

# SPECIFICATION

## 深圳市德昶科技有限公司

ShenZhen Takchang Technology Co., Ltd

### Antenna specification

|        |                |     |                 |    |
|--------|----------------|-----|-----------------|----|
| 客 户    |                | 频 段 | 698MHz-2700 MHz |    |
| 项目名称   | FA79-G4CQK     |     | 版 本             |    |
| 项目料号   | DCA-FA79-QK-4G |     | 颜 色             | 黑色 |
| R F 设计 |                |     | 结构设计            |    |
| 日 期    |                |     |                 |    |
| 客户确认：  |                |     |                 |    |
|        |                |     |                 |    |

## 深圳市德昶科技有限公司

ShenZhen Takchang Technology Co., Ltd

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## 1、Antenna overview

### 1.1、Specification picture

The admission document mainly provides the test status of the electrical and structural performance parameters of the antenna of the FA79 project. The following is a picture of our antenna design.

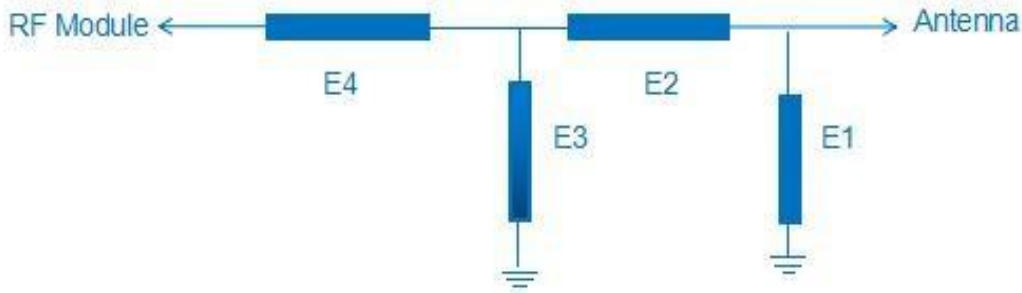
### 1.2、Electrical specifications.

#### 1.2.1、Electrical performance index

The working frequency band of the antenna of this project is 824MHz-2700 MHz. The following is the electrical performance index of the antenna designed and trial-produced by our company.

| Frequency band             | Frequency (MHz) | VSWR |
|----------------------------|-----------------|------|
| FDD B1/2/3/5/7/8/12/20/28A | 698MHz-2700 MHz | ≤3.5 |
| 2.4G                       | 2400-2500       | ≤3.5 |

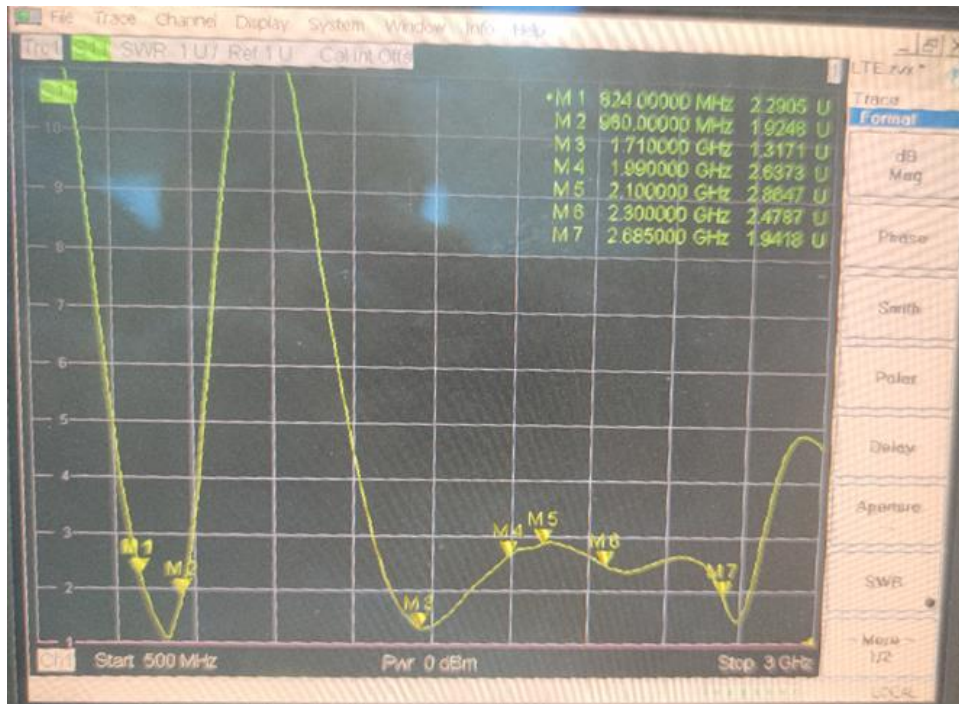
#### 1.2.2、Match the circuit diagram



The matching circuit of the antenna is the original match of the motherboard, and has not been changed.

### 1.3、Passive testing

#### 1.3.1、Antenna Standing Wave Test (VSWR)



#### 1.3.2、Antenna gain, efficiency

| 4G Antenna                |          |           |            |            |          |          |                   |           |           |
|---------------------------|----------|-----------|------------|------------|----------|----------|-------------------|-----------|-----------|
| Passive Test For 700-1000 |          |           |            |            |          |          |                   |           |           |
| Freq (MHz)                | Effi (%) | Effi (dB) | Gain (dBi) | Gain (dBd) | Max (dB) | Min (dB) | Directivity (dBi) | AttH (dB) | AttV (dB) |
| 700                       | 12.32    | -9.09     | -6.22      | -8.37      | -6.22    | -15.51   | 2.87              | 36.61     | 36.05     |
| 710                       | 14.24    | -8.46     | -5.91      | -8.06      | -5.91    | -14.82   | 2.55              | 36.34     | 35.72     |
| 720                       | 13.88    | -8.58     | -6.37      | -8.52      | -6.37    | -15.21   | 2.21              | 36.33     | 35.66     |
| 730                       | 18.57    | -7.31     | -5.41      | -7.56      | -5.41    | -14.54   | 1.91              | 36.49     | 35.83     |
| 740                       | 21.3     | -6.72     | -4.71      | -6.86      | -4.71    | -14.68   | 2.01              | 36.4      | 35.77     |
| 750                       | 15.72    | -8.04     | -6.05      | -8.2       | -6.05    | -16.82   | 1.99              | 36.25     | 35.63     |
| 760                       | 15.01    | -8.24     | -6.39      | -8.54      | -6.39    | -17.94   | 1.85              | 36.38     | 35.84     |
| 780                       | 12.99    | -8.86     | -7.12      | -9.27      | -7.12    | -19.36   | 1.75              | 36.47     | 36.06     |
| 790                       | 13.18    | -8.8      | -6.28      | -8.43      | -6.28    | -19.59   | 2.53              | 36.81     | 37.15     |
| 800                       | 22.47    | -6.48     | -3.85      | -6         | -3.85    | -18.4    | 6.48              | 39.72     | 38.65     |
| 810                       | 19.22    | -7.16     | -4.32      | -6.47      | -4.32    | -20.38   | 7.16              | 39.09     | 37.95     |
| 820                       | 18.89    | -7.24     | -4.13      | -6.28      | -4.13    | -21.69   | 7.24              | 38.92     | 37.82     |
| 830                       | 24.29    | -6.14     | -2.67      | -4.82      | -2.67    | -21.37   | 6.14              | 39.17     | 38.24     |
| 840                       | 24.96    | -6.03     | -2.21      | -4.36      | -2.21    | -20.99   | 6.03              | 39.02     | 38.29     |
| 850                       | 26.06    | -5.84     | -1.78      | -3.93      | -1.78    | -20.06   | 5.84              | 38.83     | 38.24     |
| 860                       | 32.27    | -4.91     | -0.72      | -2.87      | -0.72    | -18.4    | 4.91              | 39.11     | 38.64     |
| 870                       | 37.51    | -4.26     | 0.01       | -2.14      | 0.01     | -17.38   | 4.26              | 38.85     | 38.62     |
| 880                       | 43.27    | -3.64     | 0.65       | -1.5       | 0.65     | -16.88   | 3.64              | 38.95     | 38.95     |
| 890                       | 44.69    | -3.5      | 0.77       | -1.38      | 0.77     | -17.29   | 3.5               | 38.86     | 39.1      |
| 900                       | 51.86    | -2.85     | 1.32       | -0.83      | 1.32     | -17.89   | 2.85              | 38.63     | 39.03     |
| 910                       | 56.46    | -2.48     | 1.6        | -0.55      | 1.6      | -19.89   | 2.48              | 38.81     | 39.28     |
| 920                       | 56.4     | -2.49     | 1.75       | -0.4       | 1.75     | -23.22   | 2.49              | 38.54     | 39.19     |
| 930                       | 55.54    | -2.55     | 1.93       | -0.22      | 1.93     | -23.44   | 2.55              | 38.39     | 39.2      |
| 940                       | 53.55    | -2.71     | 2.02       | -0.13      | 2.02     | -19.31   | 2.71              | 38.42     | 39.47     |

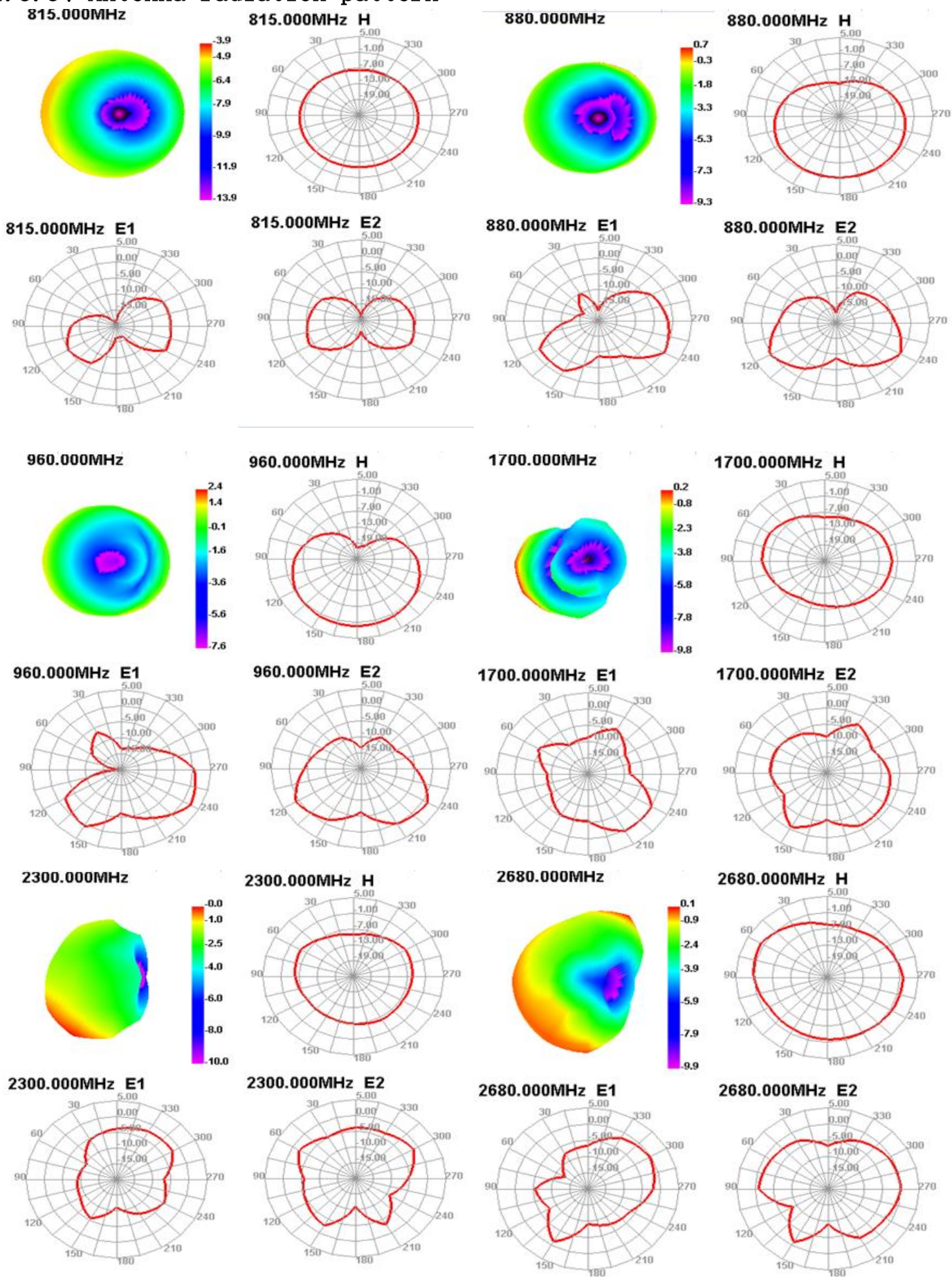
|      |       |       |      |       |      |        |      |       |       |
|------|-------|-------|------|-------|------|--------|------|-------|-------|
| 950  | 54.68 | -2.62 | 2.28 | 0.13  | 2.28 | -21.37 | 2.62 | 38.6  | 39.94 |
| 960  | 55.78 | -2.53 | 2.43 | 0.28  | 2.43 | -21.01 | 2.53 | 38.58 | 40.13 |
| 970  | 55.85 | -2.53 | 2.35 | 0.2   | 2.35 | -18.98 | 2.53 | 38.65 | 40.36 |
| 980  | 51.33 | -2.9  | 1.81 | -0.34 | 1.81 | -16.86 | 2.9  | 38.72 | 40.53 |
| 990  | 49.6  | -3.04 | 1.53 | -0.62 | 1.53 | -14.88 | 3.04 | 38.71 | 40.53 |
| 1000 | 48.87 | -3.11 | 1.34 | -0.81 | 1.34 | -13.99 | 3.11 | 38.75 | 40.38 |

| Passive Test For 1700-2700 |       |       |       |       |       |        |             |       |       |
|----------------------------|-------|-------|-------|-------|-------|--------|-------------|-------|-------|
| Freq                       | Effi  | Effi  | Gain  | Gain  | Max   | Min    | Directivity | AttH  | AttV  |
| 1700                       | 38.4  | -4.16 | 0.18  | -1.97 | 0.18  | -11.94 | 4.16        | 44.49 | 45.4  |
| 1710                       | 45.19 | -3.45 | 0.92  | -1.23 | 0.92  | -11.12 | 3.45        | 44.76 | 45.64 |
| 1720                       | 44.01 | -3.56 | 0.9   | -1.25 | 0.9   | -10.69 | 3.56        | 44.58 | 45.38 |
| 1730                       | 41.77 | -3.79 | 0.79  | -1.36 | 0.79  | -10.34 | 3.79        | 44.5  | 45.28 |
| 1740                       | 51.42 | -2.89 | 1.77  | -0.38 | 1.77  | -8.77  | 2.89        | 44.96 | 45.72 |
| 1750                       | 52.25 | -2.82 | 1.93  | -0.22 | 1.93  | -8.25  | 2.82        | 44.81 | 45.59 |
| 1760                       | 49.66 | -3.04 | 1.79  | -0.36 | 1.79  | -8.78  | 3.04        | 44.76 | 45.56 |
| 1770                       | 48.19 | -3.17 | 1.76  | -0.39 | 1.76  | -9.15  | 3.17        | 44.58 | 45.31 |
| 1780                       | 51.02 | -2.92 | 2.14  | -0.01 | 2.14  | -9.05  | 2.92        | 44.69 | 45.37 |
| 1790                       | 50.76 | -2.94 | 2.2   | 0.05  | 2.2   | -8.97  | 2.94        | 44.74 | 45.42 |
| 1800                       | 45.22 | -3.45 | 1.75  | -0.4  | 1.75  | -9.86  | 3.45        | 44.64 | 45.32 |
| 1810                       | 48.74 | -3.12 | 2.07  | -0.08 | 2.07  | -10.27 | 3.12        | 44.72 | 45.4  |
| 1820                       | 49.95 | -3.01 | 2.14  | -0.01 | 2.14  | -11.02 | 3.01        | 44.81 | 45.47 |
| 1830                       | 45.26 | -3.44 | 1.63  | -0.52 | 1.63  | -12.63 | 3.44        | 44.77 | 45.38 |
| 1840                       | 44.39 | -3.53 | 1.47  | -0.68 | 1.47  | -14.42 | 3.53        | 44.81 | 45.37 |
| 1850                       | 46.35 | -3.34 | 1.58  | -0.57 | 1.58  | -16.25 | 3.34        | 44.96 | 45.48 |
| 1860                       | 48.78 | -3.12 | 1.73  | -0.42 | 1.73  | -17.9  | 3.12        | 45.24 | 45.74 |
| 1870                       | 46.06 | -3.37 | 1.42  | -0.73 | 1.42  | -19.67 | 3.37        | 45.17 | 45.69 |
| 1880                       | 45.99 | -3.37 | 1.4   | -0.75 | 1.4   | -20.22 | 3.37        | 45.44 | 45.9  |
| 1890                       | 48.94 | -3.1  | 1.66  | -0.49 | 1.66  | -19.59 | 3.1         | 45.37 | 45.83 |
| 1900                       | 47.56 | -3.23 | 1.53  | -0.62 | 1.53  | -18.93 | 3.23        | 45.4  | 45.81 |
| 1910                       | 46.09 | -3.36 | 1.34  | -0.81 | 1.34  | -18.04 | 3.36        | 45.51 | 45.99 |
| 1920                       | 46.57 | -3.32 | 1.25  | -0.9  | 1.25  | -16.29 | 3.32        | 45.44 | 46.01 |
| 1930                       | 45.84 | -3.39 | 1.02  | -1.13 | 1.02  | -14.89 | 3.39        | 45.44 | 46.1  |
| 1940                       | 47.68 | -3.22 | 1     | -1.15 | 1     | -13.35 | 3.22        | 45.59 | 46.24 |
| 1950                       | 45.81 | -3.39 | 0.85  | -1.3  | 0.85  | -12.36 | 3.39        | 45.49 | 46.14 |
| 1960                       | 46.93 | -3.29 | 0.98  | -1.17 | 0.98  | -11.39 | 3.29        | 45.78 | 46.35 |
| 1970                       | 44.99 | -3.47 | 0.84  | -1.31 | 0.84  | -11.69 | 3.47        | 45.79 | 46.39 |
| 1980                       | 43.98 | -3.57 | 0.94  | -1.21 | 0.94  | -11.56 | 3.57        | 46.11 | 46.68 |
| 1990                       | 45.47 | -3.42 | 1.25  | -0.9  | 1.25  | -10.92 | 3.42        | 46.19 | 46.76 |
| 2000                       | 45.52 | -3.42 | 1.34  | -0.81 | 1.34  | -11.38 | 3.42        | 46.41 | 46.96 |
| 2010                       | 45.02 | -3.47 | 1.33  | -0.82 | 1.33  | -12.4  | 3.47        | 46.28 | 46.87 |
| 2020                       | 43.09 | -3.66 | 1.18  | -0.97 | 1.18  | -13.67 | 3.66        | 46.38 | 46.99 |
| 2030                       | 44.79 | -3.49 | 1.32  | -0.83 | 1.32  | -13.94 | 3.49        | 46.51 | 47.13 |
| 2040                       | 44.76 | -3.49 | 1.29  | -0.86 | 1.29  | -13.81 | 3.49        | 46.46 | 47.1  |
| 2050                       | 45.85 | -3.39 | 1.29  | -0.86 | 1.29  | -12.61 | 3.39        | 46.67 | 47.29 |
| 2060                       | 47.35 | -3.25 | 1.33  | -0.82 | 1.33  | -11.59 | 3.25        | 46.7  | 47.34 |
| 2070                       | 47.17 | -3.26 | 1.25  | -0.9  | 1.25  | -11.81 | 3.26        | 46.74 | 47.39 |
| 2080                       | 46.67 | -3.31 | 1.14  | -1.01 | 1.14  | -11.49 | 3.31        | 46.87 | 47.49 |
| 2090                       | 46.03 | -3.37 | 1     | -1.15 | 1     | -10.75 | 3.37        | 47.02 | 47.61 |
| 2100                       | 50.7  | -2.95 | 1.68  | -0.47 | 1.68  | -10.26 | 2.95        | 47.38 | 47.92 |
| 2110                       | 43    | -3.67 | 1.2   | -0.95 | 1.2   | -11.47 | 3.67        | 46.64 | 47.16 |
| 2120                       | 41.38 | -3.83 | 1.19  | -0.96 | 1.19  | -12.26 | 3.83        | 46.74 | 47.19 |
| 2130                       | 42.21 | -3.75 | 1.25  | -0.9  | 1.25  | -13.2  | 3.75        | 46.56 | 47.05 |
| 2140                       | 40.61 | -3.91 | 0.99  | -1.16 | 0.99  | -13.57 | 3.91        | 46.57 | 47.04 |
| 2150                       | 38.54 | -4.14 | 0.69  | -1.46 | 0.69  | -13.96 | 4.14        | 46.63 | 47.1  |
| 2160                       | 37.6  | -4.25 | 0.56  | -1.59 | 0.56  | -14.04 | 4.25        | 46.68 | 47.12 |
| 2170                       | 35.47 | -4.5  | 0.34  | -1.81 | 0.34  | -14.29 | 4.5         | 46.76 | 47.16 |
| 2180                       | 36.54 | -4.37 | 0.46  | -1.69 | 0.46  | -14.46 | 4.37        | 46.96 | 47.31 |
| 2190                       | 36.1  | -4.43 | 0.34  | -1.81 | 0.34  | -15.1  | 4.43        | 47.2  | 47.54 |
| 2200                       | 36.44 | -4.38 | 0.36  | -1.79 | 0.36  | -16.03 | 4.38        | 47.72 | 47.97 |
| 2210                       | 36.36 | -4.39 | 0.24  | -1.91 | 0.24  | -17.11 | 4.39        | 47.52 | 47.8  |
| 2220                       | 35.85 | -4.45 | 0.09  | -2.06 | 0.09  | -18.22 | 4.45        | 47.58 | 47.83 |
| 2230                       | 36.97 | -4.32 | 0.08  | -2.07 | 0.08  | -18.4  | 4.32        | 47.85 | 48.11 |
| 2240                       | 34.78 | -4.59 | -0.2  | -2.35 | -0.2  | -17.34 | 4.59        | 47.8  | 48.04 |
| 2250                       | 33.84 | -4.71 | -0.44 | -2.59 | -0.44 | -15.3  | 4.71        | 47.72 | 47.95 |

|      |       |       |       |       |       |        |      |       |       |
|------|-------|-------|-------|-------|-------|--------|------|-------|-------|
| 2260 | 33.19 | -4.79 | -0.7  | -2.85 | -0.7  | -13.48 | 4.79 | 47.78 | 48.02 |
| 2270 | 32.65 | -4.86 | -0.51 | -2.66 | -0.51 | -13.14 | 4.86 | 47.94 | 48.21 |
| 2280 | 31.76 | -4.98 | -0.37 | -2.52 | -0.37 | -13.77 | 4.98 | 47.93 | 48.25 |
| 2290 | 32    | -4.95 | -0.14 | -2.29 | -0.14 | -14.49 | 4.95 | 47.91 | 48.23 |
| 2300 | 31.97 | -4.95 | -0.01 | -2.16 | -0.01 | -15.48 | 4.95 | 48.11 | 48.37 |
| 2310 | 33.72 | -4.72 | 0.29  | -1.86 | 0.29  | -16.27 | 4.72 | 48.3  | 48.56 |
| 2320 | 35.12 | -4.54 | 0.48  | -1.67 | 0.48  | -16.91 | 4.54 | 48.34 | 48.54 |
| 2330 | 39.05 | -4.08 | 0.89  | -1.26 | 0.89  | -17.57 | 4.08 | 48.66 | 48.76 |
| 2340 | 40.1  | -3.97 | 0.92  | -1.23 | 0.92  | -18.22 | 3.97 | 48.57 | 48.65 |
| 2350 | 39.22 | -4.06 | 0.82  | -1.33 | 0.82  | -18.09 | 4.06 | 48.78 | 48.78 |
| 2360 | 39.81 | -4    | 0.9   | -1.25 | 0.9   | -16.95 | 4    | 48.71 | 48.7  |
| 2370 | 38.99 | -4.09 | 0.73  | -1.42 | 0.73  | -13.98 | 4.09 | 48.56 | 48.56 |
| 2380 | 37.31 | -4.28 | 0.36  | -1.79 | 0.36  | -13.67 | 4.28 | 48.79 | 48.76 |
| 2390 | 38.05 | -4.2  | 0.28  | -1.87 | 0.28  | -15.01 | 4.2  | 48.78 | 48.7  |
| 2400 | 38.87 | -4.1  | 0.39  | -1.76 | 0.39  | -14.32 | 4.1  | 48.84 | 48.73 |
| 2410 | 38.82 | -4.11 | 0.31  | -1.84 | 0.31  | -13.33 | 4.11 | 49.01 | 48.86 |
| 2420 | 37.79 | -4.23 | 0.12  | -2.03 | 0.12  | -12.86 | 4.23 | 48.92 | 48.77 |
| 2430 | 36.76 | -4.35 | -0.04 | -2.19 | -0.04 | -13.31 | 4.35 | 49.04 | 48.83 |
| 2440 | 40.53 | -3.92 | 0.33  | -1.82 | 0.33  | -13.07 | 3.92 | 49.35 | 49.08 |
| 2450 | 41.14 | -3.86 | 0.34  | -1.81 | 0.34  | -13.34 | 3.86 | 49.31 | 49.03 |
| 2460 | 39.41 | -4.04 | 0.04  | -2.11 | 0.04  | -13.87 | 4.04 | 49.5  | 49.17 |
| 2470 | 40.4  | -3.94 | 0.05  | -2.1  | 0.05  | -14.09 | 3.94 | 49.35 | 49.03 |
| 2480 | 39.93 | -3.99 | -0.12 | -2.27 | -0.12 | -14.38 | 3.99 | 49.38 | 49.1  |
| 2490 | 42.34 | -3.73 | 0.05  | -2.1  | 0.05  | -14.12 | 3.73 | 49.44 | 49.14 |
| 2500 | 40.23 | -3.95 | -0.32 | -2.47 | -0.32 | -13.93 | 3.95 | 49.72 | 49.44 |
| 2510 | 42.06 | -3.76 | -0.17 | -2.32 | -0.17 | -13.23 | 3.76 | 49.15 | 48.92 |
| 2520 | 41.96 | -3.77 | -0.23 | -2.38 | -0.23 | -12.68 | 3.77 | 49.5  | 49.22 |
| 2530 | 39.56 | -4.03 | -0.47 | -2.62 | -0.47 | -12.54 | 4.03 | 49.13 | 48.88 |
| 2540 | 41.11 | -3.86 | -0.29 | -2.44 | -0.29 | -12.14 | 3.86 | 49.22 | 48.9  |
| 2550 | 43.21 | -3.64 | -0.07 | -2.22 | -0.07 | -11.87 | 3.64 | 49.28 | 48.97 |
| 2560 | 43.16 | -3.65 | -0.1  | -2.25 | -0.1  | -11.98 | 3.65 | 49.29 | 48.95 |
| 2570 | 42.5  | -3.72 | -0.2  | -2.35 | -0.2  | -12.22 | 3.72 | 49.47 | 49.17 |
| 2580 | 44.29 | -3.54 | -0.09 | -2.24 | -0.09 | -12.13 | 3.54 | 49.22 | 48.92 |
| 2590 | 45.97 | -3.38 | 0.02  | -2.13 | 0.02  | -11.99 | 3.38 | 49.47 | 49.11 |
| 2600 | 47.44 | -3.24 | 0.06  | -2.09 | 0.06  | -11.74 | 3.24 | 49.3  | 49.03 |
| 2610 | 45.06 | -3.46 | -0.22 | -2.37 | -0.22 | -11.73 | 3.46 | 49.47 | 49.17 |
| 2620 | 49.02 | -3.1  | 0.08  | -2.07 | 0.08  | -11.21 | 3.1  | 49.35 | 49.1  |
| 2630 | 46.45 | -3.33 | -0.17 | -2.32 | -0.17 | -11.64 | 3.33 | 49.16 | 48.91 |
| 2640 | 47.86 | -3.2  | -0.1  | -2.25 | -0.1  | -11.87 | 3.2  | 49.78 | 49.51 |
| 2650 | 46.5  | -3.33 | -0.32 | -2.47 | -0.32 | -12.29 | 3.33 | 49.65 | 49.37 |
| 2660 | 53.88 | -2.69 | 0.18  | -1.97 | 0.18  | -11.93 | 2.69 | 49.85 | 49.54 |
| 2670 | 55.44 | -2.56 | 0.27  | -1.88 | 0.27  | -12.06 | 2.56 | 49.94 | 49.61 |
| 2680 | 50.35 | -2.98 | 0.08  | -2.07 | 0.08  | -12.83 | 2.98 | 50.24 | 49.88 |
| 2690 | 53.73 | -2.7  | 0.56  | -1.59 | 0.56  | -12.6  | 2.7  | 49.81 | 49.49 |
| 2700 | 52.1  | -2.83 | 0.64  | -1.51 | 0.64  | -12.54 | 2.83 | 50.03 | 49.69 |

| 2.4G Antenna               |       |       |       |       |       |        |             |       |       |
|----------------------------|-------|-------|-------|-------|-------|--------|-------------|-------|-------|
| Passive Test For 2400-2500 |       |       |       |       |       |        |             |       |       |
| Freq                       | Effi  | Effi  | Gain  | Gain  | Max   | Min    | Directivity | AttH  | AttV  |
| 2400                       | 38.87 | -4.1  | 0.39  | -1.76 | 0.39  | -14.32 | 4.1         | 48.84 | 48.73 |
| 2410                       | 38.82 | -4.11 | 0.31  | -1.84 | 0.31  | -13.33 | 4.11        | 49.01 | 48.86 |
| 2420                       | 37.79 | -4.23 | 0.12  | -2.03 | 0.12  | -12.86 | 4.23        | 48.92 | 48.77 |
| 2430                       | 36.76 | -4.35 | -0.04 | -2.19 | -0.04 | -13.31 | 4.35        | 49.04 | 48.83 |
| 2440                       | 40.53 | -3.92 | 0.33  | -1.82 | 0.33  | -13.07 | 3.92        | 49.35 | 49.08 |
| 2450                       | 41.14 | -3.86 | 0.34  | -1.81 | 0.34  | -13.34 | 3.86        | 49.31 | 49.03 |
| 2460                       | 39.41 | -4.04 | 0.04  | -2.11 | 0.04  | -13.87 | 4.04        | 49.5  | 49.17 |
| 2470                       | 40.4  | -3.94 | 0.05  | -2.1  | 0.05  | -14.09 | 3.94        | 49.35 | 49.03 |
| 2480                       | 39.93 | -3.99 | -0.12 | -2.27 | -0.12 | -14.38 | 3.99        | 49.38 | 49.1  |
| 2490                       | 42.34 | -3.73 | 0.05  | -2.1  | 0.05  | -14.12 | 3.73        | 49.44 | 49.14 |
| 2500                       | 40.23 | -3.95 | -0.32 | -2.47 | -0.32 | -13.93 | 3.95        | 49.72 | 49.44 |

### 1.3.3、Antenna radiation pattern

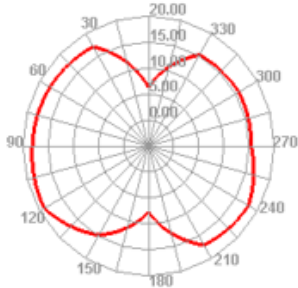


### 1.3、Active test

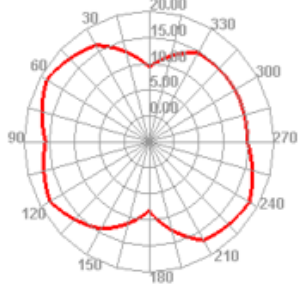
| B1  |       |        | B2  |       |        |
|-----|-------|--------|-----|-------|--------|
| TRP | 18050 | 17.04  | TRP | 19250 | 16.91  |
|     | 18300 | 16.46  |     | 19575 | 16.36  |
|     | 18550 | 18.31  |     | 19900 | 16.23  |
| TIS |       | -89.57 | TIS |       | -89.6  |
| B3  |       |        | B4  |       |        |
| TRP | 19250 | 17.18  | TRP | 20450 | 16.27  |
|     | 19575 | 17.89  |     | 20525 | 17.74  |
|     | 19900 | 18.26  |     | 20600 | 15.33  |
| TIS |       | -89.86 | TIS |       | -89.67 |
| B5  |       |        | B7  |       |        |
| TRP | 20450 | 13.55  | TRP | 20800 | 15.29  |
|     | 20525 | 11.2   |     | 21100 | 14.26  |
|     | 20600 | 10.56  |     | 21400 | 14.10  |
| TIS | 2600  | -85.3  | TIS |       | -89.33 |
| B8  |       |        | B12 |       |        |
| TRP | 21500 | 10.5   | TRP | 23060 | 11.04  |
|     | 21625 | 10.36  |     | 23095 | 11.45  |
|     | 21750 | 9.03   |     | 23130 | 12.07  |
| TIS | 38150 | -82.92 | TIS |       | -81.11 |
| B28 |       |        |     |       |        |
| TRP | 27260 | 8.86   |     |       |        |
|     | 27435 | 11.48  |     |       |        |
|     | 27610 | 14.78  |     |       |        |
| TIS | 39550 | -89.56 |     |       |        |

#### 1.3.3、Antenna radiation pattern

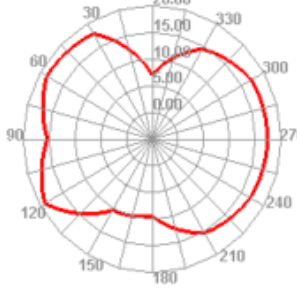
LTE1 18050 TRP Phi=0



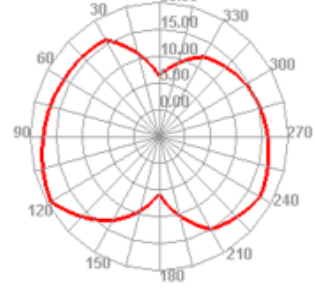
LTE1 18300 TRP Phi=0



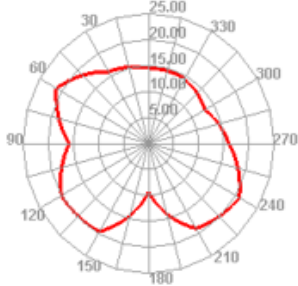
LTE2 18650 TRP Phi=0



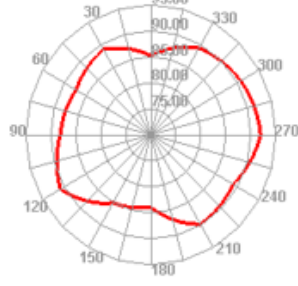
LTE2 18900 TRP Phi=0



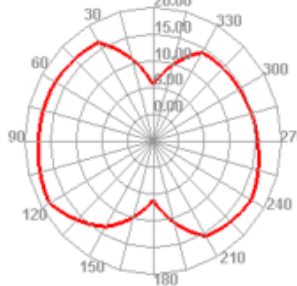
LTE1 18550 TRP Phi=0



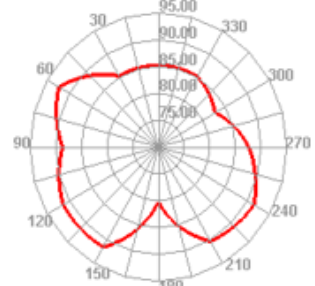
LTE1 550 TIS Phi=0



LTE2 19150 TRP Phi=0



LTE2 1150 TIS Phi=0

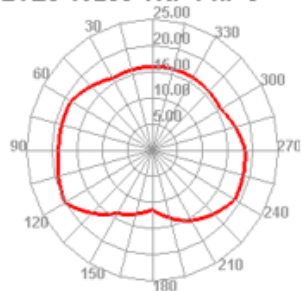


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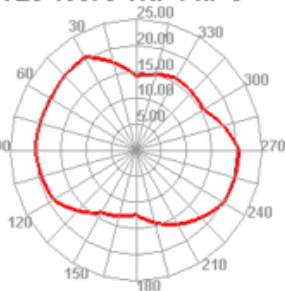
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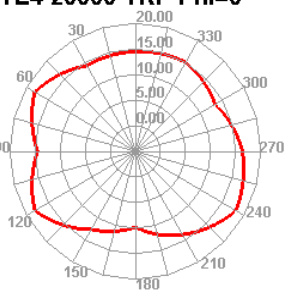
**LTE3 19250 TRP Phi=0**



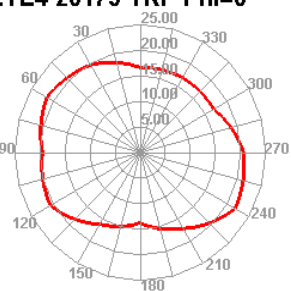
**LTE3 19575 TRP Phi=0**



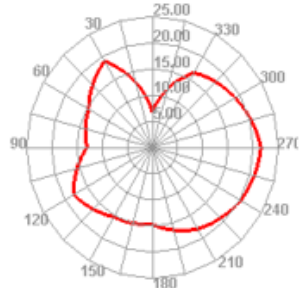
**LTE4 20000 TRP Phi=0**



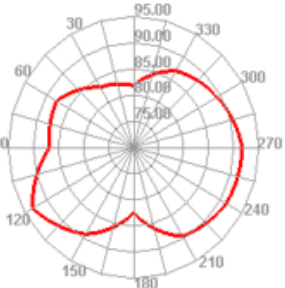
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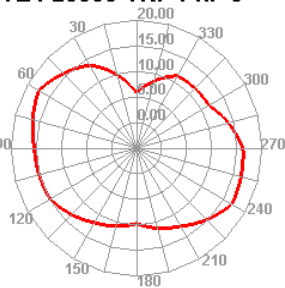
**LTE3 19900 TRP Phi=0**



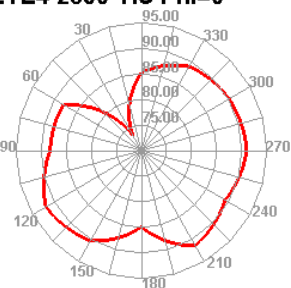
**LTE3 1900 TIS Phi=0**



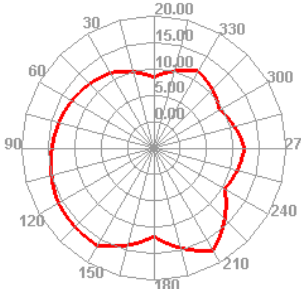
**LTE4 20350 TRP Phi=0**



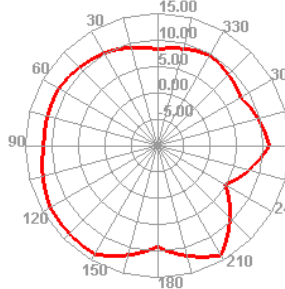
**LTE4 2350 TIS Phi=0**



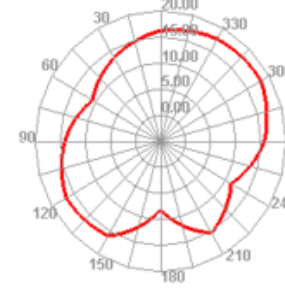
**LTE5 20450 TRP Phi=0**



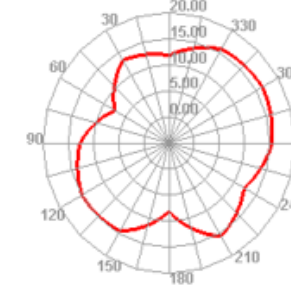
**LTE5 20525 TRP Phi=0**



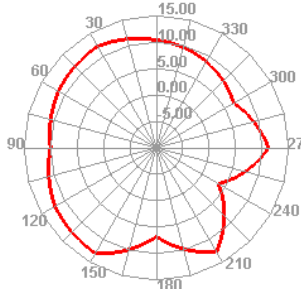
**LTE7 20800 TRP Phi=0**



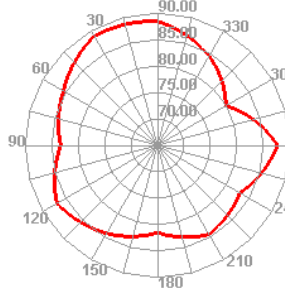
**LTE7 21100 TRP Phi=0**



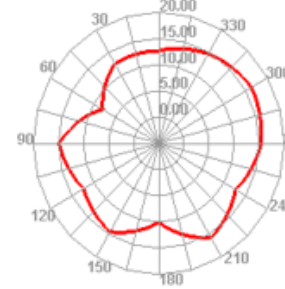
**LTE5 20600 TRP Phi=0**



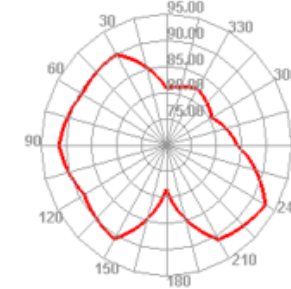
**LTE5 2600 TIS Phi=0**



**LTE7 21400 TRP Phi=0**



**LTE7 3400 TIS Phi=0**

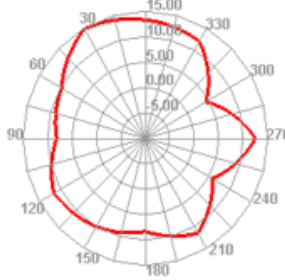


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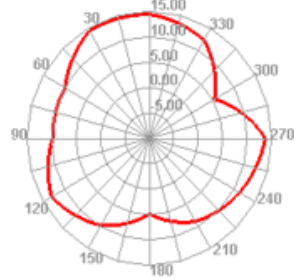
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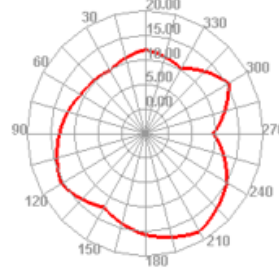
**LTE8 21500 TRP Phi=0**



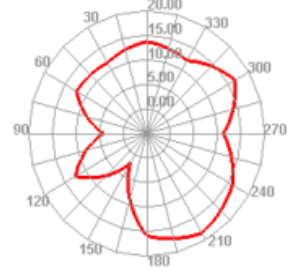
**LTE8 21625 TRP Phi=0**



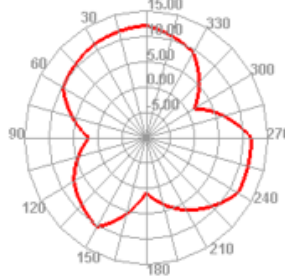
**LTE12 23060 TRP Phi=0**



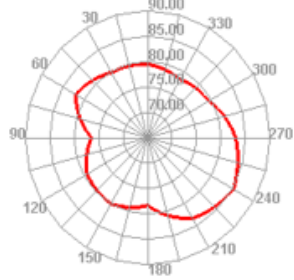
**LTE12 23095 TRP Phi=0**



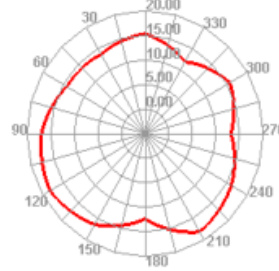
**LTE8 21750 TRP Phi=0**



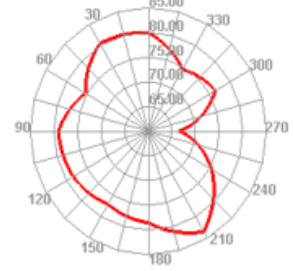
**LTE8 3750 TIS Phi=0**



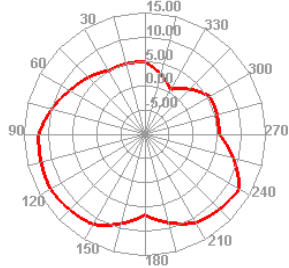
**LTE12 23130 TRP Phi=0**



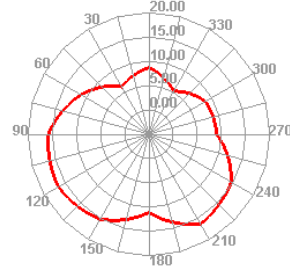
**LTE12 5130 TIS Phi=0**



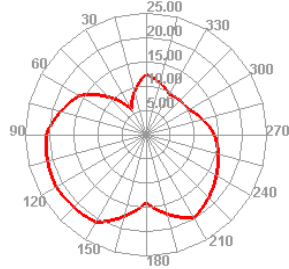
**LTE28 27260 TRP Phi=0**



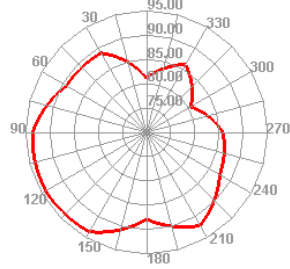
**LTE28 27435 TRP Phi=0**



**LTE28 27610 TRP Phi=0**



**LTE28 9610 TIS Phi=0**

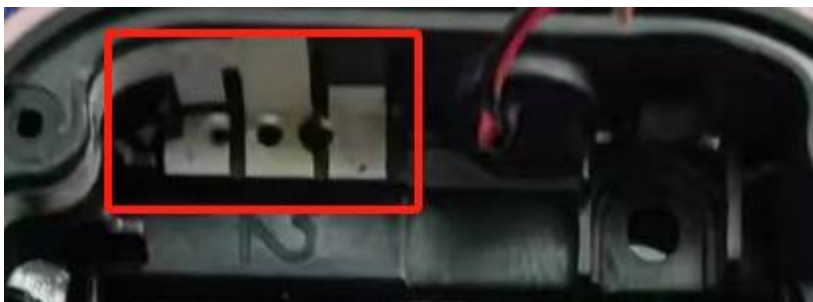


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## 二、Structural specification

### 2.1、天线组成



LTE Antenna



Bluetooth / WIFI Antenna

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