



Antenna Composite Gain Test Report

| | |
|-----------------|--|
| FCC ID | LDK-9160S2578 LDK-9160S2875 |
| Equipment | Cisco Catalyst Wireless 9166I Series Access Points / Cisco Catalyst Wireless 9164I Series Access Points |
| Brand Name | CISCO |
| Model Name | CW9166I-B, CW9164I-B, CW9166I-MR, CW9164I-MR |
| Applicant | Cisco Systems Inc 125 West Tasman Drive San Jose California United States 95134-1706 |
| Manufacturer | Cisco Systems Inc 125 West Tasman Drive San Jose California United States 95134-1706 |
| Sample Received | Dec. 28, 2021 |
| Start Test Date | Jan. 05, 2022 |
| Final Test Date | Jan. 05, 2022 |

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1. Operation Mode and Antenna Information

| Antenna Position | Port | | | | | Brand | P/N | Ant. Type | Connector | Modes of Operation |
|------------------|------------------------|------------------------|----------------------------------|--------------------------------|----------------------------------|-------|--------------|-------------------|-----------|--|
| | R1: WLAN 2.4GHz (SKU1) | R1: WLAN 2.4GHz (SKU2) | R1: WLAN 5GHz UNII 1~3 (SKU1, 2) | R2: WLAN 5GHz UNII 2C~3 (SKU1) | R2: WLAN 6GHz UNII 5~8 (SKU1, 2) | | | | | |
| 2G5G Ant1 | 3 | - | 4 | - | - | CISCO | 95XEAJ15.G04 | Folded | I-PEX | WLAN 2.4GHz & WLAN 5GHz UNII 1~3 |
| 2G5G Ant2 | 4 | - | 3 | - | - | CISCO | 95XEAJ15.G03 | Folded | I-PEX | |
| 2G5G Ant3 | 2 | 2 | 2 | - | - | CISCO | 95XEAJ15.G05 | Folded | I-PEX | |
| 2G5G Ant4 | 1 | 1 | 1 | - | - | CISCO | 95XEAJ15.G06 | Folded | I-PEX | |
| 5G6G Ant1 | - | - | - | 4 | 4 | CISCO | 95XEAJ15.G12 | H-POL Alford loop | I-PEX | WLAN 5GHz UNII 2C, UNII 3 & WLAN 6GHz UNII 5~8 |
| 5G6G Ant2 | - | - | - | 3 | 3 | CISCO | 95XEAJ15.G11 | H-POL Alford loop | I-PEX | |
| 5G6G Ant3 | - | - | - | 1 | 1 | CISCO | 95XEAJ15.G09 | H-POL Alford loop | I-PEX | |
| 5G6G Ant4 | - | - | - | 2 | 2 | CISCO | 95XEAJ15.G10 | H-POL Alford loop | I-PEX | |

R means Radio.

Note:

<SKU 1>

For 2G5G Ant1~2G5G Ant4

2.4GHz and 5GHz Operation Mode (1TX, 2TX, 4TX/4RX)

1TX:

2G5G Ant4 can be used as transmitting/receiving antenna.

2TX:

2G5G Ant3~Ant4 can be used as transmitting/receiving antenna.

2G5G Ant3~Ant4 could transmit/receive simultaneously.

4TX:

2G5G Ant1~Ant4 can be used as transmitting/receiving antenna.

2G5G Ant1~Ant4 could transmit/receive simultaneously.

Antenna operation of 2G5G Ant1~Ant4 and 5G6G Ant1~Ant4 have two kinds of the operation mode of 5GHz:

Operation mode 1: 5GHz UNII 1~UNII 3 (2G5G Ant1~Ant4).

Operation mode 2: 5GHz UNII 1, UNII 2A (2G5G Ant1~Ant4)+5GHz UNII 2C, UNII 3 (5G6G Ant1~Ant4).

The antenna operation was limited to the 4x4 MIMO for each band.

<SKU 2>

For 2G5G Ant1~2G5G Ant4

2.4GHz Operation Mode (1TX, 2TX/2RX)

5GHz Operation Mode (1TX, 2TX, 4TX/4RX)

1TX:

2G5G Ant4 can be used as transmitting/receiving antenna.

2TX:

2G5G Ant3~Ant4 can be used as transmitting/receiving antenna.

2G5G Ant3~Ant4 could transmit/receive simultaneously.

4TX:

2G5G Ant1~Ant4 can be used as transmitting/receiving antenna.

2G5G Ant1~Ant4 could transmit/receive simultaneously.



<SKU 1 >

For 5G6G Ant1~5G6G Ant4
 5GHz and 6GHz Operation Mode (1TX, 2TX, 4TX/4RX)
 1TX:
 5G6G Ant3 can be used as transmitting/receiving antenna.
 2TX:
 5G6G Ant3~Ant4 can be used as transmitting/receiving antenna.
 5G6G Ant3~Ant4 could transmit/receive simultaneously.
 4TX:
 5G6G Ant1~Ant4 can be used as transmitting/receiving antenna.
 5G6G Ant1~Ant4 could transmit/receive simultaneously.

<SKU 2>

For 5G6G Ant1~5G6G Ant4
 6GHz Operation Mode (1TX, 2TX, 4TX/4RX)
 1TX:
 5G6G Ant3 can be used as transmitting/receiving antenna.
 2TX:
 5G6G Ant3~Ant4 can be used as transmitting/receiving antenna.
 5G6G Ant3~Ant4 could transmit/receive simultaneously.
 4TX:
 5G6G Ant1~Ant4 can be used as transmitting/receiving antenna.
 5G6G Ant1~Ant4 could transmit/receive simultaneously.

2. Table for Multiple Listing

| SKU | FCC ID | Equipment Name | Model Name | SW | R1: 2.4GHz | R1: 5GHz Low Band or R1: 5GHz Full Band | R2: 5GHz High band or R2: 6GHz | R3: 2.4GHz/5GHz/6GHz | R4: Blue-tooth |
|-----|----------------|--|------------|--------|---------------------|--|--------------------------------|----------------------|----------------|
| 1 | LDK-916 0S2578 | Catalyst Wireless 9166I Wi-Fi 6E Series Access Point | CW9166I-B | Cisco | √ (1/2/4TX +4RX) | √ (With 80+80MHz) | √ | √ | √ |
| | | | CW9166I-MR | Meraki | √ (1/2/4TX +4RX) | √ (Without 80+80MHz) | √ | √ | √ |
| | | Catalyst Wireless 9164I Wi-Fi 6E Series Access Point | CW9164I-B | Cisco | √ (1/2TX +2RX) | √ (5GHz Full Band only, with 80+80MHz) | √ (6GHz only) | √ | √ |
| | | | CW9164I-MR | Meraki | √ (1/2TX +2RX) | √ (5GHz Full Band only, without 80+80MHz) | √ (6GHz only) | √ | √ |
| 2 | LDK-916 0S2875 | Catalyst Wireless 9164I Wi-Fi 6E Series Access Point | CW9164I-B | Cisco | √ (1/2TX +2RX) | √ (5GHz Full Band only, with 80+80MHz) | √ (6GHz only) | √ | √ |
| | | | CW9164I-MR | Meraki | √ (1/2TX +2RX) | √ (5GHz Full Band only, without 80+80MHz) | √ (6GHz only) | √ | √ |

Note1: From the above models, model: CW9166I-B was selected as representative model for the test and its data was recorded in this report.

Note2: The above information was declared by manufacturer.

3. Table for Radio function

| Function Radio | WLAN 2.4GHz | WLAN 5GHz UNII 1~2A | WLAN 5GHz UNII 2C~3 | WLAN 6GHz UNII 5~8 | Bluetooth |
|-----------------------|-------------|------------------------|------------------------|-----------------------|-----------|
| 1 (Iron Radio) | V | V | V | - | - |
| 2 (Pine Radio) | - | - | V (SKU 1 only) | V | - |
| 3 (Scanning Radio) | V | V | V | V | - |
| 4 | - | - | - | - | V |

Note1 : The above information was declared by manufacturer and

Note2 : The Radio 2 and Radio 3 can't operate simultaneously.

4. Test Frequency

The listed frequency of each bands are selected to represent each frequency bands

| Band [MHz] | Test Frequency [MHz] |
|-------------|----------------------|
| 2400-2483.5 | 2450 |
| 5150-5250 | 5200 |
| 5250-5350 | 5300 |
| 5470-5725 | 5600 |
| 5725-5850 | 5785 |
| 5925-6425 | 6175 |
| 6425-6525 | 6475 |
| 6525-6875 | 6695 |
| 6875-7125 | 6995 |



5. Testing Location

| Testing Location | | |
|---|--------|--|
| Sporton International Inc. Hsinhua Laboratory | | |
| <input checked="" type="checkbox"/> | HWA YA | ADD : No.13-1 & 14-1, Ln. 19, Wen 33rd St., Guishan Dist., Taoyuan City 333, Taiwan R.O.C. |

| Test Condition | Test Site No. | Test Engineer | Test Environment (°C / %) | Test Date |
|----------------|---------------|---------------|---------------------------|---------------|
| Radiated | 05CH03-HY | Rex Liao | 19-20 / 50-55 | Jan. 05, 2022 |

Note:

Testing Site Information

Brand Name: TDK

Dimension: 11m*6m*6m

Characteristic: Fully Anechoic Chamber

6. Test Facility and Configuration

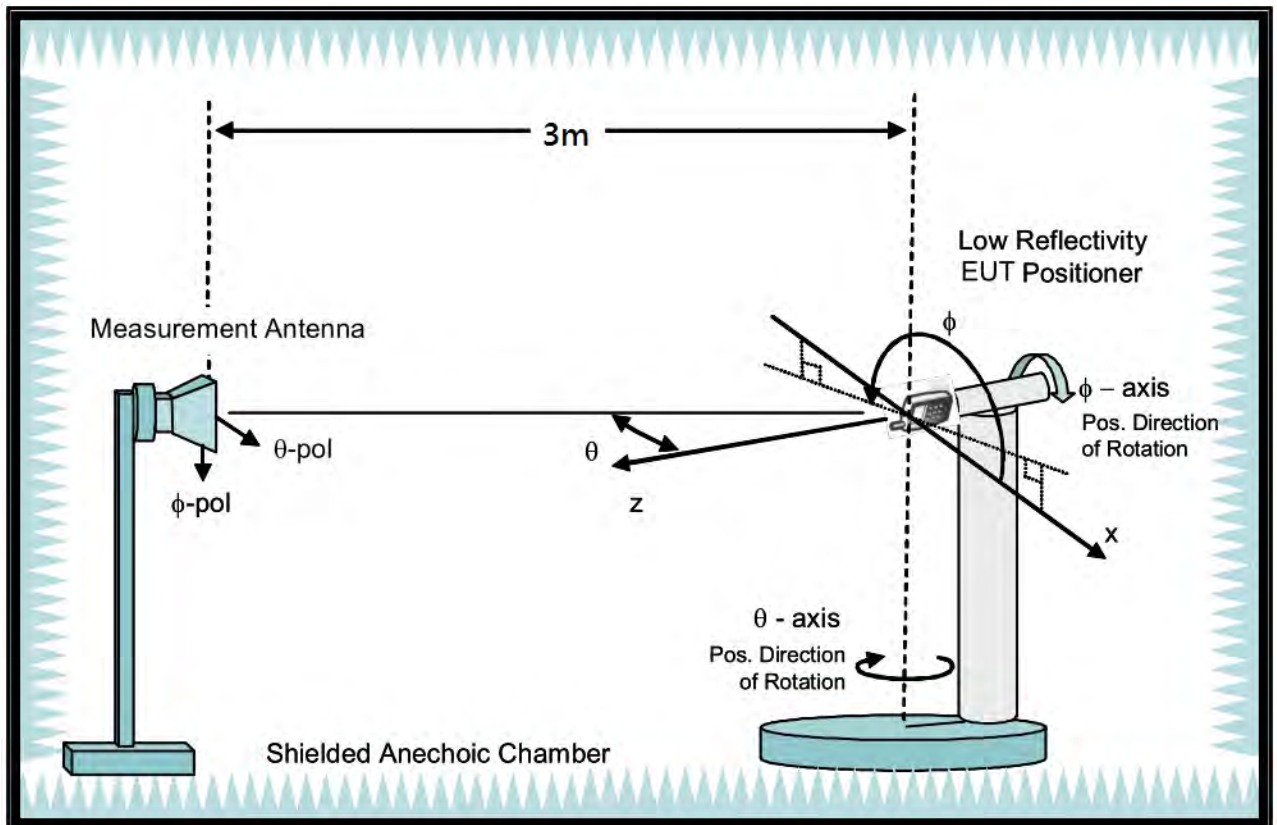
Test configuration: Reference to CITA OTA distributed-axes system configuration.

Chamber: Fully Anechoic Chamber.

Measurement antenna: Single Polarization Horn antenna calibrated according to ANSI C63.5.

Turntable: Multi-axis positioner (Theta and Phi angle).

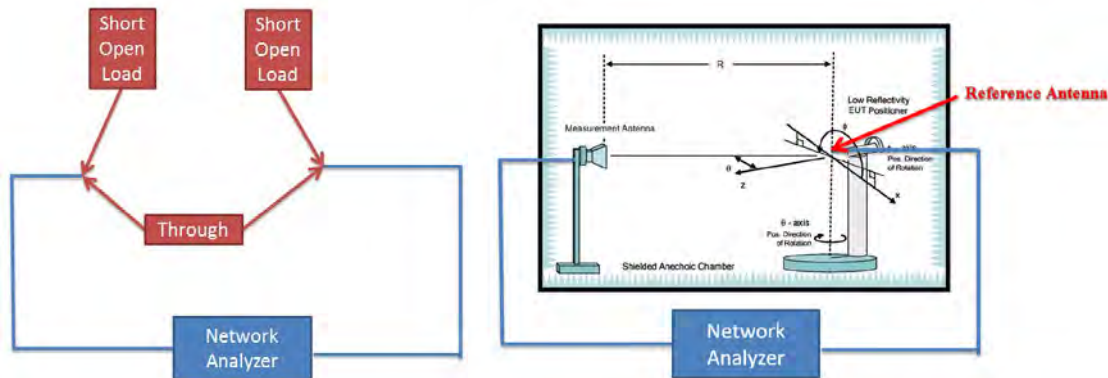
#Reference to CTIA "ctia-test-plan-for-wireless-device-over-the-air-performance-ver-3-7-1"



7. Reference Calibration

Connected cables to VNA calibration kit and use network analyzer internal function to do calibration. Do short, open and load to each side. Then connect through to both side and calibrate S21 values. The cable loss is calibrated and set inside the network analyzer.

Measurement Antenna is connected to port1 of Network analyzer and reference antenna connected to port 2 of Network Analyzer. Record S21 values and used with reference antenna gain to calculate gain factor.



| Frequency (MHz) | 2400 | 2450 | 2500 | 5150 | 5200 | 5300 | 5600 | 5750 | 5800 | 5900 | 6000 | 6500 | 7000 | 7500 |
|----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| G reading (dB) | -31.4 | -31.4 | -31.3 | -31.3 | -31 | -30.7 | -30.1 | -30.5 | -30.5 | -30.8 | -31.3 | -32.8 | -34.4 | -35.4 |
| Reference gain (dBi) | 10.2 | 10.4 | 10.6 | 12.4 | 12.8 | 13.4 | 13.4 | 13.3 | 13.3 | 13.1 | 13.2 | 12.3 | 11.7 | 11.1 |
| Factor (dB) | 41.34 | 41.55 | 41.68 | 43.24 | 43.56 | 43.68 | 43.79 | 43.91 | 43.99 | 44.43 | 44.49 | 45.24 | 46.12 | 46.31 |

Note:

$$G \text{ reading (dB)} = 20 \cdot \log(V2/V1) = 10 \cdot \log(P2/P1)$$

V2 is the voltage of VNA port2 is measured, V1 is the voltage of VNA port1 is the reference source.

P2 is the power of VNA port2 is measured, P1 is the power of VNA port1 is the reference source.

$$\text{Factor} = \text{gain factor} + \text{power gain conversion} = (\text{Reference antenna gain}) - (G \text{ reading})$$



8. Test Method

EUT set on multi-axis positioner and adjust EUT's physical center to measurement reference center. Measurement antenna set at phi polarization and 1.5 meter height. Port 1 of Network analyzer connect to antenna 1 of EUT. Record G value every 15 degree from 0 to 345 degree on Phi angle and 0 to 180 on theta angle of multi-axis positioner. Then set measurement antenna to theta polarization and repeat process. Repeat process to each antenna of EUT.

DG steps:

1. Each Phi and Theta polarization antenna gain are measured for all test angles.
2. Composite Phi and Theta antenna gain are computed, using formula in KDB662911 D01 d) (i) and e) (ii), for all angles.
3. Composite antenna gain are examined for all angles to determine max gain and Phi/Theta position. Max gain and phi/theta position are listed in section 9 tables.

Note: Antenna gain = G reading + factor, The factor of chapter five includes reference antenna gain factor and power gain conversion.



9. Measured Values and Calculation of Maximum Gain Positions

<Antenna Position: 2G/5G Ant1~4>

For 2TX:

DG_1SS max value position

| Frequency (Hz) | 2.45G | 5.2G | 5.3G | 5.6G | 5.785G |
|----------------|-------|-------|-------|-------|--------|
| Ant. 3 (dBi) | 1 | -1.93 | -0.86 | -1.24 | 0.48 |
| Ant. 4 (dBi) | 1.55 | 5.24 | 4.53 | 3.86 | 1.77 |
| DG [1SS] (dBi) | 4.29 | 5.39 | 5.26 | 4.69 | 4.16 |
| Polarization | Theta | Theta | Theta | Theta | Theta |
| Θ (°) | 60 | 75 | 60 | 60 | 60 |
| Φ (°) | 345 | 150 | 135 | 135 | 30 |

Note: The DG 1SS max value position is the maximum value of section 13 table DG 1SS Result.

DG_1SS max value position calculation

| Frequency (Hz) | 2.45G | 5.2G | 5.3G | 5.6G | 5.785G |
|--|------------------|-------------------|-------------------|-------------------|------------------|
| Ant. 3 [$10^{(G/20)}$] | $10^{(1/20)}$ | $10^{(-1.93/20)}$ | $10^{(-0.86/20)}$ | $10^{(-1.24/20)}$ | $10^{(0.48/20)}$ |
| Ant. 4 [$10^{(G/20)}$] | $10^{(1.55/20)}$ | $10^{(5.24/20)}$ | $10^{(4.53/20)}$ | $10^{(3.86/20)}$ | $10^{(1.77/20)}$ |
| Ant. 3 [$10^{(G/20)}$] value | 1.122 | 0.801 | 0.906 | 0.867 | 1.057 |
| Ant. 4 [$10^{(G/20)}$] value | 1.195 | 1.828 | 1.685 | 1.56 | 1.226 |
| Sum All Antenna [Amax] | 2.317 | 2.629 | 2.59 | 2.427 | 2.283 |
| DG [$10 \cdot \log(A_{max}^2/N_{ant})$] | 4.29 | 5.39 | 5.26 | 4.69 | 4.16 |

Note:

Directional Gain (1SS) is the max value of every look angle. Each position value is calculated by KDB662911 D01 d) (i).

$$\text{Directional gain (1SS)} = 10 \cdot \log(10^{(G_{ant1}/20)} + 10^{(G_{ant2}/20)} + 10^{(G_{ant3}/20)} + 10^{(G_{ant4}/20)} + \dots)^2 / N_{ant}$$



DG_2SS max value position

| Frequency (Hz) | 2.45G | 5.2G | 5.3G | 5.6G | 5.785G |
|----------------|-------|-------|-------|-------|--------|
| Ant. 3 (dBi) | 1 | -1.93 | -3.34 | -1.24 | -3.53 |
| Ant. 4 (dBi) | 1.55 | 5.24 | 5.46 | 3.86 | 3.94 |
| DG [4SS] (dBi) | 1.28 | 2.99 | 2.99 | 2.02 | 1.65 |
| Polarization | Theta | Theta | Theta | Theta | Theta |
| Θ (°) | 60 | 75 | 75 | 60 | 60 |
| Φ (°) | 345 | 150 | 150 | 135 | 135 |

Note:

The DG 2SS max value position is the maximum DG 2SS value calculated from section 13 table Gain Result.

DG_2SS max value position calculation

| Frequency (Hz) | 2.45G | 5.2G | 5.3G | 5.6G | 5.785G |
|---|--------|--------|--------|--------|--------|
| Ant. 3 $((10^{(G/20)})^2)$ | 1.2589 | 0.6412 | 0.4634 | 0.7516 | 0.4436 |
| Ant. 4 $((10^{(G/20)})^2)$ | 1.4289 | 3.342 | 3.5156 | 2.4322 | 2.4774 |
| Sum All Antenna | 2.6878 | 3.9832 | 3.9791 | 3.1838 | 2.921 |
| DG $[10*\log(\text{sum all}/N_{\text{ant}})]$ | 1.28 | 2.99 | 2.99 | 2.02 | 1.65 |

Note: Directional Gain (2SS) is the max value of all position. Each position value is calculated by KDB662911 D01 (e) (ii).

$g_{j,k} = 10^{(G/20)}$

Directional Gain (2SS) = $10*\log((10^{(G_{\text{ant1}}/20)})^2 + (10^{(G_{\text{ant2}}/20)})^2 + (10^{(G_{\text{ant3}}/20)})^2 + (10^{(G_{\text{ant4}}/20)})^2 + \dots) / N_{\text{ant}}$



For 4TX:

DG_1SS Max Value Position

| Frequency (Hz) | 2.45G | 5.2G | 5.3G | 5.6G | 5.785G |
|----------------|-------|-------|-------|-------|--------|
| Ant. 1 (dBi) | 2 | 2.96 | 0.86 | 0.74 | 0.76 |
| Ant. 2 (dBi) | 0.73 | 0.64 | -0.79 | -2.26 | -2.84 |
| Ant. 3 (dBi) | -0.06 | 0.05 | -0.86 | -1.24 | 1.65 |
| Ant. 4 (dBi) | 0.79 | -0.14 | 4.53 | 3.86 | -0.39 |
| DG [1SS] (dBi) | 6.92 | 6.99 | 7.25 | 6.62 | 5.97 |
| Polarization | Theta | Theta | Theta | Theta | Theta |
| θ(°) | 60 | 45 | 60 | 60 | 60 |
| Φ(°) | 285 | 225 | 135 | 135 | 45 |

Note: The DG 1SS max value position is the maximum value of section 13 table DG 1SS Result.

DG_1SS Max Value Position Calculation

| Frequency (Hz) | 2.45G | 5.2G | 5.3G | 5.6G | 5.785G |
|--------------------------|---------------|---------------|---------------|---------------|---------------|
| Ant. 1 [10^(G/20)] | 10^(2/20) | 10^(2.96/20) | 10^(0.86/20) | 10^(0.74/20) | 10^(0.76/20) |
| Ant. 2 [10^(G/20)] | 10^(0.73/20) | 10^(0.64/20) | 10^(-0.79/20) | 10^(-2.26/20) | 10^(-2.84/20) |
| Ant. 3 [10^(G/20)] | 10^(-0.06/20) | 10^(0.05/20) | 10^(-0.86/20) | 10^(-1.24/20) | 10^(1.65/20) |
| Ant. 4 [10^(G/20)] | 10^(0.79/20) | 10^(-0.14/20) | 10^(4.53/20) | 10^(3.86/20) | 10^(-0.39/20) |
| Ant. 1 [10^(G/20)] value | 1.259 | 1.406 | 1.104 | 1.089 | 1.091 |
| Ant. 2 [10^(G/20)] value | 1.088 | 1.076 | 0.913 | 0.771 | 0.721 |
| Ant. 3 [10^(G/20)] value | 0.993 | 1.006 | 0.906 | 0.867 | 1.209 |
| Ant. 4 [10^(G/20)] value | 1.095 | 0.984 | 1.685 | 1.56 | 0.956 |
| Sum All Antenna [Amax] | 4.435 | 4.472 | 4.607 | 4.286 | 3.978 |
| DG [10*log(Amax^2/Nant)] | 6.92 | 6.99 | 7.25 | 6.62 | 5.97 |

Note:

Directional Gain (1SS) is the max value of every look angle. Each position value is calculated by KDB662911 D01 d) (i).

$$\text{Directional gain (1SS)} = 10 * \log(10^{(G_{ant1}/20)} + 10^{(G_{ant2}/20)} + 10^{(G_{ant3}/20)} + 10^{(G_{ant4}/20)} + \dots)^{2/N_{ant}}$$



DG_4SS Max Value Position

| Frequency (Hz) | 2.45G | 5.2G | 5.3G | 5.6G | 5.785G |
|----------------|-------|-------|-------|-------|--------|
| Ant. 1 (dBi) | 2 | 1.31 | 0.86 | 0.74 | -0.57 |
| Ant. 2 (dBi) | 0.73 | 0.7 | -0.79 | -2.26 | -3.36 |
| Ant. 3 (dBi) | -0.06 | -3.9 | -0.86 | -1.24 | -3.53 |
| Ant. 4 (dBi) | 0.79 | 3.44 | 4.53 | 3.86 | 3.94 |
| DG [4SS] (dBi) | 0.93 | 1.09 | 1.55 | 0.94 | 0.27 |
| Polarization | Theta | Theta | Theta | Theta | Theta |
| Θ (°) | 60 | 75 | 60 | 60 | 60 |
| Φ (°) | 285 | 165 | 135 | 135 | 135 |

Note:

The DG 4SS max value position is the maximum DG 4SS value calculated from section 13 table Gain Result.

DG_4SS Max Value Position Calculation

| Frequency (Hz) | 2.45G | 5.2G | 5.3G | 5.6G | 5.785G |
|---|--------|--------|--------|--------|--------|
| Ant. 1 $((10^{(G/20)})^2)$ | 1.5849 | 1.3521 | 1.219 | 1.1858 | 0.877 |
| Ant. 2 $((10^{(G/20)})^2)$ | 1.183 | 1.1749 | 0.8337 | 0.5943 | 0.4613 |
| Ant. 3 $((10^{(G/20)})^2)$ | 0.9863 | 0.4074 | 0.8204 | 0.7516 | 0.4436 |
| Ant. 4 $((10^{(G/20)})^2)$ | 1.1995 | 2.208 | 2.8379 | 2.4322 | 2.4774 |
| Sum All Antenna | 4.9537 | 5.1424 | 5.7109 | 4.9639 | 4.2593 |
| DG $[10*\log(\text{sum all}/N_{\text{ant}})]$ | 0.93 | 1.09 | 1.55 | 0.94 | 0.27 |

Note: Directional Gain (4SS) is the max value of all position. Each position value is calculated by KDB662911 D01 (e) (ii).

$$g_{j,k} = 10^{(G/20)}$$

$$\text{Directional Gain (4SS)} = 10 * \log((10^{(G_{\text{ant1}}/20)})^2 + (10^{(G_{\text{ant2}}/20)})^2 + (10^{(G_{\text{ant3}}/20)})^2 + (10^{(G_{\text{ant4}}/20)})^2 + \dots) / N_{\text{ant}})$$



<Antenna Position: 5G6G Ant1~5G6G Ant4>

For 2TX:

DG_1SS Max Value Position

| Frequency (Hz) | 5.6G | 5.785G | 6.175G | 6.475G | 6.695G | 6.995G |
|----------------|------|--------|--------|--------|--------|--------|
| Ant. 3 (dBi) | 3.21 | 4.36 | 2.34 | 2.31 | 0.99 | 0.61 |
| Ant. 4 (dBi) | 2.39 | -0.68 | 2.4 | 0.52 | 1.24 | -0.51 |
| DG [1SS] (dBi) | 5.82 | 5.21 | 5.38 | 4.47 | 4.13 | 3.08 |
| Polarization | Phi | Phi | Phi | Phi | Phi | Phi |
| Θ (°) | 75 | 75 | 75 | 75 | 75 | 75 |
| Φ (°) | 90 | 75 | 345 | 135 | 60 | 60 |

Note: The DG 1SS max value position is the maximum value of section 13 table DG 1SS Result.

DG_1SS Max Value Position Calculation

| Frequency (Hz) | 5.6G | 5.785G | 6.175G | 6.475G | 6.695G | 6.995G |
|---|------------------|-------------------|------------------|------------------|------------------|-------------------|
| Ant. 3 [$10^{(G/20)}$] | $10^{(3.21/20)}$ | $10^{(4.36/20)}$ | $10^{(2.34/20)}$ | $10^{(2.31/20)}$ | $10^{(0.99/20)}$ | $10^{(0.61/20)}$ |
| Ant. 4 [$10^{(G/20)}$] | $10^{(2.39/20)}$ | $10^{(-0.68/20)}$ | $10^{(2.4/20)}$ | $10^{(0.52/20)}$ | $10^{(1.24/20)}$ | $10^{(-0.51/20)}$ |
| Ant. 3 [$10^{(G/20)}$] value | 1.447 | 1.652 | 1.309 | 1.305 | 1.121 | 1.073 |
| Ant. 4 [$10^{(G/20)}$] value | 1.317 | 0.925 | 1.318 | 1.062 | 1.153 | 0.943 |
| Sum All Antenna [Amax] | 2.764 | 2.577 | 2.627 | 2.366 | 2.274 | 2.016 |
| DG [$10 \cdot \log(A_{max}^2/N_{ant})$] | 5.82 | 5.21 | 5.38 | 4.47 | 4.13 | 3.08 |

Note:

Directional Gain (1SS) is the max value of every look angle. Each position value is calculated by KDB662911 D01 d) (i).

$$\text{Directional gain (1SS)} = 10 \cdot \log(10^{(G_{ant1}/20)} + 10^{(G_{ant2}/20)} + 10^{(G_{ant3}/20)} + 10^{(G_{ant4}/20)} + \dots)^2 / N_{ant}$$



DG_2SS Max Value Position

| Frequency (Hz) | 5.6G | 5.785G | 6.175G | 6.475G | 6.695G | 6.995G |
|----------------|------|--------|--------|--------|--------|--------|
| Ant. 3 (dBi) | 3.21 | 4.36 | 2.34 | -4.05 | 0.99 | 0.61 |
| Ant. 4 (dBi) | 2.39 | -0.68 | 2.4 | 3.96 | 1.24 | -0.51 |
| DG [4SS] (dBi) | 2.82 | 2.53 | 2.37 | 1.59 | 1.12 | 0.09 |
| Polarization | Phi | Phi | Phi | Phi | Phi | Phi |
| Θ (°) | 75 | 75 | 75 | 75 | 75 | 75 |
| Φ (°) | 90 | 75 | 345 | 45 | 60 | 60 |

Note:

The DG 2SS max value position is the maximum DG 2SS value calculated from section 13 table Gain Result.

DG_2SS Max Value Position Calculation

| Frequency (Hz) | 5.6G | 5.785G | 6.175G | 6.475G | 6.695G | 6.995G |
|---|--------|--------|--------|--------|--------|--------|
| Ant. 3 $((10^{(G/20)})^2)$ | 2.0941 | 2.729 | 1.714 | 0.3936 | 1.256 | 1.1508 |
| Ant. 4 $((10^{(G/20)})^2)$ | 1.7338 | 0.8551 | 1.7378 | 2.4889 | 1.3305 | 0.8892 |
| Sum All Antenna | 3.8279 | 3.584 | 3.4518 | 2.8824 | 2.5865 | 2.04 |
| DG $[10 \cdot \log(\text{sum all}/N_{\text{ant}})]$ | 2.82 | 2.53 | 2.37 | 1.59 | 1.12 | 0.09 |

Note: Directional Gain (2SS) is the max value of all position. Each position value is calculated by KDB662911 D01 (e) (ii).

$g_{j,k} = 10^{(G/20)}$

$\text{Directional Gain (2SS)} = 10 \cdot \log((10^{(G_{\text{ant1}}/20)})^2 + (10^{(G_{\text{ant2}}/20)})^2 + (10^{(G_{\text{ant3}}/20)})^2 + (10^{(G_{\text{ant4}}/20)})^2 + \dots) / N_{\text{ant}}$



For 4TX:

DG_1SS Max Value Position

| Frequency (Hz) | 5.6G | 5.785G | 6.175G | 6.475G | 6.695G | 6.995G |
|----------------|------|--------|--------|--------|--------|--------|
| Ant. 1 (dBi) | 2.62 | 1.36 | 1.33 | -1.43 | 1.11 | 0.77 |
| Ant. 2 (dBi) | 2.05 | 2.09 | -0.69 | 1.2 | 0.26 | -3.16 |
| Ant. 3 (dBi) | 3.21 | 2.59 | 2.34 | 0.27 | -1.07 | -5.42 |
| Ant. 4 (dBi) | 2.39 | 1.66 | 2.4 | -0.2 | -0.33 | 0.33 |
| DG [1SS] (dBi) | 8.6 | 7.96 | 7.45 | 6.03 | 6.05 | 4.51 |
| Polarization | Phi | Phi | Phi | Phi | Phi | Phi |
| Θ (°) | 75 | 75 | 75 | 75 | 75 | 75 |
| Φ (°) | 90 | 180 | 345 | 210 | 315 | 315 |

Note: The DG 1SS max value position is the maximum value of section 13 table DG 1SS Result.

DG_1SS Max Value Position Calculation

| Frequency (Hz) | 5.6G | 5.785G | 6.175G | 6.475G | 6.695G | 6.995G |
|--|------------------|------------------|-------------------|-------------------|-------------------|-------------------|
| Ant. 1 [$10^{(G/20)}$] | $10^{(2.62/20)}$ | $10^{(1.36/20)}$ | $10^{(1.33/20)}$ | $10^{(-1.43/20)}$ | $10^{(1.11/20)}$ | $10^{(0.77/20)}$ |
| Ant. 2 [$10^{(G/20)}$] | $10^{(2.05/20)}$ | $10^{(2.09/20)}$ | $10^{(-0.69/20)}$ | $10^{(1.2/20)}$ | $10^{(0.26/20)}$ | $10^{(-3.16/20)}$ |
| Ant. 3 [$10^{(G/20)}$] | $10^{(3.21/20)}$ | $10^{(2.59/20)}$ | $10^{(2.34/20)}$ | $10^{(0.27/20)}$ | $10^{(-1.07/20)}$ | $10^{(-5.42/20)}$ |
| Ant. 4 [$10^{(G/20)}$] | $10^{(2.39/20)}$ | $10^{(1.66/20)}$ | $10^{(2.4/20)}$ | $10^{(-0.2/20)}$ | $10^{(-0.33/20)}$ | $10^{(0.33/20)}$ |
| Ant. 1 [$10^{(G/20)}$] value | 1.352 | 1.169 | 1.165 | 0.848 | 1.136 | 1.093 |
| Ant. 2 [$10^{(G/20)}$] value | 1.266 | 1.272 | 0.924 | 1.148 | 1.03 | 0.695 |
| Ant. 3 [$10^{(G/20)}$] value | 1.447 | 1.347 | 1.309 | 1.032 | 0.884 | 0.536 |
| Ant. 4 [$10^{(G/20)}$] value | 1.317 | 1.211 | 1.318 | 0.977 | 0.963 | 1.039 |
| Sum All Antenna [Amax] | 5.382 | 5 | 4.717 | 4.005 | 4.014 | 3.362 |
| DG [$10 \cdot \log(A_{max}^2/N_{ant})$] | 8.6 | 7.96 | 7.45 | 6.03 | 6.05 | 4.51 |

Note:

Directional Gain (1SS) is the max value of every look angle. Each position value is calculated by KDB662911 D01 d) (i).

$$\text{Directional gain (1SS)} = 10 \cdot \log(10^{(G_{ant1}/20)} + 10^{(G_{ant2}/20)} + 10^{(G_{ant3}/20)} + 10^{(G_{ant4}/20)} + \dots)^2 / N_{ant}$$



DG_4SS Max Value Position

| Frequency (Hz) | 5.6G | 5.785G | 6.175G | 6.475G | 6.695G | 6.995G |
|----------------|------|--------|--------|--------|--------|--------|
| Ant. 1 (dBi) | 2.62 | 0.52 | 1.33 | -0.35 | 1.11 | 0.77 |
| Ant. 2 (dBi) | 2.05 | 4.72 | -0.69 | -3.44 | 0.26 | -3.16 |
| Ant. 3 (dBi) | 3.21 | -0.49 | 2.34 | -4.05 | -1.07 | -5.42 |
| Ant. 4 (dBi) | 2.39 | 1.85 | 2.4 | 3.96 | -0.33 | 0.33 |
| DG [4SS] (dBi) | 2.59 | 2.12 | 1.51 | 0.27 | 0.07 | -1.19 |
| Polarization | Phi | Phi | Phi | Phi | Phi | Phi |
| Θ (°) | 75 | 75 | 75 | 75 | 75 | 75 |
| Φ (°) | 90 | 165 | 345 | 45 | 315 | 315 |

Note:

The DG 4SS max value position is the maximum DG 4SS value calculated from section 13 table Gain Result.

DG_4SS Max Value Position Calculation

| Frequency (Hz) | 5.6G | 5.785G | 6.175G | 6.475G | 6.695G | 6.995G |
|---|--------|--------|--------|--------|--------|--------|
| Ant. 1 $((10^{(G/20)})^2)$ | 1.8281 | 1.1272 | 1.3583 | 0.9226 | 1.2912 | 1.194 |
| Ant. 2 $((10^{(G/20)})^2)$ | 1.6032 | 2.9648 | 0.8531 | 0.4529 | 1.0617 | 0.4831 |
| Ant. 3 $((10^{(G/20)})^2)$ | 2.0941 | 0.8933 | 1.714 | 0.3936 | 0.7816 | 0.2871 |
| Ant. 4 $((10^{(G/20)})^2)$ | 1.7338 | 1.5311 | 1.7378 | 2.4889 | 0.9268 | 1.0789 |
| Sum All Antenna | 7.2593 | 6.5164 | 5.6632 | 4.2579 | 4.0614 | 3.0431 |
| DG $[10 \cdot \log(\text{sum all}/N_{\text{ant}})]$ | 2.59 | 2.12 | 1.51 | 0.27 | 0.07 | -1.19 |

Note: Directional Gain (4SS) is the max value of all position. Each position value is calculated by KDB662911 D01 (e) (ii).

$g_{j,k} = 10^{(G/20)}$

$\text{Directional Gain (4SS)} = 10 \cdot \log((10^{(G_{\text{ant1}}/20)})^2 + (10^{(G_{\text{ant2}}/20)})^2 + (10^{(G_{\text{ant3}}/20)})^2 + (10^{(G_{\text{ant4}}/20)})^2 + \dots) / N_{\text{ant}}$

10. Summary of Test Result

<Antenna Position: 2G/5G Ant1~4>

For 2TX:

| Frequency (Hz) | 2.45G | 5.2G | 5.3G | 5.6G | 5.785G |
|--|--------------|--------------|--------------|--------------|--------------|
| Ant. 3 Max Gain (dBi) | 2.79 | 2.78 | 2.74 | 2.66 | 1.91 |
| Ant. 4 Max Gain (dBi) | 2.62 | 5.24 | 5.46 | 4.26 | 3.94 |
| Ant. 3 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$ | Theta/30/210 | Theta/75/60 | Theta/75/30 | Theta/75/60 | Theta/75/255 |
| Ant. 4 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$ | Theta/15/315 | Theta/75/150 | Theta/75/150 | Theta/75/150 | Theta/60/135 |
| Max Gain (dBi) | 2.79 | 5.24 | 5.46 | 4.26 | 3.94 |
| DG [1SS] (dBi) | 4.29 | 5.39 | 5.26 | 4.69 | 4.16 |
| DG [2SS] (dBi) | 1.28 | 2.99 | 2.99 | 2.02 | 1.65 |

For 4TX

| Frequency (Hz) | 2.45G | 5.2G | 5.3G | 5.6G | 5.785G |
|--|--------------|--------------|--------------|--------------|--------------|
| Ant. 1 Max Gain (dBi) | 2.79 | 4.27 | 3.94 | 1.88 | 2.57 |
| Ant. 2 Max Gain (dBi) | 2.43 | 5.09 | 5.16 | 2.89 | 2.72 |
| Ant. 3 Max Gain (dBi) | 2.79 | 2.78 | 2.74 | 2.66 | 1.91 |
| Ant. 4 Max Gain (dBi) | 2.62 | 5.24 | 5.46 | 4.26 | 3.94 |
| Ant. 1 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$ | Theta/0/195 | Theta/75/240 | Theta/75/240 | Theta/75/240 | Theta/60/225 |
| Ant. 2 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$ | Theta/60/165 | Theta/75/330 | Theta/75/330 | Theta/75/330 | Theta/75/330 |
| Ant. 3 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$ | Theta/30/210 | Theta/75/60 | Theta/75/30 | Theta/75/60 | Theta/75/255 |
| Ant. 4 Polarization/ $\Theta(^{\circ})/\Phi(^{\circ})$ | Theta/15/315 | Theta/75/150 | Theta/75/150 | Theta/75/150 | Theta/60/135 |
| Max Gain (dBi) | 2.79 | 5.24 | 5.46 | 4.26 | 3.94 |
| DG [1SS] (dBi) | 6.92 | 6.99 | 7.25 | 6.62 | 5.97 |
| DG [2SS] (dBi) | 3.92 | 5.24 | 5.46 | 4.26 | 3.94 |
| DG [4SS] (dBi) | 0.93 | 1.09 | 1.55 | 0.94 | 0.27 |

Note:

- For 4TX modes. Directional Gain (2SS) = Directional Gain (1SS) – 3dB. If directional gain is less than max gain, use max gain as directional gain.
- Each antenna max gain is the max value of measurement S21 of theta and phi through all measurement angles.
- The max gain is the max value of all antennas.



<Antenna Position: 5G6G Ant1~5G6G Ant4>

For 2TX:

| Frequency (Hz) | 5.6G | 5.785G | 6.175G | 6.475G | 6.695G | 6.995G |
|---|------------|------------|-----------|------------|-----------|------------|
| Ant. 3 Max Gain (dBi) | 3.42 | 4.36 | 2.95 | 2.31 | 0.99 | 0.61 |
| Ant. 4 Max Gain (dBi) | 3.67 | 4.23 | 2.91 | 3.96 | 1.59 | 0.33 |
| Ant. 3 Polarization/ Θ (°)/ Φ (°) | Phi/75/180 | Phi/75/75 | Phi/75/75 | Phi/75/135 | Phi/75/60 | Phi/75/60 |
| Ant. 4 Polarization/ Θ (°)/ Φ (°) | Phi/60/0 | Phi/60/345 | Phi/75/45 | Phi/75/45 | Phi/75/45 | Phi/75/315 |
| Max Gain (dBi) | 3.67 | 4.36 | 2.95 | 3.96 | 1.59 | 0.61 |
| DG [1SS] (dBi) | 5.82 | 5.21 | 5.38 | 4.47 | 4.13 | 3.08 |
| DG [2SS] (dBi) | 2.82 | 2.53 | 2.37 | 1.59 | 1.12 | 0.09 |

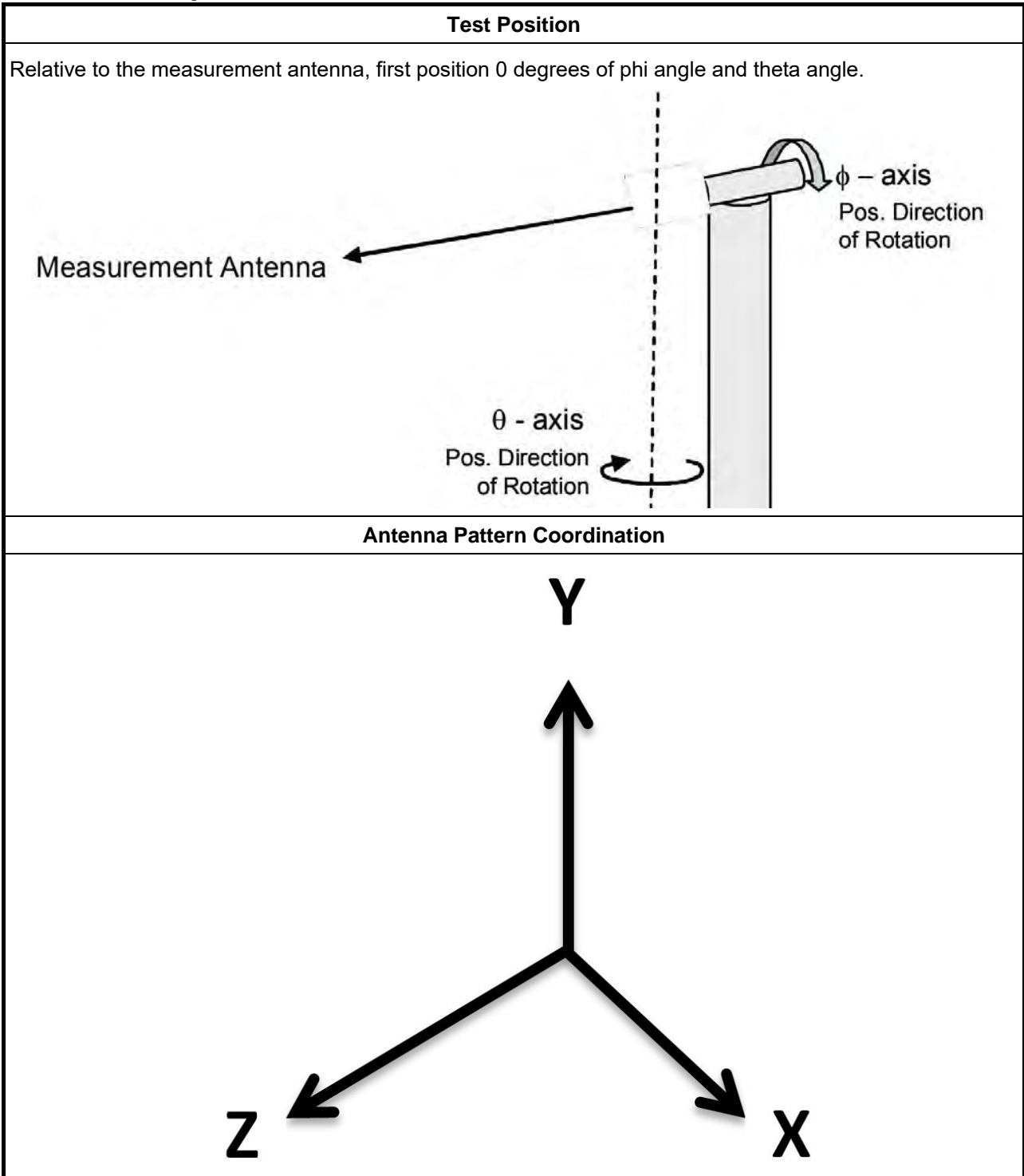
For 4TX

| Frequency (Hz) | 5.6G | 5.785G | 6.175G | 6.475G | 6.695G | 6.995G |
|---|------------|------------|------------|------------|------------|------------|
| Ant. 1 Max Gain (dBi) | 2.98 | 4.19 | 2.4 | 2.41 | 1.39 | 0.77 |
| Ant. 2 Max Gain (dBi) | 3.46 | 4.94 | 2.95 | 1.96 | 1.32 | 0.87 |
| Ant. 3 Max Gain (dBi) | 3.42 | 4.36 | 2.95 | 2.31 | 0.99 | 0.61 |
| Ant. 4 Max Gain (dBi) | 3.67 | 4.23 | 2.91 | 3.96 | 1.59 | 0.33 |
| Ant. 1 Polarization/ Θ (°)/ Φ (°) | Phi/60/0 | Phi/75/255 | Phi/75/255 | Phi/75/315 | Phi/75/240 | Phi/75/315 |
| Ant. 2 Polarization/ Θ (°)/ Φ (°) | Phi/75/180 | Phi/75/150 | Phi/75/165 | Phi/75/225 | Phi/75/210 | Phi/75/240 |
| Ant. 3 Polarization/ Θ (°)/ Φ (°) | Phi/75/180 | Phi/75/75 | Phi/75/75 | Phi/75/135 | Phi/75/60 | Phi/75/60 |
| Ant. 4 Polarization/ Θ (°)/ Φ (°) | Phi/60/0 | Phi/60/345 | Phi/75/45 | Phi/75/45 | Phi/75/45 | Phi/75/315 |
| Max Gain (dBi) | 3.67 | 4.94 | 2.95 | 3.96 | 1.59 | 0.87 |
| DG [1SS] (dBi) | 8.6 | 7.96 | 7.45 | 6.03 | 6.05 | 4.51 |
| DG [2SS] (dBi) | 5.6 | 4.96 | 4.45 | 3.96 | 3.05 | 1.51 |
| DG [4SS] (dBi) | 2.59 | 2.12 | 1.51 | 0.27 | 0.07 | -1.19 |

Note:

1. For 4TX modes. Directional Gain (2SS) = Directional Gain (1SS) – 3dB. If directional gain is less than max gain, use max gain as directional gain.
2. Each antenna max gain is the max value of measurement S21 of theta and phi through all measurement angles.
3. The max gain is the max value of all antennas.

11. Test Setup



Note:

Photos of Test Position: Please refer to the test photos in the appendix.



12. Test Equipment and Calibration Data

| Instrument | Brand | Model No. | Serial No. | Characteristics | Calibration Date | Calibration Due Date |
|-------------------|--------------|------------------|-------------------|------------------------|-------------------------|-----------------------------|
| Horn Antenna | SCHWARZBECK | BBHA9120D | BBHA 9120D-1292 | 1GHz~18GHz | Aug. 04, 2021 | Aug. 03, 2022 |
| Test Software | SPORTON | SENSE-RDG | V1.0.6 | - | N.C.R. | N.C.R. |

Note: Calibration Interval of instruments listed above is one year.

NCR means Non-Calibration required.



13. Test Results

Please refer to the appendix.

Appendix A – Radiated Composite Gain of 2.4GHz, 5GHz UNII 1~3 (2G5G Ant1~Ant4).....Page 24
Appendix B – Radiated Composite Gain of 5GHz UNII 2C, 3, 6GHz UNII 5~8 (5G6G Ant1~Ant4).....Page 39
Appendix C – Antenna Pattern of 2.4GHz, 5GHz UNII 1~3 (2G5G Ant1~Ant4).....Page 57
Appendix D – Antenna Pattern of 5GHz UNII 2C, 3, 6GHz UNII 5~8 (5G6G Ant1~Ant4).....Page 62
Appendix E – Test Photos..... Page 68



| Freq(Hz) | 2.45G | 5.2G | 5.3G | 5.6G | 5.785G |
|---|--------------|--------------|--------------|--------------|--------------|
| Ant. 3 Max Gain (dBi) | 2.79 | 2.78 | 2.74 | 2.66 | 1.91 |
| Ant. 4 Max Gain (dBi) | 2.62 | 5.24 | 5.46 | 4.26 | 3.94 |
| Ant. 3 Polarization/ θ (°)/ ϕ (°) | Theta/30/210 | Theta/75/60 | Theta/75/30 | Theta/75/60 | Theta/75/255 |
| Ant. 4 Polarization/ θ (°)/ ϕ (°) | Theta/15/315 | Theta/75/150 | Theta/75/150 | Theta/75/150 | Theta/60/135 |
| Max Gain (dBi) | 2.79 | 5.24 | 5.46 | 4.26 | 3.94 |
| DG [1SS] (dBi) | 4.29 | 5.39 | 5.26 | 4.69 | 4.16 |
| DG [2SS] (dBi) | 1.28 | 2.99 | 2.99 | 2.02 | 1.65 |



DG 1SS Result

Table with columns for Freq(Hz), DG(dB), and various Phi angles (0 to 345 degrees) for frequencies 2.45G, 5.2G, and 5.3G. The table contains multiple rows of data for each frequency, showing gain values in dB across different angles.



Radiated Composite Gain of 2.4GHz, 5GHz UNII 1~3(2G5G Ant3~Ant4)_2TX

Appendix A.1

| | | | | | | | | | | | | | | | | | | | | | | | | |
|----------|--------|--------|--------|--------|--------|--------|--------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Θ(180°) | -11.74 | -14.86 | -11.76 | -11.91 | -10.66 | -10.27 | -10.34 | -12.13 | -10.28 | -10.03 | -8.39 | -8.57 | -9.74 | -10.83 | -8.59 | -7.32 | -7.43 | -9.42 | -11.95 | -10.02 | -10.16 | -9.35 | -9.32 | -8.8 |
| Freq(Hz) | 5.6G | Pol. | Phi | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| DG(dBi) | Φ(0°) | Φ(15°) | Φ(30°) | Φ(45°) | Φ(60°) | Φ(75°) | Φ(90°) | Φ(105°) | Φ(120°) | Φ(135°) | Φ(150°) | Φ(165°) | Φ(180°) | Φ(195°) | Φ(210°) | Φ(225°) | Φ(240°) | Φ(255°) | Φ(270°) | Φ(285°) | Φ(300°) | Φ(315°) | Φ(330°) | Φ(345°) |
| Θ(0°) | -5 | -7.53 | -5.98 | -5.9 | -6.7 | -7.89 | -8.71 | -8.73 | -10.73 | -11.19 | -8.89 | -6.5 | -6.14 | -5.03 | -4.29 | -5.24 | -6.05 | -8.94 | -9.42 | -10.51 | -10.36 | -10.73 | -8.61 | -7.58 |
| Θ(15°) | -4.47 | -4.01 | -4.42 | -2.87 | -3.79 | -8.25 | -10.09 | -8.57 | -9.48 | -7.35 | -6.74 | -10.15 | -9.08 | -8.23 | -9.75 | -10.46 | -10.51 | -7.46 | -7.22 | -6.77 | -7.93 | -9.84 | -11.92 | -9.36 |
| Θ(30°) | -6.7 | -2.7 | -6.71 | -9.08 | -3.09 | -6.97 | -6.24 | -12.17 | -9.27 | -14 | -10.42 | -8.41 | -11.16 | -8.1 | -9.25 | -11.61 | -13.75 | -7.16 | -5.68 | -7.3 | -6.1 | -8.65 | -8.06 | -9.09 |
| Θ(45°) | -7.18 | -7.75 | -7.52 | -2.76 | -2.35 | -4.47 | -8.91 | -11.54 | -8.05 | -8.46 | -7.9 | -7.17 | -9.47 | -10.71 | -11.3 | -8.88 | -9.9 | -6.65 | -10.23 | -9.88 | -7.92 | -6.88 | -9.27 | -6.99 |
| Θ(60°) | -7.48 | -6.88 | -5.33 | -4.32 | -4.84 | -4.13 | -4.4 | -10.12 | -9.86 | -7.37 | -8.39 | -7.87 | -7.54 | -10.83 | -13.55 | -9.97 | -11.37 | -7.46 | -8.69 | -10.77 | -8.8 | -8.11 | -8.71 | -8.83 |
| Θ(75°) | -8.67 | -7.83 | -8.21 | -4.01 | -4.83 | -2.57 | -4.23 | -4.44 | -8.94 | -6.24 | -11.71 | -13.1 | -8.64 | -14.81 | -14.12 | -9.48 | -12.25 | -8.25 | -10.97 | -9.14 | -10 | -7.89 | -9.18 | -8.87 |
| Θ(90°) | -9.22 | -11.18 | -11.59 | -8.91 | -5.86 | -5.81 | -7.25 | -6.39 | -11.08 | -10.84 | -14.23 | -13.24 | -9.32 | -14.07 | -14.41 | -12.17 | -12.67 | -10.57 | -10.89 | -11.96 | -13.09 | -10.19 | -9.83 | -8.2 |
| Θ(105°) | -10.47 | -8.58 | -9.53 | -10.5 | -7.34 | -9.23 | -7.88 | -8.13 | -10.11 | -13.01 | -14.47 | -11.24 | -9.49 | -12.52 | -12.56 | -13.49 | -10.97 | -11.46 | -12.32 | -12.49 | -14.45 | -12.31 | -9.68 | -10.4 |
| Θ(120°) | -9.61 | -13.72 | -12.82 | -10.66 | -13.54 | -6.48 | -7.88 | -9.07 | -10.4 | -13.89 | -13.85 | -11.84 | -11.35 | -13.74 | -9.61 | -9.59 | -14.19 | -10.41 | -11.13 | -12.1 | -14.19 | -13.55 | -14.03 | -10.86 |
| Θ(135°) | -8.99 | -9.3 | -9.71 | -14.41 | -9.95 | -10.27 | -11.09 | -14.96 | -11.24 | -11.61 | -12.24 | -9.53 | -8.15 | -9.09 | -12.1 | -8.02 | -11.71 | -11.21 | -11.36 | -13.7 | -11.01 | -14.35 | -11.51 | -15.12 |
| Θ(150°) | -14.24 | -12.66 | -13.87 | -13.15 | -10.28 | -10.35 | -6.05 | -11.92 | -10.03 | -11.46 | -14.45 | -12.99 | -11.45 | -13.59 | -8.84 | -12.97 | -11.4 | -9.58 | -10.6 | -12.87 | -9.64 | -9.25 | -9.59 | -6.98 |
| Θ(165°) | -14.12 | -14.01 | -11.76 | -12.98 | -9.68 | -12.53 | -9.75 | -8.22 | -9.6 | -10.16 | -11.87 | -13.51 | -9.36 | -10.74 | -11.02 | -10.51 | -9.96 | -11.29 | -7.98 | -7.82 | -8.77 | -11.41 | -14.14 | -9.7 |
| Θ(180°) | -11.91 | -11.94 | -12.79 | -14.54 | -13.69 | -14.09 | -12.2 | -10.95 | -8.92 | -8.75 | -8.17 | -8.68 | -9.69 | -9.94 | -11.99 | -12.03 | -12.45 | -10.14 | -8.77 | -9.67 | -9.71 | -11.45 | -12.62 | -12.83 |
| Freq(Hz) | 5.6G | Pol. | Theta | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| DG(dBi) | Φ(0°) | Φ(15°) | Φ(30°) | Φ(45°) | Φ(60°) | Φ(75°) | Φ(90°) | Φ(105°) | Φ(120°) | Φ(135°) | Φ(150°) | Φ(165°) | Φ(180°) | Φ(195°) | Φ(210°) | Φ(225°) | Φ(240°) | Φ(255°) | Φ(270°) | Φ(285°) | Φ(300°) | Φ(315°) | Φ(330°) | Φ(345°) |
| Θ(0°) | -8.85 | -10.7 | -10.01 | -8.13 | -8.15 | -6.87 | -5.79 | -5.03 | -4.17 | -5.67 | -4.43 | -6.43 | -7.44 | -9.39 | -10.51 | -11.29 | -9.64 | -8.52 | -6.96 | -6.63 | -5.42 | -6.9 | -7.25 | -7.94 |
| Θ(15°) | -1.71 | -4.31 | -6.4 | -6.67 | -6.2 | -5.47 | -5.05 | -6.95 | -8.41 | -10.01 | -11.84 | -12.43 | -11 | -8.04 | -6.69 | -5.87 | -6.81 | -6.27 | -5.17 | -4.53 | -3.16 | -3.54 | -3.41 | -3.19 |
| Θ(30°) | -0.38 | -1.5 | -2.05 | -0.87 | -1.27 | -3.09 | -6.65 | -4.41 | -5.32 | -5.21 | -5.05 | -4.03 | -2.24 | -2.29 | -1.93 | 0.4 | -0.32 | -1.16 | -1.04 | -1.6 | -1.02 | 1.01 | 0.17 | -0.11 |
| Θ(45°) | -0.4 | 1.54 | 1.8 | 0.5 | 2.13 | -0.03 | -1.05 | -0.31 | -3.14 | -0.01 | 1.1 | 0.44 | 1.28 | 1.05 | 1.73 | 0.68 | -0.31 | -1.08 | -1.64 | -0.17 | -0.46 | 0.55 | 1.3 | 0.95 |
| Θ(60°) | 0.45 | 2.09 | 2.98 | 3.57 | 2.17 | 0.89 | 0.14 | 0.36 | 0.83 | 4.69 | 2.23 | 2.99 | 2.41 | 0.89 | 0.04 | -0.64 | 0.13 | 0.38 | 2.67 | -0.1 | -1.1 | -0.69 | 1.35 | 1.83 |
| Θ(75°) | -0.69 | 0.64 | 3.76 | 2.66 | 3.98 | 3.26 | 3.02 | 2.81 | 2.1 | 1.67 | 3.7 | 2.13 | 1.63 | 1.67 | 0.73 | 1.51 | 0.72 | 0.96 | 1.16 | -0.43 | -0.85 | 0.95 | -0.04 | 0.32 |
| Θ(90°) | -2.12 | -2.9 | 1.61 | 1.43 | 1.93 | 2.18 | -1.01 | 0.18 | 1.18 | 1.41 | 1.87 | 0.8 | -1.74 | -1.28 | -0.7 | -0.84 | -0.98 | 0.51 | -0.72 | -0.08 | -1.78 | 0.31 | -1.61 | -0.68 |
| Θ(105°) | -3.11 | -3.17 | -3.42 | -4.08 | -5.67 | -1.24 | -4.89 | -3.45 | -4.43 | -1.27 | -2 | -5.37 | -4.38 | -4.6 | -3.87 | -4.63 | -3.61 | -4.97 | -3.34 | -2.25 | -5.89 | -4.35 | -5.23 | -4.02 |
| Θ(120°) | -3.72 | -7.26 | -5.31 | -4.71 | -6.18 | -6.23 | -6.14 | -9.62 | -5.88 | -3.38 | -5.14 | -3.61 | -4.75 | -6.58 | -4.51 | -6.24 | -4.68 | -4.43 | -4.1 | -1.98 | -4.53 | -4.06 | -8 | -7.46 |
| Θ(135°) | -7.56 | -8.37 | -8.99 | -4.78 | -11.48 | -8.15 | -13.95 | -13.73 | -9.96 | -7.39 | -11.83 | -8.38 | -10.36 | -9.2 | -6.23 | -8.55 | -6.25 | -5.78 | -4.69 | -3.85 | -7.25 | -8.67 | -7.83 | -5.01 |
| Θ(150°) | -8.96 | -7.91 | -14.11 | -11.87 | -14.46 | -13.57 | -14.34 | -14.63 | -11.88 | -7.88 | -11.95 | -11.89 | -7.08 | -8.4 | -5.19 | -11.99 | -9.55 | -8.38 | -14.19 | -8.23 | -8.17 | -7.57 | -6.53 | -8.51 |
| Θ(165°) | -9.85 | -10.69 | -11.69 | -12.18 | -13.94 | -14.02 | -11.41 | -13.26 | -14.18 | -14.7 | -11.29 | -11.69 | -10.92 | -9.19 | -8.33 | -6.95 | -7.32 | -8.84 | -9.59 | -10.55 | -7.2 | -9.71 | -10.07 | -9.2 |
| Θ(180°) | -10.49 | -10.25 | -11.17 | -10.99 | -8.95 | -9.62 | -10.64 | -13.24 | -13.5 | -12.62 | -12.92 | -11.24 | -9.37 | -8.04 | -6.48 | -6.23 | -7.33 | -8.3 | -11.27 | -13.79 | -14.63 | -13.91 | -10.89 | -10.07 |
| Freq(Hz) | 5.785G | Pol. | Phi | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| DG(dBi) | Φ(0°) | Φ(15°) | Φ(30°) | Φ(45°) | Φ(60°) | Φ(75°) | Φ(90°) | Φ(105°) | Φ(120°) | Φ(135°) | Φ(150°) | Φ(165°) | Φ(180°) | Φ(195°) | Φ(210°) | Φ(225°) | Φ(240°) | Φ(255°) | Φ(270°) | Φ(285°) | Φ(300°) | Φ(315°) | Φ(330°) | Φ(345°) |
| Θ(0°) | -6.6 | -7.54 | -6.87 | -5.78 | -5.03 | -5.1 | -6.61 | -6.43 | -7.78 | -8.19 | -7.97 | -6.44 | -6 | -5.69 | -5.89 | -6.85 | -7.55 | -8.87 | -8.13 | -8.86 | -7.26 | -8.83 | -9.06 | -8.43 |
| Θ(15°) | -4.49 | -3.15 | -3.81 | -2.8 | -3.14 | -5.61 | -8.77 | -8.73 | -7.6 | -8.11 | -8.56 | -8.56 | -8.38 | -7.95 | -9.31 | -9.61 | -8.5 | -6.01 | -5.31 | -4.14 | -5.7 | -8.92 | -9.64 | -10.38 |
| Θ(30°) | -5.9 | -3.94 | -6.27 | -6.52 | -2.63 | -6.37 | -5.18 | -12.48 | -10.35 | -10.74 | -8.35 | -8.48 | -8.92 | -11.37 | -6.72 | -10.64 | -10.45 | -5.13 | -5.32 | -5.65 | -6.13 | -5.93 | -5.96 | -10.89 |
| Θ(45°) | -8.99 | -8.73 | -6.24 | -2.05 | -1.35 | -4.35 | -7.26 | -7.83 | -7.06 | -8.69 | -7.92 | -7.22 | -8.74 | -14.01 | -9.56 | -6.8 | -11.72 | -6.79 | -4.75 | -9.96 | -8.22 | -4.02 | -7.83 | -8.98 |
| Θ(60°) | -6.58 | -8.11 | -3.88 | -5.38 | -4.59 | -3.59 | -5.1 | -11.21 | -8.65 | -7.11 | -10.06 | -9.32 | -7.37 | -9.13 | -10.92 | -9.87 | -9.63 | -6.42 | -6.17 | -8.48 | -8.43 | -7.63 | -7.75 | -11.35 |
| Θ(75°) | -8.41 | -8.61 | -8.16 | -5.47 | -5.93 | -3.16 | -2.15 | -2.69 | -6.98 | -6.57 | -11.77 | -11.01 | -9.07 | -10.58 | -10.33 | -8.65 | -9.1 | -7.17 | -9.04 | -8.9 | -9.23 | -6.67 | -10.2 | -11.38 |
| Θ(90°) | -11.1 | -13.61 | -11.81 | -10.15 | -5.53 | -7.05 | -5.25 | -3.55 | -11.46 | -10.56 | -13.05 | -15.31 | -10.03 | -14.73 | -13.22 | -10.21 | -9.72 | -12.12 | -12.05 | -13.91 | -13.06 | -11.04 | -10.56 | -8.79 |
| Θ(105°) | -11.63 | -11.01 | -12.31 | -10.4 | -6.69 | -8.84 | -7.76 | -7.8 | -9.9 | -12.57 | -12.42 | -10.05 | -9.69 | -13.63 | -11.88 | -13.73 | -10.33 | -14.5 | -11.05 | -13.97 | -13.83 | -11.77 | -8.96 | -9.81 |
| Θ(120°) | -11.48 | -14.39 | -13.85 | -11.2 | -12.89 | -6.15 | -12.01 | -9.2 | -12.1 | -14.93 | -12.75 | -12.45 | -12.7 | -11.82 | -8.54 | -10.13 | -12.61 | -12.05 | -11.14 | -9.84 | -12.69 | -14.73 | -12.73 | -14.66 |
| Θ(135°) | -9.85 | -9.82 | -10 | -13.11 | -12.24 | -8.49 | -10.57 | -13.26 | -14.38 | -9.11 | -12.14 | -10.09 | -7.87 | -10.49 | -14.46 | -8.33 | -12.71 | -13.6 | -10.63 | -12.11 | -11.72 | -14.4 | -12.47 | -13.24 |
| Θ(150°) | -14.83 | -14.07 | -12.65 | -13.3 | -12.15 | -9.09 | -6.87 | -11.14 | -9.19 | -14.15 | -11.85 | -12.93 | -10.64 | -14.15 | -10.31 | -12.27 | -14.24 | -12.69 | -11.32 | -12.92 | -8.87 | -12.06 | -10.08 | -6.16 |
| Θ(165°) | -11.38 | -13.78 | -14.86 | -13.59 | -11.24 | -11.58 | -9.08 | -9.13 | -8.08 | -7.98 | -10.66 | -10.61 | -10.75 | -11.73 | -12.62 | -11.94 | -10.49 | -9.37 | -7.81 | -8.09 | -8.32 | -8.75 | -12.7 | -9.57 |
| Θ(180°) | -12.56 | -13.16 | -14.01 | -13.78 | -13.99 | -14.11 | -13.03 | -11.61 | -9.09 | -8.82 | -9.45 | -10.47 | -12.15 | -13.19 | -13.92 | -11.38 | -12.18 | -11.42 | -10.16 | -11.21 | -11.24 | -10.4 | -11.62 | -13.98 |
| Freq(Hz) | 5.785G | Pol. | Theta | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| DG(dBi) | Φ(0°) | Φ(15°) | Φ(30°) | Φ(45°) | Φ(60°) | Φ(75°) | Φ(90°) | Φ(105°) | Φ(120°) | Φ(135°) | Φ(150°) | Φ(165°) | Φ(180°) | Φ(195°) | Φ(210°) | Φ(225°) | Φ(240°) | Φ(255°) | Φ(270°) | Φ(285°) | Φ(300°) | Φ(315°) | Φ(330°) | Φ(345°) |
| Θ(0°) | -7 | -8.38 | -9.17 | -7.68 | -8.27 | -6.91 | -6.43 | -5.48 | -5.22 | -5.28 | -4.73 | -5.12 | -5.44 | -6.12 | -7.11 | -8.5 | -9.76 | -8.62 | -7.7 | -7.42 | -5.84 | -7.24 | -8.1 | -7.94 |
| Θ(15°) | -2.01 | -4.8 | -7.3 | -6.4 | -6.65 | -7.67 | -7.42 | -7.08 | -6.27 | -8.45 | -12.81 | -11.27 | -9.62 | -9.08 | -6.12 | -6.12 | -4.96 | -6.35 | -7.07 | -5.98 | -2.87 | -2.66 | -2.49 | -3.22 |
| Θ(30°) | -0.75 | -1.34 | -1.63 | -3.19 | -2.05 | -3.79 | -6.21 | -5.77 | -7.73 | -6.21 | -4.54 | -3.78 | -1.76 | -2.29 | -1.8 | -0.25 | 1.1 | -1.17 | -0.65 | -1.33 | -0.44 | 0.27 | -0.01 | -0.34 |
| Θ(45°) | 0.89 | 2.29 | 1.62 | 0.49 | 1.03 | -0.75 | -2.01 | -2.85 | -3.21 | -2.14 | -0.06 | 0.75 | 1.75 | 0.6 | 1.72 | -0.91 | -1.38 | -0.41 | 0.28 | 0.34 | -0.9 | 0.62 | 1.55 | 0.01 |
| Θ(60°) | 0.76 | 1.65 | 4.16 | 3.7 | 2.09 | 1.24 | 0.24 | -1.04 | 0.67 | 3.99 | 1.38 | 2.45 | 1.86 | 1.81 | 1. | | | | | | | | | |



Radiated Composite Gain of 2.4GHz, 5GHz UNII 1~3(2G5G Ant3~Ant4)_2TX

Appendix A.1

Table with columns for frequency (5.6G, 5.785G, 2.45G, 5.2G), gain, and various angles (Theta, Phi) for antennas 3 and 4. The table contains numerical data for each combination of frequency, gain, and angle.



Radiated Composite Gain of 2.4GHz, 5GHz UNII 1~3(2G5G Ant3~Ant4)_2TX

Appendix A.1

Table with columns for frequency (5.3G, 5.6G, 5.785G), polarization (Pol.), phase (Phi), and antenna (Ant. 4). Rows include Gain and Theta values for various angles (0, 15, 30, 45, 60, 75, 90, 105, 120, 135, 150, 165, 180 degrees).



| Freq(Hz) | 2.45G | 5.2G | 5.3G | 5.6G | 5.785G |
|--|--------------|--------------|--------------|--------------|--------------|
| Ant. 1 Max Gain (dBi) | 2.79 | 4.27 | 3.94 | 1.88 | 2.57 |
| Ant. 2 Max Gain (dBi) | 2.43 | 5.09 | 5.16 | 2.89 | 2.72 |
| Ant. 3 Max Gain (dBi) | 2.79 | 2.78 | 2.74 | 2.66 | 1.91 |
| Ant. 4 Max Gain (dBi) | 2.62 | 5.24 | 5.46 | 4.26 | 3.94 |
| Ant. 1 Polarization/ $\theta(^{\circ})/\phi(^{\circ})$ | Theta/0/195 | Theta/75/240 | Theta/75/240 | Theta/75/240 | Theta/60/225 |
| Ant. 2 Polarization/ $\theta(^{\circ})/\phi(^{\circ})$ | Theta/60/165 | Theta/75/330 | Theta/75/330 | Theta/75/330 | Theta/75/330 |
| Ant. 3 Polarization/ $\theta(^{\circ})/\phi(^{\circ})$ | Theta/30/210 | Theta/75/60 | Theta/75/30 | Theta/75/60 | Theta/75/255 |
| Ant. 4 Polarization/ $\theta(^{\circ})/\phi(^{\circ})$ | Theta/15/315 | Theta/75/150 | Theta/75/150 | Theta/75/150 | Theta/60/135 |
| Max Gain (dBi) | 2.79 | 5.24 | 5.46 | 4.26 | 3.94 |
| DG [1SS] (dBi) | 6.92 | 6.99 | 7.25 | 6.62 | 5.97 |
| DG [2SS] (dBi) | 3.92 | 5.24 | 5.46 | 4.26 | 3.94 |
| DG [4SS] (dBi) | 0.93 | 1.09 | 1.55 | 0.94 | 0.27 |



DG 1SS Result

Table with columns for Freq(Hz), DG(dB), and various Phi angles (0 to 345 degrees) for frequencies 2.45G, 5.2G, and 5.3G. The table contains multiple rows of data for each frequency, showing gain values in dB across different angles.



Radiated Composite Gain of 2.4GHz, 5GHz UNII 1~3 (2G5G Ant1~Ant4)_4TX

Appendix A.2

| | | | | | | | | | | | | | | | | | | | | | | | | |
|----------|--------|--------|--------|--------|--------|--------|--------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Θ(180°) | -6.97 | -7.22 | -6.33 | -7 | -6.25 | -5.24 | -5.22 | -8.26 | -7.39 | -7.21 | -5.42 | -5.35 | -5.82 | -5.97 | -4.65 | -4.41 | -4.57 | -5.34 | -5.69 | -4.71 | -6.23 | -6.73 | -7.24 | -6.78 |
| Freq(Hz) | 5.6G | Pol. | Phi | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| DG(dBi) | Φ(0°) | Φ(15°) | Φ(30°) | Φ(45°) | Φ(60°) | Φ(75°) | Φ(90°) | Φ(105°) | Φ(120°) | Φ(135°) | Φ(150°) | Φ(165°) | Φ(180°) | Φ(195°) | Φ(210°) | Φ(225°) | Φ(240°) | Φ(255°) | Φ(270°) | Φ(285°) | Φ(300°) | Φ(315°) | Φ(330°) | Φ(345°) |
| Θ(0°) | -4.23 | -6.47 | -5.44 | -4.99 | -5.03 | -6.5 | -6.06 | -6.08 | -7.47 | -7.06 | -6.49 | -5.06 | -5.02 | -4.68 | -3.99 | -4.76 | -4.81 | -6.43 | -6.68 | -6.26 | -6.18 | -6.25 | -6.38 | -5.26 |
| Θ(15°) | -4.28 | -3.72 | -4.2 | -3.28 | -3.91 | -6.76 | -4.61 | -4.55 | -6.23 | -5.27 | -5.62 | -7.28 | -5.42 | -4.92 | -4.38 | -6.77 | -8.88 | -6.07 | -6.16 | -6.35 | -5.13 | -7.26 | -8.49 | -7.25 |
| Θ(30°) | -5.26 | -2.43 | -4.93 | -6.85 | -3.15 | -3.98 | -2.8 | -6.23 | -4.62 | -9.58 | -7.97 | -5.12 | -4.77 | -4.44 | -5.47 | -4.26 | -5.53 | -5.44 | -4.35 | -5.55 | -5.66 | -5.09 | -4.98 | -7.89 |
| Θ(45°) | -5.79 | -6.88 | -5.39 | -3.67 | -2.27 | -2.68 | -4.39 | -5.1 | -3.82 | -7.04 | -7 | -3.62 | -5.81 | -6.77 | -3.71 | -3.96 | -6.35 | -4.42 | -6.99 | -7.71 | -6.51 | -4.47 | -5.7 | -6.72 |
| Θ(60°) | -6.46 | -6.86 | -5.82 | -4.18 | -4.52 | -2.47 | -2.51 | -5.98 | -6.28 | -4.83 | -7.18 | -4.76 | -5.27 | -5.12 | -5.35 | -5.84 | -5.81 | -4.48 | -5.33 | -7.8 | -5.68 | -5.47 | -5.89 | -5.09 |
| Θ(75°) | -8.12 | -6.67 | -7.02 | -3.97 | -3.84 | -2.53 | -3.98 | -2.16 | -6.32 | -4.05 | -7.71 | -7.64 | -5.68 | -7.18 | -7.99 | -4.59 | -6.62 | -3.01 | -5.88 | -6.16 | -7.46 | -6.13 | -8.45 | -5.63 |
| Θ(90°) | -8.28 | -8.68 | -6.7 | -6.95 | -4.26 | -5.1 | -6.81 | -5.11 | -7.42 | -6.94 | -7.82 | -6.69 | -6.68 | -8.04 | -8.36 | -8.25 | -6.84 | -5.22 | -5.21 | -6.61 | -7.44 | -7.57 | -8.01 | -7.02 |
| Θ(105°) | -8.73 | -6.75 | -5.59 | -8.27 | -5.05 | -8.21 | -7.58 | -6.13 | -7.51 | -7.62 | -6.78 | -7.18 | -5.54 | -7.84 | -6.74 | -8.24 | -7.49 | -4.99 | -5.89 | -8.16 | -8.11 | -9.12 | -7.86 | -9 |
| Θ(120°) | -5.27 | -8.02 | -9.61 | -8.05 | -9.1 | -6.4 | -7.83 | -7.76 | -6.67 | -10.05 | -7.98 | -5.9 | -5.86 | -8.63 | -8.14 | -4.4 | -7.38 | -6.72 | -6.56 | -9.05 | -9.38 | -9.22 | -9.71 | -7.31 |
| Θ(135°) | -7.19 | -8.03 | -7.52 | -9.57 | -7.93 | -8.34 | -8.81 | -11.72 | -7.01 | -7.83 | -8.63 | -7.14 | -6.12 | -6.51 | -7.84 | -6.18 | -8.22 | -7 | -6.22 | -8.98 | -8.24 | -10.66 | -8.55 | -9.09 |
| Θ(150°) | -9.46 | -6.27 | -7.73 | -10.32 | -7.86 | -9.31 | -6.07 | -9.77 | -6.94 | -8.28 | -7.41 | -7.31 | -8.09 | -9.78 | -7.06 | -9.46 | -6.89 | -7.32 | -7.91 | -7.83 | -6.52 | -7.12 | -6.87 | -5.01 |
| Θ(165°) | -9.29 | -8.96 | -8.72 | -10.4 | -7.5 | -9.78 | -7.97 | -7.05 | -6.84 | -7.12 | -8.72 | -10.99 | -7.02 | -8.59 | -8.74 | -8.65 | -8.87 | -9.53 | -7.38 | -7.09 | -6.97 | -8.41 | -9.21 | -6.17 |
| Θ(180°) | -7.23 | -6.55 | -8.21 | -10.15 | -10.12 | -10.11 | -8.79 | -8.44 | -8.19 | -7.99 | -7.34 | -7.98 | -7.19 | -6.67 | -8.08 | -9.93 | -10.33 | -7.83 | -5.73 | -6.15 | -6.53 | -7.18 | -7.58 | -7.71 |
| Freq(Hz) | 5.6G | Pol. | Theta | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| DG(dBi) | Φ(0°) | Φ(15°) | Φ(30°) | Φ(45°) | Φ(60°) | Φ(75°) | Φ(90°) | Φ(105°) | Φ(120°) | Φ(135°) | Φ(150°) | Φ(165°) | Φ(180°) | Φ(195°) | Φ(210°) | Φ(225°) | Φ(240°) | Φ(255°) | Φ(270°) | Φ(285°) | Φ(300°) | Φ(315°) | Φ(330°) | Φ(345°) |
| Θ(0°) | -6.06 | -7.56 | -6.99 | -5.88 | -6.57 | -5.33 | -5.46 | -4.7 | -4.25 | -5.22 | -3.77 | -5.05 | -5.64 | -6.05 | -6.23 | -7.44 | -7.08 | -6.45 | -6.31 | -5.47 | -4.63 | -6.03 | -5.77 | -6.18 |
| Θ(15°) | -1.47 | -2.8 | -3.94 | -3.19 | -2.79 | -3.03 | -2.28 | -3.05 | -2.87 | -3.82 | -4.31 | -4.16 | -3.42 | -2.45 | -3.02 | -2.97 | -2.88 | -3.39 | -3.65 | -3.49 | -2.86 | -3.23 | -2.73 | -2.72 |
| Θ(30°) | 2.18 | 1.07 | 0.98 | 0.9 | 1.47 | 0.13 | -1.6 | -0.71 | -0.48 | 0.81 | 0.96 | 1.25 | 1.82 | 1.97 | 2.73 | 3.6 | 2.6 | 1.01 | 0.39 | -0.11 | -0.2 | 2.81 | 1.75 | 1.66 |
| Θ(45°) | 2.82 | 4.44 | 3.68 | 3.63 | 4.46 | 3.36 | 2.85 | 2.98 | 1.84 | 3.92 | 4.73 | 4.17 | 4.81 | 4.31 | 5.2 | 5.29 | 4.25 | 2.27 | 1.08 | 2.02 | 2.51 | 4.97 | 4.85 | 3.74 |
| Θ(60°) | 4.19 | 4.68 | 4.05 | 5.48 | 3.75 | 3.48 | 3.74 | 4.43 | 3.4 | 6.62 | 5.02 | 5.48 | 4.66 | 5.03 | 4 | 5.01 | 4.67 | 4.23 | 4.91 | 2.82 | 2.3 | 3.98 | 4.56 | 5.37 |
| Θ(75°) | 3.2 | 3.69 | 4.84 | 4.94 | 5.17 | 4.97 | 5.12 | 4.6 | 5.32 | 4.5 | 4.93 | 4.56 | 5.15 | 5.1 | 5.5 | 5.53 | 4.9 | 5.19 | 3.63 | 2.36 | 2.6 | 2.93 | 4.47 | 4.26 |
| Θ(90°) | 0.83 | 0.42 | 2.92 | 3.93 | 3.57 | 3.07 | 1.79 | 2.68 | 4.59 | 3.91 | 3.7 | 3.4 | 2.49 | 2.05 | 3.02 | 3.02 | 3.76 | 3.61 | 3.59 | 2.55 | -0.03 | 1.99 | 2.5 | 2.16 |
| Θ(105°) | -0.35 | -0.51 | -0.81 | -0.52 | -1.16 | 1.38 | -1.18 | 0.36 | 0.66 | 1.94 | 0.84 | -1.27 | -0.38 | 0.61 | 0.49 | -2.46 | 0.2 | -2.54 | -0.28 | -1.18 | -3.73 | -3.51 | -0.95 | -0.21 |
| Θ(120°) | -2.82 | -4.23 | -2.74 | -1.67 | -1.97 | -1.13 | -1.1 | -4.03 | -0.49 | -0.76 | -1.86 | -2.26 | -1.67 | -3.84 | -2.12 | -3.18 | -1.68 | -4.24 | -4.78 | -2.56 | -3.74 | -2.12 | -3.34 | -4.64 |
| Θ(135°) | -4.28 | -5.5 | -4.64 | -2.22 | -4.92 | -4.22 | -5.24 | -5.38 | -3.82 | -3.48 | -5.04 | -4.59 | -4.7 | -4.02 | -4.13 | -4.05 | -6.27 | -3.7 | -4.5 | -4.18 | -7.12 | -5.33 | -5.36 | -3.42 |
| Θ(150°) | -6.93 | -5.68 | -9.32 | -7.47 | -6.8 | -7.25 | -7.59 | -8.64 | -5.18 | -4.22 | -7.4 | -8.07 | -5.26 | -6.16 | -4.77 | -7.31 | -7.11 | -7.73 | -8.77 | -7.64 | -7.73 | -7.28 | -6.58 | -5.71 |
| Θ(165°) | -7.23 | -5.98 | -7.66 | -7.33 | -8.4 | -8.1 | -6.68 | -7.96 | -7.88 | -8.93 | -7.83 | -7.19 | -8.5 | -7.14 | -6.92 | -6.22 | -6.24 | -6.85 | -8.36 | -8.96 | -7.04 | -8.41 | -7.78 | -8.21 |
| Θ(180°) | -7.6 | -7.19 | -6.45 | -7.45 | -5.85 | -6.17 | -6.27 | -8.54 | -8.63 | -9.1 | -8.58 | -7.51 | -7.71 | -6.21 | -4.75 | -4.37 | -5.1 | -5.26 | -6.97 | -7.47 | -8.91 | -9.34 | -8.65 | -7.34 |
| Freq(Hz) | 5.785G | Pol. | Phi | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| DG(dBi) | Φ(0°) | Φ(15°) | Φ(30°) | Φ(45°) | Φ(60°) | Φ(75°) | Φ(90°) | Φ(105°) | Φ(120°) | Φ(135°) | Φ(150°) | Φ(165°) | Φ(180°) | Φ(195°) | Φ(210°) | Φ(225°) | Φ(240°) | Φ(255°) | Φ(270°) | Φ(285°) | Φ(300°) | Φ(315°) | Φ(330°) | Φ(345°) |
| Θ(0°) | -6.08 | -6.63 | -5.86 | -3.84 | -2.89 | -3.11 | -3.37 | -3.28 | -4.91 | -4.52 | -6.16 | -5.83 | -5.96 | -5.31 | -5.02 | -4.9 | -4.73 | -4.71 | -5.46 | -4.41 | -3.7 | -5.3 | -5.7 | -5.87 |
| Θ(15°) | -3.83 | -3.18 | -3.92 | -3.85 | -3.61 | -3.35 | -2.79 | -2.77 | -4.15 | -6.44 | -7.84 | -6.97 | -5.15 | -4.22 | -3.81 | -5.16 | -6.99 | -4.87 | -4.13 | -4.91 | -4.68 | -6.93 | -6.69 | -7.11 |
| Θ(30°) | -4.77 | -3.7 | -4.12 | -4.87 | -2.76 | -3.24 | -1.35 | -3.57 | -5.43 | -6 | -5.87 | -6.54 | -4.85 | -6.1 | -2.85 | -4.64 | -3.98 | -3.81 | -4.74 | -5.14 | -5.99 | -4.2 | -3.48 | -8.57 |
| Θ(45°) | -7.72 | -7.69 | -5.25 | -2.72 | -1.18 | -1.05 | -2.18 | -2.88 | -2.82 | -4.52 | -6.25 | -4.61 | -6.94 | -6.58 | -3.42 | -2.47 | -7.48 | -3.76 | -3.44 | -8.13 | -6.86 | -2.51 | -4.6 | -6.51 |
| Θ(60°) | -6.07 | -7.69 | -4.62 | -4.54 | -5.11 | -2.29 | -2.72 | -4.94 | -6.04 | -3.09 | -7.62 | -6.61 | -5.96 | -5.58 | -4.77 | -5.87 | -4.9 | -2.99 | -3.26 | -5.76 | -6 | -5.33 | -6.41 | -7.07 |
| Θ(75°) | -8 | -7.73 | -6.65 | -4.74 | -4.15 | -2.56 | -1.98 | -2.1 | -4.87 | -4.16 | -6.99 | -7.15 | -5.67 | -5.53 | -7 | -5.25 | -5.7 | -3.15 | -3.1 | -4.67 | -6.59 | -5.99 | -8.2 | -8.26 |
| Θ(90°) | -9.7 | -10.83 | -6.46 | -8.46 | -3.68 | -6.44 | -5.17 | -3.9 | -7.96 | -7.07 | -6.51 | -7.58 | -7.36 | -7.79 | -8.77 | -6.98 | -6.68 | -6.5 | -4.54 | -6.72 | -7.95 | -9.15 | -8.2 | -7.07 |
| Θ(105°) | -8.32 | -8.16 | -6.75 | -8.39 | -5 | -7.8 | -7.18 | -7.49 | -7.8 | -7.48 | -7.08 | -5.71 | -5.95 | -8.59 | -6.28 | -8.34 | -7.44 | -6.96 | -5.74 | -9.64 | -7.94 | -10.2 | -6.75 | -7.49 |
| Θ(120°) | -5.85 | -8.68 | -10.81 | -9.37 | -8.37 | -6.42 | -10.21 | -8.06 | -9.38 | -10.2 | -7.41 | -7.43 | -6.32 | -9.45 | -6.76 | -5.47 | -7.75 | -7.58 | -7.05 | -7.84 | -8.65 | -10.76 | -9.96 | -9.39 |
| Θ(135°) | -6.72 | -8.11 | -8.11 | -8.75 | -10.19 | -7.81 | -9.2 | -11.05 | -8.93 | -7.76 | -7.66 | -8.67 | -6.22 | -7.64 | -8.92 | -5.84 | -10.07 | -7.64 | -6.14 | -8.48 | -9.51 | -10.33 | -10.37 | -9.49 |
| Θ(150°) | -10.14 | -8.1 | -8.09 | -8.42 | -10.18 | -7.17 | -6.58 | -9.44 | -6.83 | -9.22 | -6.21 | -7.79 | -6.93 | -9.85 | -8.86 | -8.88 | -9.2 | -8.29 | -9.27 | -6.98 | -7.33 | -9.04 | -7.16 | -4.81 |
| Θ(165°) | -8.29 | -8.46 | -10.78 | -10.43 | -8.49 | -8.49 | -6.62 | -7.45 | -5.23 | -6.27 | -7.64 | -8.95 | -8.86 | -8.51 | -9.86 | -9.97 | -9.09 | -8.45 | -6.8 | -6.46 | -6.28 | -7.06 | -8.16 | -6.63 |
| Θ(180°) | -7.59 | -7.79 | -8.81 | -10 | -9.79 | -9.68 | -9.4 | -8.09 | -7.54 | -7.93 | -7.45 | -8.31 | -8.01 | -7.2 | -9.1 | -9.61 | -10 | -8.88 | -6.48 | -6.43 | -6.19 | -6.21 | -7.53 | -7.5 |
| Freq(Hz) | 5.785G | Pol. | Theta | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| DG(dBi) | Φ(0°) | Φ(15°) | Φ(30°) | Φ(45°) | Φ(60°) | Φ(75°) | Φ(90°) | Φ(105°) | Φ(120°) | Φ(135°) | Φ(150°) | Φ(165°) | Φ(180°) | Φ(195°) | Φ(210°) | Φ(225°) | Φ(240°) | Φ(255°) | Φ(270°) | Φ(285°) | Φ(300°) | Φ(315°) | Φ(330°) | Φ(345°) |
| Θ(0°) | -3.67 | -4.92 | -5.45 | -4.95 | -6.25 | -6.17 | -5.92 | -5.41 | -4.4 | -3.56 | -2.75 | -2.5 | -2.74 | -3.03 | -3.64 | -5.08 | -7.1 | -7.21 | -7.09 | -6.61 | -4.63 | -4.76 | -5.32 | -5.02 |
| Θ(15°) | -0.74 | -2.53 | -3.96 | -2.74 | -2.84 | -3.54 | -3.4 | -3.27 | -1.95 | -2.44 | -4.11 | -3.12 | -2.75 | -2.78 | -1.73 | -3.95 | -3.72 | -3.99 | -5.49 | -5.24 | -2.69 | -2.13 | -2.21 | -2.73 |
| Θ(30°) | 2.12 | 1.63 | 1.41 | 0.29 | 1.18 | 0.9 | -1.39 | -0.75 | -0.94 | 0.54 | 0.74 | 1.84 | 1.58 | 2.62 | 2.27 | 3.12 | 3.22 | 0.99 | -0.28 | -0.24 | 0.26 | 2.21 | 1.89 | 1.61 |
| Θ(45°) | 3.51 | 5.06 | 3.55 | 3.33 | 3.78 | 2.38 | 2.39 | 2.42 | 2.13 | 3.1 | 4.16 | 4.18 | 4.32 | 4.2 | 5.13 | 4.89 | 3.54 | 2.4 | 1.99 | 1.98 | 2.64 | 4.47 | 4.47 | 3.39 |
| Θ(60°) | 4.02 | 4.13 | 5.47 | 5.97 | 4.31 | 3.53 | 3.43 | 3.08 | 3.05 | 5.7 | 4.46 | 4.52 | 4.42 | 5.06 | 4.99 | 5.3 | 4.46 | 4.28 | 4.38 | 2.03 | 2.38 | 3.72 | 4.55 | 5.27 |
| Θ(75°) | 2.31 | 3.33 | 4.66 | 4.82 | 3.86 | 5.23 | 4.9 | 2.97 | 5.21 | 4.66 | 4.85 | 4.08 | 4.33 | 5.66 | 4.47 | 5.31 | 5.63 | 4.19 | 2.39 | 3.44 | 3.08 | 4.79 | 5.01 | |
| Θ(90°) | 1.1 | | | | | | | | | | | | | | | | | | | | | | | |



Gain Result

Table with columns for Freq(Hz), Pol., Phi, Ant. 1, and Gain. It contains multiple data blocks for frequencies 2.45G, 5.2G, 5.3G, and 5.6G, each with a grid of gain values for various angles and polarizations.



Radiated Composite Gain of 2.4GHz, 5GHz UNII 1~3 (2G5G Ant1~Ant4)_4TX

Appendix A.2

Table with columns for frequency (5.6G, 5.785G, 2.45G, 5.2G), gain, and various angles (Theta, Phi) for antennas 1 and 2. The table contains numerical data for each combination of parameters.



Radiated Composite Gain of 2.4GHz, 5GHz UNII 1~3 (2G5G Ant1~Ant4)_4TX

Appendix A.2

Table with columns for frequency (5.3G, 5.6G, 5.785G, 2.45G), polarization (Pol.), phase (Phi), antenna (Ant. 2, 3), and gain (Phi(0) to Phi(345)).



Radiated Composite Gain of 2.4GHz, 5GHz UNII 1~3 (2G5G Ant1~Ant4)_4TX

Appendix A.2

Table with columns for Gain, Theta, and various Phi angles (0 to 345 degrees) for frequencies 2.45G, 5.2G, 5.3G, and 5.6G. The table contains numerical values for each combination of frequency, angle, and gain.



Radiated Composite Gain of 2.4GHz, 5GHz UNII 1~3 (2G5G Ant1~Ant4)_4TX

Appendix A.2

Table with columns for frequency (5.785G, 2.45G, 5.2G), gain, and various angles (Theta and Phi) from 0 to 165 degrees. It contains multiple data blocks for different antenna configurations.



Radiated Composite Gain of 2.4GHz, 5GHz UNII 1~3 (2G5G Ant1~Ant4)_4TX

Appendix A.2

| Theta (180°) | -13.89 | -17.72 | -18.01 | -16.96 | -17.11 | -14.8 | -12.1 | -12 | -11.28 | -9.24 | -10.25 | -10.02 | -12.44 | -17.16 | -15.08 | -13.81 | -13 | -14.28 | -11.06 | -8.06 | -8.4 | -8.6 | -8.7 | -9.2 |
|--------------|---------|----------|----------|----------|----------|----------|----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Freq(Hz) | 5.3G | Pol. | Phi | Ant. 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Gain | Phi(0°) | Phi(15°) | Phi(30°) | Phi(45°) | Phi(60°) | Phi(75°) | Phi(90°) | Phi(105°) | Phi(120°) | Phi(135°) | Phi(150°) | Phi(165°) | Phi(180°) | Phi(195°) | Phi(210°) | Phi(225°) | Phi(240°) | Phi(255°) | Phi(270°) | Phi(285°) | Phi(300°) | Phi(315°) | Phi(330°) | Phi(345°) |
| Theta(0°) | -12.51 | -17.6 | -17.81 | -16.39 | -11.99 | -9.57 | -8.07 | -8.61 | -7.55 | -7.57 | -9.31 | -9.13 | -12.23 | -17.17 | -16.53 | -16.68 | -14.03 | -11.56 | -10.16 | -8.31 | -7.69 | -9.46 | -10.47 | -12.23 |
| Theta(15°) | -8.62 | -7.72 | -8.94 | -10.82 | -16.16 | -13.2 | -9.65 | -9.73 | -12.75 | -12.2 | -15.87 | -16.55 | -18.11 | -12.1 | -11.76 | -15.97 | -17.65 | -14.98 | -9.68 | -7.22 | -7.78 | -9.62 | -10.96 | -10.63 |
| Theta(30°) | -7.79 | -8.86 | -10.75 | -8.5 | -7.41 | -6.93 | -11.36 | -8.78 | -10.81 | -15.28 | -16.9 | -18.07 | -18.21 | -9.77 | -10.87 | -14.3 | -18.28 | -16.53 | -9.94 | -7.66 | -8.97 | -16.89 | -17.26 | -8.65 |
| Theta(45°) | -11.02 | -11.38 | -5.06 | -11.1 | -4.99 | -9.29 | -9.68 | -9.04 | -6.86 | -13.81 | -14.46 | -17.53 | -16.8 | -10.04 | -17.49 | -16.7 | -17.9 | -17.38 | -17.93 | -16.48 | -12.48 | -13.91 | -17.52 | -8.98 |
| Theta(60°) | -8.61 | -8.66 | -5.23 | -7.62 | -7.96 | -6.02 | -6.78 | -8.13 | -12.24 | -8.45 | -16.2 | -16.46 | -8.5 | -15.03 | -17.73 | -17.56 | -17.03 | -13.49 | -11.69 | -15.06 | -15.47 | -10.43 | -17.59 | -12.23 |
| Theta(75°) | -10.34 | -10.57 | -7.84 | -7.77 | -5.07 | -4.8 | -5.09 | -5.34 | -12.63 | -11.17 | -17.35 | -8.26 | -6.71 | -11 | -16.36 | -15.9 | -17.19 | -9.74 | -12.79 | -17.12 | -17.12 | -17.8 | -17.92 | -11.93 |
| Theta(90°) | -14.86 | -11.25 | -8.7 | -8.17 | -5.81 | -10.01 | -6.36 | -9.84 | -14.55 | -17.07 | -17.65 | -8.76 | -6.82 | -9.72 | -16.09 | -11.48 | -16.13 | -12.57 | -11.45 | -14.73 | -13.19 | -16.77 | -15.01 | -12.53 |
| Theta(105°) | -14.92 | -10.87 | -12.79 | -8.88 | -13.07 | -8.37 | -10.23 | -5.85 | -7.95 | -17.83 | -16.92 | -10.8 | -9.05 | -9.52 | -10.12 | -11.36 | -14.18 | -16.86 | -9.31 | -17.47 | -13.74 | -17.51 | -17.95 | -17.72 |
| Theta(120°) | -14.09 | -10.47 | -14.6 | -13.85 | -7.4 | -8.4 | -8.68 | -5.95 | -6.72 | -14.89 | -17.52 | -16.92 | -15.35 | -15.84 | -6.72 | -11.52 | -8.95 | -11.3 | -13.61 | -17.02 | -16.66 | -17.15 | -17.19 | -18.03 |
| Theta(135°) | -15.69 | -11.48 | -13.62 | -10.74 | -10.33 | -10.93 | -14.37 | -18.21 | -17.13 | -12.73 | -16.84 | -14.22 | -15.9 | -18.33 | -16.16 | -6.05 | -15.53 | -8.01 | -9.35 | -15.1 | -17.45 | -13.22 | -15.82 | -17.88 |
| Theta(150°) | -15.28 | -15.97 | -8.51 | -15.16 | -9.42 | -11.79 | -10.09 | -14.27 | -12.74 | -17.68 | -16.38 | -17.18 | -18.04 | -9.47 | -11.63 | -12.88 | -9.56 | -8.62 | -7.24 | -9.68 | -18.18 | -16.86 | -18.17 | -13.67 |
| Theta(165°) | -16.86 | -17.16 | -16.72 | -11.31 | -9.3 | -16.96 | -12.7 | -11.37 | -12.87 | -17.13 | -17.31 | -13.22 | -10.01 | -17.87 | -11.82 | -8.47 | -6.51 | -7.46 | -9.16 | -7.44 | -9.29 | -15.22 | -17.01 | -16.58 |
| Theta(180°) | -9.82 | -13.32 | -12.23 | -12.21 | -12.18 | -15.27 | -17.85 | -17.33 | -17.45 | -15.26 | -17.81 | -17.74 | -9.9 | -7.2 | -8.83 | -10.78 | -8.78 | -8.25 | -8.7 | -9.56 | -9.03 | -10.15 | -11.5 | -9.71 |
| Freq(Hz) | 5.3G | Pol. | Theta | Ant. 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Gain | Phi(0°) | Phi(15°) | Phi(30°) | Phi(45°) | Phi(60°) | Phi(75°) | Phi(90°) | Phi(105°) | Phi(120°) | Phi(135°) | Phi(150°) | Phi(165°) | Phi(180°) | Phi(195°) | Phi(210°) | Phi(225°) | Phi(240°) | Phi(255°) | Phi(270°) | Phi(285°) | Phi(300°) | Phi(315°) | Phi(330°) | Phi(345°) |
| Theta(0°) | -8 | -7.61 | -8.13 | -7.22 | -8.21 | -9.56 | -13.56 | -16.06 | -15.63 | -15.56 | -11.15 | -10.52 | -8.12 | -8.99 | -8.86 | -10.32 | -11.13 | -12.6 | -16.26 | -17.33 | -17.47 | -16.53 | -13.45 | -11.16 |
| Theta(15°) | -6.74 | -5.5 | -4.63 | -4.7 | -5.92 | -5.26 | -5.89 | -6.51 | -6.42 | -9.17 | -9.98 | -12.01 | -8.43 | -8.45 | -8.89 | -8.77 | -9.55 | -9.7 | -9.64 | -7.81 | -6.66 | -6.37 | -6.33 | -6.75 |
| Theta(30°) | -3.63 | -2.62 | -3.02 | -3.51 | -4.76 | -3.76 | -4.37 | -2.65 | -4.25 | -2.06 | -2.7 | -2.61 | -4.21 | -4.25 | -4.56 | -4.6 | -4.21 | -3.57 | -5.17 | -5.5 | -4.28 | -2.71 | -2.37 | -0.82 |
| Theta(45°) | -3.38 | -1.85 | -1.6 | -0.69 | -0.03 | -1.71 | -2.46 | -0.67 | -2.01 | -0.5 | 0.38 | -0.08 | -0.48 | -2.12 | -2.04 | 0.04 | -5.53 | -4.68 | -3.94 | -4.63 | -1.94 | -0.02 | 0.78 | 0.15 |
| Theta(60°) | -1.61 | 0.66 | -0.34 | 0.53 | -1.05 | -2.53 | -0.97 | 0.69 | 1.41 | 4.53 | 3.62 | 2.31 | -1.72 | -0.09 | -5.07 | 1.53 | -4.04 | -2.6 | -1.03 | -0.32 | -4.46 | -3.12 | -1.69 | 0.42 |
| Theta(75°) | -0.41 | 0.43 | -0.56 | -0.91 | -2.36 | 1.29 | -1.57 | 0.41 | 2.85 | 0.58 | 5.46 | 3.38 | 0.67 | 1.02 | -1.97 | 1.61 | -2.08 | -1.25 | 0.25 | -0.25 | -6.62 | -7.12 | -2.58 | -0.9 |
| Theta(90°) | -0.67 | -0.45 | -1.47 | -2.59 | -4.73 | 0.4 | -5.87 | -3.77 | 1.2 | 2.14 | 4.77 | 0.72 | -3.81 | -2.18 | -4.33 | -1.27 | -3.26 | -2.92 | -0.06 | -1.44 | -7.08 | -6.71 | -2.02 | -1.39 |
| Theta(105°) | -4.03 | -2.73 | -3.44 | -4.14 | -6.49 | -1.92 | -4.47 | -8.6 | -7.37 | -1.9 | -3.38 | -7.34 | -5.51 | -6.1 | -10.63 | -10.3 | -6.3 | -12.64 | -6.35 | -4.93 | -8.18 | -6.48 | -4.95 | -3.25 |
| Theta(120°) | -3.17 | -6.13 | -6.93 | -8.62 | -9.82 | -8.16 | -13.98 | -5.22 | -6.07 | -4 | -6.24 | -4.63 | -7.79 | -14.17 | -8.77 | -8.82 | -8.04 | -6.76 | -5.7 | -6.03 | -8.13 | -4.58 | -8.88 | 4.46 |
| Theta(135°) | -7.4 | -8.86 | -7.12 | -14.14 | -9.6 | -17.33 | -16.59 | -17.94 | -15.44 | -5.2 | -12.28 | -10.51 | -17.21 | -18.06 | -17.55 | -14.71 | -6.64 | -9.4 | -5.35 | -7.23 | -12.82 | -7.18 | -8.08 | -6.07 |
| Theta(150°) | -5.1 | -11.53 | -8.21 | -16.14 | -14.53 | -17.69 | -12.73 | -15 | -10.57 | -9.41 | -12.96 | -17.66 | -13.17 | -9.53 | -8.75 | -13.36 | -17.08 | -17.11 | -18.01 | -18.07 | -9.93 | -6.38 | -5.89 | -5.01 |
| Theta(165°) | -11.58 | -11.06 | -12.27 | -10.03 | -14.02 | -17.74 | -17.66 | -16.8 | -16.92 | -14.33 | -17.74 | -17.47 | -17.54 | -18.29 | -16.92 | -15.78 | -14.39 | -13.89 | -10.36 | -13.96 | -17.64 | -12.62 | -11.6 | -9.48 |
| Theta(180°) | -12.58 | -18.83 | -17.68 | -17.79 | -16.95 | -15.06 | -12.02 | -13.06 | -10.67 | -10.11 | -8.03 | -8.94 | -9.6 | -13.34 | -12.2 | -11.41 | -11.03 | -11.62 | -12.52 | -10.4 | -10.5 | -8.97 | -9.05 | -8.49 |
| Freq(Hz) | 5.6G | Pol. | Phi | Ant. 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Gain | Phi(0°) | Phi(15°) | Phi(30°) | Phi(45°) | Phi(60°) | Phi(75°) | Phi(90°) | Phi(105°) | Phi(120°) | Phi(135°) | Phi(150°) | Phi(165°) | Phi(180°) | Phi(195°) | Phi(210°) | Phi(225°) | Phi(240°) | Phi(255°) | Phi(270°) | Phi(285°) | Phi(300°) | Phi(315°) | Phi(330°) | Phi(345°) |
| Theta(0°) | -10.07 | -12.82 | -9.66 | -9.81 | -10.76 | -10.55 | -10.2 | -9.14 | -11.15 | -14.55 | -15.53 | -12.51 | -13.06 | -10.81 | -9.8 | -8.93 | -10.75 | -11.44 | -12.55 | -12.27 | -10.38 | -13.63 | -14.16 | -14.15 |
| Theta(15°) | -8.43 | -7.5 | -6.78 | -4.01 | -5.76 | -9.75 | -9.99 | -8.09 | -9.12 | -10.45 | -11.43 | -18.07 | -14.72 | -14.83 | -17.44 | -14.1 | -13.33 | -11.17 | -11.03 | -10.4 | -13.41 | -17.11 | -17.28 | -11.06 |
| Theta(30°) | -7.33 | -4.87 | -9.74 | -10.56 | -4.71 | -7.39 | -7.71 | -13.54 | -9.25 | -18.55 | -16.12 | -16.95 | -16.68 | -12.45 | -13.73 | -13.78 | -18.81 | -11.47 | -8.81 | -12.24 | -10.14 | -9.57 | -16.9 | -11.59 |
| Theta(45°) | -7.97 | -10 | -11.38 | -4.38 | -2.37 | -5.05 | -9.24 | -12.03 | -7.91 | -17.56 | -14.24 | -17.23 | -17.8 | -13.91 | -12.76 | -10.56 | -12.12 | -9.52 | -12.62 | -16.92 | -12.86 | -8.8 | -15.44 | -10.75 |
| Theta(60°) | -14.37 | -11.04 | -6.56 | -3.3 | -6.34 | -3.86 | -5.55 | -10.01 | -14.91 | -13.39 | -16.23 | -16.21 | -13.05 | -13.61 | -15.39 | -11.74 | -11.68 | -10.67 | -10.69 | -17.29 | -17.97 | -9.23 | -15.67 | -10.86 |
| Theta(75°) | -16.75 | -12.26 | -9.34 | -5.5 | -4.88 | -2.21 | -2.59 | -5.22 | -11.53 | -9.13 | -13.37 | -17.15 | -10.21 | -16.52 | -16.3 | -9.46 | -13.37 | -15.58 | -15.04 | -15.49 | -18.17 | -12.92 | -17.9 | -15.46 |
| Theta(90°) | -15.61 | -18.06 | -14.06 | -9.13 | -5.81 | -5.48 | -7.48 | -6.79 | -17.22 | -13.79 | -17.67 | -15.09 | -9.26 | -17.87 | -18.23 | -13.78 | -13.78 | -14.59 | -16.37 | -17.55 | -17.44 | -17.07 | -17.35 | -16.16 |
| Theta(105°) | -17.92 | -15.56 | -14.89 | -11.35 | -8.47 | -12.24 | -8.36 | -8.75 | -10.95 | -18.01 | -17.33 | -12.01 | -9.09 | -14.18 | -15.1 | -16.37 | -12.07 | -15.17 | -16.38 | -17.56 | -18.04 | -16.53 | -13.7 | -16.92 |
| Theta(120°) | -17.95 | -16.44 | -16.08 | -11.45 | -16.14 | -7.89 | -10.5 | -9.06 | -13.26 | -15.63 | -16.62 | -14.27 | -11.87 | -16.65 | -9.57 | -9.24 | -17.56 | -13.15 | -12.08 | -16.76 | -17.34 | -17.36 | -17.62 | -17.47 |
| Theta(135°) | -18.43 | -17.28 | -9.86 | -17.39 | -10.18 | -11.36 | -17.57 | -17.85 | -17.45 | -17.18 | -14.67 | -14.56 | -16.23 | -14.22 | -17.59 | -7.7 | -13.19 | -12.81 | -16.37 | -17.41 | -17.73 | -16.92 | -16.31 | -17.96 |
| Theta(150°) | -17.97 | -14.98 | -17.05 | -16.28 | -10.68 | -10.97 | -8.97 | -15.83 | -12.9 | -17.33 | -17 | -15.29 | -13.4 | -16.14 | -9.71 | -14.2 | -12.13 | -9.83 | -11.39 | -14.55 | -13.77 | -17.08 | -16.57 | -16.72 |
| Theta(165°) | -16.99 | -17.25 | -12.7 | -15.21 | -10.35 | -13.83 | -13.5 | -12.96 | -13.58 | -17.78 | -17.14 | -16.29 | -14.18 | -18.01 | -11.8 | -10.95 | -11.64 | -12 | -9.01 | -9.46 | -12.72 | -18 | -16.76 | -17.79 |
| Theta(180°) | -13.39 | -16.69 | -16.38 | -17.69 | -16.7 | -17.55 | -18.07 | -16.32 | -15.64 | -17.79 | -15.2 | -14.37 | -14.3 | -12.98 | -14.14 | -13.11 | -13.4 | -12.37 | -10.21 | -9.53 | -9.35 | -11.72 | -13.84 | -14.41 |
| Freq(Hz) | 5.6G | Pol. | Theta | Ant. 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Gain | Phi(0°) | Phi(15°) | Phi(30°) | Phi(45°) | Phi(60°) | Phi(75°) | Phi(90°) | Phi(105°) | Phi(120°) | Phi(135°) | Phi(150°) | Phi(165°) | Phi(180°) | Phi(195°) | Phi(210°) | Phi(225°) | Phi(240°) | Phi(255°) | Phi(270°) | Phi(285°) | Phi(300°) | Phi(315°) | Phi(330°) | Phi(345°) |
| Theta(0°) | -9.46 | -11.41 | -11.11 | -12.1 | -13.09 | -12.9 | -12.24 | -9.99 | -7.83 | -9.4 | -6.29 | -8.35 | -8.52 | -10.21 | -13.89 | -16.96 | -16.38 | -16.36 | -13.16 | -13.72 | -10.96 | -11.55 | -10.57 | -10.99 |
| Theta(15°) | -2.91 | -5.27 | -6.39 | -7.18 | -7.25 | -7.69 | -7.25 | -7.92 | -9.63 | -13.43 | -17.36 | -17.55 | -15.02 | -12.01 | -12.74 | -13.1 | -16.57 | -17.72 | -17.35 | -14.65 | -10.71 | -8.06 | -4.61 | -4.29 |
| Theta(30°) | -1.76 | -2.63 | -4.54 | -4.33 | -3.79 | -7.5 | -9.95 | -7.55 | -5.02 | -5.41 | -6.33 | -6.92 | -5.1 | -6.15 | -6.93 | -4.17 | -6.72 | -8.8 | -6.95 | -7.45 | -5.43 | -2.44 | -2.47 | -1.3 |
| Theta(45°) | -1.6 | -0.94 | -0.75 | -3.22 | -0.74 | -2.83 | -4.78 | -2.32 | -4.17 | -3.08 | -0.75 | -1.02 | -2.38 | -4.12 | -0 | | | | | | | | | |



**Radiated Composite Gain of 5GHz UNII 2C, 3, 6GHz UNII 5~8
(5G6G Ant3~Ant4)_2TX**

Appendix B.1

| Freq(Hz) | 5.6G | 5.785G | 6.175G | 6.475G | 6.695G | 6.995G |
|--|------------|------------|-----------|------------|-----------|------------|
| Ant. 3 Max Gain (dBi) | 3.42 | 4.36 | 2.95 | 2.31 | 0.99 | 0.61 |
| Ant. 4 Max Gain (dBi) | 3.67 | 4.23 | 2.91 | 3.96 | 1.59 | 0.33 |
| Ant. 3 Polarization/ $\theta(^{\circ})/\phi(^{\circ})$ | Phi/75/180 | Phi/75/75 | Phi/75/75 | Phi/75/135 | Phi/75/60 | Phi/75/60 |
| Ant. 4 Polarization/ $\theta(^{\circ})/\phi(^{\circ})$ | Phi/60/0 | Phi/60/345 | Phi/75/45 | Phi/75/45 | Phi/75/45 | Phi/75/315 |
| Max Gain (dBi) | 3.67 | 4.36 | 2.95 | 3.96 | 1.59 | 0.61 |
| DG [1SS] (dBi) | 5.82 | 5.21 | 5.38 | 4.47 | 4.13 | 3.08 |
| DG [2SS] (dBi) | 2.82 | 2.53 | 2.37 | 1.59 | 1.12 | 0.09 |



Radiated Composite Gain of 5GHz UNII 2C, 3, 6GHz UNII 5~8 (5G6G Ant3~Ant4)_2TX

Appendix B.1

| Theta | Phi(0°) | Phi(15°) | Phi(30°) | Phi(45°) | Phi(60°) | Phi(75°) | Phi(90°) | Phi(105°) | Phi(120°) | Phi(135°) | Phi(150°) | Phi(165°) | Phi(180°) | Phi(195°) | Phi(210°) | Phi(225°) | Phi(240°) | Phi(255°) | Phi(270°) | Phi(285°) | Phi(300°) | Phi(315°) | Phi(330°) | Phi(345°) | |
|-------------|---------|----------|----------|----------|----------|----------|----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-------|
| Theta(75°) | -23.78 | -19.01 | -24.47 | -18.87 | -15.15 | -19.81 | -9.76 | -14.1 | -16.47 | -12.06 | -14.82 | -19.97 | -13.28 | -18.27 | -19.83 | -18.03 | -16.39 | -16.82 | -25.34 | -17.12 | -18.97 | -24.71 | -19.62 | -19.44 | |
| Theta(90°) | -23.32 | -18.87 | -23.6 | -25.96 | -21.06 | -25.63 | -15.49 | -18.23 | -15.53 | -14.17 | -13.99 | -22.71 | -12.04 | -16.43 | -19.37 | -15.66 | -16.29 | -23.24 | -18.41 | -25.36 | -23.55 | -18.87 | -24.4 | -24.4 | |
| Theta(105°) | -18.36 | -19.66 | -25.32 | -23.05 | -25.52 | -25.33 | -19.75 | -25.69 | -23.08 | -20.02 | -17.09 | -25.58 | -23.03 | -22.55 | -20.27 | -22.94 | -25.47 | -19.53 | -24.8 | -24.78 | -24.25 | -20.78 | -23.91 | -24.48 | |
| Theta(120°) | -21.95 | -24.87 | -25.77 | -22.16 | -26.18 | -23.38 | -23.36 | -24.51 | -22.99 | -24.83 | -17.47 | -26.77 | -24.72 | -17.38 | -24.43 | -25.02 | -25.9 | -22.12 | -25.83 | -25.94 | -25.15 | -25.48 | -24.47 | -23.15 | |
| Theta(135°) | -21.14 | -21.84 | -24.2 | -25.33 | -25.38 | -24.95 | -25.13 | -25.45 | -26.06 | -23.9 | -22.79 | -24.92 | -24.63 | -23.61 | -24.42 | -18.14 | -24.99 | -18.79 | -21.31 | -20.32 | -19.31 | -25.74 | -23.81 | -22.09 | |
| Theta(150°) | -21.68 | -23.46 | -24.87 | -24.85 | -25.14 | -25.63 | -24.87 | -24.98 | -23.64 | -25.79 | -26.29 | -25.58 | -21.3 | -18.52 | -26.03 | -25.97 | -22.92 | -26.23 | -21.69 | -22.44 | -24.87 | -21.93 | -23.83 | -24.38 | |
| Theta(165°) | -25.43 | -22.48 | -22.39 | -25.74 | -26.16 | -24.71 | -22.39 | -25.67 | -26.77 | -21.68 | -24.66 | -20.12 | -22.43 | -11.48 | -17.44 | -24.91 | -25.51 | -25.73 | -24.89 | -25.31 | -16.56 | -17.78 | -20.93 | -20.83 | |
| Theta(180°) | -22.98 | -20.48 | -25.38 | -20.59 | -24.4 | -25.49 | -25.46 | -25.01 | -24.19 | -21.09 | -24.74 | -25.87 | -26.01 | -25.17 | -25.37 | -24.43 | -24.97 | -26.08 | -24.59 | -25.16 | -22.51 | -25.15 | -24.43 | -25.4 | |
| Freq(Hz) | 5.785G | Pol. | Phi | Ant. 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| Gain | Phi(0°) | Phi(15°) | Phi(30°) | Phi(45°) | Phi(60°) | Phi(75°) | Phi(90°) | Phi(105°) | Phi(120°) | Phi(135°) | Phi(150°) | Phi(165°) | Phi(180°) | Phi(195°) | Phi(210°) | Phi(225°) | Phi(240°) | Phi(255°) | Phi(270°) | Phi(285°) | Phi(300°) | Phi(315°) | Phi(330°) | Phi(345°) | |
| Theta(0°) | -16.86 | -14.97 | -11.19 | -7.55 | -7.55 | -7.34 | -6.24 | -7.15 | -8.81 | -11.14 | -15.61 | -26.05 | -15.48 | -10.46 | -9.76 | -10.54 | -9.05 | -9.46 | -11.19 | -13.5 | -14.24 | -15.85 | -20.35 | -17.6 | |
| Theta(15°) | -8.31 | -10.14 | -8.81 | -6.93 | -5.03 | -4.6 | -7.02 | -10.36 | -12.13 | -10.4 | -8.64 | -8.77 | -7.63 | -6.99 | -6.44 | -5.51 | -4.77 | -5.71 | -7.91 | -10.18 | -11.15 | -11.6 | -10.91 | -12.59 | |
| Theta(30°) | -2.62 | -4.26 | -6.61 | -7.08 | -5.39 | -5.2 | -6.15 | -5.07 | -5.51 | -5.58 | -5.95 | -5.32 | -3.63 | -1.44 | -1.26 | -1.32 | -1.29 | -3.2 | -3.74 | -5.44 | -7.18 | -7.25 | -4.16 | -3.01 | |
| Theta(45°) | 0.71 | -1.8 | -4.45 | -6.32 | -7.57 | -6.5 | -4.68 | -4.06 | -6.52 | -7.85 | -3.47 | -1.75 | -0.96 | -0.2 | 0.04 | -2.34 | -4.35 | -4.17 | -5.25 | -9.7 | -14.94 | -4.47 | -2.5 | -1.02 | |
| Theta(60°) | 2.57 | -0.89 | -0.31 | -2.41 | -1.83 | -2.36 | -1.09 | 0.79 | 0.48 | -5.13 | -5.36 | -2.13 | -0.65 | -0.97 | -3.97 | -4.75 | -6.92 | -2.99 | -1.13 | -1.04 | -2.93 | -0.18 | 3.87 | 4.23 | |
| Theta(75°) | 0.81 | -3.75 | -0.58 | -0.81 | 0.32 | -0.68 | 0.71 | 3.83 | 3.05 | -0.97 | -1.59 | 1.85 | 1.66 | -0.25 | -1.51 | -2.67 | -1.7 | 1.03 | 0.39 | 1.42 | -3.07 | -0.38 | 3.21 | 3.43 | |
| Theta(90°) | -3.05 | -8.22 | -3.54 | -3.92 | -2.04 | -4.01 | -1.16 | 1.88 | 0.46 | -3.96 | -4.19 | -0.04 | -0.55 | -2.9 | -4.06 | -5.59 | -3.97 | -0.5 | -0.29 | -0.08 | -7.21 | -5.37 | -0.95 | -0.39 | |
| Theta(105°) | -8 | -11.86 | -8.06 | -9.29 | -6.3 | -7.12 | -5.75 | -1.89 | -3.24 | -8.43 | -8.9 | -5.7 | -6.86 | -8.6 | -10.42 | -17.55 | -10.14 | -8.3 | -10.49 | -9.3 | -16.33 | -7.25 | -5.85 | -4.97 | |
| Theta(120°) | -13.56 | -12.98 | -13.87 | -12.73 | -13.48 | -10.94 | -9.12 | -8.86 | -5.97 | -13 | -12.62 | -12.13 | -10.72 | -11.44 | -12.23 | -17.76 | -10.74 | -9.12 | -10.59 | -8.52 | -12.04 | -12.48 | -9.73 | -9.74 | |
| Theta(135°) | -17.38 | -24.93 | -22.44 | -16.15 | -13.34 | -15.43 | -13 | -10.92 | -12.92 | -15.33 | -15.34 | -11.85 | -16.78 | -19.66 | -14.2 | -25.78 | -16.09 | -18.03 | -23.91 | -11.55 | -19.54 | -15.32 | -15.81 | -16.83 | |
| Theta(150°) | -23.57 | -17.43 | -21.56 | -25.47 | -16.3 | -16.47 | -19.2 | -14.53 | -11.63 | -17.92 | -16.74 | -17.12 | -25.37 | -25.9 | -20.54 | -19.42 | -25.86 | -24.55 | -23.97 | -22.21 | -18.54 | -22.99 | -16.99 | -19.97 | |
| Theta(165°) | -23.42 | -18.5 | -19.9 | -24.51 | -25.71 | -21.53 | -16.9 | -21.08 | -24.82 | -18.18 | -18.73 | -17.89 | -15.62 | -21.78 | -22.64 | -17.55 | -24.98 | -24.7 | -24.19 | -19.24 | -25.86 | -23.31 | -26.3 | -25.75 | |
| Theta(180°) | -25.03 | -24.99 | -25.79 | -25.81 | -24.71 | -22.05 | -20.22 | -22.26 | -19.29 | -20.29 | -25.54 | -25.75 | -25.06 | -24.6 | -25.91 | -25.1 | -24.53 | -22.39 | -21.22 | -21.22 | -22.78 | -20.69 | -20.37 | -22.17 | |
| Freq(Hz) | 5.785G | Pol. | Theta | Ant. 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| Gain | Phi(0°) | Phi(15°) | Phi(30°) | Phi(45°) | Phi(60°) | Phi(75°) | Phi(90°) | Phi(105°) | Phi(120°) | Phi(135°) | Phi(150°) | Phi(165°) | Phi(180°) | Phi(195°) | Phi(210°) | Phi(225°) | Phi(240°) | Phi(255°) | Phi(270°) | Phi(285°) | Phi(300°) | Phi(315°) | Phi(330°) | Phi(345°) | |
| Theta(0°) | -8.93 | -10.88 | -12.82 | -14 | -17.72 | -20.12 | -14.08 | -11.37 | -8.9 | -6.6 | -5.93 | -6.34 | -7.56 | -7.88 | -10.53 | -16.68 | -18.63 | -19.31 | -16.34 | -12.25 | -10.88 | -11.86 | -12.8 | -13.17 | |
| Theta(15°) | -6.56 | -12.96 | -13.7 | -12.18 | -14.66 | -18.39 | -17.41 | -17.7 | -15.44 | -17.32 | -24.01 | -19.12 | -17 | -13.51 | -16.15 | -13.32 | -17.53 | -25.9 | -17.77 | -16.32 | -16.13 | -13.24 | -8.92 | -6.75 | |
| Theta(30°) | -6.96 | -11.27 | -14.72 | -25.5 | -25.89 | -10.81 | -11.23 | -14.95 | -25.73 | -23.96 | -17.64 | -25.05 | -9.28 | -11.27 | -13.81 | -9.8 | -8.19 | -9.97 | -16.52 | -24.15 | -25.2 | -24.39 | -22.27 | -9.33 | |
| Theta(45°) | -13.83 | -10.24 | -12.46 | -13.57 | -17.06 | -12.73 | -9.51 | -12.52 | -19.68 | -13.38 | -11.3 | -11.65 | -18.02 | -25.83 | -14.67 | -13.38 | -7.78 | -13.52 | -24.1 | -17.6 | -12.77 | -12.53 | -18.3 | -11.77 | |
| Theta(60°) | -15.83 | -17.64 | -18.73 | -16.17 | -17.52 | -15.64 | -10.28 | -11.88 | -22.14 | -16.18 | -25.92 | -13.69 | -9.94 | -25.71 | -17.41 | -24.73 | -11.03 | -15.02 | -25.59 | -20.85 | -18.6 | -17.49 | -19.31 | -15.96 | |
| Theta(75°) | -22.36 | -23.48 | -19.21 | -13.24 | -25.56 | -19.92 | -14.87 | -14.13 | -14.19 | -11.71 | -14.31 | -24.97 | -11.38 | -19.35 | -15.36 | -26.31 | -16.4 | -14.96 | -20.33 | -15.8 | -17.38 | -24.95 | -16.74 | -19.39 | |
| Theta(90°) | -21.45 | -19.53 | -21.96 | -14.73 | -25.1 | -19 | -19.46 | -17.92 | -18.82 | -15.81 | -14.96 | -24.61 | -15.58 | -16.32 | -16.02 | -20.53 | -16 | -19.39 | -24.22 | -17.64 | -20.75 | -26.1 | -15.78 | -21.2 | |
| Theta(105°) | -16.32 | -22.57 | -25.25 | -18.5 | -26.23 | -25.91 | -26.1 | -21.61 | -24.89 | -21.83 | -20.37 | -24.83 | -25.09 | -20.49 | -25.9 | -24.69 | -26.05 | -21.08 | -25.7 | -26.18 | -25.38 | -21.88 | -19.14 | -23.38 | |
| Theta(120°) | -24.81 | -21.91 | -25.12 | -25.52 | -24.74 | -25.96 | -25.62 | -22.66 | -26.1 | -25.94 | -21.41 | -21.13 | -20.7 | -18.76 | -25.97 | -23.27 | -24.42 | -21.17 | -26.09 | -24.87 | -26.07 | -25.36 | -21.2 | -22.53 | |
| Theta(135°) | -20.96 | -17.47 | -24.69 | -24.66 | -25.42 | -26.21 | -24.81 | -25.15 | -22.25 | -23.74 | -24.63 | -25.22 | -19.6 | -23.33 | -20.25 | -21.46 | -21.47 | -23.83 | -24.08 | -22.58 | -22.5 | -25.29 | -25.23 | -26.45 | |
| Theta(150°) | -25.7 | -20.36 | -25.68 | -24.93 | -26.65 | -23.68 | -24.89 | -24.71 | -25.77 | -24.29 | -25.36 | -25.64 | -18.51 | -17.75 | -18.99 | -21.83 | -25.07 | -25.93 | -23.57 | -25.68 | -24.07 | -20.52 | -25.14 | -25.1 | |
| Theta(165°) | -14.89 | -17.23 | -25.42 | -25.69 | -25.59 | -23.8 | -24.59 | -25.14 | -23.75 | -24.55 | -25.38 | -20.89 | -22.94 | -14.53 | -10.78 | -22.9 | -21.53 | -20.03 | -26.37 | -24.41 | -16.75 | -19.41 | -19.05 | -24.82 | |
| Theta(180°) | -18.63 | -17.97 | -20.44 | -20.08 | -20.73 | -26.27 | -24.41 | -26.2 | -24.96 | -23.57 | -24.92 | -25.84 | -25.71 | -18.82 | -16.02 | -20.55 | -25.31 | -25.36 | -24.81 | -25.5 | -25.52 | -25.42 | -25.87 | -24.6 | |
| Freq(Hz) | 6.175G | Pol. | Phi | Ant. 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| Gain | Phi(0°) | Phi(15°) | Phi(30°) | Phi(45°) | Phi(60°) | Phi(75°) | Phi(90°) | Phi(105°) | Phi(120°) | Phi(135°) | Phi(150°) | Phi(165°) | Phi(180°) | Phi(195°) | Phi(210°) | Phi(225°) | Phi(240°) | Phi(255°) | Phi(270°) | Phi(285°) | Phi(300°) | Phi(315°) | Phi(330°) | Phi(345°) | |
| Theta(0°) | -9.69 | -9.66 | -8.74 | -8.87 | -8.78 | -9.6 | -11 | -13.63 | -16.12 | -17.63 | -13.83 | -10.92 | -9.91 | -9.23 | -8.65 | -10.19 | -12.52 | -12.59 | -16.08 | -22.8 | -26.13 | -22.46 | -18.66 | -16.6 | |
| Theta(15°) | -8.41 | -10.19 | -16.25 | -14.7 | -9.65 | -9.65 | -9.24 | -8.85 | -7.69 | -7.95 | -7.57 | -7.53 | -7.44 | -5.44 | -5.38 | -6.97 | -5.3 | -6.91 | -9.41 | -11.19 | -12.04 | -13.43 | -10.96 | -11.54 | |
| Theta(30°) | -2.85 | -3.9 | -5.13 | -4.88 | -3.06 | -2.6 | -4.82 | -7.22 | -3.75 | -3 | -4.49 | -6.69 | -3.2 | 0.12 | -1.65 | -3.4 | -2.17 | -3.41 | -4.07 | -5.11 | -8.71 | -12.41 | -4.13 | -4.26 | |
| Theta(45°) | -1.38 | -2.73 | -6.09 | -13.04 | -17 | -13.08 | -6.98 | -6.37 | -4.09 | -3.53 | -4.31 | -5.7 | -1.55 | -1.94 | -2.51 | 0 | -2.17 | -5.38 | -5.7 | -2.94 | -7.04 | -7.8 | -5.92 | -5.67 | -4.65 |
| Theta(60°) | -2.12 | 0.94 | 1.88 | 0.72 | -1.2 | -4 | -3.01 | -2.11 | -3.9 | -4.92 | -21.72 | -9.67 | -5.21 | -7.1 | -15.55 | -9.87 | -6.41 | -5.65 | -2.38 | -2.59 | -5.49 | -1.19 | 1.92 | 1.51 | |
| Theta(75°) | -3.16 | 0.37 | 2.46 | 2.91 | 0.56 | -1.59 | -0.75 | 2.9 | 1.41 | -0.98 | -2.4 | 1.37 | 0.54 | -1.21 | -2.11 | -1.4 | 1.08 | 0.37 | 0.46 | 1.25 | -2.94 | -0.4 | 2.01 | 2.4 | |
| Theta(90°) | -6.41 | -4.65 | -1.56 | -1.26 | -2.3 | -3.86 | -4.37 | -0.07 | -0.98 | -2.17 | -4.31 | 0.63 | -0.55 | -3.25 | -2.57 | -2.97 | -0.18 | -0.15 | -0.43 | -0.39 | -5.25 | -5.18 | -1.73 | -2.83 | |
| Theta(105°) | -8.54 | -10.95 | -4.92 | -5.3 | -6.17 | -7.17 | -7.18 | -2.91 | -3.97 | -6.74 | -9.87 | -3.84 | -3.34 | -6.82 | -5.91 | -9.29 | -10.78 | -10.78 | -8.92 | -9.83 | -9.94 | -7.39 | -5.14 | -7.36 | |
| Theta(120°) | -13.48 | -10.81 | -12.4 | -10.85 | -10.84 | -11.11 | -13.3 | -7.63 | -9.72 | -12.91 | -13.75 | -8.91 | -8.77 | -7.07 | -9.24 | -20.74 | -6.11 | -9.62 | -8.81 | -10.23 | -14.8 | -15.13 | -11.46 | -11.12 | |
| Theta(135°) | -17.25 | -14.74 | -13.7 | -12.65 | -15.04 | -18.46 | -14.02 | -14.99 | -9.4 | -15.32 | -15.36 | -11.98 | | | | | | | | | | | | | |



**Radiated Composite Gain of 5GHz UNII 2C, 3, 6GHz UNII 5-8
(5G6G Ant1~Ant4)_4TX**

| Freq(Hz) | 5.6G | 5.785G | 6.175G | 6.475G | 6.695G | 6.995G |
|--|------------|------------|------------|------------|------------|------------|
| Ant. 1 Max Gain (dBi) | 2.98 | 4.19 | 2.4 | 2.41 | 1.39 | 0.77 |
| Ant. 2 Max Gain (dBi) | 3.46 | 4.94 | 2.95 | 1.96 | 1.32 | 0.87 |
| Ant. 3 Max Gain (dBi) | 3.42 | 4.36 | 2.95 | 2.31 | 0.99 | 0.61 |
| Ant. 4 Max Gain (dBi) | 3.67 | 4.23 | 2.91 | 3.96 | 1.59 | 0.33 |
| Ant. 1 Polarization/ $\theta(^{\circ})/\Phi(^{\circ})$ | Phi/60/0 | Phi/75/255 | Phi/75/255 | Phi/75/315 | Phi/75/240 | Phi/75/315 |
| Ant. 2 Polarization/ $\theta(^{\circ})/\Phi(^{\circ})$ | Phi/75/180 | Phi/75/150 | Phi/75/165 | Phi/75/225 | Phi/75/210 | Phi/75/240 |
| Ant. 3 Polarization/ $\theta(^{\circ})/\Phi(^{\circ})$ | Phi/75/180 | Phi/75/75 | Phi/75/75 | Phi/75/135 | Phi/75/60 | Phi/75/60 |
| Ant. 4 Polarization/ $\theta(^{\circ})/\Phi(^{\circ})$ | Phi/60/0 | Phi/60/345 | Phi/75/45 | Phi/75/45 | Phi/75/45 | Phi/75/315 |
| Max Gain (dBi) | 3.67 | 4.94 | 2.95 | 3.96 | 1.59 | 0.87 |
| DG [1SS] (dBi) | 8.6 | 7.96 | 7.45 | 6.03 | 6.05 | 4.51 |
| DG [2SS] (dBi) | 5.6 | 4.96 | 4.45 | 3.96 | 3.05 | 1.51 |
| DG [4SS] (dBi) | 2.59 | 2.12 | 1.51 | 0.27 | 0.07 | -1.19 |



Radiated Composite Gain of 5GHz UNII 2C, 3, 6GHz UNII 5-8 (5G6G Ant1~Ant4)_4TX

DG 1SS Result

| Freq(Hz) | 5.6G | Pol. | Phi | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
|----------|--------|--------|--------|--------|--------|--------|--------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| DG(dBi) | Φ(0°) | Φ(15°) | Φ(30°) | Φ(45°) | Φ(60°) | Φ(75°) | Φ(90°) | Φ(105°) | Φ(120°) | Φ(135°) | Φ(150°) | Φ(165°) | Φ(180°) | Φ(195°) | Φ(210°) | Φ(225°) | Φ(240°) | Φ(255°) | Φ(270°) | Φ(285°) | Φ(300°) | Φ(315°) | Φ(330°) | Φ(345°) |
| Θ(0°) | -8.77 | -8.63 | -8.91 | -6.91 | -6.43 | -5.97 | -4.84 | -4.85 | -4.78 | -5.82 | -6.99 | -8.49 | -7.6 | -6.62 | -6.22 | -6.02 | -5.91 | -6.96 | -7.14 | -7.9 | -7.26 | -8.84 | -10.88 | -11.58 |
| Θ(15°) | -1.84 | -2.16 | -1.29 | 0.08 | -0.98 | -2.52 | -4.55 | -4.68 | -3.22 | -2.39 | -3 | -3.74 | -3.14 | -2 | -0.62 | -0.13 | -0.19 | 0.06 | 0 | 0.64 | 0.94 | -0.34 | -1.01 | -1.67 |
| Θ(30°) | 2.16 | 1.7 | 0.35 | 0.29 | 0.14 | -0.75 | -0.98 | -0.93 | -1.36 | -0.35 | 1.18 | 1.85 | 1.68 | 2.21 | 2.38 | 2.18 | 1.64 | -0.21 | 0.25 | 0.08 | 0.99 | 2.44 | 1.25 | 0.95 |
| Θ(45°) | 3.85 | 2.38 | 1 | 1 | 1.56 | 1.96 | 2.28 | 2.03 | 1.22 | 1.65 | 2.68 | 3.32 | 3.32 | 2.73 | 2.78 | 2.07 | 1.59 | 2.48 | 2.4 | 2.01 | 0.93 | 1.29 | 2.23 | 2.68 |
| Θ(60°) | 8.47 | 6.88 | 5.33 | 4.34 | 4.18 | 6.14 | 5.89 | 5.05 | 2.65 | 2.65 | 4.39 | 5.68 | 6.67 | 6.35 | 5.42 | 4.86 | 5.35 | 6.04 | 6.21 | 4.63 | 3.91 | 4.14 | 6.86 | 8.51 |
| Θ(75°) | 7.32 | 5.36 | 4.15 | 3.61 | 4.91 | 7.75 | 8.6 | 7.99 | 5.96 | 5.11 | 7.28 | 8.44 | 8.47 | 6.81 | 5.18 | 3.76 | 6.46 | 7.73 | 6.48 | 4.87 | 3.09 | 2.52 | 5.82 | 7.78 |
| Θ(90°) | 3.45 | 1.03 | 0.02 | -0.12 | 1.98 | 4.89 | 5.62 | 5.07 | 3.45 | 2.09 | 4.38 | 5.95 | 6.37 | 3.62 | 1.38 | -1.11 | 3.53 | 5.91 | 5.81 | 4.23 | 0.48 | -2.16 | 1.8 | 3.79 |
| Θ(105°) | -2.37 | -3.12 | -4.84 | -5.25 | -2.34 | 0.93 | 1.57 | 0.61 | -0.9 | -2.22 | -0.05 | 0.16 | 0.8 | -1.39 | -3.15 | -7.19 | -4.37 | -2.88 | -4.2 | -6.16 | -7.36 | -8.36 | -2.68 | -0.79 |
| Θ(120°) | -7.7 | -7.78 | -10.15 | -8.35 | -6.31 | -4.51 | -4.09 | -5.7 | -5.75 | -7.16 | -4.6 | -3.25 | -4.22 | -4.56 | -7.91 | -8.65 | -5.25 | -2.81 | -4.36 | -3.95 | -6.76 | -11.17 | -8.28 | -5.56 |
| Θ(135°) | -10.62 | -12.46 | -11.76 | -11.42 | -9.53 | -9.01 | -7.66 | -9.11 | -8.73 | -9.89 | -9.56 | -6.85 | -8.71 | -9.29 | -10.06 | -10.25 | -10.8 | -13.12 | -10.85 | -13 | -12.64 | -14.64 | -9.19 | -8.04 |
| Θ(150°) | -12.17 | -12.23 | -11.86 | -12.87 | -11.94 | -11.02 | -11.81 | -12.52 | -11.59 | -13.84 | -11.17 | -11.43 | -12.51 | -12.17 | -13.38 | -14.12 | -14.98 | -16.98 | -15.73 | -11.83 | -18.1 | -13.93 | -12.73 | -13.03 |
| Θ(165°) | -18.59 | -14.78 | -13.45 | -14.53 | -15.68 | -13.83 | -13.57 | -15.51 | -15.35 | -12.83 | -13.38 | -14.38 | -17.76 | -17.65 | -15.2 | -14.27 | -17.4 | -18.66 | -14.52 | -16.73 | -16.6 | -16.12 | -19.44 | -19.16 |
| Θ(180°) | -15.16 | -14.76 | -17.84 | -17.26 | -14.9 | -12.6 | -9.2 | -9.45 | -9.24 | -9.97 | -10.13 | -12.02 | -12.85 | -16.85 | -17.25 | -14.12 | -13.1 | -12.14 | -13.13 | -13.87 | -13.31 | -14.45 | -15.56 | -17.72 |
| Freq(Hz) | 5.6G | Pol. | Theta | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| DG(dBi) | Φ(0°) | Φ(15°) | Φ(30°) | Φ(45°) | Φ(60°) | Φ(75°) | Φ(90°) | Φ(105°) | Φ(120°) | Φ(135°) | Φ(150°) | Φ(165°) | Φ(180°) | Φ(195°) | Φ(210°) | Φ(225°) | Φ(240°) | Φ(255°) | Φ(270°) | Φ(285°) | Φ(300°) | Φ(315°) | Φ(330°) | Φ(345°) |
| Θ(0°) | -7.51 | -8.25 | -8.53 | -8.09 | -9.06 | -10.94 | -7.62 | -6.02 | -5.73 | -4.59 | -4.5 | -5.02 | -5.68 | -5.28 | -6.24 | -9.55 | -9.64 | -10.22 | -11.5 | -10.07 | -8.76 | -8.69 | -7.69 | -7.26 |
| Θ(15°) | -6.02 | -9.65 | -9.52 | -7.48 | -6.2 | -7.55 | -8.72 | -8.96 | -8.14 | -7.6 | -5.52 | -5.98 | -5.92 | -4.35 | -6.15 | -7.55 | -10.55 | -12.71 | -13.09 | -13.34 | -10.88 | -7.74 | -5.75 | -4.52 |
| Θ(30°) | -6.8 | -7.45 | -11.65 | -10.07 | -7.38 | -7.27 | -7.19 | -8.98 | -11.48 | -12.15 | -10.51 | -8.58 | -6.73 | -4.34 | -8.01 | -5.23 | -4.65 | -8.74 | -14.29 | -15.77 | -14.92 | -9.55 | -8.07 | -4.7 |
| Θ(45°) | -9 | -6.96 | -8.39 | -7.08 | -6.77 | -8.04 | -9.6 | -10.71 | -8.98 | -9.97 | -8.88 | -3.78 | -9.04 | -14.51 | -7.15 | -11.04 | -9.43 | -12.17 | -13.64 | -16.35 | -12.87 | -11.67 | -9.88 | -7.47 |
| Θ(60°) | -11.16 | -8.51 | -8.63 | -10.67 | -11.72 | -6.89 | -8.23 | -8.63 | -15.55 | -12.09 | -10.05 | -5.83 | -7.45 | -11.85 | -8.66 | -13.72 | -9.77 | -14.3 | -12.81 | -13.7 | -14.02 | -15.43 | -9.12 | -10.92 |
| Θ(75°) | -15.34 | -15.56 | -13.74 | -12.19 | -10.67 | -10.26 | -8.73 | -8.97 | -10.81 | -10.79 | -9.92 | -13.03 | -8.46 | -13.13 | -12.06 | -13.45 | -11.04 | -14.66 | -15.3 | -13.5 | -13.88 | -17.43 | -16.24 | -15.08 |
| Θ(90°) | -18.24 | -16.03 | -16.75 | -16.97 | -14.12 | -15.53 | -13.14 | -12.98 | -11.41 | -12.76 | -12.16 | -12.98 | -10.35 | -14.52 | -16.25 | -11.82 | -11.34 | -13.55 | -15.37 | -13.85 | -19.35 | -16.93 | -17.31 | -18.24 |
| Θ(105°) | -13.72 | -16.21 | -18.2 | -18.51 | -17.8 | -19.04 | -14.86 | -19.26 | -15.97 | -18.03 | -14.01 | -15.95 | -16.45 | -17.54 | -17.48 | -16.91 | -14.75 | -17.38 | -18.73 | -19.2 | -19.04 | -17.22 | -18.8 | -18.94 |
| Θ(120°) | -14.24 | -19.44 | -19.47 | -16.89 | -17.06 | -18.4 | -16.98 | -19.07 | -18.06 | -18.47 | -16.47 | -15.89 | -14.12 | -15.99 | -18.69 | -18.41 | -16.44 | -16.14 | -17.48 | -18.57 | -18.51 | -17.27 | -18.16 | -18.15 |
| Θ(135°) | -16.34 | -16.61 | -18.62 | -19.32 | -17.27 | -18.66 | -18.63 | -18.09 | -18.19 | -18.33 | -17.2 | -17.48 | -18.35 | -18.45 | -18 | -15.1 | -16.94 | -15.26 | -16.15 | -16.41 | -13.93 | -17.82 | -18.11 | -15.53 |
| Θ(150°) | -12.79 | -17.06 | -16.61 | -16.88 | -17.69 | -18.41 | -17.28 | -18.73 | -18.38 | -17.32 | -16.89 | -15.76 | -14 | -16.08 | -19.43 | -18.2 | -15.72 | -19.54 | -16.9 | -16.63 | -17.21 | -16.81 | -18.49 | -16.44 |
| Θ(165°) | -15.31 | -14.26 | -14.83 | -16.29 | -18.72 | -17.47 | -16.48 | -19.18 | -19.31 | -18.23 | -17.04 | -14.61 | -15.09 | -11.49 | -12.87 | -14.73 | -15.23 | -15.12 | -15.96 | -16.13 | -13.3 | -14.61 | -13.59 | -14.95 |
| Θ(180°) | -11.92 | -11.25 | -10.88 | -11.17 | -12.11 | -12.54 | -14.99 | -15.6 | -16.32 | -15.13 | -14.43 | -13.45 | -12.47 | -11.72 | -12.87 | -13.24 | -14.56 | -15.84 | -18.17 | -18.4 | -15.94 | -16.5 | -15.42 | -14.14 |
| Freq(Hz) | 5.785G | Pol. | Phi | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| DG(dBi) | Φ(0°) | Φ(15°) | Φ(30°) | Φ(45°) | Φ(60°) | Φ(75°) | Φ(90°) | Φ(105°) | Φ(120°) | Φ(135°) | Φ(150°) | Φ(165°) | Φ(180°) | Φ(195°) | Φ(210°) | Φ(225°) | Φ(240°) | Φ(255°) | Φ(270°) | Φ(285°) | Φ(300°) | Φ(315°) | Φ(330°) | Φ(345°) |
| Θ(0°) | -8.72 | -8.67 | -7.65 | -5.63 | -6.01 | -6.82 | -6.62 | -8 | -7.76 | -7.28 | -7.85 | -9.38 | -8.32 | -6.72 | -5.77 | -6.03 | -6.21 | -6.36 | -7.65 | -8.95 | -8.5 | -10.5 | -11.18 | -10.62 |
| Θ(15°) | -1.56 | -2.47 | -2.31 | -1.69 | -1.52 | -2.01 | -3.98 | -6.45 | -7.53 | -7.14 | -6.92 | -6.83 | -4.66 | -2.7 | -1.23 | -1.08 | -1.14 | -1.65 | -1.45 | -0.69 | 0.05 | -0.89 | -1.45 | -2.56 |
| Θ(30°) | 2.92 | 2.85 | 1.34 | 0.56 | 0.12 | 0.76 | 0.45 | 0.41 | -0.22 | 0.92 | 1.42 | 1.39 | 1.95 | 2.77 | 2.81 | 2.7 | 3.19 | 1.67 | 0.93 | 0.6 | 0.44 | 1.55 | 1.74 | 1.86 |
| Θ(45°) | 4.3 | 3.04 | 0.54 | -0.12 | 1.07 | 2.44 | 3.88 | 3.81 | 2 | 2.25 | 2.6 | 3.8 | 3.19 | 2 | 1.37 | 1.22 | 2.41 | 3.82 | 3.66 | 2.29 | 0.65 | 0.51 | 0.91 | 2.84 |
| Θ(60°) | 6.46 | 6.24 | 6.54 | 4.05 | 3.16 | 5.36 | 4.79 | 4.28 | 2.38 | 2.08 | 3.73 | 5.37 | 6.54 | 6.07 | 5.11 | 4.46 | 4.84 | 5.47 | 5.03 | 3.85 | 3.41 | 3.44 | 6.64 | 7.41 |
| Θ(75°) | 5.25 | 5.65 | 6.18 | 5.01 | 5.67 | 7.57 | 7.15 | 6.7 | 6.2 | 5.1 | 7.02 | 7.9 | 7.96 | 6.7 | 5.92 | 4.46 | 6.66 | 7.46 | 5.88 | 6.12 | 4.77 | 3.74 | 6.65 | 6.98 |
| Θ(90°) | 1.13 | 0.93 | 1.75 | 1.4 | 3.51 | 5.21 | 4.38 | 4.66 | 4.24 | 2.52 | 4.44 | 5.33 | 5.31 | 3.74 | 2.52 | 0.93 | 4.17 | 5.4 | 4.87 | 5.15 | 1.48 | -0.38 | 3.03 | 3.09 |
| Θ(105°) | -3.13 | -3.86 | -2.43 | -4 | -0.13 | 0.61 | -0.45 | 0.16 | 0.31 | -2.33 | 0.08 | -0.46 | -0.54 | -2.2 | -2.24 | -6.37 | -2.7 | -3.56 | -4.93 | -4.9 | -5.13 | -5.26 | -0.21 | -1.75 |
| Θ(120°) | -8.95 | -6.48 | -6.46 | -8.12 | -5.26 | -4.4 | -4.49 | -5.55 | -4.18 | -6.64 | -4.16 | -4.32 | -3.9 | -6.1 | -6.9 | -8.24 | -4.22 | -2.82 | -4.38 | -2.78 | -4.01 | -10.52 | -5.68 | -6.11 |
| Θ(135°) | -11.88 | -11.75 | -9.5 | -9.99 | -8 | -9.04 | -10.29 | -10.12 | -7.85 | -9.68 | -8.83 | -8.17 | -12.42 | -11.12 | -9.87 | -10.92 | -10.19 | -13 | -11.38 | -9.82 | -11.04 | -11.77 | -9.12 | -10.58 |
| Θ(150°) | -15.01 | -10.66 | -12.9 | -14.73 | -11.25 | -9.27 | -12.1 | -11.94 | -9.47 | -10.4 | -12.33 | -11.92 | -16.26 | -14.61 | -12.83 | -15.64 | -16.2 | -18.41 | -14.92 | -17.94 | -16.55 | -17.06 | -13.97 | -13.4 |
| Θ(165°) | -19.33 | -15.47 | -14.17 | -16.88 | -16.85 | -13.48 | -11.67 | -14.62 | -16.78 | -15.47 | -13.57 | -15.18 | -14.37 | -14.64 | -17.04 | -15.08 | -14.11 | -17.07 | -18.75 | -14.13 | -14.04 | -15.72 | -19.48 | -19.24 |
| Θ(180°) | -16.33 | -16.7 | -16.14 | -16.17 | -15.06 | -12.63 | -11.02 | -11.66 | -9.59 | -9.71 | -11.12 | -13.32 | -15.52 | -18.17 | -17.7 | -15.95 | -13.59 | -12.78 | -12.09 | -12.06 | -13.06 | -13.4 | -14.94 | -16.43 |
| Freq(Hz) | 5.785G | Pol. | Theta | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| DG(dBi) | Φ(0°) | Φ(15°) | Φ(30°) | Φ(45°) | Φ(60°) | Φ(75°) | Φ(90°) | Φ(105°) | Φ(120°) | Φ(135°) | Φ(150°) | Φ(165°) | Φ(180°) | Φ(195°) | Φ(210°) | Φ(225°) | Φ(240°) | Φ(255°) | Φ(2 | | | | | |



Radiated Composite Gain of 5GHz UNII 2C, 3, 6GHz UNII 5~8 (5G6G Ant1~Ant4)_4TX

| Theta | Phi(0°) | Phi(15°) | Phi(30°) | Phi(45°) | Phi(60°) | Phi(75°) | Phi(90°) | Phi(105°) | Phi(120°) | Phi(135°) | Phi(150°) | Phi(165°) | Phi(180°) | Phi(195°) | Phi(210°) | Phi(225°) | Phi(240°) | Phi(255°) | Phi(270°) | Phi(285°) | Phi(300°) | Phi(315°) | Phi(330°) | Phi(345°) |
|-------------|---------|----------|----------|----------|----------|----------|----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Theta(135°) | -16.09 | -17.6 | -14.19 | -14.35 | -14.97 | -10.86 | -15.61 | -13.69 | -14.58 | -17.1 | -13.14 | -12.97 | -12.71 | -11.07 | -17.07 | -14.03 | -14.61 | -11.62 | -17.15 | -9.43 | -9.18 | -10.5 | -11.92 | -16.24 |
| Theta(150°) | -18.07 | -20.71 | -17.33 | -17.97 | -17.02 | -14.83 | -24.63 | -20.02 | -15.43 | -14.08 | -14.71 | -16.73 | -21.79 | -13.36 | -16.66 | -21.93 | -19.43 | -14.99 | -26.13 | -23.35 | -15.29 | -15.54 | -23.17 | -20.84 |
| Theta(165°) | -25.47 | -22.44 | -21.13 | -24.3 | -18.04 | -20.41 | -22.02 | -14.5 | -16.71 | -15.63 | -15.85 | -24.84 | -21.71 | -16.11 | -25.69 | -23.6 | -16.93 | -19.63 | -21.28 | -15.33 | -23.16 | -17.42 | -15.15 | -20.82 |
| Theta(180°) | -22.02 | -26 | -24.69 | -25.71 | -25.84 | -24.46 | -21.38 | -18.8 | -18.31 | -18.36 | -21.6 | -18.82 | -21.16 | -24.93 | -25.04 | -24.83 | -26.22 | -21.6 | -22.63 | -20.75 | -22.72 | -25.65 | -25.53 | -25.63 |
| Freq(Hz) | 6.475G | Pol. | Theta | Ant. 1 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Gain | Phi(0°) | Phi(15°) | Phi(30°) | Phi(45°) | Phi(60°) | Phi(75°) | Phi(90°) | Phi(105°) | Phi(120°) | Phi(135°) | Phi(150°) | Phi(165°) | Phi(180°) | Phi(195°) | Phi(210°) | Phi(225°) | Phi(240°) | Phi(255°) | Phi(270°) | Phi(285°) | Phi(300°) | Phi(315°) | Phi(330°) | Phi(345°) |
| Theta(0°) | -11.29 | -11.66 | -13.9 | -16.24 | -18.05 | -23.51 | -22.02 | -18.12 | -14.25 | -11.85 | -10.39 | -10.21 | -9.83 | -10.52 | -12.66 | -16.27 | -20.4 | -21.53 | -18.12 | -15.86 | -13.82 | -11.6 | -10.8 | -10.03 |
| Theta(15°) | -19.96 | -13.08 | -12.04 | -9.57 | -7.32 | -8.13 | -12.2 | -15.88 | -10.64 | -9.84 | -12.06 | -15.61 | -14.11 | -12.45 | -17.47 | -19.12 | -13.47 | -12.03 | -12.1 | -12.08 | -13.84 | -19.05 | -23.49 | -15.6 |
| Theta(30°) | -18.16 | -18.66 | -24.87 | -10.77 | -16.5 | -25.41 | -13.74 | -11.4 | -16.43 | -16.06 | -12.15 | -7.82 | -24.91 | -19.38 | -19.97 | -17.75 | -15.04 | -14.79 | -17.42 | -17.24 | -19.83 | -16.6 | -16.13 | -15.7 |
| Theta(45°) | -12.82 | -23.23 | -23.09 | -20.22 | -11.81 | -12.2 | -14.42 | -24.52 | -19.31 | -24.87 | -12.03 | -12.65 | -19.71 | -22.15 | -17.39 | -11.52 | -12.26 | -13.23 | -16.04 | -21.91 | -19.68 | -14.94 | -12.71 | -14.74 |
| Theta(60°) | -23.37 | -12.68 | -14.65 | -11.67 | -14.49 | -19.55 | -25.95 | -19.36 | -25.2 | -13.47 | -8.55 | -14.33 | -22.28 | -21.98 | -14.59 | -14.88 | -14.54 | -12.07 | -14.4 | -26.34 | -15.87 | -17.74 | -21.4 | -23.97 |
| Theta(75°) | -18.98 | -13.29 | -14.73 | -10.23 | -12.24 | -18.39 | -19.03 | -14.28 | -22.05 | -19.29 | -19.98 | -22.66 | -25.41 | -18.41 | -24.59 | -14.56 | -25.4 | -19.98 | -19.73 | -20.47 | -16.79 | -22.73 | -14.27 | -16.13 |
| Theta(90°) | -26.52 | -17.47 | -20.45 | -15.47 | -12.9 | -22.42 | -17.02 | -12.79 | -25.77 | -15.06 | -16.1 | -22.13 | -22.15 | -18.92 | -14.81 | -22.01 | -17.76 | -15.92 | -22.71 | -17.88 | -24.1 | -21.12 | -13.13 | -13.44 |
| Theta(105°) | -22.43 | -24.79 | -22.33 | -19.24 | -15.89 | -20.68 | -21.28 | -18.63 | -23.82 | -22.06 | -25.22 | -25.02 | -24.27 | -20.17 | -25.32 | -24.74 | -25.17 | -25.97 | -21.52 | -22.66 | -17.87 | -25.31 | -22.93 | -14.83 |
| Theta(120°) | -24.88 | -22.3 | -25.87 | -25.31 | -23.45 | -23.11 | -21.47 | -14.28 | -24.1 | -20.35 | -18.14 | -25.2 | -24.87 | -18.35 | -14.62 | -22.47 | -25.04 | -22.77 | -25.82 | -23.48 | -21.45 | -21.53 | -18.22 | -20.51 |
| Theta(135°) | -25.51 | -24.77 | -25.27 | -24.57 | -20.16 | -23.97 | -26.2 | -22.98 | -22.39 | -22.48 | -21.85 | -25.59 | -20.03 | -26.22 | -21.62 | -23.79 | -22.97 | -21 | -18.95 | -25.56 | -25.18 | -20.18 | -19.25 | -19.65 |
| Theta(150°) | -22.59 | -24.79 | -25.73 | -25.25 | -26 | -24.95 | -23.89 | -22.42 | -25.36 | -22.45 | -19.29 | -18.17 | -25.84 | -19.25 | -20.05 | -25.14 | -24.96 | -24.84 | -16.69 | -25.08 | -24.83 | -25.78 | -18.75 | -22.51 |
| Theta(165°) | -16.99 | -25.92 | -25.75 | -16.96 | -23.09 | -22.33 | -18.33 | -25.9 | -19.28 | -22 | -20.74 | -24.58 | -20.76 | -24.18 | -18.29 | -16.15 | -23.96 | -26.04 | -22.34 | -25.06 | -25.1 | -17.11 | -19.37 | -19.4 |
| Theta(180°) | -16.74 | -18.82 | -18.92 | -19.88 | -20.53 | -22.31 | -21.03 | -19.36 | -26.18 | -25.98 | -22.07 | -19.04 | -21.73 | -25.07 | -24.39 | -26.16 | -19.64 | -18.39 | -21.9 | -22.55 | -23.18 | -25.21 | -24.92 | -24.11 |
| Freq(Hz) | 6.695G | Pol. | Phi | Ant. 1 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Gain | Phi(0°) | Phi(15°) | Phi(30°) | Phi(45°) | Phi(60°) | Phi(75°) | Phi(90°) | Phi(105°) | Phi(120°) | Phi(135°) | Phi(150°) | Phi(165°) | Phi(180°) | Phi(195°) | Phi(210°) | Phi(225°) | Phi(240°) | Phi(255°) | Phi(270°) | Phi(285°) | Phi(300°) | Phi(315°) | Phi(330°) | Phi(345°) |
| Theta(0°) | -15.24 | -23.97 | -20.13 | -15.19 | -11.33 | -8.81 | -6.75 | -6.42 | -6.92 | -8.3 | -9.13 | -11.36 | -16.21 | -19.9 | -14.54 | -11.75 | -8.25 | -7.58 | -7.24 | -7.32 | -9.49 | -9.06 | -11.16 | -15.68 |
| Theta(15°) | -13.22 | -16.59 | -20.29 | -25.57 | -25.19 | -25.08 | -18.89 | -12.39 | -7.35 | -5.16 | -7.56 | -9.75 | -6.49 | -4.93 | -5.07 | -4.11 | -4.37 | -5.09 | -5.71 | -6.96 | -8.56 | -9.82 | -17.41 | -16.87 |
| Theta(30°) | -5.65 | -4.58 | -6.17 | -4.71 | -6.58 | -8.95 | -7.67 | -9.62 | -7.46 | -3.6 | -2.46 | -3.47 | -3.57 | -4.24 | -5.69 | -3.02 | -2.68 | -3.42 | -6.83 | -8.8 | -2.64 | -2.81 | -4.17 | -6.3 |
| Theta(45°) | -3.28 | -2.88 | -4.5 | -4.82 | -7.15 | -10.11 | -9.47 | -3.44 | -2.88 | -3.44 | -3.31 | -3.95 | -2.45 | -1.1 | -3.05 | -5.36 | -4.35 | -6.04 | -5.69 | -4.08 | -5.53 | -7.26 | -7 | -8.11 |
| Theta(60°) | -1.8 | -2.09 | -2.05 | -4.45 | -6.96 | -19.05 | -16.44 | -13.39 | -3.41 | -3.85 | -4.86 | -8.68 | -11.12 | -21.94 | -7.92 | -4.91 | -3.92 | -8.5 | -6.99 | -2.38 | -2.91 | -0.59 | -1.15 | -1.38 |
| Theta(75°) | -3.26 | -2.48 | -1.85 | -0.63 | -0.56 | -4.08 | -6.84 | -8.52 | -8.97 | -6.5 | -5.54 | -2.69 | -3.55 | -3.49 | -5.67 | -3.59 | -1.39 | -3.35 | -4.38 | -0.02 | 0.62 | 1.11 | 0.44 | -1.38 |
| Theta(90°) | -9.06 | -5.37 | -5.2 | -3.41 | -4.64 | -1.31 | -6.99 | -6.38 | -7.19 | -5.36 | -6.31 | -3.75 | -7.47 | -6.55 | -7.86 | -4.73 | 0.98 | -4.37 | -9.74 | -1.89 | -0.06 | -3.6 | -3.28 | -4.53 |
| Theta(105°) | -9.17 | -8.95 | -9.81 | -6.43 | -5.02 | -5.13 | -9.62 | -8.48 | -9.01 | -9.28 | -9.41 | -7.11 | -8.12 | -10.1 | -11.9 | -10.43 | -7.16 | -13.04 | -21.32 | -10.57 | -5.09 | -5.44 | -6.04 | -6.47 |
| Theta(120°) | -19.38 | -15.06 | -11.81 | -9.53 | -13.63 | -7.52 | -14.75 | -9.59 | -18.29 | -15.58 | -14.47 | -10.84 | -11.92 | -14.52 | -11.73 | -13.82 | -8.12 | -16.7 | -18.24 | -10.05 | -6.99 | -12.25 | -14.32 | -19.84 |
| Theta(135°) | -18 | -20.77 | -17.66 | -13.16 | -12.16 | -13.28 | -21 | -14.2 | -17.66 | -19.35 | -13.39 | -12.74 | -18.69 | -12.54 | -17.68 | -13.33 | -8.43 | -13.02 | -20.92 | -8.76 | -9.04 | -14.61 | -17.64 | -18.43 |
| Theta(150°) | -16.27 | -25.45 | -17.8 | -18.26 | -19.94 | -17.01 | -25.3 | -25.67 | -18.77 | -16.33 | -16.38 | -23.79 | -20.28 | -14.52 | -16.91 | -14.6 | -16.99 | -17.51 | -19.42 | -22.6 | -15.19 | -16.1 | -20.66 | -19.15 |
| Theta(165°) | -25.24 | -26.03 | -25.53 | -25.35 | -17.23 | -13.52 | -26.39 | -15.6 | -16.76 | -16.58 | -12.33 | -25.96 | -25.12 | -18.51 | -20.95 | -24.73 | -25.41 | -24.09 | -22.44 | -16.86 | -21.34 | -18.04 | -14.16 | -22.42 |
| Theta(180°) | -18.08 | -18.34 | -20.98 | -23.3 | -25.76 | -22.53 | -18.53 | -17.71 | -17.39 | -20.39 | -19.68 | -20.05 | -18.67 | -21.17 | -22.32 | -22.22 | -24.73 | -26.14 | -25.3 | -21.86 | -21.61 | -22.12 | -25.19 | -24.82 |
| Freq(Hz) | 6.695G | Pol. | Theta | Ant. 1 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Gain | Phi(0°) | Phi(15°) | Phi(30°) | Phi(45°) | Phi(60°) | Phi(75°) | Phi(90°) | Phi(105°) | Phi(120°) | Phi(135°) | Phi(150°) | Phi(165°) | Phi(180°) | Phi(195°) | Phi(210°) | Phi(225°) | Phi(240°) | Phi(255°) | Phi(270°) | Phi(285°) | Phi(300°) | Phi(315°) | Phi(330°) | Phi(345°) |
| Theta(0°) | -6.9 | -7.24 | -7.01 | -9.18 | -11.84 | -13.25 | -18.15 | -25.81 | -17.87 | -13.7 | -9.5 | -7.35 | -6.18 | -5.12 | -5.66 | -9.02 | -11.28 | -14.89 | -22.54 | -21.58 | -18.23 | -11.29 | -9.43 | -7.63 |
| Theta(15°) | -18.68 | -13.24 | -11.8 | -12.45 | -12.22 | -11.35 | -13.5 | -22.94 | -15.89 | -10.79 | -10.34 | -10.24 | -7.9 | -10.8 | -16.56 | -22.05 | -17.09 | -16.28 | -15.01 | -16.45 | -15.45 | -13.33 | -24.6 | -15.59 |
| Theta(30°) | -9.89 | -14.95 | -23.3 | -12.58 | -18.36 | -14.74 | -8.5 | -9.69 | -12.11 | -15 | -19.57 | -10.3 | -15.6 | -26.6 | -21.87 | -14.42 | -14.27 | -22.52 | -17.73 | -15.91 | -15.06 | -14.37 | -18.62 | -10.13 |
| Theta(45°) | -7.26 | -13.23 | -16.59 | -17.6 | -11.95 | -9.04 | -11.52 | -15.63 | -20.72 | -23.26 | -16.34 | -18.48 | -16.68 | -12.52 | -13.42 | -10.32 | -10.62 | -15.39 | -13.73 | -11.58 | -14.51 | -13.89 | -9.25 | -9.54 |
| Theta(60°) | -15.91 | -19.76 | -25.18 | -8.24 | -13.75 | -14.29 | -21.17 | -25.53 | -15.07 | -14.72 | -11.44 | -14.01 | -21.85 | -18.48 | -15.46 | -13.18 | -15.98 | -18.28 | -18.11 | -16.36 | -20.7 | -20.8 | -13.19 | -13.31 |
| Theta(75°) | -14.32 | -13.88 | -13.19 | -8.37 | -8.6 | -20.13 | -21.18 | -14.7 | -22.44 | -16.44 | -13.71 | -17.78 | -20.58 | -26.21 | -23.64 | -24.57 | -21 | -25.59 | -12.77 | -16.21 | -16.11 | -19.46 | -11.72 | -15.67 |
| Theta(90°) | -20.94 | -15.49 | -16.7 | -12.99 | -8.51 | -14.84 | -15.57 | -13.14 | -18.44 | -13.6 | -18.06 | -26.13 | -21.38 | -16.45 | -18.35 | -19.63 | -21.87 | -21.59 | -14.61 | -13 | -12.92 | -24.78 | -10.33 | -12.96 |
| Theta(105°) | -22.53 | -21.87 | -16.36 | -19.99 | -13.89 | -13.64 | -23.9 | -16.13 | -21.01 | -19.59 | -20.92 | -25.79 | -13.64 | -23.9 | -16.13 | -21.01 | -19.59 | -20.92 | -20.85 | -19.83 | -18.29 | -20.11 | -18.39 | -14.95 |
| Theta(120°) | -23.87 | -19.43 | -25.68 | -18.26 | -18.65 | -21.33 | -26.17 | -14 | -25.58 | -14.18 | -26.01 | -23.24 | -24.02 | -18.68 | -17.63 | -21.53 | -16.72 | -15.67 | -24.04 | -17.1 | -16.38 | -22 | -17.41 | -21.13 |
| Theta(135°) | -17.92 | -17.01 | -25.14 | -16.93 | -22.71 | -25.59 | -23.88 | -25.83 | -24.74 | -23.58 | -25.56 | -23.29 | -15.68 | -25.37 | -18.95 | -25.37 | -25.98 | -15.05 | -17.67 | -26.12 | -25.87 | -16.24 | -20.88 | -18.15 |
| Theta(150°) | -19.79 | -22.97 | -24.99 | -25.1 | -25.54 | -26.26 | -25.7 | -21.9 | -24.97 | -23.99 | -25.35 | -24.39 | -25.8 | -21.97 | -20.52 | -25.62 | -19.38 | -18.67 | -26.2 | -21.45 | -24.89 | -24.17 | -25.93 | -25.93 |
| Theta(165°) | -17.12 | -21.56 | -25.13 | -18.74 | -25.1 | -20.45 | -23.97 | -24.23 | -25.04 | -18.28 | -25.55 | -24.11 | -21.39 | -17.81 | -20.28 | -25.15 | -25.05 | -24.12 | -24.96 | -24.99 | -19.83 | -21.23 | -14.97 | -14.97 |
| Theta(180°) | -21.77 | -23.11 | -25.25 | -21.6 | -22.3 | -18.28 | -18.06 | -18.44 | -19.61 | -22.82 | -25.5 | -25.63 | -25.49 | -25.24 | -25.31 | -25.43 | -25.62 | -24.99 | -23.82 | -25.9 | -22.41 | | | |



**Radiated Composite Gain of 5GHz UNII 2C, 3, 6GHz UNII 5~8
(5G6G Ant1~Ant4)_4TX**

Appendix B.2

| Theta | (90°) | (105°) | (120°) | (135°) | (150°) | (165°) | (180°) | Freq(Hz) | 5.785G | Pol. | Phi | Ant. 2 | Gain | Phi(0°) | Phi(15°) | Phi(30°) | Phi(45°) | Phi(60°) | Phi(75°) | Phi(90°) | Phi(105°) | Phi(120°) | Phi(135°) | Phi(150°) | Phi(165°) | Phi(180°) | Phi(195°) | Phi(210°) | Phi(225°) | Phi(240°) | Phi(255°) | Phi(270°) | Phi(285°) | Phi(300°) | Phi(315°) | Phi(330°) | Phi(345°) |
|-------|-------|--------|--------|--------|--------|--------|--------|----------|--------|------|-----|--------|------|---------|----------|----------|----------|----------|----------|----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Theta | (90°) | (105°) | (120°) | (135°) | (150°) | (165°) | (180°) | Freq(Hz) | 5.785G | Pol. | Phi | Ant. 2 | Gain | Phi(0°) | Phi(15°) | Phi(30°) | Phi(45°) | Phi(60°) | Phi(75°) | Phi(90°) | Phi(105°) | Phi(120°) | Phi(135°) | Phi(150°) | Phi(165°) | Phi(180°) | Phi(195°) | Phi(210°) | Phi(225°) | Phi(240°) | Phi(255°) | Phi(270°) | Phi(285°) | Phi(300°) | Phi(315°) | Phi(330°) | Phi(345°) |
| Theta | (90°) | (105°) | (120°) | (135°) | (150°) | (165°) | (180°) | Freq(Hz) | 6.175G | Pol. | Phi | Ant. 2 | Gain | Phi(0°) | Phi(15°) | Phi(30°) | Phi(45°) | Phi(60°) | Phi(75°) | Phi(90°) | Phi(105°) | Phi(120°) | Phi(135°) | Phi(150°) | Phi(165°) | Phi(180°) | Phi(195°) | Phi(210°) | Phi(225°) | Phi(240°) | Phi(255°) | Phi(270°) | Phi(285°) | Phi(300°) | Phi(315°) | Phi(330°) | Phi(345°) |
| Theta | (90°) | (105°) | (120°) | (135°) | (150°) | (165°) | (180°) | Freq(Hz) | 6.475G | Pol. | Phi | Ant. 2 | Gain | Phi(0°) | Phi(15°) | Phi(30°) | Phi(45°) | Phi(60°) | Phi(75°) | Phi(90°) | Phi(105°) | Phi(120°) | Phi(135°) | Phi(150°) | Phi(165°) | Phi(180°) | Phi(195°) | Phi(210°) | Phi(225°) | Phi(240°) | Phi(255°) | Phi(270°) | Phi(285°) | Phi(300°) | Phi(315°) | Phi(330°) | Phi(345°) |
| Theta | (90°) | (105°) | (120°) | (135°) | (150°) | (165°) | (180°) | Freq(Hz) | 6.695G | Pol. | Phi | Ant. 2 | Gain | Phi(0°) | Phi(15°) | Phi(30°) | Phi(45°) | Phi(60°) | Phi(75°) | Phi(90°) | Phi(105°) | Phi(120°) | Phi(135°) | Phi(150°) | Phi(165°) | Phi(180°) | Phi(195°) | Phi(210°) | Phi(225°) | Phi(240°) | Phi(255°) | Phi(270°) | Phi(285°) | Phi(300°) | Phi(315°) | Phi(330°) | Phi(345°) |



**Radiated Composite Gain of 5GHz UNII 2C, 3, 6GHz UNII 5~8
(5G6G Ant1~Ant4)_4TX**

Appendix B.2

| Theta | Phi(0°) | Phi(15°) | Phi(30°) | Phi(45°) | Phi(60°) | Phi(75°) | Phi(90°) | Phi(105°) | Phi(120°) | Phi(135°) | Phi(150°) | Phi(165°) | Phi(180°) | Phi(195°) | Phi(210°) | Phi(225°) | Phi(240°) | Phi(255°) | Phi(270°) | Phi(285°) | Phi(300°) | Phi(315°) | Phi(330°) | Phi(345°) | |
|-------------|---------|----------|----------|----------|----------|----------|----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|--------|
| Theta(45°) | -8.79 | -7.54 | -6.14 | -2.79 | -2.34 | -2.85 | -6.59 | -6.69 | -2.79 | -2.65 | -1.75 | -4.64 | -7.58 | -6.22 | -5.62 | -5.75 | -5.11 | -4.01 | -3.69 | -5.26 | -5.28 | -4.73 | -3.57 | -4.07 | |
| Theta(60°) | -5.37 | -9.11 | -11.21 | -10.4 | -7.69 | -13.38 | -12.42 | -8.9 | -9.47 | -11.47 | -7.17 | -5.67 | -4.22 | -2.63 | -3.09 | -2.9 | -7.4 | -6.18 | -3.75 | -4.51 | -6.59 | -2.94 | -7.18 | -8.35 | |
| Theta(75°) | -3.63 | -5.05 | -5.85 | -3.45 | -3.99 | -2.51 | -5.09 | -6.56 | -4.88 | -1.61 | 0.8 | -0.44 | -1.17 | 0.53 | 1.32 | 0.61 | -1.13 | -3.38 | -0.71 | -1.19 | -2.06 | 0.26 | -1.16 | -2.42 | |
| Theta(90°) | -8.15 | -8.16 | -7.88 | -6.77 | -5.53 | -1.37 | -4.78 | -3.84 | -6.97 | -2.3 | 0.68 | -1.57 | -5.03 | -3.13 | -0.5 | -1.82 | -1.4 | -4.79 | -6.28 | -3.01 | -4.15 | -3.04 | -2.23 | -4.88 | |
| Theta(105°) | -8.76 | -9.89 | -11.28 | -10.83 | -9.38 | -5.7 | -5.12 | -11.97 | -9.79 | -8.27 | -5.06 | -6.18 | -9.26 | -6.77 | -3.99 | -8.12 | -5.93 | -13.15 | -10.38 | -10.18 | -11.09 | -9.01 | -6.8 | -7.85 | |
| Theta(120°) | -16.42 | -15.31 | -16.79 | -15.7 | -10.91 | -7.68 | -10.97 | -9.66 | -15.69 | -10.75 | -9.49 | -6.76 | -10.88 | -13.37 | -8.91 | -9.79 | -6.93 | -14.66 | -12.79 | -21.79 | -11.45 | -13.45 | -8.5 | -14.01 | |
| Theta(135°) | -25.57 | -16.31 | -23.65 | -16.75 | -14.14 | -15.33 | -12.01 | -17.56 | -18.65 | -14.72 | -11.08 | -13.74 | -13.51 | -18.9 | -9.26 | -13.55 | -9.05 | -11.29 | -19.79 | -12.6 | -5.55 | -10.28 | -10.19 | -15.38 | |
| Theta(150°) | -15.59 | -24.61 | -18.68 | -17.08 | -23.66 | -25.88 | -15.75 | -20.06 | -18.16 | -19.93 | -18.65 | -21.66 | -23.46 | -15.08 | -18.72 | -17.13 | -15.47 | -17.61 | -18.22 | -15.03 | -17.65 | -15.7 | -14.24 | -17.57 | |
| Theta(165°) | -25.29 | -26.12 | -22.2 | -17.25 | -25.49 | -22.35 | -22.15 | -25.66 | -25.09 | -23.01 | -20.86 | -25.98 | -25.5 | -24.7 | -18.84 | -15.09 | -16.54 | -17.42 | -21.33 | -23.53 | -23.5 | -26.11 | -24.06 | -19.1 | |
| Theta(180°) | -18.14 | -19.55 | -21.07 | -24.64 | -21.37 | -23.19 | -18.75 | -23.79 | -20 | -20.99 | -22.03 | -21.09 | -18.84 | -16.73 | -18.69 | -18.72 | -24.99 | -24.12 | -22.47 | -19 | -23.16 | -25.71 | -20.53 | -19.13 | |
| Freq(Hz) | 6.695G | Pol. | Theta | Ant. 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| Gain | Phi(0°) | Phi(15°) | Phi(30°) | Phi(45°) | Phi(60°) | Phi(75°) | Phi(90°) | Phi(105°) | Phi(120°) | Phi(135°) | Phi(150°) | Phi(165°) | Phi(180°) | Phi(195°) | Phi(210°) | Phi(225°) | Phi(240°) | Phi(255°) | Phi(270°) | Phi(285°) | Phi(300°) | Phi(315°) | Phi(330°) | Phi(345°) | |
| Theta(0°) | -11.3 | -11.82 | -12.19 | -15.76 | -17.13 | -16.9 | -14.78 | -13.14 | -12.68 | -11.78 | -10.98 | -11.14 | -12.73 | -12.66 | -15.2 | -14.18 | -11.88 | -10.13 | -10.32 | -9.36 | -9.67 | -9.57 | -9.93 | -12.01 | |
| Theta(15°) | -10.16 | -10.98 | -13.69 | -15.64 | -18.66 | -13.01 | -10.24 | -10.49 | -10.34 | -9.85 | -9.17 | -10.82 | -11.29 | -11.04 | -15.15 | -25.5 | -25.52 | -22.24 | -13.54 | -11.46 | -21.02 | -12.91 | -11.38 | -15.26 | |
| Theta(30°) | -11.1 | -8.57 | -11.97 | -22.94 | -9.23 | -12.24 | -17.49 | -14.31 | -15.5 | -15.77 | -12.53 | -9.56 | -20.25 | -20.76 | -12.06 | -8.77 | -12.3 | -14.88 | -11.45 | -10.8 | -18.79 | -17.23 | -18.4 | -17.67 | |
| Theta(45°) | -24.37 | -15.55 | -14.28 | -17.81 | -10.97 | -15.42 | -11.87 | -21.56 | -12.63 | -13.69 | -25.06 | -12.6 | -12.33 | -9.08 | -10.86 | -12.66 | -9.66 | -4.88 | -7.04 | -10.26 | -13.15 | -25.06 | -10.74 | -5.82 | |
| Theta(60°) | -14.57 | -22.52 | -19.92 | -21.96 | -8.65 | -12.64 | -21 | -24.95 | -10.46 | -13.58 | -9.92 | -14.47 | -15.62 | -9.85 | -24.69 | -22.76 | -17.8 | -12.19 | -16.16 | -16.61 | -14.61 | -14.56 | -20.52 | -14.91 | |
| Theta(75°) | -14.98 | -14.24 | -13.39 | -12.38 | -12.19 | -24.39 | -14.3 | -20.3 | -21.1 | -24.51 | -13.95 | -21.86 | -11.9 | -25.09 | -23.04 | -20.12 | -22.3 | -13.48 | -13.17 | -17.51 | -14.73 | -12.61 | -11.78 | -12.95 | |
| Theta(90°) | -16.14 | -14.76 | -13.7 | -15.07 | -11.5 | -15.78 | -16.07 | -18.08 | -22.47 | -14.83 | -14.93 | -15.47 | -18.32 | -25.63 | -21.63 | -26.28 | -15.57 | -10.19 | -14.42 | -12.14 | -18.75 | -16.48 | -11.22 | -16.96 | |
| Theta(105°) | -19.09 | -21.74 | -16.41 | -16.83 | -16.74 | -13.48 | -16.08 | -26.13 | -20.15 | -16.23 | -22.66 | -16.19 | -15.21 | -21.85 | -17.65 | -17.98 | -26.3 | -25.02 | -15.83 | -17.98 | -18.57 | -21.92 | -14.46 | -15.78 | |
| Theta(120°) | -23.32 | -26.03 | -16.02 | -22.88 | -19.54 | -16.71 | -26.44 | -21.93 | -16.71 | -18.76 | -21.87 | -15.13 | -23.21 | -17.4 | -25.17 | -21.52 | -20.39 | -19.8 | -19.64 | -22.77 | -23.83 | -20.92 | -14.23 | -25.97 | |
| Theta(135°) | -25.73 | -23.27 | -22.23 | -18.63 | -17.39 | -22.04 | -23.33 | -23.17 | -23.22 | -21.07 | -20.91 | -15.93 | -21.91 | -22.97 | -19.13 | -21.83 | -24.01 | -24.51 | -23.75 | -20.98 | -25.7 | -24.84 | -24.89 | -23.01 | |
| Theta(150°) | -22.55 | -20.31 | -24.36 | -11.87 | -25.54 | -23.78 | -23.26 | -17.04 | -21.64 | -20.26 | -21.14 | -22.33 | -24.35 | -24.62 | -24.79 | -25.63 | -20.62 | -25.57 | -24.5 | -17.24 | -24.3 | -18.13 | -15.17 | -24.02 | |
| Theta(165°) | -25.44 | -17.22 | -17.95 | -18.28 | -17.84 | -20.69 | -15.01 | -19.29 | -26.34 | -25.46 | -20.04 | -25.71 | -24.99 | -25.05 | -24.92 | -19.53 | -21.68 | -25.38 | -25.06 | -24.1 | -22.21 | -16.83 | -15.72 | -25.91 | |
| Theta(180°) | -24.85 | -21.97 | -24.88 | -20.28 | -20.22 | -18.05 | -20.13 | -19.58 | -20.09 | -23.56 | -23.48 | -24.93 | -25.83 | -23.02 | -18.89 | -19.74 | -20.27 | -20.37 | -25.4 | -25 | -23.36 | -25.48 | -24.84 | -25.3 | |
| Freq(Hz) | 6.995G | Pol. | Phi | Ant. 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| Gain | Phi(0°) | Phi(15°) | Phi(30°) | Phi(45°) | Phi(60°) | Phi(75°) | Phi(90°) | Phi(105°) | Phi(120°) | Phi(135°) | Phi(150°) | Phi(165°) | Phi(180°) | Phi(195°) | Phi(210°) | Phi(225°) | Phi(240°) | Phi(255°) | Phi(270°) | Phi(285°) | Phi(300°) | Phi(315°) | Phi(330°) | Phi(345°) | |
| Theta(0°) | -21.26 | -17.95 | -15.89 | -18.04 | -16.94 | -17.77 | -21.31 | -23.82 | -25.19 | -22.92 | -19.52 | -16.97 | -16.98 | -16.67 | -16.77 | -18.23 | -18.11 | -21.13 | -24.63 | -25.03 | -25.05 | -25.23 | -21.28 | -18.97 | |
| Theta(15°) | -9.44 | -8.55 | -7.26 | -7.13 | -8.17 | -9.34 | -12.12 | -12.53 | -14.14 | -16.3 | -14.74 | -14.3 | -12.78 | -13.56 | -12.88 | -10.02 | -7.56 | -5.23 | -4.5 | -6.47 | -11.37 | -12.85 | -13.52 | -13.19 | |
| Theta(30°) | -7.61 | -4.9 | -3.36 | -3.55 | -3.95 | -7.16 | -8.32 | -7.25 | -7.07 | -7.95 | -12.06 | -9.1 | -11.08 | -12.36 | -13.49 | -12.26 | -6.77 | -7.28 | -9.1 | -6.37 | -3.86 | -2.63 | -10.1 | -6.08 | -7.16 |
| Theta(45°) | -6.16 | -3.17 | -3.42 | -4.31 | -3.06 | -4.88 | -4.34 | -18.42 | -9.95 | -4.55 | -3.37 | -4.33 | -8.05 | -6.67 | -4.7 | -4.82 | -3.97 | -9.71 | -6.92 | -7.56 | -2.56 | -11.09 | -3.32 | -5.42 | |
| Theta(60°) | -9.44 | -8.71 | -7.8 | -7.85 | -9.29 | -5.68 | -5.88 | -10.27 | -7.46 | -7.71 | -7.06 | -10.71 | -6.87 | -7.03 | -8.09 | -5.25 | -7.6 | -10.18 | -10.14 | -10.56 | -5.11 | -6.05 | -16.41 | -11.88 | |
| Theta(75°) | -6.09 | -4.68 | -9.93 | -9.06 | -9.7 | -12.24 | -12.28 | -7.46 | -11.01 | -2.55 | -2.46 | -4.21 | -2.8 | -7.21 | -4.08 | -1.37 | 0.87 | -4.72 | -4.35 | -5.33 | -3.13 | -3.16 | -5.99 | -6.9 | |
| Theta(90°) | -9.77 | -9.95 | -12.56 | -9.34 | -9.2 | -5.95 | -5.15 | -8.56 | -5.68 | -1.92 | -3.19 | -6.43 | -5.94 | -7.3 | -6.51 | -6.55 | -2.35 | -6.62 | -9.78 | -7.97 | -4.42 | -7.03 | -7.99 | -7.96 | |
| Theta(105°) | -11.11 | -14.23 | -15.63 | -14.08 | -14.23 | -6.33 | -10.4 | -13.61 | -11.8 | -6.37 | -5.52 | -8.51 | -6.33 | -11.28 | -14.04 | -9.89 | -8.62 | -7.63 | -19.04 | -15.12 | -14.94 | -10.9 | -11.9 | -11.17 | -14.65 |
| Theta(120°) | -13.32 | -17.28 | -26.2 | -19.21 | -12.11 | -14.99 | -15.15 | -25.15 | -11.79 | -9.47 | -12.44 | -13.23 | -13.87 | -19.67 | -18.78 | -12.29 | -10.78 | -18.09 | -18.67 | -24.61 | -12.61 | -18.01 | -10.81 | -14.94 | |
| Theta(135°) | -23.71 | -15.77 | -23.19 | -15.52 | -23.68 | -18.44 | -19.96 | -17.42 | -19.53 | -17.12 | -20.73 | -19.78 | -21.92 | -18.29 | -12.69 | -19.11 | -10.5 | -18.37 | -15.48 | -25.76 | -12.23 | -15.93 | -15.1 | -20.82 | |
| Theta(150°) | -20.33 | -21.46 | -20.28 | -19.3 | -17.62 | -19.89 | -22.14 | -18.48 | -22.95 | -24.75 | -16.88 | -20.77 | -25.7 | -20.6 | -25.02 | -14.4 | -13.66 | -18.18 | -22.42 | -15.85 | -24.89 | -17.6 | -20.4 | -17.55 | |
| Theta(165°) | -20.33 | -26.13 | -19.29 | -22.09 | -24.29 | -25.58 | -22.11 | -16.51 | -25.7 | -21.55 | -20.03 | -22.81 | -24.38 | -21.12 | -21.27 | -23.91 | -16.37 | -15.82 | -20.02 | -15.89 | -19.19 | -17.98 | -19.93 | -18.71 | |
| Theta(180°) | -17.1 | -17.13 | -19 | -19.76 | -24.57 | -17.73 | -21.25 | -24.81 | -25.64 | -26.02 | -23.07 | -22.31 | -21.6 | -22.76 | -21.87 | -26.13 | -25.37 | -25.35 | -24.8 | -22.19 | -21.06 | -18.45 | -17.21 | -18.2 | |
| Freq(Hz) | 6.995G | Pol. | Theta | Ant. 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| Gain | Phi(0°) | Phi(15°) | Phi(30°) | Phi(45°) | Phi(60°) | Phi(75°) | Phi(90°) | Phi(105°) | Phi(120°) | Phi(135°) | Phi(150°) | Phi(165°) | Phi(180°) | Phi(195°) | Phi(210°) | Phi(225°) | Phi(240°) | Phi(255°) | Phi(270°) | Phi(285°) | Phi(300°) | Phi(315°) | Phi(330°) | Phi(345°) | |
| Theta(0°) | -18.57 | -21.39 | -25.37 | -22.26 | -21.54 | -18.64 | -18.35 | -19.12 | -16.46 | -16.73 | -16.38 | -16.15 | -19.43 | -25.83 | -24.4 | -21.51 | -18.34 | -16.99 | -15.14 | -14.41 | -16.4 | -16.75 | -18.68 | -17.67 | |
| Theta(15°) | -8.25 | -8.81 | -8.3 | -9.83 | -10.13 | -11.33 | -14.76 | -18.21 | -19.39 | -14.42 | -11.18 | -14.48 | -23.92 | -24.58 | -19.39 | -12.94 | -11.95 | -10.94 | -9.22 | -8.93 | -11.45 | -11.76 | -12.5 | -15.96 | |
| Theta(30°) | -8.28 | -6.07 | -5.33 | -7.92 | -10 | -9.98 | -9.49 | -12.19 | -16.28 | -10.02 | -11.09 | -7.61 | -19.64 | -21.48 | -8.45 | -8.85 | -11.54 | -10.39 | -6.31 | -4.09 | -10.68 | -16.71 | -10.54 | -8.11 | |
| Theta(45°) | -6.79 | -9.33 | -8.85 | -12.88 | -15.57 | -16.74 | -13.18 | -10.03 | -11.05 | -9.22 | -12.22 | -8.96 | -4.87 | -2.73 | -3.46 | -9.85 | -9.27 | -7.4 | -3.56 | -5.56 | -7.12 | -5.18 | -12.61 | -9.52 | -5.52 |
| Theta(60°) | -17.19 | -12.17 | -25.31 | -22.45 | -10.17 | -8.85 | -6.51 | -9.59 | -10.17 | -9.57 | -6.37 | -9.52 | -10.89 | -10.89 | -17.85 | -21.91 | -15.04 | -14.41 | -14.1 | -9.29 | -12.95 | -20.56 | -25.6 | -16.06 | |
| Theta(75°) | -6.6 | -10.11 | -10.28 | -9.26 | -7.72 | -15.18 | -25.81 | -13.99 | -18.15 | -21.79 | -14.51 | -18.55 | -13.96 | -21.14 | -17.01 | -12.05 | -15.03 | -15.96 | -13.91 | -24.6 | -8.06 | -6.97 | -8.58 | -10.63 | |
| Theta(90°) | -6.29 | -8.06 | -8.94 | -12.17 | -5.23 | -11.34 | -10.86 | -14.12 | -11.14 | -7.63 | -9.45 | -15.42 | -10.61 | -14.49 | -9.15 | -15.3 | -8.41 | -9 | -11.96 | -11.65 | -8.67 | -10.46 | -10.21 | -11.33 | |
| Theta(105°) | -10.57 | -13.47 | -11.81 | -12.45 | -11.21 | -11.65 | -12.42 | -10. | | | | | | | | | | | | | | | | | |



**Radiated Composite Gain of 5GHz UNII 2C, 3, 6GHz UNII 5~8
(5G6G Ant1~Ant4)_4TX**

| Theta | Phi(0°) | Phi(15°) | Phi(30°) | Phi(45°) | Phi(60°) | Phi(75°) | Phi(90°) | Phi(105°) | Phi(120°) | Phi(135°) | Phi(150°) | Phi(165°) | Phi(180°) | Phi(195°) | Phi(210°) | Phi(225°) | Phi(240°) | Phi(255°) | Phi(270°) | Phi(285°) | Phi(300°) | Phi(315°) | Phi(330°) | Phi(345°) |
|-------------|---------|----------|----------|----------|----------|----------|----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Theta(0°) | -16.15 | -14.84 | -14.48 | -13.75 | -15.23 | -13.89 | -13.42 | -14.14 | -12.41 | -10.47 | -11.13 | -12.06 | -11.86 | -11.29 | -11.93 | -14.47 | -17.39 | -18.16 | -15.91 | -16.25 | -16.33 | -13.75 | -10.94 | -12.46 |
| Theta(15°) | -8.8 | -13.44 | -14.41 | -13.03 | -13.64 | -12.23 | -11.32 | -16.47 | -25.72 | -24.87 | -21.35 | -8.23 | -4.69 | -6.14 | -9.51 | -14.94 | -18.01 | -20.02 | -17.93 | -15.44 | -13.61 | -15.88 | -14.02 | -11.69 |
| Theta(30°) | -7.14 | -25.68 | -25.58 | -20.01 | -13.81 | -13.81 | -10.36 | -10.25 | -16.21 | -20.52 | -20.81 | -18.2 | -8.71 | -11.44 | -13.48 | -9.96 | -16.91 | -25.32 | -16.81 | -24.09 | -14.64 | -13.02 | -16.53 | -9.24 |
| Theta(45°) | -15.01 | -19.12 | -18.61 | -15.06 | -8.56 | -11.09 | -11.69 | -11.18 | -18.59 | -13.41 | -13.67 | -15.48 | -17.06 | -20.86 | -17.46 | -19.41 | -25.37 | -24.02 | -18.35 | -18.65 | -25.08 | -14.32 | -12.55 | -10.08 |
| Theta(60°) | -21.12 | -19.73 | -14.78 | -24.85 | -16.35 | -13.02 | -11.09 | -13.13 | -18.84 | -26.17 | -19.5 | -14.17 | -18.94 | -14.37 | -19.48 | -24.83 | -20.87 | -24.94 | -18.4 | -24.97 | -18.74 | -24.83 | -16.46 | -21.58 |
| Theta(75°) | -19.48 | -21.55 | -15.92 | -22.76 | -25.51 | -14.41 | -14.4 | -23.47 | -23.21 | -25.21 | -21.03 | -21.36 | -19.92 | -15.39 | -22.87 | -14.52 | -18.53 | -17.03 | -21.79 | -25.12 | -22.45 | -25.85 | -25.23 | -18.96 |
| Theta(90°) | -19.37 | -25.7 | -22.52 | -25.43 | -25.87 | -21.55 | -16.22 | -25.29 | -20.44 | -24.21 | -20.33 | -21.33 | -22.04 | -16.57 | -24.72 | -17.77 | -25.4 | -14.53 | -25.71 | -25.24 | -25.57 | -24.58 | -25.31 | -22.26 |
| Theta(105°) | -20.82 | -24.32 | -25.46 | -24.61 | -24.81 | -24.19 | -19.8 | -23.72 | -22.5 | -25.73 | -21.23 | -18.77 | -19.63 | -18.61 | -24.75 | -21.13 | -23.31 | -26.05 | -25.58 | -26.09 | -26.55 | -26.06 | -23.55 | -22.26 |
| Theta(120°) | -25.84 | -25.35 | -20.49 | -22.75 | -23.95 | -22.45 | -21.24 | -26.57 | -26 | -25.97 | -24.77 | -19.67 | -22.47 | -26.1 | -24.32 | -24.84 | -25.45 | -24.59 | -26.69 | -24.59 | -25.57 | -16.73 | -25.19 | -24.57 |
| Theta(135°) | -26.1 | -26.03 | -24.65 | -25.97 | -25.75 | -26.14 | -24.04 | -23.74 | -24.27 | -24.98 | -24.65 | -21.86 | -20.96 | -25.52 | -26.24 | -24.52 | -25.53 | -25.58 | -20.76 | -23.84 | -22.63 | -24.5 | -25.11 | -24.09 |
| Theta(150°) | -17.48 | -25.45 | -18.3 | -22.74 | -25.73 | -23.96 | -25.32 | -25.06 | -25.31 | -24.47 | -25.59 | -25.6 | -26.05 | -25.5 | -26.02 | -21.45 | -25.96 | -24.46 | -25.84 | -25.07 | -19.12 | -25.48 | -20.78 | -22.23 |
| Theta(165°) | -25.45 | -24.92 | -26.09 | -24.02 | -24.42 | -24.76 | -24.37 | -22.67 | -23.96 | -26.02 | -24.9 | -23.95 | -19.31 | -25.36 | -25.97 | -18.39 | -17.59 | -25.57 | -25.24 | -20.79 | -18.92 | -26.13 | -13.08 | -19.88 |
| Theta(180°) | -23.99 | -25.11 | -19.74 | -19.16 | -18.13 | -22.72 | -22.37 | -24.91 | -25.96 | -24.35 | -21.77 | -22.53 | -22.61 | -25.41 | -24.44 | -25.18 | -23.23 | -25.02 | -26.11 | -24.88 | -25.47 | -22.45 | -23.13 | -19.67 |
| Freq(Hz) | 6.175G | Pol. | Phi | Ant. 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Gain | Phi(0°) | Phi(15°) | Phi(30°) | Phi(45°) | Phi(60°) | Phi(75°) | Phi(90°) | Phi(105°) | Phi(120°) | Phi(135°) | Phi(150°) | Phi(165°) | Phi(180°) | Phi(195°) | Phi(210°) | Phi(225°) | Phi(240°) | Phi(255°) | Phi(270°) | Phi(285°) | Phi(300°) | Phi(315°) | Phi(330°) | Phi(345°) |
| Theta(0°) | -25.09 | -25.75 | -18.06 | -15.29 | -12.66 | -13.26 | -11.25 | -10.72 | -11.19 | -13.74 | -16.75 | -22.34 | -24.93 | -21.51 | -16.61 | -13.8 | -11.64 | -11.31 | -13.05 | -13.13 | -11.9 | -14.64 | -19.02 | -20.84 |
| Theta(15°) | -3.93 | -9.01 | -12.79 | -9.58 | -8.8 | -9.5 | -13.76 | -20.6 | -25.27 | -17.34 | -18.07 | -13.58 | -10.48 | -8.28 | -8.09 | -9 | -7.04 | -6.26 | -4.98 | -3.22 | -3.08 | -4.32 | -4.68 | -5.78 |
| Theta(30°) | -5.08 | -4.5 | -5.25 | -7.06 | -6.42 | -7.62 | -7.15 | -3.64 | -2.65 | -3.72 | -4.91 | -6.28 | -4.6 | -2.12 | -2.8 | -4.79 | -2.95 | -3.03 | -4.46 | -5.49 | -5.34 | -5.15 | -4.89 | -5.47 |
| Theta(45°) | -4.45 | -6.33 | -14.17 | -8.62 | -5.38 | -5.35 | -3.84 | -4.64 | -7.59 | -9.49 | -8.86 | -5.78 | -6.33 | -7.54 | -6.97 | -5.77 | -5.07 | -3.61 | -3.36 | -8.78 | -3.86 | -3.38 | -4.96 | -5.45 |
| Theta(60°) | -3.75 | -1.69 | -2.06 | -1.55 | -2.08 | 0.47 | -0.96 | -2.8 | -4.38 | -4.52 | -4.27 | -2.3 | -0.76 | 1.12 | 0.9 | -2 | -5.39 | -5.78 | -4.88 | -8.12 | -12.3 | -5.35 | -2.42 | -0.64 |
| Theta(75°) | -2.24 | -0.49 | 0.5 | 0.49 | 0.66 | 2.95 | -0.21 | -0.15 | 1.02 | 1.13 | -1.73 | -0.61 | 0.57 | 2.93 | 1.43 | -1.83 | -2.09 | -0.39 | -1.97 | -1.8 | -0.86 | 0.43 | 1.73 | 2.34 |
| Theta(90°) | -5.36 | -6.13 | -4.41 | -3.8 | -2.17 | -0.18 | -2.89 | -2.51 | -1.69 | -1.09 | -1.3 | -4.13 | -1.15 | -0.72 | -3 | -3.63 | -5.45 | -1.38 | -2.7 | -1.6 | -3.86 | -4.28 | -2.01 | -0.84 |
| Theta(105°) | -10.46 | -11.96 | -8.45 | -7.61 | -5.16 | -3.95 | -6.8 | -6.49 | -5.01 | -4.91 | -5.84 | -8.46 | -4.32 | -6 | -7.02 | -7.34 | -10.18 | -8.75 | -10.72 | -9.74 | -14.04 | -7.88 | -7.2 | -5.2 |
| Theta(120°) | -16.1 | -13.78 | -12.22 | -12.57 | -11.58 | -8.47 | -10.89 | -13.52 | -8.71 | -10.63 | -8.01 | -12.49 | -8.87 | -9.51 | -11.17 | -10.3 | -13.55 | -10.03 | -13.86 | -7.9 | -8.59 | -14.91 | -13.37 | -8.5 |
| Theta(135°) | -15.77 | -13.59 | -14.04 | -16.85 | -11.1 | -13.24 | -16.77 | -13.33 | -14.92 | -11.63 | -16.88 | -13.96 | -13.93 | -19.07 | -16.26 | -10.24 | -18.11 | -12.97 | -13.59 | -14.6 | -9.12 | -16.74 | -11.58 | -14.35 |
| Theta(150°) | -14.57 | -16.2 | -14.71 | -25.93 | -16.28 | -19.47 | -18.38 | -18.13 | -13.1 | -12.78 | -17.51 | -13.21 | -19.47 | -14.54 | -18.47 | -16.15 | -18.61 | -13.01 | -16 | -22.2 | -18.94 | -13.86 | -25.4 | -22.4 |
| Theta(165°) | -22.98 | -25.45 | -25.38 | -21.73 | -19.34 | -19.02 | -20.65 | -22.22 | -20.26 | -15.91 | -16.89 | -20.26 | -25.78 | -24.5 | -21.75 | -24.59 | -15.93 | -20.62 | -19.18 | -17.63 | -21.93 | -20.58 | -25.32 | -24.21 |
| Theta(180°) | -22.95 | -22.36 | -22.09 | -22.99 | -25.16 | -23.01 | -21.86 | -22.36 | -20.94 | -23 | -19.16 | -17.72 | -19.46 | -26.37 | -24.79 | -19.76 | -17.67 | -16.48 | -16.28 | -15.62 | -16.44 | -16.86 | -18.75 | -22.47 |
| Freq(Hz) | 6.175G | Pol. | Theta | Ant. 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Gain | Phi(0°) | Phi(15°) | Phi(30°) | Phi(45°) | Phi(60°) | Phi(75°) | Phi(90°) | Phi(105°) | Phi(120°) | Phi(135°) | Phi(150°) | Phi(165°) | Phi(180°) | Phi(195°) | Phi(210°) | Phi(225°) | Phi(240°) | Phi(255°) | Phi(270°) | Phi(285°) | Phi(300°) | Phi(315°) | Phi(330°) | Phi(345°) |
| Theta(0°) | -9.77 | -11.39 | -11.88 | -14.61 | -18.67 | -21.39 | -25.07 | -18.34 | -15.26 | -13.34 | -9.51 | -8.23 | -7.84 | -9.46 | -10.34 | -14.48 | -16.96 | -25.39 | -24.94 | -24.49 | -18.79 | -16.35 | -14.32 | -12.17 |
| Theta(15°) | -8.96 | -12.25 | -15.45 | -21.7 | -19.75 | -16.88 | -15.66 | -17.31 | -24.01 | -19.09 | -15.2 | -12.46 | -6.56 | -6.19 | -7.14 | -10.34 | -12.47 | -16.26 | -19.86 | -20.79 | -15.45 | -14.41 | -9.79 | -10.75 |
| Theta(30°) | -7.24 | -23.4 | -18.91 | -13.92 | -16.43 | -10.52 | -8.43 | -11.36 | -16.4 | -18.07 | -20.67 | -19.63 | -7.48 | -11.44 | -14.97 | -10.92 | -14.16 | -15.89 | -11.11 | -21.3 | -15.93 | -17.74 | -12.05 | -8.64 |
| Theta(45°) | -16.79 | -13.52 | -23.09 | -13.52 | -14.64 | -22.4 | -13.95 | -15.59 | -17.27 | -16.24 | -11.19 | -16.91 | -21.54 | -19.33 | -13.13 | -18.12 | -20.74 | -13.93 | -18.63 | -25.47 | -24.76 | -11.43 | -10.61 | -9.6 |
| Theta(60°) | -17.32 | -13.16 | -18.17 | -24.76 | -19.22 | -25.95 | -22.71 | -22.97 | -22.3 | -23.12 | -17.17 | -22.68 | -18.73 | -25 | -16.26 | -16.16 | -22.15 | -24.81 | -16.39 | -22.71 | -25.39 | -18.33 | -11.58 | -17.83 |
| Theta(75°) | -20.62 | -19.53 | -21.95 | -16.8 | -19.92 | -20.55 | -26.31 | -20.57 | -25.86 | -26.14 | -25.93 | -19.61 | -17.82 | -12.71 | -17.71 | -13.06 | -17.64 | -24.51 | -22.18 | -15.81 | -25.25 | -18.52 | -26.42 | -22.87 |
| Theta(90°) | -19.07 | -24.62 | -15.06 | -17.92 | -15.01 | -15.1 | -25.71 | -25.87 | -25.11 | -22.48 | -19.18 | -25.67 | -16.06 | -16.2 | -24.96 | -19.7 | -18.99 | -16.43 | -19.52 | -23.18 | -17.71 | -25.98 | -16.64 | -13.21 |
| Theta(105°) | -24.83 | -25.02 | -18.54 | -19.69 | -15.91 | -19.81 | -24.75 | -18.41 | -23.63 | -25.61 | -25.25 | -22.74 | -21.2 | -20.38 | -18.55 | -25.84 | -25.37 | -21.07 | -18.5 | -24.36 | -25.3 | -23.73 | -18.74 | -20.23 |
| Theta(120°) | -18.58 | -21.15 | -24.88 | -17.32 | -25.17 | -17.27 | -26.26 | -16.73 | -25.9 | -24.32 | -21.64 | -21.92 | -19.5 | -22.42 | -22.4 | -25.66 | -25.27 | -24.66 | -25.05 | -20.3 | -19.41 | -24.53 | -19.06 | -14.24 |
| Theta(135°) | -24.05 | -17.14 | -25.52 | -24.63 | -24.57 | -22.3 | -25.68 | -25.68 | -22.31 | -25.74 | -24.95 | -18 | -24.67 | -20.41 | -19.87 | -25.37 | -25.58 | -24.94 | -25.82 | -17.85 | -24.86 | -19.61 | -15.99 | -18.58 |
| Theta(150°) | -12.99 | -24.69 | -23.68 | -25.6 | -20.09 | -25.36 | -25.05 | -24.37 | -23.82 | -25.26 | -22.29 | -21.4 | -25.14 | -19.65 | -20.65 | -24.91 | -25.74 | -23.41 | -26.32 | -19.59 | -18.6 | -25.36 | -23.26 | -22.01 |
| Theta(165°) | -25.96 | -17.03 | -25.05 | -25.81 | -18.28 | -13.89 | -23.28 | -24.77 | -24.74 | -18.96 | -20.88 | -25.37 | -24.48 | -25.09 | -19.94 | -25.17 | -20.02 | -19.65 | -25.62 | -16.11 | -21.64 | -16.3 | -14.82 | -16.41 |
| Theta(180°) | -17.41 | -16.58 | -18.44 | -16.93 | -16.89 | -15.08 | -17.37 | -22.45 | -21.16 | -24.53 | -23.98 | -18.25 | -16.86 | -17.11 | -17.26 | -18.03 | -19.01 | -22.8 | -26.07 | -25.81 | -21.59 | -18.23 | -17.27 | -15.82 |
| Freq(Hz) | 6.475G | Pol. | Phi | Ant. 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Gain | Phi(0°) | Phi(15°) | Phi(30°) | Phi(45°) | | | | | | | | | | | | | | | | | | | | |



Radiated Composite Gain of 5GHz UNII 2C, 3, 6GHz UNII 5~8 (5G6G Ant1~Ant4)_4TX

Appendix B.2

| Theta (180°) | -18.97 | -16.13 | -16.9 | -13.78 | -12.7 | -13.58 | -15.45 | -18.63 | -23.63 | -24.36 | -24.87 | -24.76 | -21.63 | -15.86 | -18.82 | -23.44 | -25.87 | -26.33 | -25.58 | -21.43 | -24.48 | -21.47 | -19.58 | -20.29 | |
|--------------|---------|----------|----------|----------|----------|----------|----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|---|
| Freq(Hz) | 6.995G | Pol. | Phi | Ant. 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Gain | Phi(0°) | Phi(15°) | Phi(30°) | Phi(45°) | Phi(60°) | Phi(75°) | Phi(90°) | Phi(105°) | Phi(120°) | Phi(135°) | Phi(150°) | Phi(165°) | Phi(180°) | Phi(195°) | Phi(210°) | Phi(225°) | Phi(240°) | Phi(255°) | Phi(270°) | Phi(285°) | Phi(300°) | Phi(315°) | Phi(330°) | Phi(345°) | |
| Theta(0°) | -14.12 | -19.3 | -23.59 | -20.74 | -16.35 | -12.84 | -11.45 | -11.14 | -10.49 | -9.38 | -9.14 | -10.47 | -14.6 | -21.73 | -25.67 | -26.11 | -19.05 | -15.6 | -14.66 | -12.71 | -14.9 | -15.55 | -18.18 | -17.92 | |
| Theta(15°) | -10.28 | -7.74 | -6.53 | -8.95 | -9.96 | -10.6 | -11.47 | -18.65 | -18 | -18.39 | -16.79 | -14.37 | -12.96 | -14.13 | -12.72 | -12.35 | -12.8 | -13.36 | -14.2 | -14.9 | -14.89 | -10.1 | -10.63 | -14.21 | |
| Theta(30°) | -5.32 | -8.18 | -8.38 | -9.2 | -6.45 | -5.14 | -7.74 | -15.16 | -11.66 | -19.47 | -14.14 | -9.62 | -7 | -4.63 | -4.24 | -6.45 | -8.39 | -8.53 | -7.01 | -2.38 | -4.73 | -4.69 | -2.1 | -4.03 | |
| Theta(45°) | -4.41 | -7.24 | -5.68 | -3.52 | -4.96 | -5.91 | -7.66 | -11.24 | -5.93 | -5.27 | -8 | -8.73 | -5.34 | -3.97 | -2.96 | -6.77 | -6.5 | -7.39 | -7.33 | -2.92 | -3.86 | -3.11 | -3.23 | -2.95 | |
| Theta(60°) | -5.64 | -12.28 | -20.68 | -6.7 | -5.52 | -5.88 | -12.43 | -10.35 | -7.66 | -8.23 | -7.43 | -13.09 | -7.82 | -6.72 | -3.65 | -6.12 | -13.42 | -13.07 | -10.71 | -11.54 | -6.49 | -26.17 | -12.75 | -13.32 | |
| Theta(75°) | -5.46 | -8.33 | -9.18 | -1.77 | 0.61 | -3.89 | -9.34 | -7.83 | -4.32 | -1.71 | -2.9 | -5.47 | -4.81 | -4.24 | -2.75 | -4.01 | -6.92 | -5.93 | -5.16 | -7.14 | -10.2 | -5.42 | -10.23 | -7.72 | |
| Theta(90°) | -8.08 | -12.96 | -10.65 | -3.77 | -2.29 | -4.58 | -6.46 | -13.7 | -3.51 | -2.08 | -3.05 | -6.37 | -9.79 | -7.41 | -6.68 | -6.89 | -5.19 | -3.21 | -6.94 | -9.68 | -9.4 | -11.4 | -7.27 | -9.06 | |
| Theta(105°) | -14.81 | -17.76 | -10.19 | -7.66 | -6.93 | -6.39 | -11.93 | -16.15 | -6.97 | -5.6 | -7.68 | -12.19 | -15.48 | -9.57 | -9.23 | -13.89 | -10.71 | -12.21 | -11.96 | -16.97 | -24.72 | -17.53 | -15.73 | -6.67 | |
| Theta(120°) | -11.77 | -25.53 | -10.84 | -12.77 | -12.7 | -12.05 | -15.27 | -20.39 | -9.74 | -9.36 | -10.44 | -18.66 | -14.12 | -12.63 | -17.18 | -12.53 | -18.19 | -15.87 | -22.97 | -23.57 | -13.32 | -15.96 | -15.6 | -15.01 | |
| Theta(135°) | -17.32 | -15.48 | -15.34 | -17.66 | -16.92 | -18.55 | -24.15 | -15.66 | -13.19 | -12.82 | -12.62 | -26 | -18.74 | -10.73 | -17.45 | -15.7 | -17.79 | -11.48 | -16.95 | -23.21 | -12.48 | -25.27 | -25.24 | -21.44 | |
| Theta(150°) | -24.95 | -21.93 | -24.22 | -15.37 | -19.09 | -17.88 | -25.42 | -22.82 | -25.34 | -14.95 | -12.76 | -16.84 | -16.17 | -17.66 | -14.59 | -13.74 | -21.67 | -12.87 | -17.82 | -23.26 | -24.86 | -17.71 | -23.03 | -17.1 | |
| Theta(165°) | -25.41 | -24.97 | -23.04 | -25.23 | -25.86 | -19.05 | -18.96 | -18.88 | -21.46 | -16.13 | -13.78 | -25.11 | -22.21 | -17.99 | -19.21 | -16.71 | -20.23 | -13.25 | -15.43 | -25.32 | -25.36 | -16.02 | -17.1 | -20.63 | |
| Theta(180°) | -18.07 | -15.77 | -16.22 | -16.87 | -16.01 | -16.89 | -19.22 | -20.91 | -24.01 | -22.34 | -18.23 | -24.76 | -25.29 | -25.58 | -25.9 | -19.44 | -16.78 | -16.19 | -15 | -15.53 | -14.34 | -15.45 | -16.08 | -17.37 | |
| Freq(Hz) | 6.995G | Pol. | Theta | Ant. 3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Gain | Phi(0°) | Phi(15°) | Phi(30°) | Phi(45°) | Phi(60°) | Phi(75°) | Phi(90°) | Phi(105°) | Phi(120°) | Phi(135°) | Phi(150°) | Phi(165°) | Phi(180°) | Phi(195°) | Phi(210°) | Phi(225°) | Phi(240°) | Phi(255°) | Phi(270°) | Phi(285°) | Phi(300°) | Phi(315°) | Phi(330°) | Phi(345°) | |
| Theta(0°) | -9.74 | -9.12 | -9.19 | -10.2 | -11.37 | -12.47 | -16.52 | -23.13 | -25.86 | -23.44 | -13.06 | -11.6 | -10.83 | -10.73 | -11.39 | -11.76 | -12.51 | -16.06 | -21.67 | -21.54 | -25.04 | -18.43 | -23 | -18.15 | |
| Theta(15°) | -9.83 | -9.49 | -8.35 | -10.27 | -11.61 | -12.86 | -16.51 | -24.17 | -20 | -24.96 | -17.47 | -11.93 | -13.84 | -11.06 | -13.95 | -13.22 | -9.98 | -8.46 | -9.29 | -11.34 | -11.17 | -17.03 | -15.05 | -17.75 | |
| Theta(30°) | -10.01 | -8.39 | -10.34 | -11.07 | -11 | -15.15 | -24.24 | -15.84 | -11.86 | -16.36 | -10.94 | -9.75 | -11.22 | -14.33 | -12.03 | -16.28 | -13.15 | -7.16 | -5.9 | -7.19 | -6.84 | -9.35 | -10.82 | -8.64 | |
| Theta(45°) | -6.27 | -6.16 | -6.71 | -3.89 | -6.86 | -5.88 | -5.98 | -4.76 | -10.6 | -12.43 | -6.83 | -3.33 | -2.65 | -6.86 | -7.99 | -10.96 | -9.39 | -9.76 | -11.12 | -11.28 | -9.48 | -13.68 | -8.64 | -8.25 | |
| Theta(60°) | -15.62 | -10.84 | -10.6 | -9.51 | -7.82 | -10.5 | -5.74 | -6.3 | -6.88 | -9.03 | -8.09 | -8.21 | -9.91 | -12.87 | -12.87 | -23.28 | -13.3 | -13.6 | -14.12 | -14.13 | -17.75 | -18.07 | -10.6 | -11.38 | |
| Theta(75°) | -7.34 | -11.74 | -13.41 | -8.52 | -13.13 | -15.73 | -13.76 | -11.28 | -13.98 | -16.84 | -16.86 | -11.26 | -12.53 | -22.86 | -9.19 | -14.14 | -11.5 | -24.17 | -13.09 | -12.47 | -6.57 | -26.36 | -12.93 | -14.94 | |
| Theta(90°) | -9 | -7.85 | -9.14 | -10.95 | -8.02 | -9.28 | -9.59 | -13.56 | -13.09 | -16.47 | -17.3 | -14.99 | -10.09 | -11.77 | -13.65 | -13.86 | -9.42 | -7.84 | -11.07 | -13.25 | -11 | -13.54 | -14.87 | -17.72 | |
| Theta(105°) | -14.42 | -12.48 | -12.65 | -13.38 | -8.68 | -11.88 | -18.84 | -15.48 | -11.02 | -15.43 | -18.26 | -16.52 | -15.35 | -15.87 | -12.17 | -24.47 | -22.61 | -19.15 | -13.76 | -13.89 | -19.39 | -12.72 | -18.46 | -14.43 | |
| Theta(120°) | -24.26 | -18.98 | -12.88 | -20.01 | -11.37 | -17.86 | -16.41 | -14.37 | -13.44 | -16.24 | -22.15 | -14.01 | -15.06 | -19.43 | -16.19 | -18.88 | -13.56 | -16.79 | -17.35 | -15.96 | -16.72 | -19.43 | -12.76 | -21.23 | |
| Theta(135°) | -19.11 | -21.39 | -14.8 | -25.53 | -15.82 | -26.21 | -18.6 | -26.17 | -21.27 | -19.83 | -22.13 | -15.75 | -22.4 | -18.18 | -22.84 | -21.14 | -19 | -13.27 | -17.3 | -18.86 | -15.76 | -25.52 | -25.86 | -25.61 | |
| Theta(150°) | -19.75 | -16.12 | -25.23 | -15.13 | -24.58 | -21.35 | -23.39 | -14.89 | -21.83 | -22.2 | -20.26 | -18.73 | -20.49 | -19.43 | -21.11 | -22.75 | -25.89 | -26.15 | -24.08 | -21.22 | -17.53 | -19.99 | -25.88 | -23.72 | |
| Theta(165°) | -25.45 | -17.76 | -14.44 | -21.61 | -25.48 | -21.98 | -18.65 | -17.12 | -19.7 | -17.08 | -25.64 | -24.96 | -25.75 | -21.87 | -22.8 | -23.05 | -25.07 | -16.12 | -16.4 | -26.22 | -17.7 | -25 | -20.06 | -24.75 | |
| Theta(180°) | -19.18 | -19.36 | -23.82 | -19.51 | -17.93 | -18.65 | -15.98 | -14.94 | -17.08 | -18.03 | -18.52 | -19.7 | -22.14 | -18.05 | -16.16 | -16.76 | -18.09 | -15.63 | -18.85 | -18.81 | -22.05 | -26.02 | -23.29 | -17.79 | |
| Freq(Hz) | 5.6G | Pol. | Phi | Ant. 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Gain | Phi(0°) | Phi(15°) | Phi(30°) | Phi(45°) | Phi(60°) | Phi(75°) | Phi(90°) | Phi(105°) | Phi(120°) | Phi(135°) | Phi(150°) | Phi(165°) | Phi(180°) | Phi(195°) | Phi(210°) | Phi(225°) | Phi(240°) | Phi(255°) | Phi(270°) | Phi(285°) | Phi(300°) | Phi(315°) | Phi(330°) | Phi(345°) | |
| Theta(0°) | -17.36 | -13.39 | -11.16 | -7.27 | -5.99 | -5.56 | -4.86 | -5.6 | -7.15 | -9.91 | -14.93 | -23.98 | -16.05 | -11.83 | -10.24 | -8.88 | -6.96 | -8.4 | -9.63 | -10.69 | -10.45 | -12.45 | -18.98 | -18.06 | |
| Theta(15°) | -8.86 | -9.25 | -8.02 | -5.95 | -5.94 | -6.13 | -8.75 | -9.35 | -8.25 | -7.02 | -7.27 | -8.33 | -7.66 | -7.69 | -6.2 | -4.13 | -3.34 | -3.83 | -5.75 | -7.38 | -6.26 | -6.97 | -8.21 | -10 | |
| Theta(30°) | -4.53 | -4.98 | -4.85 | -4.54 | -6.27 | -7.89 | -7.2 | -6.62 | -8.06 | -7.31 | -7.39 | -5.93 | -5.97 | -5.5 | -5.78 | -2.38 | -1.32 | -2.06 | -2 | -2.86 | -2.91 | -2.92 | -4.96 | -4.8 | |
| Theta(45°) | 0.04 | -0.73 | -1.94 | -2.94 | -2.52 | -4.05 | -3.12 | -4.16 | -6.02 | -5.73 | -2.44 | -2.25 | -2.45 | -2.88 | -2.57 | -6.59 | -5.65 | -5.47 | -7.18 | -7.01 | -6.78 | -4.95 | -3.46 | -3.62 | |
| Theta(60°) | 3.67 | 1.47 | -1.32 | -3.14 | -1.02 | 1.03 | 0.88 | 0.96 | -1.7 | -2.93 | -0.57 | -1.35 | -1.98 | -0.9 | -1.03 | -1.55 | -2.69 | -1.75 | -0.17 | 0.48 | -0.2 | -1.9 | 0.03 | 2.74 | |
| Theta(75°) | 1.79 | -1.72 | -4.19 | -7.74 | -4.67 | 0.82 | 2.39 | 2.85 | 0.1 | -0.19 | 2.18 | 2.19 | 1.24 | 1.55 | 1.53 | -0.4 | 0.65 | 1.8 | 1.25 | 1.3 | -1.13 | -2.74 | -0.48 | 2.4 | |
| Theta(90°) | -1.75 | -6.11 | -8.82 | -11.63 | -9.04 | -2.36 | -1.24 | 0.43 | -2.8 | -3.03 | -1.87 | -0.28 | -0.97 | -1.19 | -1.87 | -4.64 | -2.16 | 0.28 | 0.68 | -0.27 | -4.16 | -7.68 | -3.51 | -0.87 | |
| Theta(105°) | -6.51 | -9.65 | -14.05 | -18.65 | -13 | -5.97 | -4.27 | -3.98 | -5.51 | -7.14 | -5.65 | -7.78 | -6.27 | -5.99 | -6.25 | -12.75 | -9.79 | -8.44 | -10.09 | -10.46 | -12.74 | -10.9 | -6.82 | -6.02 | |
| Theta(120°) | -11.91 | -14.03 | -25.04 | -16.31 | -12.99 | -11.41 | -10.36 | -9.87 | -10.08 | -11.69 | -9.41 | -11.14 | -14.03 | -10.19 | -10.88 | -13.21 | -9.95 | -8.32 | -10.42 | -8.58 | -11.91 | -14.04 | -11.89 | -10.58 | |
| Theta(135°) | -14.23 | -16.52 | -24.24 | -21.95 | -17.28 | -14.46 | -14.3 | -15.36 | -15.32 | -15.25 | -15.49 | -11.24 | -16.05 | -13.33 | -13.5 | -14.61 | -21.04 | -17.24 | -18.97 | -16.98 | -18.47 | -21.18 | -15.9 | -13.4 | |
| Theta(150°) | -20.67 | -20.6 | -17.64 | -19.65 | -17.7 | -24.23 | -19.12 | -16.55 | -14.23 | -21.39 | -16.72 | -12.85 | -17.83 | -16.55 | -26.43 | -17.61 | -19.72 | -22.22 | -23.66 | -24.72 | -21.73 | -17.5 | -18.19 | -17.47 | |
| Theta(165°) | -24.7 | -16.3 | -17.66 | -24.36 | -25.54 | -26.04 | -19.12 | -20.06 | -20.96 | -19.91 | -25.97 | -16.66 | -21.95 | -26.19 | -17.61 | -19.5 | -25.83 | -24.32 | -23.33 | -22.13 | -25.69 | -21.83 | -25.97 | -25.95 | |
| Theta(180°) | -23.63 | -20.17 | -22.91 | -24.83 | -24.17 | -24.35 | -19.8 | -18.78 | -17.82 | -21.6 | -20.35 | -25.38 | -26.01 | -24 | -25.11 | -22.87 | -24.33 | -26.01 | -24.8 | -25 | -23.43 | -25.03 | -23.24 | -24.78 | |
| Freq(Hz) | 5.6G | Pol. | Theta | Ant. 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Gain | Phi(0°) | Phi(15°) | Phi(30°) | Phi(45°) | Phi(60°) | Phi(75°) | Phi(90°) | Phi(105°) | Phi(120°) | Phi(135°) | Phi(150°) | Phi(165°) | Phi(180°) | Phi(195°) | Phi(210°) | Phi(225°) | Phi(240°) | Phi(255°) | Phi(270°) | Phi(285°) | Phi(300°) | Phi(315°) | Phi(330°) | Phi(345°) | |
| Theta(0°) | -7.79 | -8.31 | -10.89 | -12.75 | -15.71 | -24.85 | -14.45 | -10.13 | -7.8 | -6.01 | -5.12 | -5.1 | -4.57 | -5.3 | -8.26 | -16.76 | -15.12 | -18.15 | -18.89 | -11.65 | -9.35 | -10.58 | -12.33 | -11.89 | |
| Theta(15°) | -5.9 | -14.15 | -18.85 | -23.55 | -25.12 | -25.96 | -18.73 | -13.85 | -14.33 | -24.81 | -14.73 | -22.8 | -17.19 | -15.54 | -12.5 | -12.05 | -19.39 | -25.21 | -18.95 | -16.08 | -13.64 | -11.47 | -8.33 | -5.59 | |
| Theta(30°) | -6.84 | -12.39 | -16.64 | -18.63 | -14.59 | -12.18 | -11.45 | -14.25 | -18.82 | -18.68 | -15.01 | -25.42 | -9.65 | -10.62 | -13.18 | -9.11 | -10.39 | -13.07 | -15.42 | -24 | -22.49 | -15.59 | -19.97 | | |



**Radiated Composite Gain of 5GHz UNII 2C, 3, 6GHz UNII 5~8
(5G6G Ant1~Ant4)_4TX**

| Theta | Phi(0°) | Phi(15°) | Phi(30°) | Phi(45°) | Phi(60°) | Phi(75°) | Phi(90°) | Phi(105°) | Phi(120°) | Phi(135°) | Phi(150°) | Phi(165°) | Phi(180°) | Phi(195°) | Phi(210°) | Phi(225°) | Phi(240°) | Phi(255°) | Phi(270°) | Phi(285°) | Phi(300°) | Phi(315°) | Phi(330°) | Phi(345°) |
|-------------|---------|----------|----------|----------|----------|----------|----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Theta(135°) | -17.25 | -14.74 | -13.7 | -12.65 | -15.04 | -18.46 | -14.02 | -14.99 | -9.4 | -15.32 | -15.36 | -11.98 | -14.65 | -18.53 | -10.59 | -16.95 | -10.98 | -10.79 | -11.4 | -11.25 | -18.46 | -11.87 | -17.41 | -18.4 |
| Theta(150°) | -19.4 | -15.07 | -18.44 | -20.62 | -17.06 | -17.28 | -19.38 | -17.97 | -14.44 | -17.12 | -15.48 | -12.38 | -18.47 | -21.09 | -19.85 | -13.81 | -18.42 | -23.73 | -15.57 | -18.83 | -16.01 | -25.68 | -15.82 | -19.97 |
| Theta(165°) | -18.68 | -18.65 | -17.54 | -19.59 | -21.16 | -18.27 | -16.91 | -17.3 | -14.12 | -24.96 | -20.32 | -17.5 | -15.54 | -20.32 | -25.42 | -18.83 | -15.15 | -20.47 | -22.34 | -21.08 | -16.97 | -20.8 | -25.91 | -25.97 |
| Theta(180°) | -25.01 | -23.99 | -21.75 | -20.04 | -20.5 | -24.68 | -20.87 | -21.3 | -23.25 | -24.42 | -21.87 | -24.32 | -22.06 | -23.32 | -26.17 | -25.11 | -21.01 | -20.33 | -17.73 | -19.22 | -21.95 | -24.25 | -26.11 | -25.42 |
| Freq(Hz) | 6.175G | Pol. | Theta | Ant. 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Gain | Phi(0°) | Phi(15°) | Phi(30°) | Phi(45°) | Phi(60°) | Phi(75°) | Phi(90°) | Phi(105°) | Phi(120°) | Phi(135°) | Phi(150°) | Phi(165°) | Phi(180°) | Phi(195°) | Phi(210°) | Phi(225°) | Phi(240°) | Phi(255°) | Phi(270°) | Phi(285°) | Phi(300°) | Phi(315°) | Phi(330°) | Phi(345°) |
| Theta(0°) | -16.82 | -24.68 | -24.66 | -18.75 | -15.21 | -13.47 | -8.93 | -7.63 | -7.26 | -7.13 | -6.58 | -8.15 | -10.24 | -12.72 | -21.46 | -23.67 | -16.88 | -16.55 | -13.29 | -11.26 | -10.78 | -12.6 | -14.74 | -16.34 |
| Theta(15°) | -8.45 | -9.49 | -9.7 | -8.69 | -10.45 | -15.67 | -17.5 | -15.43 | -11.42 | -10.56 | -20.92 | -11.76 | -8.54 | -6.33 | -10.31 | -12.14 | -16.57 | -21.5 | -16.11 | -14.7 | -15.84 | -17.78 | -13.79 | -10.07 |
| Theta(30°) | -10.04 | -8.35 | -16.14 | -25.54 | -15.36 | -10.17 | -10.42 | -24.1 | -25.78 | -21.06 | -17.67 | -21.88 | -5.1 | -7.01 | -20.84 | -8.61 | -9.44 | -10.21 | -18.77 | -23.39 | -25.75 | -18.35 | -14.41 | -8.96 |
| Theta(45°) | -23.35 | -10.36 | -16.61 | -14.67 | -15.79 | -20.01 | -12.12 | -17.65 | -14.18 | -11.15 | -9.31 | -10.85 | -17.55 | -18.92 | -24.1 | -18.63 | -9.41 | -13.11 | -15.73 | -19.73 | -16.73 | -17.17 | -14.45 | -25.07 |
| Theta(60°) | -22.11 | -25.69 | -13.67 | -19.85 | -19.28 | -18.7 | -11.98 | -16.37 | -24.81 | -23.7 | -19.76 | -11.44 | -10.66 | -25.66 | -25.33 | -19.2 | -15.51 | -16.46 | -18.91 | -15.88 | -15.49 | -21.38 | -16.88 | -22.21 |
| Theta(75°) | -25.28 | -26.11 | -14.24 | -15.69 | -19.37 | -19.47 | -15.87 | -15.43 | -14.78 | -14.86 | -20.26 | -19.24 | -12.45 | -12.45 | -13.78 | -18.9 | -19.77 | -19.94 | -20.65 | -14.17 | -20.85 | -23.96 | -17.84 | -21.43 |
| Theta(90°) | -24.37 | -25.75 | -17.59 | -16.05 | -14.76 | -19.17 | -20.99 | -17.31 | -16.6 | -16.22 | -16.26 | -17.3 | -23.65 | -20.71 | -17.67 | -24.13 | -26.1 | -23.61 | -21.04 | -16.56 | -24.35 | -24.99 | -18.63 | -16.55 |
| Theta(105°) | -25.46 | -25.72 | -22.19 | -17.44 | -19.58 | -20.7 | -24.81 | -24.93 | -25.55 | -20.81 | -21.42 | -22.81 | -21.87 | -20.41 | -25.65 | -24.29 | -24.47 | -22.95 | -25.15 | -25.89 | -19.07 | -25.81 | -17.12 | -21.45 |
| Theta(120°) | -20.61 | -25.51 | -24.21 | -18.16 | -18.9 | -25.5 | -25.1 | -24.25 | -25.01 | -24.56 | -18.95 | -24.07 | -25.27 | -22.09 | -17.95 | -18.35 | -26.07 | -25.65 | -25.29 | -20.78 | -24.44 | -24.99 | -17.07 | -22.43 |
| Theta(135°) | -21.34 | -22.75 | -26 | -19.13 | -24.84 | -25.75 | -26.06 | -25.41 | -23.32 | -24.75 | -21.21 | -25.33 | -26 | -24.65 | -26.27 | -17.13 | -25.52 | -19.74 | -22.82 | -25.59 | -24.02 | -22.98 | -18.02 | -25.4 |
| Theta(150°) | -17.68 | -22.37 | -24.72 | -21.82 | -25.91 | -24.8 | -25.02 | -26.4 | -25.69 | -26.2 | -24.75 | -24.78 | -25.19 | -20.67 | -20.15 | -26.37 | -25.25 | -26.02 | -19.87 | -26.26 | -23.74 | -22.4 | -22.64 | -24.62 |
| Theta(165°) | -17.57 | -24.22 | -21.35 | -26.2 | -24.96 | -24.67 | -25.97 | -26.16 | -18.02 | -19.09 | -23 | -24.5 | -24.61 | -18.73 | -13.33 | -16.02 | -15.85 | -23 | -25.6 | -17.43 | -17.05 | -16.53 | -16.88 | -24.46 |
| Theta(180°) | -20.54 | -20.19 | -19.09 | -22.47 | -25.45 | -23.37 | -24.09 | -24.65 | -25.98 | -24.58 | -25.82 | -21.11 | -22.69 | -24.97 | -20.12 | -16.97 | -21.11 | -25.99 | -25.47 | -24.03 | -24.83 | -20.44 | -20.6 | -22.5 |
| Freq(Hz) | 6.475G | Pol. | Phi | Ant. 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Gain | Phi(0°) | Phi(15°) | Phi(30°) | Phi(45°) | Phi(60°) | Phi(75°) | Phi(90°) | Phi(105°) | Phi(120°) | Phi(135°) | Phi(150°) | Phi(165°) | Phi(180°) | Phi(195°) | Phi(210°) | Phi(225°) | Phi(240°) | Phi(255°) | Phi(270°) | Phi(285°) | Phi(300°) | Phi(315°) | Phi(330°) | Phi(345°) |
| Theta(0°) | -5.7 | -7.27 | -8.49 | -10.46 | -13.57 | -21.29 | -25.45 | -20.27 | -13.46 | -10.06 | -8.17 | -6.92 | -6.51 | -6.96 | -9.04 | -12.58 | -15.4 | -21.49 | -25 | -19.09 | -15.73 | -12.88 | -11.2 | -10.04 |
| Theta(15°) | -11 | -13.85 | -12.97 | -12.42 | -12.07 | -14.13 | -17.08 | -23.2 | -14.87 | -13.1 | -13.99 | -13.84 | -8.93 | -4.87 | -4.21 | -5.24 | -5.08 | -4.07 | -2.44 | -2.94 | -4.98 | -7.09 | -8.9 | -11.2 |
| Theta(30°) | -4.12 | -5.07 | -5.45 | -4.63 | -5.71 | -5.5 | -7.27 | -6.73 | -4.15 | -2.14 | -5.92 | -6.57 | -3.87 | -0.82 | -0.88 | -2.81 | -4.24 | -3.29 | -2.78 | -3.06 | -4.71 | -6.3 | -3.66 | -5.1 |
| Theta(45°) | -4.47 | -5.51 | -9.73 | -10.54 | -5.91 | -4.97 | -6.99 | -6.19 | -4.62 | -1.87 | -5.4 | -4.6 | -5.57 | -5.69 | -1.67 | -0.35 | -3.08 | -6.15 | -4.55 | -8.02 | -2.55 | -6.69 | -4.2 | -3.66 |
| Theta(60°) | -4.98 | 0.04 | 1.32 | 1.37 | -3.46 | -4.8 | -2.49 | -11.61 | -7.38 | -7.36 | -10.7 | -13.1 | -10.43 | -11.67 | -11.94 | -11.09 | -8.61 | -7.94 | -9.88 | -7.27 | -5.33 | -2.1 | 0.05 | -0.45 |
| Theta(75°) | -5.53 | -0.19 | 3.16 | 3.96 | 0.01 | -4 | -2.63 | -1.94 | -2.09 | 0.52 | -0.57 | -0.67 | -2.08 | -1.99 | -0.2 | -2.87 | -1.81 | -4.45 | -3.43 | -0.9 | -6.41 | -1.14 | 0.6 | -0.09 |
| Theta(90°) | -8.69 | -5.8 | -0.64 | 1.04 | -1.43 | -3.86 | -2.67 | -2.7 | -2.32 | -1.68 | -0.16 | -2.02 | -4.57 | -4.15 | -3.24 | -7 | -2.47 | -2.16 | -3.39 | -2.07 | -10.33 | -5.19 | -3.02 | -1.64 |
| Theta(105°) | -9.6 | -7.8 | -4.16 | -5.99 | -5.99 | -8.57 | -6.76 | -5.48 | -8.04 | -3.71 | -4.31 | -7.72 | -7.13 | -7.59 | -7.57 | -10.01 | -12.38 | -13.16 | -11.84 | -9.55 | -15.96 | -7.27 | -7.33 | -8.05 |
| Theta(120°) | -16.62 | -13.01 | -8.72 | -7.89 | -8.8 | -12.99 | -8.36 | -9.26 | -8.92 | -8.98 | -9.65 | -13.91 | -10.21 | -14.06 | -10.52 | -17.13 | -10.48 | -13.25 | -13.47 | -13.03 | -19.94 | -13.39 | -9.21 | -12.18 |
| Theta(135°) | -17.86 | -19.45 | -11.05 | -11.94 | -16.99 | -15.05 | -13.11 | -13.58 | -11.34 | -12.43 | -14.61 | -13.54 | -13.87 | -14.11 | -9.51 | -16.57 | -8.86 | -14.64 | -12.24 | -10.69 | -20.94 | -16.19 | -14.45 | -19.47 |
| Theta(150°) | -21.29 | -16.68 | -17.6 | -13.95 | -15.56 | -22.62 | -19.02 | -17.85 | -16.71 | -16.16 | -13.96 | -12.81 | -19.92 | -25.39 | -18.98 | -12.53 | -15.78 | -25.72 | -11.53 | -20.16 | -23.56 | -21.78 | -21.19 | -24.2 |
| Theta(165°) | -21.16 | -17.16 | -18.84 | -15.4 | -18.38 | -21.43 | -24.86 | -23.56 | -22.93 | -18.8 | -18.58 | -13.5 | -19.04 | -17.42 | -24.99 | -19.45 | -16.5 | -21.44 | -24.61 | -26.1 | -25.35 | -25.71 | -24.64 | -24.39 |
| Theta(180°) | -23.52 | -21.84 | -21.06 | -20.39 | -22.7 | -24.48 | -24.48 | -23.48 | -21.65 | -22.57 | -25.68 | -23.51 | -20.77 | -20.56 | -23.47 | -25.33 | -22.46 | -20.48 | -22.7 | -18.72 | -19.85 | -24.02 | -22.48 | -25.81 |
| Freq(Hz) | 6.475G | Pol. | Theta | Ant. 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Gain | Phi(0°) | Phi(15°) | Phi(30°) | Phi(45°) | Phi(60°) | Phi(75°) | Phi(90°) | Phi(105°) | Phi(120°) | Phi(135°) | Phi(150°) | Phi(165°) | Phi(180°) | Phi(195°) | Phi(210°) | Phi(225°) | Phi(240°) | Phi(255°) | Phi(270°) | Phi(285°) | Phi(300°) | Phi(315°) | Phi(330°) | Phi(345°) |
| Theta(0°) | -25.95 | -16.83 | -11.41 | -9.94 | -9.77 | -8.3 | -6.95 | -7.73 | -7.66 | -9.25 | -11.34 | -14.96 | -24.92 | -20.7 | -15.41 | -13.47 | -10.46 | -9.69 | -9.42 | -9.65 | -10.62 | -13.3 | -17.66 | -24.87 |
| Theta(15°) | -11.45 | -8.46 | -8.17 | -9.74 | -9.9 | -10.98 | -11.33 | -11.45 | -9.96 | -11.44 | -21.58 | -8.17 | -5.53 | -4.39 | -8.02 | -10.14 | -14.61 | -15.63 | -12.38 | -11.16 | -13.23 | -20.2 | -18.11 | -12.62 |
| Theta(30°) | -22.1 | -10.93 | -14.63 | -14.86 | -18.69 | -14.23 | -15.98 | -20.97 | -16.51 | -18.34 | -14.9 | -14.98 | -5.53 | -7.85 | -16.39 | -10.73 | -10.38 | -13.19 | -17.9 | -24.38 | -18.88 | -11.33 | -17.46 | -12.98 |
| Theta(45°) | -11.18 | -24.44 | -14.68 | -13.5 | -14.31 | -14.63 | -18 | -14.43 | -21.45 | -9.92 | -9.26 | -9.55 | -16.29 | -22.07 | -19.81 | -19.16 | -18.01 | -17.82 | -21.32 | -18.86 | -12.66 | -16.53 | -12.18 | -12.32 |
| Theta(60°) | -19.55 | -19.62 | -18.01 | -20.19 | -19.13 | -14.52 | -15.67 | -18.97 | -25.2 | -18.21 | -13.65 | -8.24 | -14.31 | -25.25 | -26.23 | -12.32 | -18.66 | -14.23 | -24.66 | -20.81 | -14.79 | -15.88 | -11.53 | -15.39 |
| Theta(75°) | -20.23 | -19.32 | -13.07 | -13.69 | -19.64 | -15.85 | -25.12 | -19.64 | -21.71 | -21.04 | -19.56 | -15.03 | -18.85 | -26.24 | -13.81 | -17.54 | -24.43 | -13.43 | -18.6 | -17.91 | -17.92 | -26.29 | -22.73 | -15.66 |
| Theta(90°) | -25.65 | -20.78 | -16.76 | -13.66 | -15.64 | -18.93 | -24.49 | -13.22 | -25.25 | -24.16 | -23.95 | -19.42 | -23.37 | -18.57 | -16.44 | -19.2 | -25.87 | -14.45 | -16.44 | -17.95 | -17.54 | -20.89 | -23.71 | -13.7 |
| Theta(105°) | -24.68 | -25.21 | -16.46 | -18.11 | -18.16 | -17.37 | -20.36 | -18.99 | -24.53 | -25.36 | -20.02 | -20.55 | -19.53 | -19.37 | -18.99 | -23.25 | -23.77 | -25.01 | -21.94 | -20.79 | -22.44 | -21.46 | -19.91 | -17.31 |
| Theta(120°) | -26.06 | -18.87 | -20.01 | -25.85 | -17.88 | -26.25 | -23.18 | -17.92 | -25.18 | -25.85 | -22 | -23.24 | -25.18 | -24.88 | -25.22 | -14.75 | -24.74 | -24.59 | -23.17 | -25.24 | -18.77 | -24.95 | -18.89 | -16.66 |
| Theta(135°) | -25 | -19.25 | -18.55 | -22.56 | -21.29 | -21.23 | -25.2 | -20.2 | -25.94 | -19.74 | -20.59 | -25.43 | -25.35 | -22.1 | -24.36 | -19.97 | -24 | -19.15 | -26.17 | -26.29 | -25.3 | -16.54 | -13.85 | -25.35 |
| Theta(150°) | -25.32 | -21.43 | -22.68 | -19.67 | -26.36 | -26.28 | -23.42 | -22.22 | -25.69 | -19 | -25.08 | -25.07 | -23.29 | -23.29 | -24.54 | -25.56 | -26.17 | -18.65 | -25.09 | -19.3 | -25.17 | -17.51 | -19.92 | -25.99 |
| Theta(165°) | -18.06 | -25.13 | -25.17 | -21.32 | -26.24 | -25.4 | -24.86 | -23.3 | -22.23 | -20.66 | -26.02 | -23.59 | -22.19 | -21.05 | -15.01 | -18.41 | -20.22 | -25.62 | -24.65 | -18.14 | -20.38 | -20.29 | -23.89 | -23.75 |
| Theta(180°) | -24.02 | -24.02 | -26.27 | -21.9 | -20.49 | -21.13 | -23.43 | -22.42 | -22.26 | -22.49 | -24.92 | -24.78 | -25.79 | -26.32 | -16.69 | -17.36 | -23.63 | -22.97 | -25.86 | -22.36 | -23.58 | -20.81 | | |



**Radiated Composite Gain of 5GHz UNII 2C, 3, 6GHz UNII 5~8
(5G6G Ant1~Ant4)_4TX**

Appendix B.2

| | | | | | | | | | | | | | | | | | | | | | | | | |
|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| θ(90°) | -7.64 | -12.36 | -7.45 | -10.11 | -7.04 | -9.5 | -8.95 | -8.34 | -7.43 | -10.16 | -10.79 | -12.63 | -7.46 | -8 | -10.36 | -14.21 | -5.78 | -10.52 | -12.74 | -8.31 | -11.01 | -9.42 | -11.09 | -10.37 |
| θ(105°) | -13.61 | -14.03 | -11.87 | -10.25 | -11.25 | -12.05 | -10 | -9.8 | -9.22 | -12.18 | -13.15 | -16.16 | -13.64 | -14.38 | -10.16 | -16.07 | -15.84 | -18.23 | -18.02 | -15.96 | -11.13 | -9.63 | -15.97 | -11.4 |
| θ(120°) | -17.59 | -25.12 | -12.85 | -10.29 | -13.67 | -14.39 | -16.91 | -9.62 | -13.59 | -13.15 | -17.29 | -17.43 | -12.44 | -11.7 | -23.72 | -20.18 | -20.1 | -20.56 | -22.52 | -14.19 | -13.67 | -14.56 | -16.45 | -15.51 |
| θ(135°) | -15.24 | -19.68 | -14.66 | -13.97 | -17.64 | -19.05 | -15.13 | -14.09 | -18.91 | -13.82 | -23.82 | -18.17 | -26.24 | -16.2 | -20.49 | -19.32 | -11.96 | -20.84 | -24.8 | -13.86 | -19.46 | -16.3 | -19.48 | -20.46 |
| θ(150°) | -21.83 | -15.96 | -17.38 | -23.36 | -20.63 | -26.37 | -21.57 | -18.32 | -19.72 | -25.27 | -18.95 | -19.7 | -17.91 | -18.12 | -24.81 | -20.53 | -24.13 | -20.84 | -26.27 | -16.8 | -26.15 | -21.35 | -12.52 | -14.14 |
| θ(165°) | -16.52 | -12.97 | -13.22 | -18.37 | -23.46 | -17.87 | -18.11 | -17.07 | -23.37 | -25.44 | -24.73 | -25.4 | -25.2 | -25.42 | -19.6 | -24.56 | -23.14 | -25.59 | -21.34 | -21.16 | -25.21 | -20.2 | -18.82 | -21.9 |
| θ(180°) | -20.4 | -17.94 | -17.83 | -22.87 | -24.8 | -21.58 | -24.91 | -20.25 | -19.12 | -21.66 | -22.8 | -20.2 | -21.11 | -25.47 | -18.6 | -15.7 | -19.45 | -19.43 | -19.86 | -23.21 | -23.71 | -25.83 | -24.39 | -22.33 |



Antenna Pattern of 2.4GHz, 5GHz UNII 1~3 (2G5G Ant1~Ant4)

Appendix C

Total Gain Data

Table with columns for Freq(Hz), Pol., Total, and Ant. 1-4, and rows for Gain and various angles (Theta) from 0 to 180 degrees for frequencies 2.45G, 5.2G, 5.3G, 5.6G, and 5.785G.

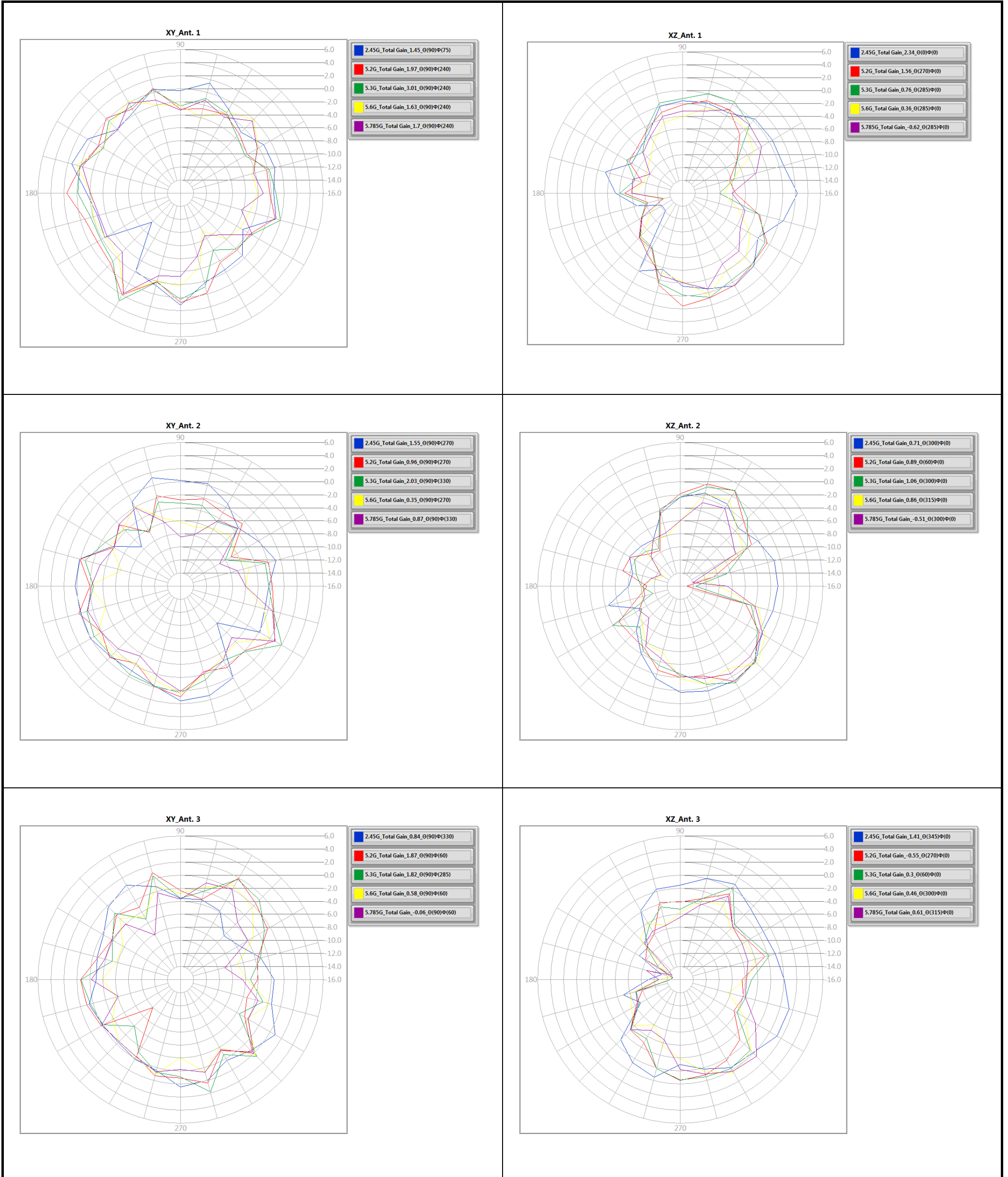


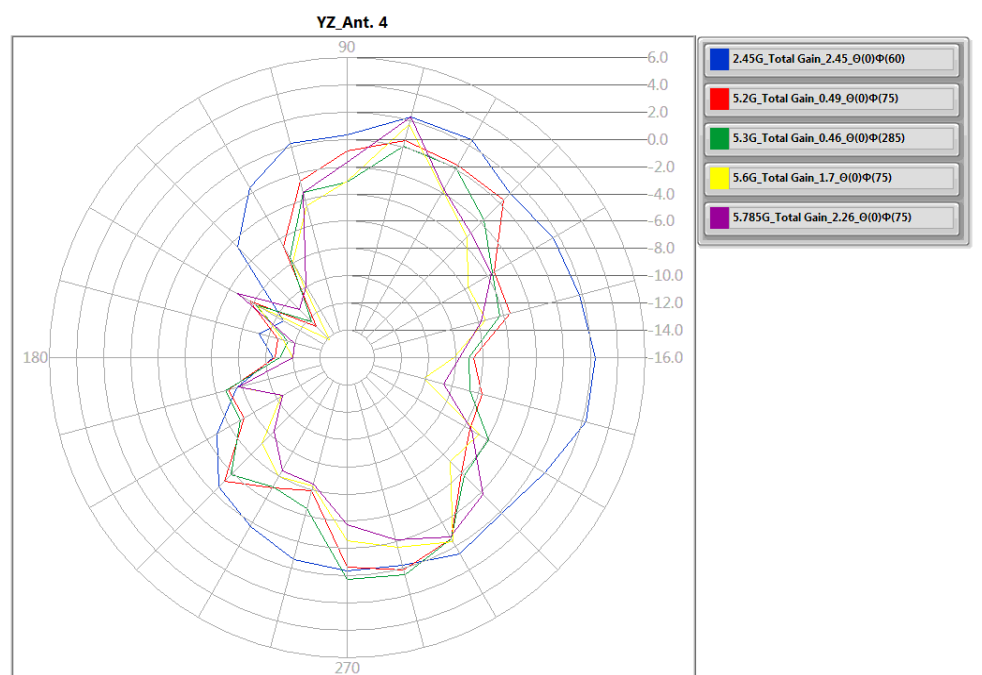
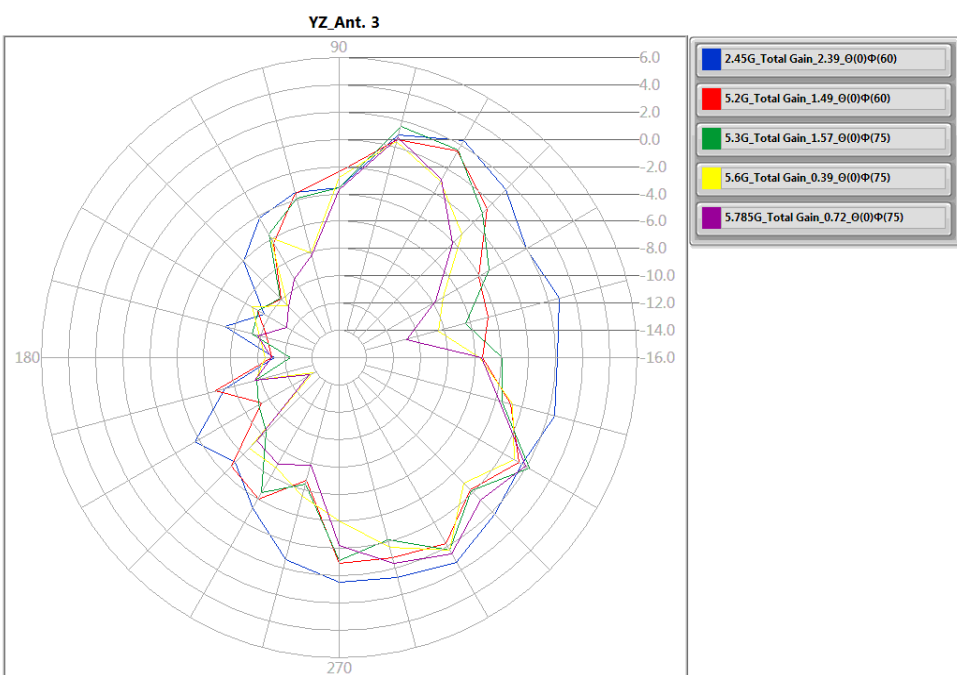
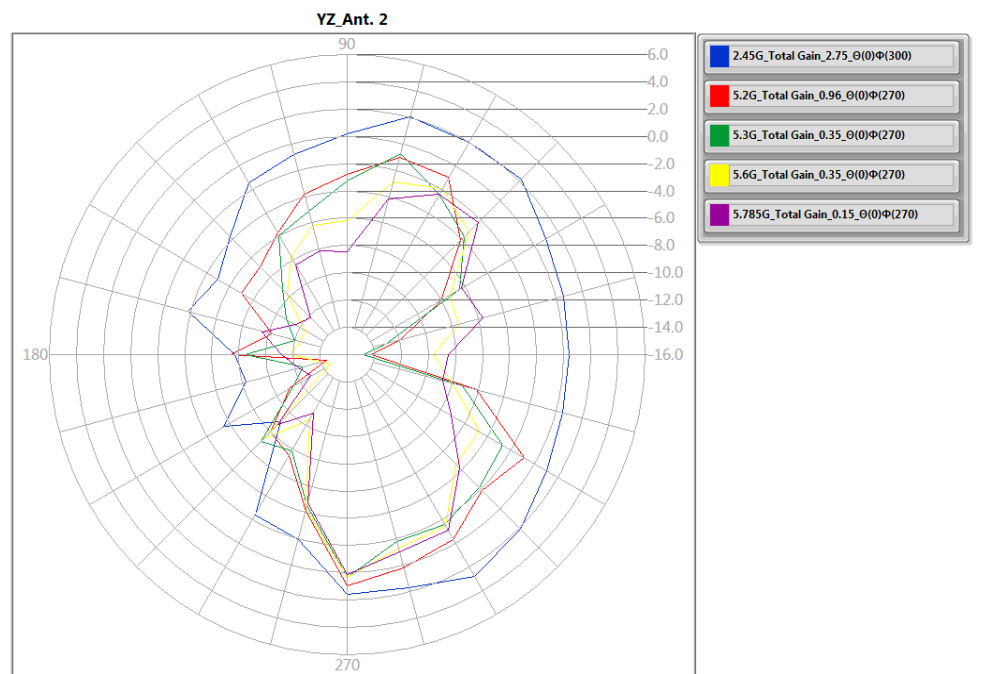
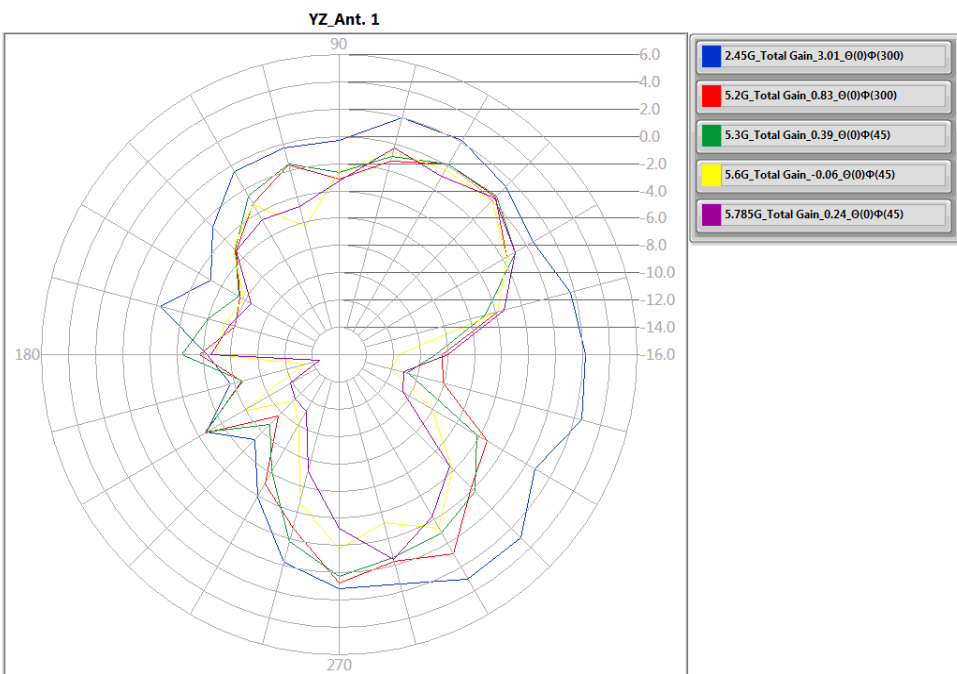
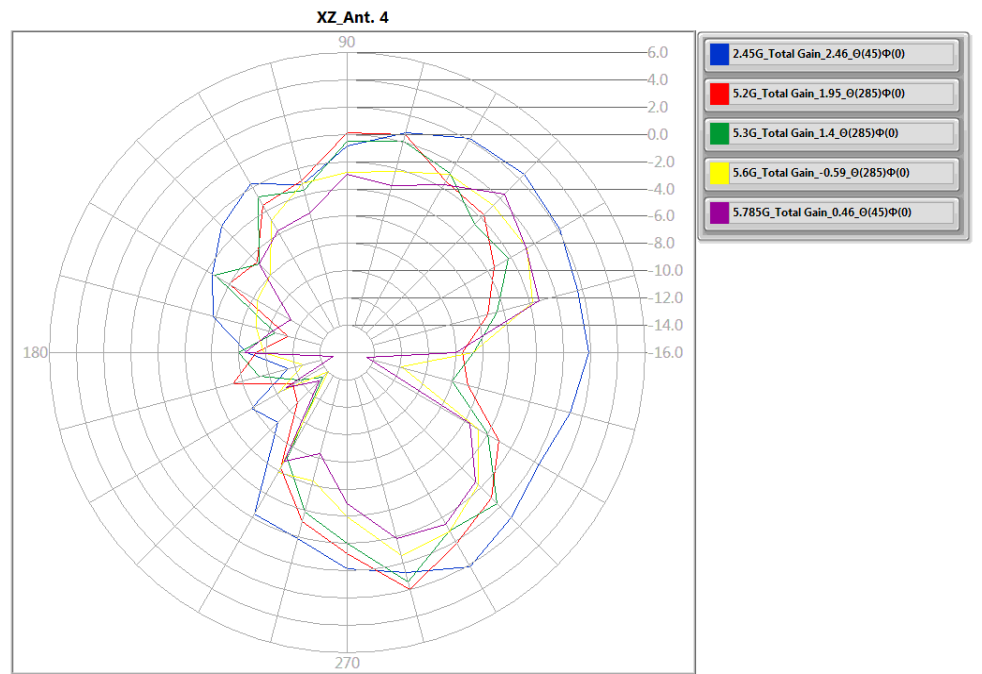
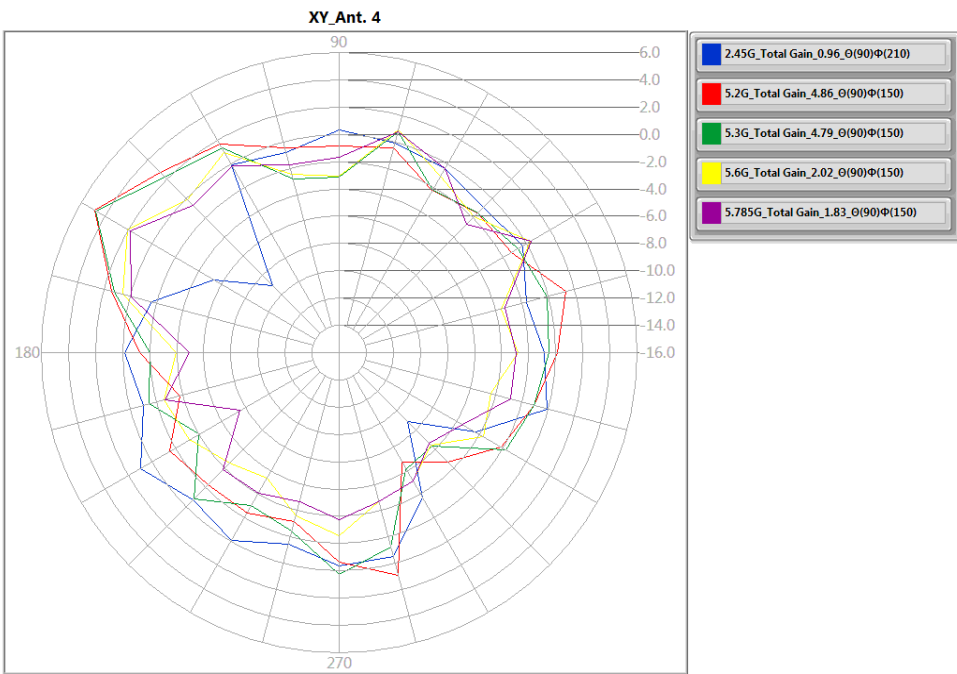
Antenna Pattern of 2.4GHz, 5GHz UNII 1~3 (2G5G Ant1~Ant4)

Appendix C

Table with columns for frequency (5.3G, 5.6G, 5.785G, 2.45G, 5.2G, 5.3G, 5.6G), polarization (Pol.), total gain, and azimuthal angles (0 to 180 degrees) for various antenna configurations (Ant 2, Ant 3).

E1(XY plane) – $\Theta(90)\Phi(0-360)$
 E2(XZ plane) – $\Theta(0-180)\Phi(0)$ and $\Theta(0-180)\Phi(180)$
 E3(YZ plane) – $\Theta(0-180)\Phi(90)$ and $\Theta(0-180)\Phi(270)$







Antenna Pattern of 5GHz UNII 2C, 3, 6GHz UNII 5~8 (5G6G Ant1~Ant4)

Appendix D

Total Gain Data

Table with columns for Freq(Hz), Pol., Total, and various Azimuth angles (Phi) from 0 to 345 degrees. It contains gain data for frequencies 5.6G, 5.785G, 6.175G, 6.475G, 6.695G, and 6.995G.



Antenna Pattern of 5GHz UNII 2C, 3, 6GHz UNII 5~8 (5G6G Ant1~Ant4)

Appendix D

Table with columns for frequency (5.785G, 6.175G, 6.475G, 6.695G, 6.995G, 5.6G), gain, and various azimuth angles (0 to 180 degrees) for Ant 2, Ant 3, and Ant 4. The table contains numerical values representing antenna gain in different directions.



Antenna Pattern of 5GHz UNII 2C, 3, 6GHz UNII 5~8 (5G6G Ant1~Ant4)

Appendix D

Table with columns for frequency (6.175G, 6.475G, 6.695G, 6.995G, 5.6G, 5.785G), polarization (Pol.), total gain, and azimuth angles (0 to 180 degrees) for various elevation angles (0 to 90 degrees).



Antenna Pattern of 5GHz UNII 2C, 3, 6GHz UNII 5~8 (5G6G Ant1~Ant4)

Appendix D

Table with columns for Azimuth (Theta) and Elevation (Phi) angles, and rows for various frequencies (6.475G, 6.895G, 6.995G) and antenna types (Ant. 1-4). The table contains numerical values representing antenna gain or loss in dB.

E1(XY plane) – $\Theta(90)\Phi(0-360)$
 E2(XZ plane) – $\Theta(0-180)\Phi(0)$ and $\Theta(0-180)\Phi(180)$
 E3(YZ plane) – $\Theta(0-180)\Phi(90)$ and $\Theta(0-180)\Phi(270)$

