# *ANTENNA PASSIVE TEST REPORT*

| | |
|---|---|
| **Application No.** | ZEWM2304000431OA |
| **Applicant** | Merlyn Mind, Inc. |
| **Manufacturer** | Merlyn Mind, Inc. |
| **Product Name** | ActivPanel Merlyn Remote |
| **Model No.** | AP-MM-RCU |
| **Standards** | ANSI/IEEE Std 149-2008 |
| **Date Initial Sample(s) Received** | 2023.04.07 |
| **Testing Start Date** | 2023.04.09 |
| **Testing Finish Date** | 2023.04.09 |
| **Report Issue Date** | 2023.05.08 |

*** In the configuration tested, the EUT detailed in this report complied with the standards specified above.**

| Prepared by | Reviewed By | Approved by |
|---|---|---|
| Yuanyu Luo | Max. Huang | Ervin Li |



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# Revision Version

| Report No. | Version | Date | Memo |
|---|---|---|---|
| ZEWM2304000431OA01 | 00 | 2023.05.08 | Initial creation of report |



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# 1 General Information

## 1.1 Testing Laboratory

| | |
|---|---|
| Test Lab | SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch |
| Address | No.1 Workshop, M-10, Middle section, Science & Technology Park, Nanshan District, Shenzhen, Guangdong, China 518057 |
| Contact | Ervin Li |
| Tel. | +86 18823369694 |
| Fax | +86-755-25328600 |
| E-mail | Ervin.Li@sgs.com |

## 1.2 Details of Applicant

| | |
|---|---|
| Applicant's Name | Merlyn Mind, Inc. |
| Applicant's Address | 8 West 40th Street, Floor 20, New York, NY 10018, USA |
| Contact | Max Tsou |
| Tel. | 1-714-6993737 |
| Fax | N/A |
| E-mail | max@merlyn.org |

## 1.3 Details of Manufacturer

| | |
|---|---|
| Manufacturer's Name | Merlyn Mind, Inc. |
| Manufacturer's Address | 8 West 40th Street, Floor 20, New York, NY 10018, USA |
| Contact | Max Tsou |
| Tel. | 1-714-6993737 |
| Fax | N/A |
| E-mail | max@merlyn.org |

## 1.4 General Description of EUT

| | |
|---|---|
| Device Description: | ActivPanel Merlyn Remote |
| Device Manufacturer: | Merlyn Mind, Inc. |
| Device Model: | AP-MM-RCU |
| Hardware Version: | N/A |
| Software Version: | N/A |

## 1.5 Test Procedure

Testing is performed according to the **ANSI/IEEE Std 149-2008**.

## 1.6 Test Specification

| Identity | Document Title |
|---|---|
| **ANSI/IEEE Std 149-2008** | IEEE Standard Test Procedures for Antennas |

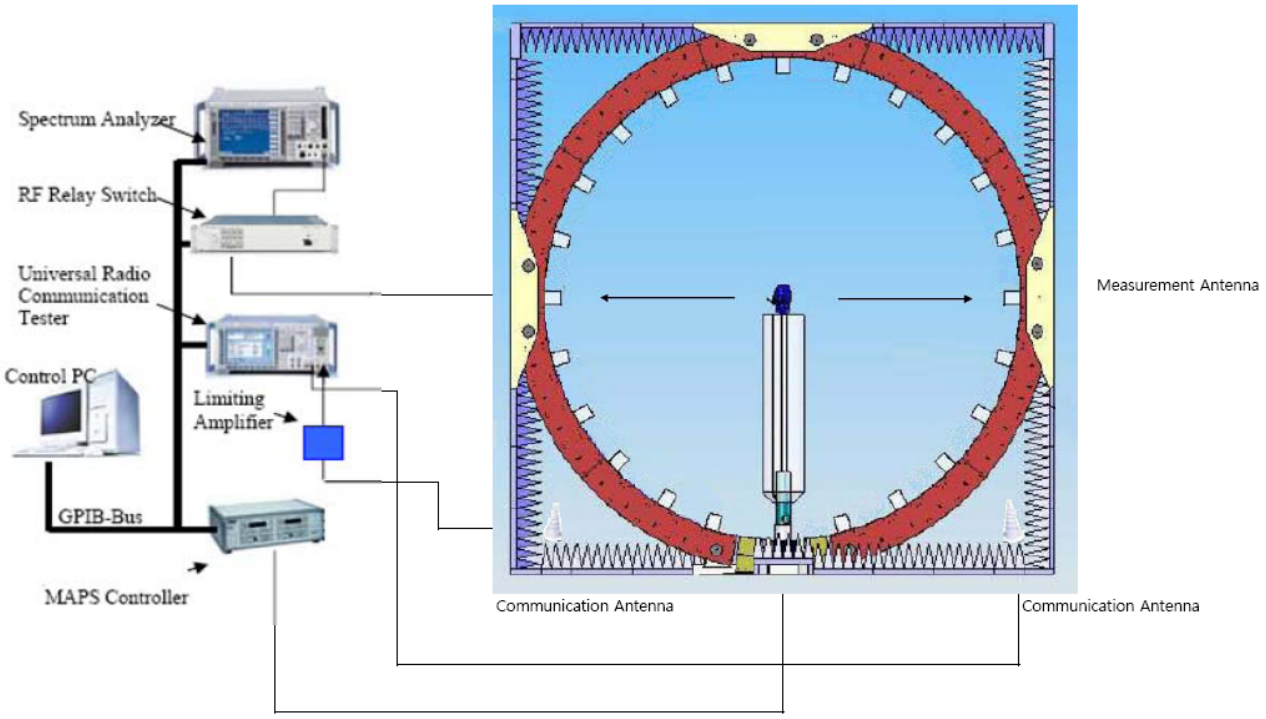
## 1.7 Laboratory Environment

| | | |
|---|---|---|
| Temperature | Min. =19℃，Max. = 25℃ | |
| Relative humidity | Min. =40%，Max. =72% | |
| Shield effect | 0.7-6GHz | > 100dB |
| Ground resistance | <0.5Ω | |

# 2 OTA Measurements System Configuration

## 2.1 Test Configuration

Great-Circle-Cut method is used to measure the antenna 3D GAIN of EUT in OTA qualified anechoic chamber. Equipment Under Test (EUT) geometry centre vertical projection at the centre of platform, the distance from EUT to measurement antenna is 5m




F-1. OTA Measurement System Configuration

# 3 Test Equipment List

| Type of Equipment | Model Number | Manufacture | Calibration Date | Valid Period |
|---|---|---|---|---|
| Network Analyzer | E5071C<br>S/N MY46523591 | Keysight | 2023/2/16 | 2024/2/15 |
| Quad-Ridge Horn Antenna<br>700 MHz-10 GHz | EMCO 3164-08<br>S/N 161915 | ETS-Lindgren L.P. | N/A | N/A |
| MAPS Controller | EMCENTER<br>S/N 160485 | ETS-Lindgren L.P. | N/A | N/A |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# 4 Measurement Uncertainty

| Item | 2400-2500 MHz (dB) |
|---|---|
| **Gain** | 0.88 |
| **Efficiency** | 0.88 |
| Measurement Uncertainty (95% CONFIDENCE INTERVAL) K=2 | |

# 5 Test Results

| Free Space | | | |
|---|---|---|---|
| Frequency (MHz) | Efficiency (dB) | Efficiency (%) | Gain (dBi) |
| 2350 | -20.60 | 0.87 | -13.51 |
| 2355 | -20.29 | 0.93 | -13.19 |
| 2360 | -19.88 | 1.03 | -12.62 |
| 2365 | -19.71 | 1.07 | -12.63 |
| 2370 | -19.45 | 1.13 | -12.44 |
| 2375 | -19.24 | 1.19 | -12.38 |
| 2380 | -18.86 | 1.30 | -12.18 |
| 2385 | -18.50 | 1.41 | -11.84 |
| 2390 | -18.11 | 1.55 | -11.53 |
| 2395 | -17.67 | 1.71 | -10.96 |
| 2400 | -17.37 | 1.83 | -10.83 |
| 2402 | -17.18 | 1.91 | -10.53 |
| 2405 | -16.93 | 2.03 | -10.21 |
| 2410 | -16.58 | 2.20 | -9.98 |
| 2415 | -16.27 | 2.36 | -9.63 |
| 2420 | -16.11 | 2.45 | -9.66 |
| 2425 | -15.97 | 2.53 | -9.72 |
| 2430 | -15.95 | 2.54 | -9.70 |
| 2435 | -15.95 | 2.54 | -10.02 |
| 2440 | -15.95 | 2.54 | -9.95 |
| 2441 | -15.99 | 2.52 | -9.99 |
| 2445 | -16.16 | 2.42 | -10.03 |
| 2450 | -16.38 | 2.30 | -10.08 |
| 2455 | -16.73 | 2.12 | -10.35 |
| 2460 | -17.15 | 1.93 | -11.04 |
| 2465 | -17.49 | 1.78 | -11.28 |
| 2470 | -18.09 | 1.55 | -12.37 |
| 2475 | -18.36 | 1.46 | -12.96 |
| 2480 | -18.87 | 1.30 | -13.41 |
| 2482 | -18.97 | 1.27 | -13.86 |
| 2485 | -19.17 | 1.21 | -13.92 |
| 2490 | -19.53 | 1.11 | -14.30 |
| 2495 | -19.73 | 1.06 | -14.40 |
| 2500 | -19.93 | 1.02 | -14.44 |


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| | | | |
|---|---|---|---|
| 2505 | -20.20 | 0.95 | -14.73 |
| 2510 | -20.48 | 0.90 | -14.85 |
| 2515 | -21.00 | 0.79 | -15.73 |
| 2520 | -21.45 | 0.72 | -16.54 |
| 2525 | -21.92 | 0.64 | -17.28 |
| 2530 | -22.27 | 0.59 | -18.05 |
| 2535 | -22.58 | 0.55 | -18.22 |
| 2540 | -22.86 | 0.52 | -18.60 |
| 2545 | -23.04 | 0.50 | -18.05 |
| 2550 | -23.36 | 0.46 | -18.09 |
| 2555 | -23.54 | 0.44 | -18.10 |
| 2560 | -23.82 | 0.41 | -18.18 |
| 2565 | -23.95 | 0.40 | -17.97 |
| 2570 | -24.10 | 0.39 | -17.90 |
| 2575 | -24.28 | 0.37 | -18.79 |
| 2580 | -24.34 | 0.37 | -19.25 |


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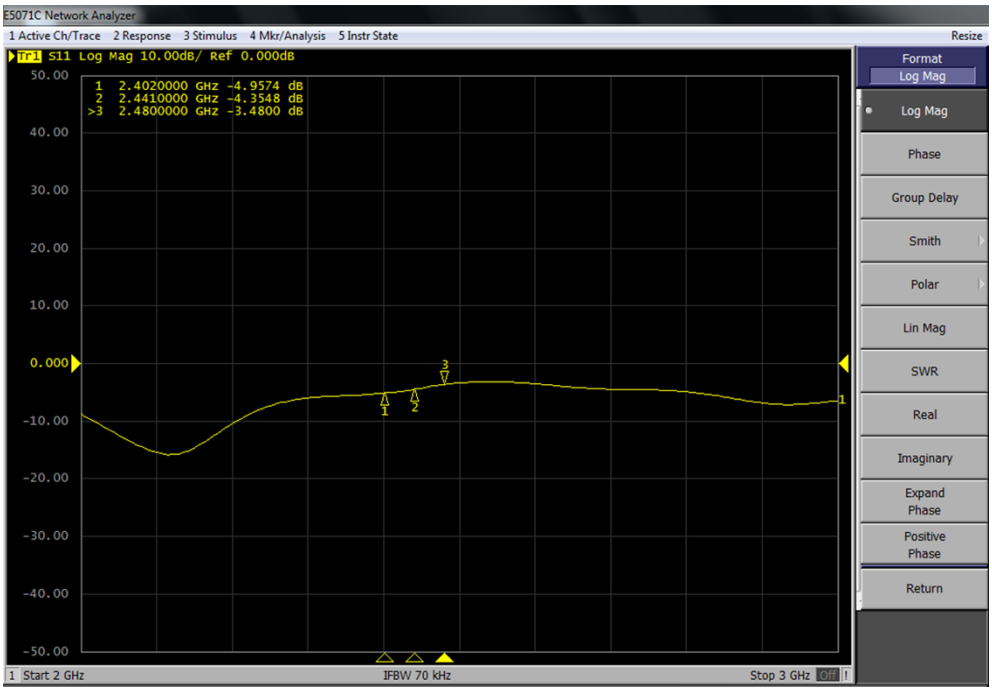
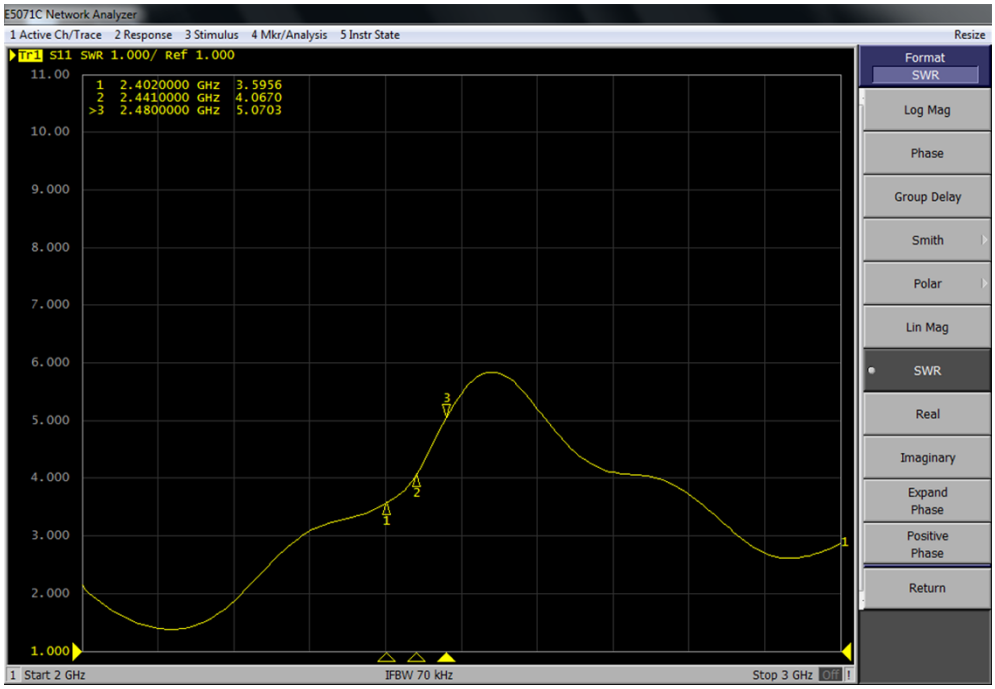
# 6 Pattern Plots

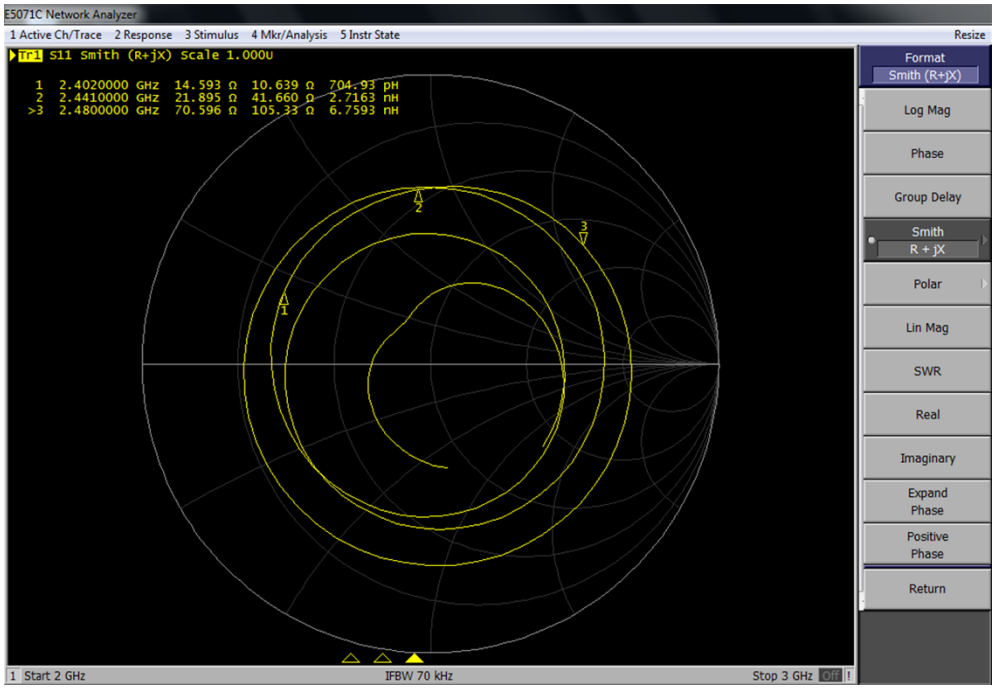
## 6.1 Return Loss



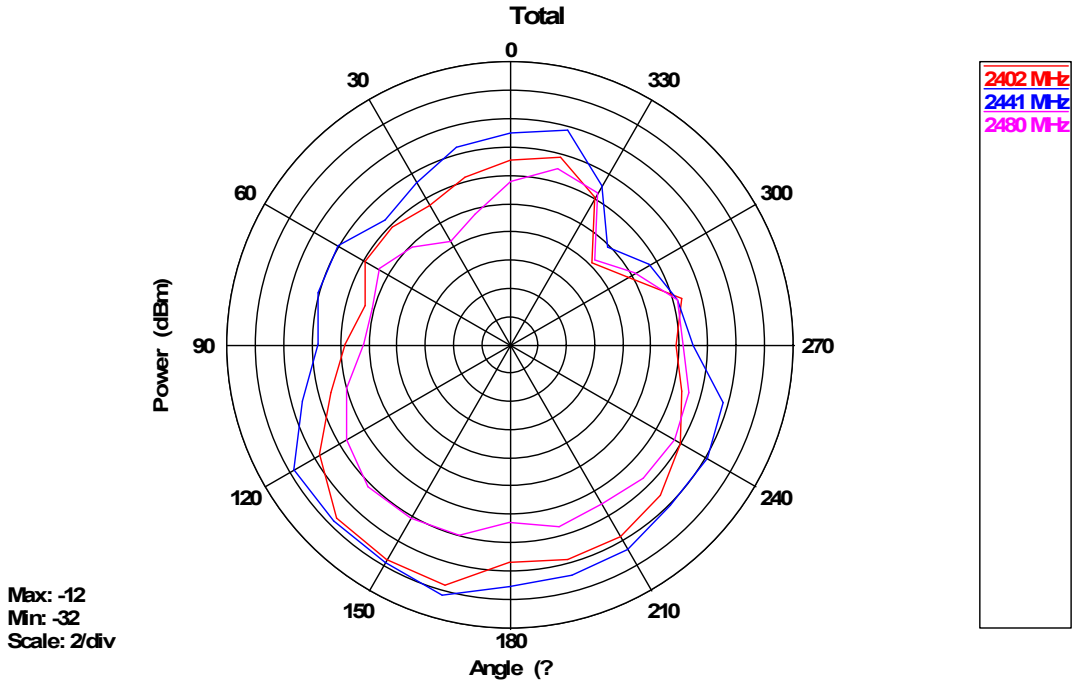
## 6.2 VSWR



## 6.3 Stimulus



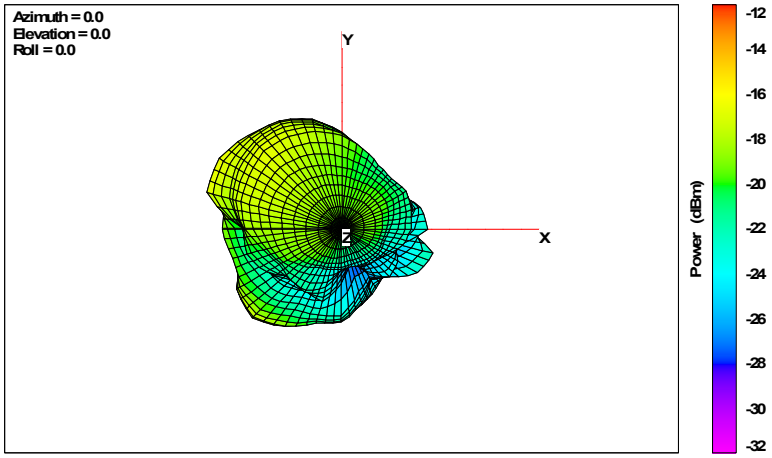
# 7 2-D Antenna Pattern



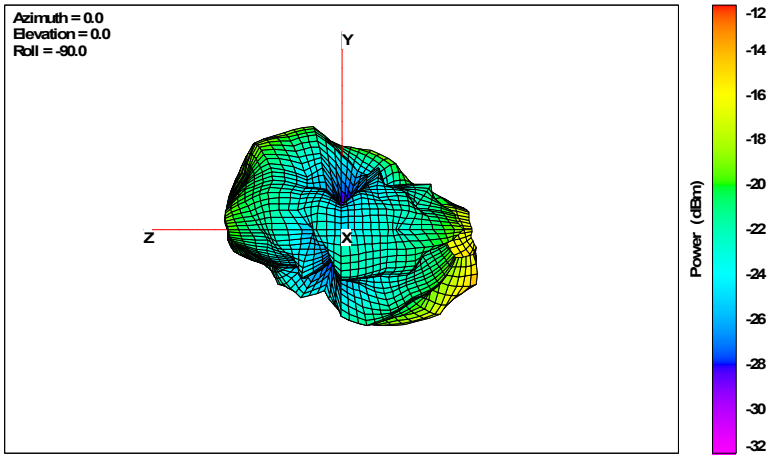

Theta=90°

# 8 3-D Antenna Pattern

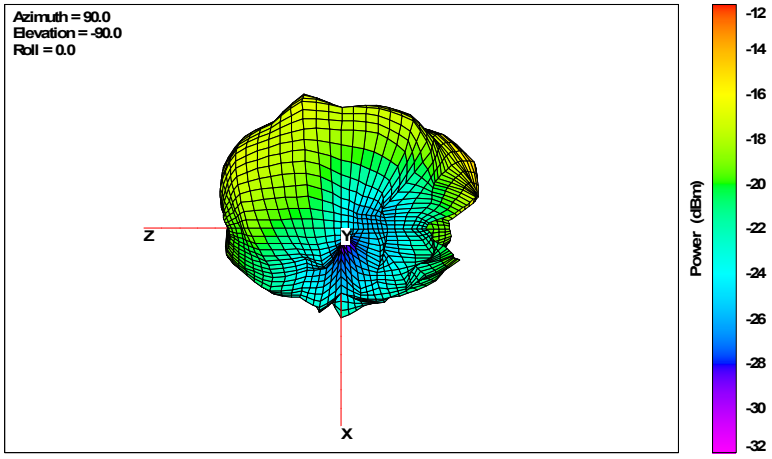
Total




Total




Total



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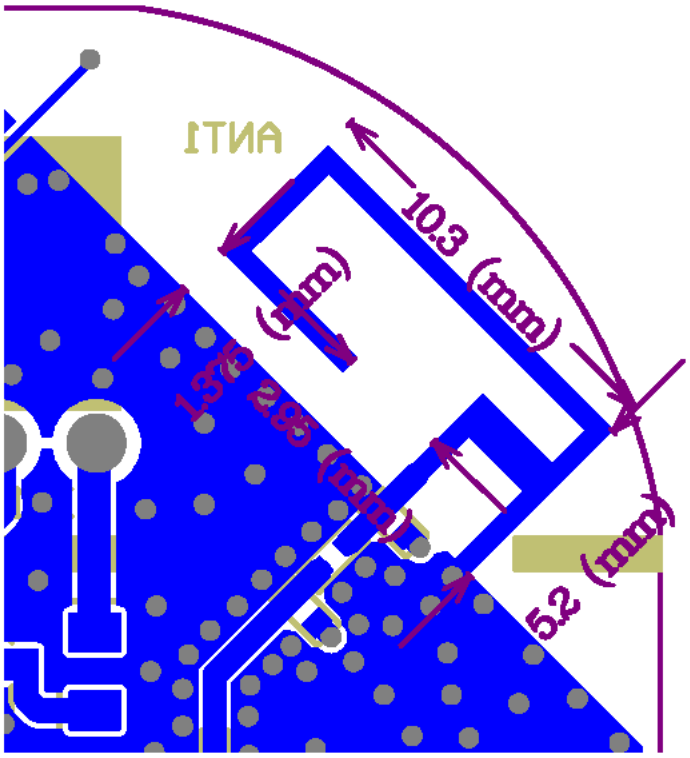


Antenna Dimension

---END---