

## SAMPLE &amp; SPECIFICATION FOR APPROVAL

Customer: T2 Mobile (Shanghai) Limited

Model NO: PM95

Customer P/N: PM95\_TOP\_ANT\_HM0330-DA (15. PM95052001)

Version: V0.1

Specification Describe: PM95 TOP Antenna (Carrier + LDS)

Vendor P/N: HM0330-DA

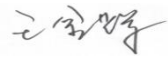
Date: 2023/12/28

Sample and datasheet must be approved for 5 PCS .

| No Customer appointed Material |          |             |                          | Assign Part     |
|--------------------------------|----------|-------------|--------------------------|-----------------|
|                                | R&D      |             | QE                       | Sales           |
| Department                     | MD       | HW          | Quality and<br>Eng. Dep. | Sale& Marketing |
| Checked By                     | LIXU     | Li ShengHua | LiWeiWei                 | LiMin           |
| Approved By                    | LIXueQin | WangJinhui  | YeLing                   | YiQin           |
| Final Judgment                 | LiLinHua | LiLinHua    | LiLinHua                 | LiLinHua        |
| Remark                         |          |             |                          |                 |

Suzhou HuiMi Communication Technology Co.,Ltd

## Antenna Approval Sheet

|              |                                                                                                                                                                                                                                                                            |                                                                                             |                                                                                             |
|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|
| Customer     | T2 Mobile (Shanghai) Limited                                                                                                                                                                                                                                               |                                                                                             |                                                                                             |
| Customer P/N | PM95_TOP_ANT_HM0330-DA (15.PM95052001)                                                                                                                                                                                                                                     |                                                                                             |                                                                                             |
| Model        | PM95                                                                                                                                                                                                                                                                       |                                                                                             |                                                                                             |
| P/N          | HM0330-DA                                                                                                                                                                                                                                                                  |                                                                                             |                                                                                             |
| Description  | PM95-TOP ANTENNA (Carrier+LDS)                                                                                                                                                                                                                                             |                                                                                             |                                                                                             |
| Frequency    | ANT1:<br>2G:GSM850/GSM900/GSM1800/GSM1900<br>3G:WB1/B2/B4/B5/B6/B8/B19;<br>4G:LTEB1/B2/B3/B4/B5/B8/B12/B13//B17/B19/B20/B25/B26/B28/B66<br>ANT3: N77/N78/N79<br>ANT8: 1575.42MHz+2400-2500MHz+5150-7125MHz<br>ANT9: 1176MHz+2400-2500MHz+5150-7125MHz<br>ANT11:N77/N78/N79 |                                                                                             |                                                                                             |
| Initial Date | 2023/12/28                                                                                                                                                                                                                                                                 |                                                                                             |                                                                                             |
| Revision     | A                                                                                                                                                                                                                                                                          |                                                                                             |                                                                                             |
| Author       | RF Engineer                                                                                                                                                                                                                                                                | ME                                                                                          | Confirm                                                                                     |
|              | WangJinhui                                                                                                                                                                              | SunQua  | YIQIN  |
| Tel.         | 18015467688                                                                                                                                                                                                                                                                | 13405120400                                                                                 |                                                                                             |
| Approval     | R&D                                                                                                                                                                                                                                                                        | PM                                                                                          | QE                                                                                          |
|              |                                                                                                                                                                                                                                                                            |                                                                                             |                                                                                             |

**Customer Signature**

## Catalog

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## 1. Summary

This is the TOP antenna approval sheet.

Working band :

ANT1:

2G:GSM850/GSM900/GSM1800/GSM1900

3G:WB1/B2/B4/B5/B6/B8/B19;

4G:LTEB1/B2/B3/B4/B5/B8/B12/B13//B17/B19/B20/B25/B26/B28/B66

ANT3: N77/N78/N79

ANT8: 1575.42MHz+2400-2500MHz+5150-7125MHz

ANT9: 1176MHz+2400-2500MHz+5150-7125MHz

ANT11:N77/N78/N79

## 2. Antenna Structure

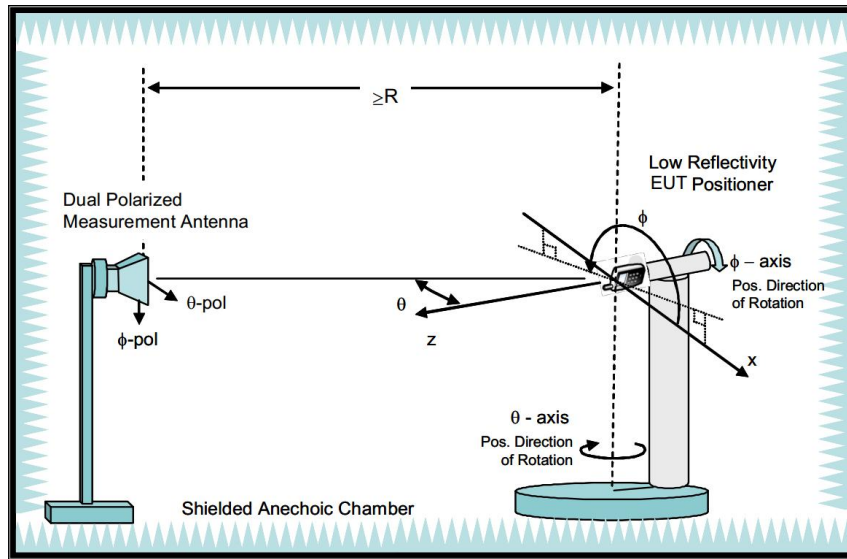
Carrier + LDS

## 3. Device Conditions

PM95 Mobile phone

|                                        |            |                                                            |   |
|----------------------------------------|------------|------------------------------------------------------------|---|
| Project NameT2 Mobile PM95_TOP antenna |            | Document:<br>Pointmobile_PM95_TOP antenna Approval Sheet_A | 4 |
| Date :2023-12-28                       | Version: A |                                                            |   |

## 4. Test Environment



Picture 2 Test Environment photo

## 5. Antenna Test Results

### 5.1 Antenna Photos

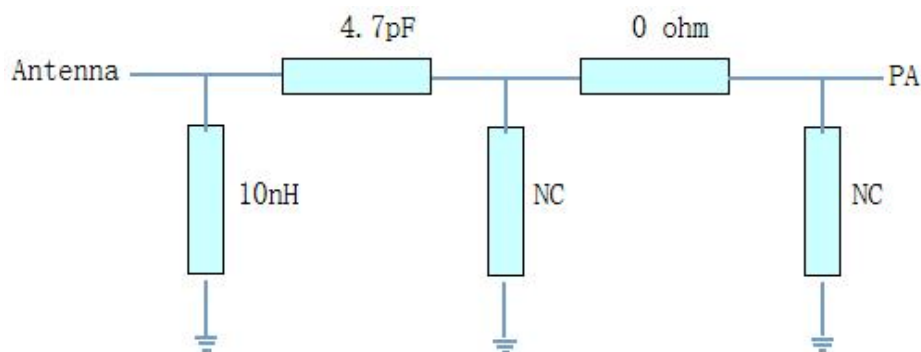
BLANK

Picture 3 PM95 TOP antenna photo

## 5.2 Matching Network

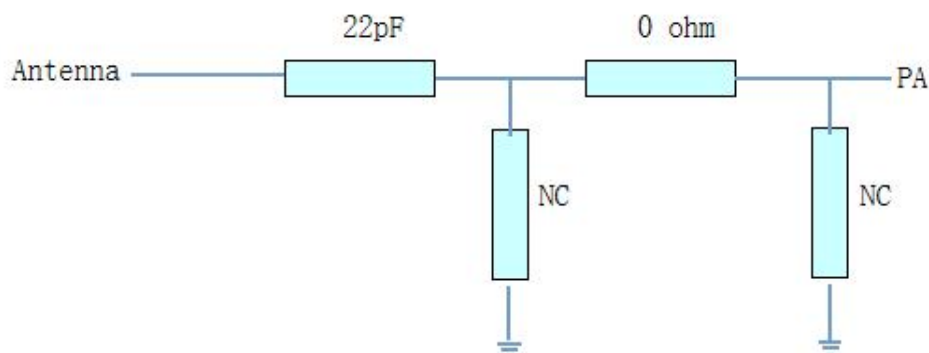
### 5.2.1 matching network for ANT1

|     |       |
|-----|-------|
| RF1 | 0Ω    |
| RF2 | 6.8nH |
| RF3 | 18nH  |
| RF4 | 33nH  |



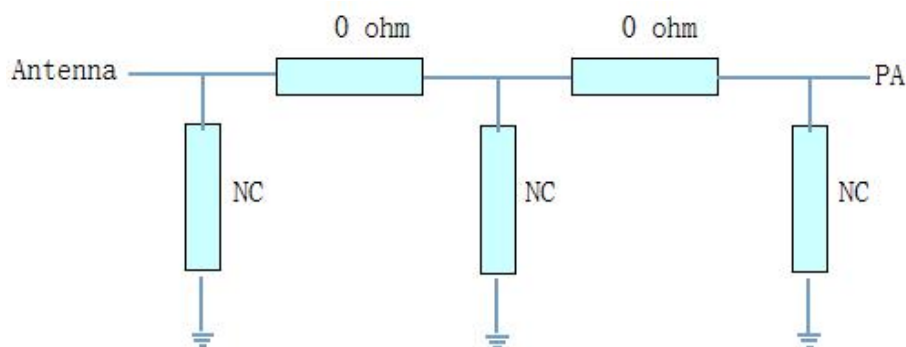
Picture 4 Matching network for ANT1

### 5.2.2 matching network for ANT3



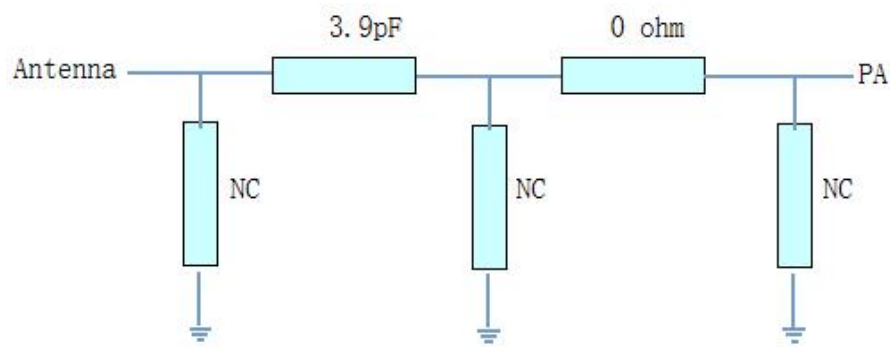
Picture 5 Matching network for ANT3

### 5.2.3 matching network for ANT8



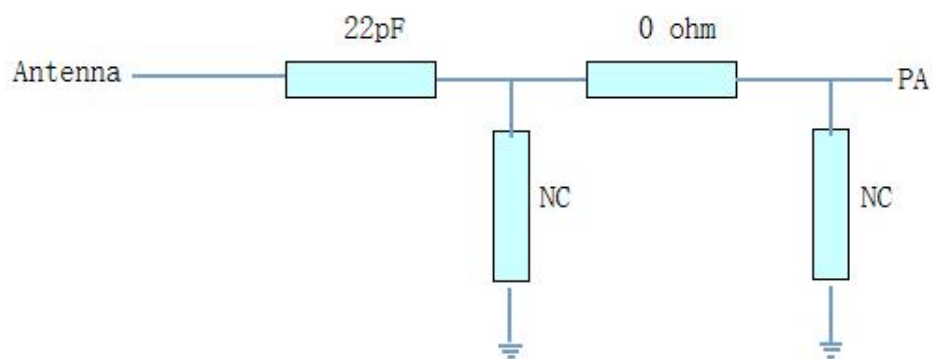
Picture 6 Matching network for ANT8

#### 5.2.4 matching network for ANT9



Picture 7 Matching network for ANT9

#### 5.2.5 matching network for ANT11



Picture 8 Matching network for ANT11

### 5.3 VSWR (S11)

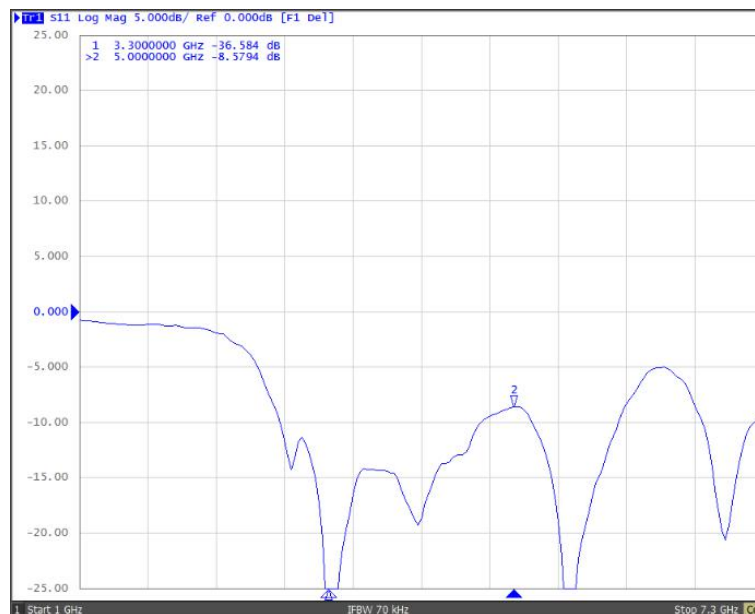
#### 5.3.1 VSWR for ANT1

| Frequency(MHz) | RL    |
|----------------|-------|
| 600            | -6.5  |
| 960            | -8.7  |
| 1805           | -9.8  |
| 2200           | -11.9 |



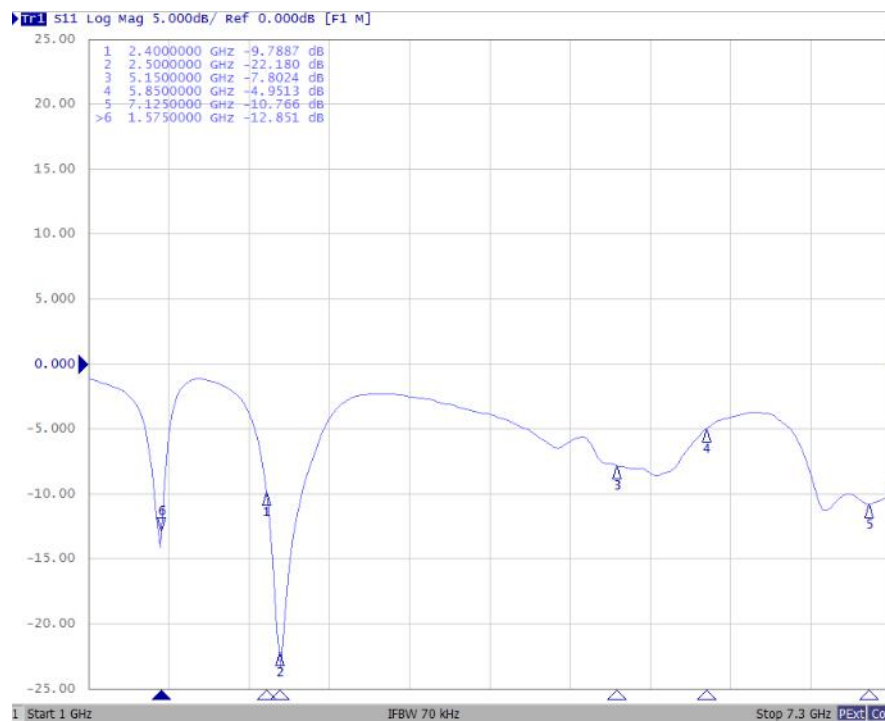
Picture 9 VSWR for ANT1

#### 5.3.2 VSWR for ANT3



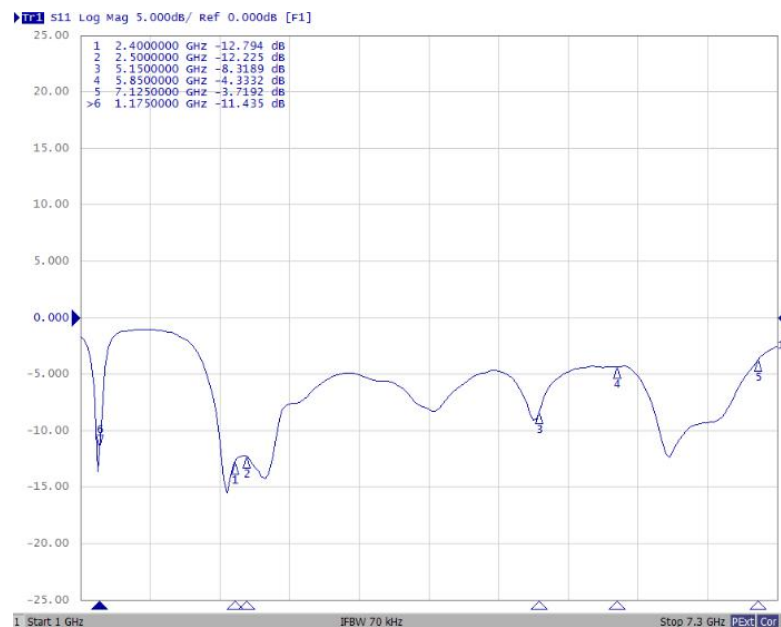
Picture 10 VSWR for ANT3

### 5.3.3 VSWR for ANT8



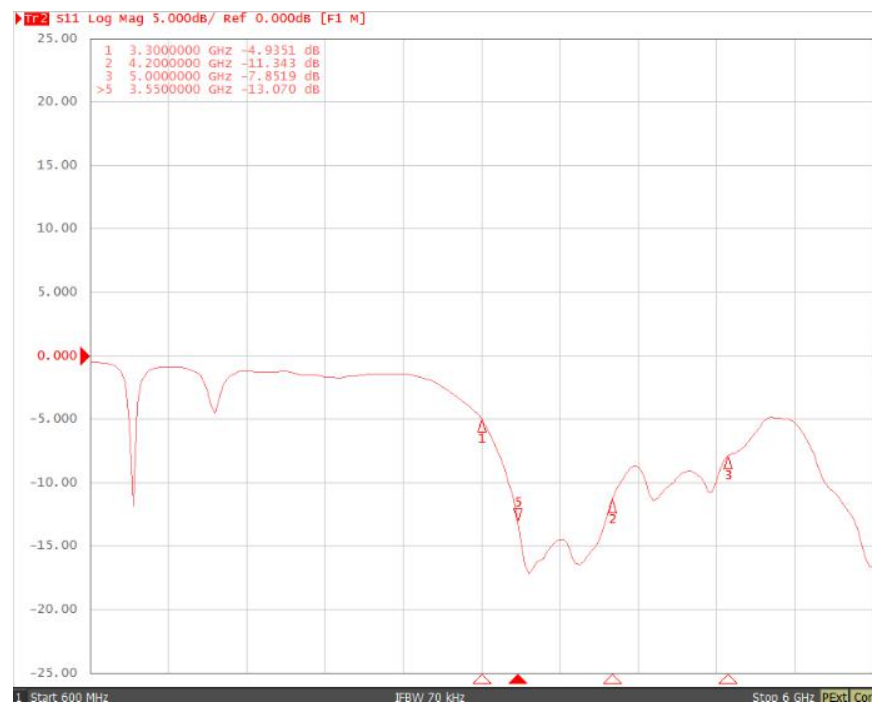
Picture 11 VSWR for ANT8

### 5.3.4 VSWR for ANT9



Picture 12 VSWR for ANT9

### 5.3.5 VSWR for ANT11



Picture 13 VSWR for ANT11

## 5.4 Efficiency & Peak Gain

### 5.4.1 Efficiency & Peak Gain for ANT1

| RF1-B8+MB  |           |            | RF2-B5+B20 |           |            | RF3-B12/B13/B17/B28 |           |            | RF4-B71    |           |            |
|------------|-----------|------------|------------|-----------|------------|---------------------|-----------|------------|------------|-----------|------------|
| Freq (MHz) | Effi (dB) | Gain (dBi) | Freq (MHz) | Effi (dB) | Gain (dBi) | Freq (MHz)          | Effi (dB) | Gain (dBi) | Freq (MHz) | Effi (dB) | Gain (dBi) |
| 910        | -6.3      | -1.64      | 790        | -7.38     | -4.38      | 700                 | -7.17     | -2.62      | 610        | -8.27     | -5.18      |
| 920        | -5.24     | -0.83      | 800        | -7.25     | -4.46      | 710                 | -7.09     | -2.89      | 620        | -8.45     | -5.32      |
| 930        | -4.47     | -0.22      | 810        | -7.23     | -4.74      | 720                 | -6.56     | -2.88      | 630        | -7.88     | -3.73      |
| 940        | -4.55     | -0.4       | 820        | -7.15     | -4.39      | 730                 | -6.43     | -3.28      | 640        | -7.16     | -2.56      |
| 950        | -4.48     | -0.37      | 830        | -6.5      | -3.71      | 740                 | -6.9      | -4.35      | 650        | -6.78     | -2.07      |
| 960        | -5.1      | -0.96      | 840        | -6.49     | -3.77      | 750                 | -6.59     | -4.02      | 660        | -7.22     | -2.62      |
| 1800       | -2.76     | 2.05       | 850        | -6.41     | -3.28      | 760                 | -6.33     | -3.67      |            |           |            |
| 1820       | -2.61     | 1.78       | 860        | -5.64     | -2.29      | 770                 | -5.81     | -2.98      |            |           |            |
| 1840       | -2.31     | 1.68       | 870        | -5.24     | -1.91      | 780                 | -6.09     | -3.15      |            |           |            |
| 1860       | -3.15     | 0.92       | 880        | -5.51     | -1.59      | 790                 | -6.27     | -3.5       |            |           |            |
| 1880       | -2.16     | 2.01       | 890        | -5.24     | -0.59      | 800                 | -7.23     | -4.69      |            |           |            |
| 1900       | -2.82     | 1.13       | 900        | -5.71     | -0.83      | 810                 | -7.35     | -4.87      |            |           |            |
| 1920       | -1.97     | 1.76       |            |           |            |                     |           |            |            |           |            |
| 1940       | -2.13     | 2.29       |            |           |            |                     |           |            |            |           |            |
| 1960       | -1.98     | 2.88       |            |           |            |                     |           |            |            |           |            |
| 1980       | -2.77     | 1.88       |            |           |            |                     |           |            |            |           |            |
| 2000       | -3.07     | 1.56       |            |           |            |                     |           |            |            |           |            |
| 2020       | -3.9      | 0.85       |            |           |            |                     |           |            |            |           |            |
| 2040       | -4.1      | 0.61       |            |           |            |                     |           |            |            |           |            |
| 2060       | -4.13     | 0.44       |            |           |            |                     |           |            |            |           |            |
| 2080       | -3.79     | 1.02       |            |           |            |                     |           |            |            |           |            |
| 2100       | -3.61     | 1.46       |            |           |            |                     |           |            |            |           |            |
| 2120       | -3.32     | 1.95       |            |           |            |                     |           |            |            |           |            |
| 2140       | -4.01     | 1.43       |            |           |            |                     |           |            |            |           |            |
| 2160       | -4.05     | 1.7        |            |           |            |                     |           |            |            |           |            |
| 2180       | -4.88     | 0.9        |            |           |            |                     |           |            |            |           |            |
| 2200       | -5.11     | -0.46      |            |           |            |                     |           |            |            |           |            |

#### 5.4.2 Efficiency & Peak Gain for ANT3

| Freq (MHz) | Effi (dB) | Gain (dBi) |
|------------|-----------|------------|
| 3300       | -3.95     | 0.64       |
| 3400       | -3.14     | 1.36       |
| 3500       | -3.59     | 0.75       |
| 3600       | -4.08     | -0.52      |
| 3700       | -4.49     | -0.35      |
| 3800       | -3.77     | 0.95       |
| 3900       | -4.37     | 0.24       |
| 4000       | -3.82     | 1.49       |
| 4100       | -3.36     | 1.23       |
| 4200       | -4.65     | -0.34      |
| 4300       | -3.88     | 1.09       |
| 4400       | -4.59     | -0.2       |
| 4500       | -4.81     | -0.52      |
| 4600       | -4.47     | -0.12      |
| 4700       | -4.9      | -0.58      |
| 4800       | -5.67     | -1.03      |
| 4900       | -6.42     | -2.35      |
| 5000       | -6.58     | -3.04      |

#### 5.4.3 Efficiency & Peak Gain for ANT8

| Freq (MHz) | Effi (dB) | Gain (dBi) | Freq (MHz) | Effi (dB) | Gain (dBi) | Freq (MHz) | Effi (dB) | Gain (dBi) |
|------------|-----------|------------|------------|-----------|------------|------------|-----------|------------|
| 1560       | -5.25     | -3.21      | 5100       | -3.45     | -0.12      | 5900       | -3.23     | 1.02       |
| 1570       | -5.02     | -3.11      | 5150       | -3.9      | -0.71      | 6000       | -4.11     | 1.56       |
| 1580       | -5.12     | -3.23      | 5200       | -4.15     | -1.18      | 6100       | -3.89     | 1.42       |
| 1590       | -5.3      | -2.94      | 5250       | -4.16     | -1.51      | 6200       | -3.45     | 1.2        |
| 2400       | -3.75     | 2          | 5300       | -4.21     | -0.12      | 6300       | -3.85     | 1.15       |
| 2410       | -3.66     | 2.24       | 5350       | -4.49     | 0.03       | 6400       | -4.12     | 0.99       |
| 2420       | -3.87     | 2.65       | 5400       | -4.58     | 0.06       | 6500       | -3.96     | 1.11       |
| 2430       | -3.74     | 2.85       | 5450       | -4.69     | -0.38      | 6600       | -4.25     | 1.23       |
| 2440       | -3.81     | 2.81       | 5500       | -4.27     | 0.01       | 6700       | -3.78     | 1.35       |
| 2450       | -3.45     | 3.24       | 5550       | -3.87     | 0.09       | 6800       | -4.75     | 1.14       |
| 2460       | -3.47     | 3.31       | 5600       | -3.91     | 0.34       | 6900       | -4.46     | 0.85       |
| 2470       | -3.47     | 3.34       | 5650       | -4.03     | 0.05       | 7000       | -4.52     | 1.22       |
| 2480       | -3.31     | 3.51       | 5700       | -4.12     | -0.17      | 7100       | -4.96     | 1.1        |
| 2490       | -3.59     | 3.22       | 5750       | -3.77     | 0.44       | 7200       | -5.23     | 0.89       |
| 2500       | -3.64     | 3.14       | 5800       | -3.46     | 0.76       |            |           |            |
|            |           |            | 5850       | -2.74     | 1.83       |            |           |            |

#### 5.4.4 Efficiency & Peak Gain for ANT9

| Freq (MHz) | Effi (dB) | Gain (dBi) | Freq (MHz) | Effi (dB) | Gain (dBi) | Freq (MHz) | Effi (dB) | Gain (dBi) |
|------------|-----------|------------|------------|-----------|------------|------------|-----------|------------|
| 1172       | -5.59     | -0.76      | 5100       | -4.28     | 0.99       | 5900       | -3.65     | 1.11       |
| 1174       | -5.5      | -0.69      | 5150       | -3.78     | 1.29       | 6000       | -4.02     | 0.85       |
| 1176       | -5.43     | -0.65      | 5200       | -3.01     | 2.02       | 6100       | -4.15     | 1.32       |
| 1178       | -5.36     | -0.63      | 5250       | -3.05     | 1.64       | 6200       | -3.89     | 1.45       |
| 2400       | -2.61     | 5.23       | 5300       | -3.39     | 1.23       | 6300       | -4.32     | 1.32       |
| 2410       | -2.7      | 5.27       | 5350       | -3.9      | 0.29       | 6400       | -4.52     | 1.89       |
| 2420       | -2.56     | 5.46       | 5400       | -3.77     | 0.25       | 6500       | -4.26     | 1.42       |
| 2430       | -2.59     | 5.32       | 5450       | -3.38     | 0.84       | 6600       | -4.78     | 0.96       |
| 2440       | -2.75     | 4.98       | 5500       | -2.98     | 1.23       | 6700       | -4.15     | 1.12       |
| 2450       | -2.42     | 5.11       | 5550       | -3.23     | 1.23       | 6800       | -5.03     | 0.78       |
| 2460       | -2.68     | 4.71       | 5600       | -4.47     | 0.38       | 6900       | -5.12     | 1.32       |
| 2470       | -2.91     | 4.41       | 5650       | -5.07     | -0.58      | 7000       | -4.89     | 1.12       |
| 2480       | -2.87     | 4.5        | 5700       | -4.7      | -0.27      | 7100       | -5.23     | 0.78       |
| 2490       | -3.16     | 4.24       | 5750       | -4        | 0.39       | 7200       | -5.4      | 0.69       |
| 2500       | -3.26     | 4.15       | 5800       | -3.68     | 1.17       |            |           |            |
|            |           |            | 5850       | -3.33     | 1.32       |            |           |            |

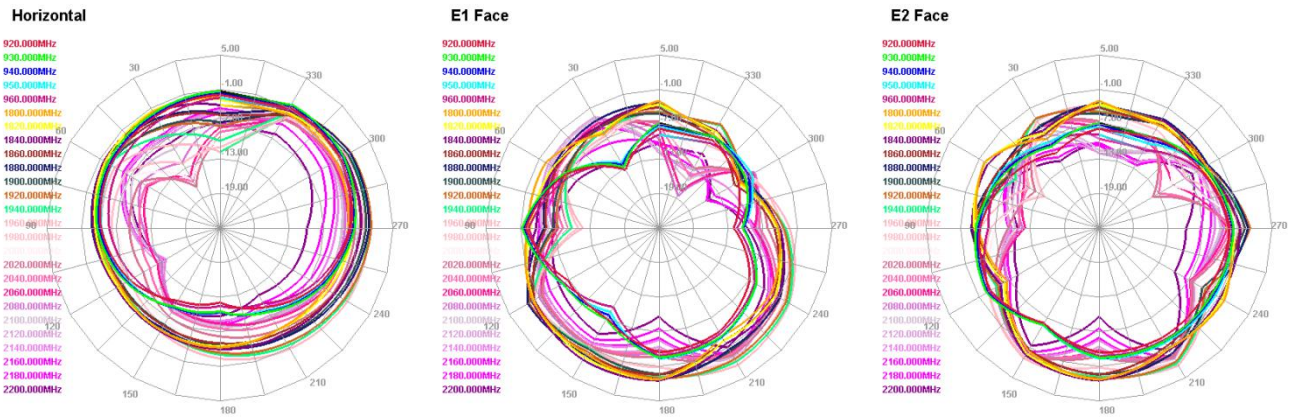
#### 5.4.5 Efficiency & Peak Gain for ANT11

| Freq (MHz) | Effi (dB) | Gain (dBi) | Freq (MHz) | Effi (dB) | Gain (dBi) |
|------------|-----------|------------|------------|-----------|------------|
| 3300       | -4.33     | -1.66      | 4150       | -3.94     | -1.56      |
| 3350       | -4.08     | -1.42      | 4200       | -4.27     | -1.37      |
| 3400       | -4.3      | -1.24      | 4250       | -3.81     | -0.14      |
| 3450       | -3.87     | -0.96      | 4300       | -3.23     | 0.6        |
| 3500       | -3.98     | -1.36      | 4350       | -3.44     | 0.45       |
| 3550       | -3.61     | -1.03      | 4400       | -3.14     | 0.7        |
| 3600       | -4.18     | -1.7       | 4450       | -3.36     | 0.68       |
| 3650       | -3.97     | -1.51      | 4500       | -3.64     | 0.38       |
| 3700       | -4.1      | -1.25      | 4550       | -3.53     | 0.59       |
| 3750       | -4.02     | -1.31      | 4600       | -2.82     | 0.44       |
| 3800       | -4.08     | -1.78      | 4650       | -2.94     | 0.52       |
| 3850       | -4.37     | -2.11      | 4700       | -3.15     | 0.28       |
| 3900       | -4.51     | -2.08      | 4750       | -3.78     | 0.4        |
| 3950       | -4.32     | -1.78      | 4800       | -4.31     | -0.6       |
| 4000       | -4.12     | -1.66      | 4850       | -4.15     | -0.73      |
| 4050       | -4.15     | -1.25      | 4900       | -3.92     | -0.16      |
| 4100       | -3.66     | -1.37      | 4950       | -4.19     | -0.69      |
|            |           |            | 5000       | -4.1      | -0.06      |

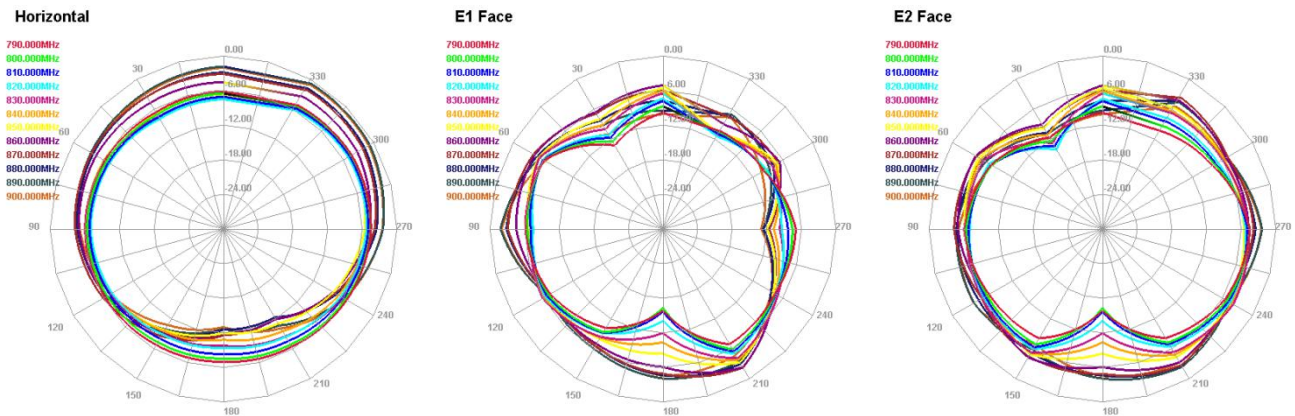
## 5.5 Radiation Pattern

### 5.5.1 Radiation Pattern for ANT1

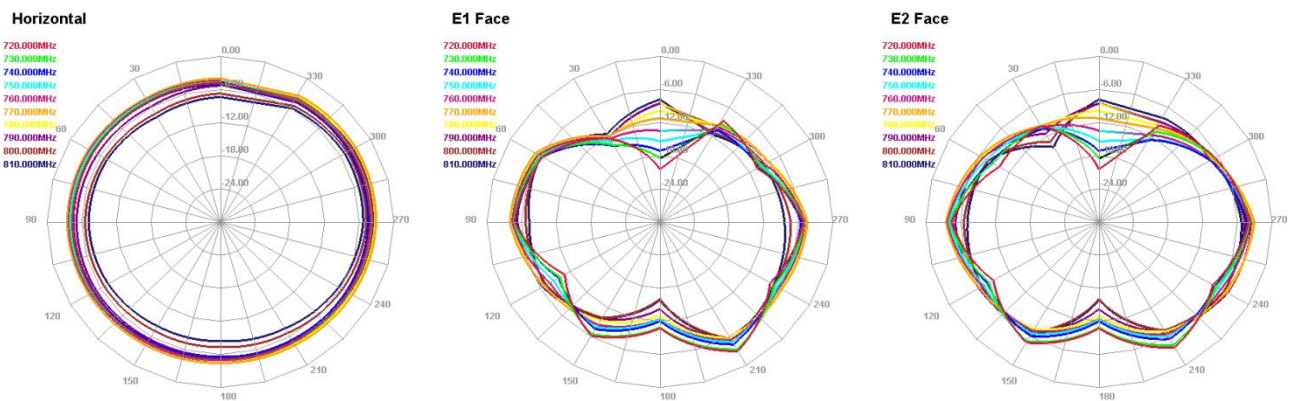
RF1 (925-960MHz, 1805-2200MHz)



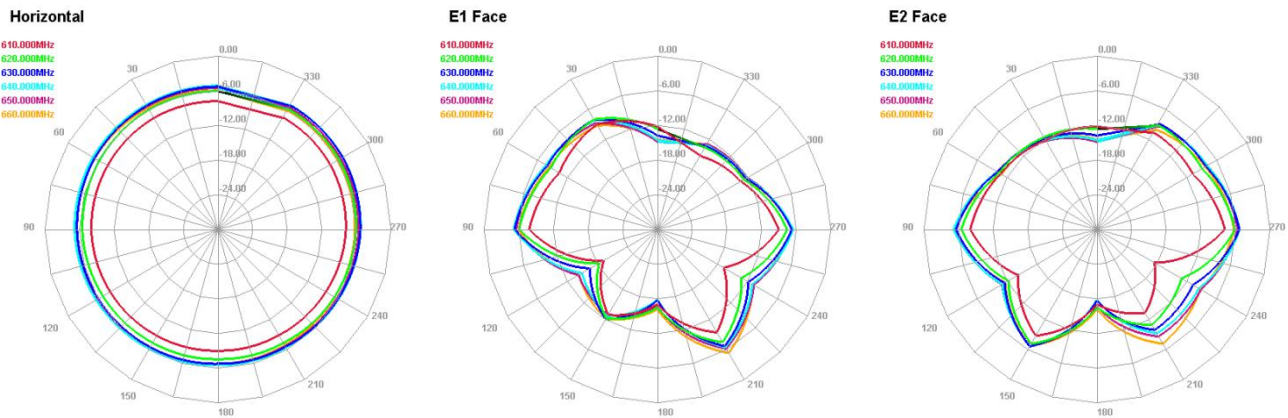
RF2 (791-894MHz)



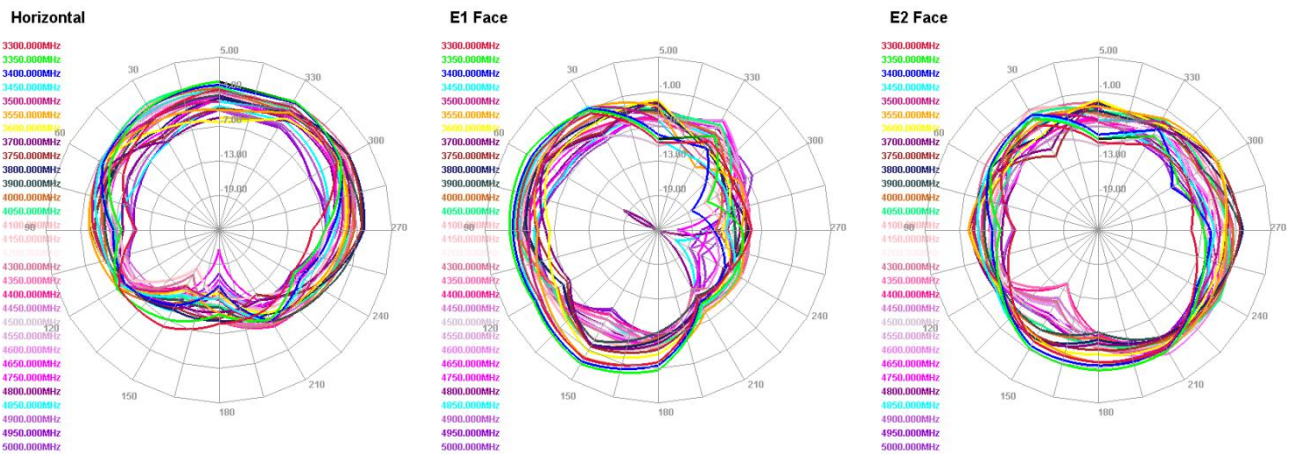
RF3 (699-803MHz)



### RF4(617-652MHz)

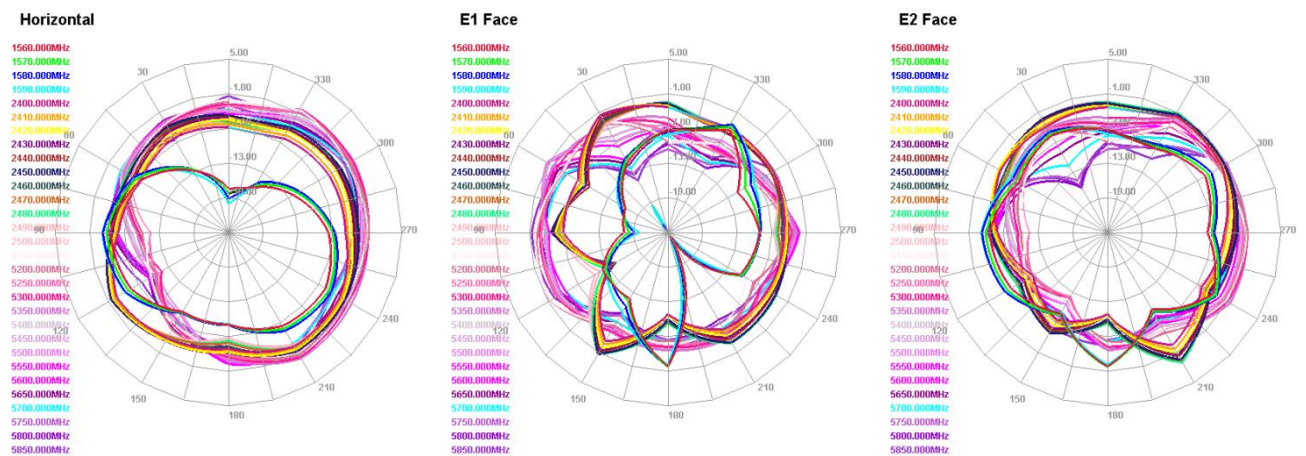


### 5.5.2 Radiation Pattern for ANT3



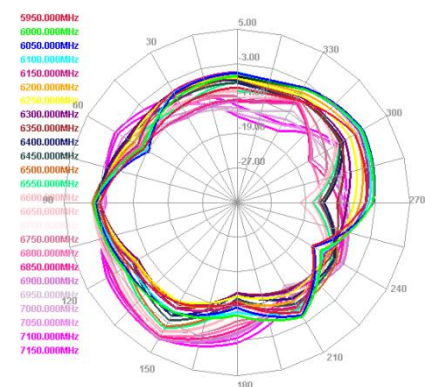
### 5.5.3 Radiation Pattern for ANT8

ANT8 (1575MHz+2400-2500MHz+5150+5850MHz)

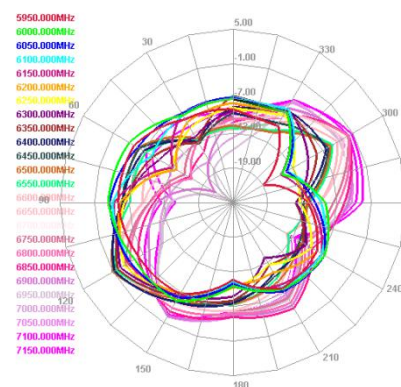


ANT8 (5950-7125MHz)

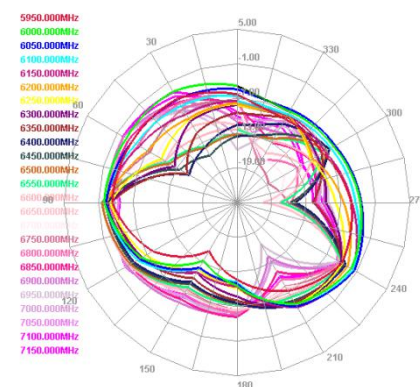
Horizontal



E1 Face



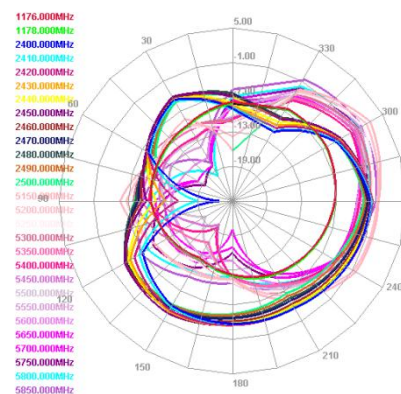
E2 Face



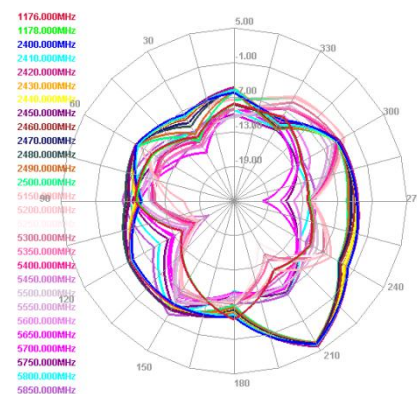
5.5.4 Radiation Pattern for ANT9

ANT9 (1176MHz+2400-2500MHz+5150+5850MHz)

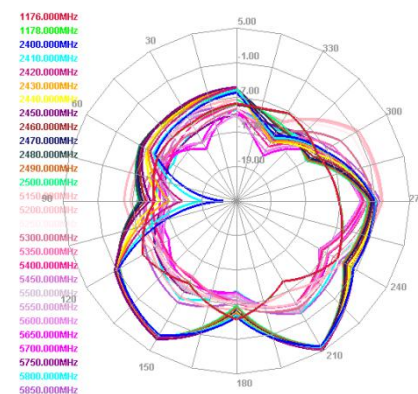
Horizontal



E1 Face

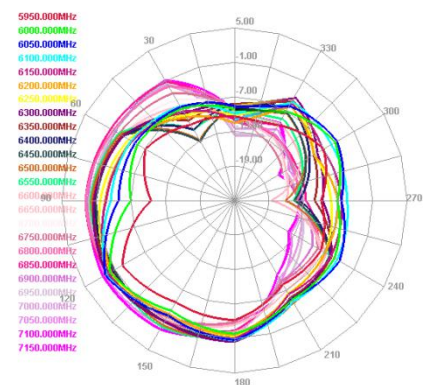


E2 Face

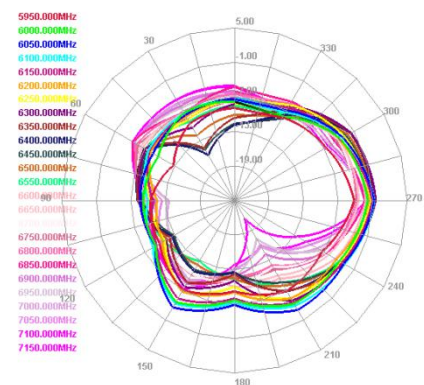


ANT9 (5950-7125MHz)

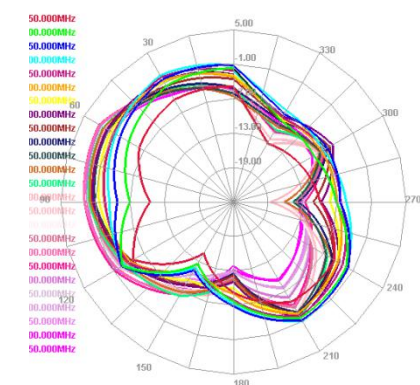
Horizontal



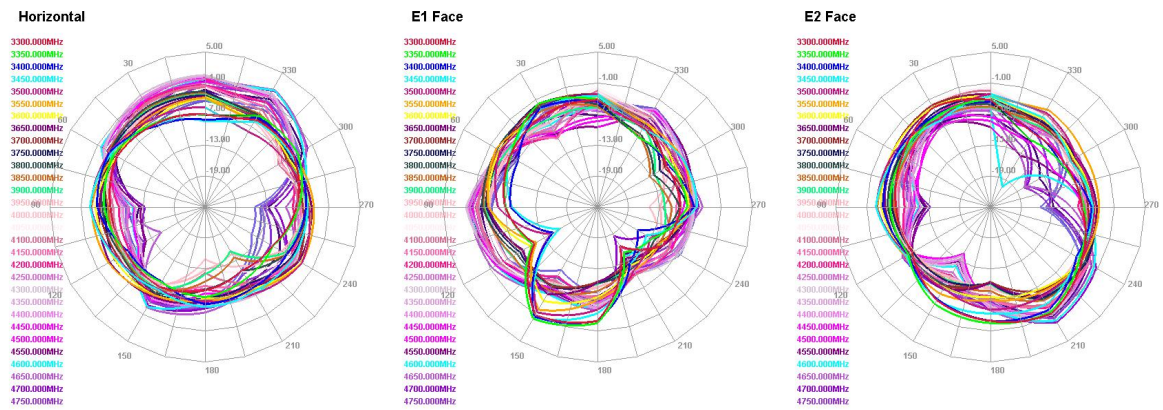
E1 Face



E2 Face



### 5.5.5 Radiation Pattern for ANT11



## 6. Mechanical Drawings

