

# MBE001 Antenna Specification

| DSGN      | CHK       | APVD      |
|-----------|-----------|-----------|
| S.Sakurai | J.Park    | Y.Hibino  |
| Feb/09/23 | Feb/09/23 | Feb/09/23 |

- Manufacturer : Foster Electric Company, Limited
- H.Q. Address : 1-1-109, Tsutsujigaoka, Akishima City, Tokyo, 196-8550, Japan
- Model Name : MBE001
- Frequency Range : 2402MHz~2480MHz
- Antenna Type : Monopole Antenna (FPC pattern Antenna)
- Connector Type : X.FL
- Cable length : No cable
- Cable Loss : – dB

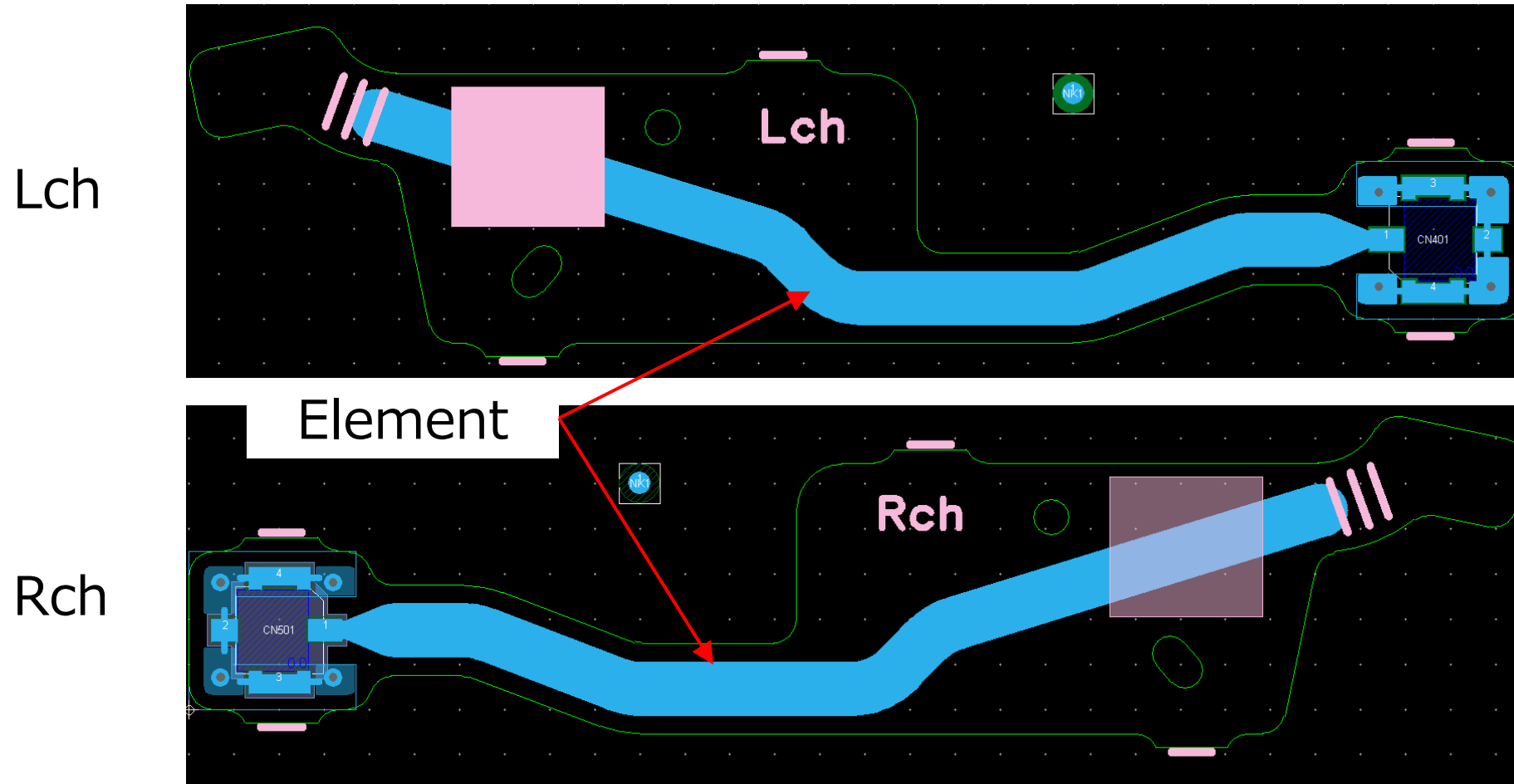
- Antenna Gain :  
Lch -1.8dBi / Rch -1.6dBi ※Application value : below -1.6dBi  
※Refer to p5~p10
- Test Date : 9/29/2022
- Test PIC : Seigo Sakurai / Takahiko Ishikura
- Instruments : Network analyzer E-5071C\_Keysight  
(Latest Calibration date : 12/16/2021)
- Test System Name :  
ETS-LINDGREN EMQuest Antenna measurement site
- Test Photo : Refer to p8、p10

# Antenna Shape

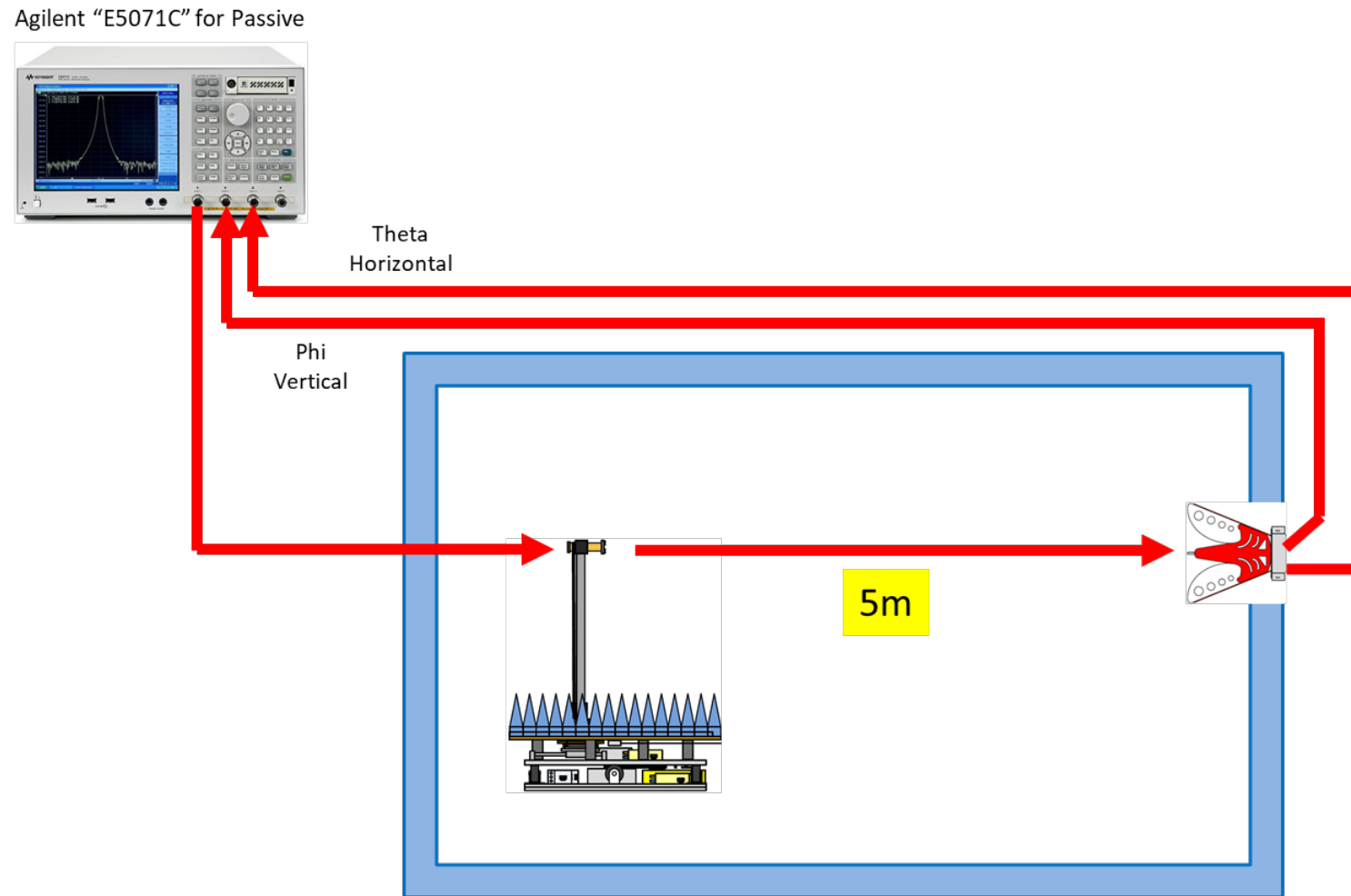
Type : Monopole Antenna (FPC pattern antenna)

Impedance :  $50\Omega$

Pink : Silk



- ANT chamber Wiring Diagram



- Antenna Gain Measuring method
  - (1) Fix the DUT on the foam head and perform passive radiation pattern (3D) measurements. ※Refer to Figure 4
  - (2) A 2D (Z-X plane, Z-Y plane, X-Y plane) radiation pattern is obtained from a 3D radiation pattern. ※Refer to Figure 5

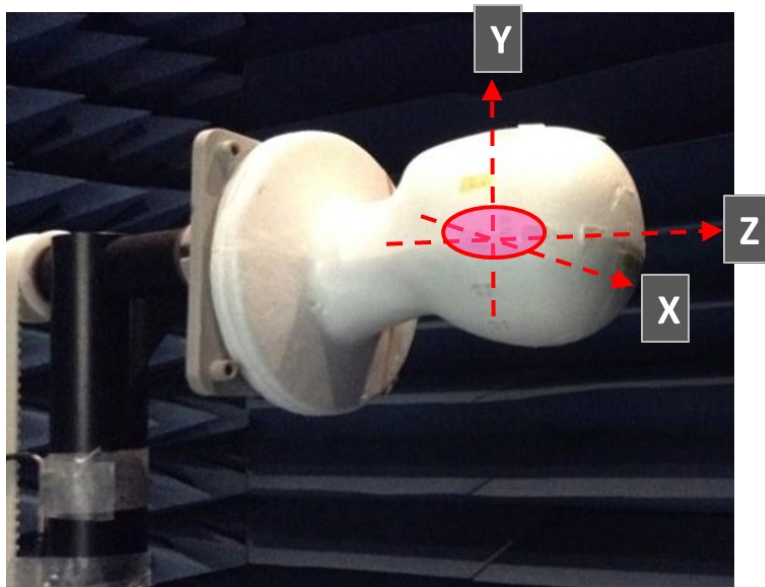


Figure 4 DUT Mount position

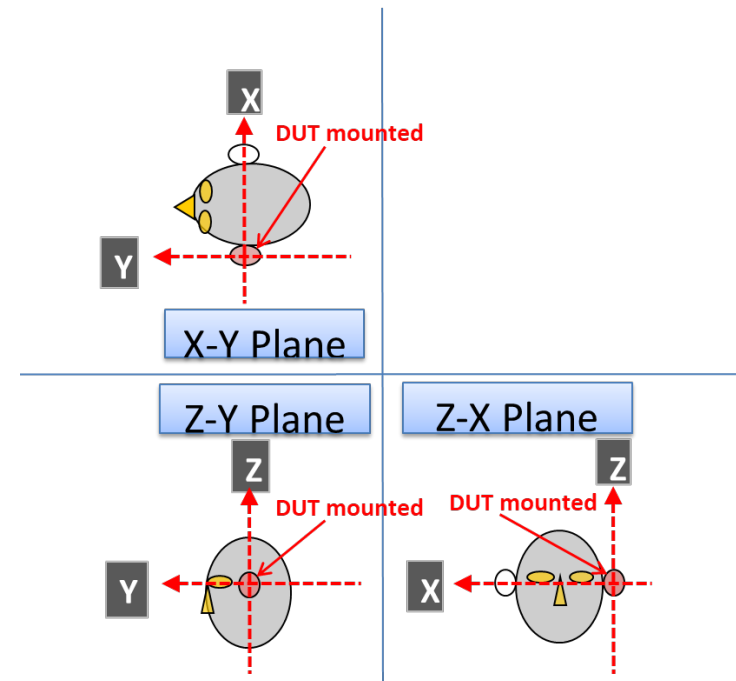
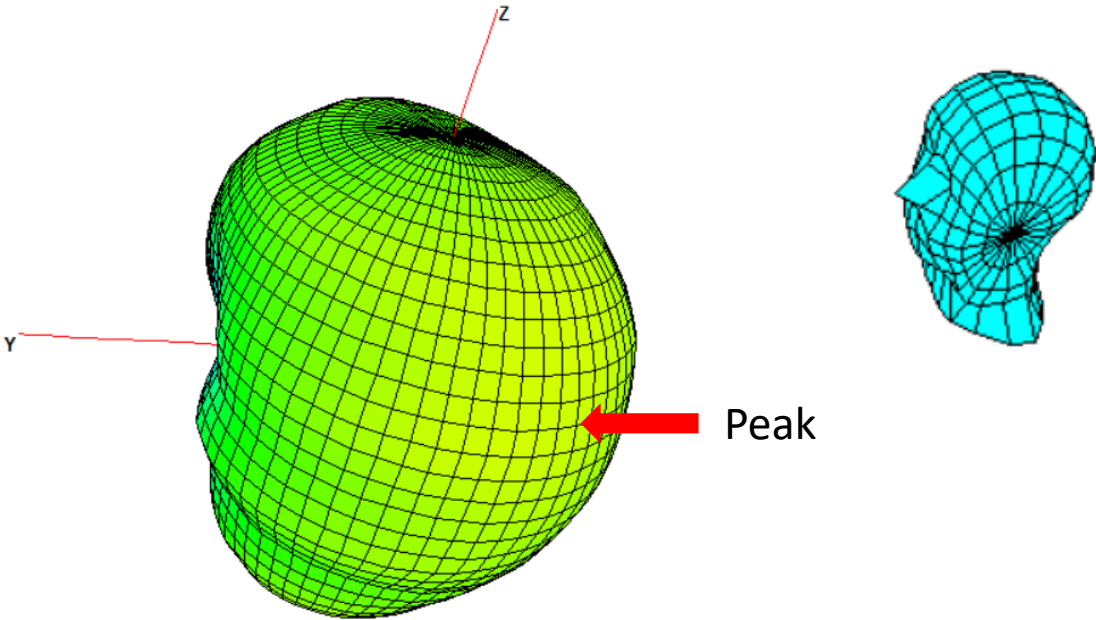


Figure 5 Measurement plane

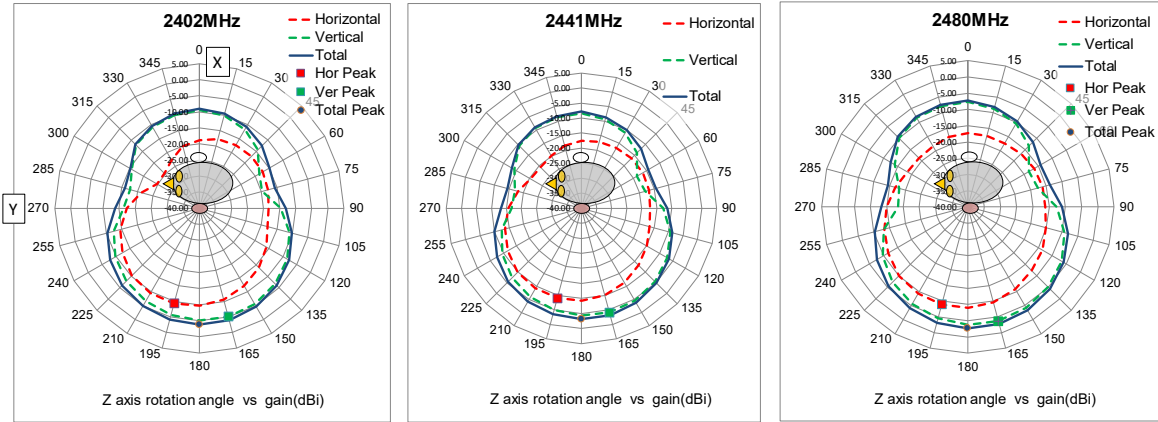
Peak Gain:-1.805dBi

| Frequency(Channel) | 2402MHz(ch0) | 2441MHz(ch39) | 2480MHz(ch78) |
|--------------------|--------------|---------------|---------------|
| Peak gain(dBi)     | -2.599       | -1.977        | -1.805        |
| Total power(dBm)   | -6.654       | -5.951        | -5.829        |
| Efficiency(%)      | 21.61        | 25.40         | 26.13         |



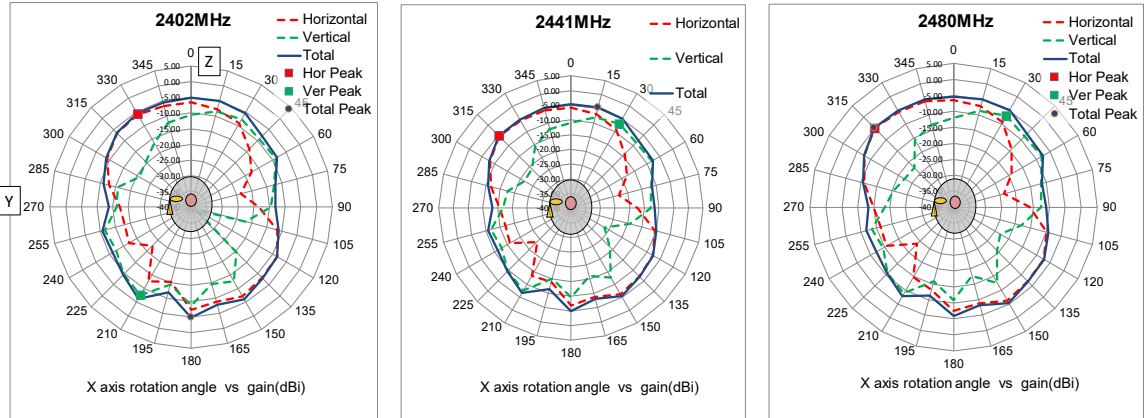
Radiation pattern 2D (X-Y Plane)

|                            |         |         |         |
|----------------------------|---------|---------|---------|
| Center Frequency           | 2402MHz | 2441MHz | 2480MHz |
| Horizontal Peak gain (dBi) | -9.37   | -9.03   | -9.00   |
| Vertical Peak gain (dBi)   | -5.10   | -4.12   | -3.68   |
| Total Peak gain (dBi)      | -3.85   | -3.08   | -2.65   |



Radiation pattern 2D (Z-Y Plane)

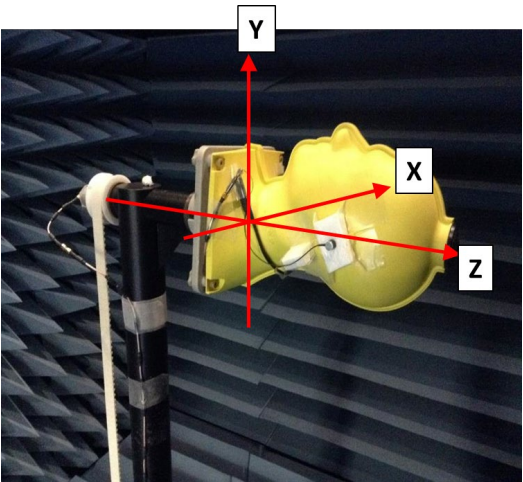
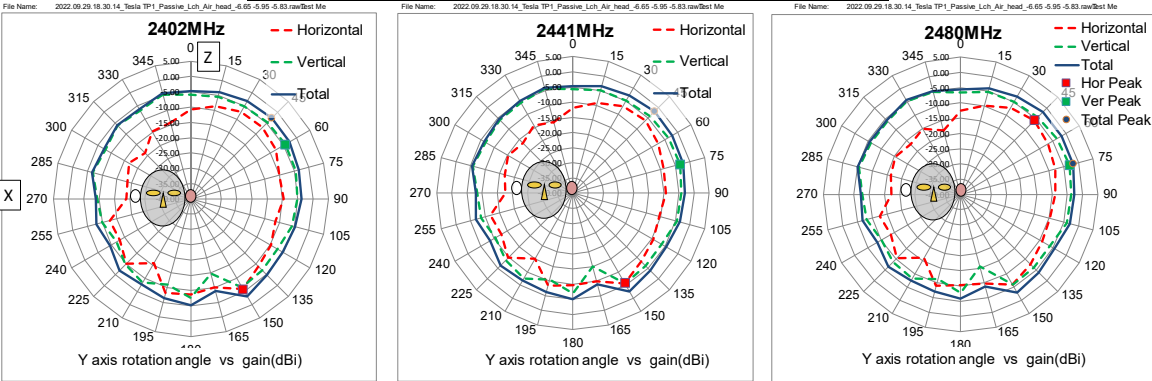
|                            |         |         |         |
|----------------------------|---------|---------|---------|
| Center Frequency           | 2402MHz | 2441MHz | 2480MHz |
| Horizontal Peak gain (dBi) | -5.92   | -5.31   | -4.93   |
| Vertical Peak gain (dBi)   | -7.49   | -6.95   | -6.93   |
| Total Peak gain (dBi)      | -4.86   | -4.47   | -4.85   |



Radiation pattern 2D (Z-X Plane)

| e)                         | Efficiency (dB) (%) | -6.65   | 21.6 | -5.95   | 25.4 | -5.83   | 26.1 |
|----------------------------|---------------------|---------|------|---------|------|---------|------|
| Center Frequency           |                     | 2402MHz |      | 2441MHz |      | 2480MHz |      |
| Horizontal Peak gain (dBi) |                     | -5.92   |      | -5.71   |      | -5.69   |      |
| Vertical Peak gain (dBi)   |                     | -4.35   |      | -3.43   |      | -3.07   |      |
| Total Peak gain (dBi)      |                     | -2.60   |      | -1.98   |      | -1.80   |      |

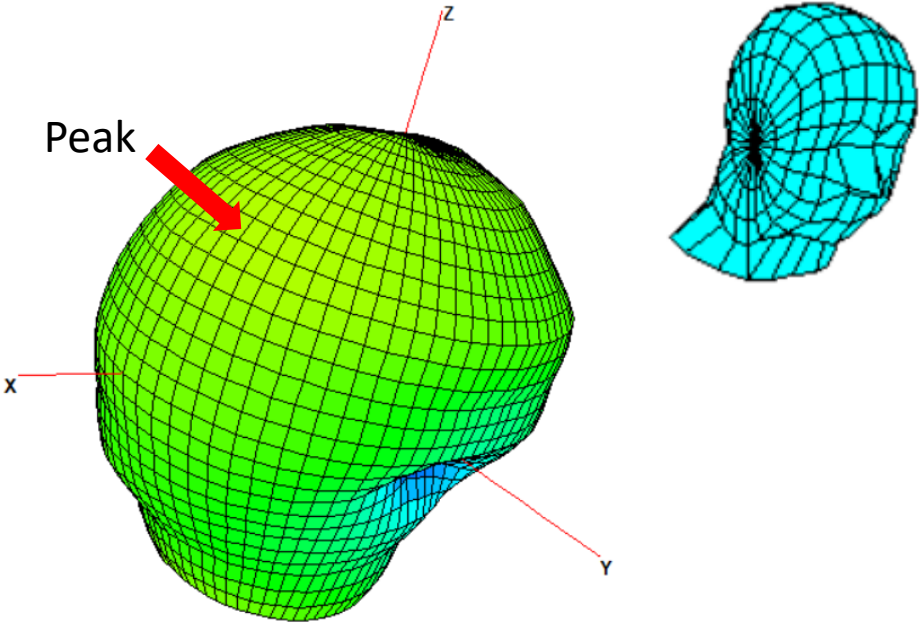
Passive radiation pattern  
DUT :  
Tester : E5071C





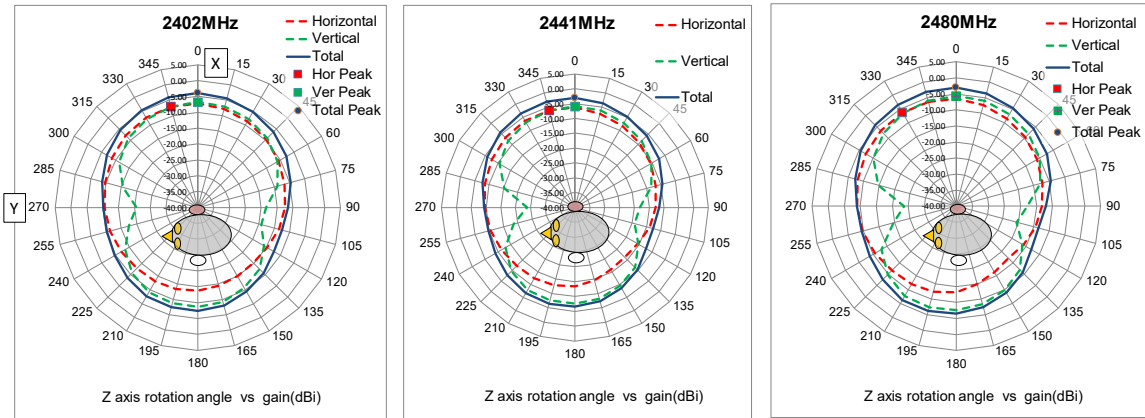
Peak Gain:-1.597dBi

| Frequency(Channel) | 2402MHz(ch0) | 2441MHz(ch39) | 2480MHz(ch78) |
|--------------------|--------------|---------------|---------------|
| Peak gain(dBi)     | -2.514       | -1.646        | -1.597        |
| Total power(dBm)   | -6.520       | -5.693        | -5.733        |
| Efficiency(%)      | 22.29        | 26.96         | 26.71         |



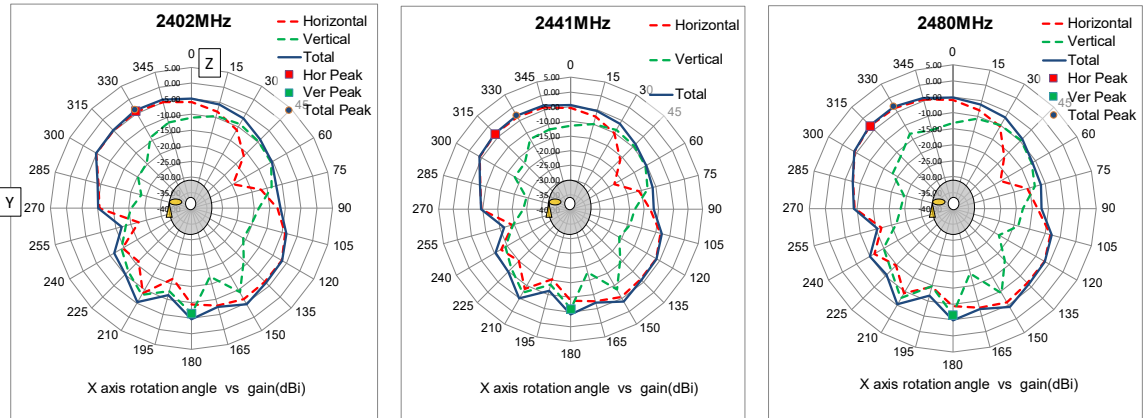
Radiation pattern 2D (X-Y Plane)

|                            |         |         |         |
|----------------------------|---------|---------|---------|
| Center Frequency           | 2402MHz | 2441MHz | 2480MHz |
| Horizontal Peak gain (dBi) | -7.13   | -6.18   | -6.31   |
| Vertical Peak gain (dBi)   | -6.81   | -6.14   | -5.70   |
| Total Peak gain (dBi)      | -3.98   | -3.15   | -3.07   |



Radiation pattern 2D (Z-Y Plane)

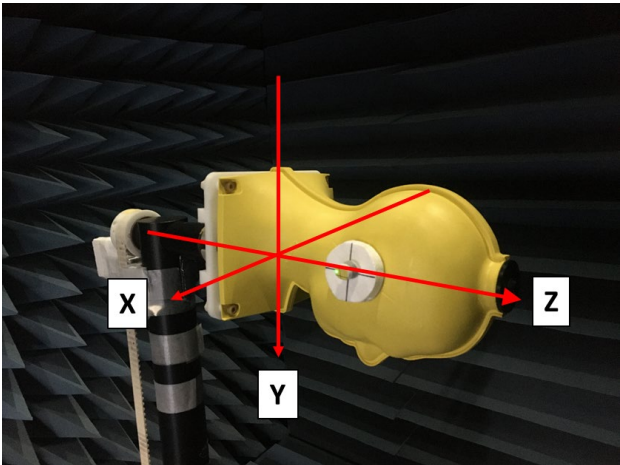
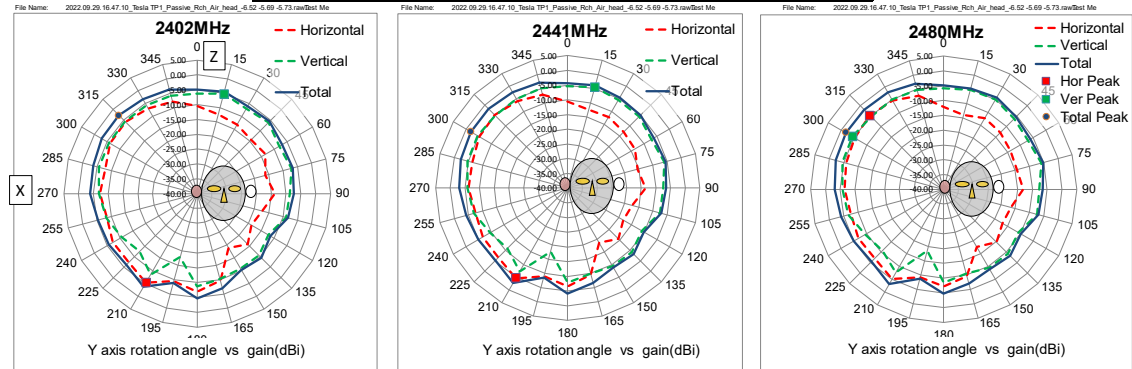
|                            |         |         |         |
|----------------------------|---------|---------|---------|
| Center Frequency           | 2402MHz | 2441MHz | 2480MHz |
| Horizontal Peak gain (dBi) | -4.34   | -3.56   | -3.36   |
| Vertical Peak gain (dBi)   | -6.34   | -6.08   | -6.67   |
| Total Peak gain (dBi)      | -3.88   | -3.09   | -3.05   |



Radiation pattern 2D (Z-X Plane)

| Plane)                 | Efficiency (dB) (%)        | -6.52   | 22.3 | -5.69   | 27.0 | -5.73   | 26.7 |
|------------------------|----------------------------|---------|------|---------|------|---------|------|
|                        | Center Frequency           | 2402MHz |      | 2441MHz |      | 2480MHz |      |
| <div><div></div></div> | Horizontal Peak gain (dBi) | -5.45   |      | -4.65   |      | -4.67   |      |
| <div><div></div></div> | Vertical Peak gain (dBi)   | -5.15   |      | -4.54   |      | -4.35   |      |
| <div><div></div></div> | Total Peak gain (dBi)      | -2.78   |      | -1.87   |      | -1.79   |      |

Passive radiation pattern  
DUT :  
Tester : E5071C



**EOF**