

# AP5050D DVT Report

2022/08/15



*Smarter Solutions for a Smarter Future*

# Summary

- Patch array design, PCB + sheet metal
- $VSWR < 2$
- Dimension : 446x215x11.5(mm)
- Efficiency ~60%(without cable loss)
- Antenna Gain
  - Narrow Beam 2.4G/5G/6E : 8.8/8.1/8.0dBi(max.)
  - Wide Beam 2.4G/5G/6E : 6.2/6.7/6.4dBi(max.)
  - Scanning 2.4G/5G/6E : 6.2/6.7/6.4dBi(max.)
  - BLE/802.15.4 : 2.7dBi(max.)
  - GPS : 3.0dBi(max.)
- 3dB Beam width (azimuth/elevation)
  - Narrow Beam : 30/70 degree
  - Wide Beam : 70/70 degree
- **+/-45° Polarization for WIFI**
- Isolation
  - **above 30dB between 5G and 6G antennas**
  - above 20dB for the others
- Switch board and jump cable loss (dB)
  - Narrow Beam 2.4G/5G/6E : 4.4/5.7/4.6dBi(max.)
  - Wide Beam 2.4G/5G/6E : 4.4/6.4/4.6dBi(max.)
  - Scanning 2.4G/5G/6E : 4.4/5/5.1dBi(max.)



# Summary

## 2G Narrow Beam

| Brand | WNC P/N      | Ant.                             |
|-------|--------------|----------------------------------|
| WNC   | 95XEAJ15.G62 | 2G narrow ant3<br>2G narrow ant0 |
| WNC   | 95XEAJ15.G63 | 2G narrow ant2<br>2G narrow ant1 |

## 5G Narrow Beam

| Brand | WNC P/N      | Ant.                             |
|-------|--------------|----------------------------------|
| WNC   | 95XEAJ15.G70 | 5G narrow ant0<br>5G narrow ant1 |
| WNC   | 95XEAJ15.G71 | 5G narrow ant2<br>5G narrow ant3 |

## 6G Narrow Beam

| Brand | WNC P/N      | Ant.                             |
|-------|--------------|----------------------------------|
| WNC   | 95XEAJ15.G72 | 6G narrow ant3<br>6G narrow ant0 |
| WNC   | 95XEAJ15.G73 | 6G narrow ant1<br>6G narrow ant2 |

## 2G Wide Beam

| Brand | WNC P/N      | Ant.                         |
|-------|--------------|------------------------------|
| WNC   | 95XEAJ15.G64 | 2G wide ant3<br>2G wide ant0 |
| WNC   | 95XEAJ15.G65 | 2G wide ant2<br>2G wide ant1 |

## 5G Wide Beam

| Brand | WNC P/N      | Ant.                         |
|-------|--------------|------------------------------|
| WNC   | 95XEAJ15.G67 | 5G wide ant0<br>5G wide ant1 |
| WNC   | 95XEAJ15.G68 | 5G wide ant2<br>5G wide ant3 |

## 6G Wide Beam

| Brand | WNC P/N      | Ant.                         |
|-------|--------------|------------------------------|
| WNC   | 95XEAJ15.G61 | 6G wide ant3<br>6G wide ant0 |
| WNC   | 95XEAJ15.G66 | 6G wide ant1<br>6G wide ant2 |

## 5G Scan

| Brand | WNC P/N      | Ant.                         |
|-------|--------------|------------------------------|
| WNC   | 95XEAJ15.G69 | 5G scan ant0<br>5G scan ant1 |

## 6G Scan

| Brand | WNC P/N      | Ant.                         |
|-------|--------------|------------------------------|
| WNC   | 95XEAJ15.GA8 | 6G scan ant0<br>6G scan ant1 |

## Others

| Brand | WNC P/N      | Ant.        |
|-------|--------------|-------------|
| WNC   | 95XEAJ15.G74 | BT/802.15.4 |
| WNC   | 95XEAJ15.G75 | GPS         |
|       |              |             |



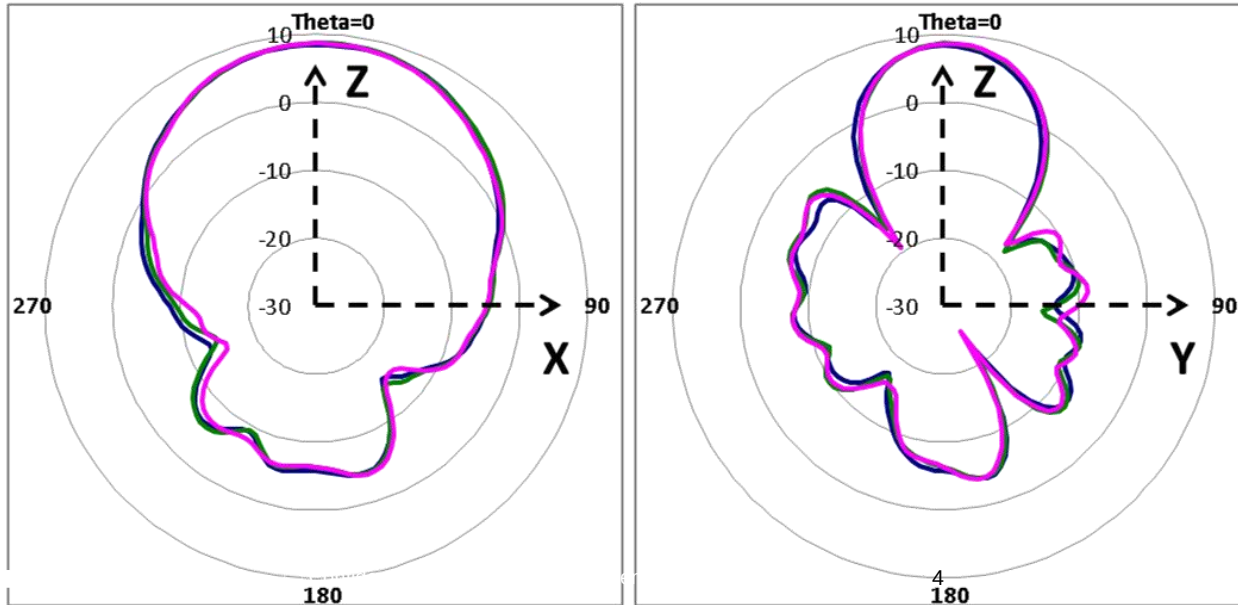
# 2G Narrow Beam

3dB Beam width : 30/70 degree (azimuth/elevation)  
Polarization : +/-45°

|                                       |     |      |     |
|---------------------------------------|-----|------|-----|
| Frequency (GHz)                       | 2.4 | 2.45 | 2.5 |
| Azimuth 3dB beamwidth                 | 33° | 33°  | 33° |
| Elevation 3dB beamwidth               | 70° | 70°  | 67° |
| Gain (dBi)                            | 8.4 | 8.8  | 8.7 |
| Switch board and jump cable loss (dB) | 4.4 |      |     |

## Radiation Pattern

— 2400MHz  
— 2450MHz  
— 2500MHz



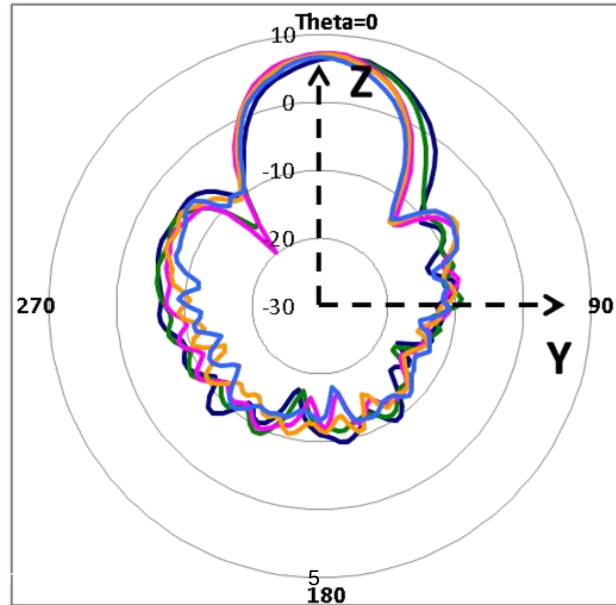
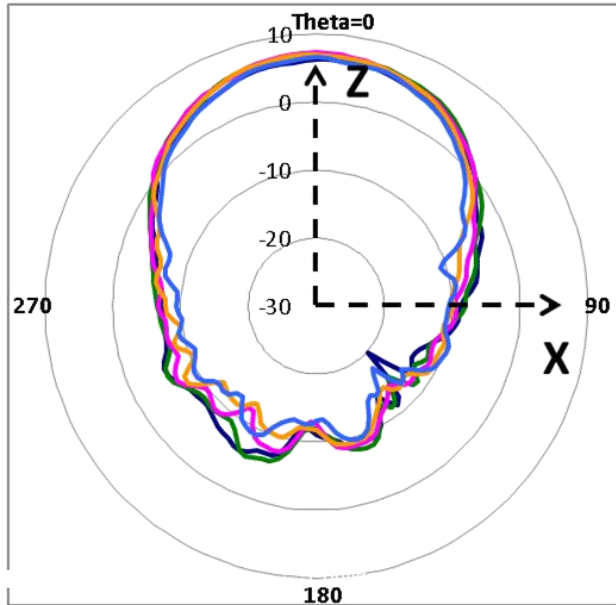
# 5G Narrow Beam

3dB Beam width : 30/70 degree (azimuth/elevation)  
Polarization : +/-45°

|                                       |      |      |      |      |      |
|---------------------------------------|------|------|------|------|------|
| Frequency (GHz)                       | 5.15 | 5.35 | 5.55 | 5.75 | 5.85 |
| Azimuth 3dB beamwidth                 | 36°  | 36°  | 33°  | 33°  | 31°  |
| Elevation 3dB beamwidth               | 67°  | 68°  | 68°  | 65°  | 62°  |
| Gain (dBi)                            | 7.5  | 8.0  | 8.1  | 8.0  | 7.4  |
| Switch board and jump cable loss (dB) | 5.7  |      |      |      |      |

## Radiation Pattern

— 5150MHz  
— 5350MHz  
— 5550MHz  
— 5750MHz  
— 5850MHz



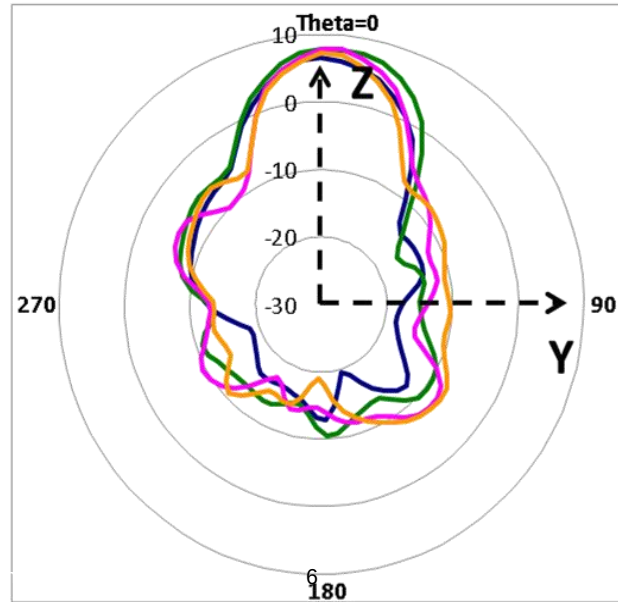
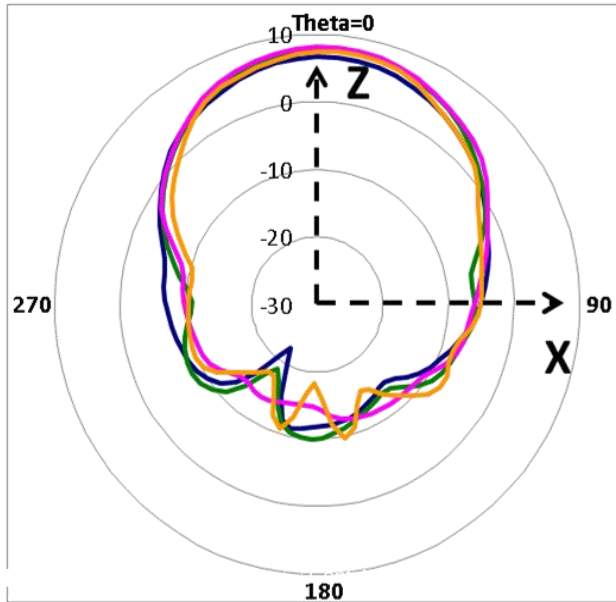
# 6G Narrow Beam

3dB Beam width : 30/70 degree (azimuth/elevation)  
Polarization : +/-45°

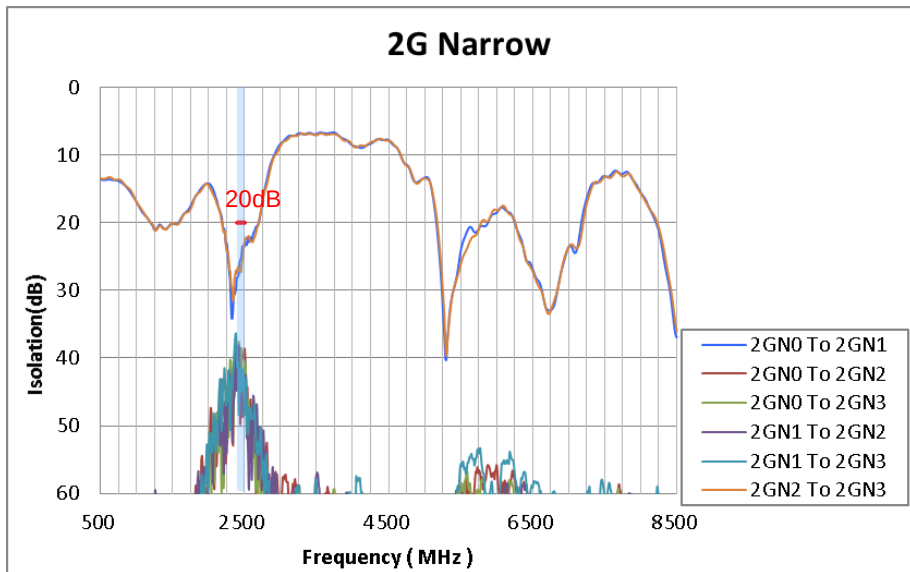
| Frequency (GHz)                       | 6000 | 6450 | 6850 | 7125 |
|---------------------------------------|------|------|------|------|
| Azimuth 3dB beamwidth                 | 36°  | 33°  | 31°  | 31°  |
| Elevation 3dB beamwidth               | 66°  | 69°  | 65°  | 62°  |
| Gain (dBi)                            | 6.5  | 8.0  | 7.8  | 7.0  |
| Switch board and jump cable loss (dB) | 4.6  |      |      |      |

## Radiation Pattern

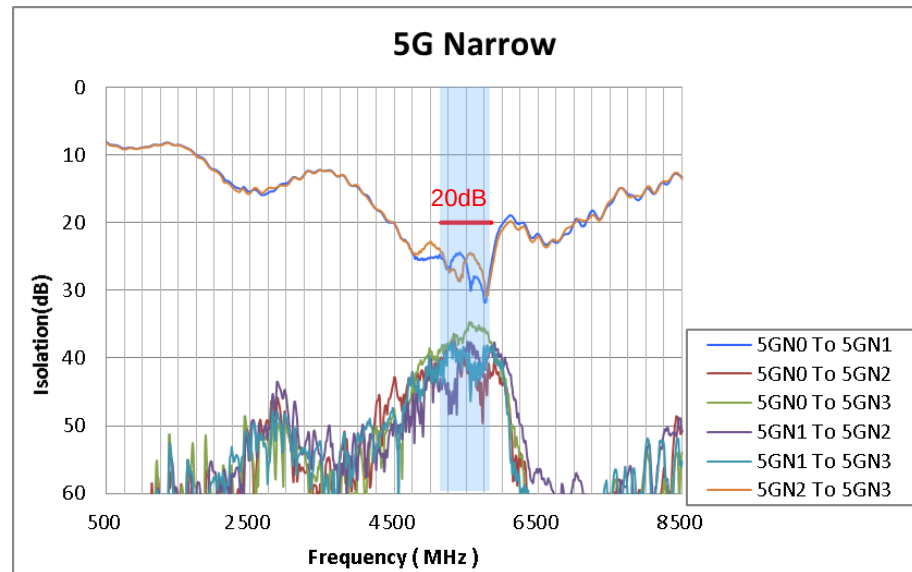
— 6000MHz  
— 6450MHz  
— 6850MHz  
— 7125MHz



# Narrow Beam\_Isolation

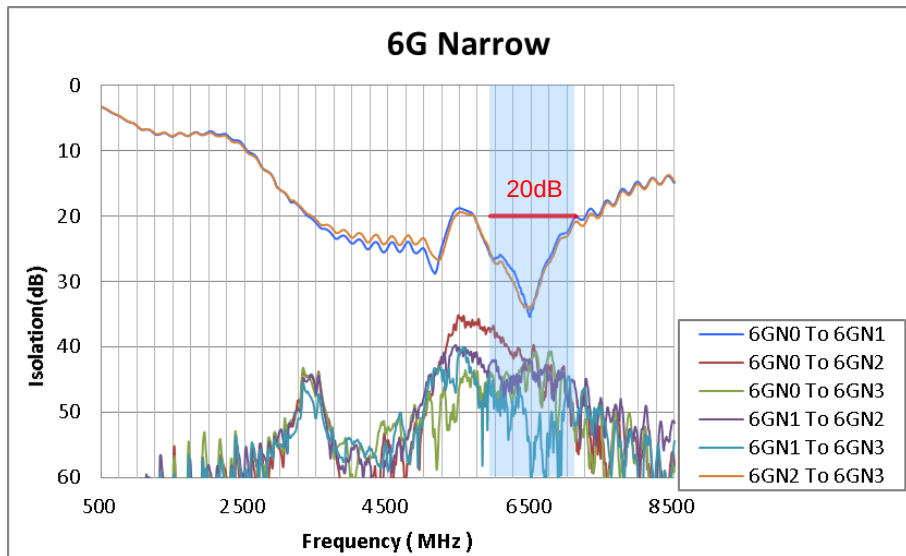


2G to 2G : 20dB

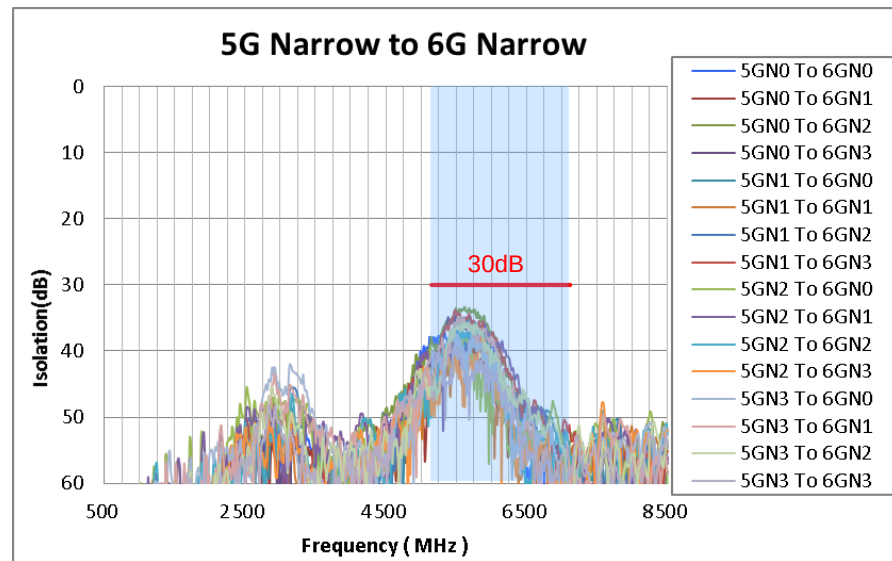


5G to 5G : 20dB

# Narrow\_Isolation



6G to 6G : 20dB



5G to 6G : 30dB



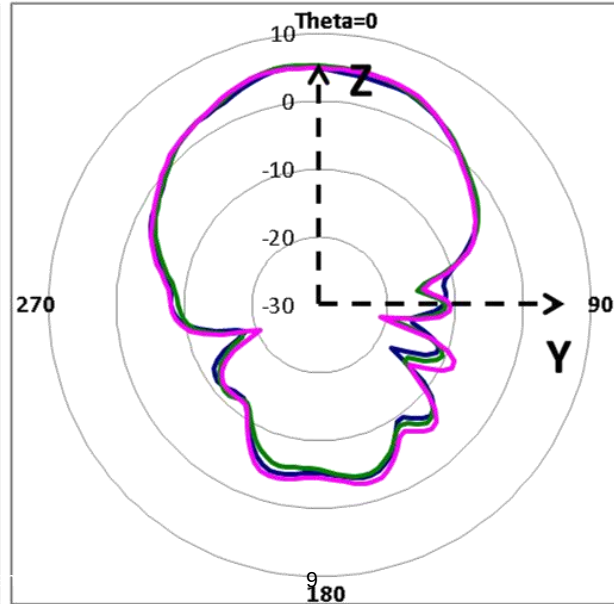
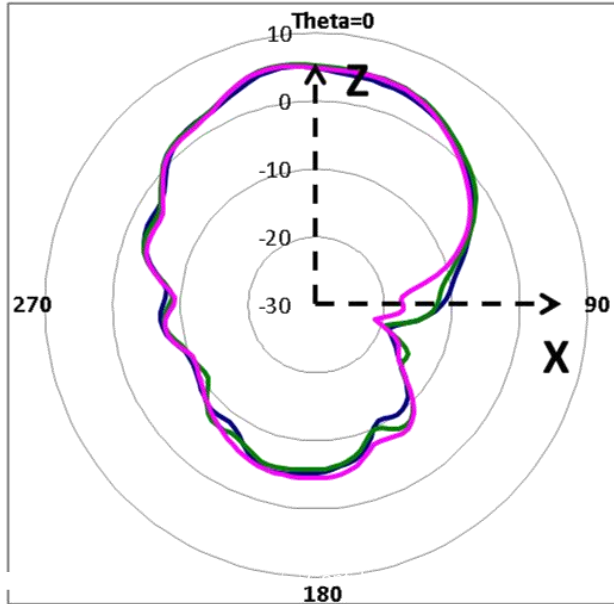
# 2G Wide Beam & Scanning

3dB Beam width : 70/70 degree (azimuth/elevation)  
Polarization : +/-45°

|                                       |     |      |     |
|---------------------------------------|-----|------|-----|
| Frequency (GHz)                       | 2.4 | 2.45 | 2.5 |
| Azimuth 3dB beamwidth                 | 68° | 65°  | 66° |
| Elevation 3dB beamwidth               | 71° | 68°  | 72° |
| Gain (dBi)                            | 5.9 | 6.2  | 6.0 |
| Switch board and jump cable loss (dB) | 4.4 |      |     |

## Radiation Pattern

— 2400MHz  
— 2450MHz  
— 2500MHz



# 5G Wide Beam & Scanning

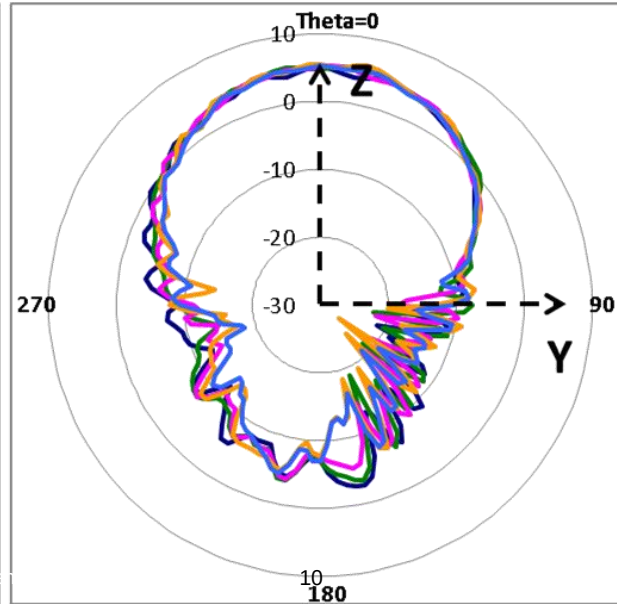
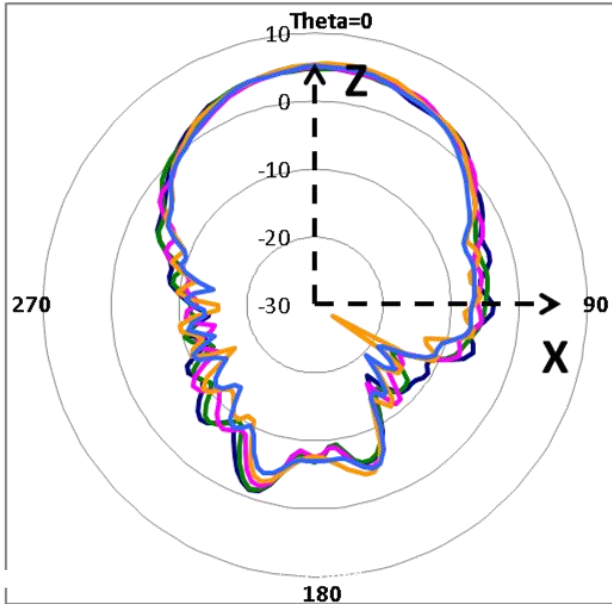
3dB Beam width : 70/70 degree (azimuth/elevation)  
Polarization : +/-45°

|                                       |                               |      |      |      |      |
|---------------------------------------|-------------------------------|------|------|------|------|
| Frequency (GHz)                       | 5.15                          | 5.35 | 5.55 | 5.75 | 5.85 |
| Azimuth 3dB beamwidth                 | 75°                           | 76°  | 73°  | 73°  | 70°  |
| Elevation 3dB beamwidth               | 76°                           | 75°  | 72°  | 70°  | 68°  |
| Gain (dBi)                            | 5.8                           | 6.2  | 6.3  | 6.7  | 6.1  |
| Switch board and jump cable loss (dB) | 6.4(wide beam)<br>5(scanning) |      |      |      |      |

## Radiation Pattern

— 5150MHz  
— 5350MHz  
— 5550MHz  
— 5750MHz

— 5850MHz



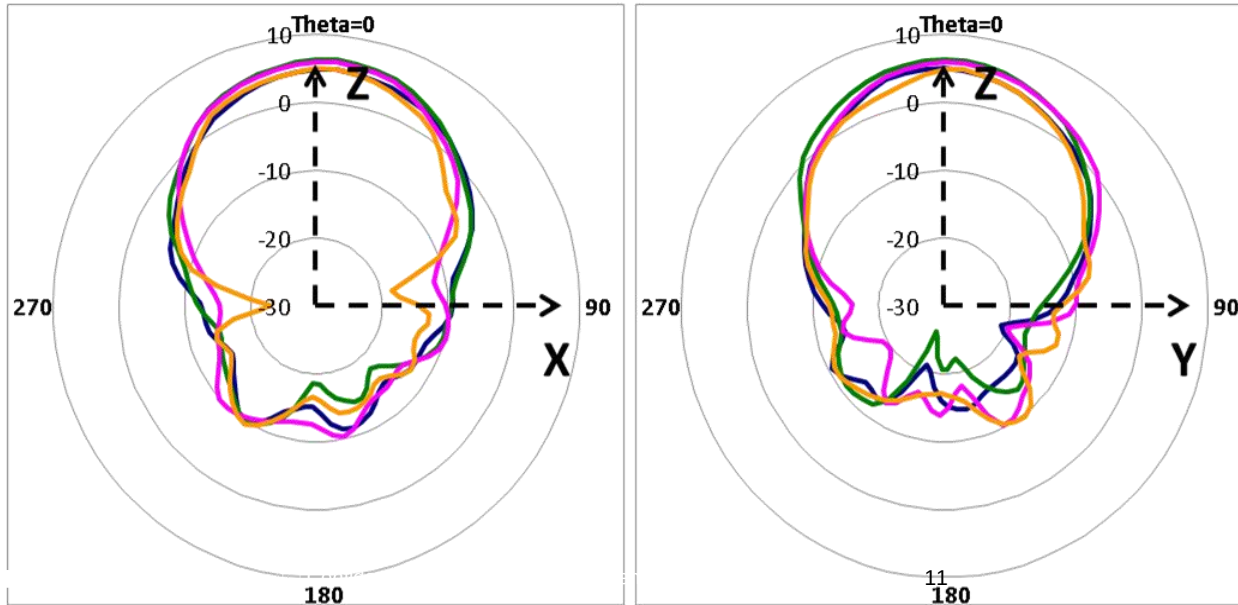
# 6G Wide Beam & Scanning

3dB Beam width : 70/70 degree (azimuth/elevation)  
Polarization : +/-45°

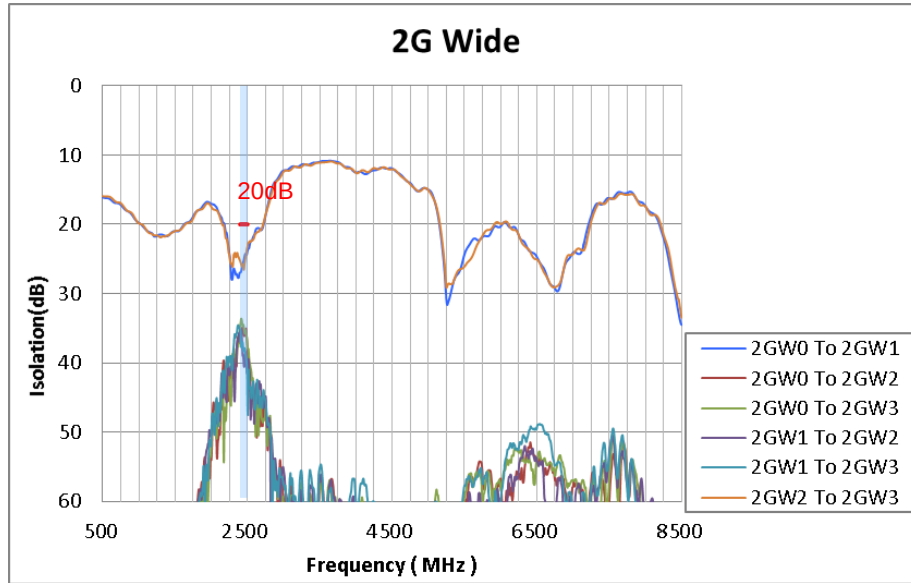
|                                       |                                 |      |      |      |
|---------------------------------------|---------------------------------|------|------|------|
| Frequency (GHz)                       | 6000                            | 6450 | 6850 | 7125 |
| Azimuth 3dB beamwidth                 | 68°                             | 70°  | 68°  | 68°  |
| Elevation 3dB beamwidth               | 65°                             | 68°  | 67°  | 63°  |
| Gain (dBi)                            | 4.9                             | 6.4  | 5.5  | 4.6  |
| Switch board and jump cable loss (dB) | 4.6(wide beam)<br>5.1(scanning) |      |      |      |

## Radiation Pattern

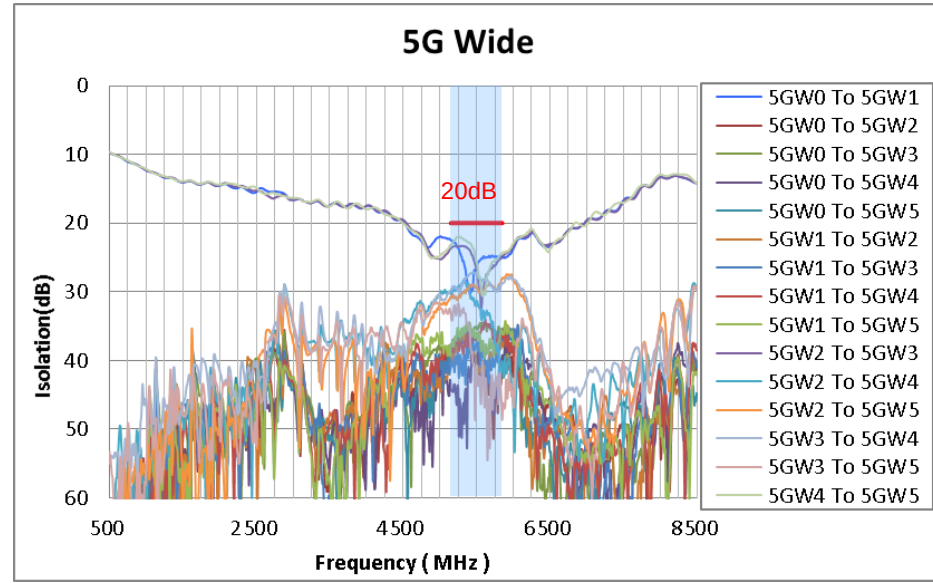
— 6000MHz  
— 6450MHz  
— 6850MHz  
— 7125MHz



# Wide Beam\_Isolation



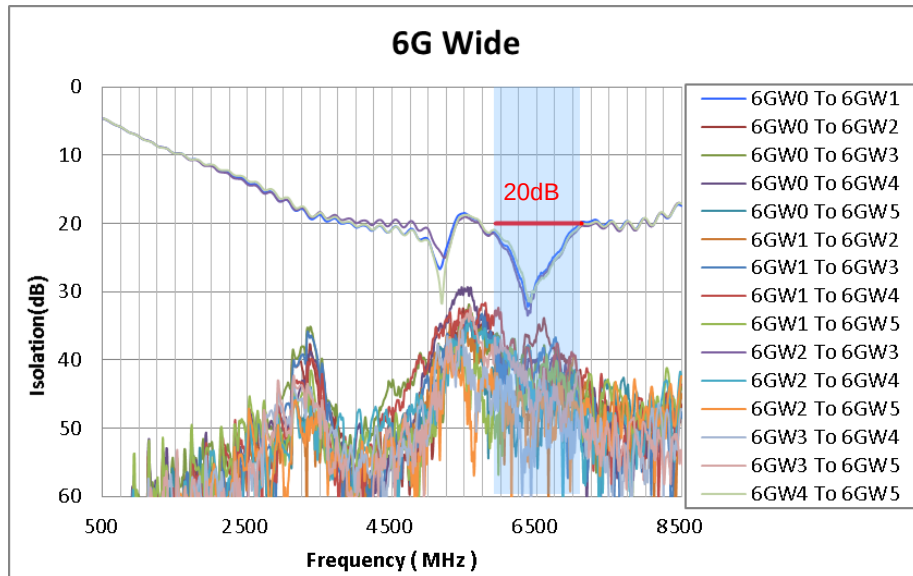
2G to 2G : 20dB



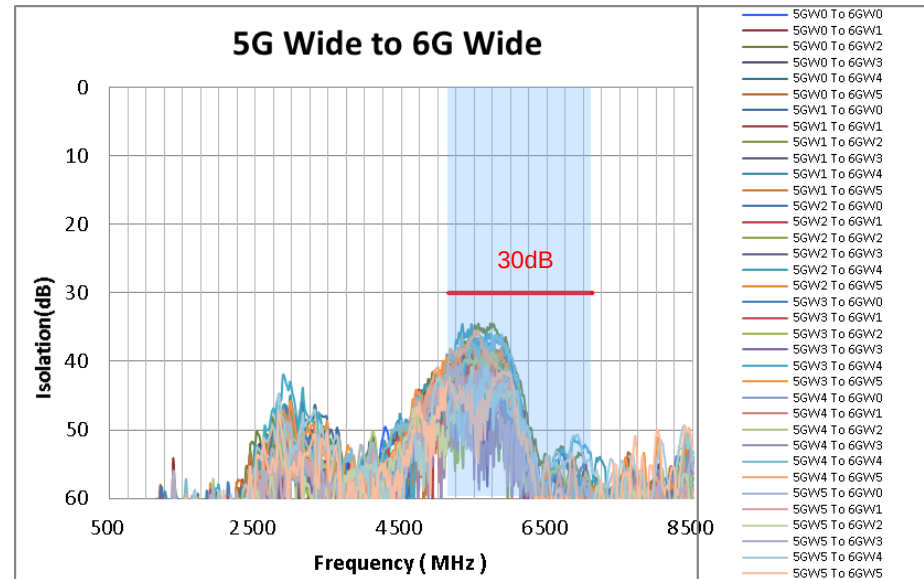
5G to 5G : 20dB



# Wide Beam\_Isolation



6G to 6G : 20dB

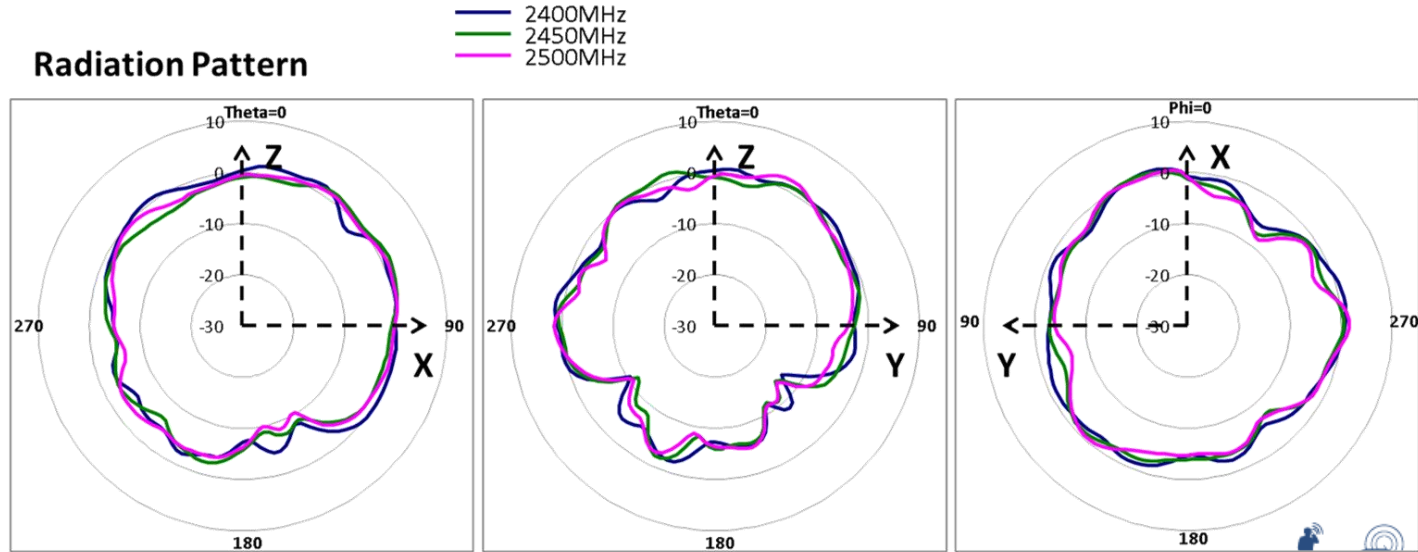


5G to 6G : 30dB

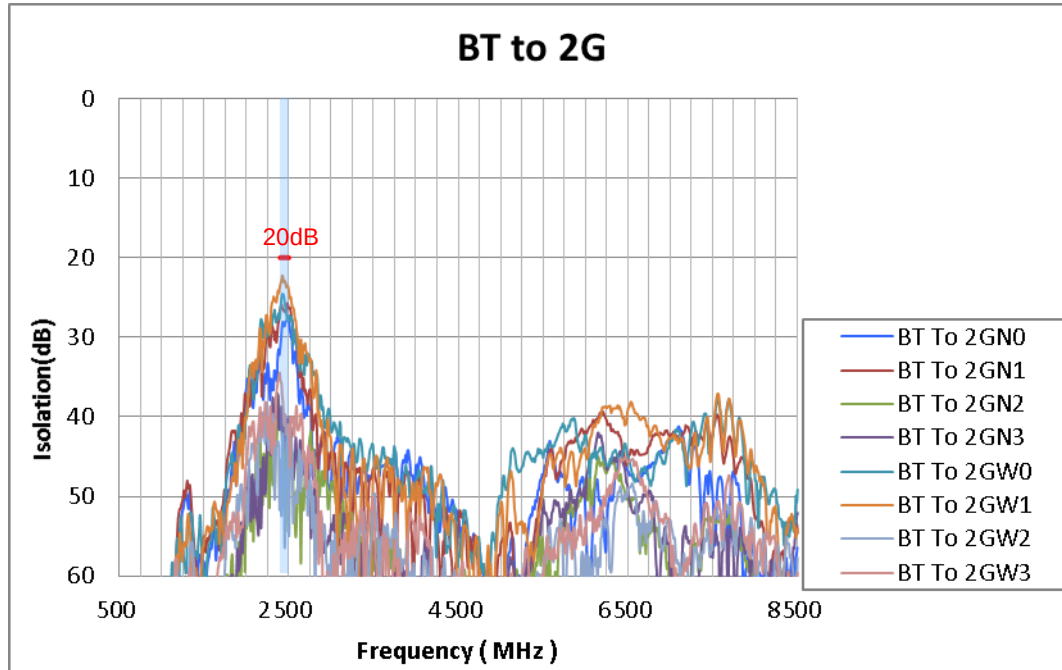
# BLE/802.15.4

|                 |     |      |     |
|-----------------|-----|------|-----|
| Frequency (GHz) | 2.4 | 2.45 | 2.5 |
| Gain (dBi)      | 2.3 | 2.7  | 2.2 |

**Radiation Pattern**



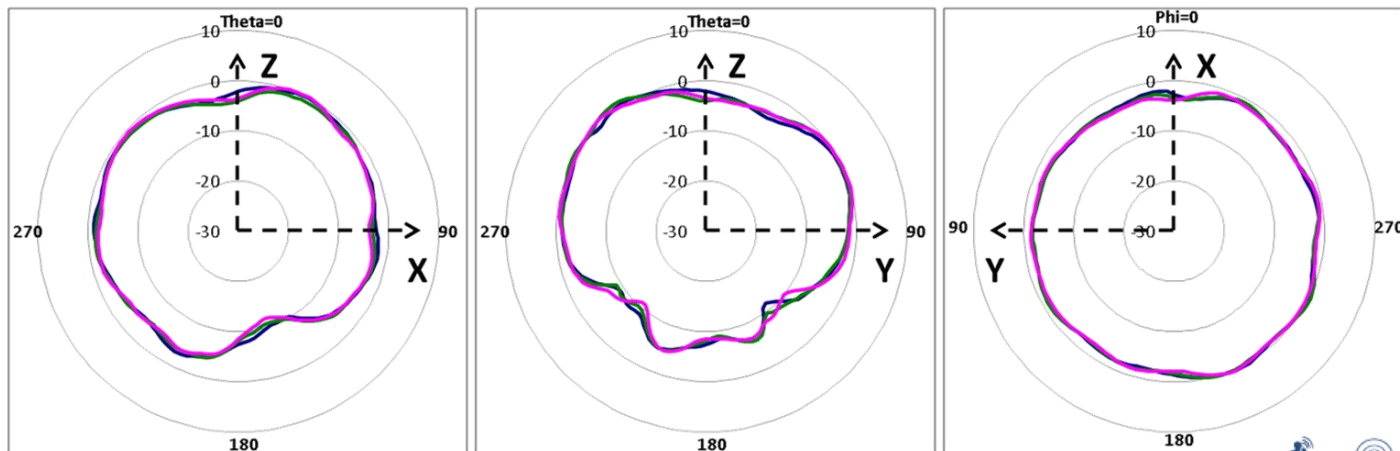
# BLE/802.15.4 to the other\_Isolation



|                 |       |       |       |
|-----------------|-------|-------|-------|
| Frequency (GHz) | 1.565 | 1.575 | 1.585 |
| Gain (dBi)      | 2.6   | 3.0   | 2.8   |

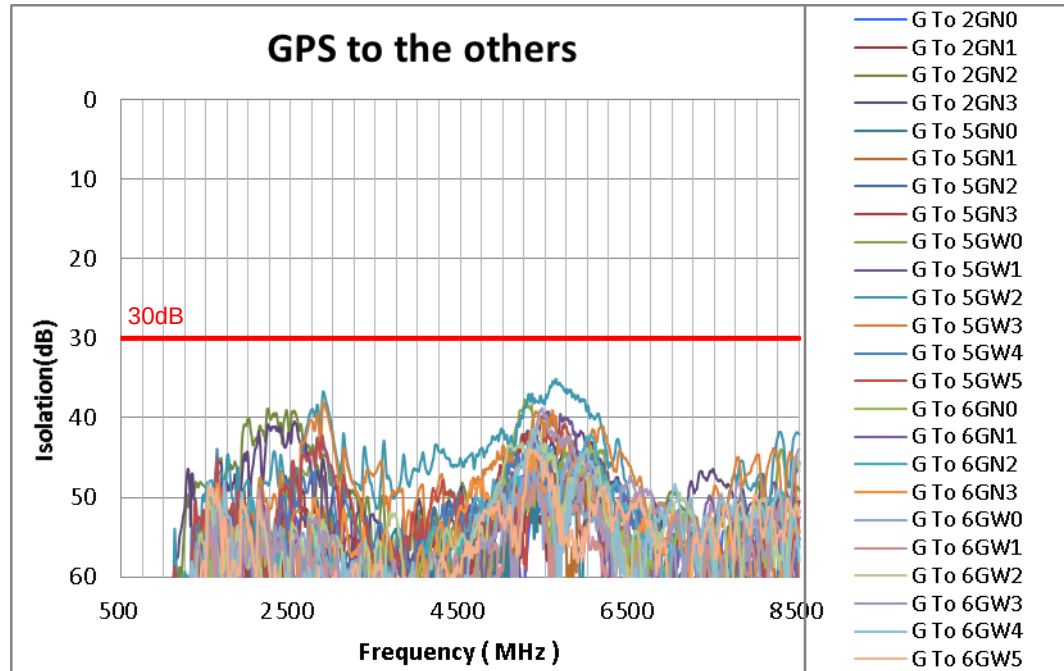
## Radiation Pattern

— 1565MHz  
 — 1575MHz  
 — 1585MHz





# GPS to the others\_Isolation



# **WNC**

***Wistron NeWeb Corp.***

