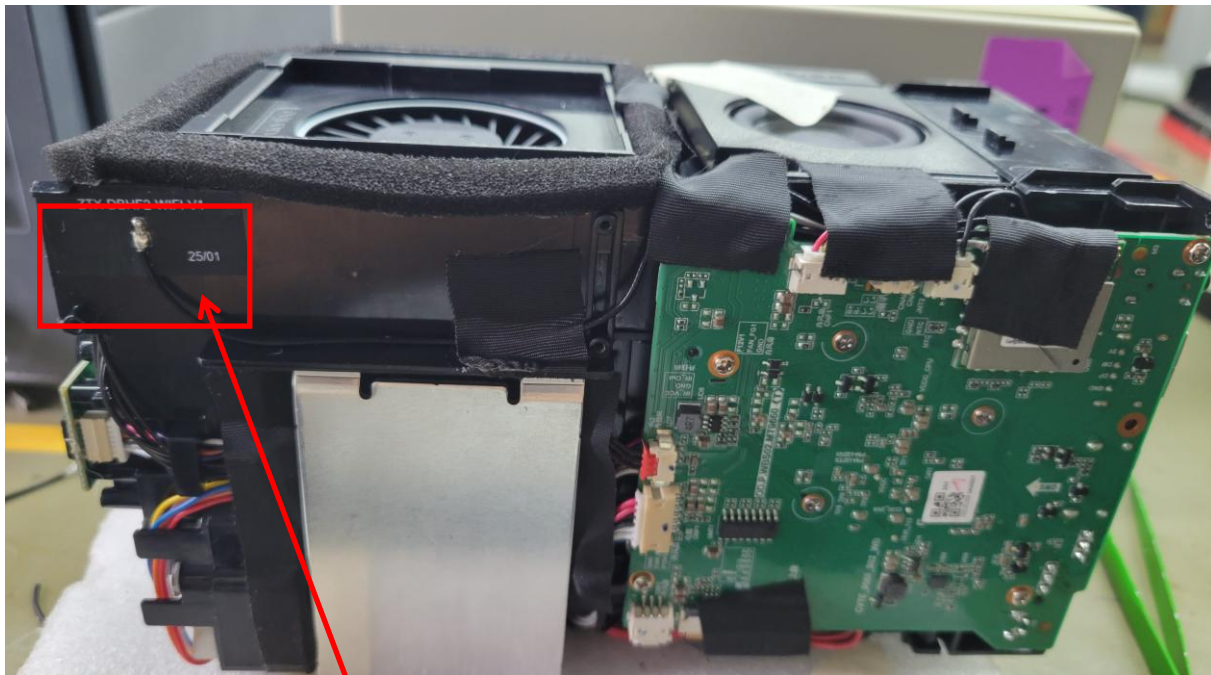
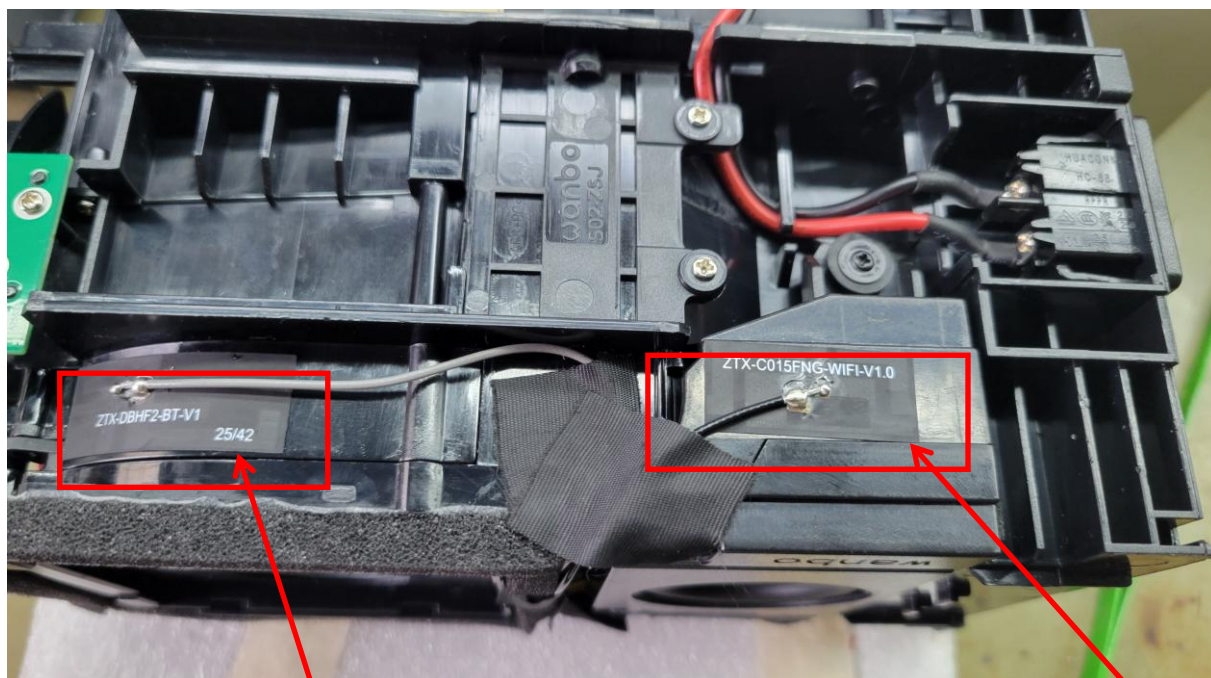


## Antenna layout and solution design



1、 The WiFi1 antenna uses ZTX-DBHF2-WIFI-V1 antenna;



2、 The BT antenna uses ZTX-DBHF2-BT-V1 antenna, and the WiFi2 antenna uses ZTX-C015FNG-WIFI-V1.0 antenna。

| Antenna information |          |                               |
|---------------------|----------|-------------------------------|
| Antenna             | Quantity | frequency band                |
| WIFI                | 2        | 2400-2500 MHz<br>5150-5850MHz |
| BT                  | 1        | 2400-2500 MHz                 |

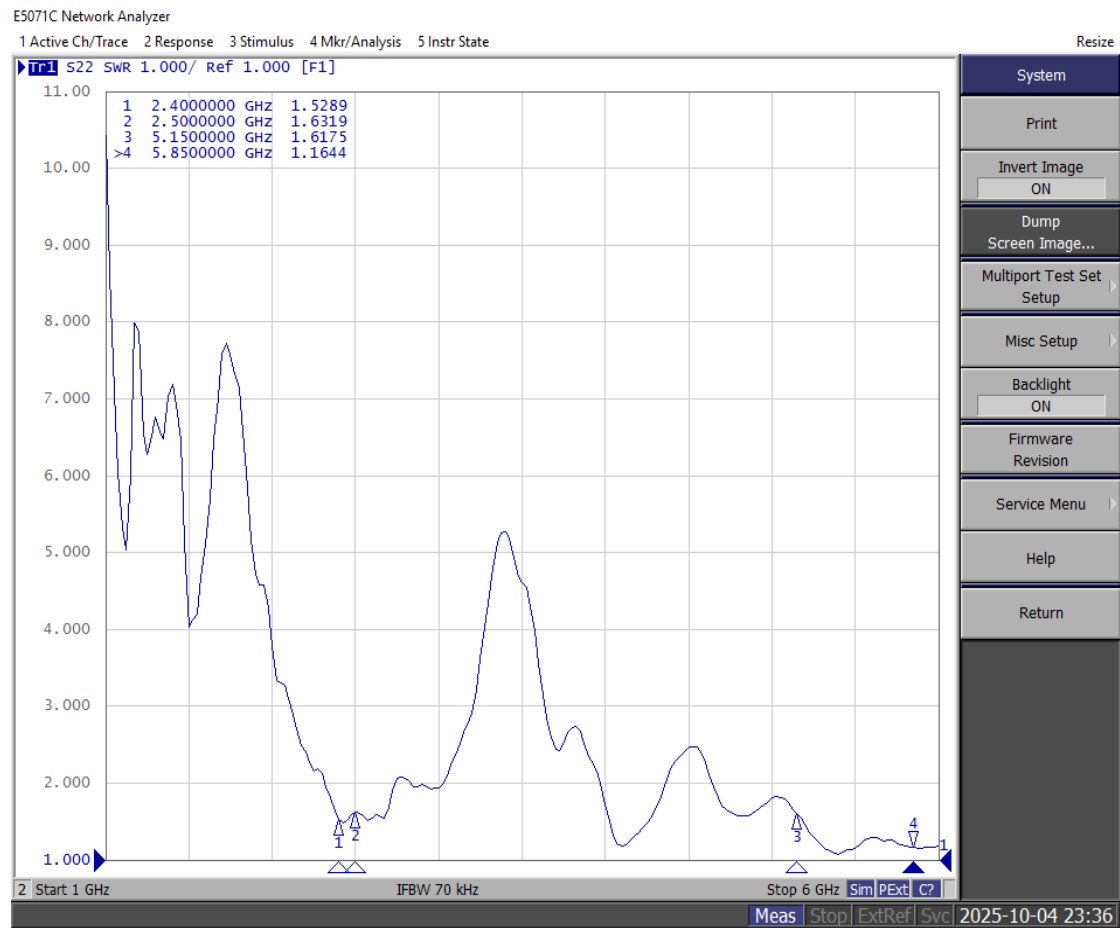
VSWR

BT



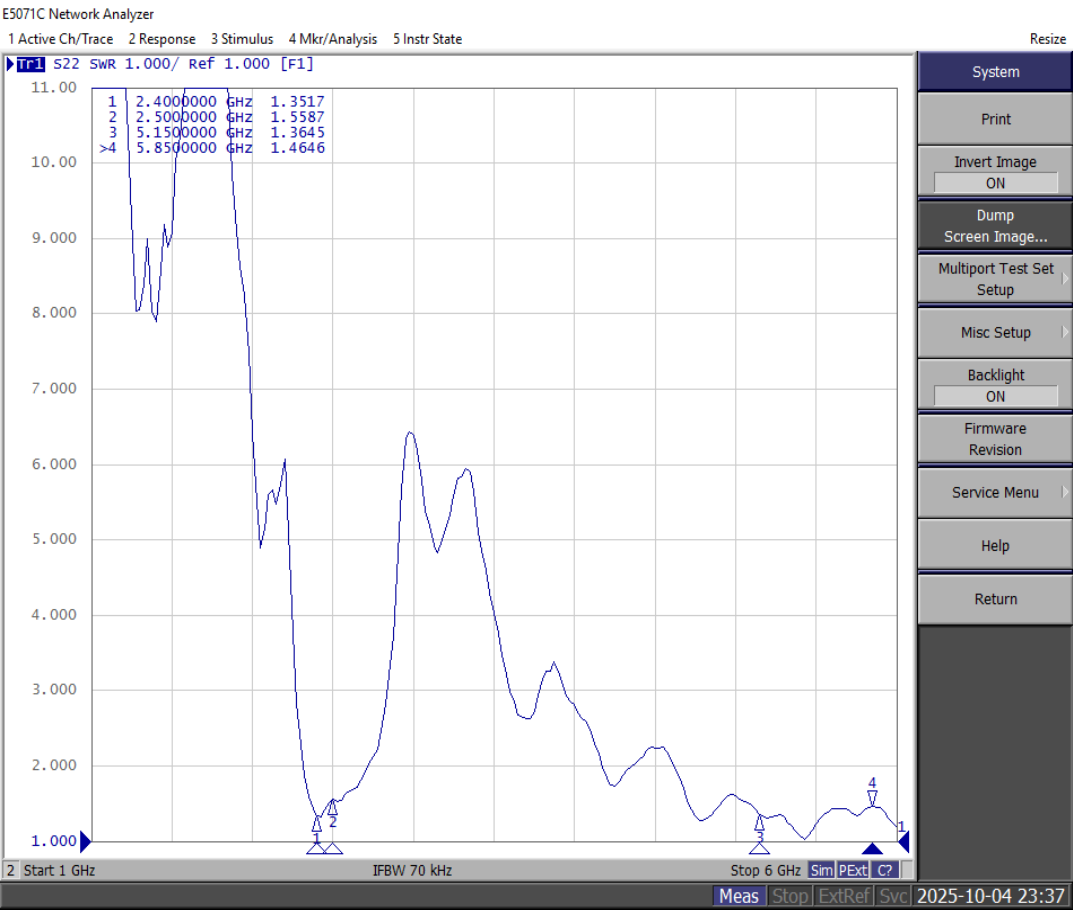
| Frequency<br>(MHz) | VSWR (Stopping<br>at Bobi) |
|--------------------|----------------------------|
| 2400               | 1.4                        |
| 2500               | 1.4                        |

# WiFi1



| Frequency<br>(MHz) | VSWR<br>(Stopping at<br>Bobi) |
|--------------------|-------------------------------|
| 2400               | 1.53                          |
| 2500               | 1.63                          |
| 5150               | 1.62                          |
| 5850               | 1.16                          |

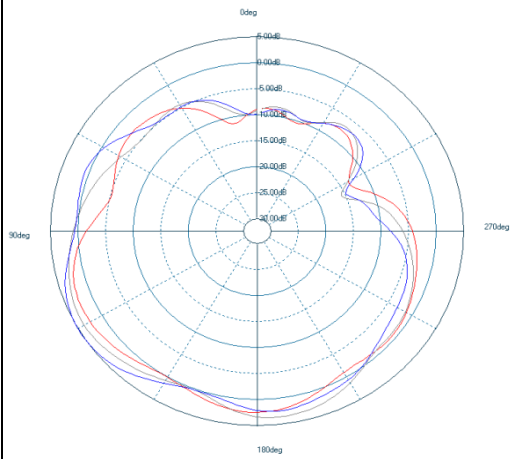
# WiFi2



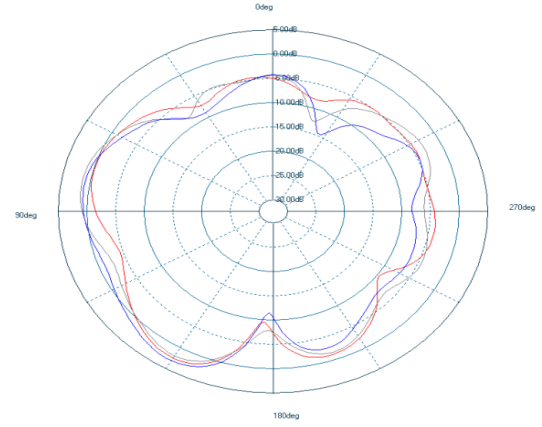
| Frequency<br>(MHz) | VSWR<br>(Stopping at<br>Bobi) |
|--------------------|-------------------------------|
| 2400               | 1.35                          |
| 2500               | 1.56                          |
| 5150               | 1.37                          |
| 5850               | 1.47                          |

BT

Theta90

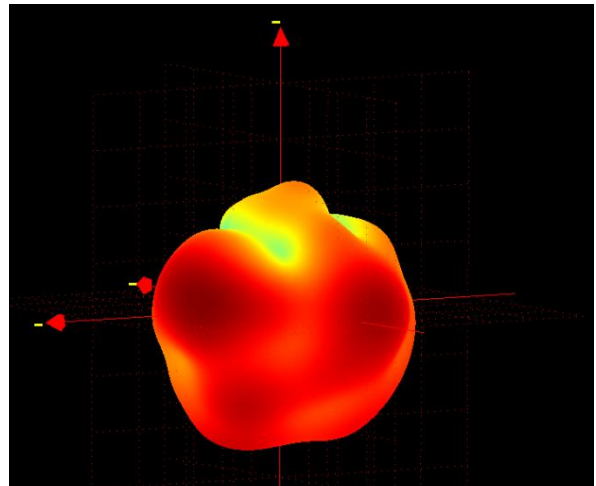
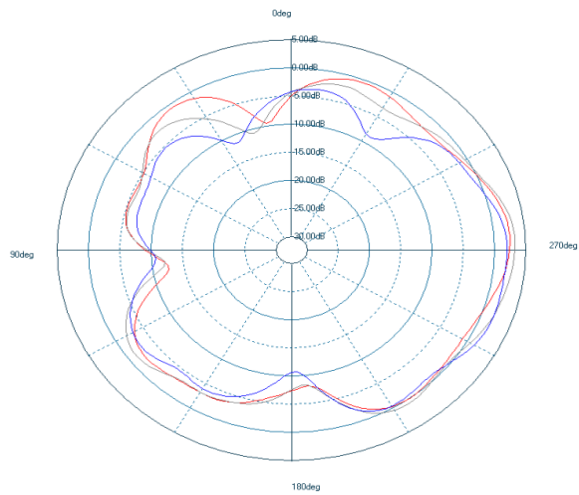


Phi90



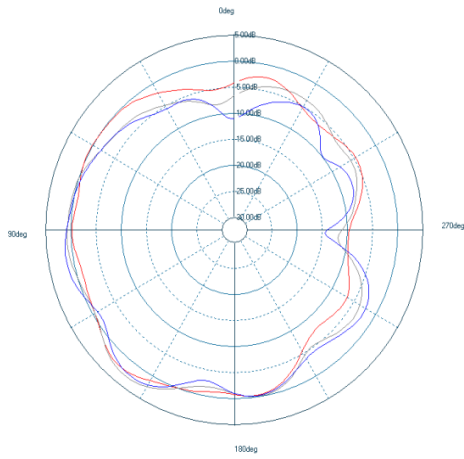
Legend  
 — 2400.00(MHz)  
 — 2450.00(MHz)  
 — 2500.00(MHz)

Phi0

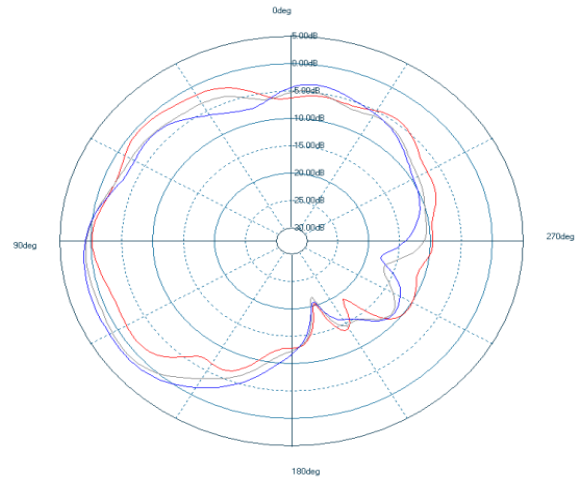


# WiFi1

2.4G    Theta90

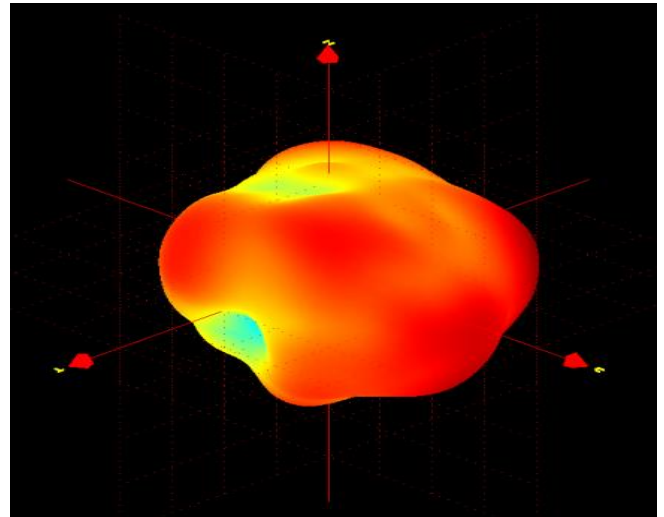
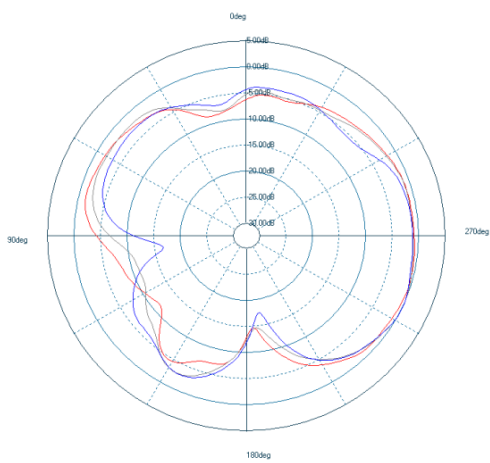


Phi90

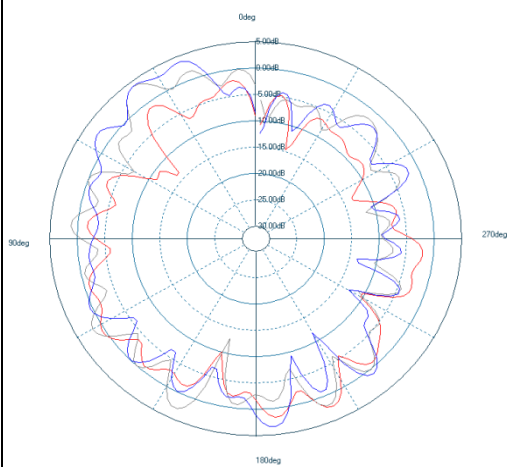


Legend  
— 2400.00(MHz)  
— 2450.00(MHz)  
— 2500.00(MHz)

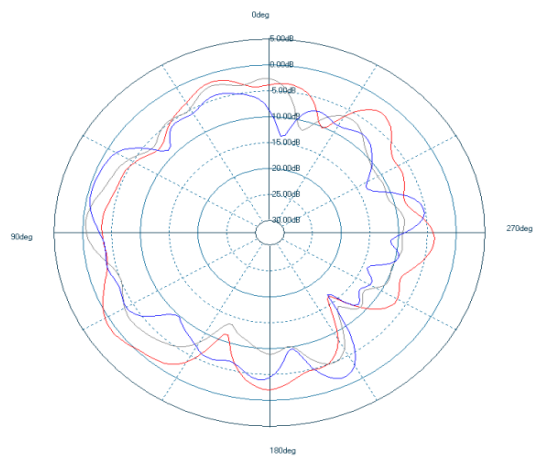
Phi0



5G      Theta90

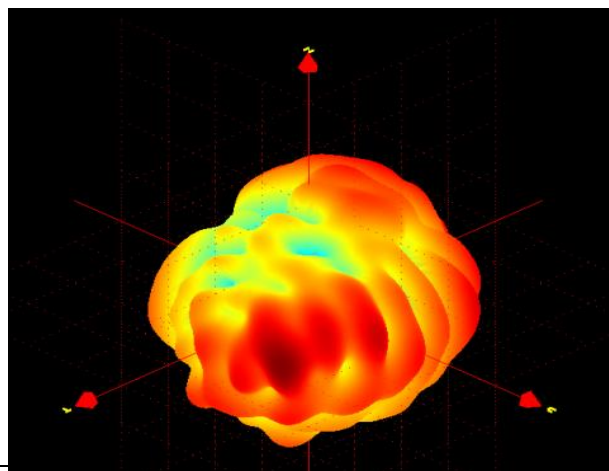
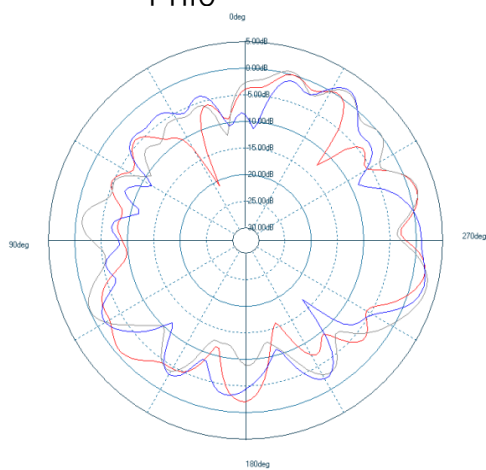


Phi90



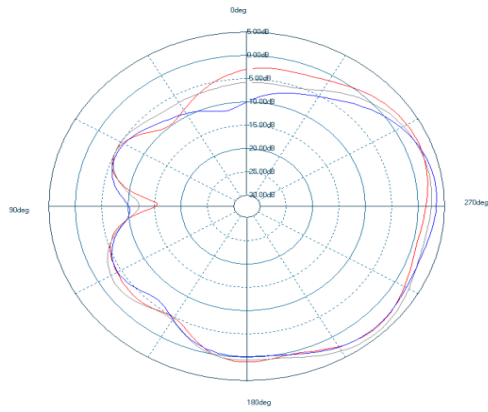
Legend  
— 5150.00(MHz)  
— 5500.00(MHz)  
— 5850.00(MHz)

Phi0

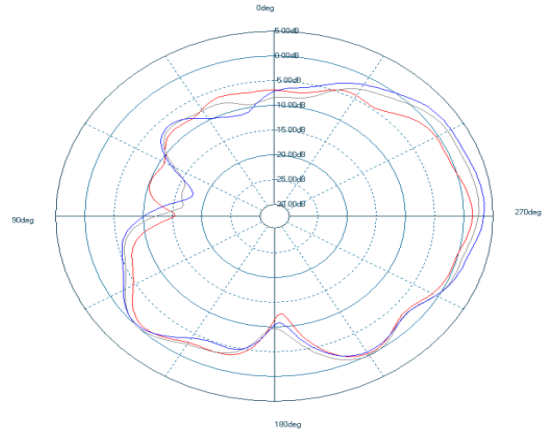


# WiFi2

2.4G Theta90

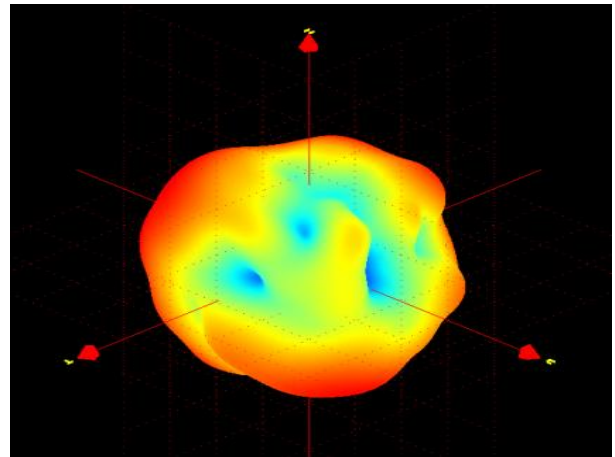
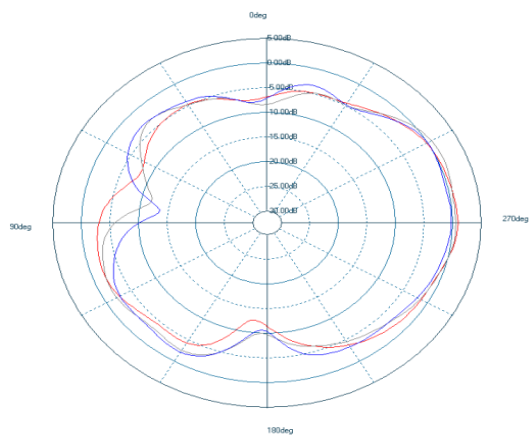


Phi90



Legend  
— 2400.00(MHz)  
— 2450.00(MHz)  
— 2500.00(MHz)

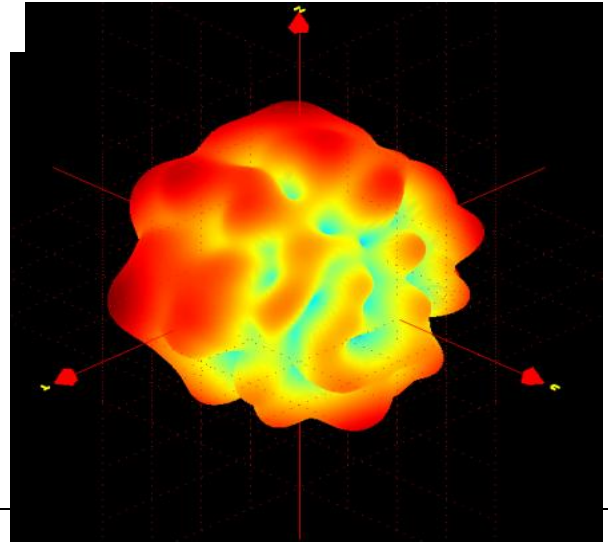
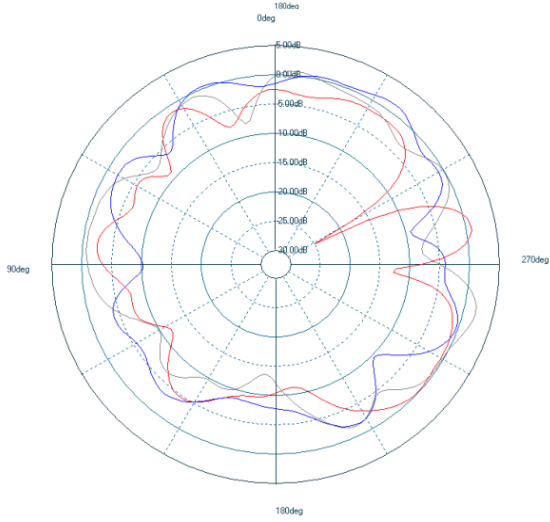
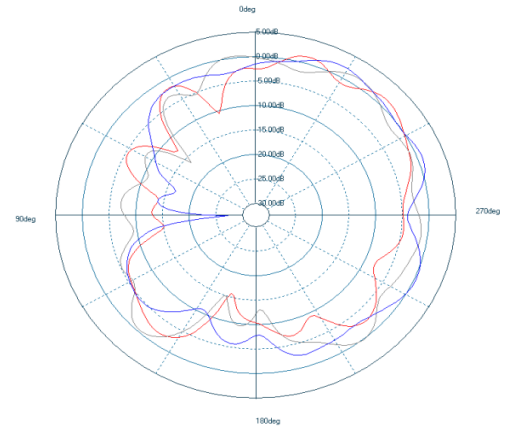
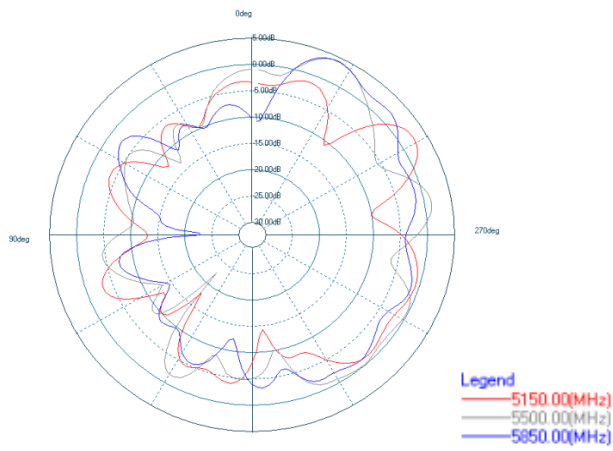
Phi0



5G

Theta90

Phi90



## Efficiency & gain

### BT

| Frequency  | Efficiency | Efficiency . dB | Gain . dB |
|------------|------------|-----------------|-----------|
| 2400000000 | 62%        | -2.04           | 3.31      |
| 2410000000 | 61%        | -2.13           | 3.44      |
| 2420000000 | 63%        | -2.00           | 3.69      |
| 2430000000 | 66%        | -1.83           | 4.06      |
| 2440000000 | 64%        | -1.92           | 4.07      |
| 2450000000 | 64%        | -1.95           | 4.09      |
| 2460000000 | 63%        | -2.00           | 4.41      |
| 2470000000 | 66%        | -1.78           | 4.88      |
| 2480000000 | 66%        | -1.79           | 5.06      |
| 2490000000 | 64%        | -1.95           | 5.09      |
| 2500000000 | 63%        | -2.00           | 5.07      |

### WiFi1

| Frequency  | Efficiency | Efficiency . dB | Gain . dB |  | Frequency  | Efficiency | Efficiency . dB | Gain . dB |
|------------|------------|-----------------|-----------|--|------------|------------|-----------------|-----------|
| 2400000000 | 54%        | -2.64           | 2.50      |  | 5150000000 | 47%        | -3.26           | 6.80      |
| 2410000000 | 53%        | -2.73           | 2.51      |  | 5200000000 | 49%        | -3.12           | 6.85      |
| 2420000000 | 54%        | -2.66           | 2.87      |  | 5250000000 | 49%        | -3.13           | 6.52      |
| 2430000000 | 56%        | -2.53           | 3.13      |  | 5300000000 | 49%        | -3.06           | 6.22      |
| 2440000000 | 55%        | -2.62           | 3.13      |  | 5350000000 | 50%        | -3.02           | 5.89      |
| 2450000000 | 54%        | -2.67           | 3.02      |  | 5400000000 | 48%        | -3.23           | 5.17      |
| 2460000000 | 53%        | -2.72           | 3.02      |  | 5450000000 | 47%        | -3.26           | 5.26      |
| 2470000000 | 52%        | -2.82           | 2.85      |  | 5500000000 | 45%        | -3.45           | 5.24      |
| 2480000000 | 53%        | -2.80           | 2.87      |  | 5550000000 | 45%        | -3.46           | 4.78      |
| 2490000000 | 49%        | -3.06           | 2.59      |  | 5600000000 | 45%        | -3.44           | 4.28      |
| 2500000000 | 49%        | -3.07           | 2.41      |  | 5650000000 | 45%        | -3.45           | 4.43      |
|            |            |                 |           |  | 5700000000 | 46%        | -3.37           | 4.79      |
|            |            |                 |           |  | 5750000000 | 44%        | -3.59           | 5.01      |
|            |            |                 |           |  | 5800000000 | 41%        | -3.82           | 4.37      |
|            |            |                 |           |  | 5850000000 | 42%        | -3.79           | 4.09      |

## WiFi2

| Frequency  | Efficiency | Efficiency . dB | Gain . dB |  | Frequency  | Efficiency | Efficiency . dB | Gain . dB |
|------------|------------|-----------------|-----------|--|------------|------------|-----------------|-----------|
| 2400000000 | 66%        | -1.78           | 3.30      |  | 5150000000 | 53%        | -2.73           | 3.27      |
| 2410000000 | 65%        | -1.87           | 3.45      |  | 5200000000 | 55%        | -2.62           | 3.36      |
| 2420000000 | 68%        | -1.65           | 3.99      |  | 5250000000 | 54%        | -2.68           | 3.61      |
| 2430000000 | 72%        | -1.43           | 4.31      |  | 5300000000 | 56%        | -2.54           | 3.86      |
| 2440000000 | 71%        | -1.46           | 4.16      |  | 5350000000 | 59%        | -2.31           | 3.43      |
| 2450000000 | 72%        | -1.43           | 4.15      |  | 5400000000 | 57%        | -2.43           | 3.29      |
| 2460000000 | 69%        | -1.60           | 3.84      |  | 5450000000 | 58%        | -2.34           | 4.15      |
| 2470000000 | 69%        | -1.62           | 3.53      |  | 5500000000 | 59%        | -2.31           | 4.21      |
| 2480000000 | 69%        | -1.64           | 3.56      |  | 5550000000 | 60%        | -2.24           | 4.91      |
| 2490000000 | 68%        | -1.68           | 3.72      |  | 5600000000 | 61%        | -2.14           | 5.28      |
| 2500000000 | 67%        | -1.72           | 3.72      |  | 5650000000 | 60%        | -2.23           | 5.47      |
|            |            |                 |           |  | 5700000000 | 62%        | -2.07           | 5.66      |
|            |            |                 |           |  | 5750000000 | 60%        | -2.22           | 5.31      |
|            |            |                 |           |  | 5800000000 | 58%        | -2.37           | 4.79      |
|            |            |                 |           |  | 5850000000 | 59%        | -2.28           | 4.61      |

## BT

|    | Mode | Channel | TRP  | TIS    |
|----|------|---------|------|--------|
| BT | DH1  | 0       | 0.71 | -80.87 |
|    |      | 39      | 0.84 | -79.13 |
|    |      | 78      | 0.88 | -81.39 |

# WiFi

|                        | Mode    | Channel | TRP   | TIS    |
|------------------------|---------|---------|-------|--------|
| WiFi 2.4G(BW<br>20MHZ) | WiFi B  | 1       | 17.48 | -71.88 |
|                        |         | 6       | 17.43 | -71.56 |
|                        |         | 11      | 17.59 | -72.37 |
|                        | WiFi G  | 1       | 15.19 | -64.19 |
|                        |         | 6       | 14.86 | -62.53 |
|                        |         | 11      | 14.7  | -63.04 |
|                        | WiFi N  | 1       | 15.27 | -61.01 |
|                        |         | 6       | 14.82 | -58.88 |
|                        |         | 11      | 14.71 | -60.82 |
| WiFi 5G(BW<br>20MHZ)   | WiFi A  | 36      | 15.66 | -77.31 |
|                        |         | 149     | 16.17 | -79.39 |
|                        |         | 165     | 15.63 | -78.73 |
|                        | WiFi N  | 36      | 15.62 | -73.91 |
|                        |         | 149     | 16.2  | -74.89 |
|                        |         | 165     | 15.81 | -75.01 |
|                        | WiFi AC | 36      | 15.66 | -77.14 |
|                        |         | 149     | 16.14 | -78.79 |
|                        |         | 165     | 15.77 | -78.88 |