



WNC

AP5050U DVT Testing Report

2022.08.11

Contents AP5050U

■ **4 x Wi-Fi 2G [2G1+2G2+SC1+SC2] + 4 x Wi-Fi 5G [5G1+5G2+5G3+5G4] + 4 x Wi-Fi 6G [6G1+6G2+6G3+6G4] + 2 x Scanning Radio [SC1+SC2] + 1 x BLE + 1 x GPS**

- *Summary*
- *Antenna Placement*
- *Wi-Fi 2G, Wi-Fi 5G, Wi-Fi 6G, Scanning Radio, BLE and GPS Antenna*
- *Isolation among Radios*

Summary

The summary antenna performance results shown in below.

- VSWR
 - Under 2 for all antennas
- Radiation efficiency
 - ~66% for Wi-Fi 2G [2G1, 2G2, SC1, SC2]
 - ~65% for Wi-Fi 5G [5G1, 5G2, 5G3, 5G4]
 - ~63% for Wi-Fi 6G [6G1, 6G2, 6G3, 6G4]
 - ~69% for 2.4GHz Scanning Radio; ~62% for 5_6GHz Scanning Radio [SC1, SC2]
 - ~68% for BLE /802.15.4 Antenna
 - ~74% for GPS Antenna
- Peak gain
 - 5.0dBi for Wi-Fi 2G [2G1, 2G2, SC1, SC2]
 - 5.8dBi for Wi-Fi 5G [5G1, 5G2, 5G3, 5G4]
 - 5.6dBi for Wi-Fi 6G [6G1, 6G2, 6G3, 6G4]
 - 5.0dBi for 2.4GHz Scanning Radio; 4.4dBi for 5_6GHz Scanning Radio [SC1, SC2]
 - 4.9dBi for BLE / 802.15.4 Antenna
 - 3.3dBi for GPS Antenna
 -

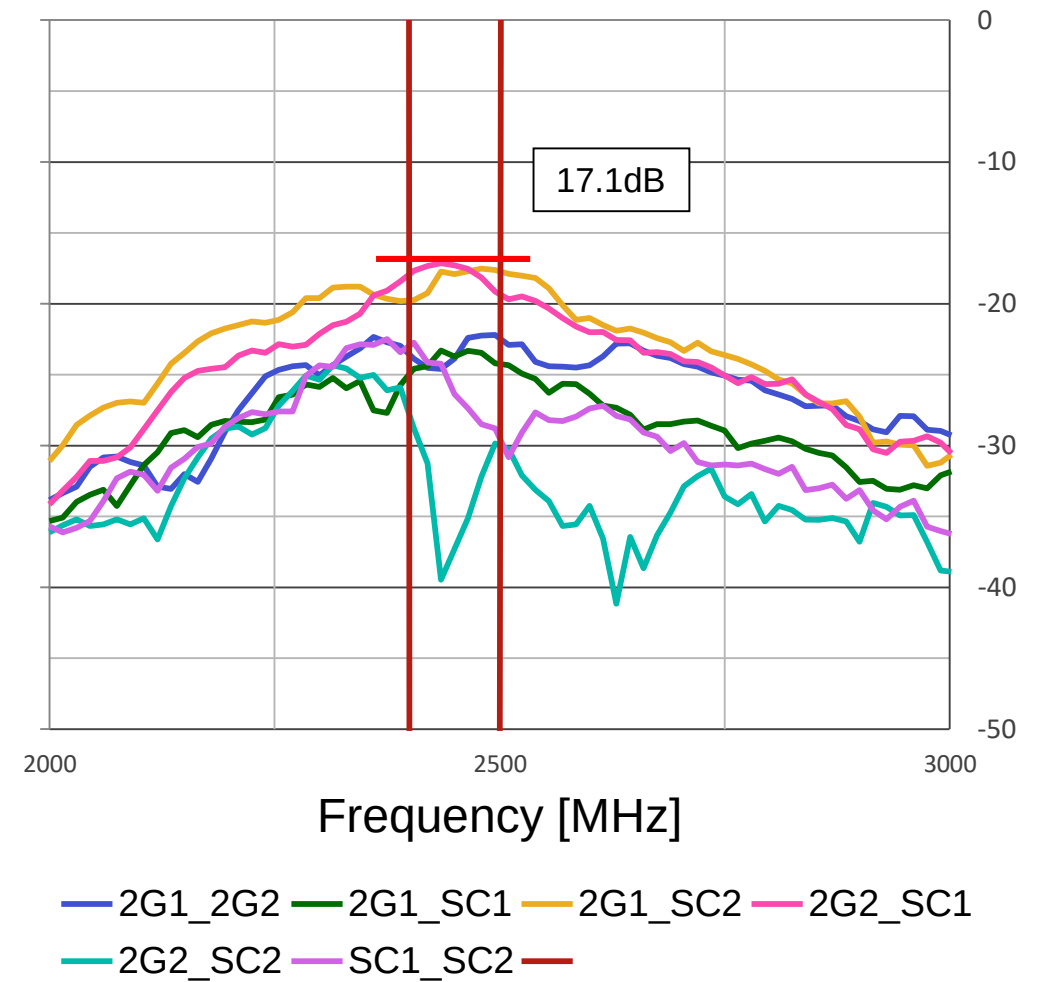
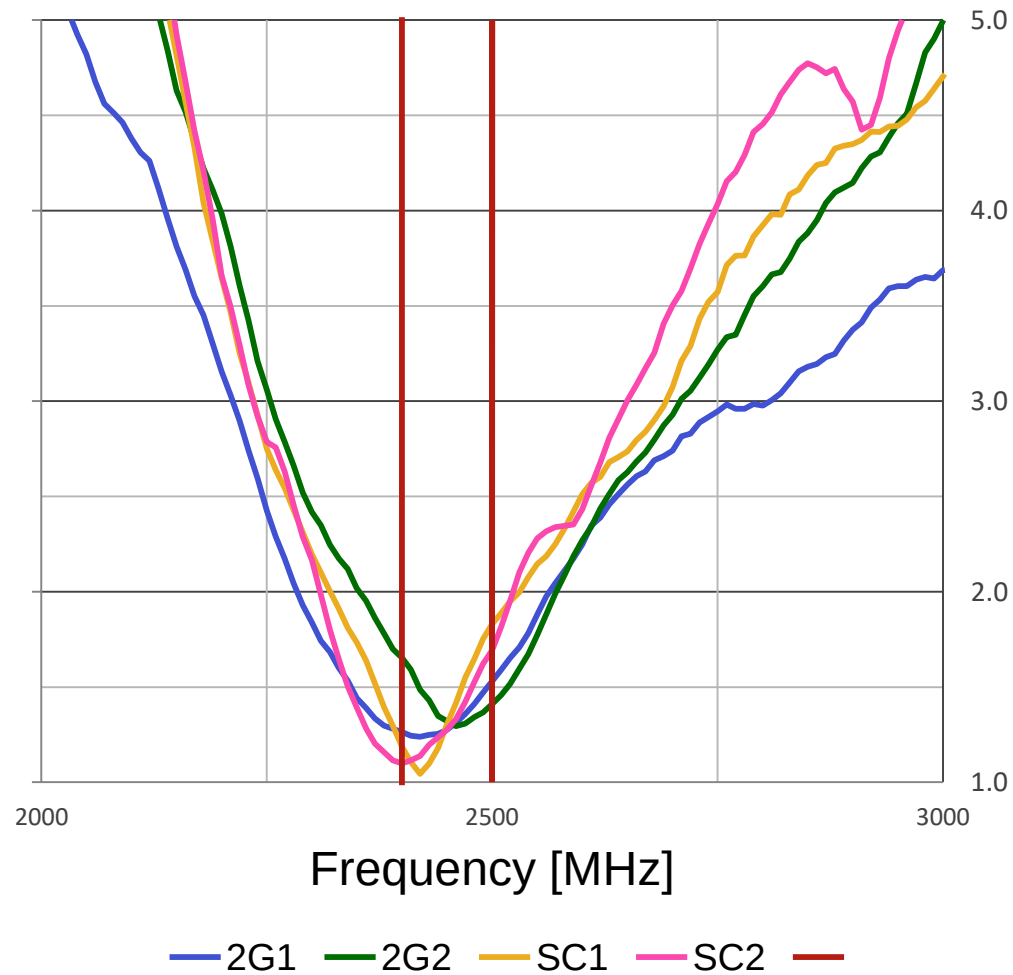
Wi-Fi 2G

Ant.	Brand	WNC Part Number	Type
2G1	WNC	95XEAJ15.G45	Metal PIFA
2G2	WNC	95XEAJ15.G46	Metal PIFA
SC1	WNC	95XEAJ15.G53	Metal PIFA
SC2	WNC	95XEAJ15.G54	Metal PIFA

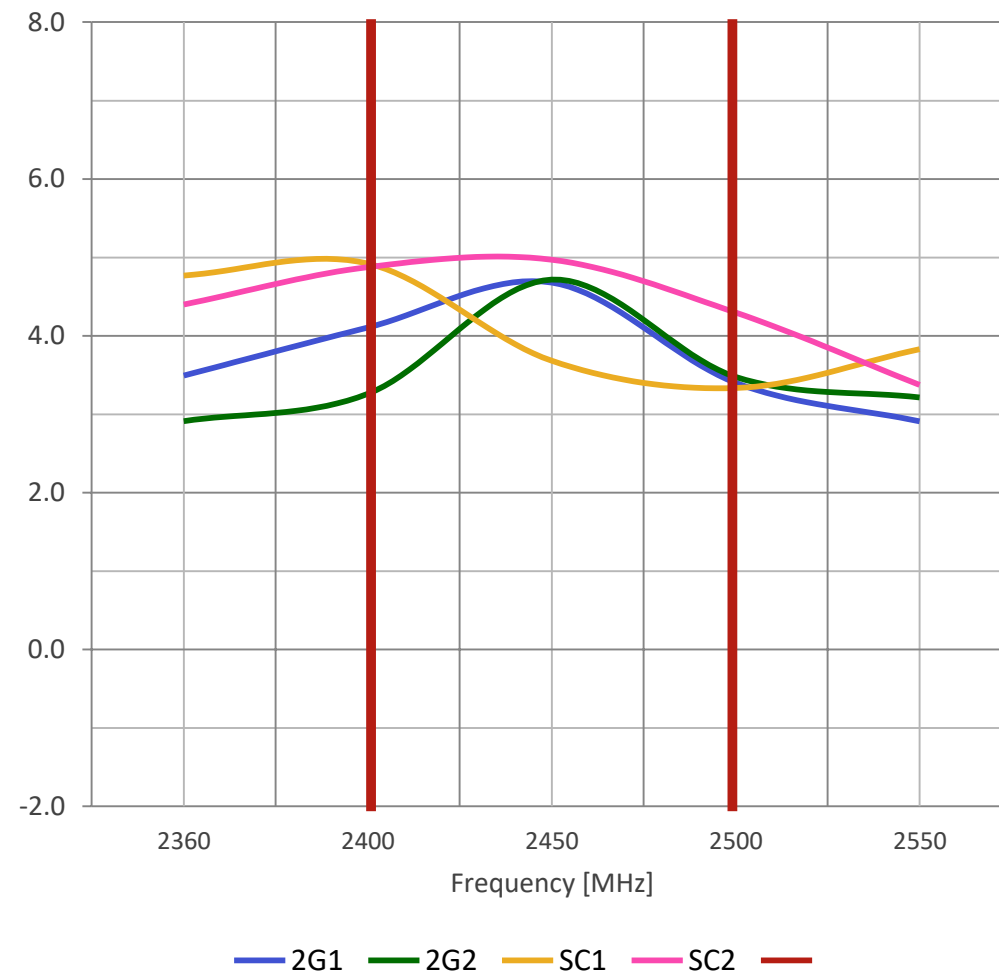
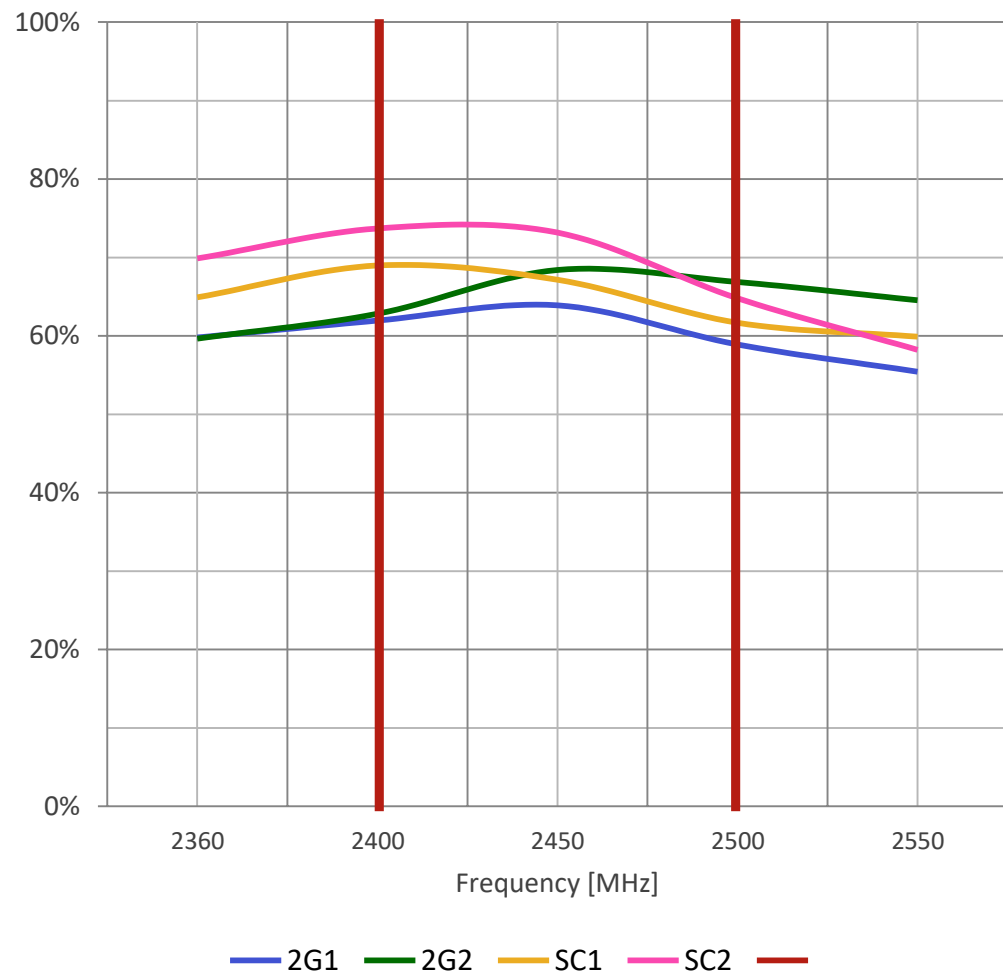
- **Maximum VSWR**
 - 1.8:1 on 2.4GHz
- **Minimum Isolation**
 - 17.1dB on 2.4GHz
- **Average Efficiency**
 - ~66% on 2.4GHz
- **Peak Gain**
 - 5.0dBi on 2.4GHz



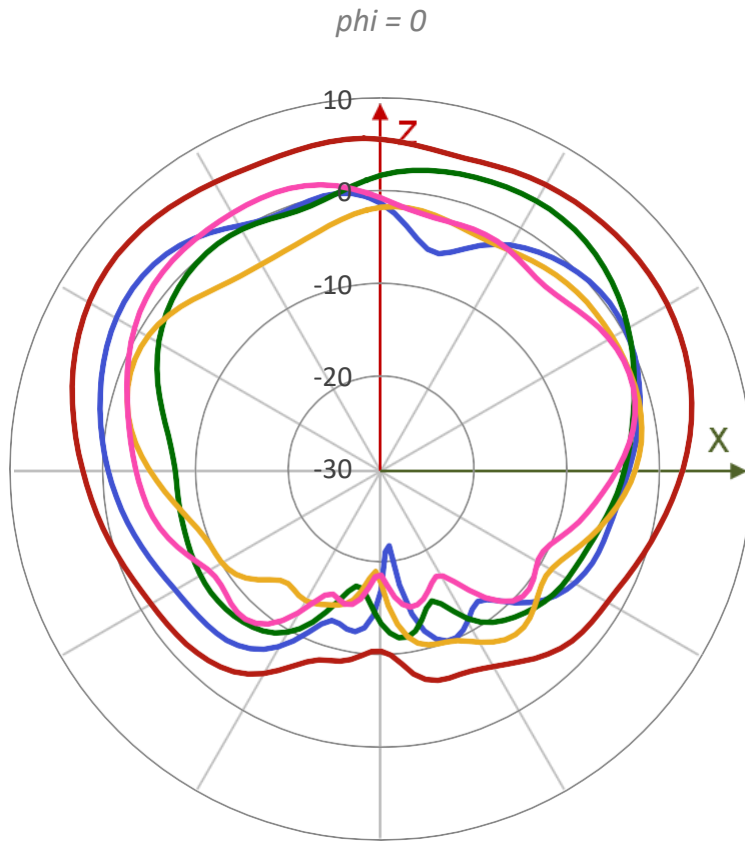
VSWR / Isolation Wi-Fi 2G



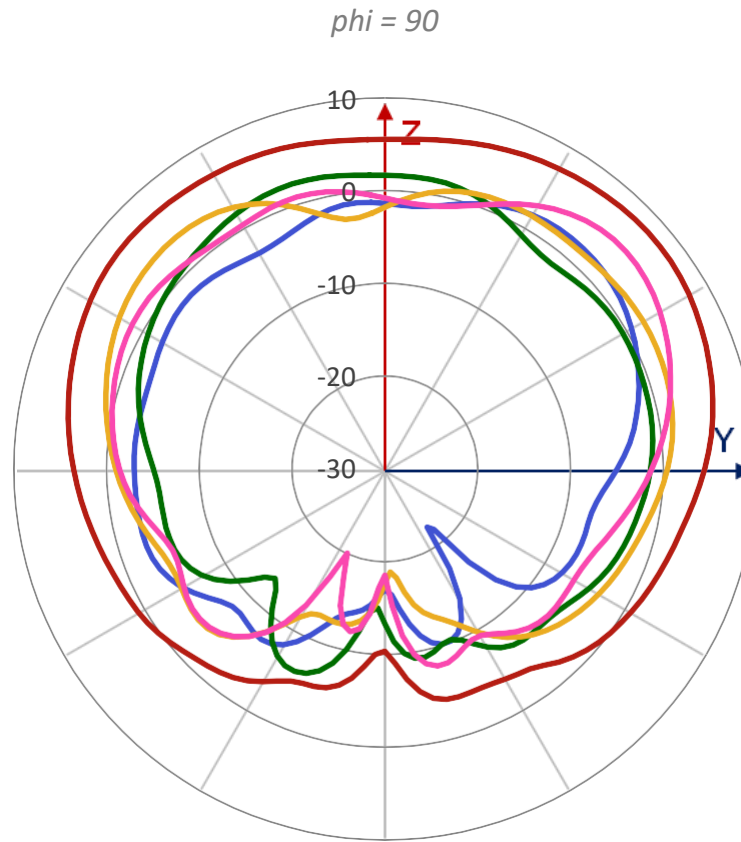
Efficiency / Peak Gain Wi-Fi 2G



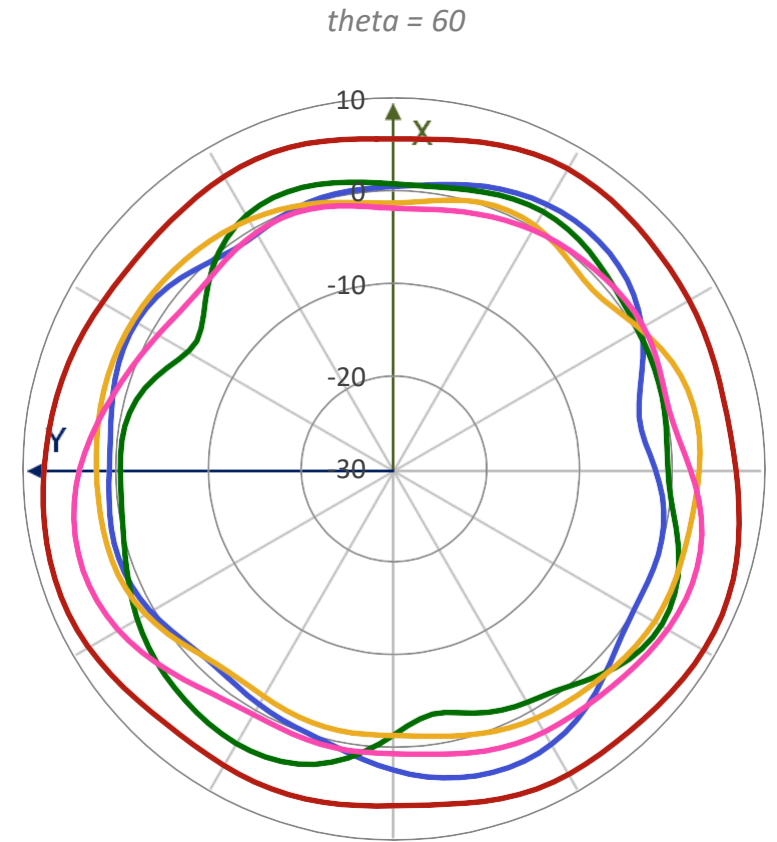
Realized Gain Pattern Wi-Fi 2G @2450MHz for Gtotal



— 2G1 — 2G2 — SC1 — SC2 — Composite



— 2G1 — 2G2 — SC1 — SC2 — Composite



— 2G1 — 2G2 — SC1 — SC2 — Composite

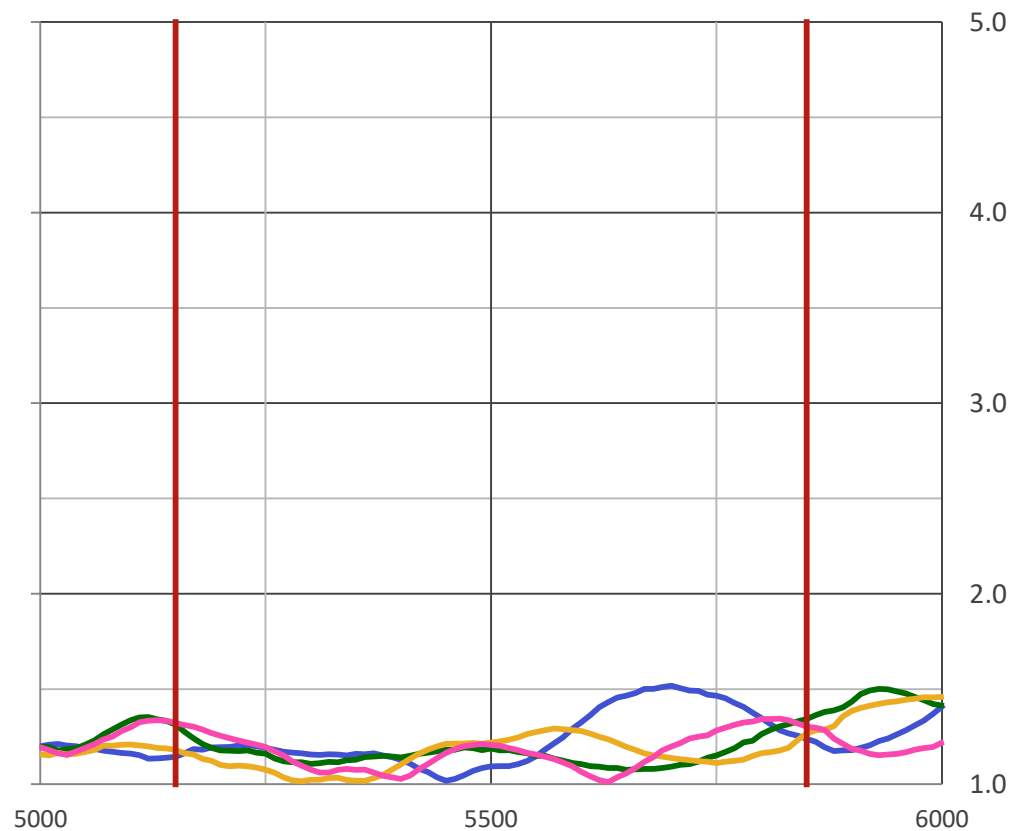
Wi-Fi 5G

Ant.	Brand	WNC Part Number	Type
5G1	WNC	95XEAJ15.G47	Metal PIFA
5G2	WNC	95XEAJ15.G48	Metal PIFA
5G3	WNC	95XEAJ15.G91	Metal PIFA
5G4	WNC	95XEAJ15.G92	Metal PIFA

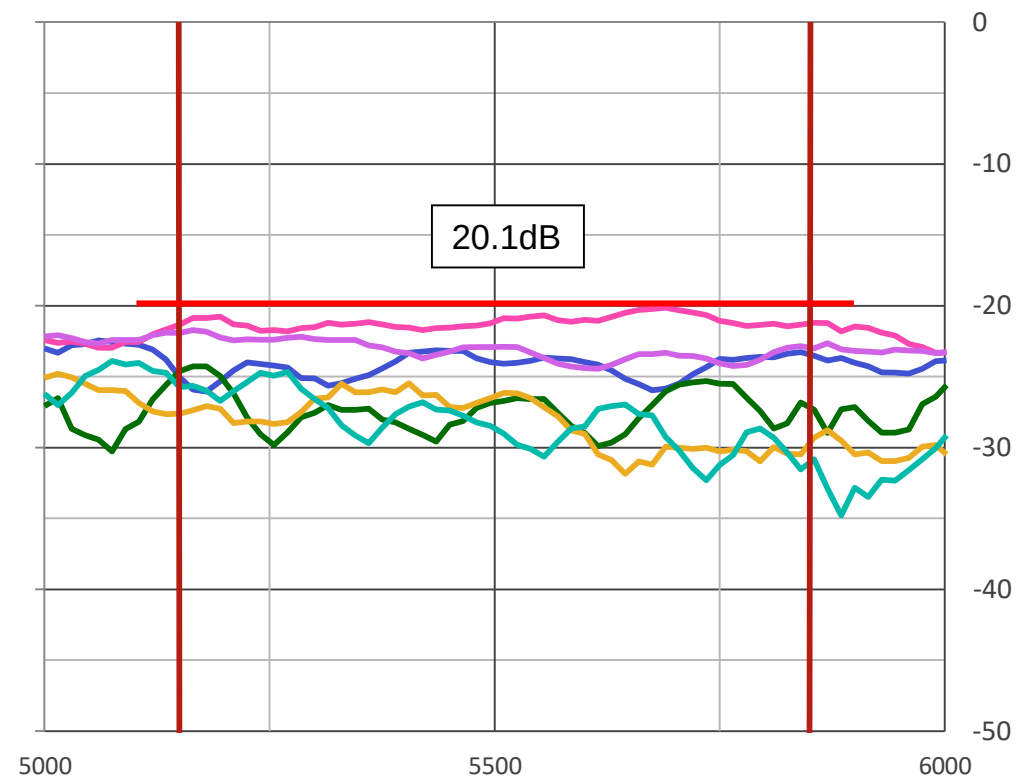
- **Maximum VSWR**
 - 1.5:1 on 5GHz
- **Minimum Isolation**
 - 20.1dB on 5GHz
- **Average Efficiency**
 - ~65% on 5GHz
- **Peak Gain**
 - 5.8dBi on 5GHz



VSWR / Isolation Wi-Fi 5G

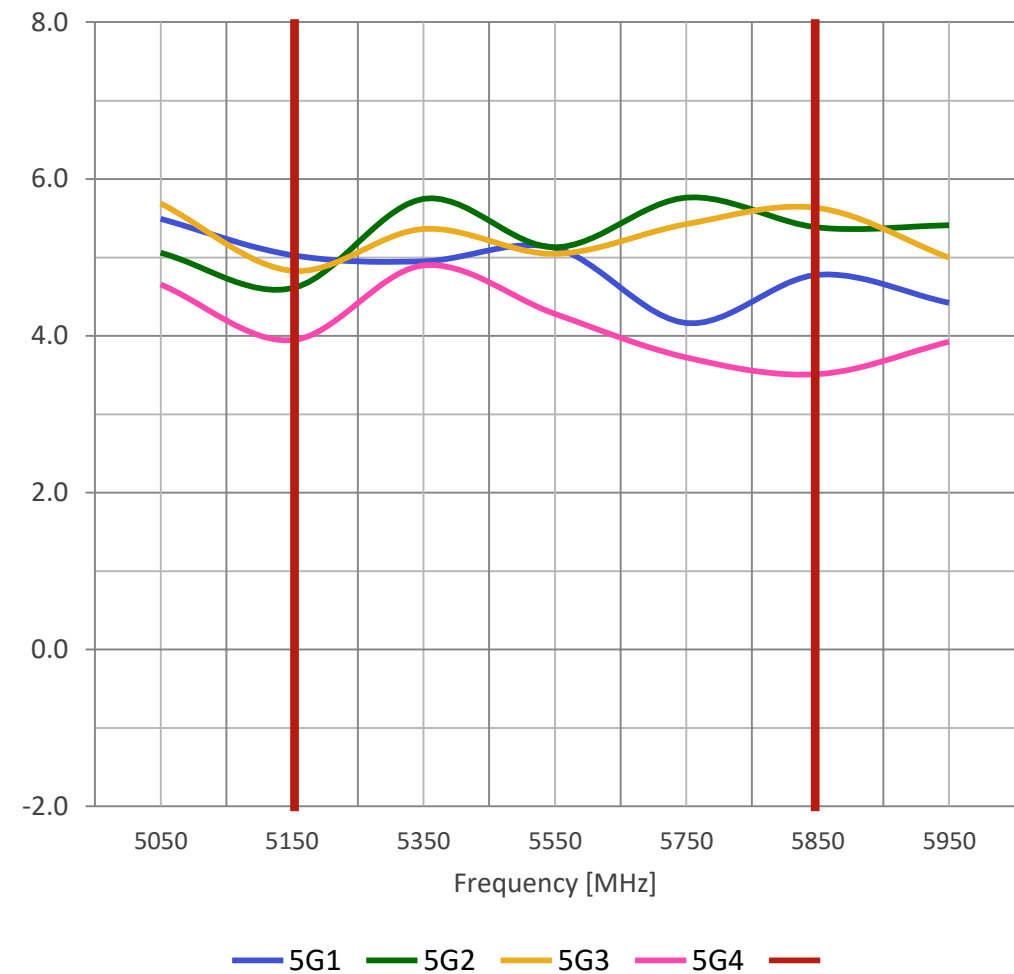
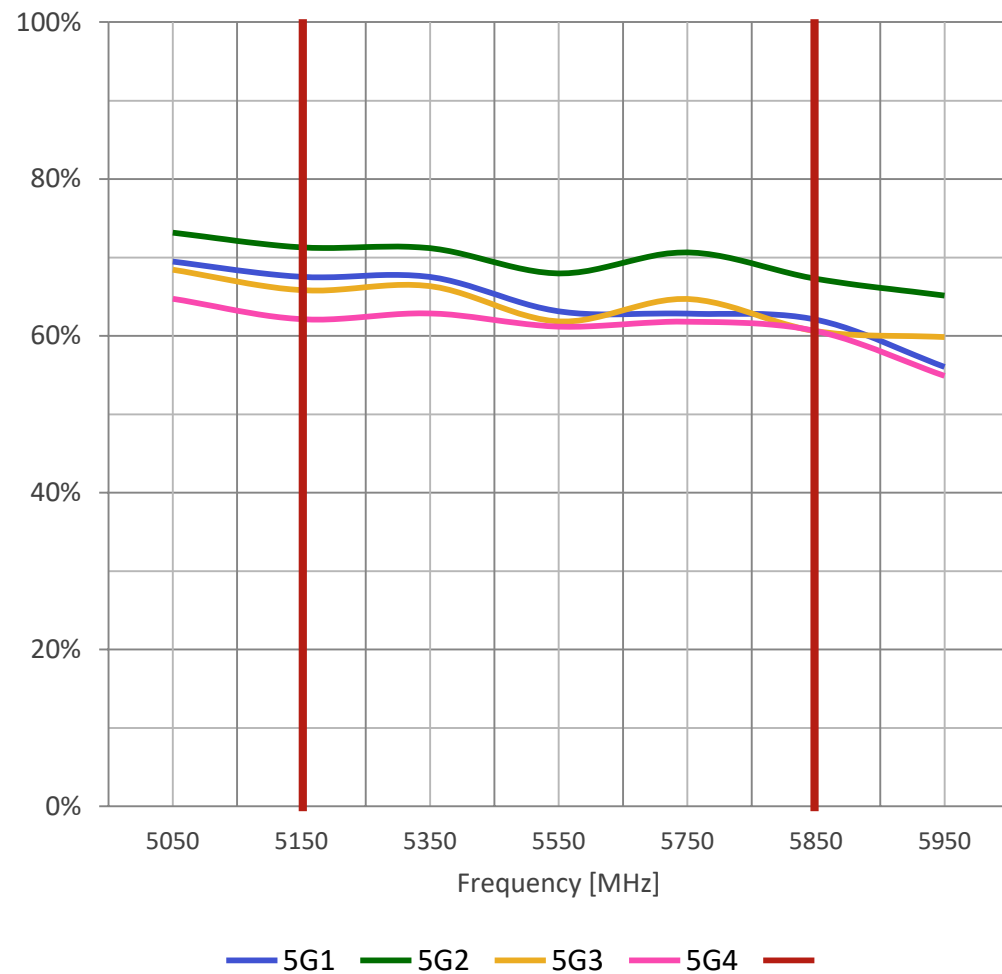


— 5G1 — 5G2 — 5G3 — 5G4 —

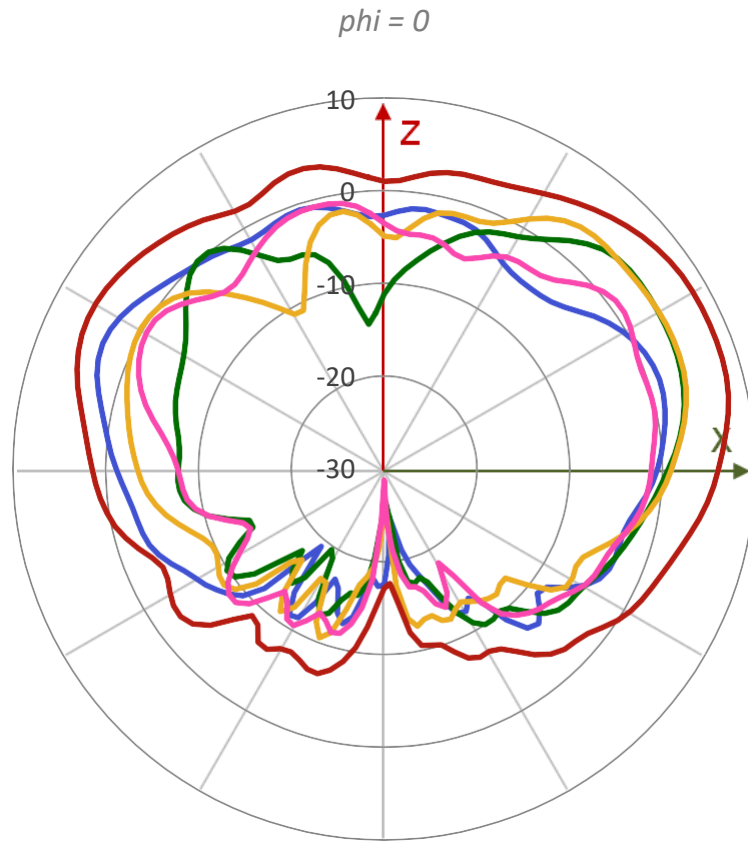


— 5G1_5G2 — 5G1_5G3 — 5G1_5G4 — 5G2_5G3
— 5G2_5G4 — 5G3_5G4 —

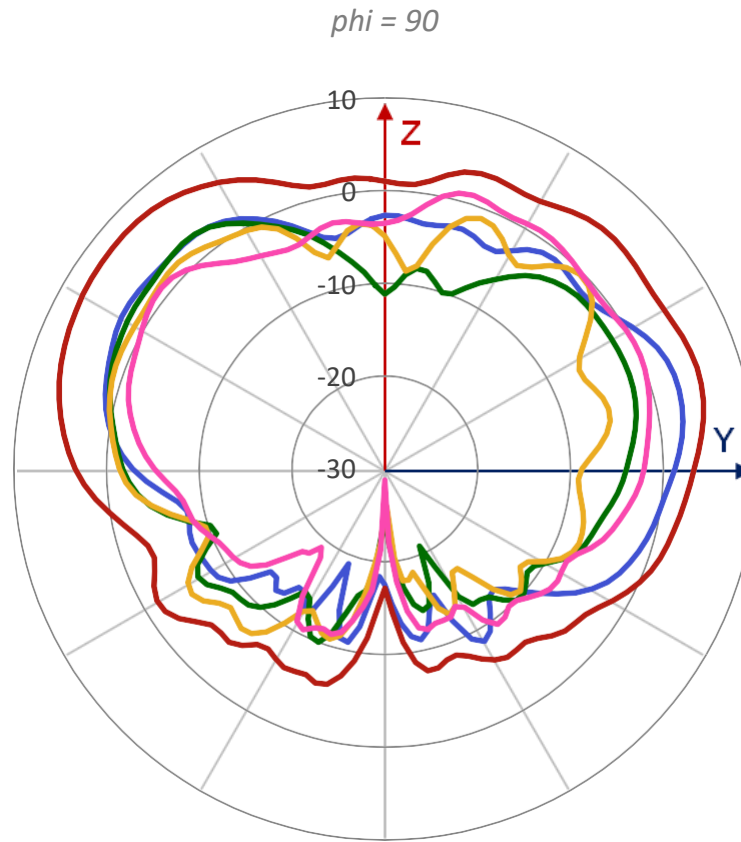
Efficiency / Peak Gain Wi-Fi 5G



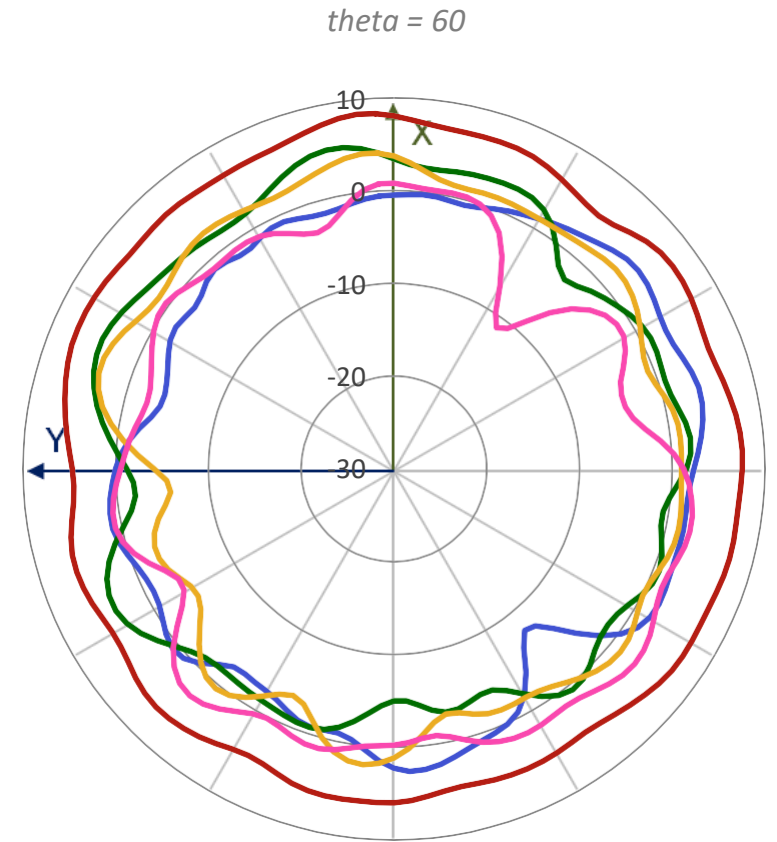
Realized Gain Pattern Wi-Fi 5G @5450MHz for Gtotal



— 5G1 — 5G2 — 5G3 — 5G4 — Composite



— 5G1 — 5G2 — 5G3 — 5G4 — Composite



— 5G1 — 5G2 — 5G3 — 5G4 — Composite

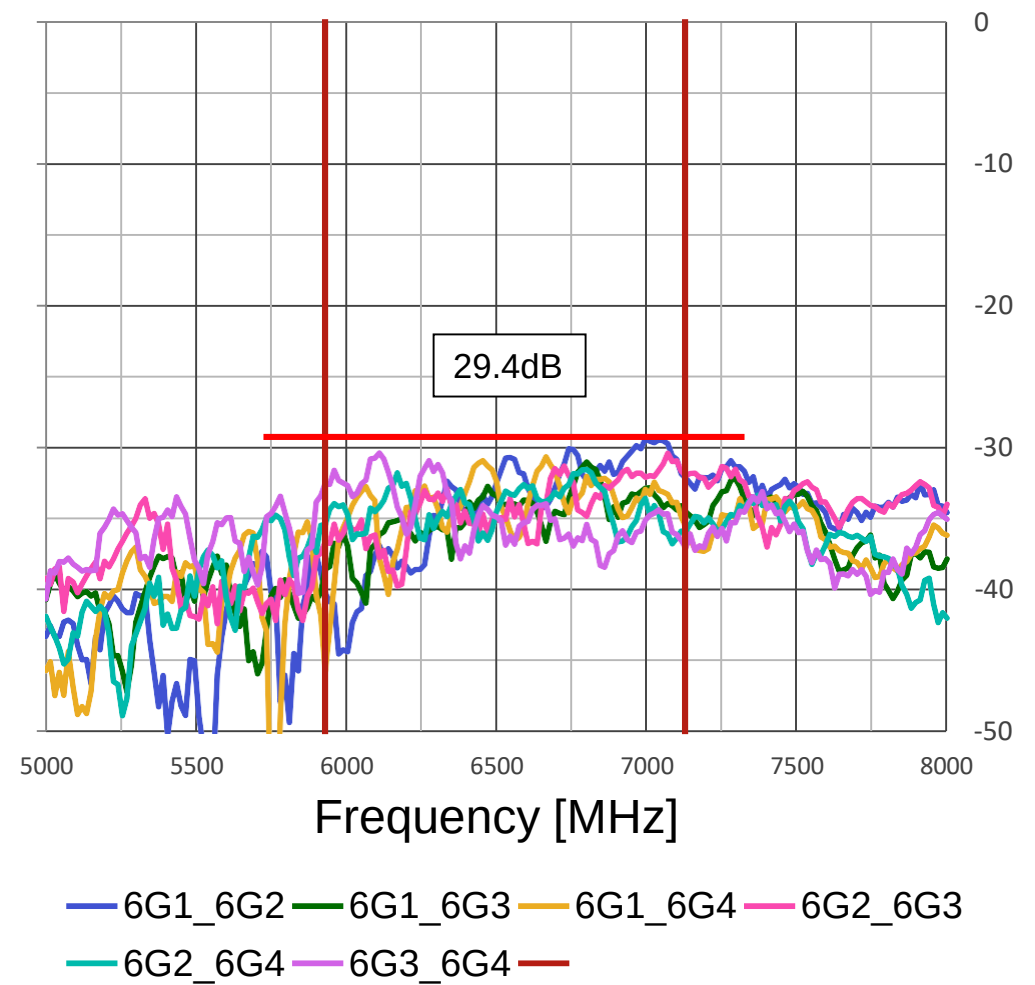
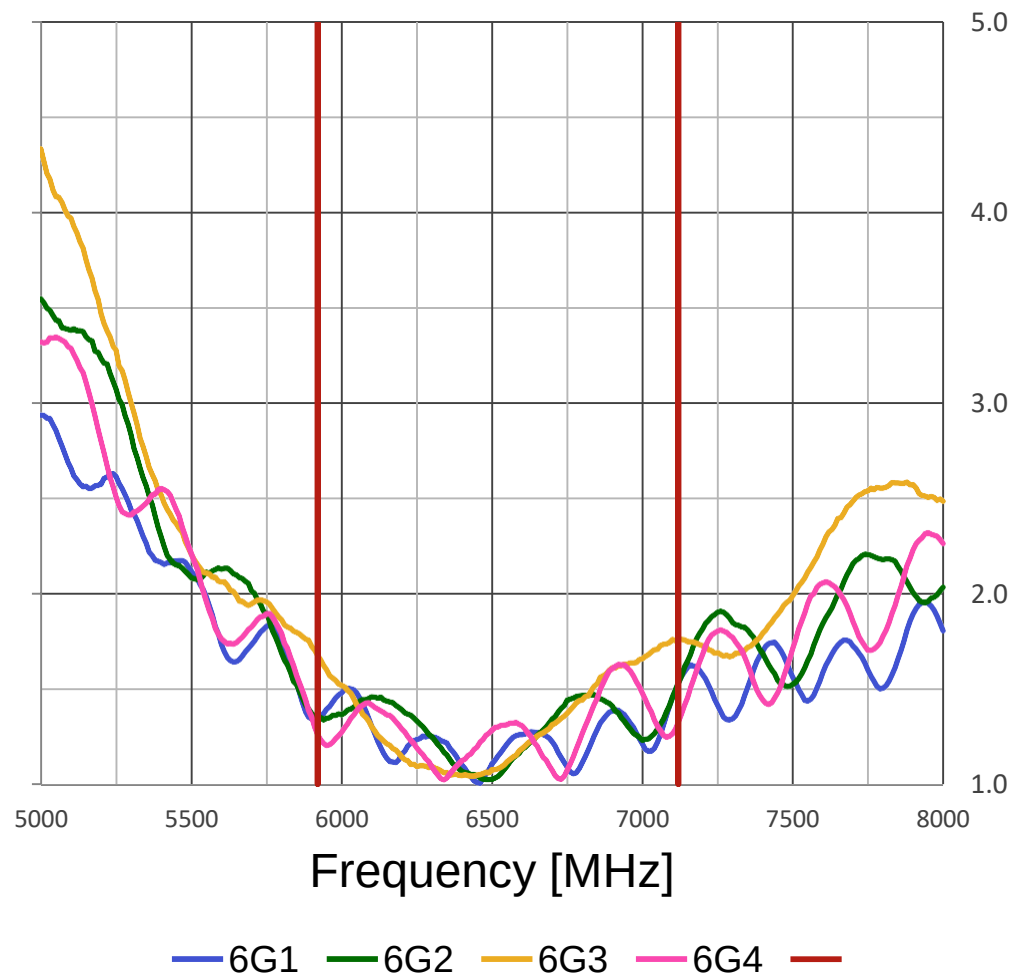
Wi-Fi 6G

Ant.	Brand	WNC Part Number	Type
6G1	WNC	95XEAJ15.G49	Metal PIFA
6G2	WNC	95XEAJ15.G50	Metal PIFA
6G3	WNC	95XEAJ15.G51	Metal PIFA
6G4	WNC	95XEAJ15.G52	Metal PIFA

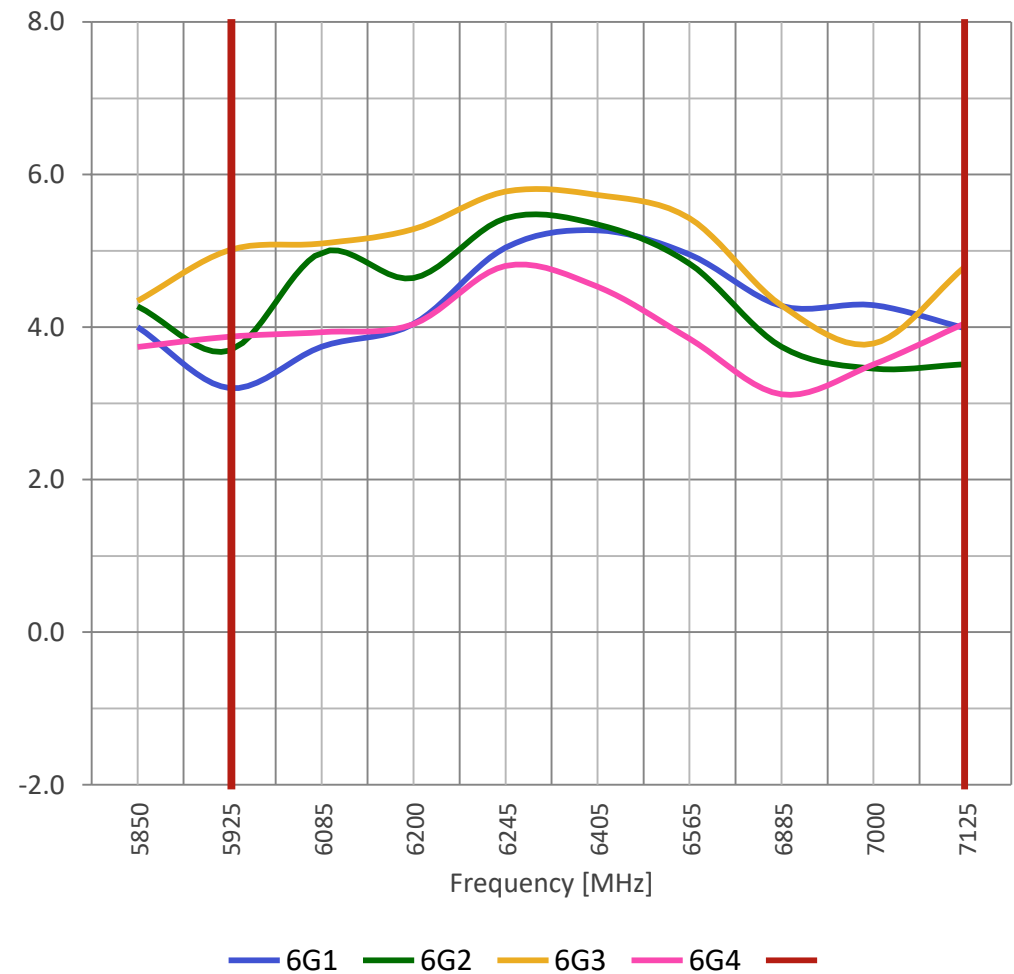
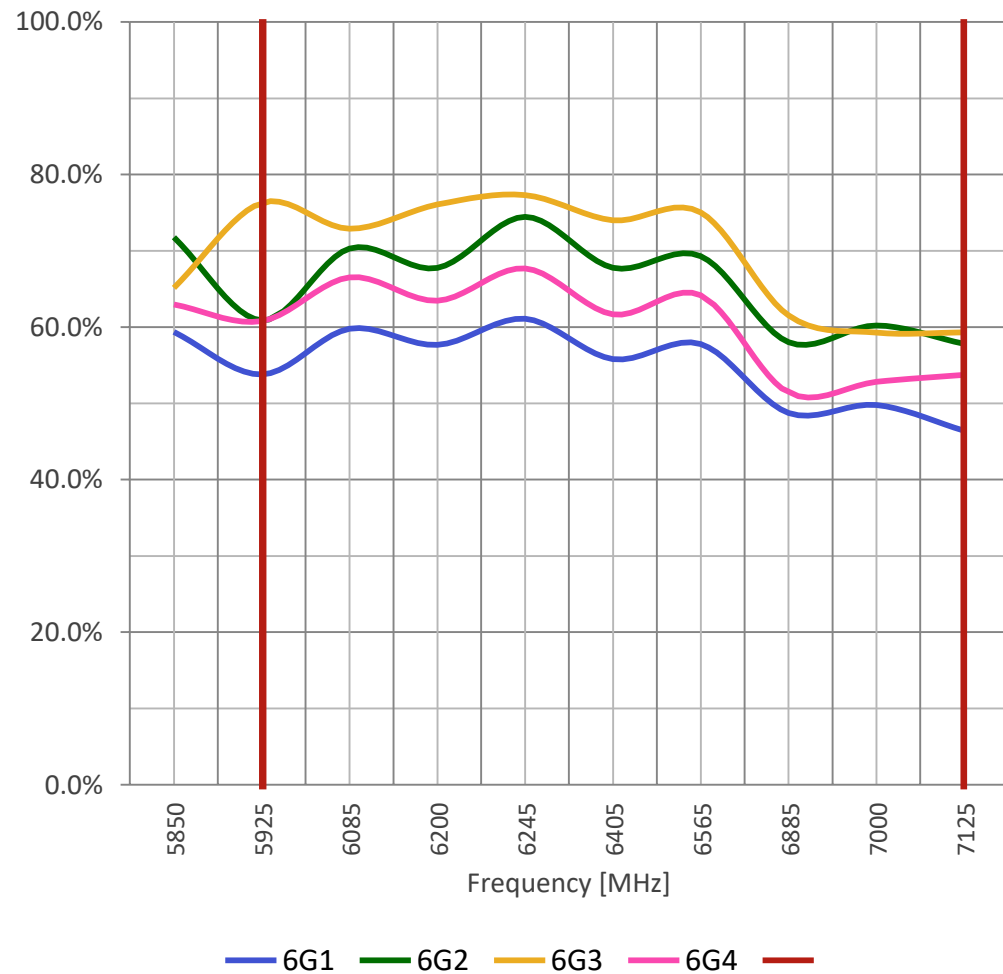
- **Maximum VSWR**
 - 1.8:1 on 6GHz
- **Minimum Isolation**
 - 29.4dB on 6GHz
- **Average Efficiency**
 - ~63% on 6GHz
- **Peak Gain**
 - 5.8dBi on 6GHz



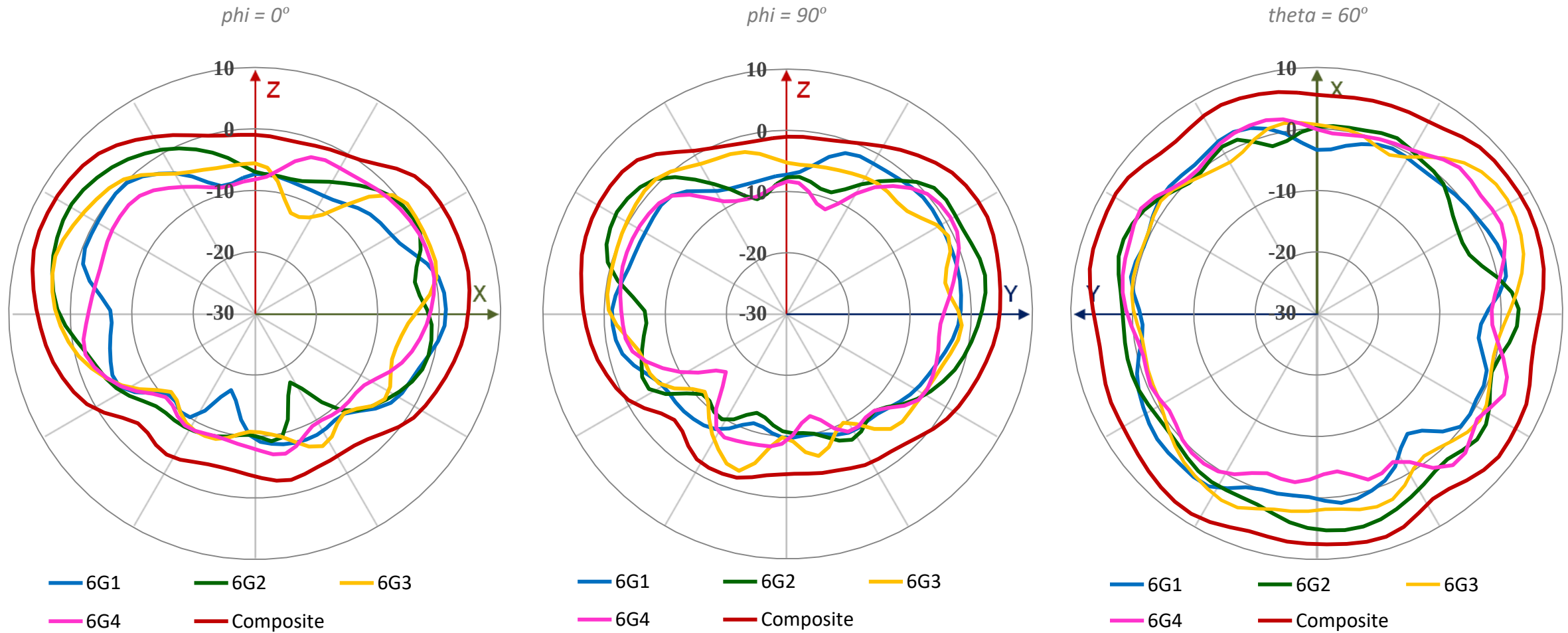
VSWR / Isolation Wi-Fi 6G



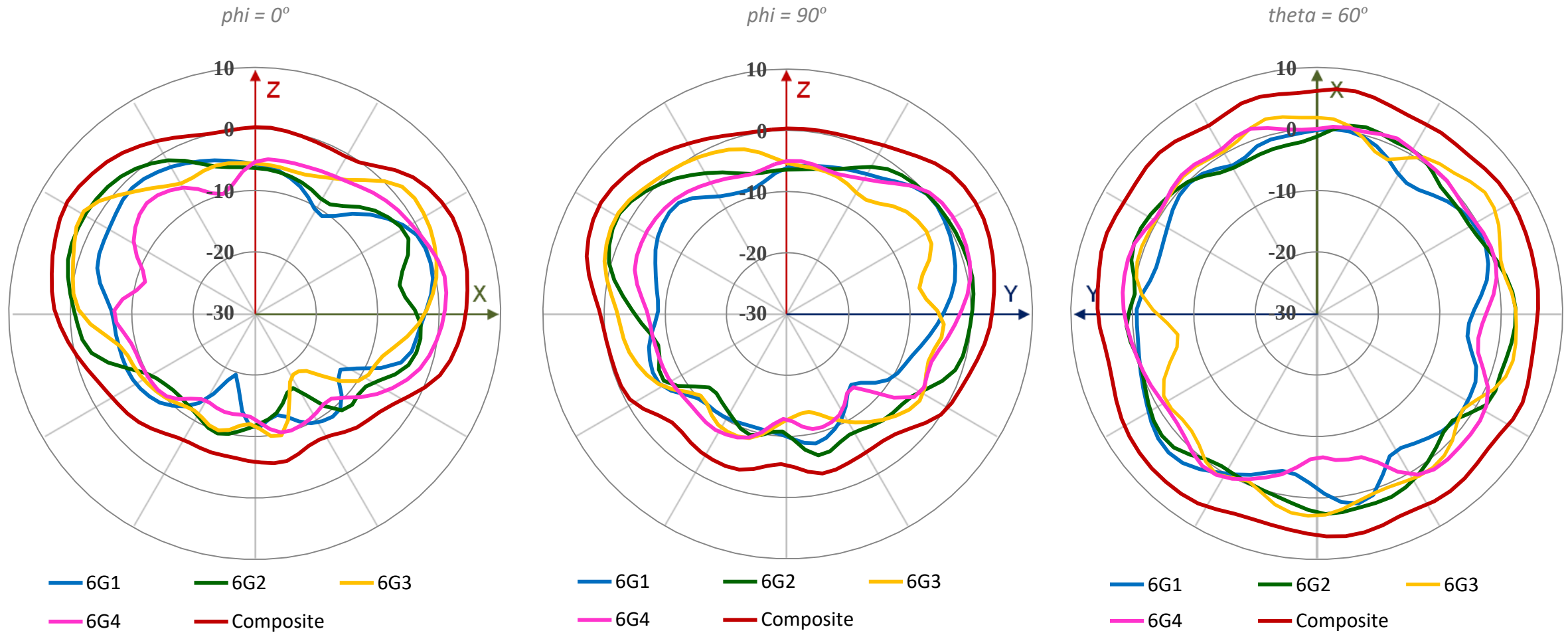
Efficiency / Peak Gain Wi-Fi 6G



Realized Gain Pattern Wi-Fi 6G @6200MHz for Gtotal



Realized Gain Pattern Wi-Fi 6G @6565MHz for Gtotal



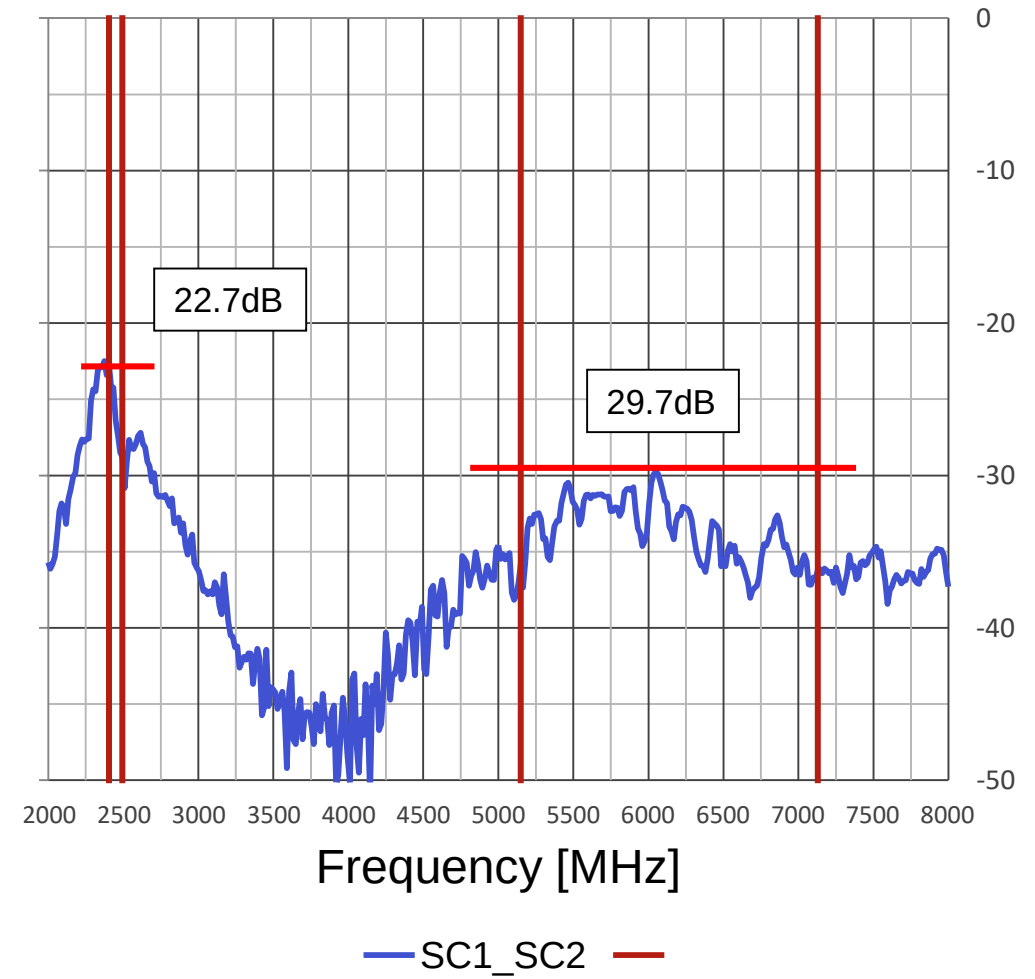
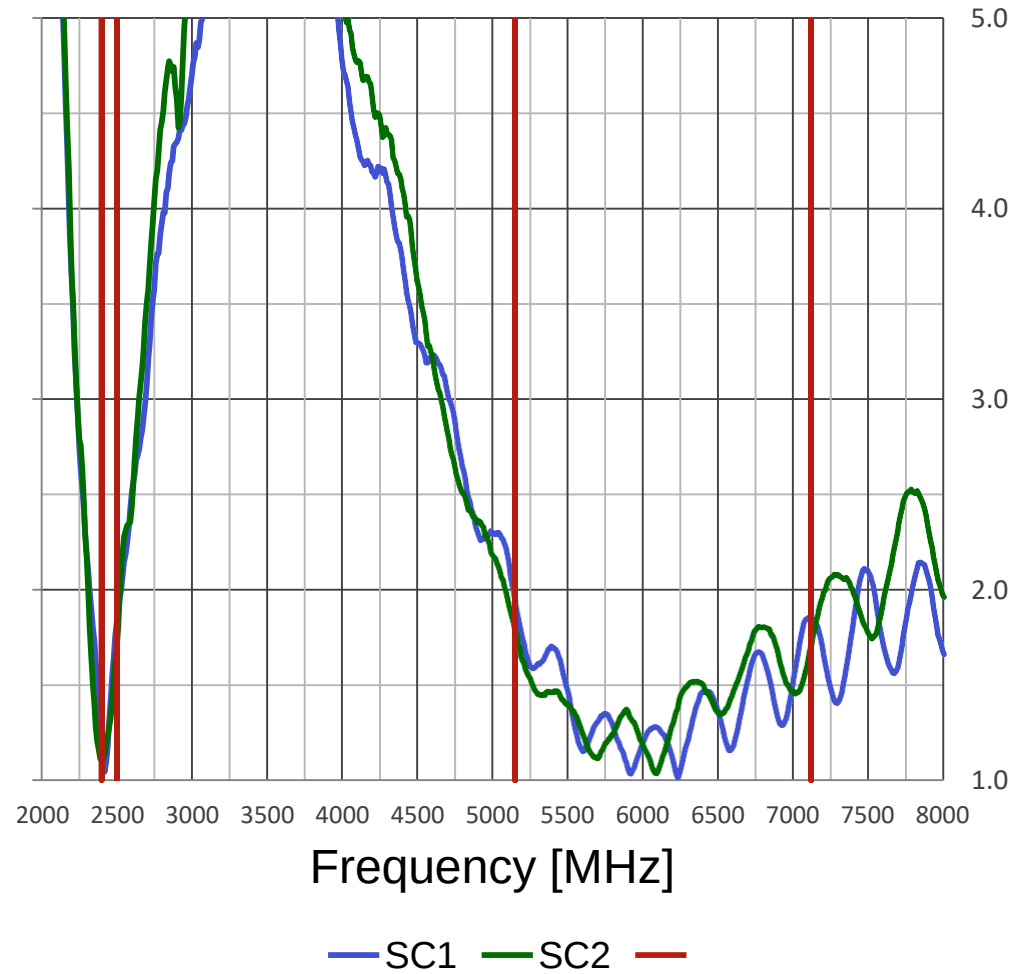
Scanning Radio

Ant.	Brand	WNC Part Number	Type
SC1	WNC	95XEAJ15.G53	Metal PIFA
SC2	WNC	95XEAJ15.G54	Metal PIFA

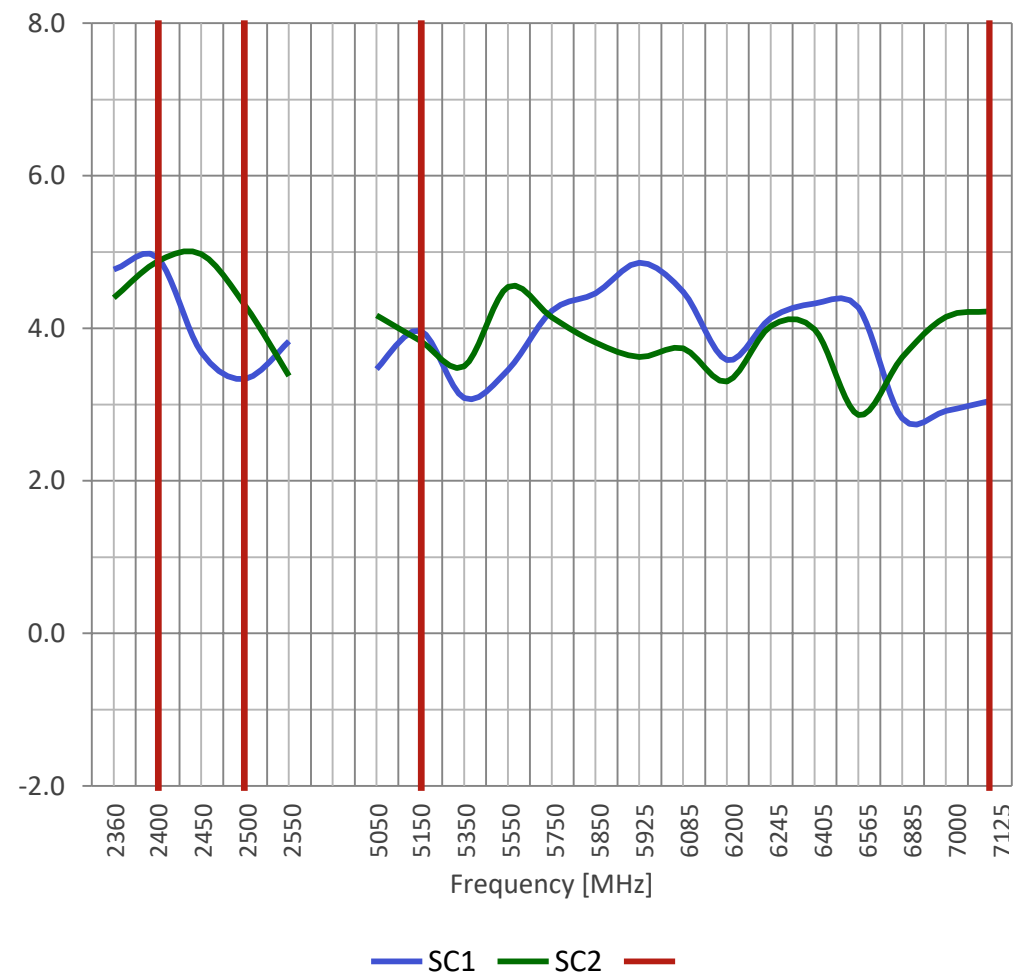
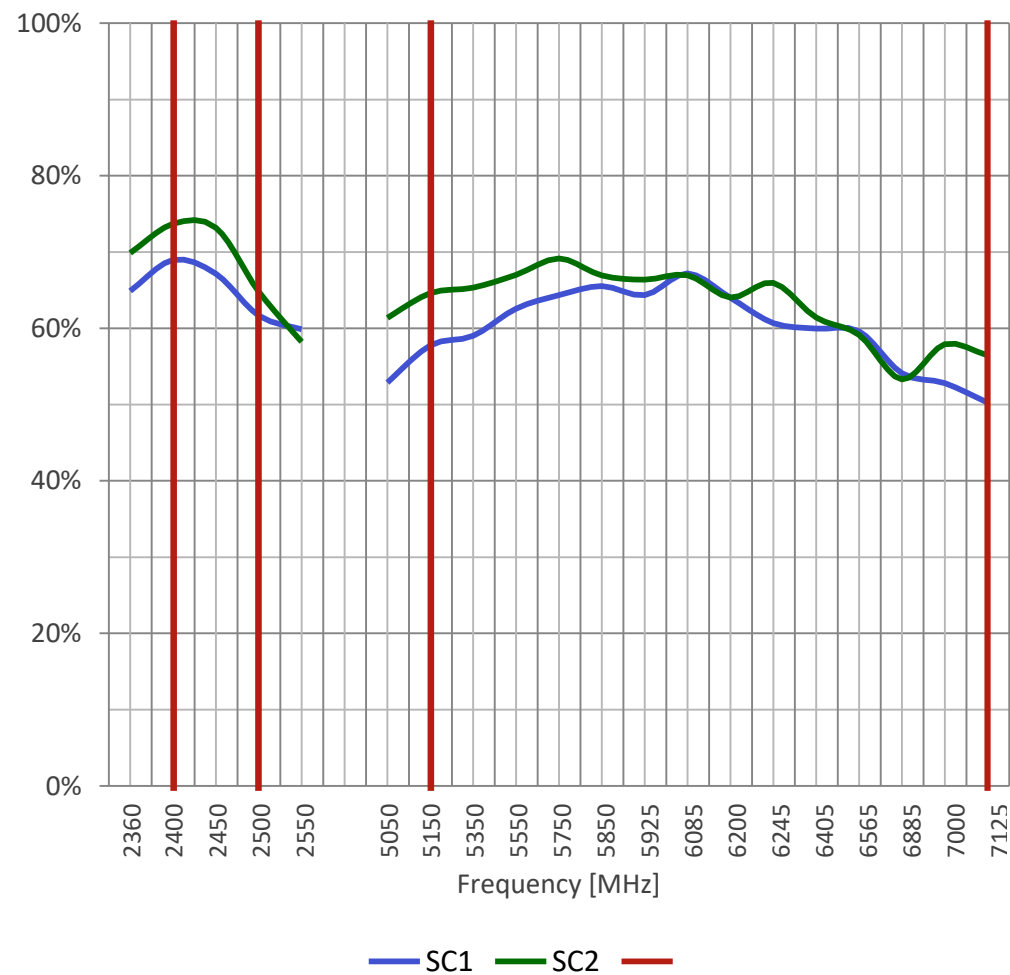
- **Maximum VSWR**
 - 1.8:1 on 2.4GHz / 1.9:1 on 5_6GHz
- **Minimum Isolation**
 - 22.7dB on 2.4GHz / 29.7dB on 5_6GHz
- **Average Efficiency**
 - ~69% on 2.4GHz / ~62% on 5_6GHz
- **Peak Gain**
 - 5.0dBi on 2.4GHz / 4.9dBi on 5_6GHz



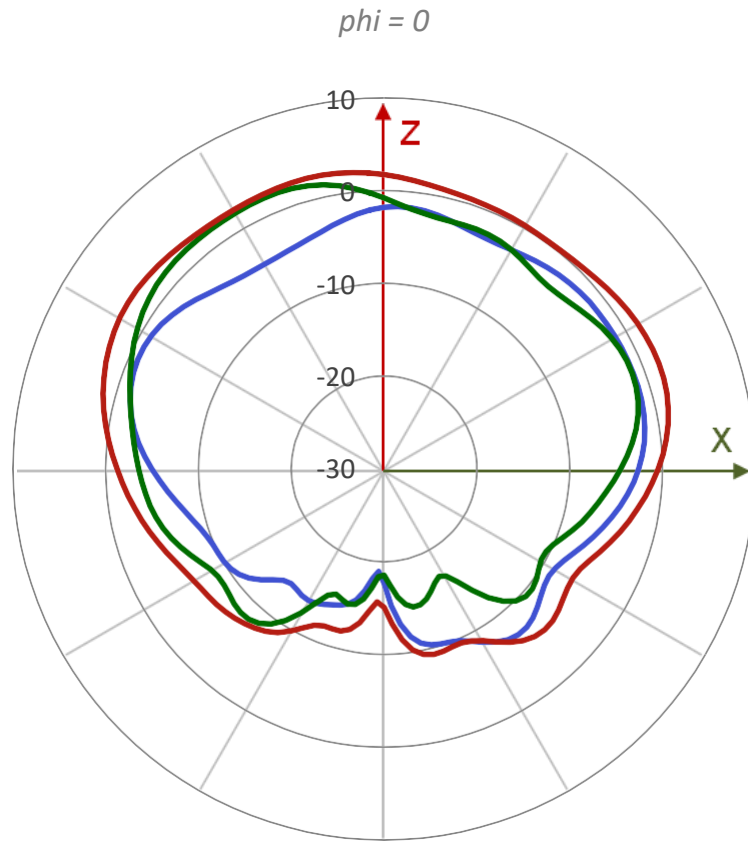
VSWR / Isolation Scanning Radio



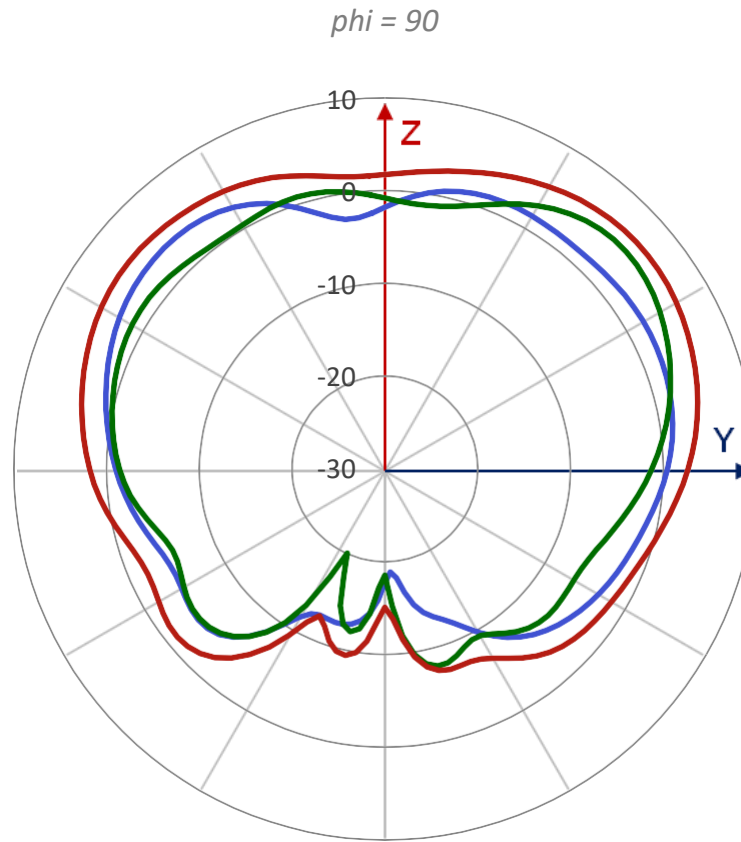
Efficiency / Peak Gain Scanning Radio



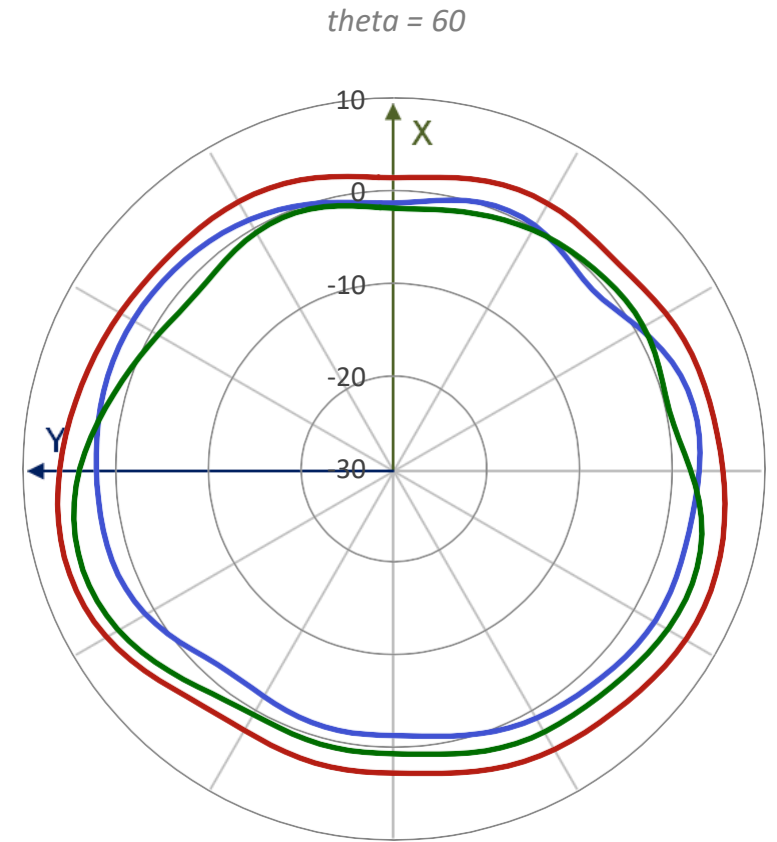
Realized Gain Pattern Scanning Radio @2450MHz for Gtotal



— SC1 — SC2 — Composite

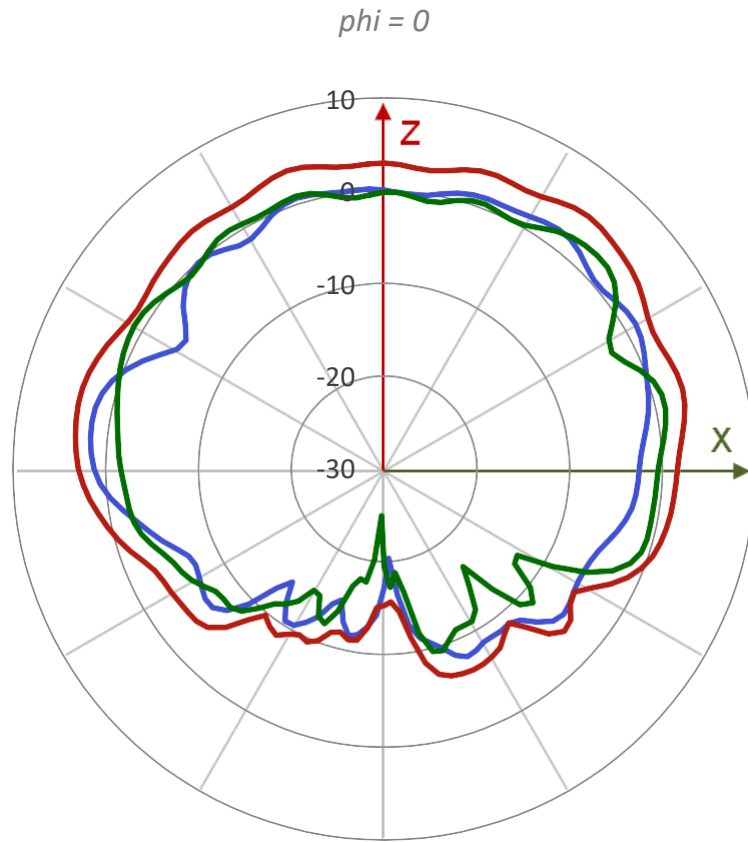


— SC1 — SC2 — Composite

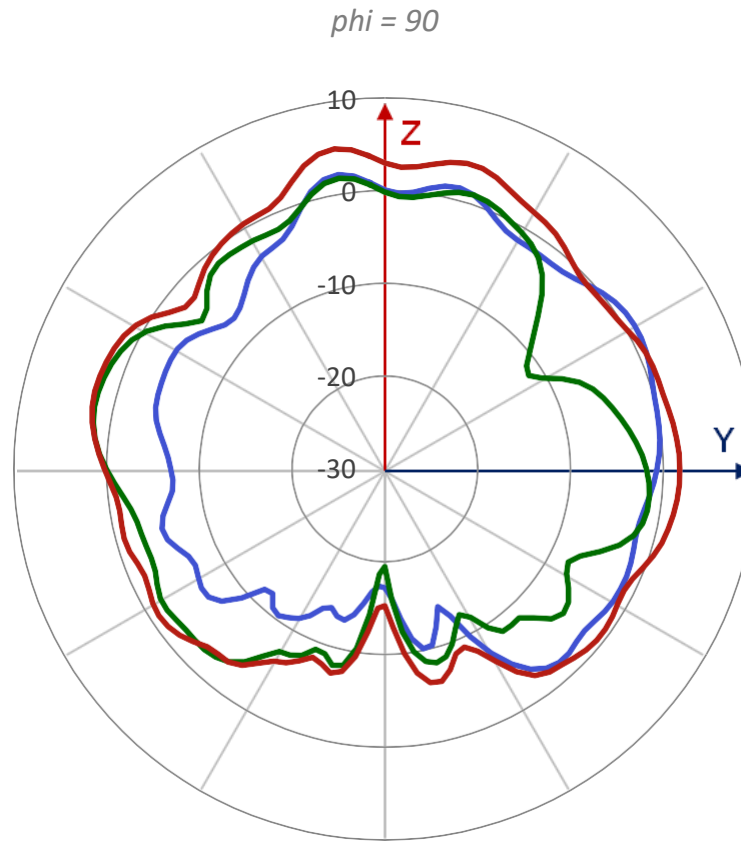


— SC1 — SC2 — Composite

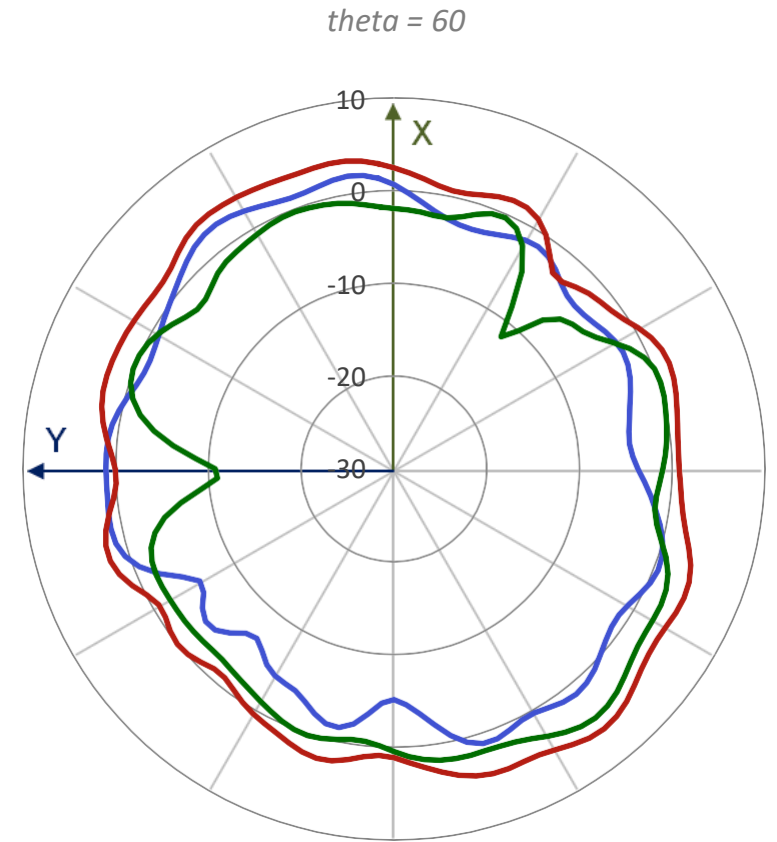
Realized Gain Pattern Scanning Radio @5450MHz for Gtotal



— SC1 — SC2 — Composite

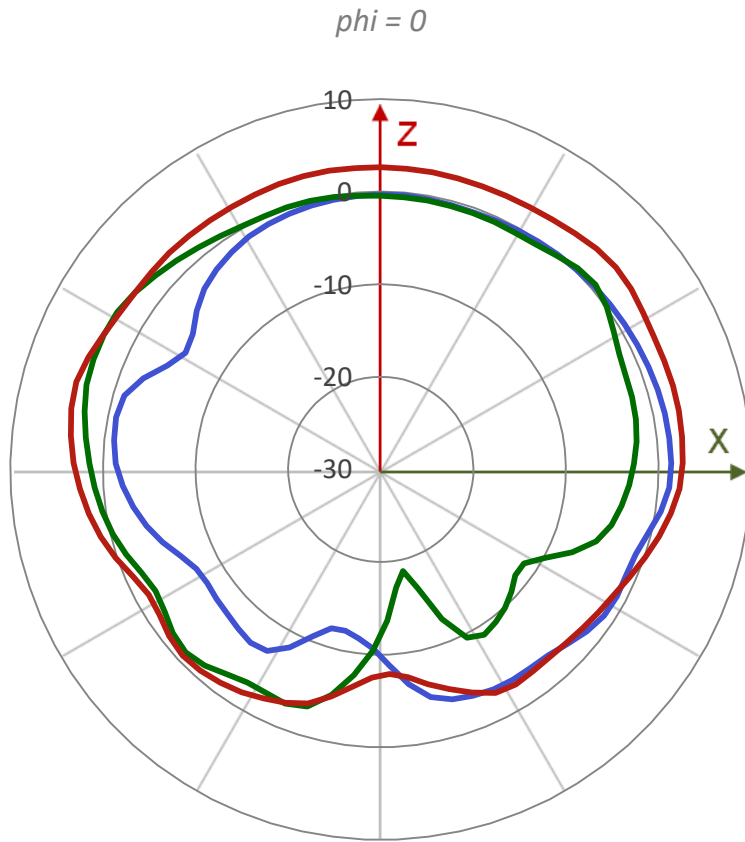


— SC1 — SC2 — Composite

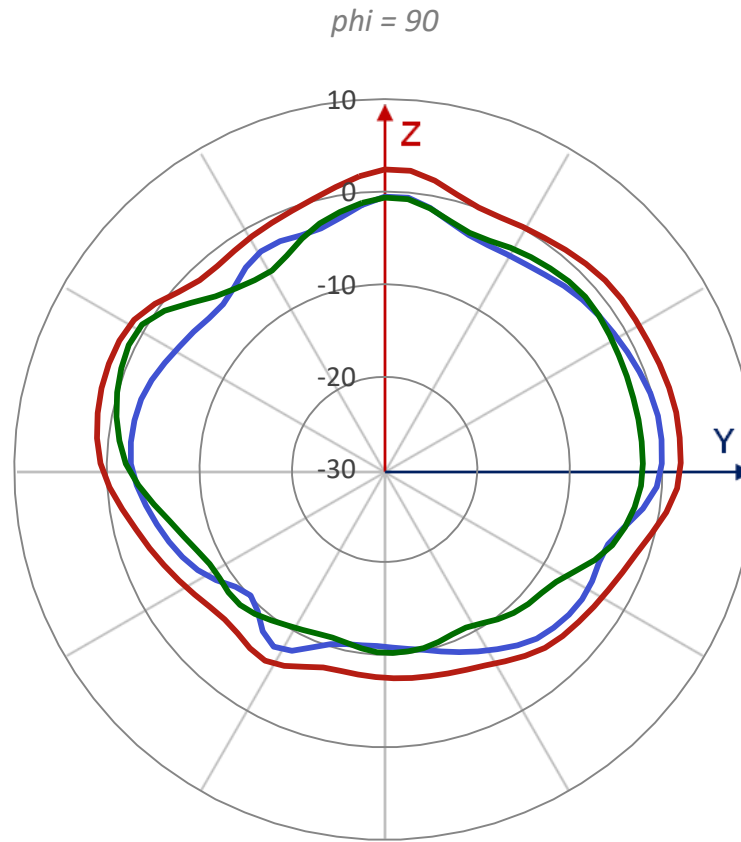


— SC1 — SC2 — Composite

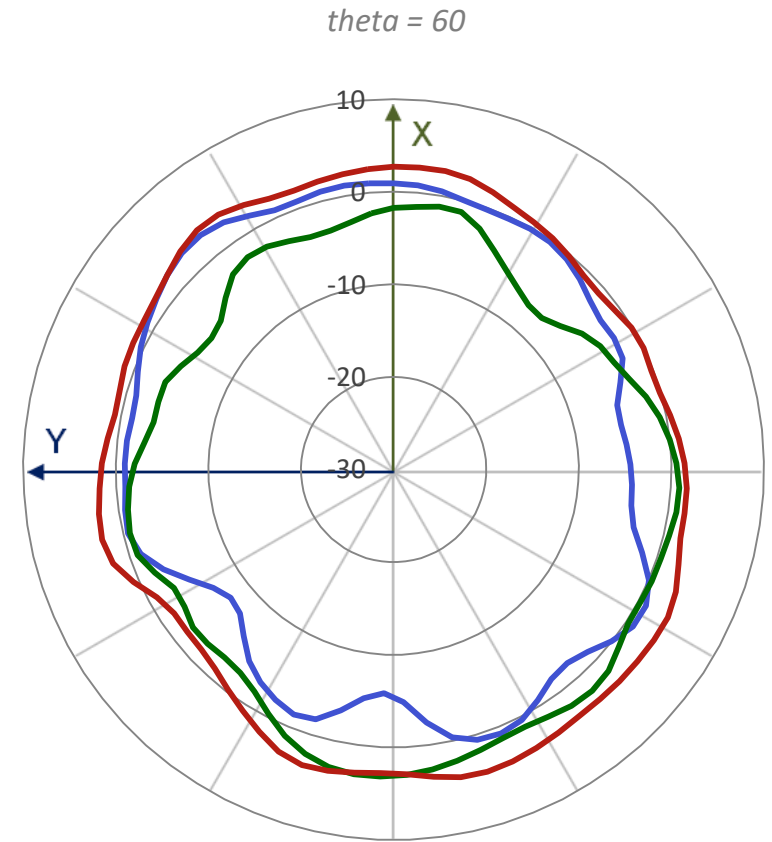
Realized Gain Pattern Scanning Radio @6200MHz for Gtotal



— SC1 — SC2 — Composite

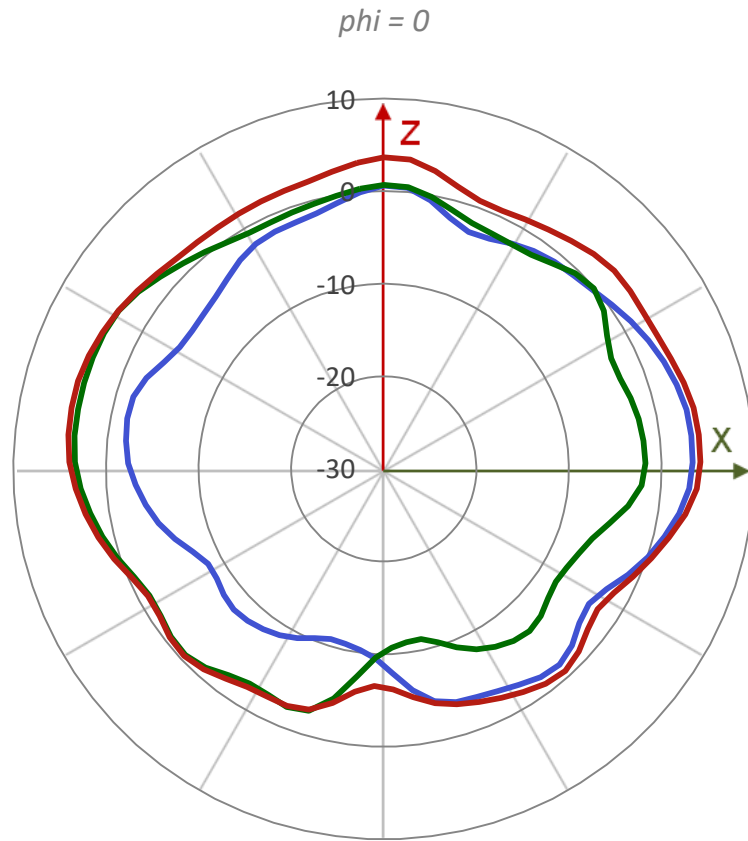


— SC1 — SC2 — Composite

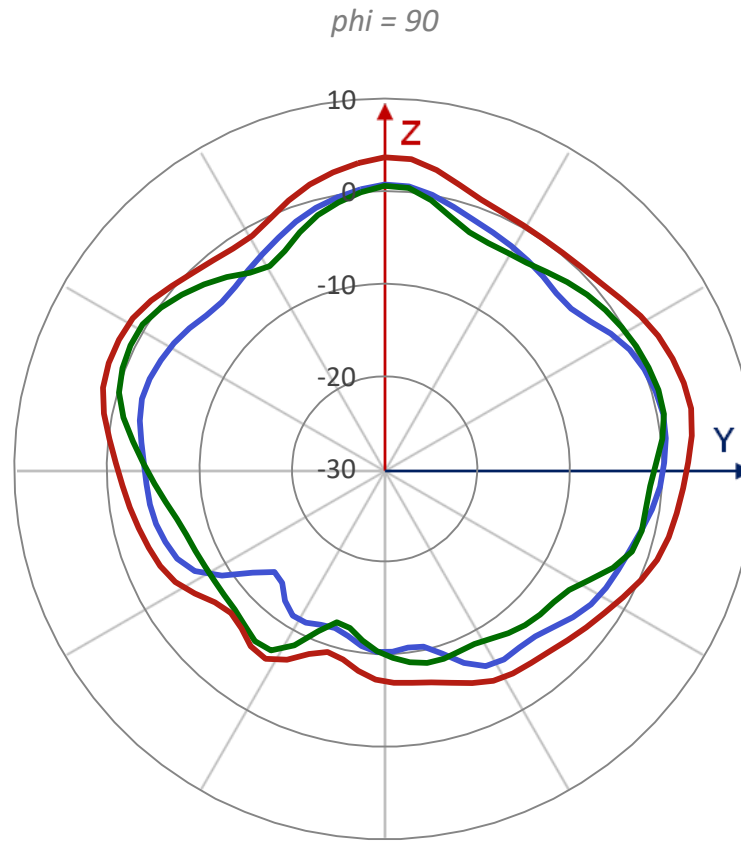


— SC1 — SC2 — Composite

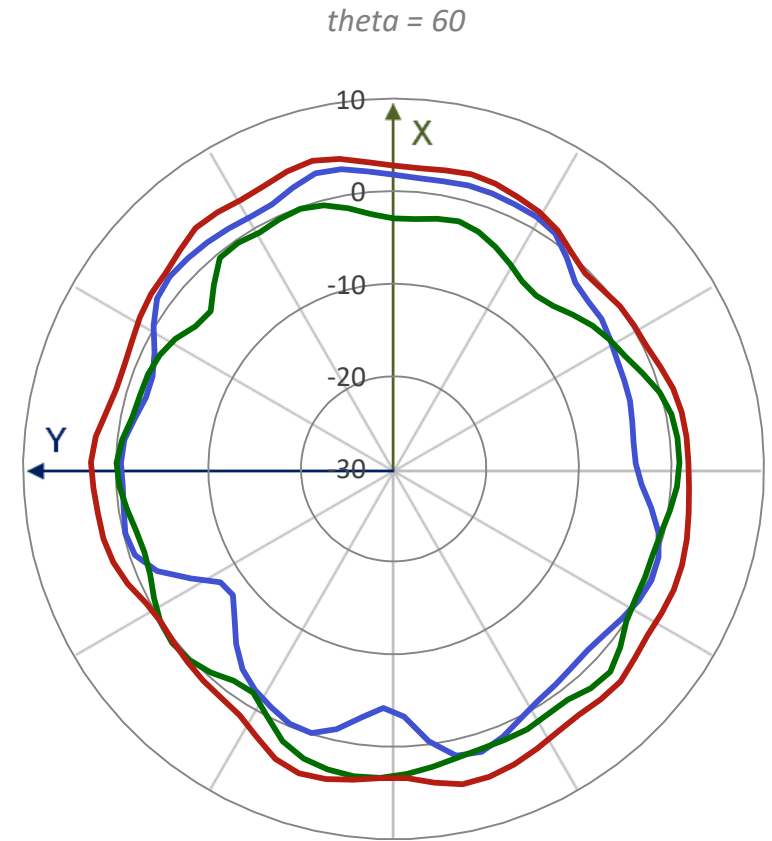
Realized Gain Pattern Scanning Radio @6565MHz for Gtotal



— SC1 — SC2 — Composite



— SC1 — SC2 — Composite



— SC1 — SC2 — Composite

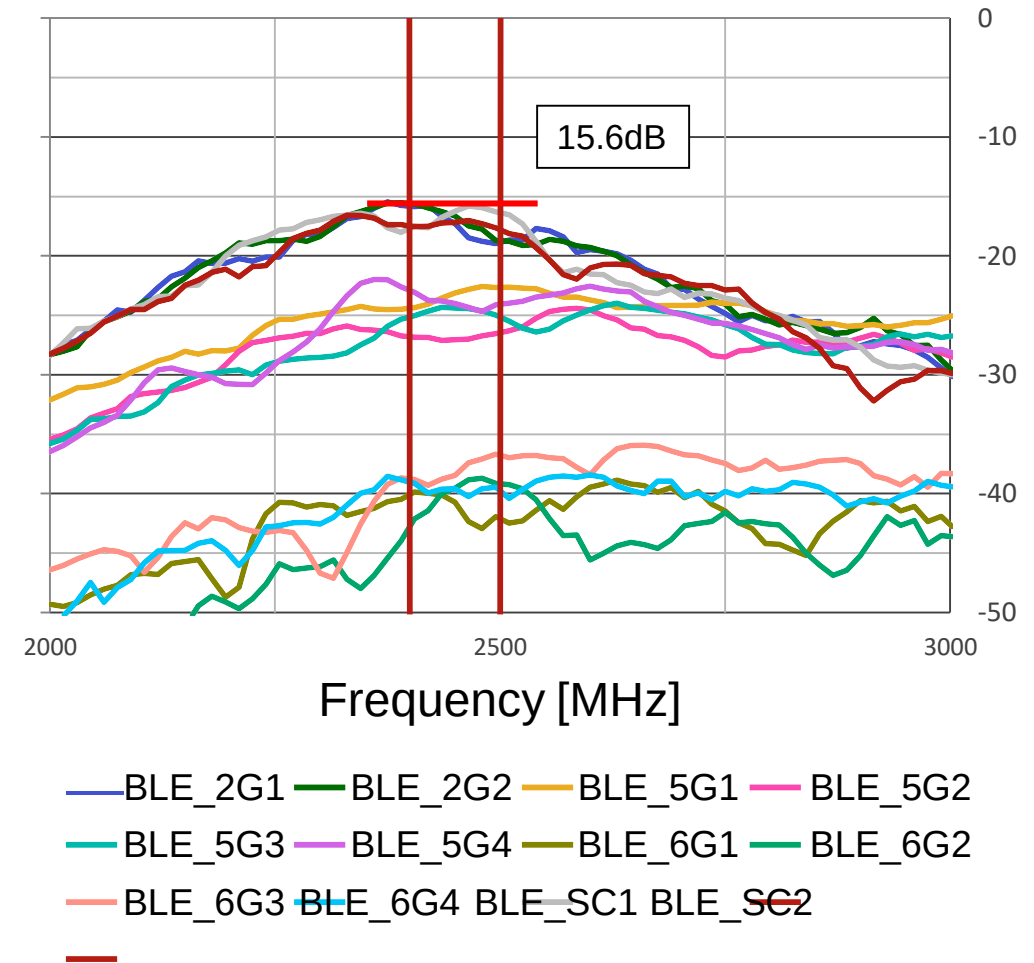
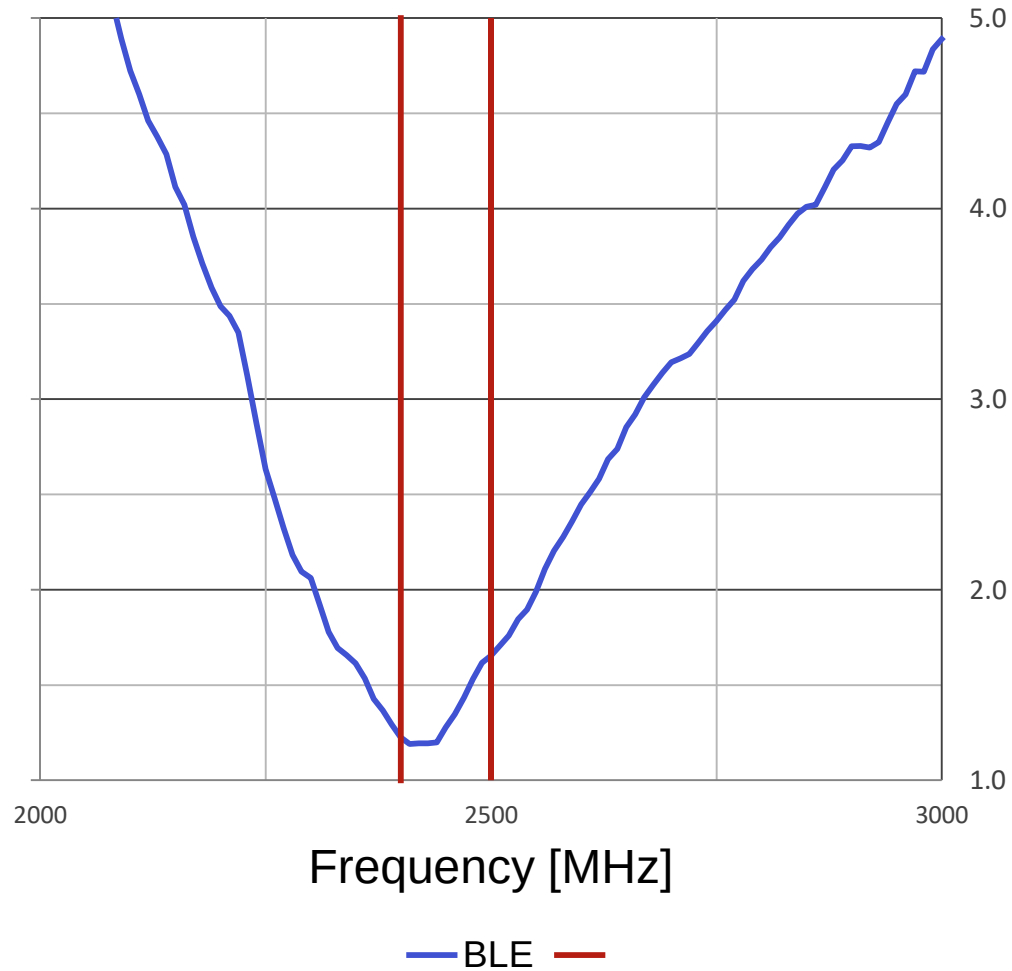
BLE / 802.15.4 Antenna

Ant.	Brand	WNC Part Number	Type
BLE	WNC	95XEAJ15.G55	Metal PIFA

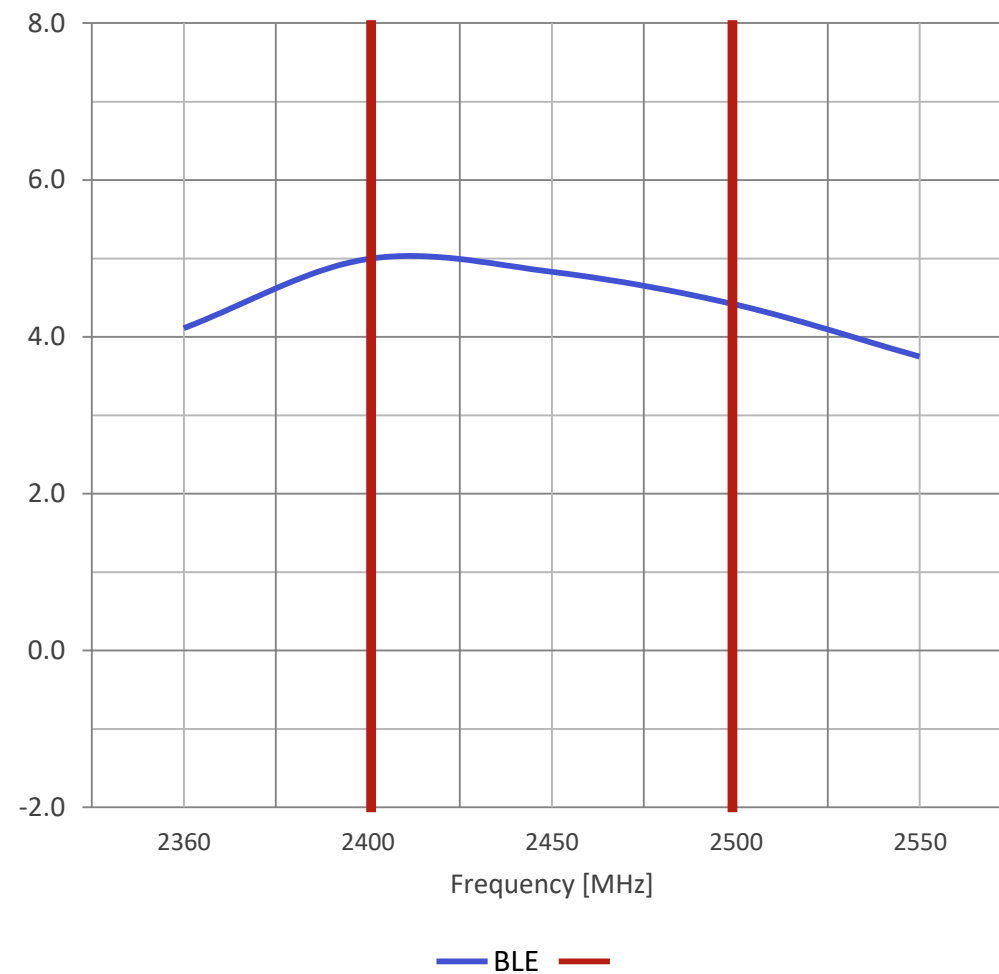
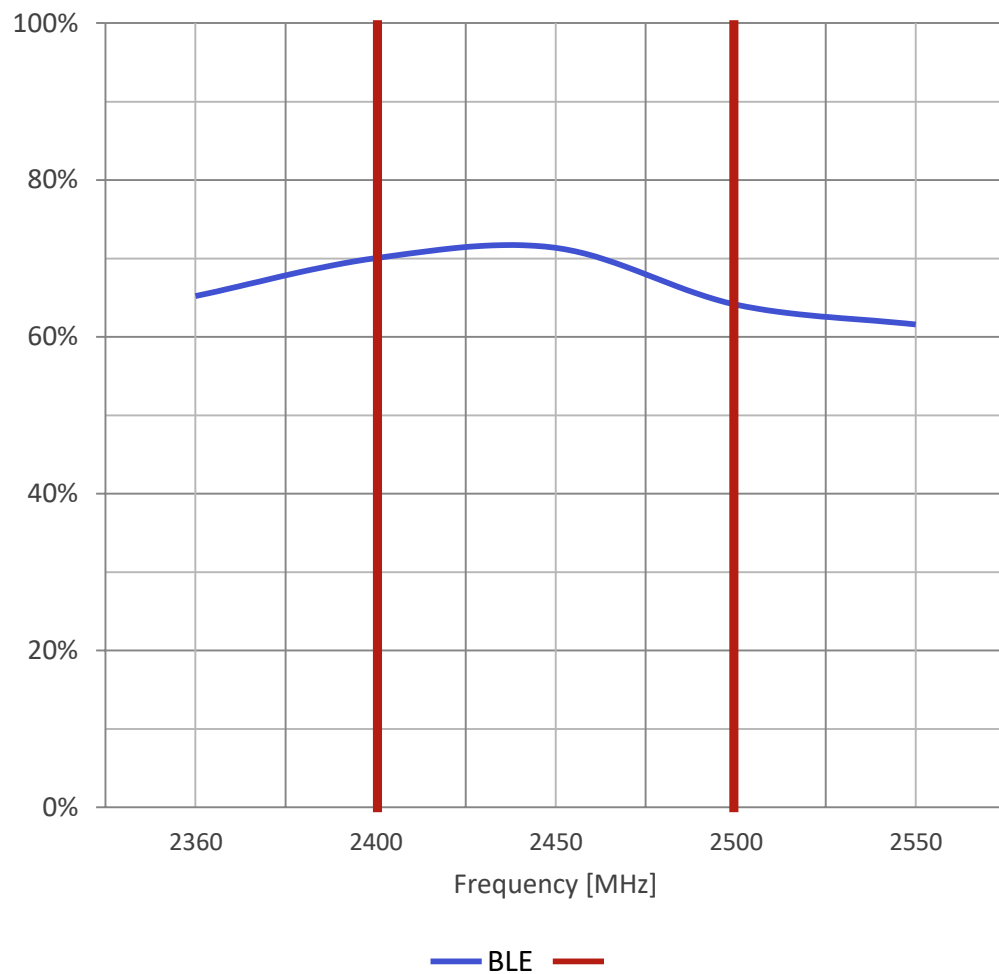
- **Maximum VSWR**
 - 1.7:1 on 2.4GHz
- **Minimum Isolation**
 - 15.6dB on 2.4GHz
- **Average Efficiency**
 - ~68% on 2.4GHz
- **Peak Gain**
 - 5.0dBi on 2.4GHz



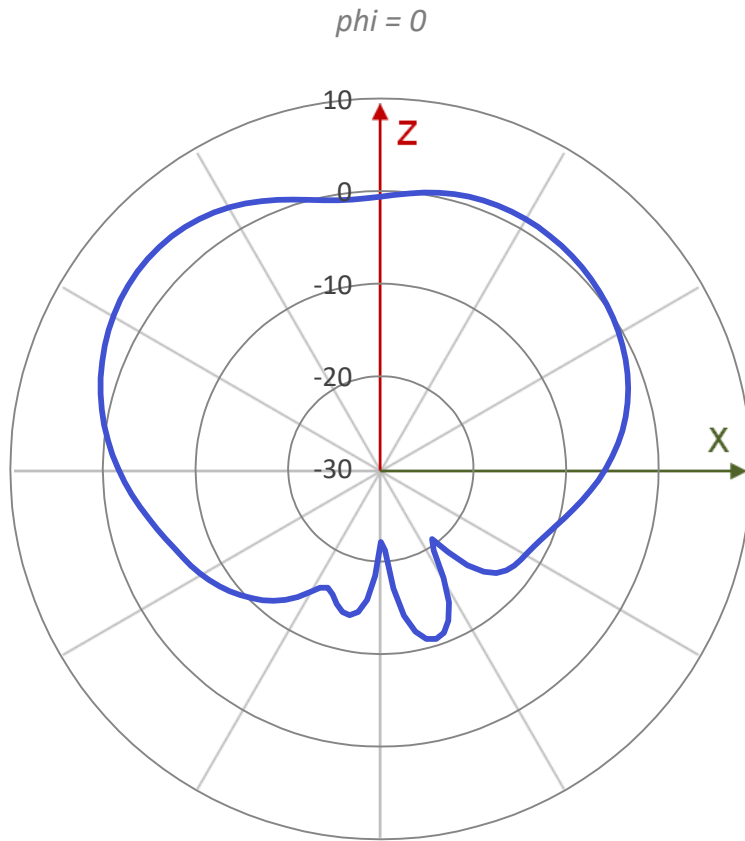
VSWR / Isolation BLE / 802.15.4 Antenna



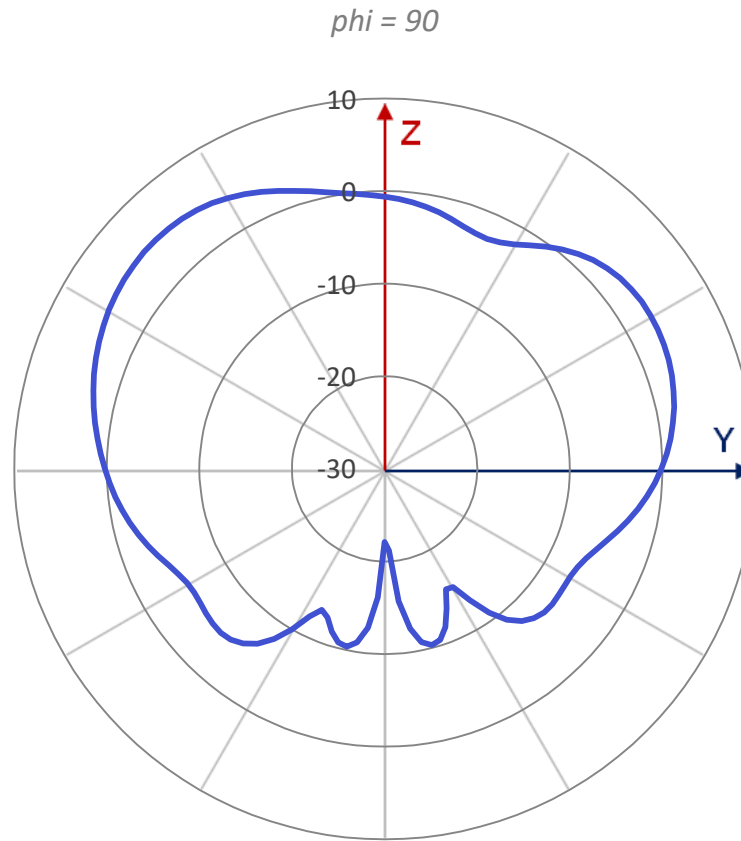
Efficiency / Peak Gain BLE / 802.15.4 Antenna



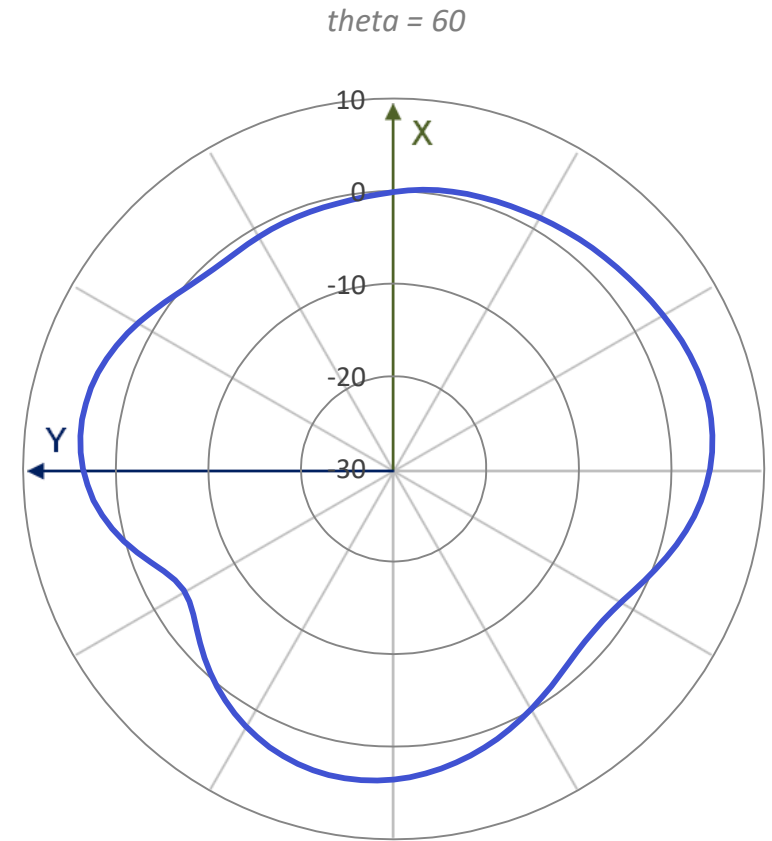
Realized Gain Pattern BLE / 802.15.4 Antenna @2450MHz for Gtotal



— BLE



— BLE



— BLE

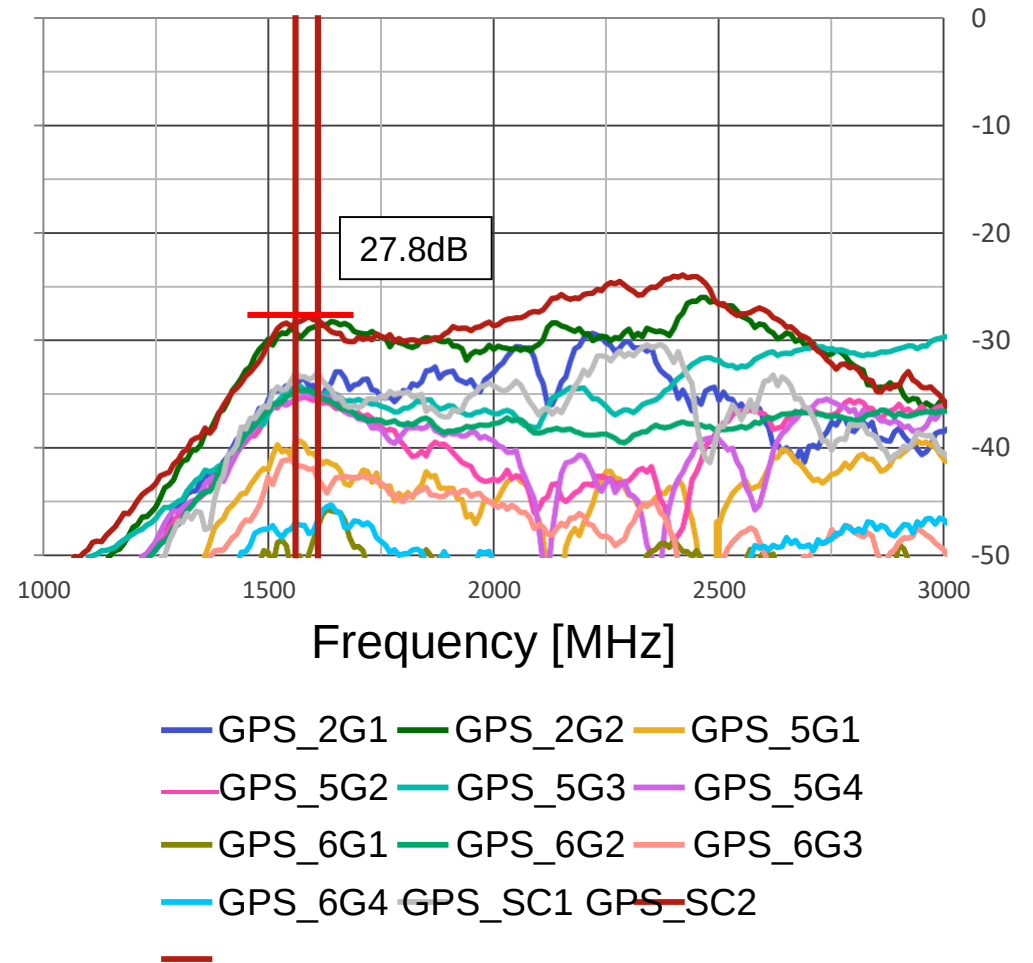
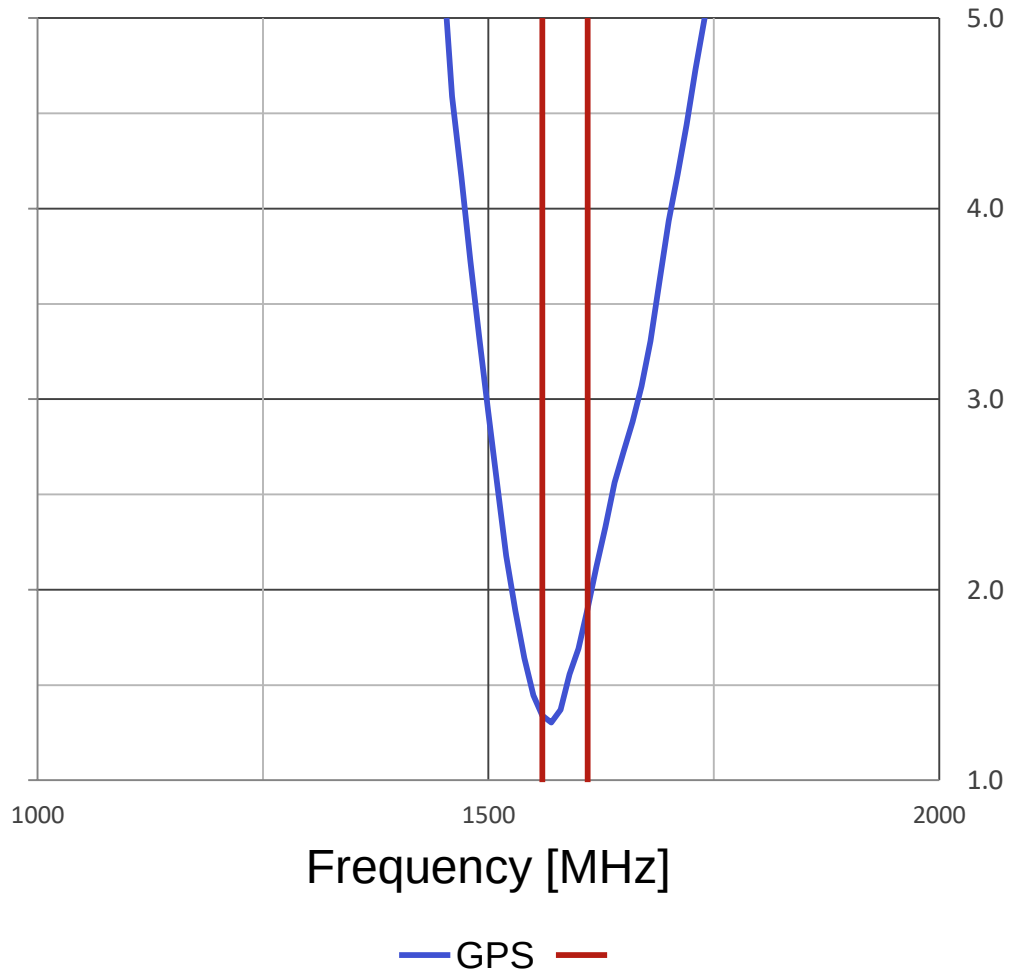
GPS Antenna

Ant.	Brand	WNC Part Number	Type
GPS	WNC	95XEAJ15.G89	Metal PIFA

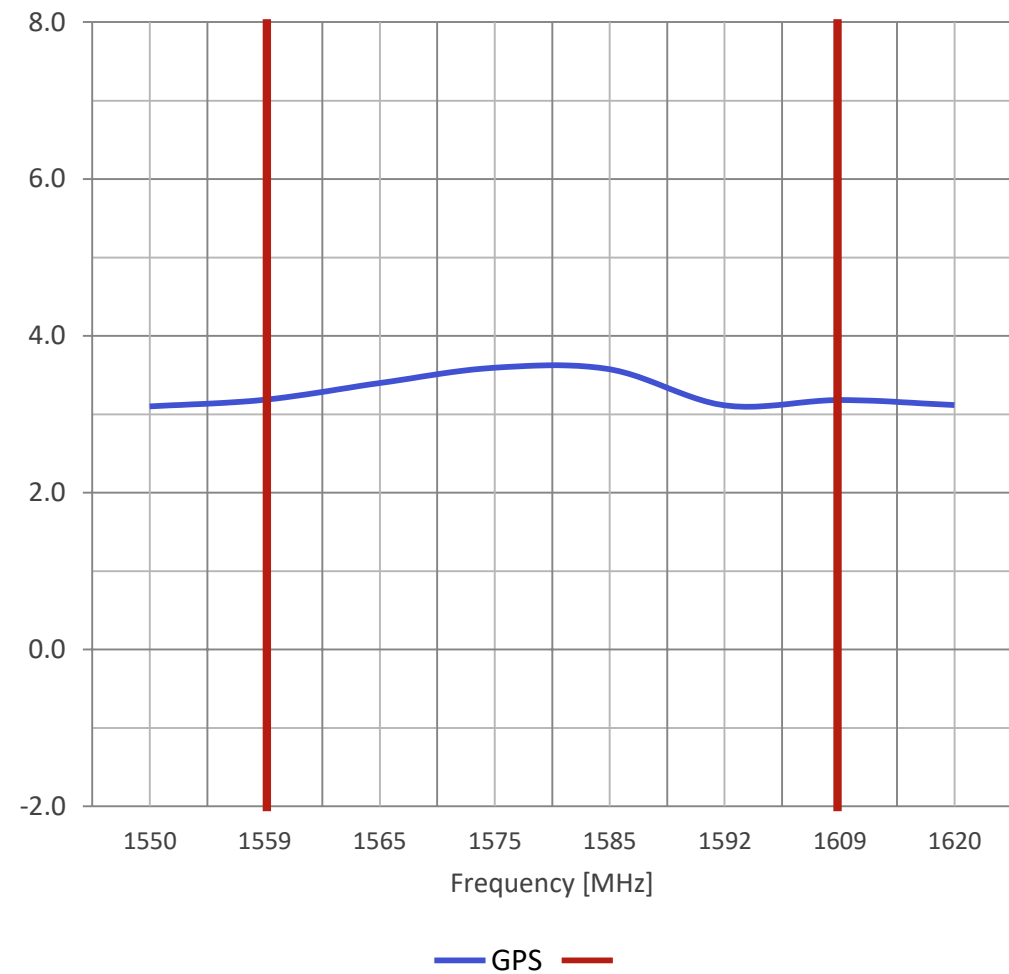
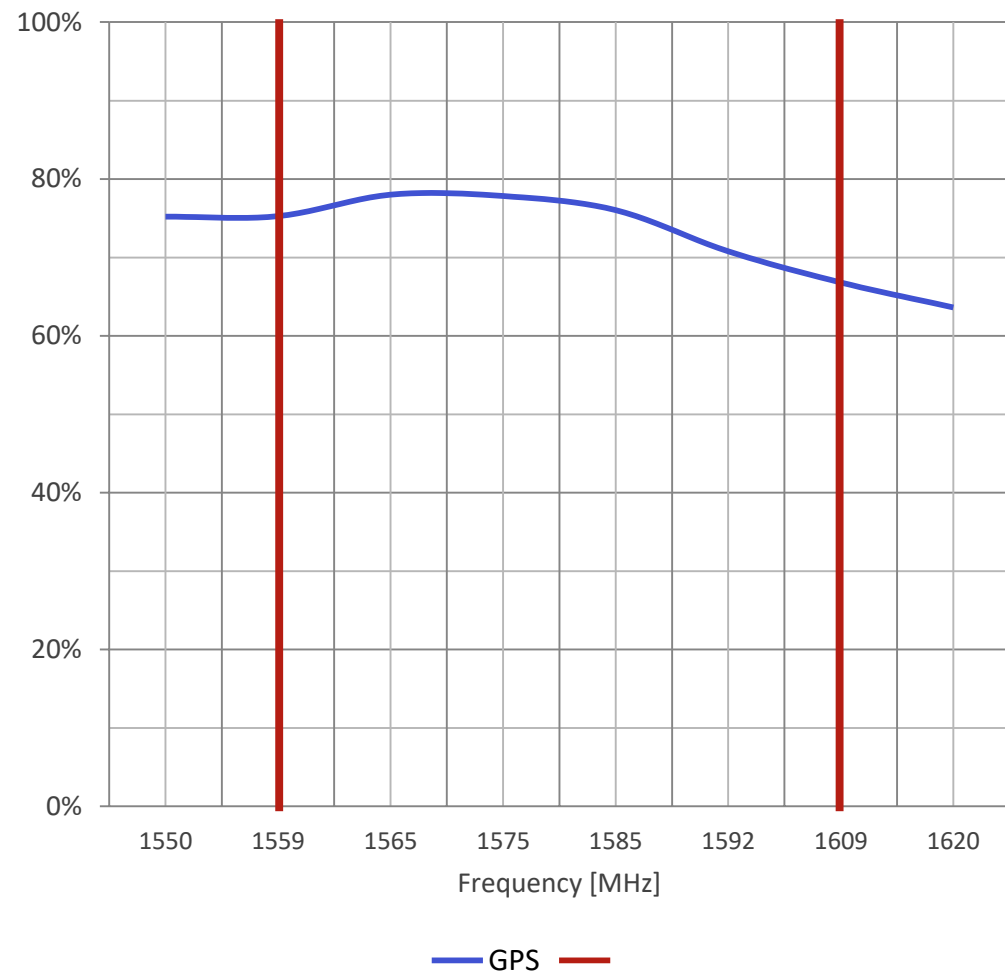
- **Maximum VSWR**
 - 2.0:1 on 1GHz
- **Minimum Isolation**
 - 27.8dB on 1GHz
- **Average Efficiency**
 - ~74% on 1GHz
- **Peak Gain**
 - 3.6dBi on 1GHz



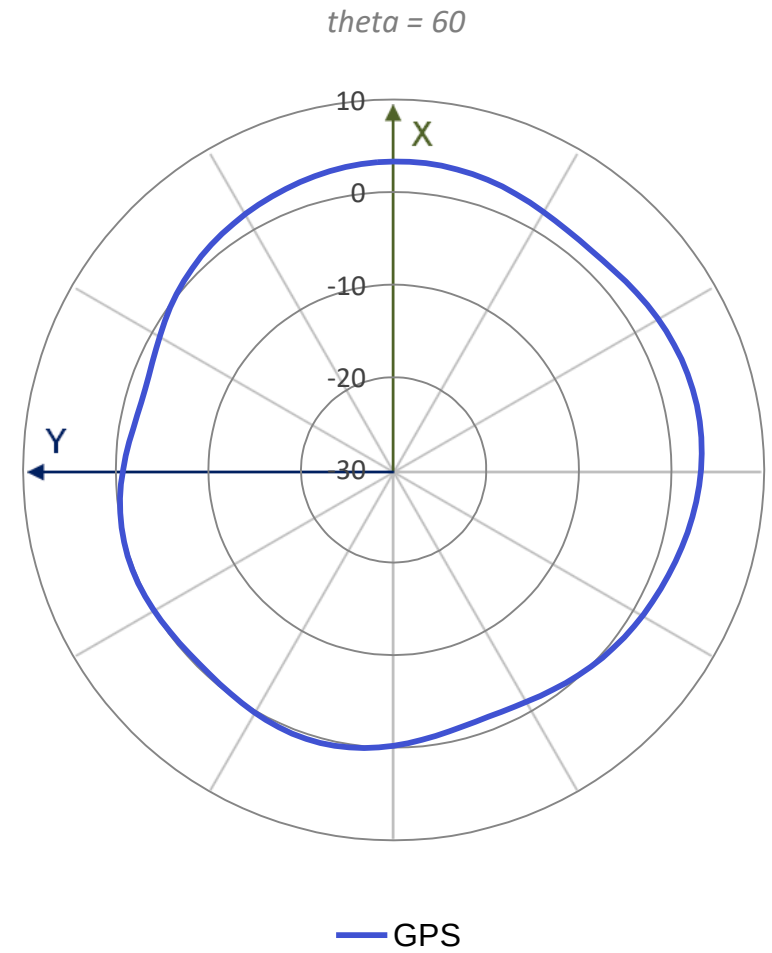
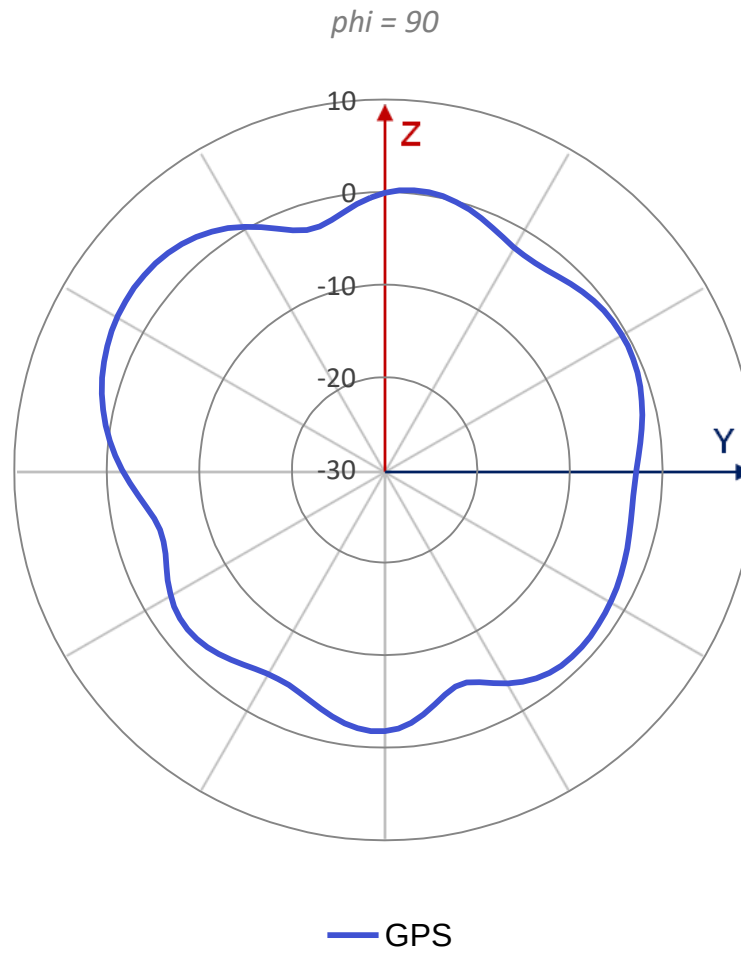
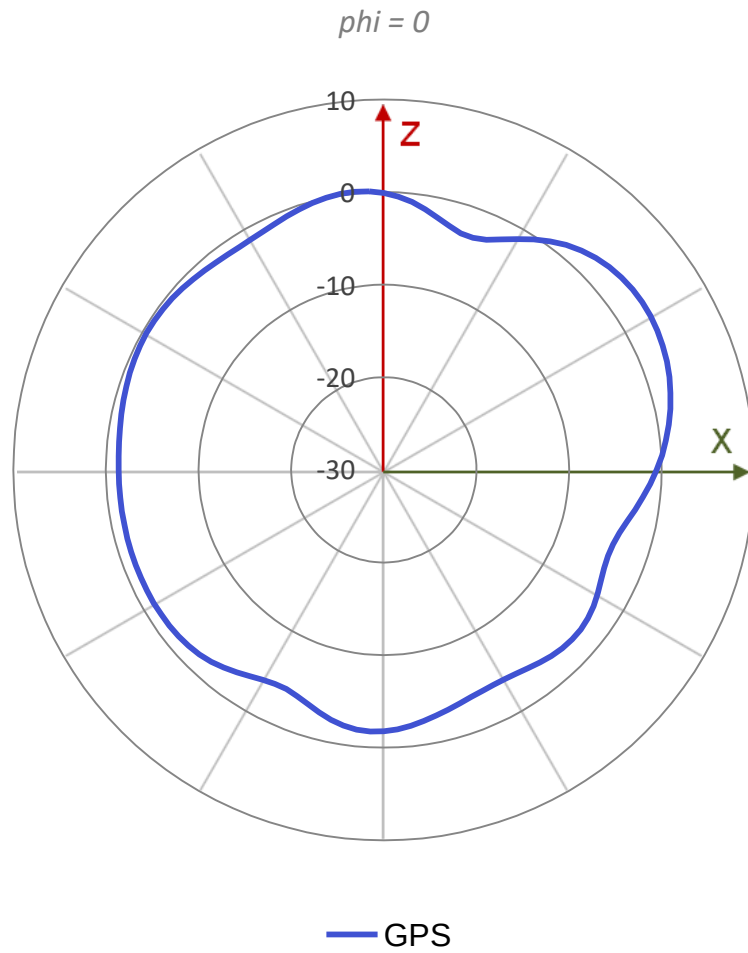
VSWR / Isolation GPS Antenna



Efficiency / Peak Gain GPS Antenna



Realized Gain Pattern GPS Antenna @1575MHz for Gtotal

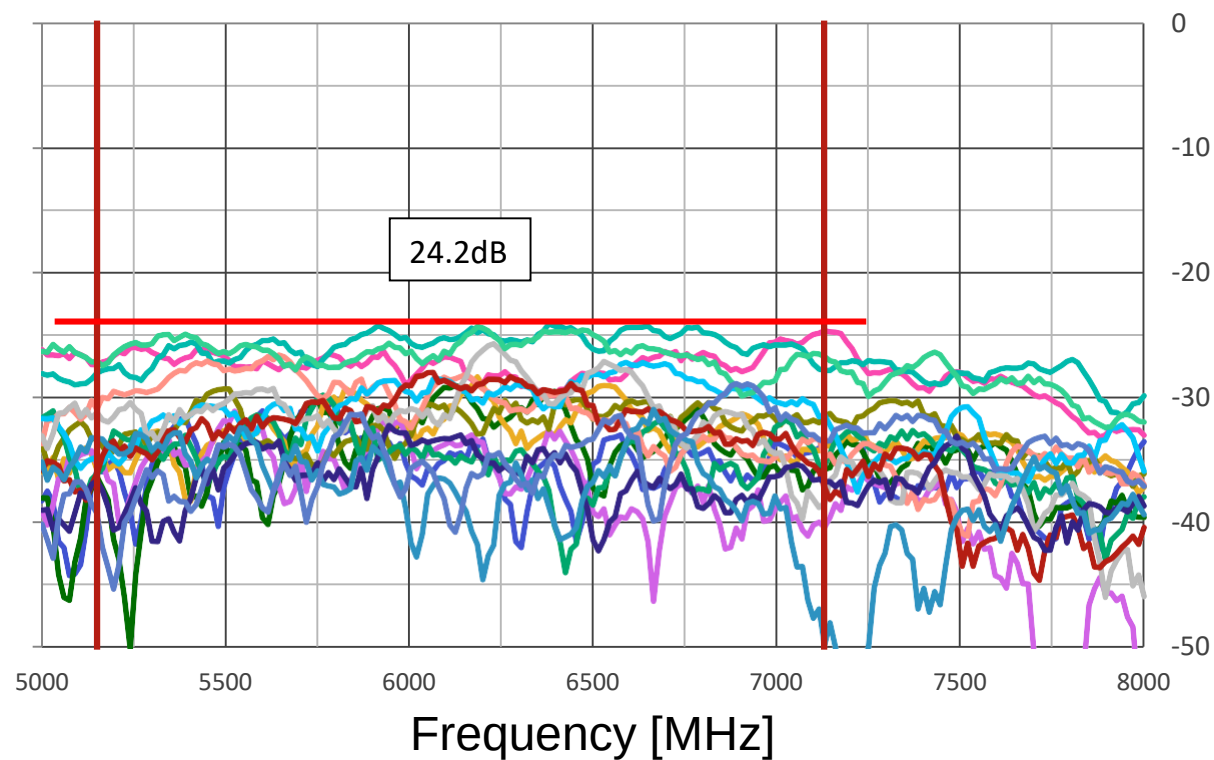


Isolation – Among Radio

- **Wi-Fi 5G to Wi-Fi 6G**
 - 24.2dB on 5_6GHz
- **Scanning to Wi-Fi 5G**
 - 23.2dB on 5GHz
- **Scanning to Wi-Fi 6G**
 - 23.4dB on 6GHz



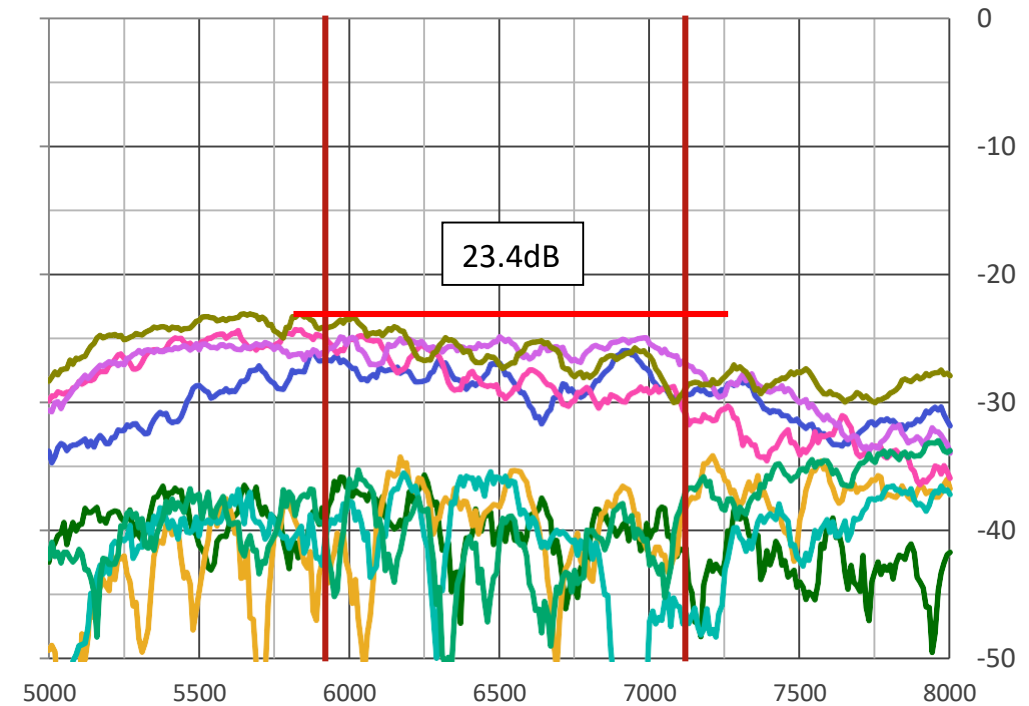
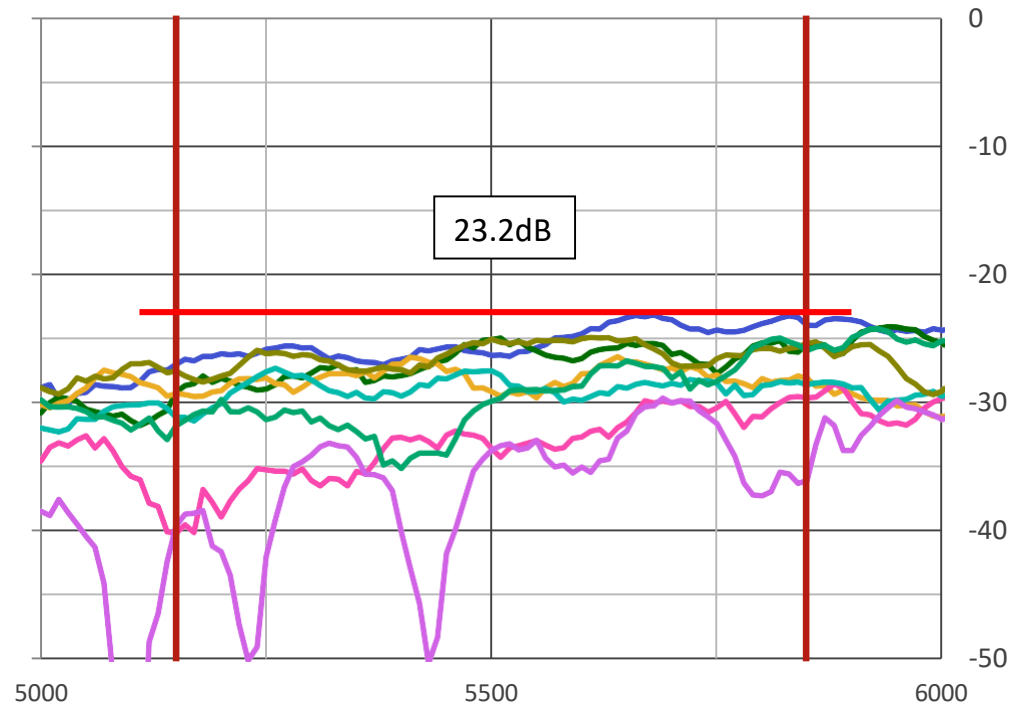
Isolation Wi-Fi 5G to Wi-Fi 6G



— 5G1_6G1 — 5G1_6G2 — 5G1_6G3 — 5G1_6G4 — 5G2_6G1
— 5G2_6G2 — 5G2_6G3 — 5G2_6G4 — 5G3_6G1 — 5G3_6G2
— 5G3_6G3 — 5G3_6G4 — 5G4_6G1 — 5G4_6G2 — 5G4_6G3
— 5G4_6G4 —



Isolation Scanning to Wi-Fi 5G / Scanning to Wi-Fi 6G



The logo consists of the letters 'WNC' in a bold, blue, italicized sans-serif font. The 'W' and 'N' are connected, and the 'C' is a simple curve.

WNC

Wistron NeWeb Corp.

