

# KC.DA.00200

## Antenna Specification

### 1. Application:

This application shall apply for antenna unit which shall be used such as automotive, conventional communications, smart home, etc..

### 1. Electrical Specification:

*Those specifications were specially defined for customer's model, and all characteristics were measured under the model's handset testing jig .*

#### 2-1. Frequency Band:

| Frequency Band | MHz      |
|----------------|----------|
| 5G/WIFI6       | 600~7200 |

#### 2-2. Impedance

50 ohm nominal

#### 2-3. VSWR

##### 2-3-1.Measurement frequency points and VSWR value

| Frequency Band(MHz)   | 600 | 960 | 1710 | 2690 | 4200 | 5510 | 6500 | 7150 |
|-----------------------|-----|-----|------|------|------|------|------|------|
| 2-3-3. Typical Value: | 4.4 | 2.4 | 2.4  | 1.7  | 1.2  | 1.5  | 1.2  | 1.2  |

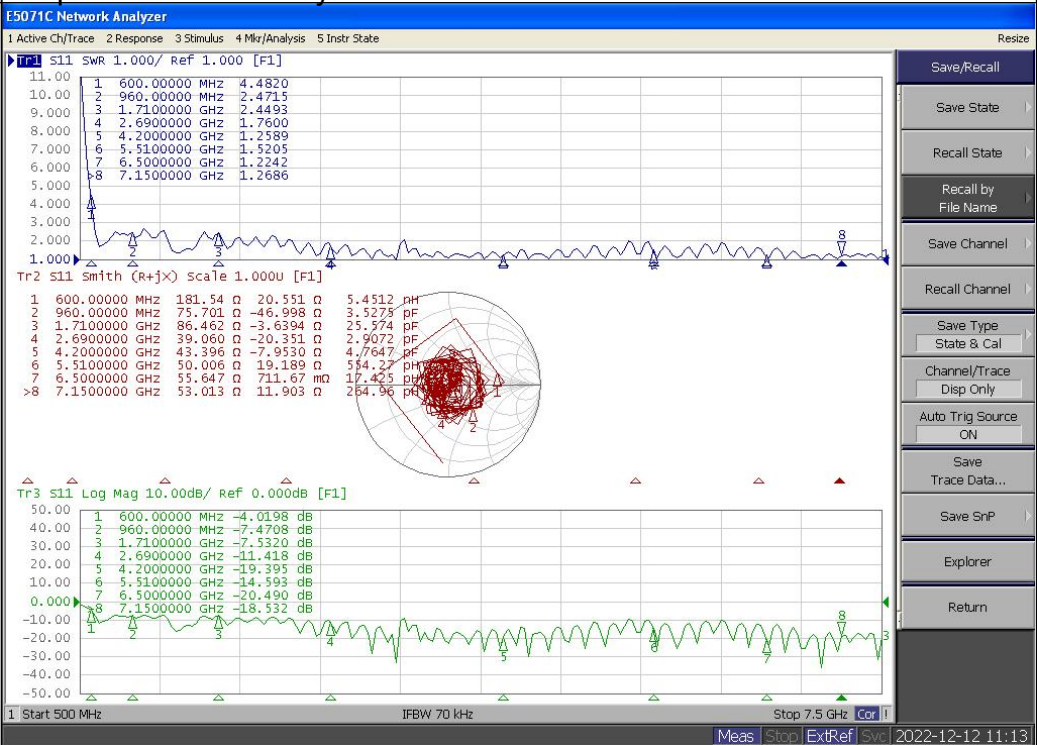
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|-------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
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| DESIGNED BY: De wen                                                                                                                             | APPROVED BY: YS |                                                                                                |                                                                                                                                                                                                      |  |
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|                                                                                                                                                 |                 |                                                                                                | P0                                                                                                                                                                                                   |  |

## 2-3-2. VSWR

### 2-3-4 Measuring Method

1. A 50Ω coaxial cable is connected to the antenna. Then this cable is connected to a network analyzer to measure the VSWR.
  2. Keeping this jig away from metal at least 20 cm
  3. Antenna Type: Monopole Antenna.
- All equipment calibration valid: Dec 12, 2025-Dec 30, 2026. Tests performed in a fully anechoic chamber under far-field conditions.

### 2-3-5 Picture



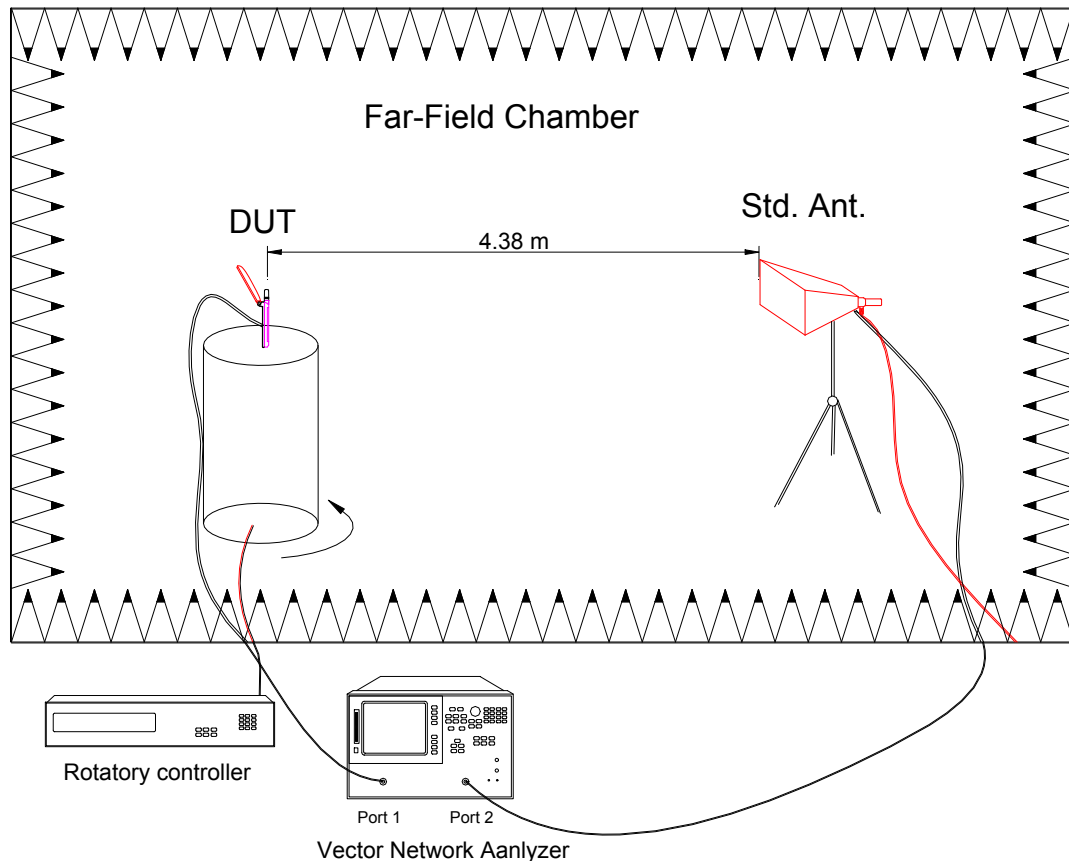
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## 2-4. Active test

### 4-5.1 Measure method

1. Using a low loss coaxial cable to link a standard handset jig
2. Fixed this handset jig on chamber's rotator plane
3. Linking jig into network analyzer port and using a probing horn antenna to collect data.
4. Using another standard gain horn antenna to calibrated those data

### 4-5.2 Chamber definition



1. An anechoic chamber (7mx4mx3m) which satisfied far-field condition was applied to avoid multi-path effect
2. The quiet room region is 40cmx40cmx40cm at the center of rotator
3. The distance between DUT and standard antenna is 4.38 m
4. Probing antenna (9120D horn antenna) and standard gain horn antenna (BBHA9120 LPF 700MHz ~6GHz)

|                                                                                                                                                 |                 |                                                                                                                                                                                                      |                           |
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## 2-4-1 GAIN & Efficiency

| Frequency/Mhz | MaxGain/dBi | Efficiency / % | Frequency/Mhz | MaxGain/dBi | Efficiency / % |
|---------------|-------------|----------------|---------------|-------------|----------------|
| 600           | -3.28       | 32.39          | 1530          | 2.82        | 69.82          |
| 630           | -1.71       | 39.99          | 1560          | 2.8         | 70.31          |
| 660           | 2.06        | 51.88          | 1590          | 2.85        | 66.83          |
| 690           | 5.29        | 79.43          | 1620          | 2.63        | 74.47          |
| 720           | 3.91        | 74.64          | 1650          | 2.6         | 70.47          |
| 750           | 3.4         | 72.41          | 1680          | 2.27        | 65.46          |
| 780           | 3.52        | 71.79          | 1710          | 3.05        | 66.83          |
| 810           | 2.69        | 72.47          | 1740          | 2.57        | 72.28          |
| 840           | 2.59        | 71.66          | 1770          | 2.9         | 79.8           |
| 870           | 2.46        | 70.15          | 1800          | 2.97        | 77.8           |
| 900           | 2.14        | 60.53          | 1830          | 2.3         | 74.99          |
| 930           | 1.82        | 54.58          | 1860          | 1.63        | 73.45          |
| 960           | 1.88        | 60.95          | 1890          | 1.09        | 65.46          |
| 990           | 2.28        | 67.45          | 1920          | 0.75        | 65.61          |
| 1020          | 2.34        | 65.01          | 1950          | 1.05        | 67.61          |
| 1050          | 1.74        | 60.12          | 1980          | 2.23        | 72.78          |
| 1080          | 2.77        | 62.23          | 2010          | 2.54        | 71.61          |
| 1110          | 3.63        | 70.79          | 2040          | 2.39        | 67.3           |
| 1140          | 3.65        | 75.68          | 2070          | 1.46        | 61.24          |
| 1170          | 3.46        | 75.16          | 2100          | 1.3         | 67.92          |
| 1200          | 3.98        | 73.11          | 2130          | 1.6         | 67.61          |
| 1230          | 2.66        | 69.02          | 2160          | 2.24        | 72.28          |
| 1260          | 1.44        | 64.42          | 2190          | 2.81        | 74.13          |
| 1290          | 2.35        | 66.37          | 2220          | 2.77        | 69.82          |
| 1320          | 2.58        | 64.42          | 2250          | 2.86        | 66.68          |
| 1350          | 2.35        | 58.08          | 2280          | 2.65        | 64.86          |
| 1380          | 3.18        | 65.31          | 2310          | 3.58        | 71.94          |
| 1410          | 3.09        | 70.31          | 2340          | 3.35        | 71.45          |
| 1440          | 3.77        | 77.8           | 2370          | 3.63        | 71.78          |
| 1470          | 3.47        | 75.34          | 2400          | 3.42        | 70.63          |
| 1500          | 2.82        | 75.34          | 2430          | 3.95        | 74.13          |

|                                                                                                                                                 |                 |                                                                                                                                                                                                      |
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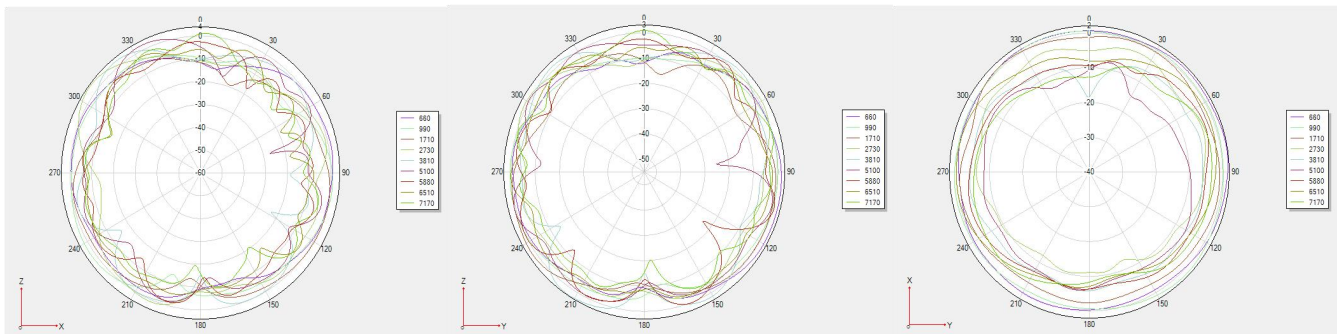
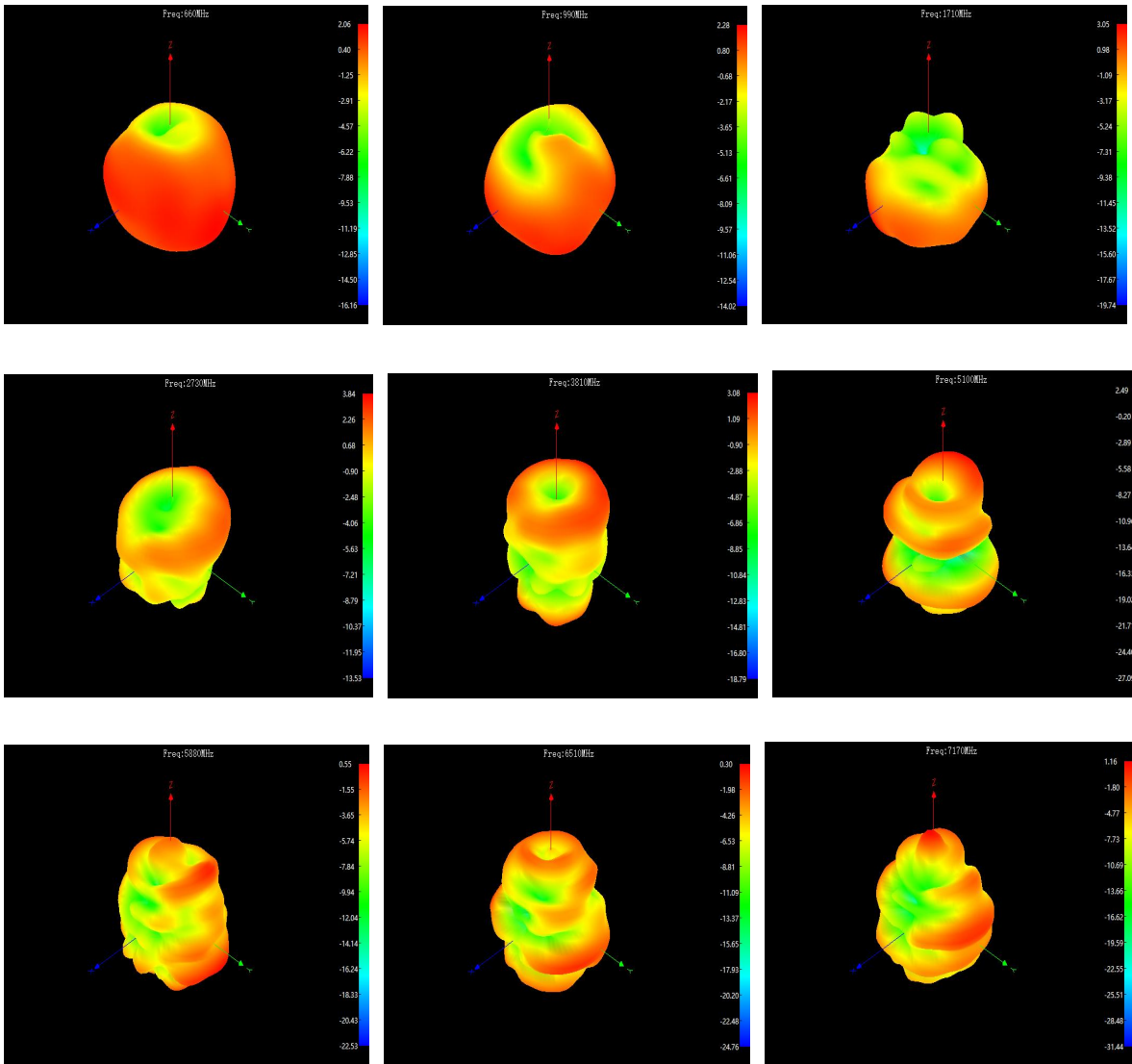
| Frequency/Mhz | MaxGain/dBi | Efficiency / % | Frequency/Mhz | MaxGain/dBi | Efficiency / % |
|---------------|-------------|----------------|---------------|-------------|----------------|
| 2460          | 2.77        | 68.87          | 3600          | 3           | 61.8           |
| 2490          | 3.07        | 70.31          | 3630          | 3.53        | 60.81          |
| 2520          | 2.35        | 64.42          | 3660          | 3.57        | 63.53          |
| 2550          | 1.38        | 59.29          | 3690          | 2.76        | 63.68          |
| 2580          | 2           | 59.98          | 3720          | 3.08        | 66.68          |
| 2610          | 2.38        | 58.88          | 3750          | 3.4         | 66.22          |
| 2640          | 2.08        | 53.7           | 3780          | 3.26        | 60.81          |
| 2670          | 1.32        | 55.98          | 3810          | 3.08        | 61.8           |
| 2700          | 1.43        | 53.7           | 3840          | 3.16        | 66.07          |
| 2730          | 3.84        | 58.08          | 3870          | 2.22        | 58.34          |
| 2760          | 4.46        | 68.39          | 3900          | 3.78        | 75.16          |
| 2790          | 4.52        | 66.83          | 3930          | 3.93        | 68.08          |
| 2820          | 2.79        | 48.75          | 3960          | 2.96        | 55.34          |
| 2850          | 2.28        | 48.87          | 3990          | 3.9         | 55.72          |
| 2880          | 3.04        | 59.02          | 4020          | 4.87        | 71.78          |
| 2910          | 3.09        | 66.83          | 4050          | 4.33        | 70.31          |
| 2940          | 2.57        | 60.95          | 4080          | 4.07        | 59.02          |
| 2970          | 1.96        | 56.1           | 4110          | 3.88        | 63.24          |
| 3000          | 2.31        | 60.39          | 4140          | 3.82        | 61.8           |
| 3030          | 3.6         | 73.45          | 4170          | 4.07        | 66.99          |
| 3060          | 2.44        | 61.66          | 4200          | 3.12        | 56.36          |
| 3090          | 2.71        | 61.8           | 4230          | 3.35        | 56.89          |
| 3120          | 2.77        | 63.53          | 4260          | 3.5         | 60.12          |
| 3150          | 2.4         | 59.98          | 4290          | 2.06        | 50.47          |
| 3180          | 2.93        | 63.1           | 4320          | 2.52        | 48.64          |
| 3210          | 2.73        | 56.36          | 4350          | 1.71        | 41.78          |
| 3240          | 1.88        | 53.95          | 4380          | 0.47        | 38.83          |
| 3270          | 1.17        | 44.57          | 4410          | 0.44        | 36.41          |
| 3300          | 0.53        | 37.29          | 4440          | 0.39        | 38.73          |
| 3330          | 0.71        | 41.38          | 4470          | 1.39        | 43.05          |
| 3360          | 0.63        | 37.56          | 4500          | 2.05        | 54.33          |
| 3390          | 1.41        | 44.16          | 4530          | 1.76        | 50.35          |
| 3420          | 2.35        | 51.29          | 4560          | 2           | 56.23          |
| 3450          | 1.85        | 54.58          | 4590          | 2.73        | 66.07          |
| 3480          | 2.09        | 55.21          | 4620          | 1.62        | 52.97          |
| 3510          | 0.97        | 44.87          | 4650          | 1.87        | 55.46          |
| 3540          | 1.8         | 49.89          | 4680          | 1.98        | 58.61          |
| 3570          | 3.06        | 61.24          | 4710          | 2.24        | 65.01          |

|                                                                                                                                                                                                      |       |                           |                           |           |
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| ANGLES=±                                                                                                                                                                                             |       |                           |                           | HOLEDIA=± |
| SCALE :                                                                                                                                                                                              |       | UNIT : mm                 |                           |           |
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|                                                                                                                                                                                                      |       |                           | P0                        |           |

| Frequency/Mhz | MaxGain/dBi | Efficiency / % | Frequency/Mhz | MaxGain/dBi | Efficiency / % |
|---------------|-------------|----------------|---------------|-------------|----------------|
| 4740          | 1.77        | 56.75          | 5970          | 0.38        | 39.35          |
| 4770          | 1.87        | 61.52          | 6000          | 0.19        | 39.1           |
| 4800          | 2.07        | 59.43          | 6030          | 0.15        | 38.43          |
| 4830          | 1.9         | 58.08          | 6060          | 0.81        | 40.76          |
| 4860          | 1.34        | 50.82          | 6090          | 0.37        | 39.12          |
| 4890          | 1.49        | 51.4           | 6120          | 0.14        | 37.27          |
| 4920          | 2.21        | 53.33          | 6150          | 0.96        | 45.19          |
| 4950          | 2.57        | 51.29          | 6180          | 0.67        | 40.36          |
| 4980          | 2.5         | 50.93          | 6210          | 0.85        | 45.84          |
| 5010          | 1.9         | 48.75          | 6240          | 0.5         | 44.59          |
| 5040          | 2.38        | 53.09          | 6270          | 0.71        | 42.95          |
| 5070          | 2.27        | 53.33          | 6300          | 0.83        | 44.19          |
| 5100          | 2.49        | 51.52          | 6330          | 0.63        | 46.06          |
| 5130          | 2.7         | 48.31          | 6360          | 0.72        | 41.93          |
| 5160          | 1.46        | 43.05          | 6390          | 0.82        | 42.07          |
| 5190          | 1.16        | 41.59          | 6420          | 0.2         | 39.67          |
| 5220          | 0.44        | 38.59          | 6450          | 0.39        | 40.55          |
| 5250          | 0.57        | 39.17          | 6480          | 0.47        | 42.21          |
| 5280          | 0.16        | 39.58          | 6510          | 0.3         | 43.45          |
| 5310          | 0.88        | 41.48          | 6540          | 0.75        | 41.46          |
| 5340          | 1.52        | 43.72          | 6570          | 0.34        | 37.1           |
| 5370          | 2.07        | 43.75          | 6600          | 0.48        | 44.51          |
| 5400          | 1.72        | 42.76          | 6630          | 0.28        | 40.93          |
| 5430          | 1.5         | 41.59          | 6660          | 0.37        | 42.2           |
| 5460          | 1.16        | 38.99          | 6690          | 0.36        | 41.24          |
| 5490          | 0.88        | 38.37          | 6720          | 0.77        | 41.62          |
| 5520          | 1.09        | 41.3           | 6750          | 0.37        | 39.59          |
| 5550          | 1.29        | 43.05          | 6780          | 0.24        | 39.72          |
| 5580          | 0.46        | 39.56          | 6810          | 0.63        | 41.48          |
| 5610          | 0.61        | 38.88          | 6840          | 0.74        | 42.73          |
| 5640          | 0.37        | 37.67          | 6870          | 0.31        | 39.9           |
| 5670          | 0.43        | 39.81          | 6900          | 0.31        | 39.17          |
| 5700          | 0.81        | 39.9           | 6930          | 0.16        | 39.85          |
| 5730          | 1.48        | 44.36          | 6960          | 0.14        | 38.56          |
| 5760          | 1.45        | 42.07          | 6990          | 0.11        | 37.73          |
| 5790          | 0.69        | 38.37          | 7020          | 0.84        | 42.14          |
| 5820          | 0.45        | 37.15          | 7050          | 0.3         | 39.58          |
| 5850          | 0.32        | 38.73          | 7080          | 1.56        | 45.08          |
| 5880          | 0.55        | 37.76          | 7110          | 0.65        | 41.48          |
| 5910          | 0.67        | 39.06          | 7140          | 0.53        | 38.91          |
| 5940          | 0.35        | 38.48          | 7170          | 1.16        | 43.37          |

|                                           |                 |                                                                                                                                                                                                      |                           |
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|                                           |                 |                                                                                                                                                                                                      | P0                        |

## 2-4-2: Radiation direction



|                                                                                                                                                          |                        |                                                                                                                                                                                                             |                                  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|
| <b>UNLESS OTHER SPECIFIED TOLERANCES ON :</b><br><b>X=±                  X.X=±                  X.XX=±</b><br><b>ANGLES=±                  HOLEDIA=±</b> |                        | <b>TOXU®</b><br><b>同讯技术</b>                                                                                                                                                                                 | <b>TOXU TECHNOLOGY CO., LTD.</b> |
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