



深圳市海德门电子有限公司

ShenZhen Deman Electronics Technology Co., Ltd

# Antenna Test Report

For

AP3880P 4in1 Antenna

Supplier: ShenZhen Deman Electronics Technology Co., Ltd

Address: 3rd Floor, Building C, Shunluo Industrial Park, Dafuyuan  
Industrial Zone, Guanlan Sub-district, Longhua New District, Shenzhen  
City

|                     |                                    |                   |                   |
|---------------------|------------------------------------|-------------------|-------------------|
| <b>Customer</b>     | <b>ID TECH</b>                     | <b>Project</b>    | <b>AP3880P</b>    |
| <b>Band</b>         | <b>GPS/WIFI2.4G&amp;5G<br/>/BT</b> | <b>Color</b>      | <b>Black</b>      |
| <b>PRS PN</b>       | <b>Deman</b>                       | <b>Version</b>    | <b>V1.0</b>       |
| <b>Issued by</b>    |                                    | <b>Checked by</b> |                   |
| <b>Confirmed by</b> |                                    | <b>Date</b>       | <b>2022.05.15</b> |

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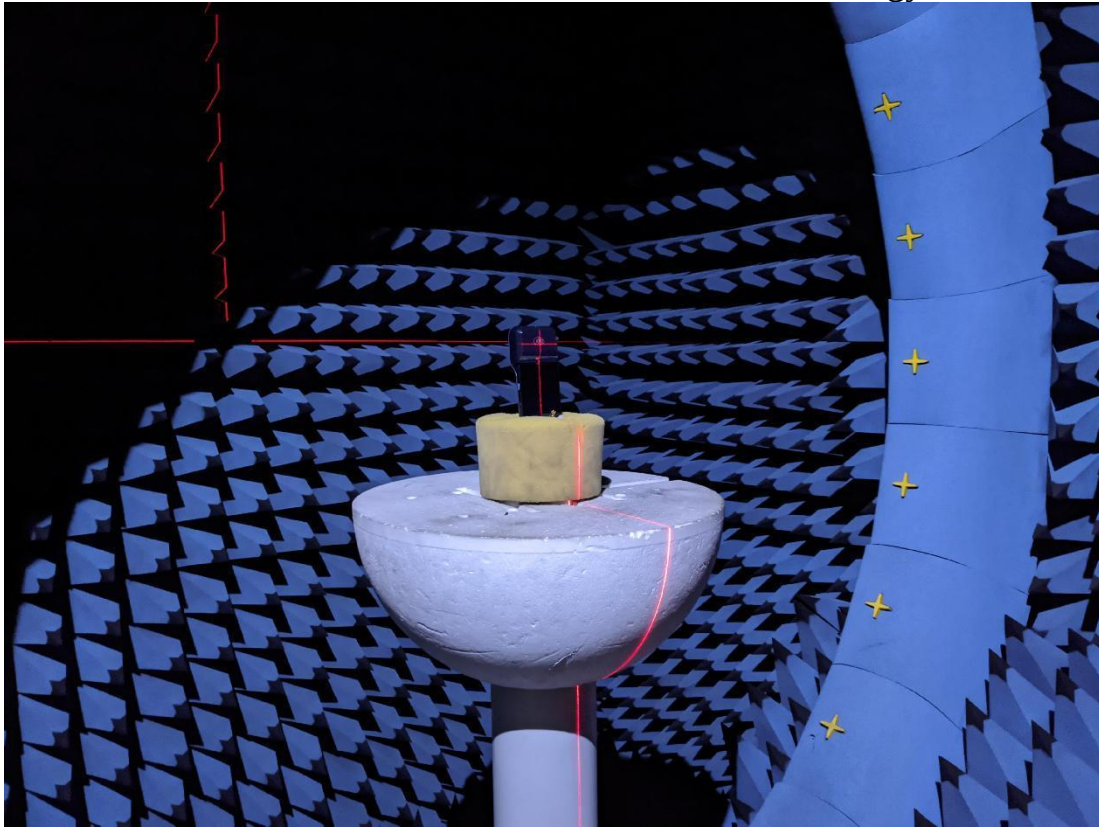
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## A.TEST INSTRUMENTATION

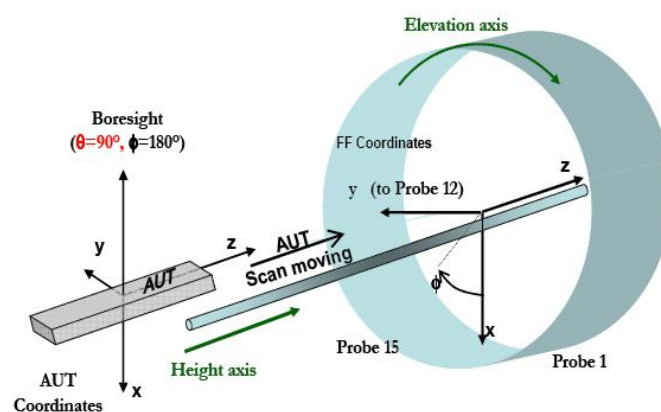
|                              |                    |
|------------------------------|--------------------|
| CHAMBER                      | SATIMO Chamber     |
| Wireless Networking Test Set | Agilent 8960 5515C |
| NETWORK ANALYZER             | Agilent 5072AD     |
| COMPREHENSIVE TESTER         | R&S CMW500         |
| TEMPERATURE                  | 20±2℃              |
| HUMIDITY                     | 50±20%rh           |



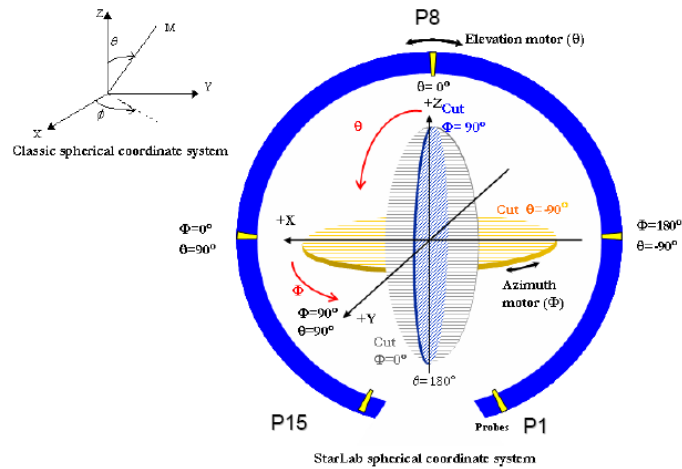
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## Coordinate system – Cylindrical geometry

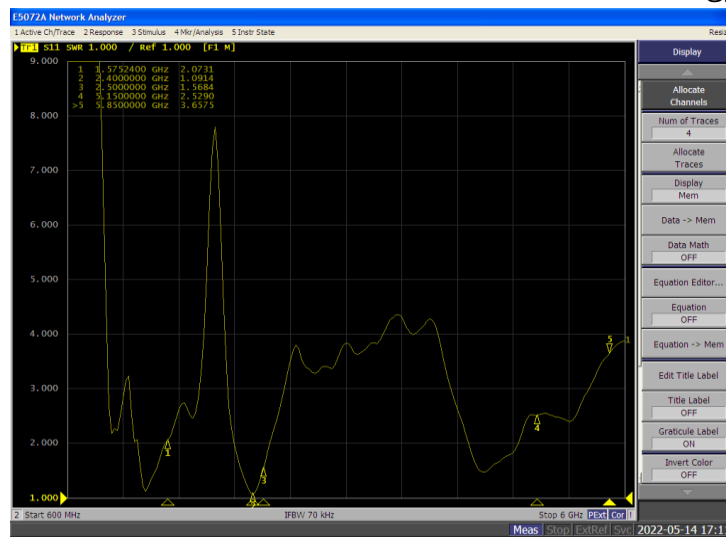


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## B. Definitions

VSWR: Voltage Standing Wave Rate



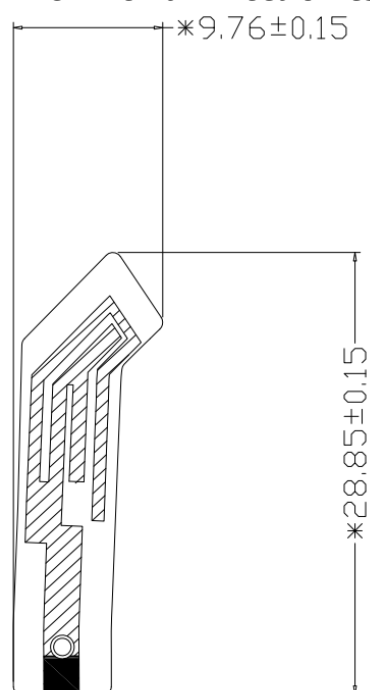
TRP: total radiated power

TIS: total isotropic sensitivity

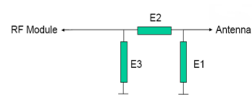
### C. Cell-Phone Photo and Dealing Method



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# D. Matching Circuit Description



| Element  | Value |
|----------|-------|
| E1(0402) | /     |
| E2(0402) | 0Ω    |
| E3(0402) | /     |

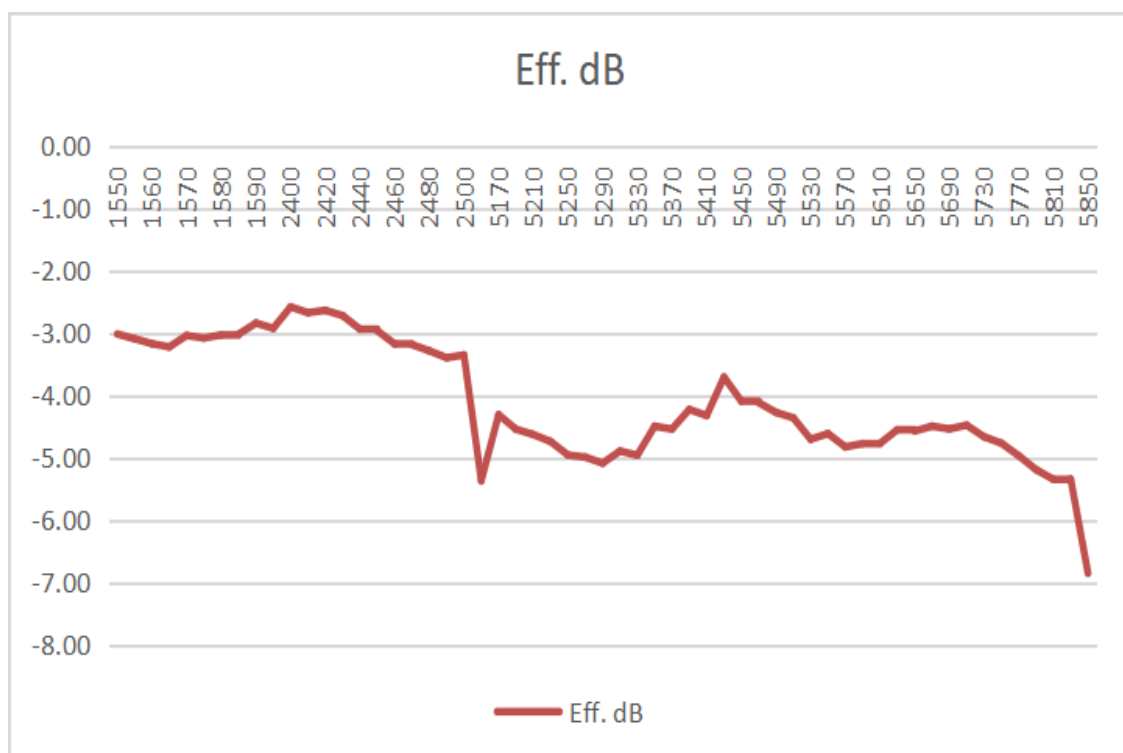


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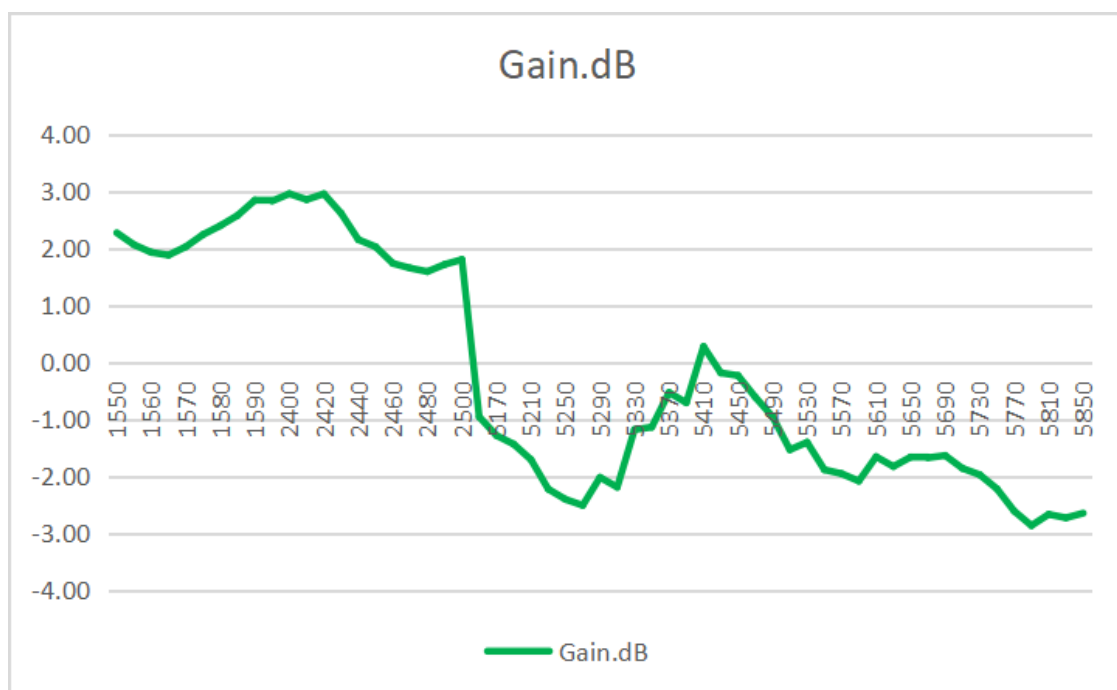
**E.Cell-phone cable test (Conduct at the test hole and set the line loss as 0)**

## Efficiency test results



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## Gain test results



## Efficiency&Gain test dataset

| Fre. (Mhz) | Eff. % | Eff. dB | Gain. dBi | Fre. (Mhz) | Eff. % | Eff. dB | Gain. dBi |
|------------|--------|---------|-----------|------------|--------|---------|-----------|
| 1550       | 50%    | -3.02   | 2.27      | 5150       | 29%    | -5.37   | -0.96     |
| 1555       | 49%    | -3.09   | 2.06      | 5170       | 37%    | -4.31   | -1.29     |
| 1560       | 48%    | -3.17   | 1.93      | 5190       | 35%    | -4.54   | -1.44     |
| 1565       | 48%    | -3.22   | 1.88      | 5210       | 34%    | -4.63   | -1.71     |
| 1570       | 50%    | -3.04   | 2.03      | 5230       | 34%    | -4.74   | -2.23     |
| 1575       | 49%    | -3.08   | 2.24      | 5250       | 32%    | -4.96   | -2.41     |
| 1580       | 50%    | -3.03   | 2.39      | 5270       | 32%    | -4.99   | -2.51     |
| 1585       | 50%    | -3.02   | 2.57      | 5290       | 31%    | -5.09   | -2.02     |
| 1590       | 52%    | -2.84   | 2.84      | 5310       | 32%    | -4.89   | -2.19     |
| 1595       | 51%    | -2.93   | 2.83      | 5330       | 32%    | -4.96   | -1.18     |
| 2400       | 55%    | -2.58   | 2.96      | 5350       | 36%    | -4.50   | -1.14     |
| 2410       | 54%    | -2.68   | 2.85      | 5370       | 35%    | -4.54   | -0.53     |
| 2420       | 54%    | -2.64   | 2.95      | 5390       | 38%    | -4.23   | -0.71     |
| 2430       | 53%    | -2.72   | 2.61      | 5410       | 37%    | -4.32   | 0.27      |
| 2440       | 51%    | -2.94   | 2.15      | 5430       | 43%    | -3.71   | -0.19     |
| 2450       | 51%    | -2.96   | 2.02      | 5450       | 39%    | -4.09   | -0.24     |
| 2460       | 48%    | -3.18   | 1.73      | 5470       | 39%    | -4.12   | -0.61     |
| 2470       | 48%    | -3.19   | 1.65      | 5490       | 37%    | -4.27   | -0.96     |

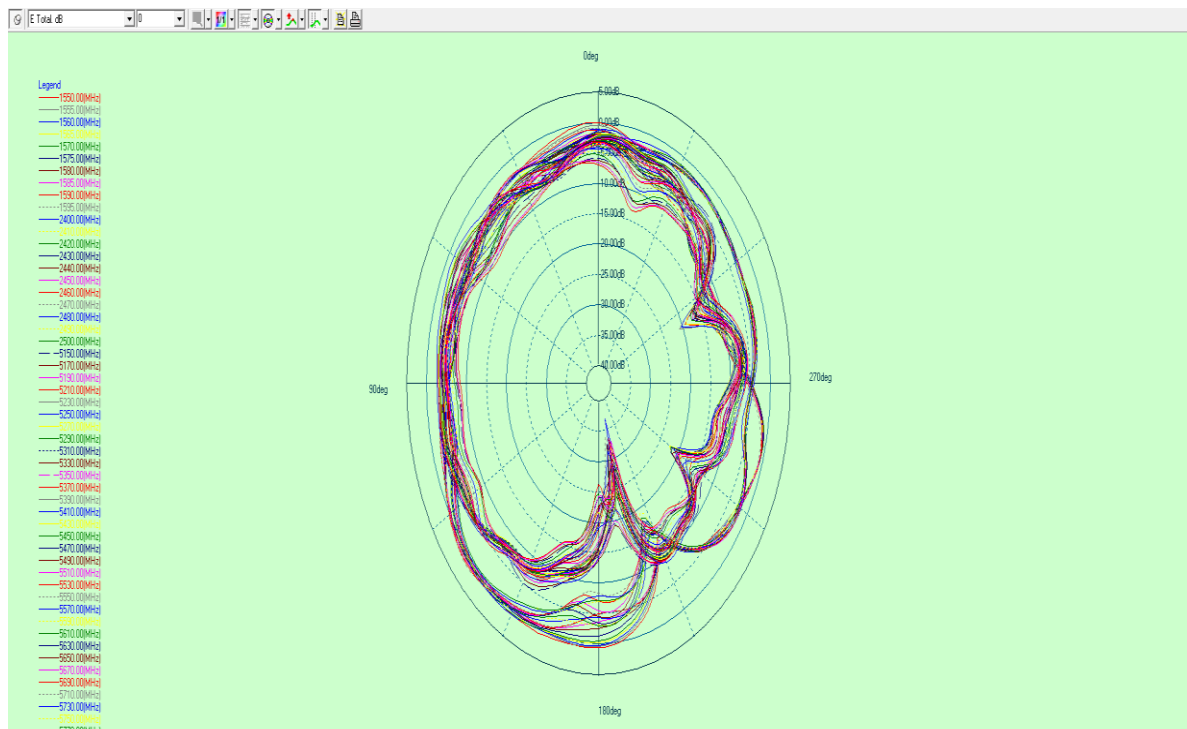
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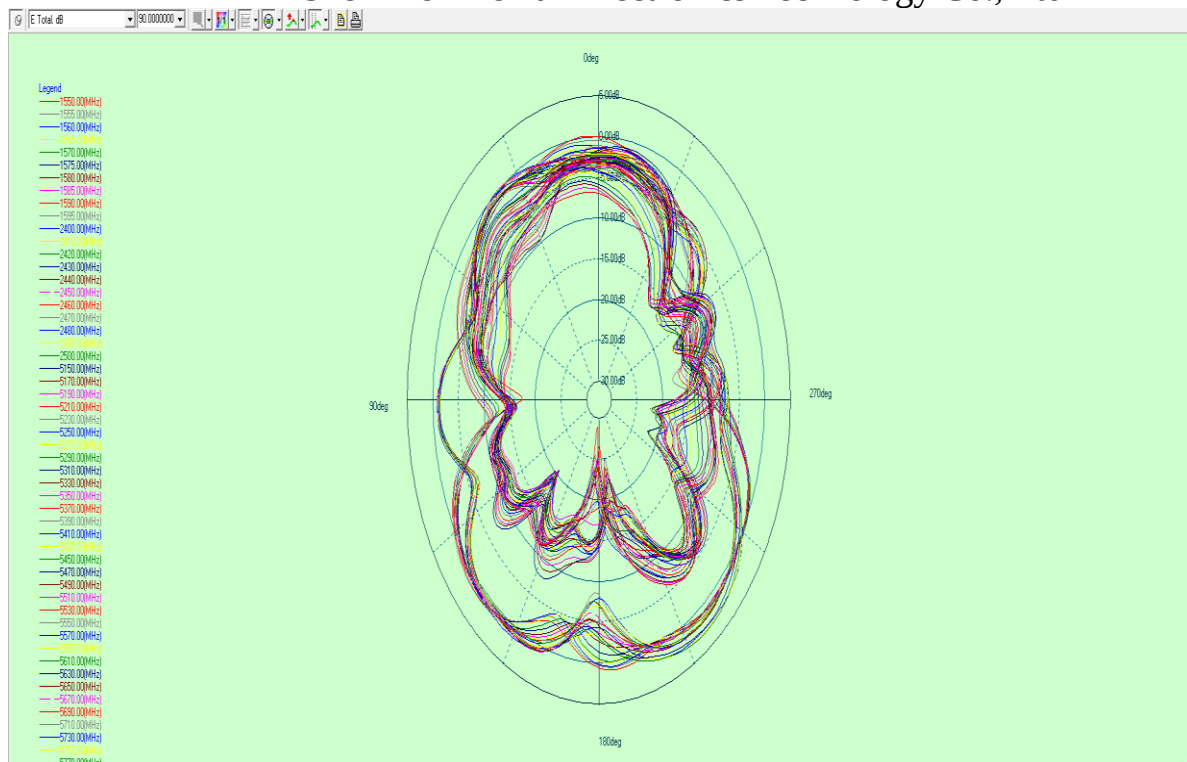
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|      |     |       |      |      |     |       |       |
|------|-----|-------|------|------|-----|-------|-------|
| 2480 | 47% | -3.29 | 1.59 | 5510 | 37% | -4.36 | -1.54 |
| 2490 | 46% | -3.40 | 1.71 | 5530 | 34% | -4.70 | -1.41 |
| 2500 | 46% | -3.35 | 1.80 | 5550 | 35% | -4.61 | -1.89 |
|      |     |       |      | 5570 | 33% | -4.83 | -1.96 |
|      |     |       |      | 5590 | 33% | -4.78 | -2.09 |
|      |     |       |      | 5610 | 33% | -4.77 | -1.66 |
|      |     |       |      | 5630 | 35% | -4.55 | -1.83 |
|      |     |       |      | 5650 | 35% | -4.57 | -1.67 |
|      |     |       |      | 5670 | 36% | -4.50 | -1.68 |
|      |     |       |      | 5690 | 35% | -4.54 | -1.64 |
|      |     |       |      | 5710 | 36% | -4.48 | -1.86 |
|      |     |       |      | 5730 | 34% | -4.66 | -1.98 |
|      |     |       |      | 5750 | 33% | -4.77 | -2.22 |
|      |     |       |      | 5770 | 32% | -4.97 | -2.61 |
|      |     |       |      | 5790 | 30% | -5.19 | -2.87 |
|      |     |       |      | 5810 | 29% | -5.35 | -2.67 |
|      |     |       |      | 5830 | 29% | -5.34 | -2.73 |
|      |     |       |      | 5850 | 21% | -6.85 | -2.65 |

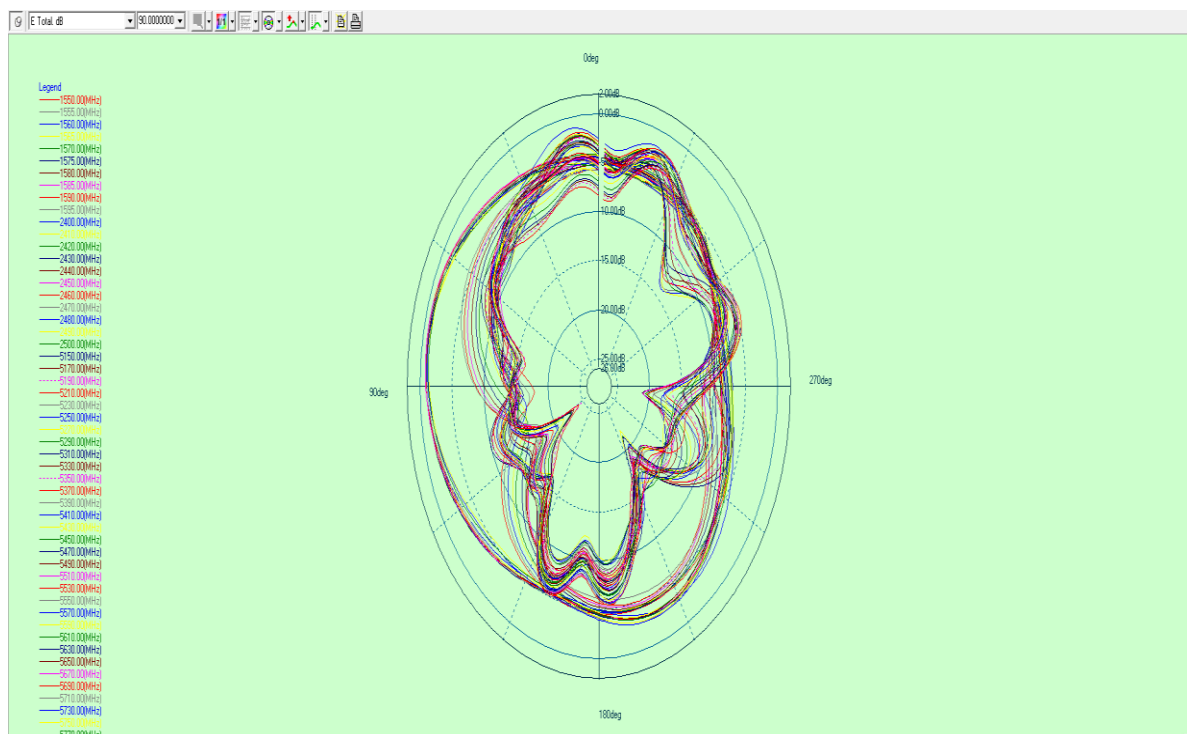


**Pi=0**

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**Pi=90**



## Theta=90

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