

Shenzhen XinHengYang Technology Co. Ltd:  
1st Floor, Building B, Aerospace Science and Technology  
Innovation Industrial Park, North District, Nanshan District, Shenzhen

Material Acknowledgement

Suppliers: Shenzhen XinHengYang Technology Co.Ltd

A67L-MAIN-XHY AND

A67L-DIV-XHY AND

Model: A67L-WGB-XHY

Product Name: On the antenna assembly

Specification

s / Models: \_\_\_\_\_

Antenna

trademark: \_\_\_\_\_

Color: \_\_\_\_\_

Address: \_\_\_\_\_

Contact /

Phone: \_\_\_\_\_

Supplier (with official seal)

| Structural<br>Department | R&D<br>Department | Quality<br>Department | Project<br>Department |  |
|--------------------------|-------------------|-----------------------|-----------------------|--|
|                          |                   |                       |                       |  |
|                          |                   |                       |                       |  |

Customer review

| ID<br>Department | Structural<br>Department /<br>Special<br>Project | Hardware<br>Department | Packaging<br>engineering | Quality<br>Department |
|------------------|--------------------------------------------------|------------------------|--------------------------|-----------------------|
|                  |                                                  |                        |                          |                       |

## Specifications

The report mainly provides A67L GSM+WCDMA +LTE,performance parameter test, antenna for built-in antenna:

### 2、Electrical performance

#### 2-1 Specification Standard

The A65L antenna operates in the

GSM-850 820-894MHz

GSM-900 880-960MHz

DCS-1800 1710-1880MHz

PCS-1900 1850-1990MHz

WCDMA-850 820-894MHz

WCDMA-1700 1710-2170MHz

WCDMA-1900 1850-1990MHz

LTE Band 2/25:1850-1990MHz

LTE Band 4:1710-1755MHz

LTE Band 5/26: 820-894MHz

LTE Band 12: 699-716MHz

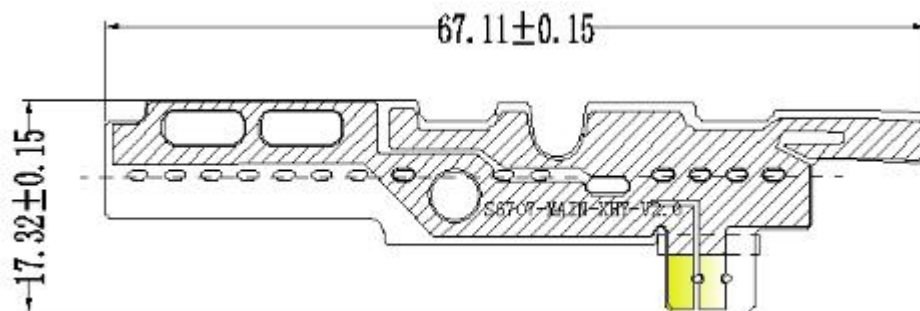
LTE Band 17:704-716MHz

LTE Band 41: 2535-2675MHz

LTE Band 66: 1710-1780MHz

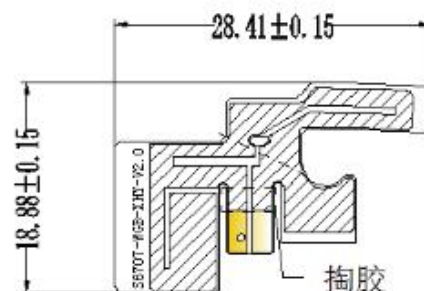
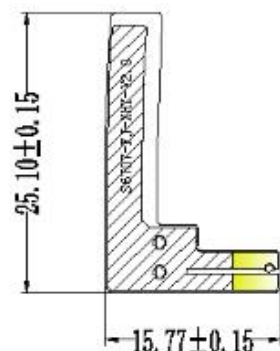
LTE Band 71: 663-698MHz, which generates resonances in this ;The following table shows the mass production performance test indicators for the A65L design antenna:

GSM/WCDMA/LTE ant 67.11mm\*17.32mm



BT WIFI ANT 28.41mm\*18.88mm

DIV ANT 25.1mm\*15.77mm



## 2-2 gain test

## Main antenna gain

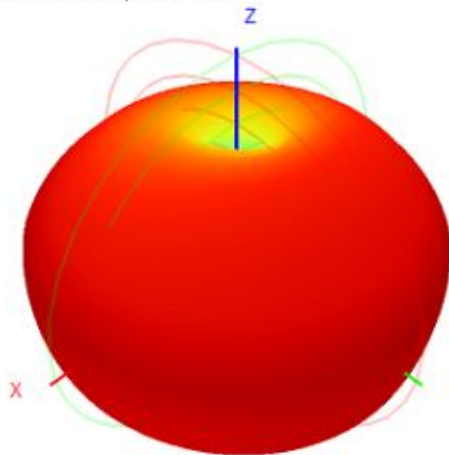
| Frequency (MHz) | Gain (dBi) | Frequency (MHz) | Gain (dBi) | Frequency (MHz) | Gain (dBi) | Frequency (MHz) | Gain (dBi) | Frequency (MHz) | Gain (dBi) |
|-----------------|------------|-----------------|------------|-----------------|------------|-----------------|------------|-----------------|------------|
| 610.0           | -5.51      | 720.0           | -1.27      | 820.0           | -1.09      | 1700.0          | -1.18      | 2300.0          | -1.93      |
| 620.0           | -5.37      | 730.0           | -0.89      | 830.0           | -0.82      | 1710.0          | -2.41      | 2310.0          | -2.27      |
| 630.0           | -4.72      | 740.0           | -0.80      | 840.0           | -0.68      | 1720.0          | -2.11      | 2320.0          | -2.82      |
| 640.0           | -3.97      | 750.0           | -1.09      | 850.0           | -0.71      | 1730.0          | -1.71      | 2330.0          | -3.20      |
| 650.0           | -3.81      | 760.0           | -1.73      | 860.0           | -1.02      | 1740.0          | -0.66      | 2340.0          | -3.50      |
| 660.0           | -3.87      | 770.0           | -2.15      | 870.0           | -1.42      | 1750.0          | -0.42      | 2350.0          | -3.34      |
| 670.0           | -3.63      | 780.0           | -2.51      | 880.0           | -1.83      | 1760.0          | -0.32      | 2360.0          | -3.29      |
| 680.0           | -3.10      | 790.0           | -2.82      | 890.0           | -1.61      | 1770.0          | -0.14      | 2370.0          | -3.32      |
| 690.0           | -2.42      | 800.0           | -2.99      | 900.0           | -1.56      | 1780.0          | -0.13      | 2380.0          | -3.04      |
| 700.0           | -1.98      |                 |            | 910.0           | -1.61      | 1790.0          | -0.12      | 2390.0          | -2.73      |
|                 |            |                 |            | 920.0           | -1.50      | 1800.0          | -0.02      | 2400.0          | -2.37      |
|                 |            |                 |            | 930.0           | -1.25      | 1810.0          | 0.20       | 2410.0          | -1.74      |
|                 |            |                 |            | 940.0           | -0.89      | 1820.0          | 0.33       | 2420.0          | -1.22      |
|                 |            |                 |            | 950.0           | -0.79      | 1830.0          | -0.02      | 2430.0          | -0.75      |
|                 |            |                 |            | 960.0           | -0.94      | 1840.0          | -0.08      | 2440.0          | -0.42      |
|                 |            |                 |            |                 |            | 1850.0          | -0.30      | 2450.0          | -0.05      |
|                 |            |                 |            |                 |            | 1860.0          | -0.46      | 2460.0          | 0.26       |
|                 |            |                 |            |                 |            | 1870.0          | -0.92      | 2470.0          | 0.22       |
|                 |            |                 |            |                 |            | 1880.0          | -1.75      | 2480.0          | 0.02       |
|                 |            |                 |            |                 |            | 1890.0          | -1.94      | 2490.0          | -0.10      |
|                 |            |                 |            |                 |            | 1900.0          | -2.41      | 2500.0          | 0.37       |
|                 |            |                 |            |                 |            | 1910.0          | -2.11      | 2510.0          | 0.73       |
|                 |            |                 |            |                 |            | 1920.0          | -1.71      | 2520.0          | 0.87       |
|                 |            |                 |            |                 |            | 1930.0          | -0.66      | 2530.0          | 0.93       |
|                 |            |                 |            |                 |            | 1940.0          | -0.42      | 2540.0          | 0.88       |
|                 |            |                 |            |                 |            | 1950.0          | -0.32      | 2550.0          | 0.72       |
|                 |            |                 |            |                 |            | 1960.0          | -0.14      | 2560.0          | 0.37       |
|                 |            |                 |            |                 |            | 1970.0          | -0.13      | 2570.0          | 0.28       |
|                 |            |                 |            |                 |            | 1980.0          | -0.12      | 2580.0          | 0.28       |
|                 |            |                 |            |                 |            | 1990.0          | -0.02      | 2590.0          | 0.21       |
|                 |            |                 |            |                 |            | 2000.0          | 0.20       | 2600.0          | 0.11       |
|                 |            |                 |            |                 |            | 2010.0          | 0.33       | 2610.0          | 0.14       |
|                 |            |                 |            |                 |            | 2020.0          | -0.02      | 2620.0          | 0.19       |
|                 |            |                 |            |                 |            | 2030.0          | -0.08      | 2630.0          | 0.46       |
|                 |            |                 |            |                 |            | 2040.0          | -0.30      | 2640.0          | 0.65       |
|                 |            |                 |            |                 |            | 2050.0          | -0.46      | 2650.0          | 0.67       |
|                 |            |                 |            |                 |            | 2060.0          | -0.92      | 2660.0          | 0.48       |
|                 |            |                 |            |                 |            | 2070.0          | -1.05      | 2670.0          | 0.23       |
|                 |            |                 |            |                 |            | 2080.0          | -1.03      | 2680.0          | -0.05      |
|                 |            |                 |            |                 |            | 2090.0          | -1.16      | 2690.0          | -0.18      |
|                 |            |                 |            |                 |            | 2100.0          | -1.09      | 2700.0          | -1.93      |
|                 |            |                 |            |                 |            | 2110.0          | -1.17      |                 |            |
|                 |            |                 |            |                 |            | 2120.0          | -0.09      |                 |            |
|                 |            |                 |            |                 |            | 2130.0          | -0.18      |                 |            |
|                 |            |                 |            |                 |            | 2140.0          | -0.09      |                 |            |
|                 |            |                 |            |                 |            | 2150.0          | -0.18      |                 |            |
|                 |            |                 |            |                 |            | 2160.0          | -0.17      |                 |            |
|                 |            |                 |            |                 |            | 2170.0          | -0.31      |                 |            |

## GPS/WIFI antenna gain

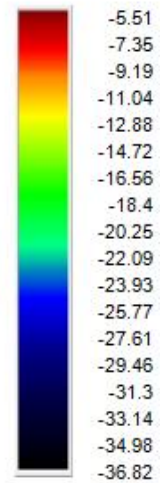
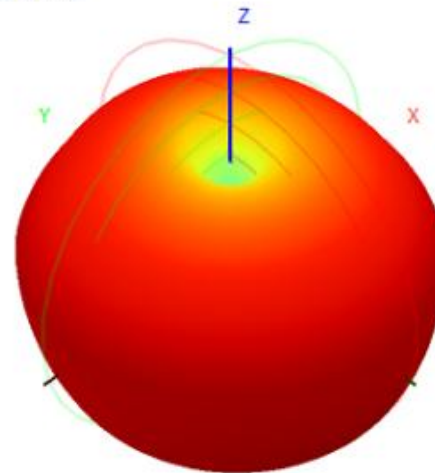
| Frequency (MHz) | Gain (dBi) | Frequency (MHz) | Gain (dBi) |
|-----------------|------------|-----------------|------------|
| 1550.0          | -0.56      | 2400.0          | -3.21      |
| 1555.0          | -0.55      | 2410.0          | -3.75      |
| 1560.0          | -0.59      | 2420.0          | -3.78      |
| 1565.0          | -0.61      | 2430.0          | -3.70      |
| 1570.0          | -0.70      | 2440.0          | -3.81      |
| 1575.0          | -0.89      | 2450.0          | -4.00      |
| 1580.0          | -1.06      | 2460.0          | -4.10      |
| 1585.0          | -1.19      | 2470.0          | -4.11      |
| 1590.0          | -1.33      | 2480.0          | -3.98      |
| 1595.0          | -1.51      | 2490.0          | -3.82      |
| 1600.0          | -1.63      | 2500.0          | -3.53      |

610MHz-700MHz

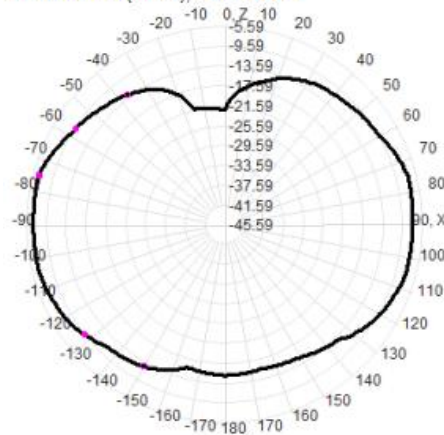
610.0MHz Total, Eff: 12.8%



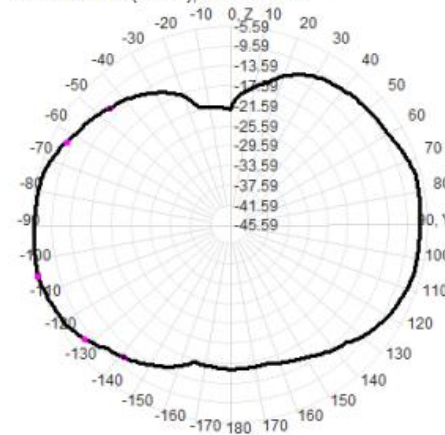
Back View



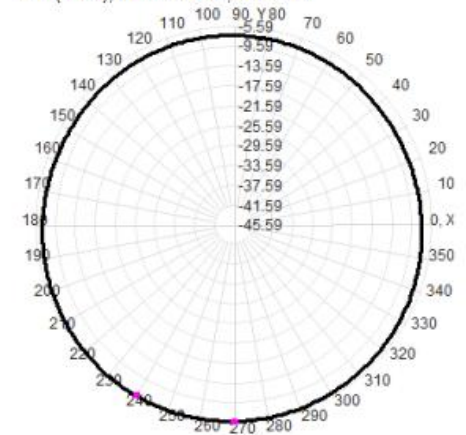
610.0MHz Total(E1-XZ), Max=-6.84dBi

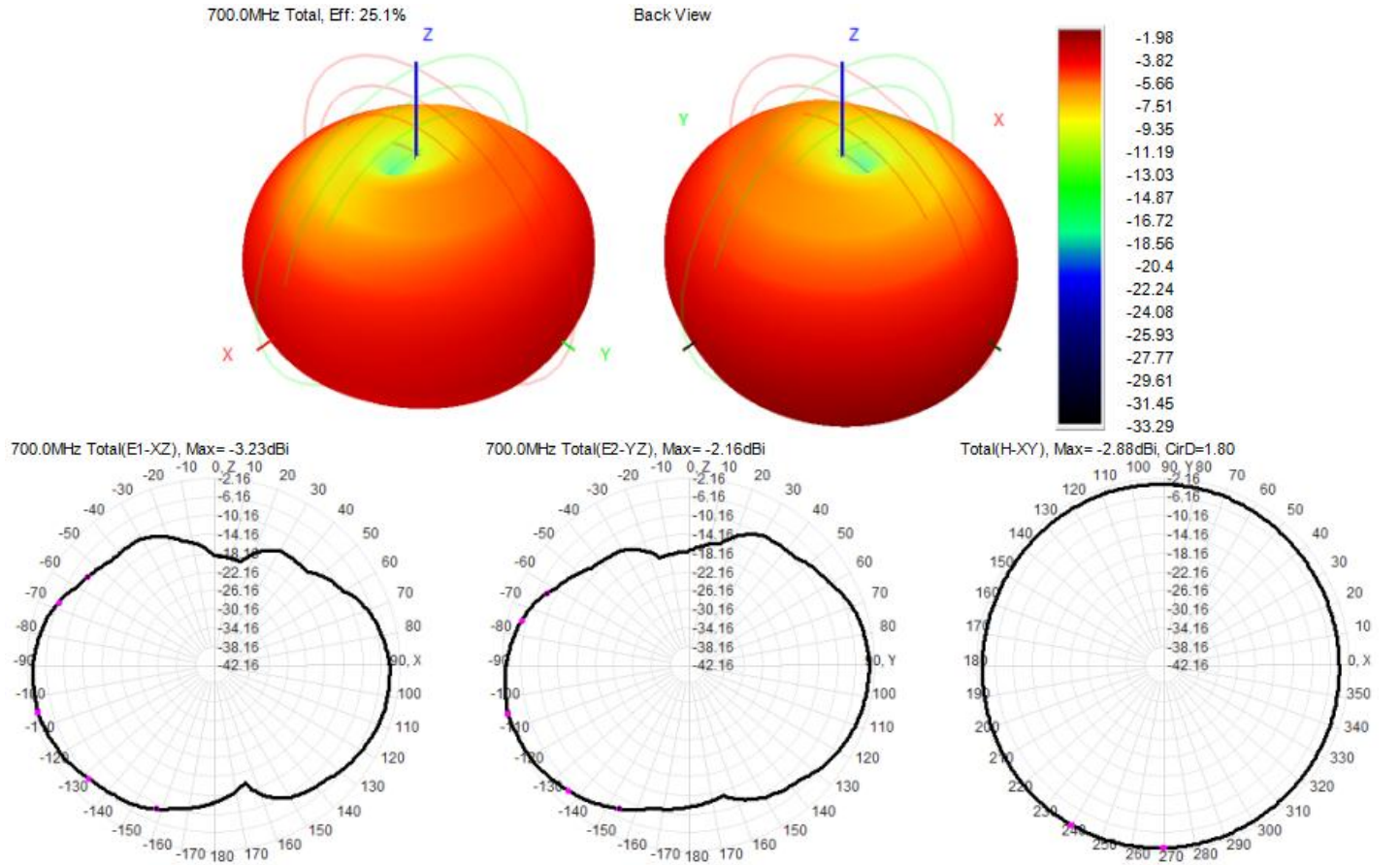


610.0MHz Total(E2-YZ), Max=-5.59dBi

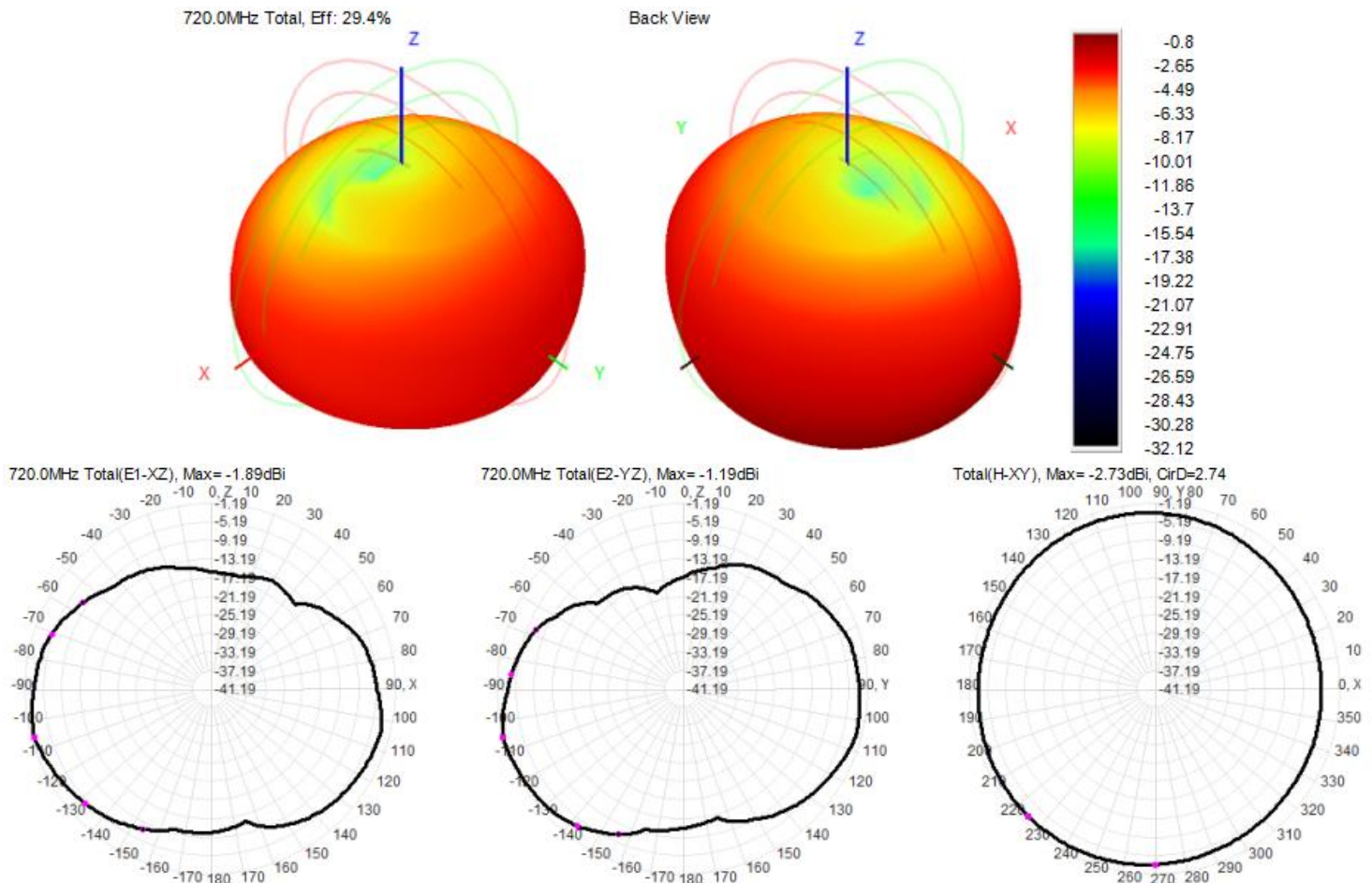


Total(H-XY), Max=-6.06dBi, CirD=2.14

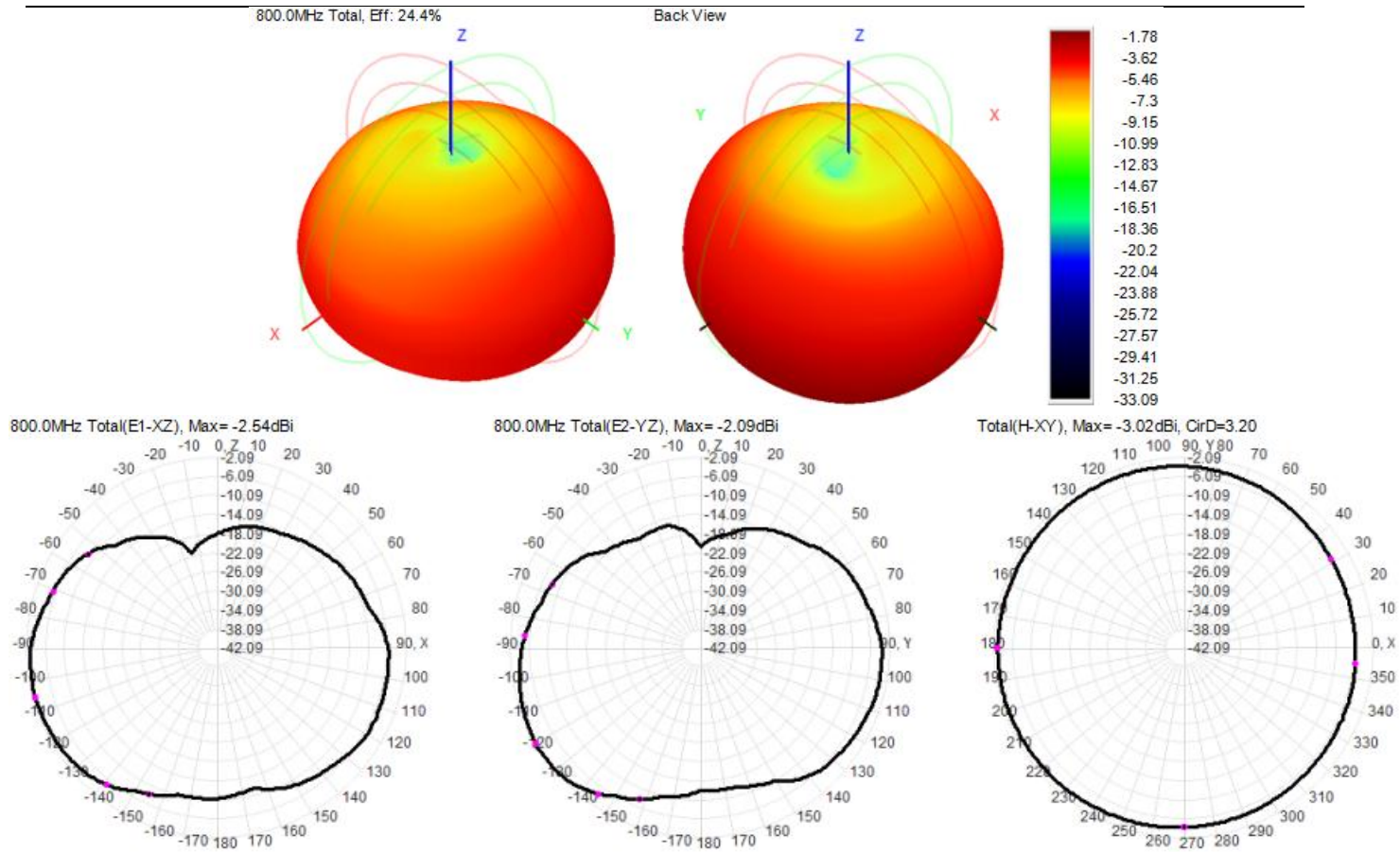




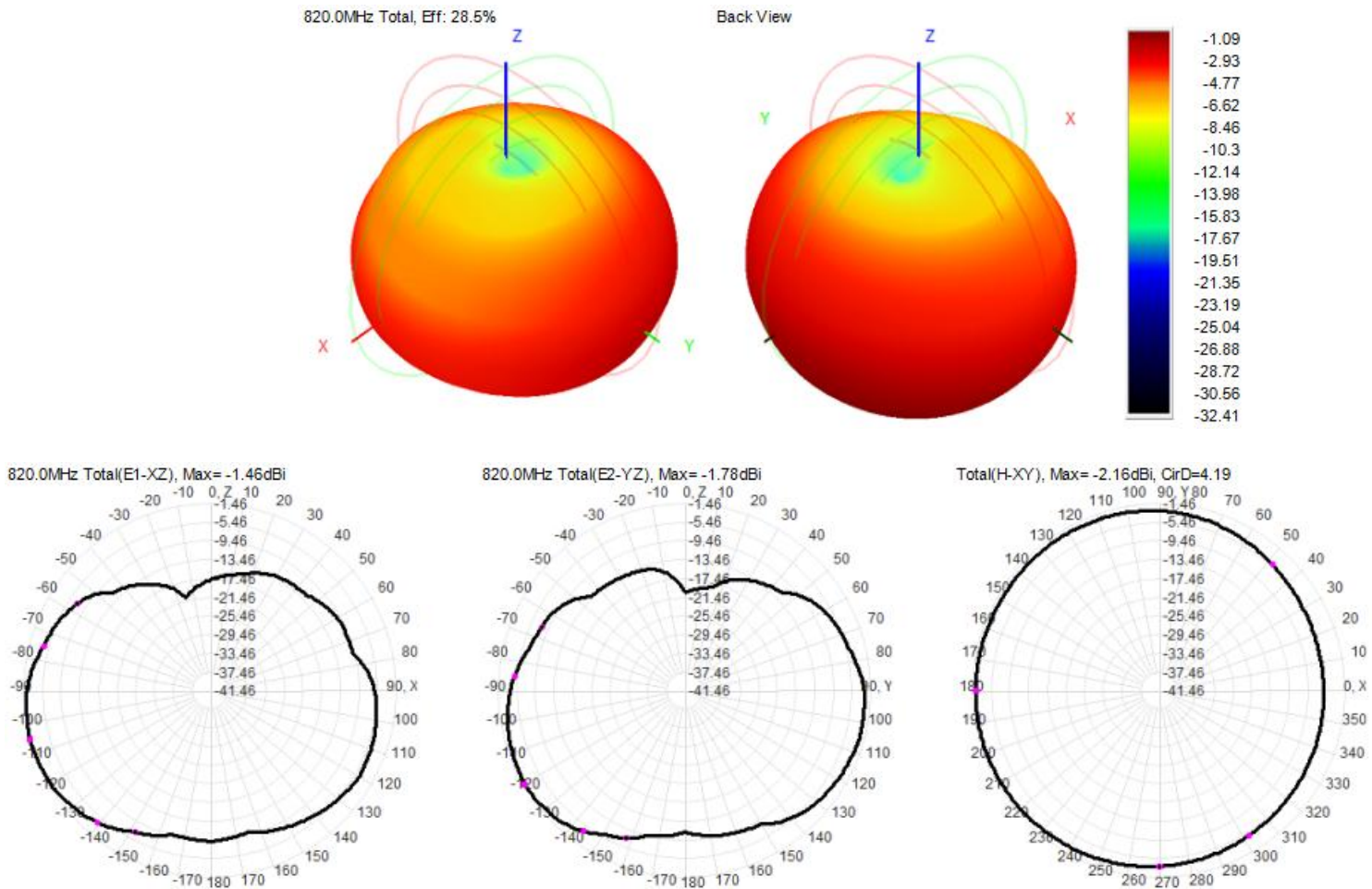
720MHz-800MHZ



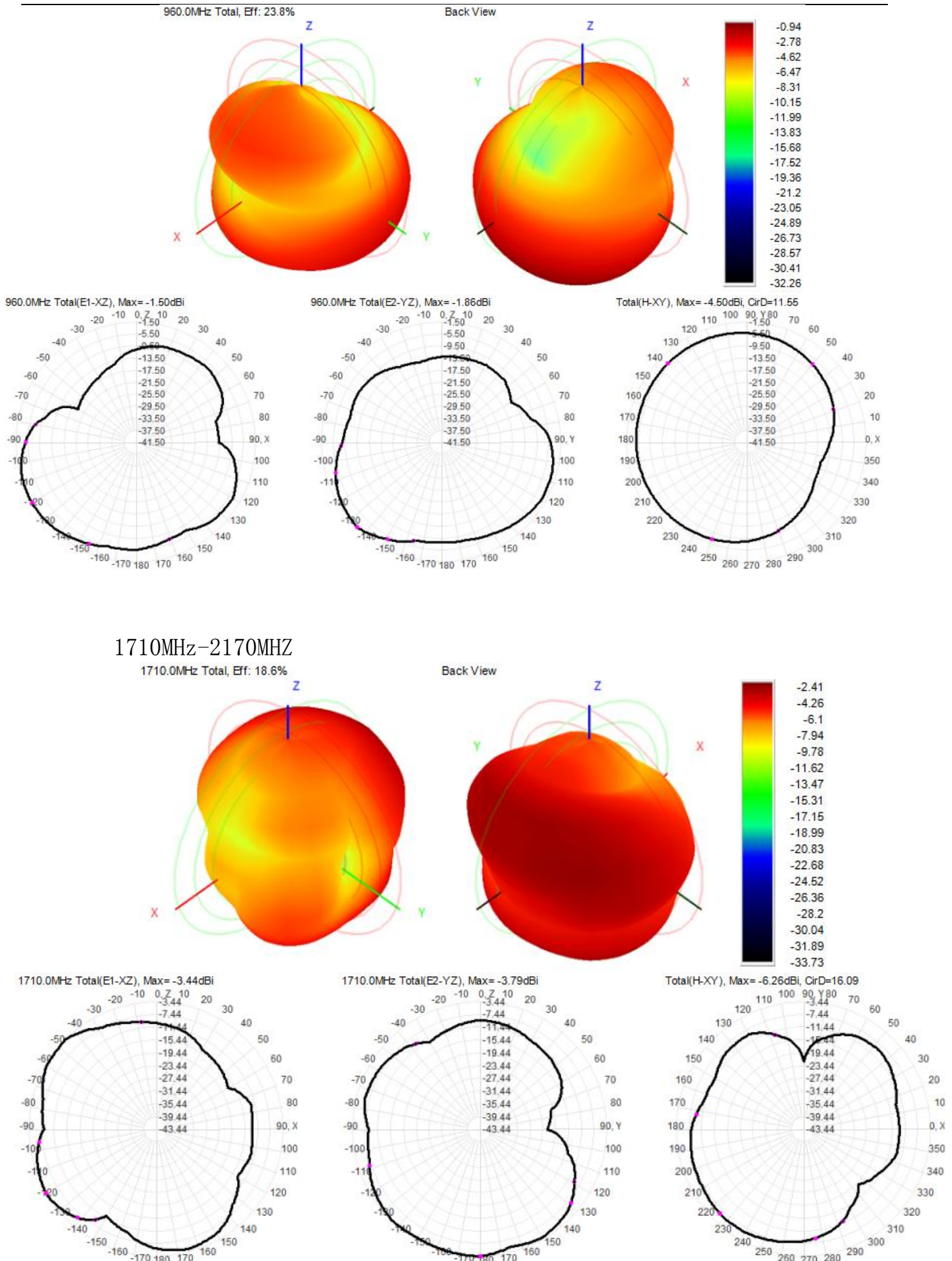
# Confidential Information

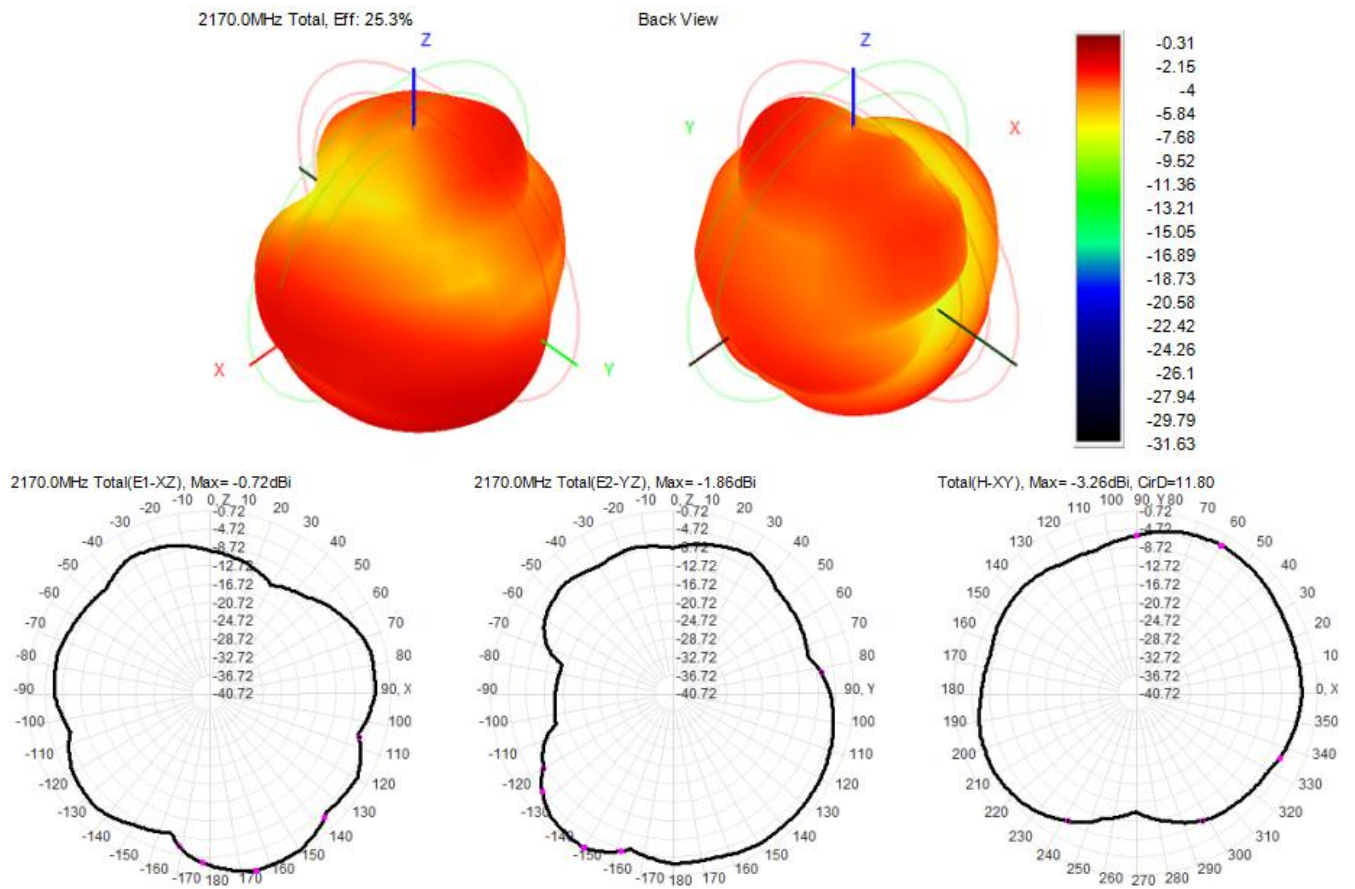


## 820MHz-960MHZ

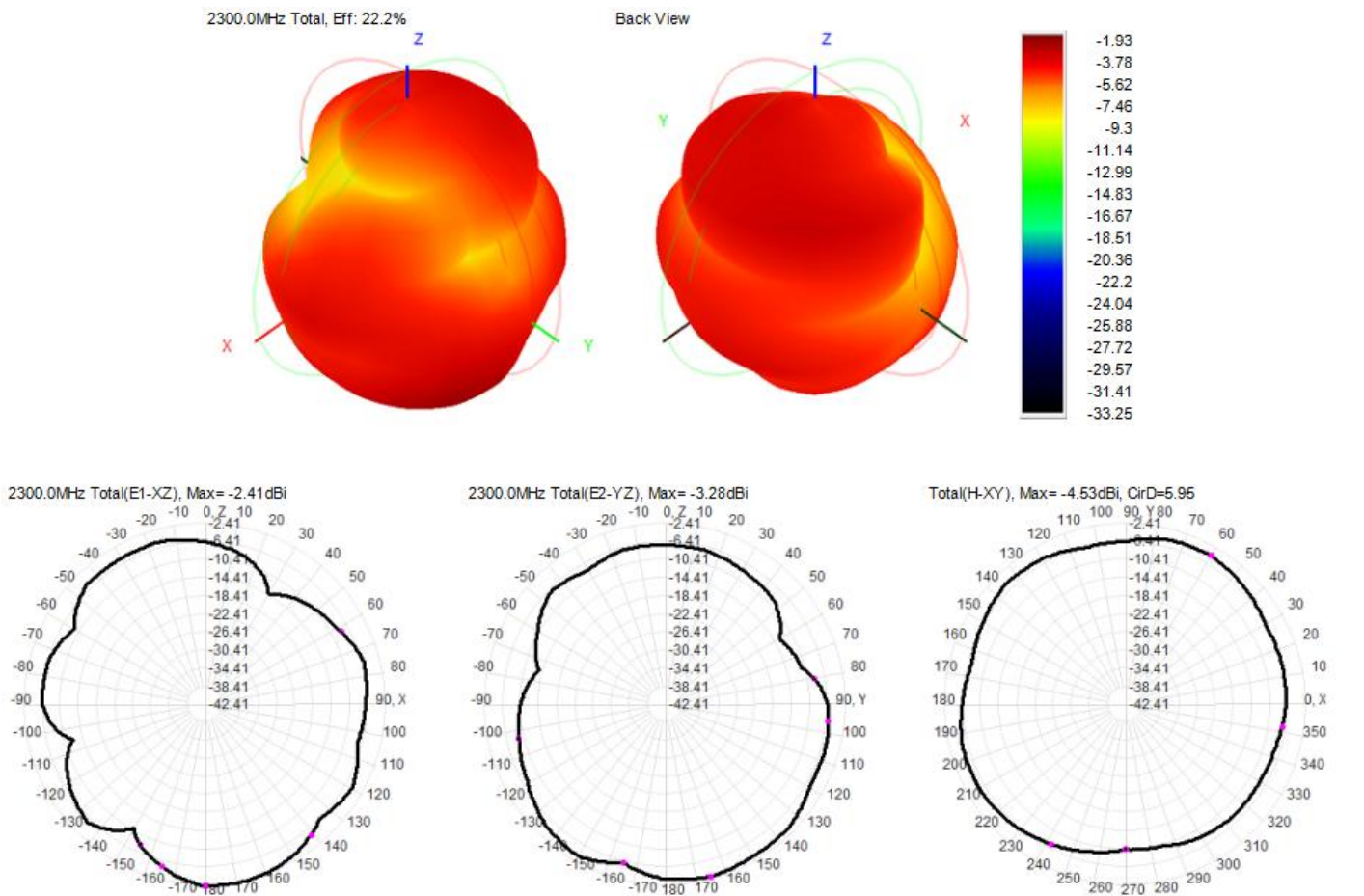


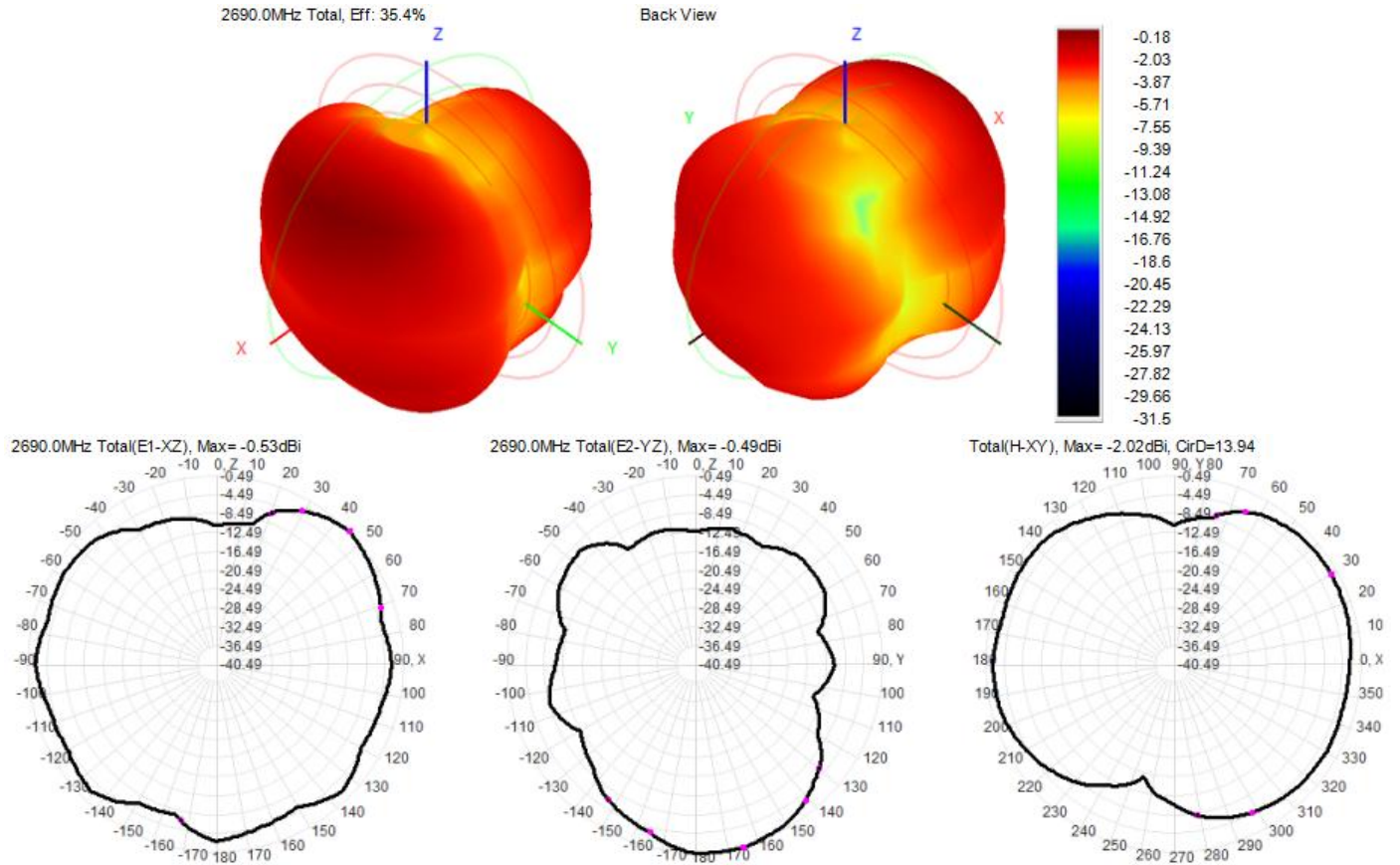
# Confidential Information



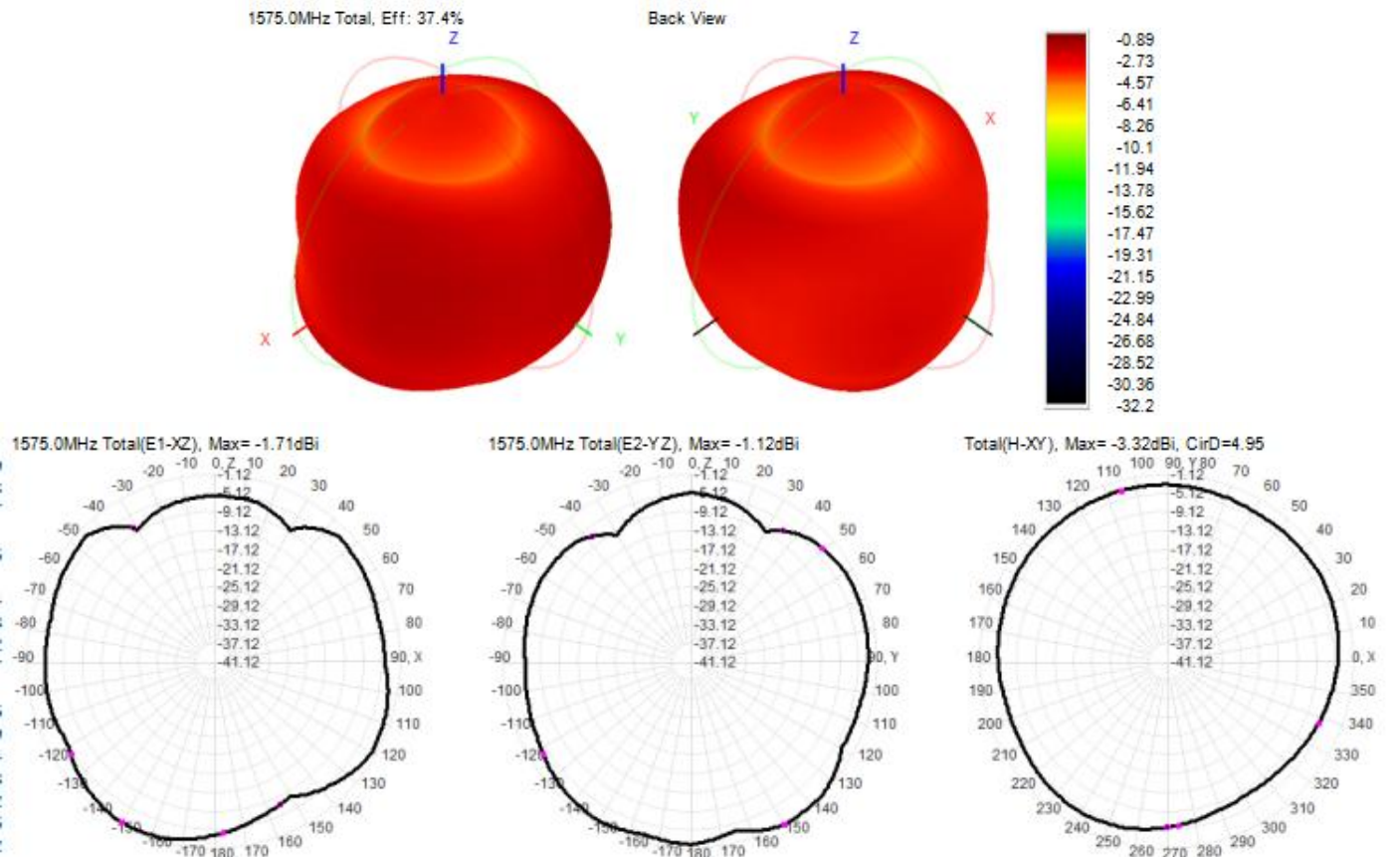


## 2300MHz-2690MHz



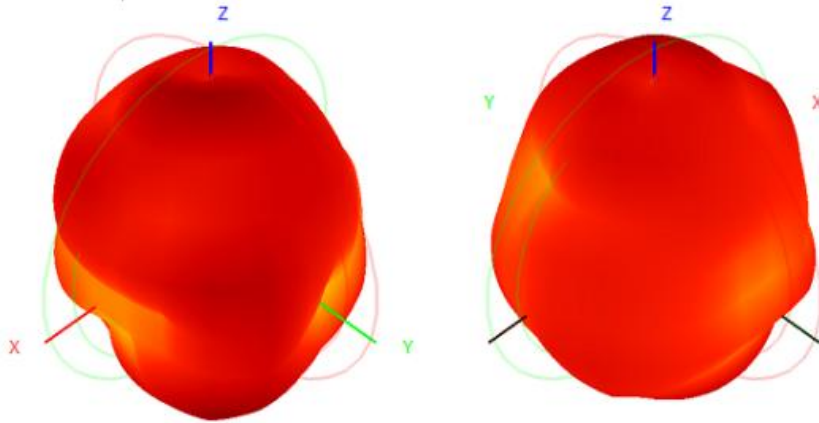


1575MHZ/2400MHZ-2500MHZ

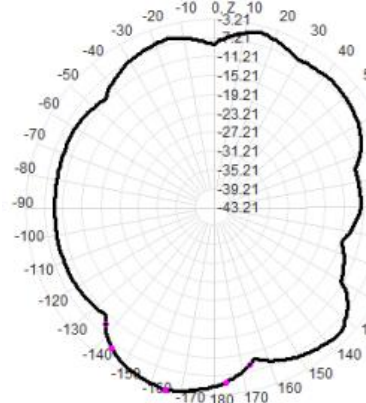


2400.0MHz Total, Eff: 16.6%

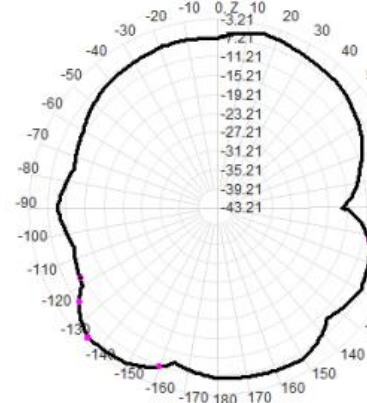
Back View



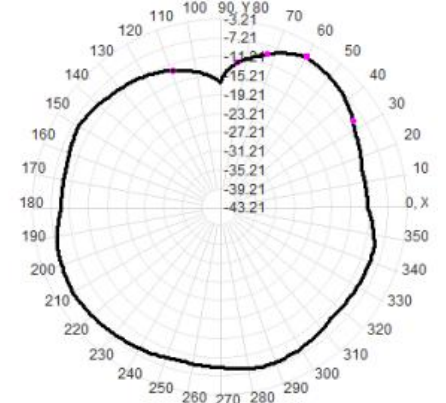
2400.0MHz Total(E1-XZ), Max= -3.21dBi



2400.0MHz Total(E2-YZ), Max= -4.41dBi

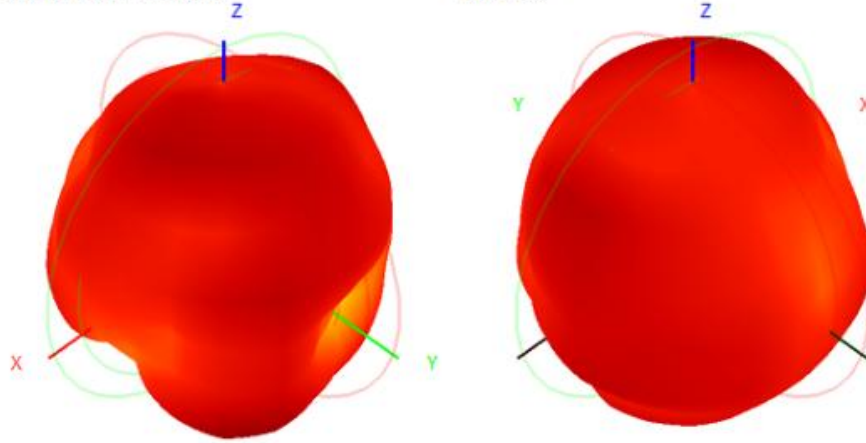


Total(H-XY), Max= -6.31dBi, CirD=10.29

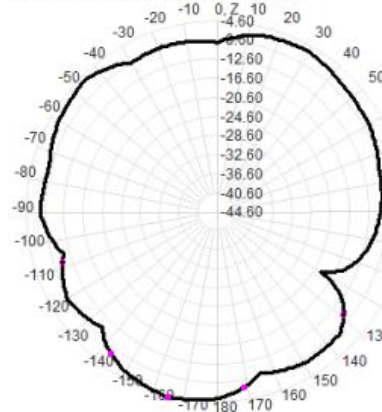


2500.0MHz Total, Eff: 16.6%

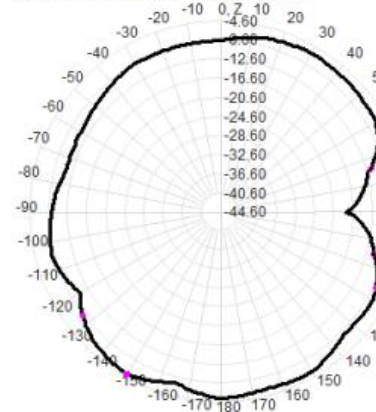
Back View



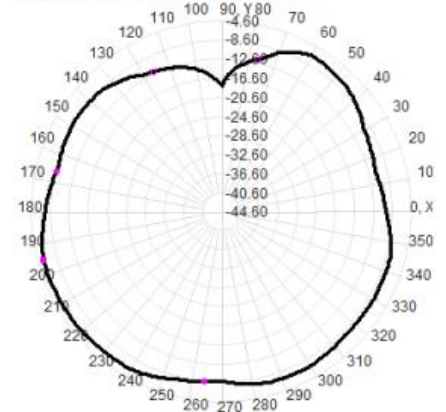
2500.0MHz Total(E1-XZ), Max= -4.60dBi



2500.0MHz Total(E2-YZ), Max= -5.47dBi



Total(H-XY), Max= -5.93dBi, CirD=12.32



**2-3** Active antenna test data

| BAND      | TRP/TIS | L      | M     | H       | BAND    | TRP/TIS | L     | M     | H      |
|-----------|---------|--------|-------|---------|---------|---------|-------|-------|--------|
| GSM850    | TRP     | 24.88  | 25.12 | 25.26   | LTE B5  | TRP     | 15.01 | 15.12 | 15.24  |
|           | TIS     |        |       | -101.23 |         | TIS     |       |       | -86.71 |
| GSM900    | TRP     | 25.24  | 25.43 | 25.54   | LTE B12 | TRP     | 14.88 | 14.93 | 15.01  |
|           | TIS     |        |       | -101.56 |         | TIS     |       |       | -87.86 |
| DCS1800   | TRP     | 23.88  | 24.36 | 24.45   | LTE B17 | TRP     | 14.62 | 14.75 | 14.96  |
|           | TIS     |        |       | -102.48 |         | TIS     |       |       | -87.64 |
| PCS1900   | TRP     | 24.92  | 25.38 | 25.85   | LTE B25 | TRP     | 17.18 | 17.24 | 17.03  |
|           | TIS     |        |       | -102.84 |         | TIS     |       |       | -88.36 |
| WCDMA850  | TRP     | 14.24  | 14.38 | 14.84   | LTE B26 | TRP     | 14.96 | 15.08 | 15.12  |
|           | TIS     |        |       | -100.49 |         | TIS     |       |       | -87.61 |
| WCDMA1700 | TRP     | 14.11  | 14.24 | 14.32   | LTE B66 | TRP     | 15.56 | 15.47 | 15.88  |
|           | TIS     |        |       | -102.41 |         | TIS     |       |       | -86.74 |
| WCDMA1900 | TRP     | 17.18  | 17.22 | 16.84   | LTE B71 | TRP     | 14.11 | 14.38 | 14.42  |
|           | TIS     |        |       | -102.78 |         | TIS     |       |       | -86.68 |
| LTE B2    | TRP     | 17.56  | 17.84 | 17.11   | LTE B41 | TRP     | 14.64 | 14.53 | 15.07  |
|           | TIS     |        |       | -90.41  |         | TIS     |       |       | -88.85 |
| LTE B4    | TRP     | 15.128 | 16.25 | 16.84   |         |         |       |       |        |
|           | TIS     |        |       | -90.22  |         |         |       |       |        |