

# SPECIFICATION

深圳市优利麦克科技有限公司

UNIMAXCOMM LTD

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## EVOTAB Antenna

### Product approval sheet

|           |                                 |        |                             |
|-----------|---------------------------------|--------|-----------------------------|
| Applicant | Securus<br>Technologies,<br>LLC | Band   | WCDMA/LTE/BT/WIFI<br>2.4&5G |
| FCC ID    | 2AZJPEVOTAB                     | Colour | Black                       |

Customer check:

Reach requirement of customer: ☒OK ☐NG

Contents

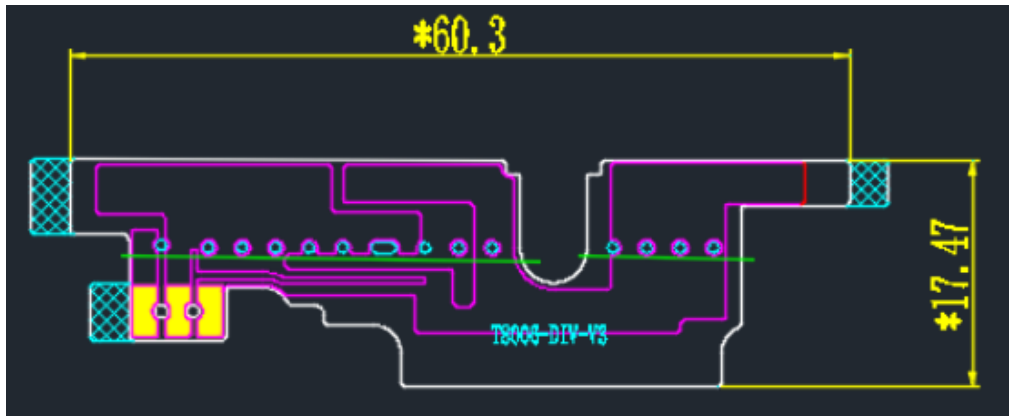
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# 1 General description

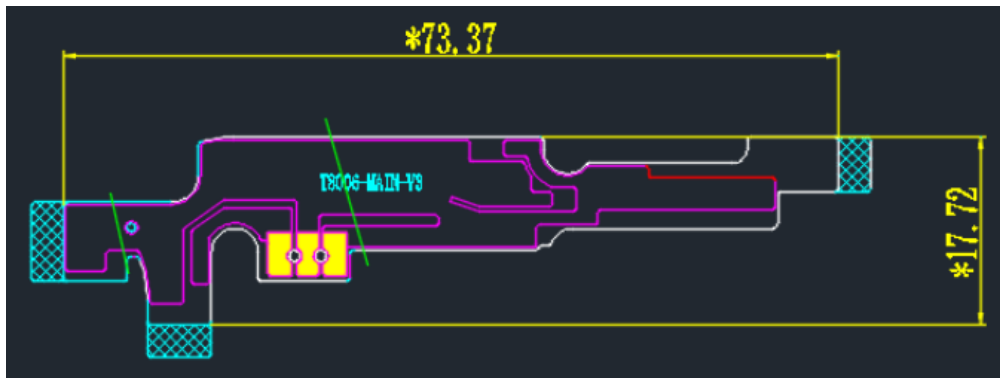
## 1.1 information of DUT

|                  |                                                                                            |
|------------------|--------------------------------------------------------------------------------------------|
| Set Type         | Tablet                                                                                     |
| Dimension        | 216*137.5*15.7mm                                                                           |
| Band             | WCDMA B2/4/5;<br>LTE<br>B2/4/5/7/12/13/14/17/18/19/25/26/29/30/41/66/71;<br>BT/WIFI 2.4&5G |
| Antenna Material | FPC                                                                                        |

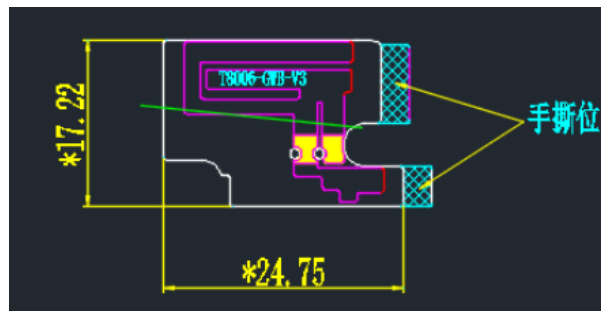
## 1.2 Antenna appearing diagram



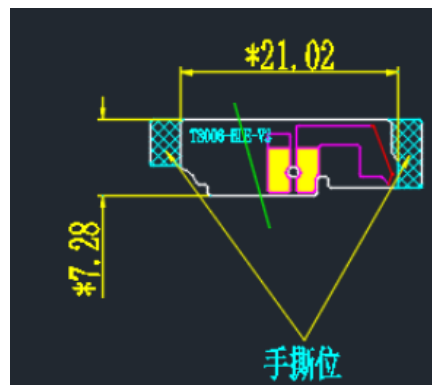
DIV antenna



Main antenna



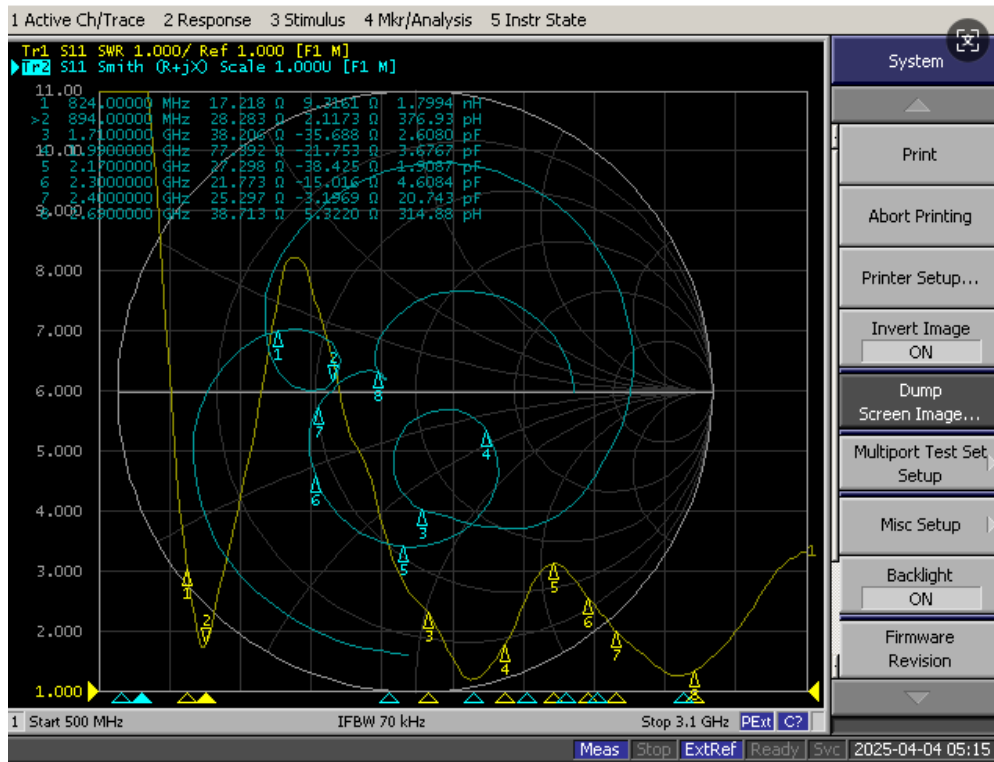
GPS&WIFI antenna



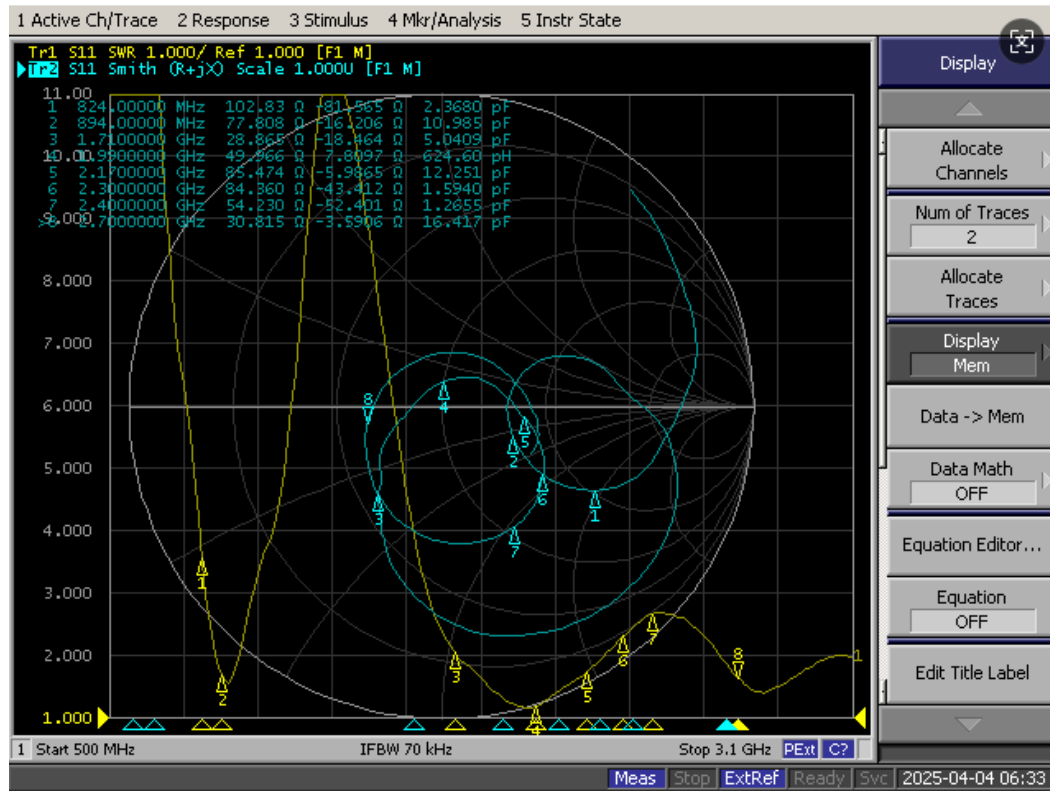
## 2 Electrical performance

### 2.1 Passive result

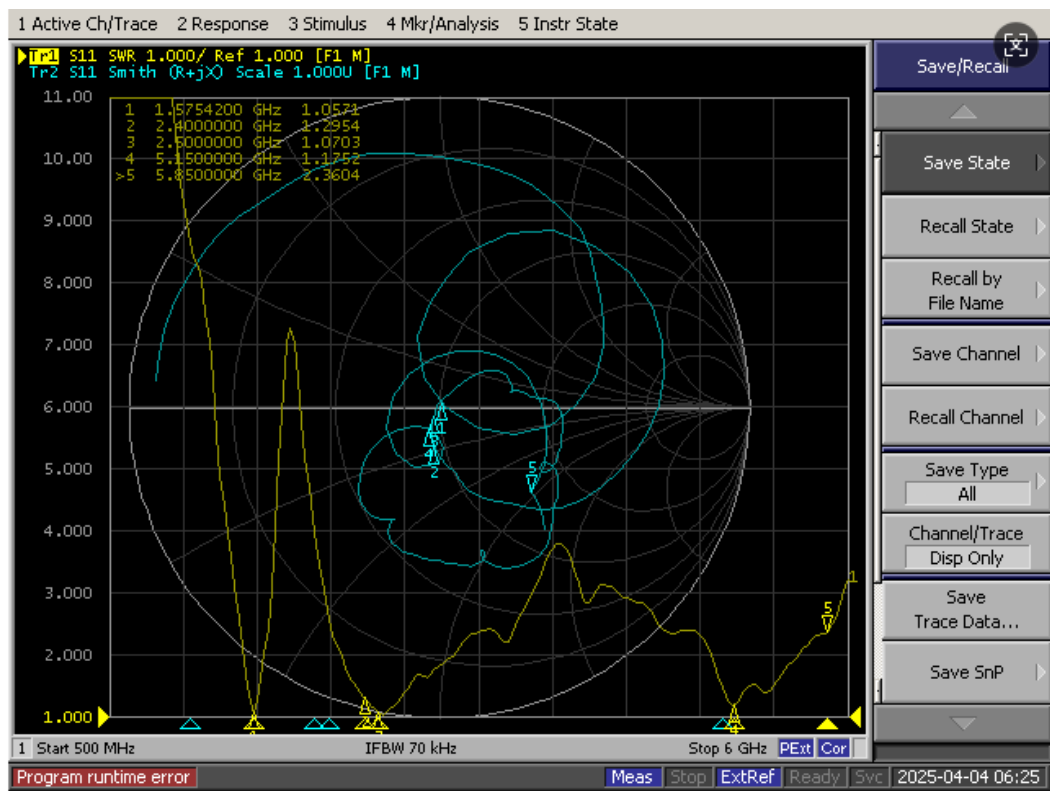
#### 2.1.1 VSWR Main



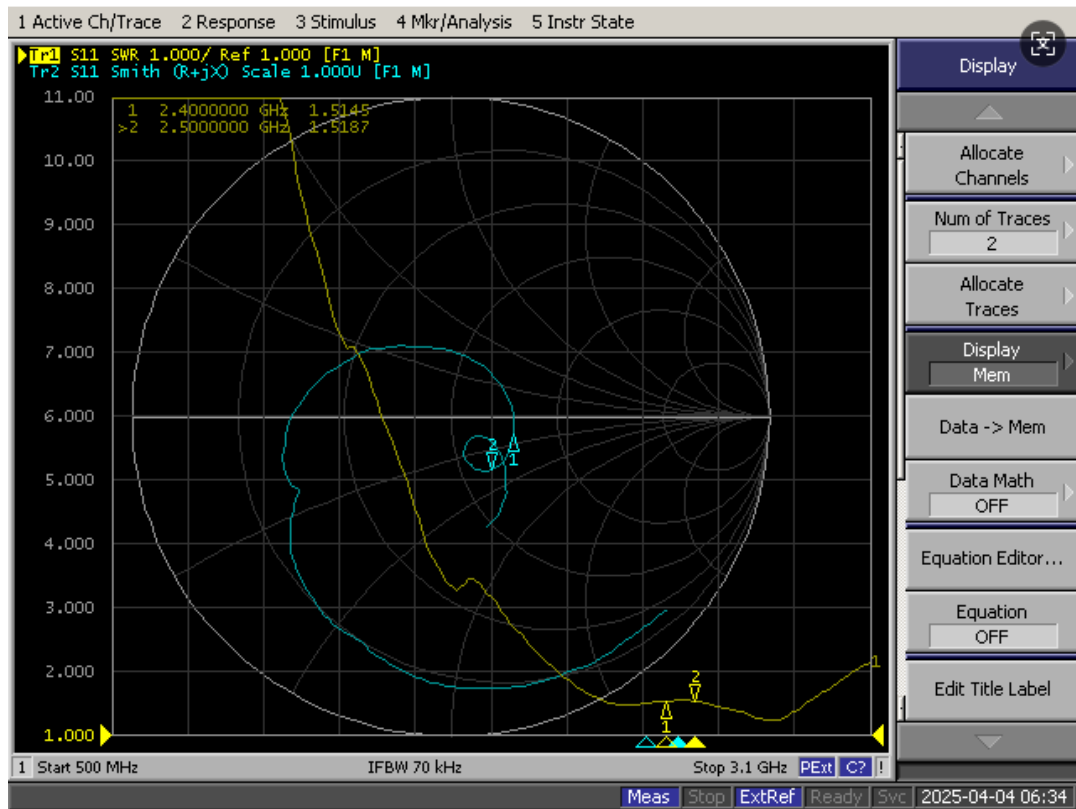
VSWR DIV



## VSWR GPS&WIFI



## VSWR BLE



## 2.12 Efficiency & Gain

### BLE

| Freq (MHz) | Effi (%) | Effi (dB) | Gain (dBi) |
|------------|----------|-----------|------------|
| 2400       | 40.74    | -3.9      | 3.1        |
| 2410       | 41.59    | -3.81     | 3.24       |
| 2420       | 42.36    | -3.73     | 3.23       |
| 2430       | 43.35    | -3.63     | 3.25       |
| 2440       | 43.75    | -3.59     | 3.28       |
| 2450       | 42.95    | -3.67     | 3.36       |
| 2460       | 42.95    | -3.67     | 3.55       |
| 2470       | 43.15    | -3.65     | 3.68       |
| 2480       | 44.16    | -3.55     | 3.13       |
| 2490       | 45.81    | -3.39     | 3.24       |
| 2500       | 46.67    | -3.31     | 3.38       |

### GPS&WIFI

| Freq (MHz) | Effi (%) | Effi (dB) | Gain (dBi) | Freq (MHz) | Effi (%) | Effi (dB) | Gain (dBi) |
|------------|----------|-----------|------------|------------|----------|-----------|------------|
| 2400       | 59.98    | -2.22     | 3.09       | 1565       | 57.68    | -2.39     | 3.99       |
| 2410       | 60.95    | -2.15     | 3.15       | 1570       | 62.81    | -2.02     | 4.4        |
| 2420       | 61.24    | -2.13     | 3.32       | 1575       | 55.98    | -2.52     | 4.06       |
| 2430       | 62.09    | -2.07     | 3.36       | 1580       | 61.24    | -2.13     | 4.49       |
| 2440       | 62.09    | -2.07     | 3.26       | 1585       | 54.45    | -2.64     | 4.06       |

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|               |             |              |               |  |  |  |  |
|---------------|-------------|--------------|---------------|--|--|--|--|
| 2450          | 59.84       | -2.23        | 3.27          |  |  |  |  |
| 2460          | 59.7        | -2.24        | 3.19          |  |  |  |  |
| 2470          | 59.43       | -2.26        | 3.19          |  |  |  |  |
| 2480          | 59.29       | -2.27        | 3.27          |  |  |  |  |
| 2490          | 59.84       | -2.23        | 3.12          |  |  |  |  |
| 2500          | 59.43       | -2.26        | 3.35          |  |  |  |  |
| Freq<br>(MHz) | Effi<br>(%) | Effi<br>(dB) | Gain<br>(dBi) |  |  |  |  |
| 5160          | 29.58       | -5.29        | 2.24          |  |  |  |  |
| 5180          | 31.41       | -5.03        | 2.3           |  |  |  |  |
| 5200          | 31.05       | -5.08        | 2.6           |  |  |  |  |
| 5220          | 30.9        | -5.1         | 2.25          |  |  |  |  |
| 5240          | 30.41       | -5.17        | 2.27          |  |  |  |  |
| 5260          | 33.5        | -4.75        | 2.56          |  |  |  |  |
| 5280          | 33.5        | -4.75        | 2.15          |  |  |  |  |
| 5300          | 33.96       | -4.69        | 2.29          |  |  |  |  |
| 5320          | 34.67       | -4.6         | 2.44          |  |  |  |  |
| 5340          | 33.81       | -4.71        | 2.3           |  |  |  |  |
| 5360          | 34.36       | -4.64        | 2.36          |  |  |  |  |
| 5380          | 33.5        | -4.75        | 2.21          |  |  |  |  |
| 5400          | 34.43       | -4.63        | 2.14          |  |  |  |  |
| 5420          | 33.88       | -4.7         | 2.5           |  |  |  |  |
| 5440          | 33.81       | -4.71        | 2.56          |  |  |  |  |
| 5460          | 34.43       | -4.63        | 2.31          |  |  |  |  |
| 5480          | 34.28       | -4.65        | 2.02          |  |  |  |  |
| 5500          | 35.16       | -4.54        | 1.95          |  |  |  |  |
| 5520          | 35.16       | -4.54        | 1.8           |  |  |  |  |
| 5540          | 36.06       | -4.43        | 1.96          |  |  |  |  |
| 5560          | 36.48       | -4.38        | 2.02          |  |  |  |  |
| 5580          | 38.55       | -4.14        | 2.47          |  |  |  |  |
| 5600          | 37.84       | -4.22        | 2.53          |  |  |  |  |
| 5620          | 36.9        | -4.33        | 2.48          |  |  |  |  |
| 5640          | 38.11       | -4.19        | 2.6           |  |  |  |  |
| 5660          | 36.64       | -4.36        | 2.47          |  |  |  |  |
| 5680          | 36.81       | -4.34        | 2.58          |  |  |  |  |
| 5700          | 34.51       | -4.62        | 2.42          |  |  |  |  |
| 5720          | 35.73       | -4.47        | 2.58          |  |  |  |  |
| 5740          | 34.99       | -4.56        | 2.25          |  |  |  |  |
| 5760          | 32.73       | -4.85        | 2.53          |  |  |  |  |
| 5780          | 30.27       | -5.19        | 2.3           |  |  |  |  |
| 5800          | 31.99       | -4.95        | 2.57          |  |  |  |  |
| 5820          | 31.05       | -5.08        | 2.58          |  |  |  |  |
| 5840          | 30.13       | -5.21        | 2.56          |  |  |  |  |
| 5860          | 28.97       | -5.38        | 2.39          |  |  |  |  |

## DIV

| Freq<br>(MHz) | Effi<br>(%) | Effi<br>(dB) | Gain<br>(dBi) | Freq<br>(MHz) | Effi<br>(%) | Effi<br>(dB) | Gain<br>(dBi) |
|---------------|-------------|--------------|---------------|---------------|-------------|--------------|---------------|
| 610           | 4.08        | -13.89       | -9.71         | 760           | 14.72       | -8.32        | -2.22         |
| 620           | 5.47        | -12.62       | -7.79         | 770           | 15.24       | -8.17        | -2.36         |
| 630           | 6.85        | -11.64       | -6.62         | 780           | 17.74       | -7.51        | -1.89         |
| 640           | 8.95        | -10.48       | -5.49         | 790           | 22.39       | -6.5         | -0.82         |
| 650           | 11.32       | -9.46        | -3.36         | 800           | 24.21       | -6.16        | -2.02         |
| 660           | 13.77       | -8.61        | -1.39         | 810           | 25.41       | -5.95        | -1.49         |
| 670           | 12.5        | -9.03        | -1.3          | 820           | 25.23       | -5.98        | -1.67         |
| 680           | 10.84       | -9.65        | -2            | 830           | 25.47       | -5.94        | -1.52         |
| 690           | 11.32       | -9.46        | -1.63         | 840           | 24.83       | -6.05        | -1.76         |
| 700           | 14.55       | -8.37        | -0.96         | 850           | 24.49       | -6.11        | -1.81         |
| 710           | 15.14       | -8.2         | -1.14         | 860           | 23.88       | -6.22        | -1.77         |
| 720           | 12.42       | -9.06        | -2.26         | 870           | 23.07       | -6.37        | -1.47         |
| 730           | 13.18       | -8.8         | -3.04         | 880           | 22.39       | -6.5         | -1.54         |
| 740           | 17.74       | -7.51        | -1.49         | 890           | 22.86       | -6.41        | -1.58         |
| 750           | 16.9        | -7.72        | -1.75         | 900           | 22.59       | -6.46        | -1.59         |
| Freq<br>(MHz) | Effi<br>(%) | Effi<br>(dB) | Gain<br>(dBi) | Freq<br>(MHz) | Effi<br>(%) | Effi<br>(dB) | Gain<br>(dBi) |
| 1700          | 42.27       | -3.74        | 2.91          | 2220          | 40.74       | -3.9         | 2.92          |
| 1720          | 48.53       | -3.14        | 3.01          | 2240          | 41.78       | -3.79        | 2.69          |
| 1740          | 48.42       | -3.15        | 3.02          | 2260          | 43.35       | -3.63        | 2.51          |
| 1760          | 45.92       | -3.38        | 2.41          | 2280          | 43.25       | -3.64        | 2.67          |
| 1780          | 46.24       | -3.35        | 2.09          | 2300          | 42.66       | -3.7         | 2.92          |
| 1800          | 44.26       | -3.54        | 2.13          | 2320          | 43.75       | -3.59        | 3.15          |
| 1820          | 44.87       | -3.48        | 2.41          | 2340          | 41.78       | -3.79        | 2.64          |
| 1840          | 44.87       | -3.48        | 2.61          | 2360          | 43.25       | -3.64        | 2.61          |
| 1860          | 45.6        | -3.41        | 2.95          | 2380          | 45.71       | -3.4         | 2.73          |
| 1880          | 45.08       | -3.46        | 2.98          | 2400          | 44.98       | -3.47        | 2.61          |
| 1900          | 45.5        | -3.42        | 2.69          | 2420          | 48.08       | -3.18        | 2.98          |
| 1920          | 50.82       | -2.94        | 2.61          | 2440          | 47.75       | -3.21        | 3.01          |
| 1940          | 48.19       | -3.17        | 2.1           | 2460          | 42.17       | -3.75        | 2.36          |
| 1960          | 42.76       | -3.69        | 1.51          | 2480          | 42.95       | -3.67        | 2.72          |
| 1980          | 40.36       | -3.94        | 1.43          | 2500          | 44.57       | -3.51        | 2.66          |
| 2000          | 39.81       | -4           | 1.6           | 2520          | 44.87       | -3.48        | 2.52          |
| 2020          | 36.31       | -4.4         | 1.34          | 2540          | 49.09       | -3.09        | 2.79          |
| 2040          | 38.11       | -4.19        | 2.21          | 2560          | 47.75       | -3.21        | 2.68          |
| 2060          | 37.93       | -4.21        | 2.46          | 2580          | 48.08       | -3.18        | 3.01          |
| 2080          | 37.58       | -4.25        | 2.34          | 2600          | 48.08       | -3.18        | 3.31          |
| 2100          | 38.28       | -4.17        | 2.06          | 2620          | 45.92       | -3.38        | 3.03          |
| 2120          | 36.98       | -4.32        | 2.09          | 2640          | 43.55       | -3.61        | 2.78          |
| 2140          | 35.48       | -4.5         | 2.13          | 2660          | 42.85       | -3.68        | 2.75          |
| 2160          | 40.36       | -3.94        | 2.51          | 2680          | 41.21       | -3.85        | 2.82          |
| 2180          | 42.07       | -3.76        | 2.61          | 2700          | 40.09       | -3.97        | 2.82          |
| 2200          | 42.27       | -3.74        | 3.01          | 2220          | 40.74       | -3.9         | 2.92          |

Main

B28/B17

| Freq<br>(MHz) | Effi<br>(%) | Effi<br>(dB) | Gain<br>(dBi) |
|---------------|-------------|--------------|---------------|
| 700           | 37.58       | -4.25        | 1.62          |
| 710           | 39.08       | -4.08        | 1.58          |
| 720           | 46.67       | -3.31        | 1.5           |
| 730           | 47.75       | -3.21        | 1.82          |
| 740           | 47.32       | -3.25        | 2.64          |
| 750           | 49.43       | -3.06        | 2.55          |
| 760           | 51.4        | -2.89        | 2.69          |
| 770           | 53.09       | -2.75        | 1.95          |
| 780           | 47.64       | -3.22        | 0.61          |
| 790           | 44.16       | -3.55        | 0.78          |
| 800           | 40.36       | -3.94        | 0.37          |

B12

| Freq<br>(MHz) | Effi<br>(%) | Effi<br>(dB) | Gain<br>(dBi) |
|---------------|-------------|--------------|---------------|
| 650           | 45.06       | -3.46        | 1.52          |
| 660           | 46.81       | -3.3         | 1.52          |
| 670           | 45.95       | -3.38        | 1.29          |
| 680           | 44.82       | -3.48        | 1.18          |
| 690           | 46.08       | -3.36        | 1.48          |
| 700           | 46.53       | -3.32        | 1.31          |
| 710           | 46.65       | -3.31        | 1.24          |
| 720           | 44.4        | -3.53        | 0.9           |
| 730           | 43.65       | -3.6         | 0.67          |
| 740           | 42.28       | -3.74        | 0.38          |
| 750           | 41.28       | -3.84        | 0.4           |

B71

| Freq<br>(MHz) | Effi<br>(%) | Effi<br>(dB) | Gain<br>(dBi) |
|---------------|-------------|--------------|---------------|
| 610           | 24.6        | -6.09        | -1.5          |
| 620           | 26.61       | -5.75        | -1.18         |
| 630           | 29.85       | -5.25        | 0.31          |
| 640           | 35.16       | -4.54        | 2.26          |
| 650           | 37.15       | -4.3         | 2.77          |
| 660           | 35.89       | -4.45        | 2.12          |
| 670           | 30.48       | -5.16        | 2.13          |
| 680           | 27.35       | -5.63        | 2.26          |
| 690           | 26.42       | -5.78        | 2.25          |
| 700           | 24.83       | -6.05        | 1.48          |
|               |             |              |               |

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B18/19/20/B7

| Freq<br>(MHz) | Effi<br>(%) | Effi<br>(dB) | Gain<br>(dBi) |
|---------------|-------------|--------------|---------------|
| 810           | 45.75       | -3.4         | 1.01          |
| 820           | 50.99       | -2.93        | 1.05          |
| 830           | 52.23       | -2.82        | 1.04          |
| 840           | 54.21       | -2.66        | 1.57          |
| 850           | 51.03       | -2.92        | 1.35          |
| 860           | 54.3        | -2.65        | 1.71          |
| 870           | 56.77       | -2.46        | 1.25          |
| 880           | 54.63       | -2.63        | 1.76          |
| 2500          | 52.68       | -2.78        | 3.18          |
| 2510          | 50.84       | -2.94        | 3.59          |
| 2520          | 48.96       | -3.1         | 3.77          |
| 2530          | 50.15       | -3           | 3.89          |
| 2540          | 49.56       | -3.05        | 4.01          |
| 2550          | 49.7        | -3.04        | 3.47          |
| 2560          | 51.57       | -2.88        | 3.69          |
| 2570          | 53.59       | -2.71        | 3.77          |
| 2580          | 51.37       | -2.89        | 3.7           |
| 2590          | 48.23       | -3.17        | 3.26          |
| 2600          | 48.51       | -3.14        | 3.06          |

B5/26/B2/4/41/66

| Freq<br>(MHz) | Effi<br>(%) | Effi<br>(dB) | Gain<br>(dBi) |               |             |              |               |
|---------------|-------------|--------------|---------------|---------------|-------------|--------------|---------------|
| 820           | 42.36       | -3.73        | 1.05          |               |             |              |               |
| 830           | 47.42       | -3.24        | 1.02          |               |             |              |               |
| 840           | 52.36       | -2.81        | 1.37          |               |             |              |               |
| 850           | 57.54       | -2.4         | 1.27          |               |             |              |               |
| 860           | 62.37       | -2.05        | 1.14          |               |             |              |               |
| 870           | 64.71       | -1.89        | 1.14          |               |             |              |               |
| 880           | 58.88       | -2.3         | 1.37          |               |             |              |               |
| 890           | 53.33       | -2.73        | 0.95          |               |             |              |               |
| Freq<br>(MHz) | Effi<br>(%) | Effi<br>(dB) | Gain<br>(dBi) | Freq<br>(MHz) | Effi<br>(%) | Effi<br>(dB) | Gain<br>(dBi) |
| 1700          | 47.53       | -3.23        | 2.31          | 2220          | 39.63       | -4.02        | 2.65          |
| 1720          | 52.97       | -2.76        | 2.25          | 2240          | 40.18       | -3.96        | 2.76          |
| 1740          | 55.34       | -2.57        | 2.78          | 2260          | 43.35       | -3.63        | 3.06          |
| 1760          | 53.33       | -2.73        | 2.71          | 2280          | 40.83       | -3.89        | 2.51          |
| 1780          | 58.08       | -2.36        | 2.55          | 2300          | 39.81       | -4           | 2.32          |

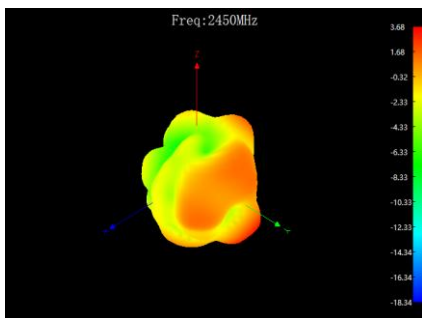
## Confidential Information

|      |       |       |      |      |       |       |      |
|------|-------|-------|------|------|-------|-------|------|
| 1800 | 61.09 | -2.14 | 3.47 | 2320 | 40.27 | -3.95 | 2.33 |
| 1820 | 61.94 | -2.08 | 3.92 | 2340 | 36.48 | -4.38 | 1.83 |
| 1840 | 62.52 | -2.04 | 4.31 | 2360 | 39.9  | -3.99 | 2.17 |
| 1860 | 62.37 | -2.05 | 4.14 | 2380 | 43.75 | -3.59 | 2.15 |
| 1880 | 60.95 | -2.15 | 4.01 | 2400 | 44.77 | -3.49 | 1.77 |
| 1900 | 59.57 | -2.25 | 4.31 | 2420 | 48.98 | -3.1  | 2.37 |
| 1920 | 66.37 | -1.78 | 4.11 | 2440 | 49.2  | -3.08 | 2.58 |
| 1940 | 62.37 | -2.05 | 4.1  | 2460 | 44.87 | -3.48 | 2.51 |
| 1960 | 55.59 | -2.55 | 3.59 | 2480 | 47.86 | -3.2  | 3.16 |
| 1980 | 53.7  | -2.7  | 3.51 | 2500 | 50.7  | -2.95 | 3.69 |
| 2000 | 51.17 | -2.91 | 3.08 | 2520 | 51.76 | -2.86 | 3.89 |
| 2020 | 45.39 | -3.43 | 1.97 | 2540 | 56.75 | -2.46 | 3.51 |
| 2040 | 48.53 | -3.14 | 2.24 | 2560 | 55.59 | -2.55 | 3.58 |
| 2060 | 46.77 | -3.3  | 1.93 | 2580 | 55.72 | -2.54 | 3.99 |
| 2080 | 47.1  | -3.27 | 1.96 | 2600 | 57.94 | -2.37 | 3.23 |
| 2100 | 47.75 | -3.21 | 2.25 | 2620 | 54.95 | -2.6  | 3.89 |
| 2120 | 42.95 | -3.67 | 1.97 | 2640 | 53.46 | -2.72 | 3.72 |
| 2140 | 39.26 | -4.06 | 2.04 | 2660 | 54.58 | -2.63 | 3.79 |
| 2160 | 42.07 | -3.76 | 2.52 | 2680 | 52.84 | -2.77 | 3.97 |
| 2180 | 41.02 | -3.87 | 2.68 | 2700 | 51.52 | -2.88 | 3.23 |
| 2200 | 41.78 | -3.79 | 2.92 |      |       |       |      |

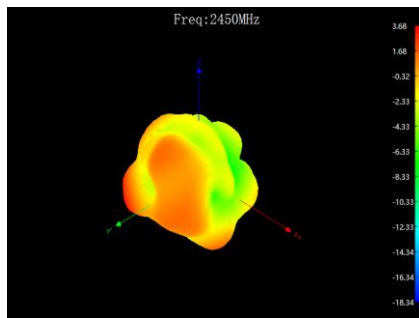
## 2.2 3D Pattern

BLE

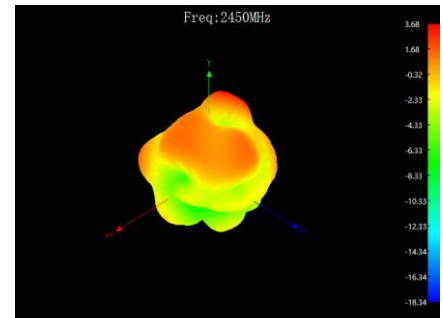
H plane



E1 plane

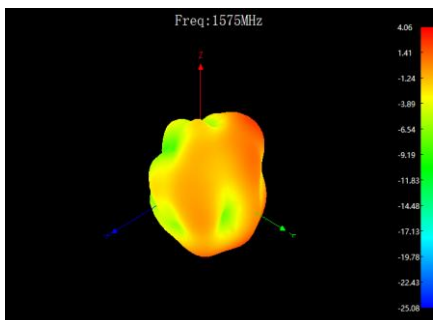


E2 plane

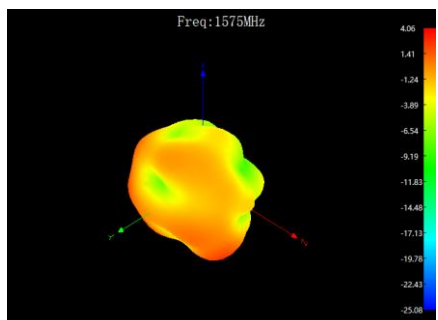


GPS&WIFI

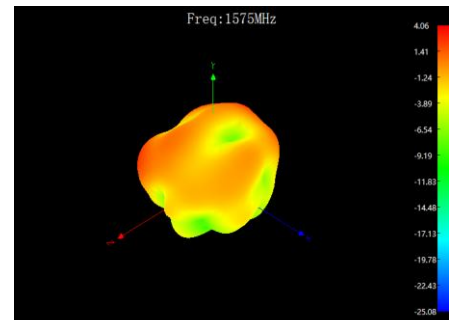
H plane



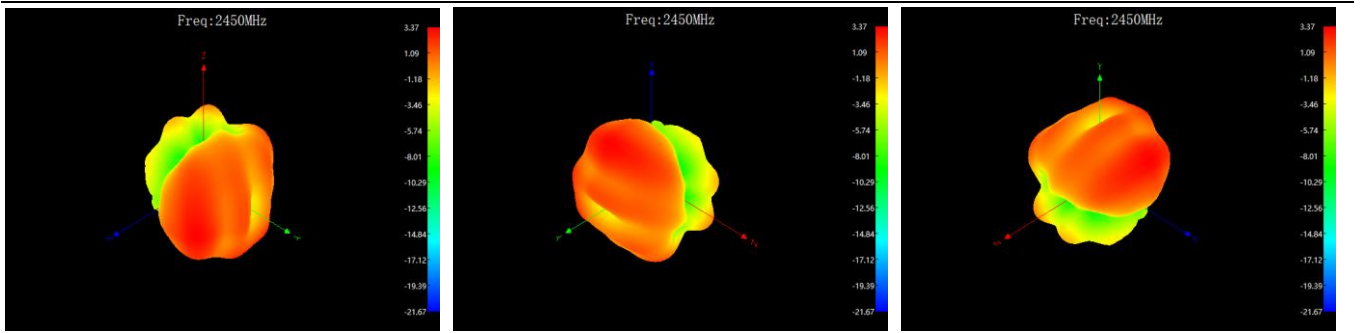
E1 plane



E2 plane



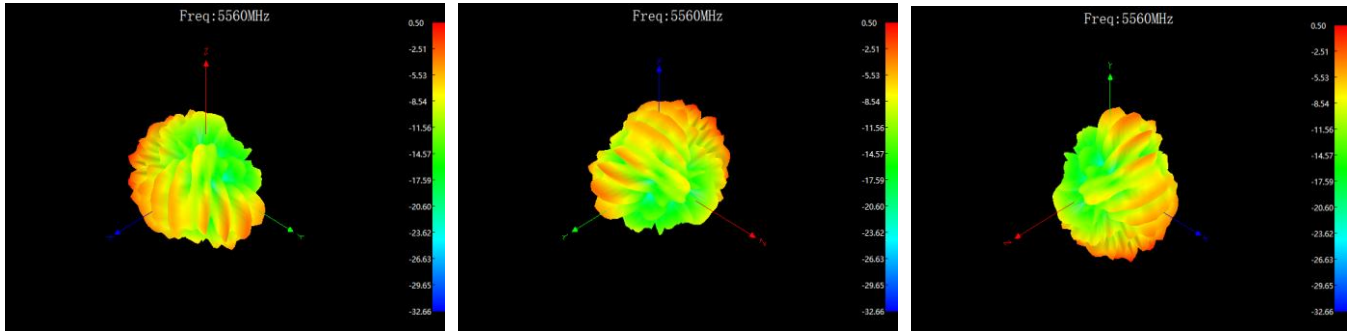
Confidential Information



H plane

E1 plane

E2 plane

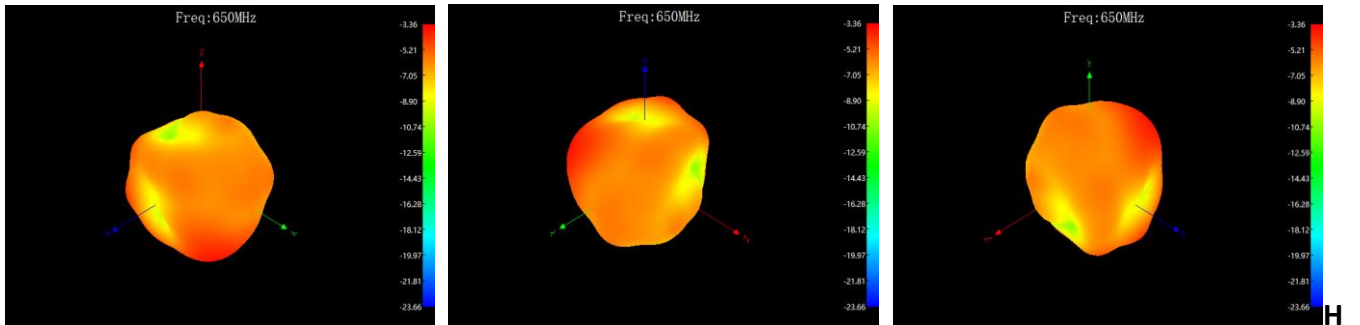


DIV

H plane

E1 plane

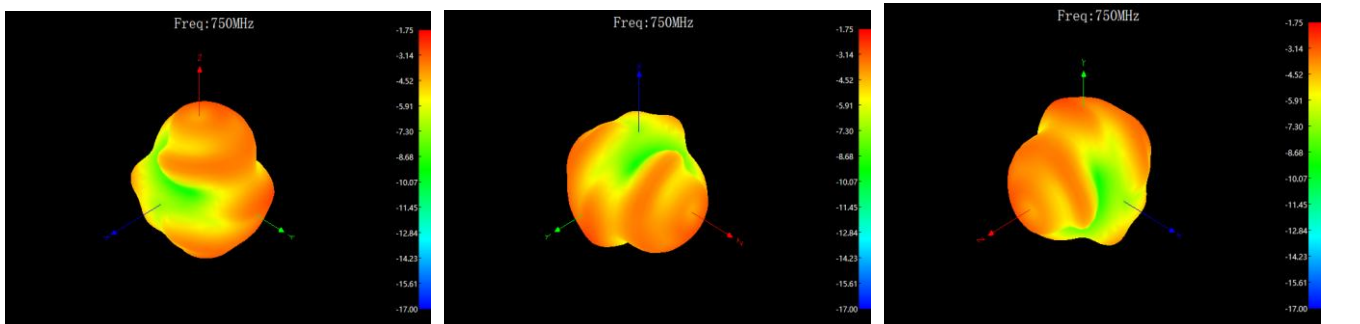
E2 plane



H plane

E1 plane

E2 plane

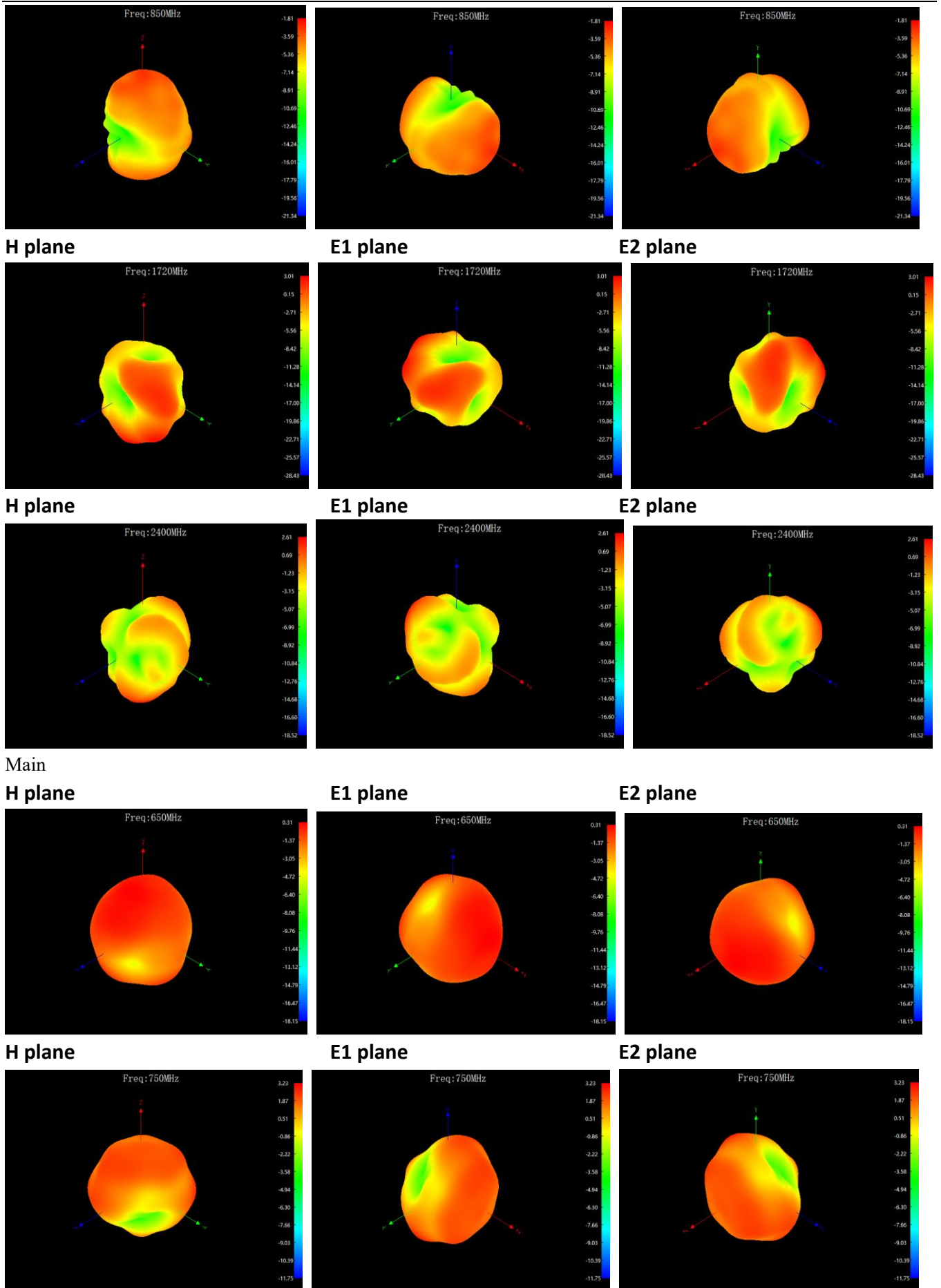


H plane

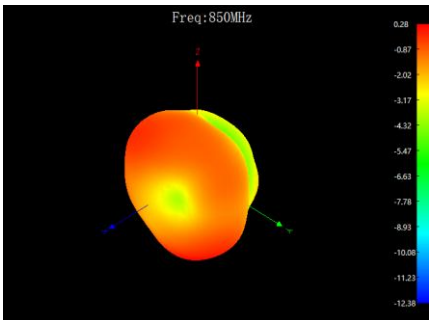
E1 plane

E2 plane

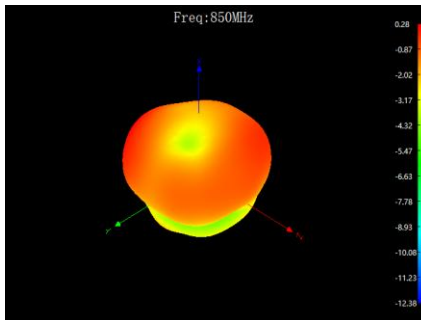
# Confidential Information



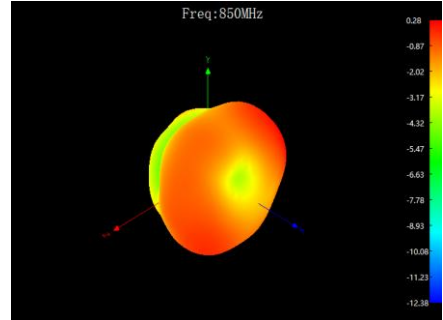
H plane



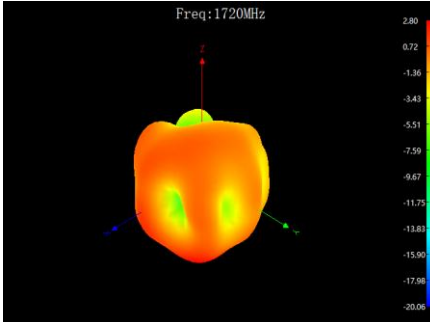
E1 plane



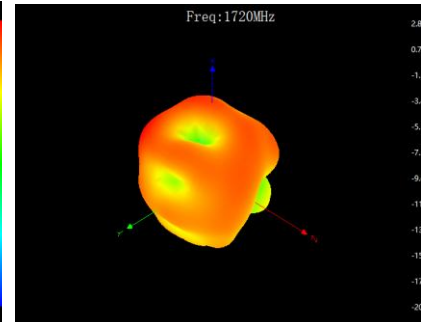
E2 plane



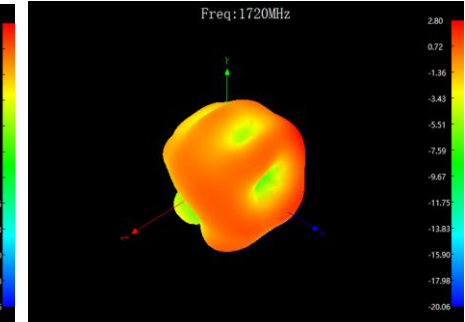
H plane



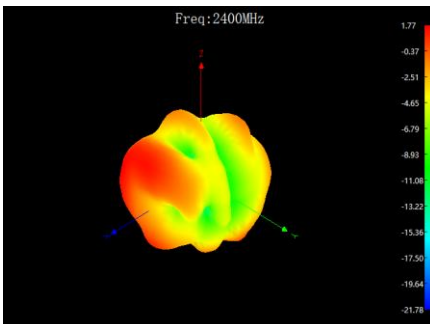
E1 plane



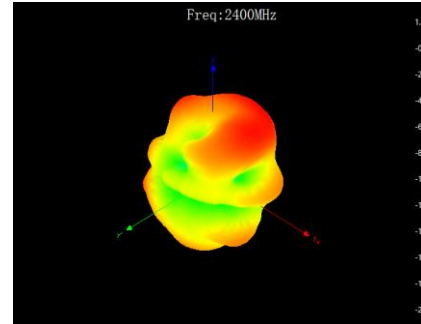
E2 plane



H plane



E1 plane



E2 plane

