

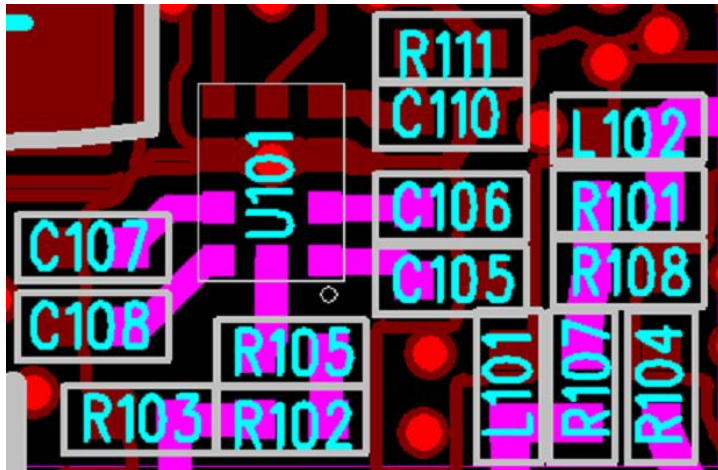
# Antenna Test Report

|                             |                                                                                   |
|-----------------------------|-----------------------------------------------------------------------------------|
| Customer Name               | Shenzhen Chainway Information Technology Co., Ltd                                 |
| FCC ID                      | 2AC6AMC95                                                                         |
| Debugging<br>frequency band | GSM-B2,3,5,8<br>WCDMA-B1,2,4,5,8<br>LTE-B1,2,3,4,5,7,8,12,17,20,28,34,38,39,40,41 |
| Sub antenna                 | NFC,GPS/WIFI/BT                                                                   |
| VERSION                     | V4.0                                                                              |
| RF Engineering              | Peng wei 18565640925                                                              |

## 1.The Equipment of Active Test

1. ETS Chamber 7×4×3(m)/3\*3\*3 (m) (3D Laboratory);
2. Vector network analyzer(Passive tester);
3. Network analyzer-5071E/B/Comprehensive measuring instrument-8960/LTE-RS-CMW500/MT8820C support 2G、 3G、 4G/BT、 WIFI、 NB ;

## 2.Matching Circuit Main (Matching has changed)



| Element | Matching Value |
|---------|----------------|
| R108    | 0.5PF          |
| R101    | 3.3NH          |
| L102    | 18NH           |

Note: Matching details environment processing location.

### 3: Antenna Test

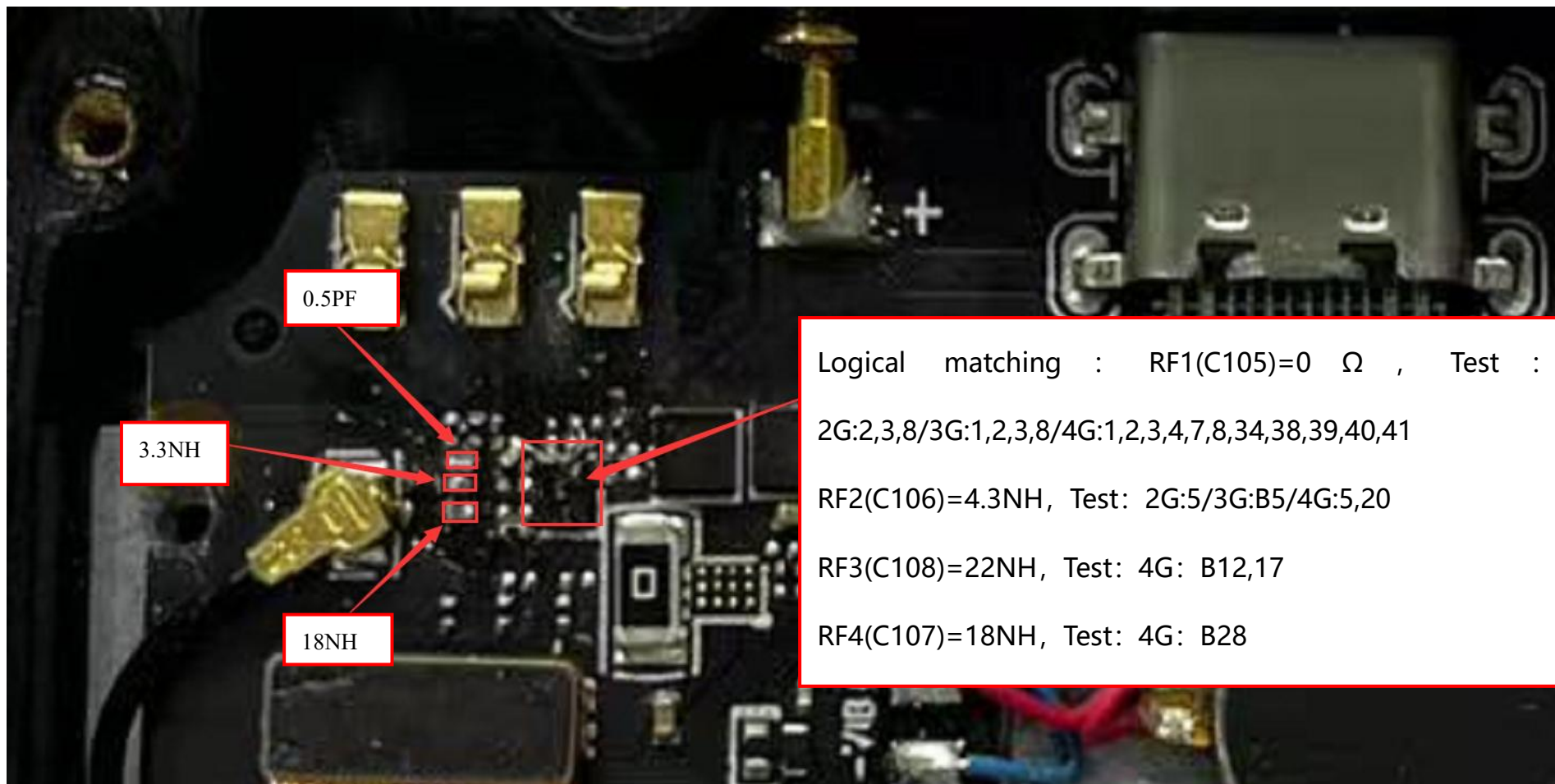
OTA Test data :

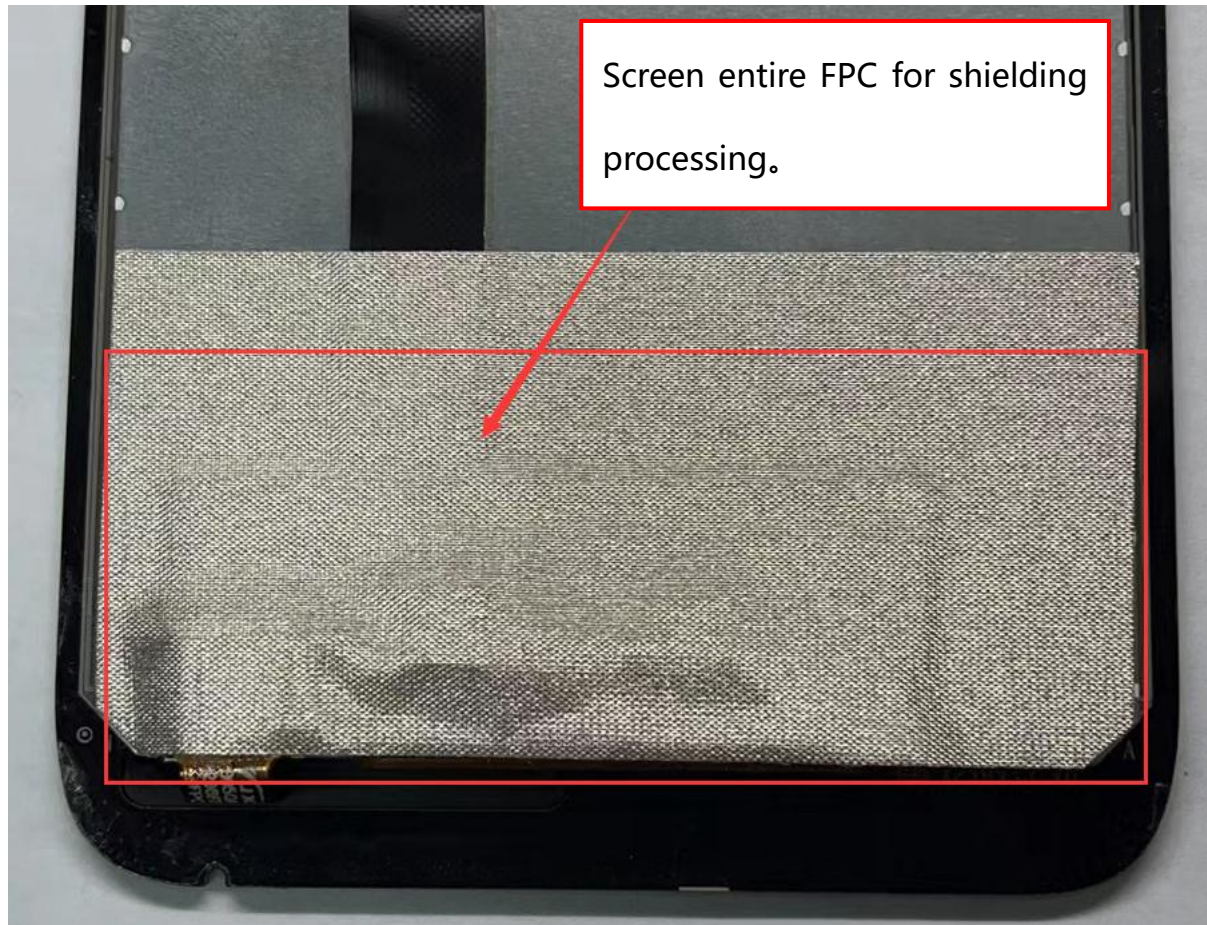
| Model: X35 |            |         |         | Antenna implementation method : FPC |        |         |           |        |         | Unit: dBm |        |         |
|------------|------------|---------|---------|-------------------------------------|--------|---------|-----------|--------|---------|-----------|--------|---------|
| Channel    | GSM850     |         |         | GSM900                              |        |         | DCS1800   |        |         | PCS1900   |        |         |
|            | CH128      | CH192   | CH251   | CH1                                 | CH62   | CH124   | CH512     | CH698  | CH885   | CH512     | CH661  | CH810   |
| TRP        | 26.78      | 27.17   | 27.74   | 27.69                               | 27.84  | 27.23   | 24.61     | 24.37  | 24.10   | 25.32     | 24.97  | 24.65   |
| TIS        |            |         | -101.74 |                                     |        | -102.25 |           |        | -103.48 |           |        | -103.81 |
| Channel    | WCDMA-2100 |         |         | WCDMA-1900                          |        |         | WCDMA-850 |        |         | WCDMA-900 |        |         |
|            | CH10562    | CH10700 | CH10838 | CH9663                              | CH9800 | CH9938  | CH4357    | CH4408 | CH4458  | CH2937    | CH3013 | CH3083  |
| TRP        | 18.26      | 17.81   | 17.51   | 17.62                               | 17.89  | 18.22   | 17.79     | 18.11  | 18.25   | 17.42     | 17.73  | 17.10   |
| TIS        |            |         | -102.32 |                                     |        | -103.98 |           |        | -103.17 |           |        | -102.64 |

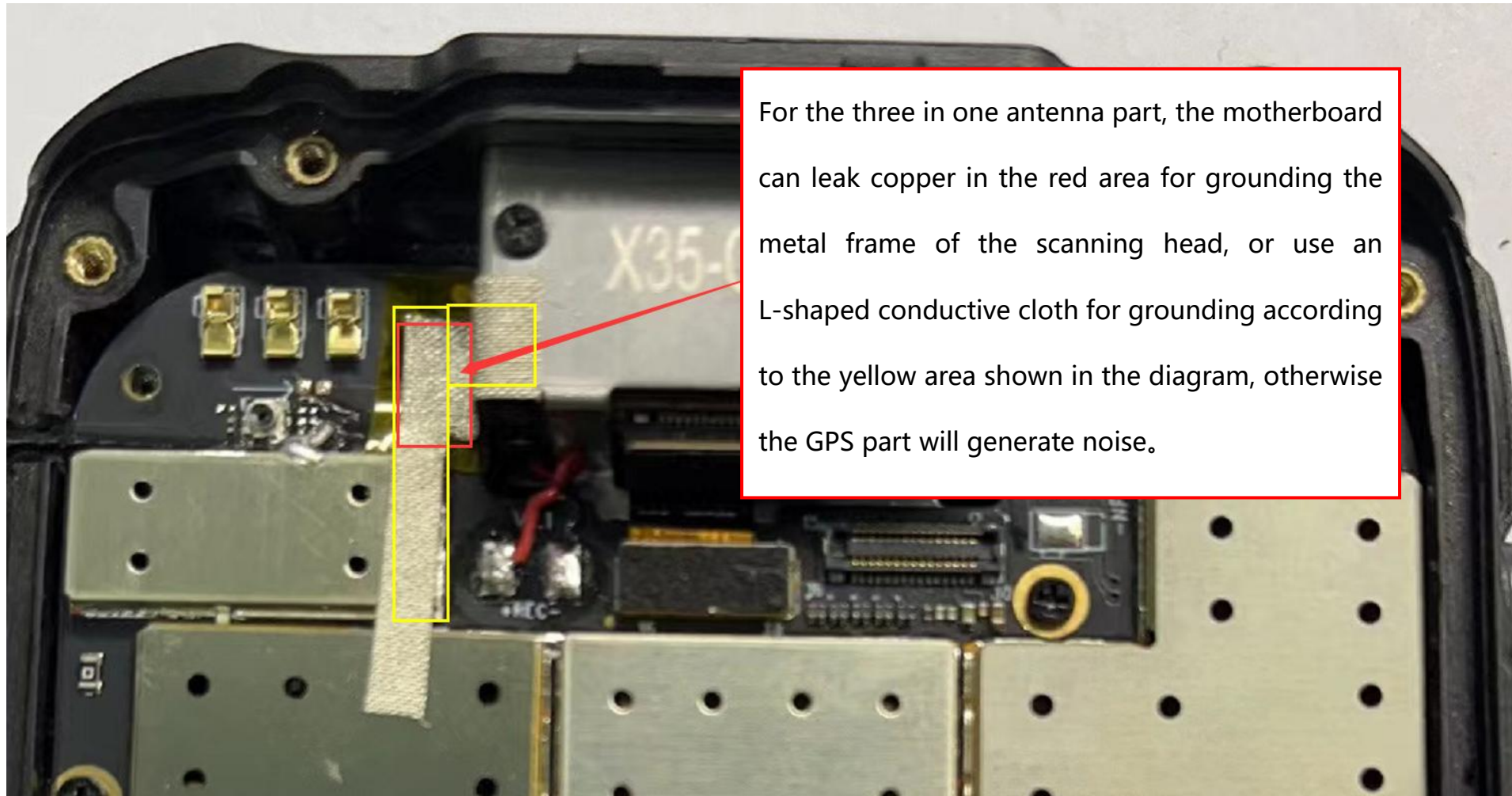
| Channel | LTE-FDD-B1  |         |         | LTE-FDD-B2  |         |         | LTE-FDD-B3  |         |         | LTE-FDD-B4  |         |         |
|---------|-------------|---------|---------|-------------|---------|---------|-------------|---------|---------|-------------|---------|---------|
|         | CH18050     | CH18300 | CH18550 | CH18650     | CH18900 | CH19150 | CH19250     | CH19575 | CH19900 | CH20000     | CH20175 | CH20350 |
| TRP     | 18.21       | 18.44   | 18.62   | 18.11       | 18.38   | 18.32   | 17.12       | 17.70   | 17.28   | 17.51       | 17.83   | 17.79   |
| TIS     |             |         | -91.25  |             |         | -92.55  |             |         | -92.07  |             |         | -92.09  |
| Channel | LTE-FDD-B5  |         |         | LTE-FDD-B7  |         |         | LTE-FDD-B8  |         |         | LTE-FDD-B12 |         |         |
|         | CH20450     | CH20525 | CH20600 | CH20800     | CH21100 | CH21400 | CH21500     | CH21625 | CH21750 | CH23060     | CH23095 | CH23130 |
| TRP     | 17.18       | 17.46   | 17.63   | 17.77       | 17.75   | 18.07   | 17.83       | 18.01   | 17.76   | 16.44       | 16.01   | 16.51   |
| TIS     |             |         | -91.12  |             |         | -92.02  |             |         | -90.03  |             |         | -91.23  |
| Channel | LTE-FDD-B17 |         |         | LTE-FDD-B20 |         |         | LTE-FDD-B28 |         |         | WCDMA-1700  |         |         |
|         | CH23780     | CH23790 | CH23800 | CH24200     | CH24300 | CH24400 | CH27260     | CH27435 | CH27610 | CH1537      | CH1638  | CH1738  |
| TRP     | 16.03       | 16.28   | 16.15   | 17.43       | 17.68   | 18.16   | 16.25       | 16.40   | 16.12   | 17.19       | 17.38   | 17.77   |
| TIS     |             |         | -91.04  |             |         | -92.35  |             |         | -89.16  |             |         | -102.41 |

| Channel | LTE-TDD-B38 |         |         | LTE-TDD-B39 |         |         | LTE-TDD-B40 |         |         | LTE-TDD-B41 |         |         |
|---------|-------------|---------|---------|-------------|---------|---------|-------------|---------|---------|-------------|---------|---------|
|         | CH37850     | CH38000 | CH38150 | CH38350     | CH38450 | CH38550 | CH38750     | CH39150 | CH39550 | CH40340     | CH40620 | CH41140 |
| TRP     | 18.09       | 18.58   | 18.44   | 17.76       | 18.10   | 18.38   | 16.81       | 17.40   | 17.09   | 18.14       | 18.53   | 18.22   |
| TIS     |             |         | -92.37  |             |         | -91.91  |             |         | -92.03  |             |         | -91.87  |

#### 4: Environmental treatment







For the three in one antenna part, the motherboard can leak copper in the red area for grounding the metal frame of the scanning head, or use an L-shaped conductive cloth for grounding according to the yellow area shown in the diagram, otherwise the GPS part will generate noise.

## 5: GPS/WIFI/BT

|      |                              |                        |                                              |         |
|------|------------------------------|------------------------|----------------------------------------------|---------|
| GPS  | Maximum signal strength      | Number of search stars | Positioning time (s)                         | Weather |
|      | 40                           | 18                     | 60-90                                        | 晴       |
| WIFI | Normal internet distance (m) |                        | Online browsing for smooth flow distance (m) |         |
|      | 12-15                        |                        | 10-12                                        |         |
| BT   | Clear call distance (m)      |                        |                                              |         |
|      | 10-12                        |                        |                                              |         |

11:10

YGPS

SAT  
EL  
LITES  
CNR

SAT  
EL  
LITES  
LOC

INFO  
RMAT  
ION

NMEA  
LOG

GPS  
TEST

MPE  
STAT  
US

G:GPS R:GLN B:BD E:GAL Q:QZS L:L1S I:IRNSS S:SBAS

Average CNR

☐ Show in single page

G:32.2/-/-/- R:33.8/-/-/-  
B:30.8/-/-/- E:-/-/-/- Q:38.0/-/-/-  
L:-/-/-/- I:-/-/-/- S:-/-/-/-

| SVID  | Fq   | CNR   | Elevation | Azimuth |
|-------|------|-------|-----------|---------|
| 4 L1  | 31.9 | 0.00  | 0.00      |         |
| 8 L1  | 40.3 | 72.00 | 229.00    |         |
| 9 L1  | 38.6 | 38.00 | 292.00    |         |
| 14 L1 | 0.0  | 43.00 | 333.00    |         |
| 16 L1 | 25.7 | 36.00 | 33.00     |         |
| 21 L1 | 39.0 | 20.00 | 171.00    |         |
| 27 L1 | 17.5 | 0.00  | 0.00      |         |
| 67 L1 | 34.6 | 20.00 | 214.00    |         |
| 68 L1 | 0.0  | 29.00 | 269.00    |         |
| 69 L1 | 37.5 | 10.00 | 318.00    |         |
| 78 L1 | 19.2 | 35.00 | 349.00    |         |
| 79 L1 | 39.4 | 7.00  | 305.00    |         |
| 88 L1 | 38.5 | 58.00 | 111.00    |         |
| 1 L1  | 32.6 | 0.00  | 0.00      |         |

## 6: NFC Antenna

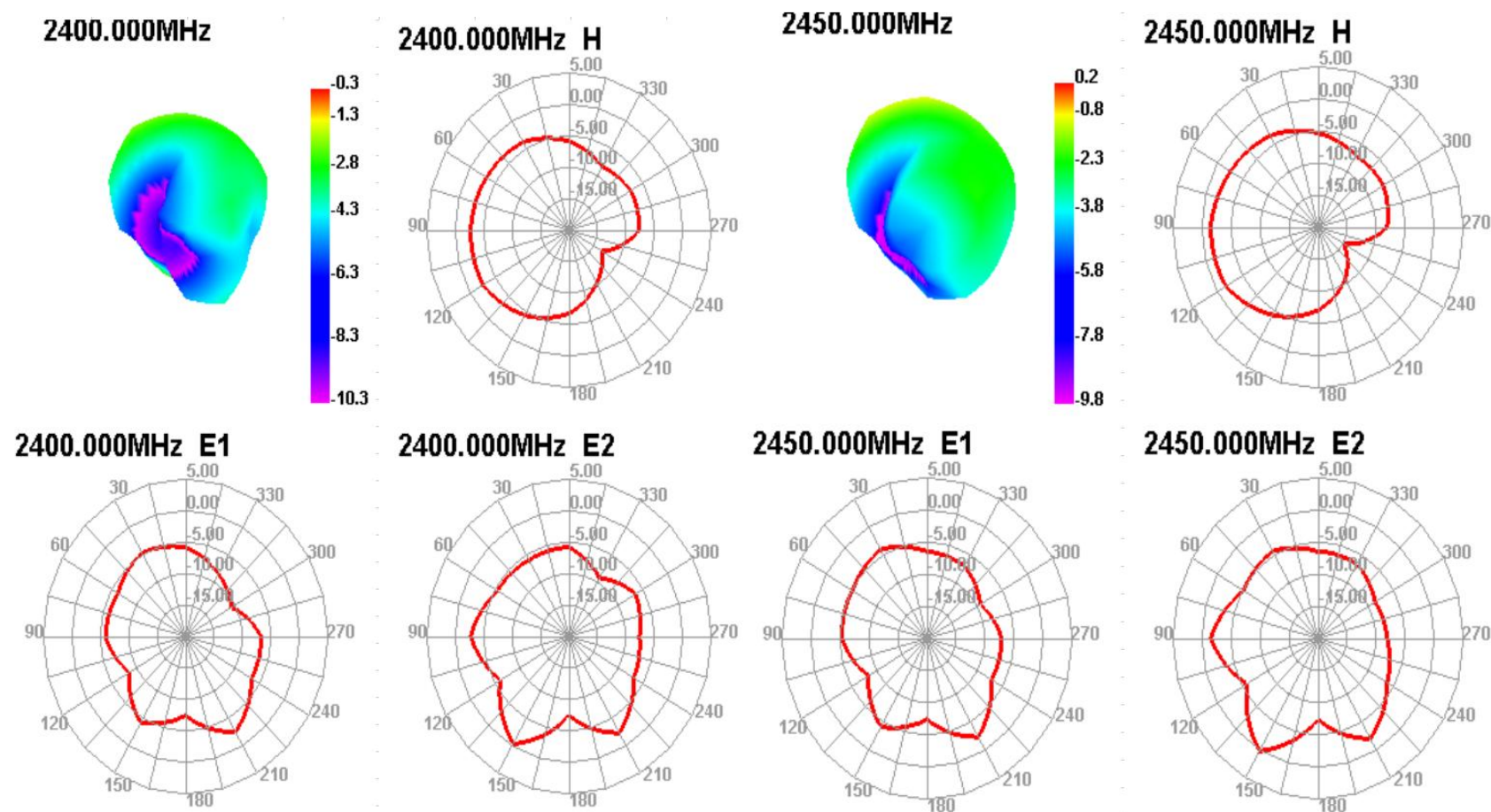
Measured data:

| Test Card Category | Actual distance(mm) |
|--------------------|---------------------|
| Type 1             | $\geq 30$           |
| Type 2             | $\geq 30$           |
| Type 3             | $\geq 30$           |
| Type 4             | $\geq 15$           |
| Type 5             | $\geq 45$           |

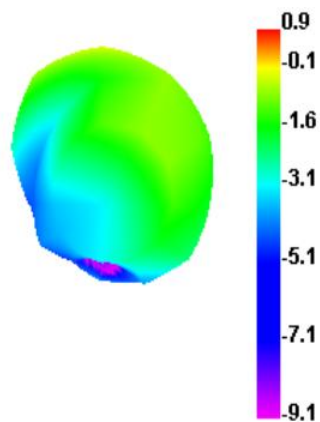
## 7: Gain

|          |         |         |    |     |         |
|----------|---------|---------|----|-----|---------|
| 2G       | 850     | -0.6dBi | 4G | B1  | +0.7dBi |
|          | 900     | -0.5dBi |    | B2  | +0.5dBi |
|          | 1800    | +0.5dBi |    | B3  | +0.5dBi |
|          | 1900    | +0.5dBi |    | B4  | +0.5dBi |
| 3G       | B1      | +0.7dBi |    | B5  | -0.6dBi |
|          | B2      | +0.5dBi |    | B7  | +0.6dBi |
|          | B4      | +0.5dBi |    | B8  | -0.5dBi |
|          | B5      | -0.6dBi |    | B12 | -0.8dBi |
|          | B8      | -0.5dBi |    | B17 | -0.8dBi |
| 2.4-WIFI | +0.5dBi |         |    | B20 | -0.6dBi |
| 5.8-WiFi | +0.5dBi |         |    | B28 | -0.8dBi |
| BT       | +0.5dBi |         |    | B34 | +0.6dBi |
|          |         |         |    | B38 | +0.6dBi |
|          |         |         |    | B39 | +0.5dBi |
|          |         |         |    | B40 | +0.6dBi |
|          |         |         |    | B41 | +0.6dBi |

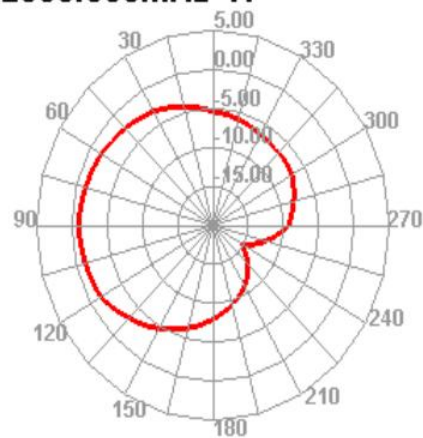
## 8: 3D parameter



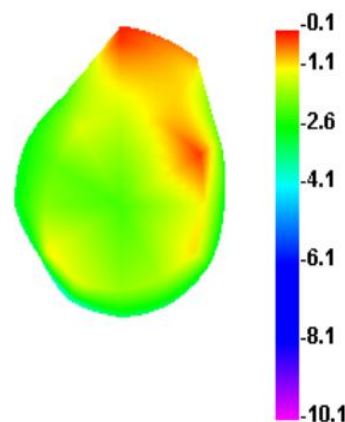
2500.000MHz



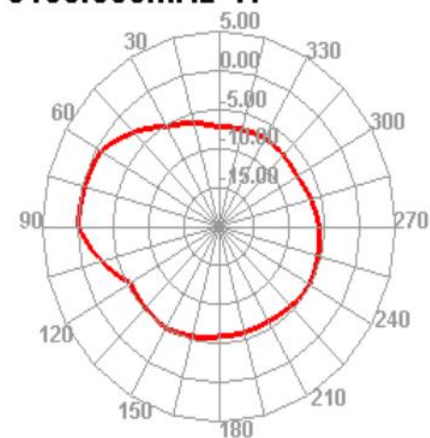
2500.000MHz H



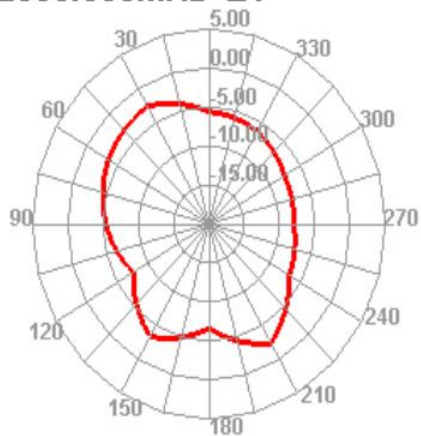
5150.000MHz



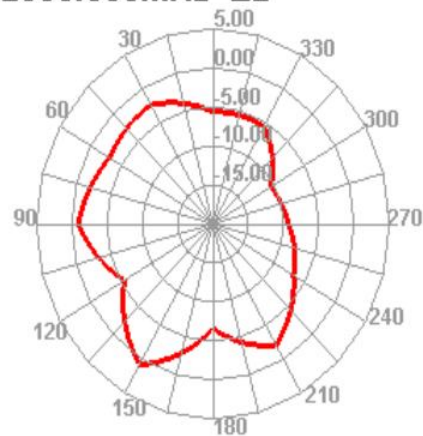
5150.000MHz H



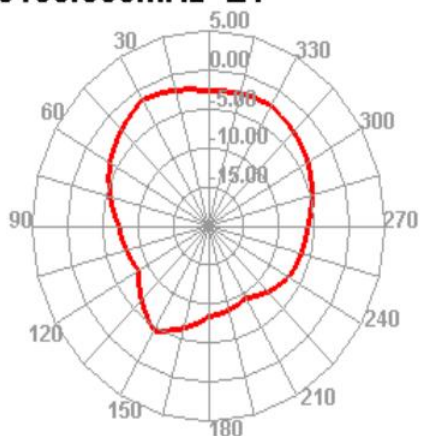
2500.000MHz E1



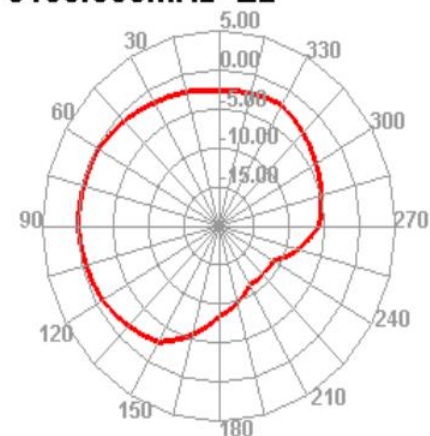
2500.000MHz E2



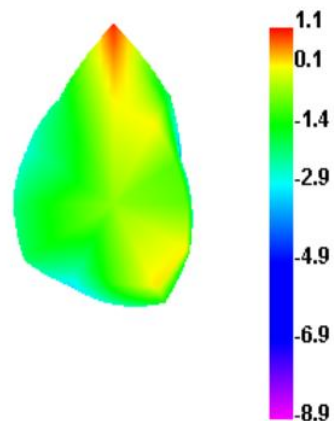
5150.000MHz E1



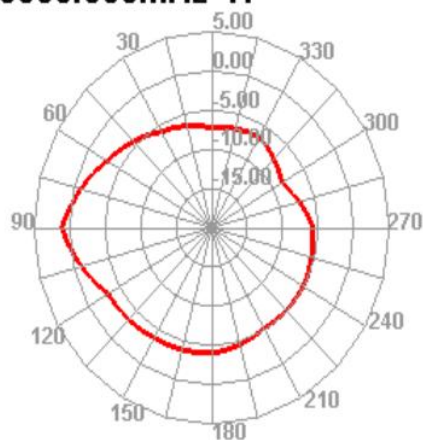
5150.000MHz E2



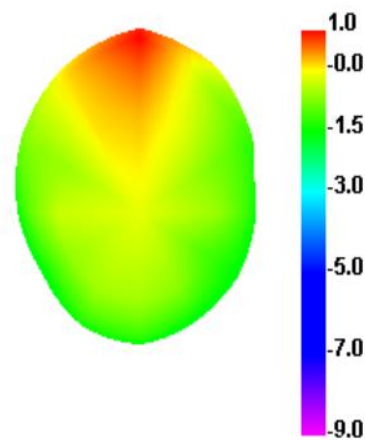
5500.000MHz



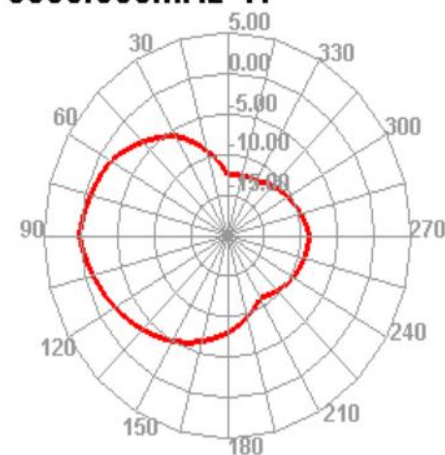
5500.000MHz H



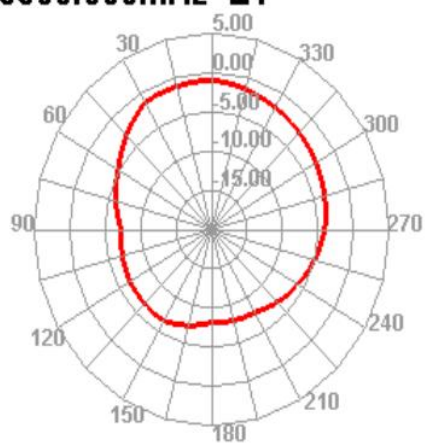
5850.000MHz



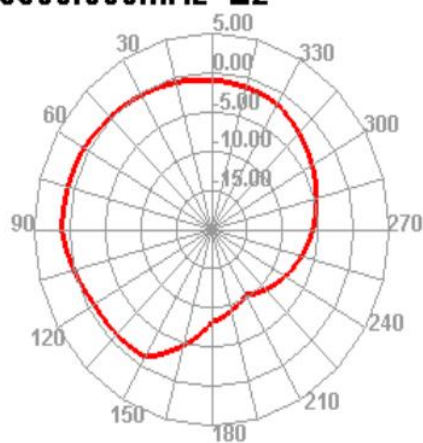
5850.000MHz H



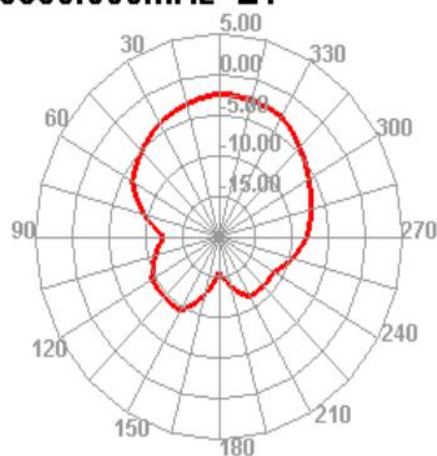
5500.000MHz E1



5500.000MHz E2



5850.000MHz E1



5850.000MHz E2

