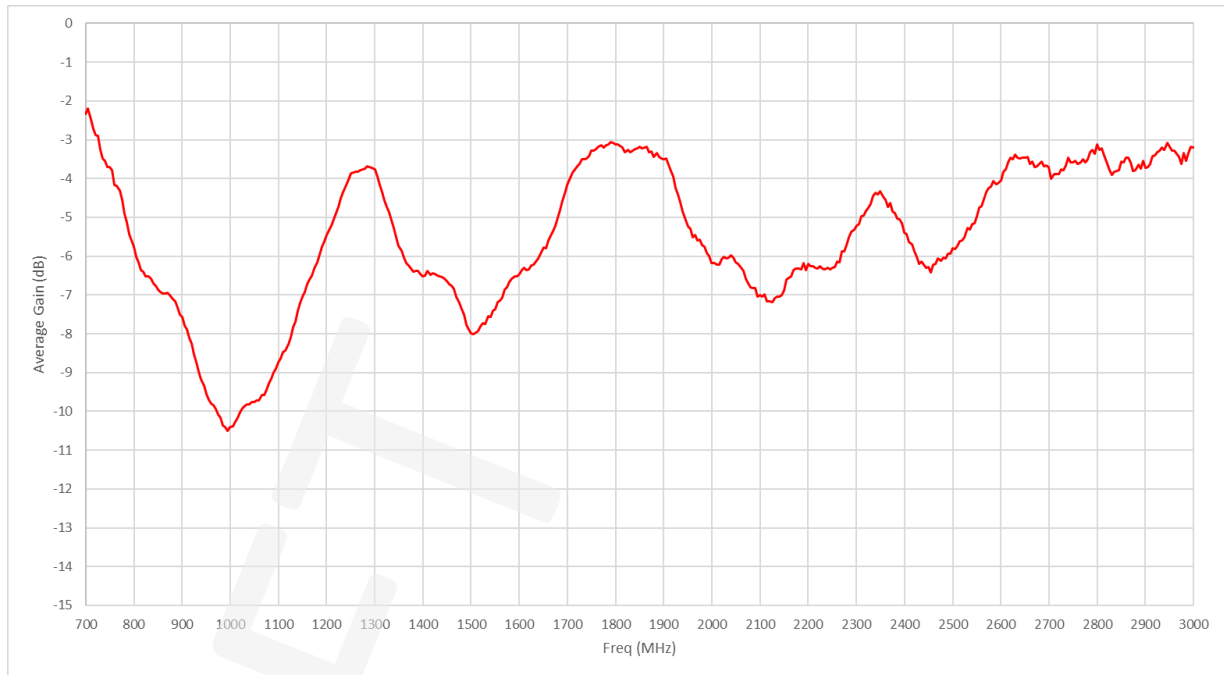
### 3.1 Return Loss (dB)



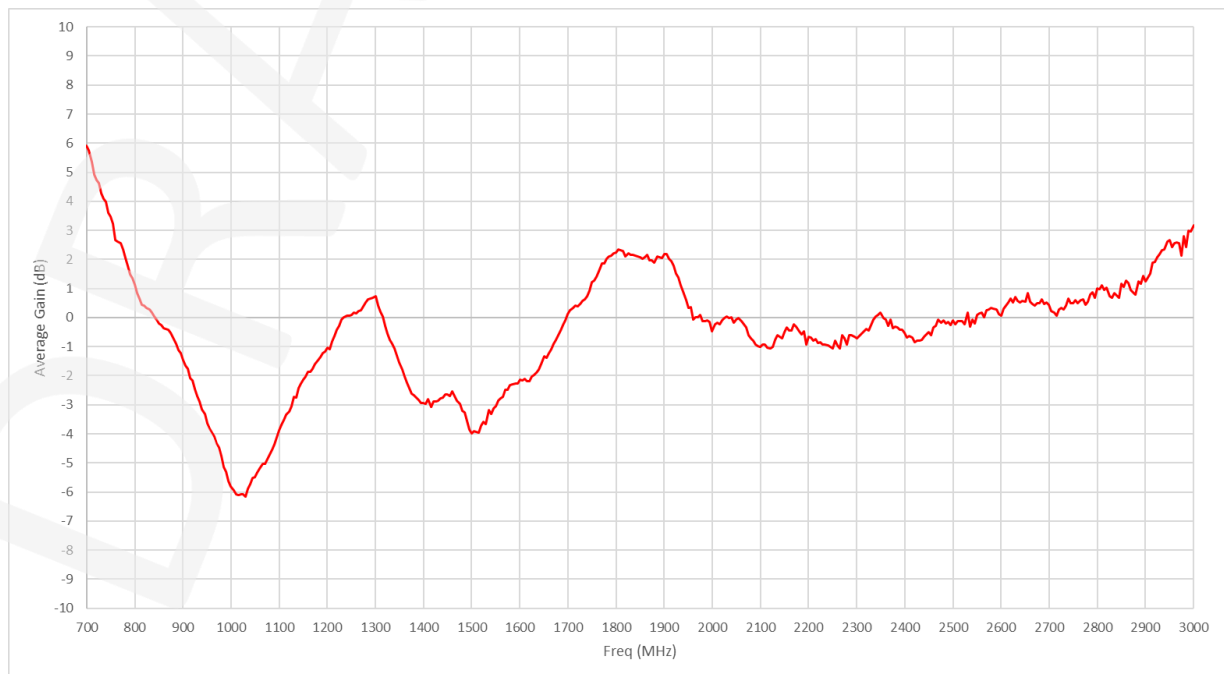
### 3.2 Efficiency (%)



### 3.3 Average Gain (dB)

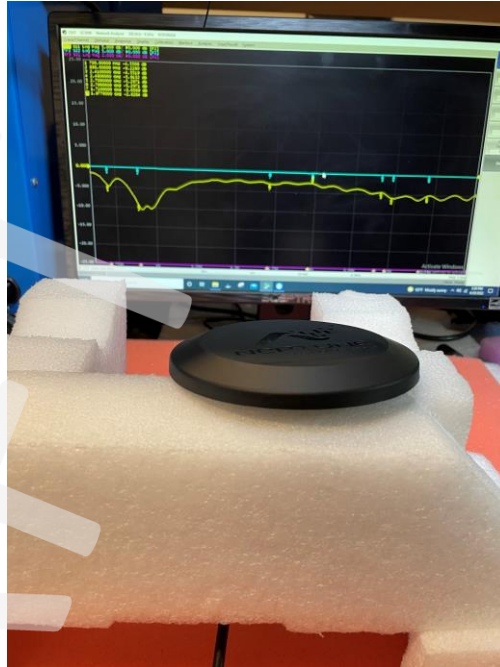


### 3.4 Peak Gain (dBi)

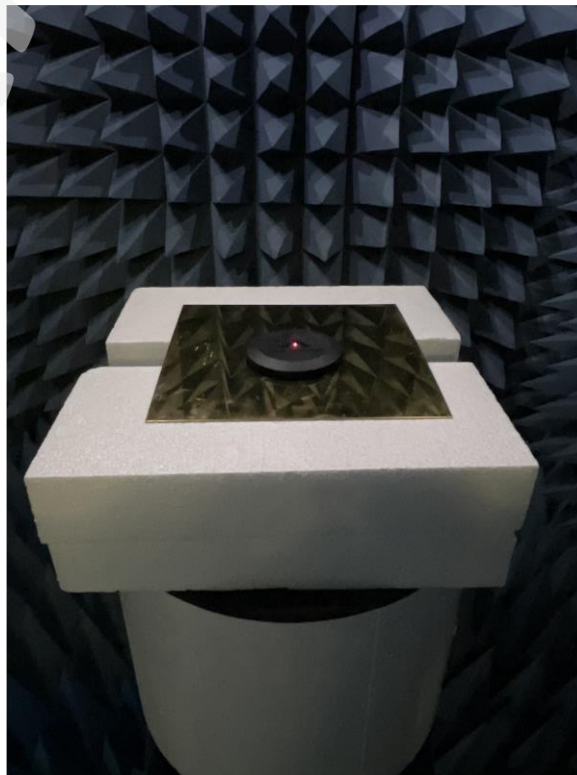


## 4. Radiation Patterns

### 4.1 Test Setup



Return Loss Test Setup of the G52

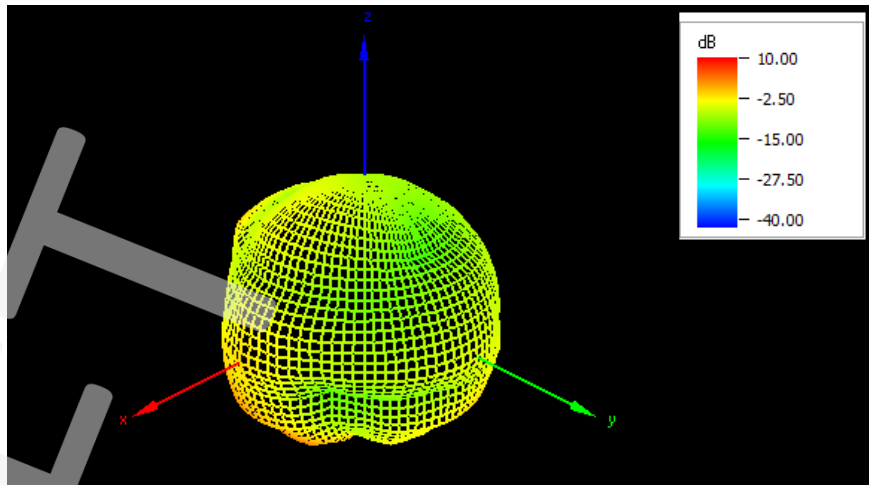


OTA Setup of the G52 in the Howland 3100 Test System

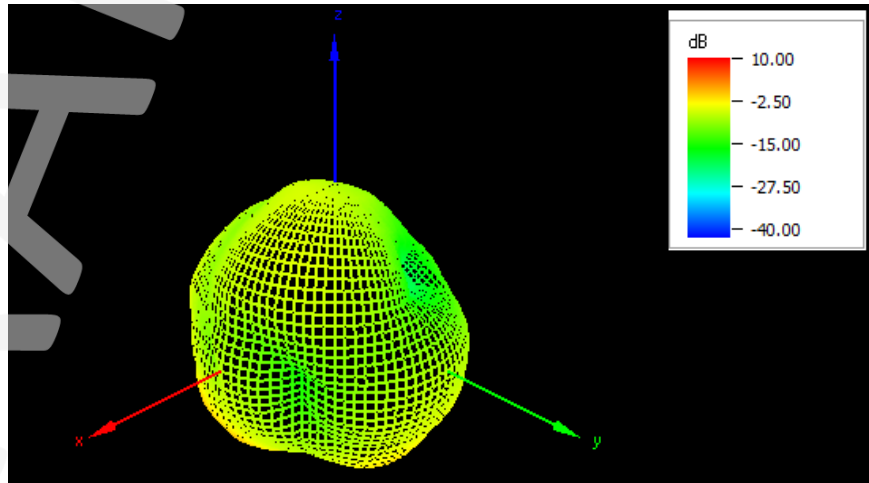
4.2 Radiation Patterns

3D Patterns

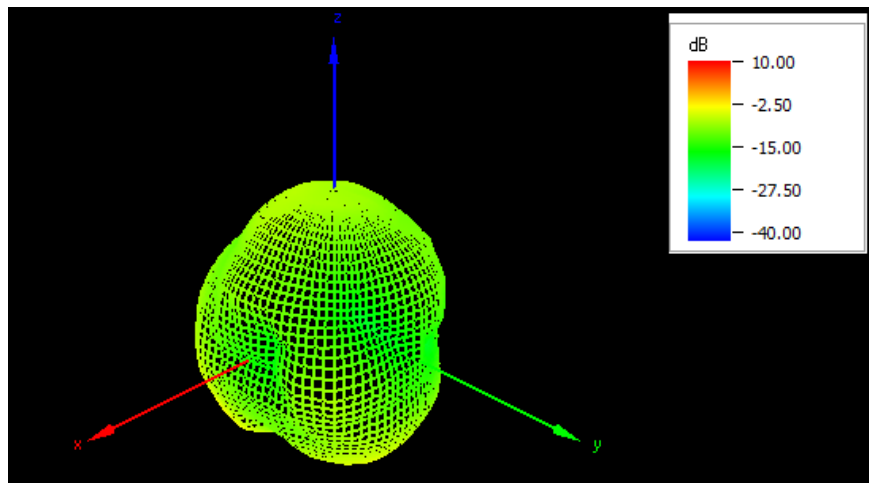
710 MHz



780 MHz

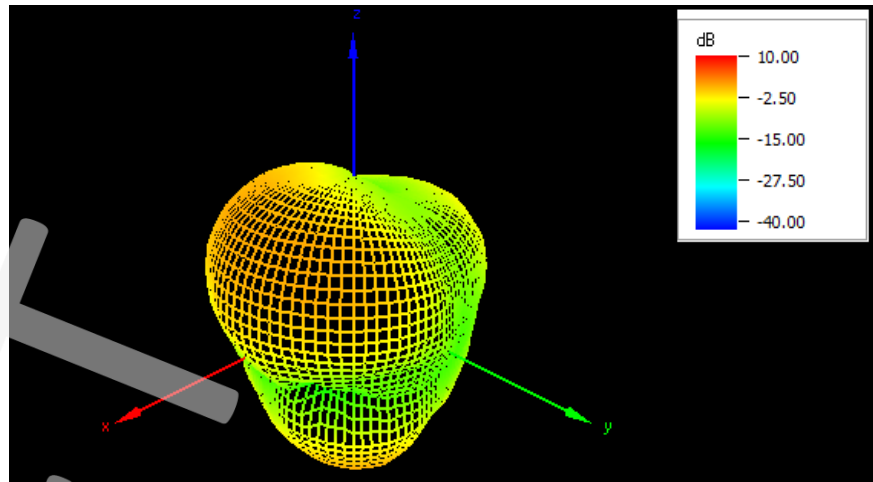


915 MHz

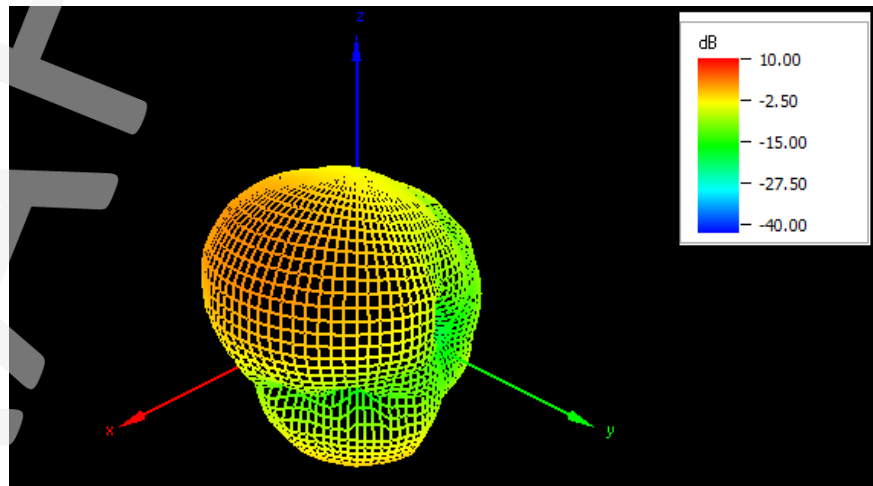




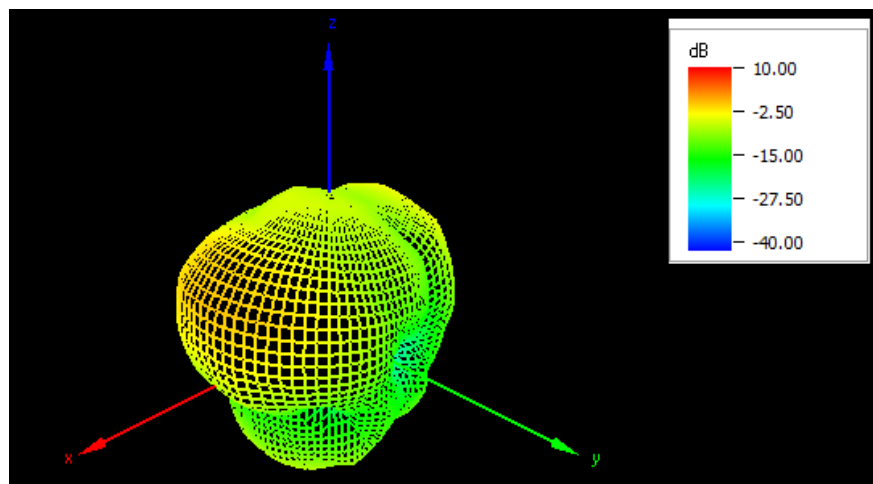
1730 MHz



1880 MHz



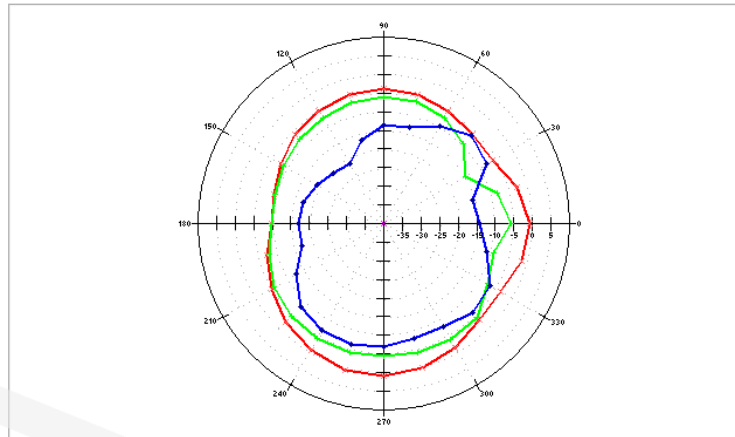
2130 MHz



2D Patterns

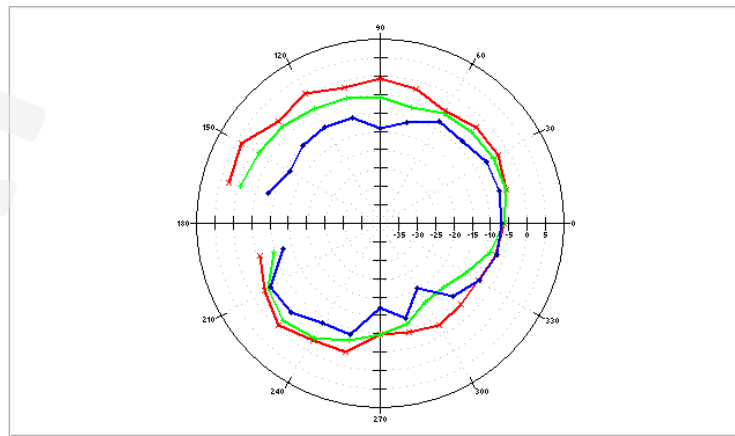
710MHz, 780 MHz, 915 MHz

XY Cut



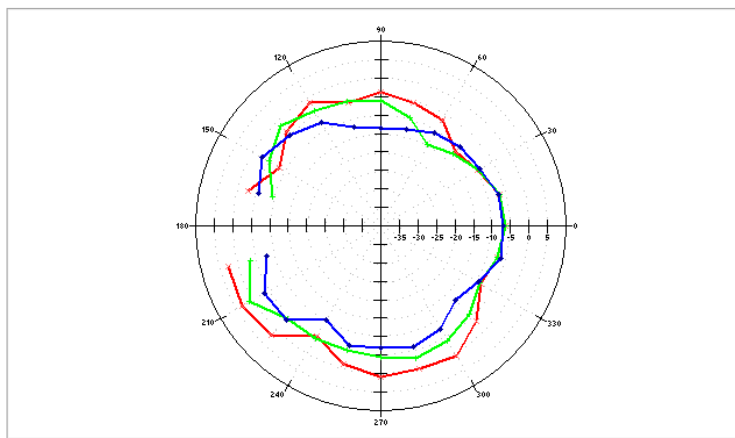
710.000 MHz [dB] 780.000 MHz [dB] 915.000 MHz [dB]

XZ Cut



710.000 MHz [dB] 780.000 MHz [dB] 915.000 MHz [dB]

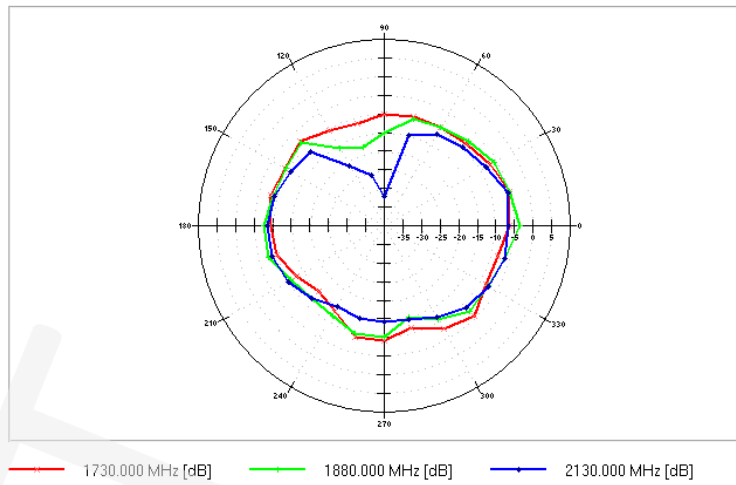
YZ Cut



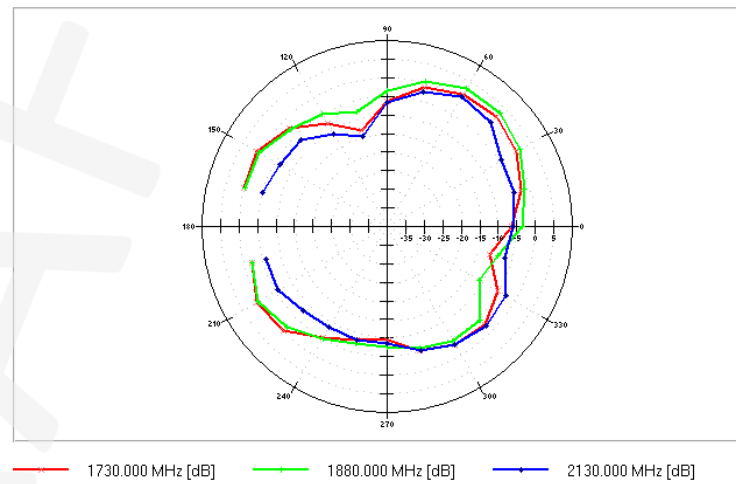
710.000 MHz [dB] 780.000 MHz [dB] 915.000 MHz [dB]

1730MHz, 7180 MHz, 2130 MHz

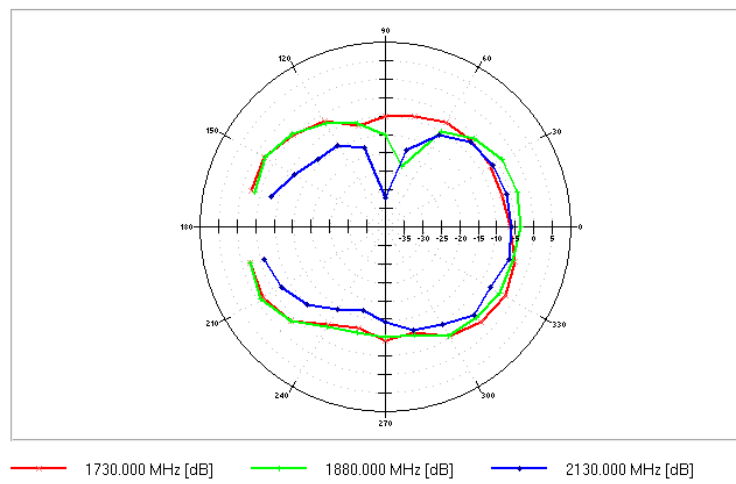
XY Cut



XZ Cut



YZ Cut



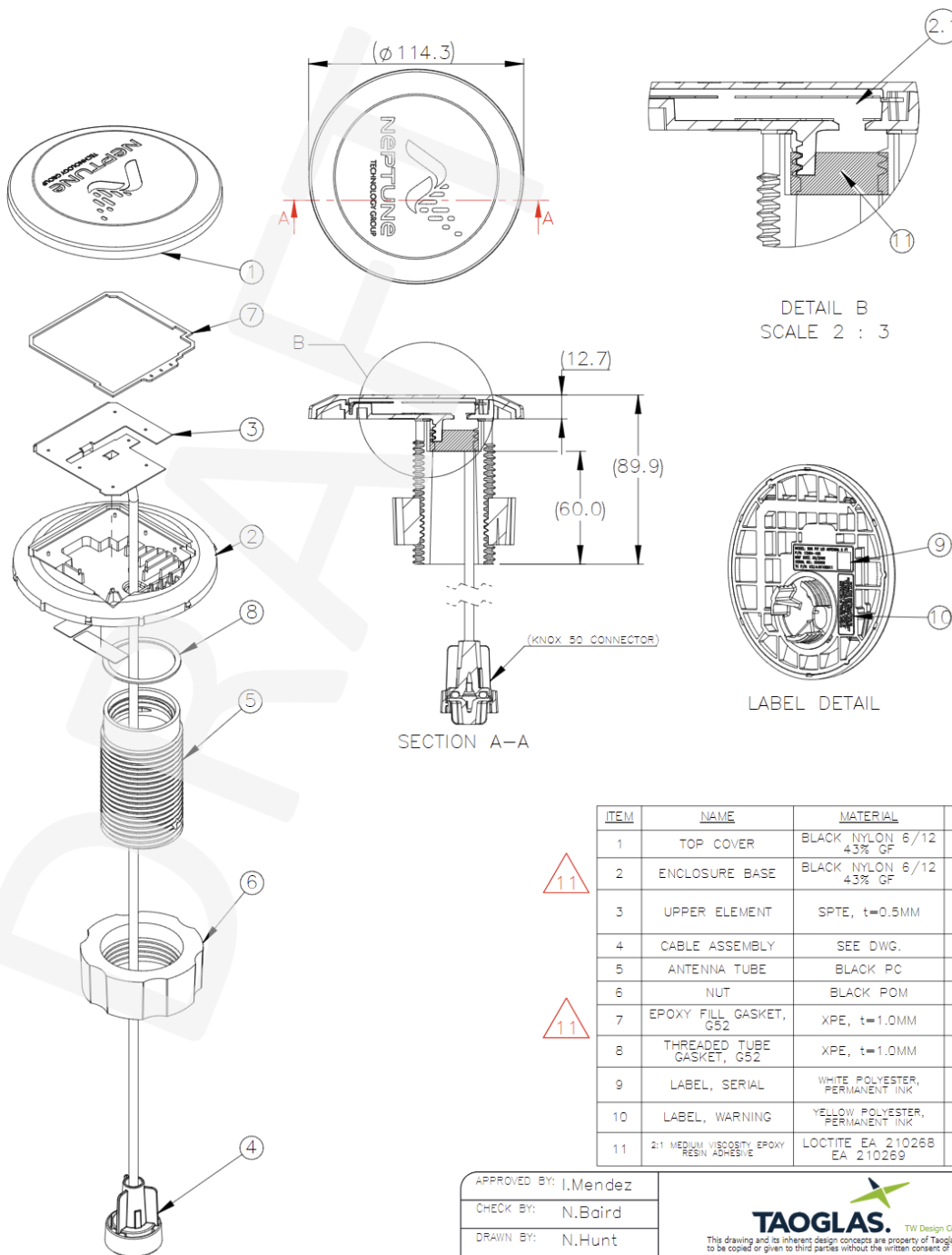
# 5. Mechanical Drawing

ISO NO.: EDW-21-8-1419

STATE: Released

- NOTES:
1. All material must be RoHS compliant.
  2. Potting notes:
    - 2.1. Interior volume to be fully purged of air then potted.
  3. Customer: Neptune Technology Group  
Customer Part #: 13984-100 PIT ANTENNA, 2FT, CELLULAR, KNOX 50

| REV | ZONE | DESCRIPTION                   | ENG    | APPROVED | DATE      |
|-----|------|-------------------------------|--------|----------|-----------|
| D07 | All  | Initial release.              | N.Hunt | I.Mendez | 12/9/2021 |
| D08 | All  | Antenna and enclosure updated | N.Hunt | I.Mendez | 2/22/2022 |
| D09 | All  | BOM updated                   | N.Hunt | I.Mendez | 2/25/2022 |
| D10 | All  | BOM updated                   | N.Hunt | I.Mendez | 8/10/2022 |
| D11 | All  | BOM updated                   | N.Hunt | I.Mendez | 9/14/2022 |



| ITEM | NAME                                         | MATERIAL                           | QTY                               |
|------|----------------------------------------------|------------------------------------|-----------------------------------|
| 1    | TOP COVER                                    | BLACK NYLON 6/12<br>43% GF         | 1                                 |
| 2    | ENCLOSURE BASE                               | BLACK NYLON 6/12<br>43% GF         | 1                                 |
| 3    | UPPER ELEMENT                                | SPTe, t=0.5MM                      | 1                                 |
| 4    | CABLE ASSEMBLY                               | SEE DWG.                           | 1                                 |
| 5    | ANTENNA TUBE                                 | BLACK PC                           | 1                                 |
| 6    | NUT                                          | BLACK POM                          | 1                                 |
| 7    | EPOXY FILL GASKET,<br>G52                    | XPE, t=1.0MM                       | 1                                 |
| 8    | THREADED TUBE<br>GASKET, G52                 | XPE, t=1.0MM                       | 1                                 |
| 9    | LABEL, SERIAL                                | WHITE POLYESTER,<br>PERMANENT INK  | 1                                 |
| 10   | LABEL, WARNING                               | YELLOW POLYESTER,<br>PERMANENT INK | 1                                 |
| 11   | 2:1 MEDIUM VISCOSITY EPOXY<br>RESIN ADHESIVE | LOCTITE EA 210268<br>EA 210269     | VOLUME:<br>ESTIMATED<br>43cc/UNIT |

|                                                                                             |                                                                                                                                                                                                |
|---------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| APPROVED BY: I.Mendez                                                                       | <p>TAOGLAS. TW Design Centre<br/>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> |
| CHECK BY: N.Baird                                                                           |                                                                                                                                                                                                |
| DRAWN BY: N.Hunt                                                                            | TITLE : 700-2200 LTE Screwmount Antenna 4.5in<br>2ft(610mm) RG-58 Knox 50 connector                                                                                                            |
| DATE: 12/9/2021                                                                             | PART NO.: G52.A.0616BN11                                                                                                                                                                       |
| UNLESS OTHERWISE SPECIFIED TOLERANCES ON:<br>XX±0.5<br>X±0.3<br>X±0.2<br>XX±0.1<br>XXX±0.05 | UNIT: mm SCALE: 1:3 PAGES: 1/1 REV: D11                                                                                                                                                        |
| THIRD ANGLE PROJECTION                                                                      |                                                                                                                                                                                                |



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