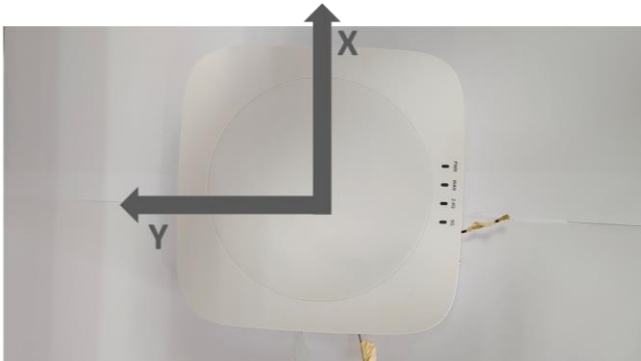
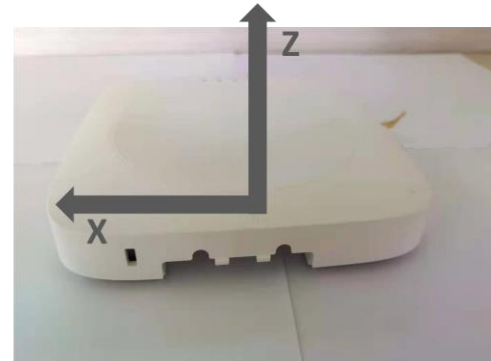
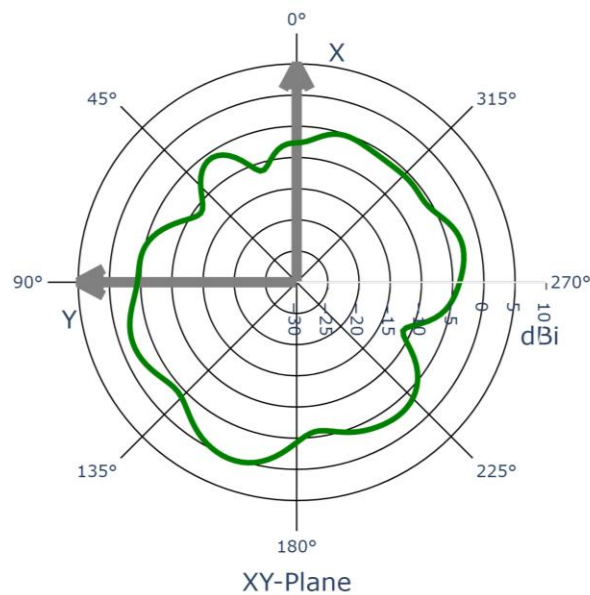


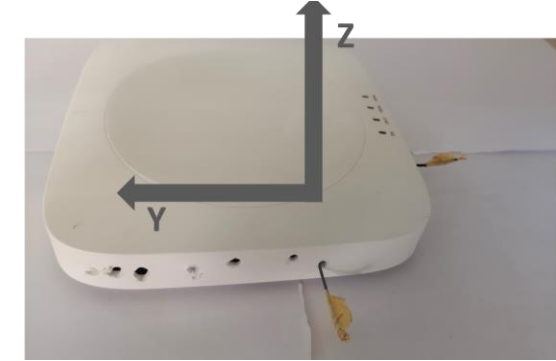
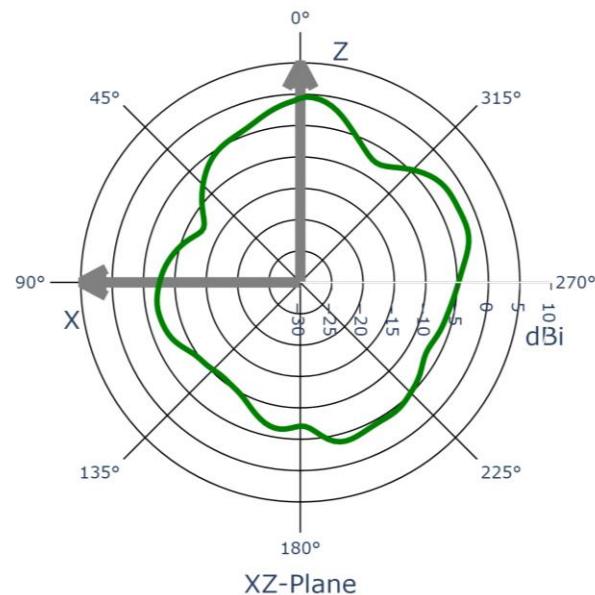
Realized Gain Radiation Patterns of Antennas in BT Band at 2490 MHz



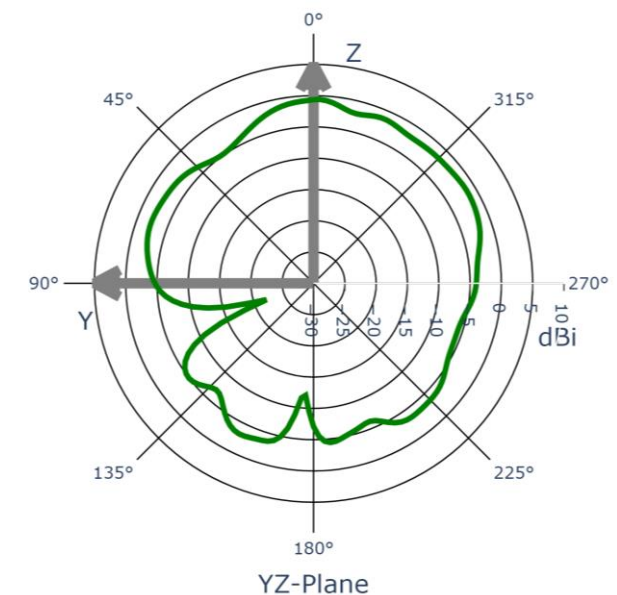
A3_BT



A3_BT



A3_BT

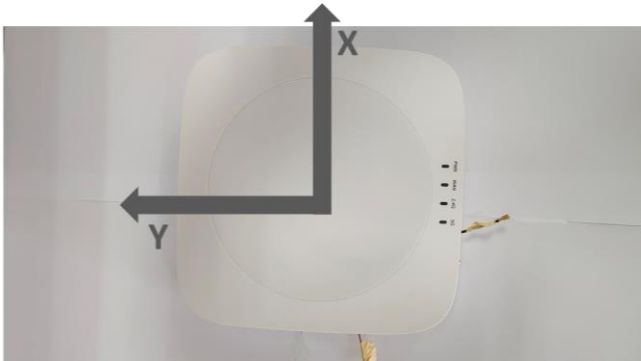


Radiation Patterns in Principal Planes: Grouped by Frequencies in Specified Frequency Bands

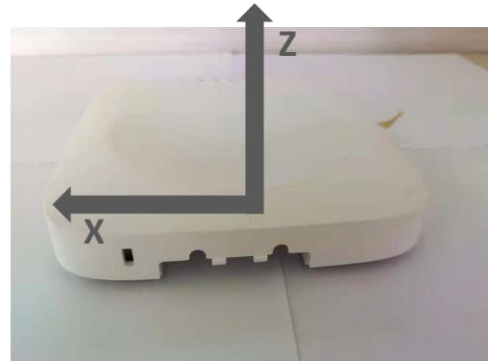
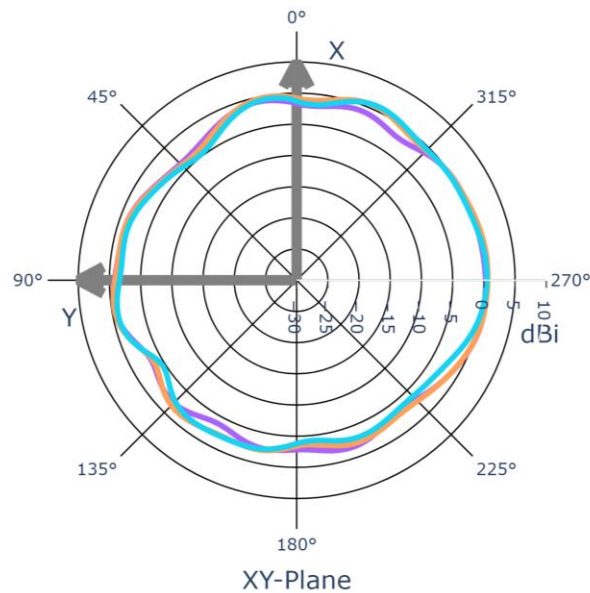
- Realized Gain



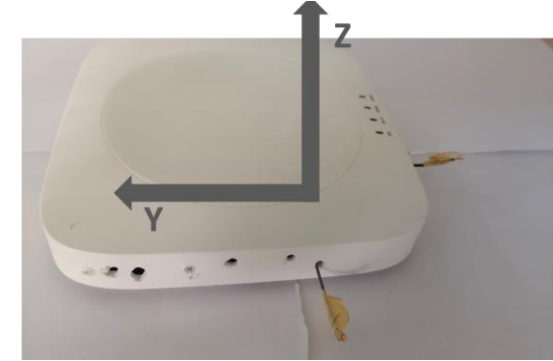
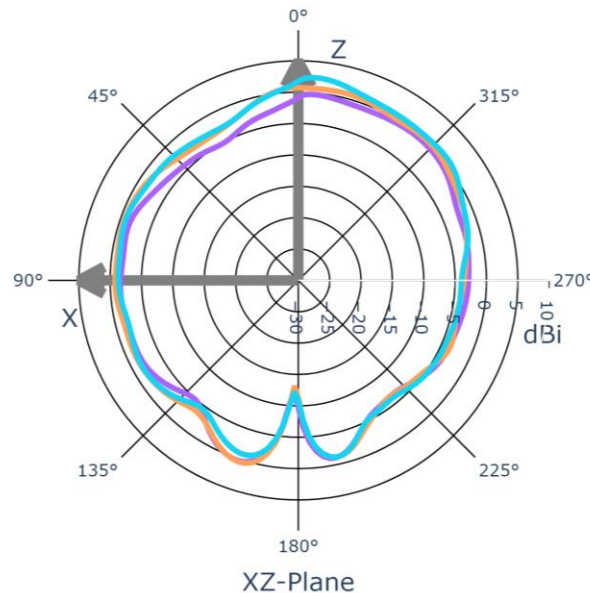
Realized Gain Radiation Patterns of A1_Dual Antenna in 2G4 Band: Total Polarization



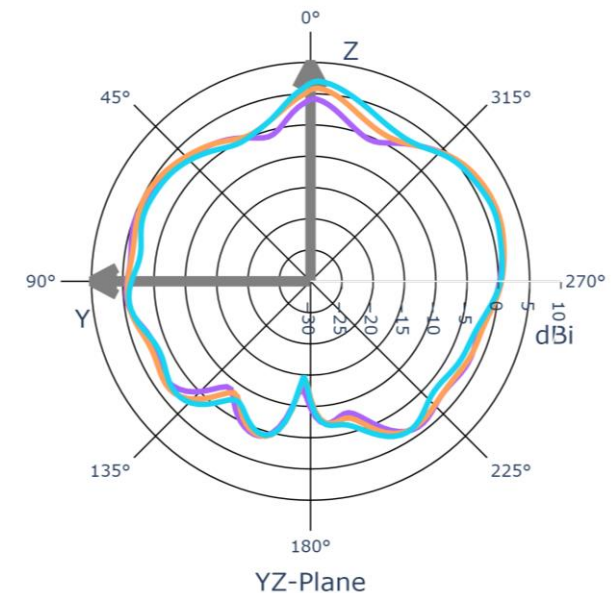
2400 MHz
2450 MHz
2490 MHz



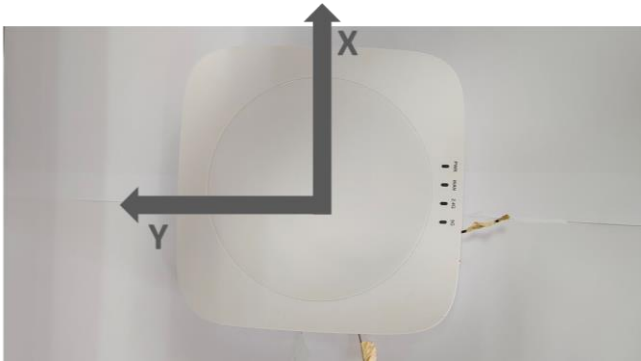
2400 MHz
2450 MHz
2490 MHz



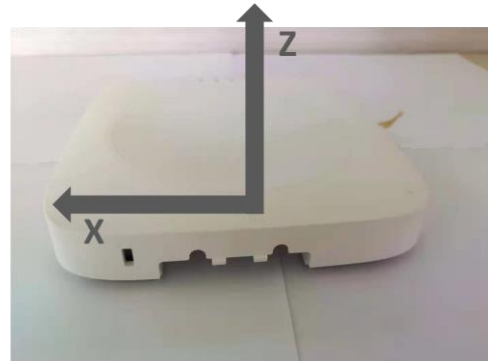
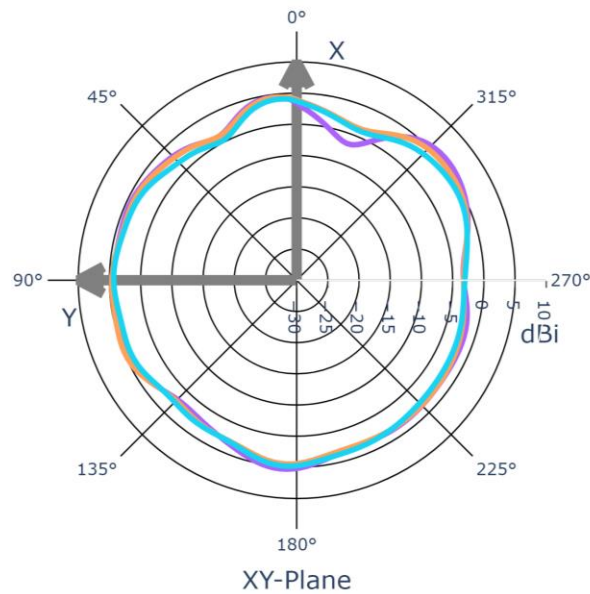
2400 MHz
2450 MHz
2490 MHz



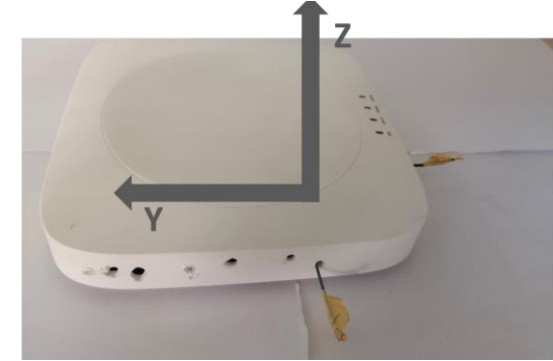
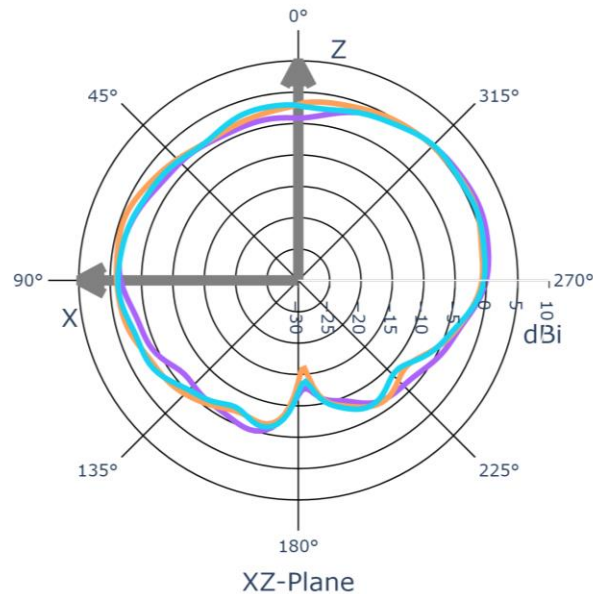
Realized Gain Radiation Patterns of A2_Dual Antenna in 2G4 Band: Total Polarization



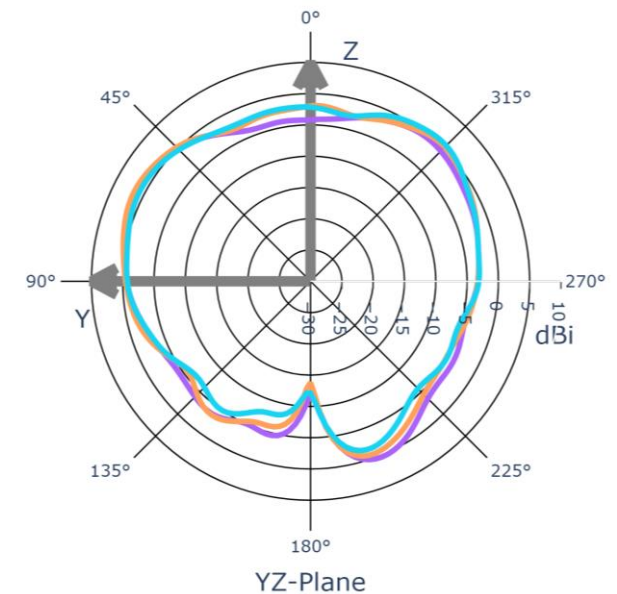
2400 MHz
2450 MHz
2490 MHz



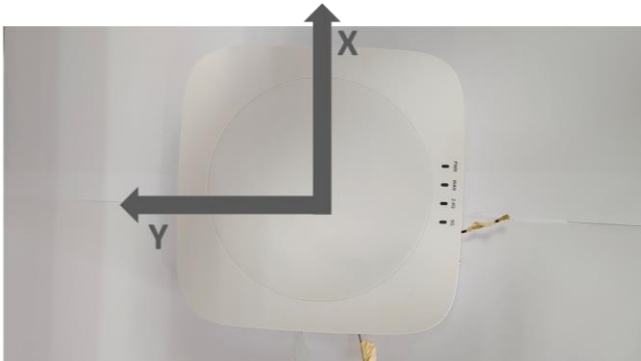
2400 MHz
2450 MHz
2490 MHz



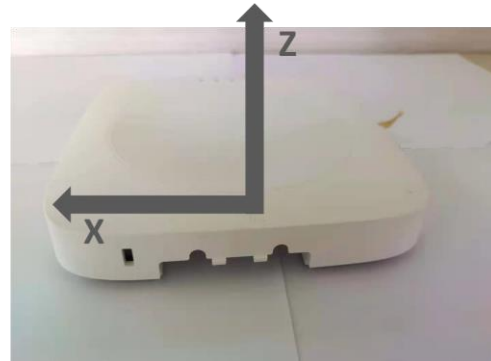
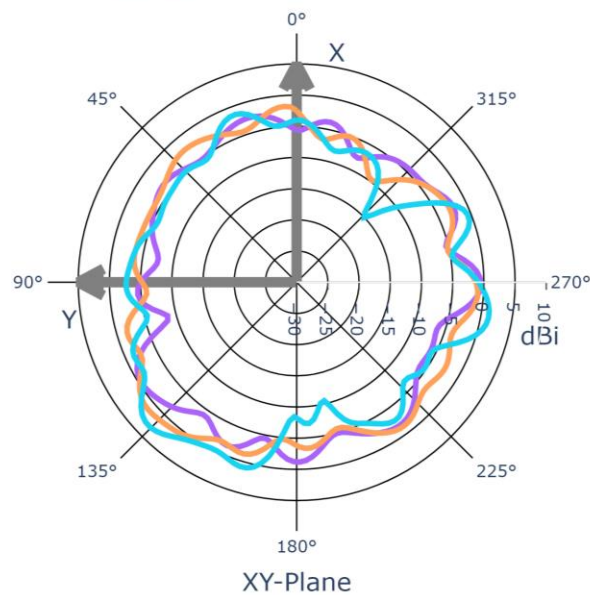
2400 MHz
2450 MHz
2490 MHz



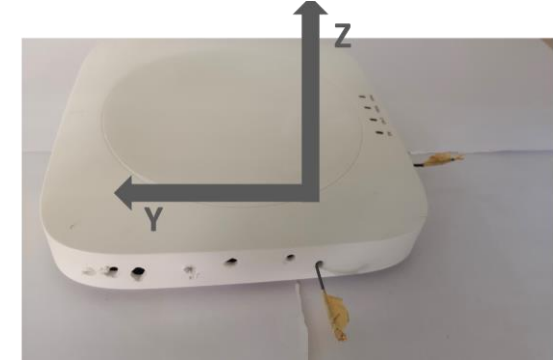
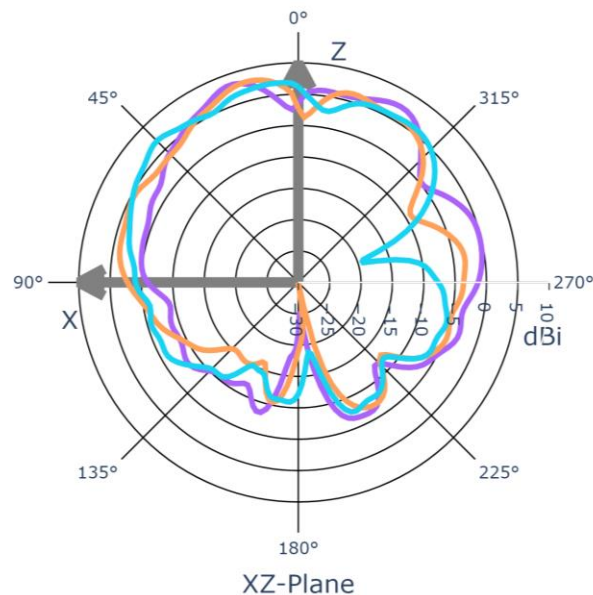
Realized Gain Radiation Patterns of A1_Dual Antenna in 5G Band: Total Polarization



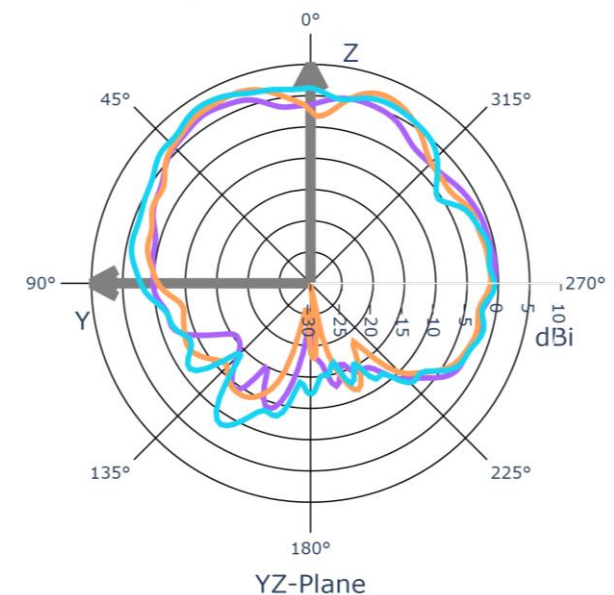
5150 MHz
5500 MHz
5850 MHz



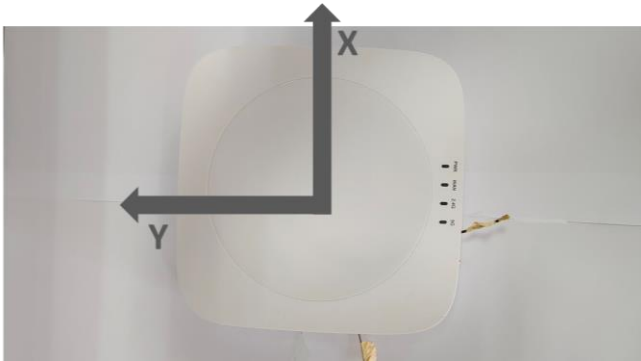
5150 MHz
5500 MHz
5850 MHz



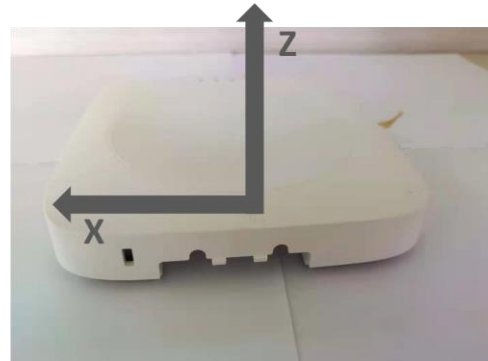
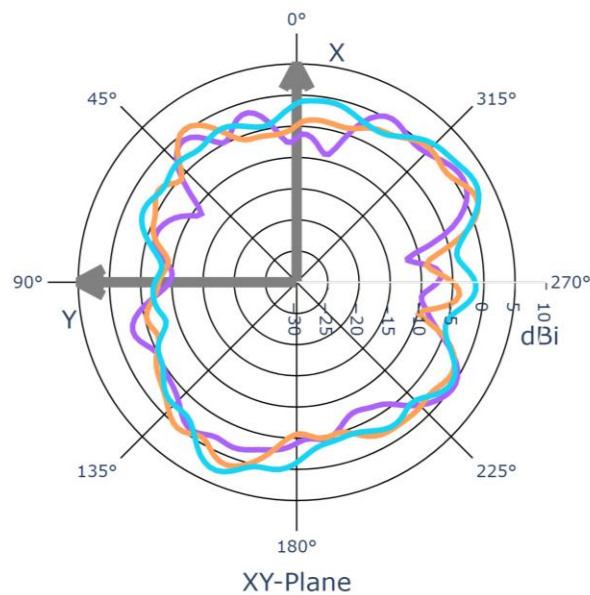
5150 MHz
5500 MHz
5850 MHz



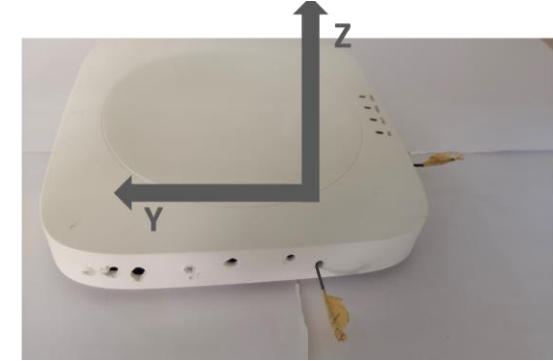
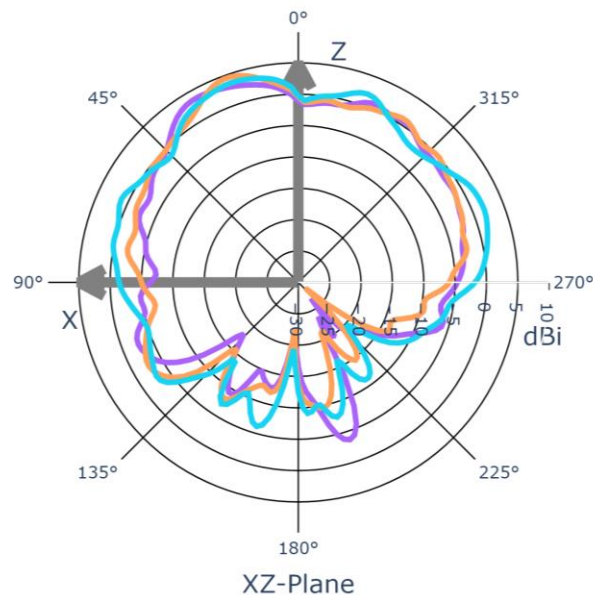
Realized Gain Radiation Patterns of A2_Dual Antenna in 5G Band: Total Polarization



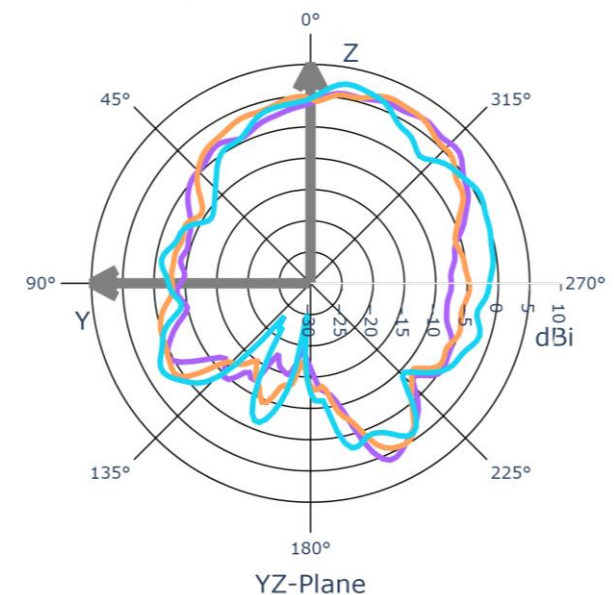
5150 MHz
5500 MHz
5850 MHz



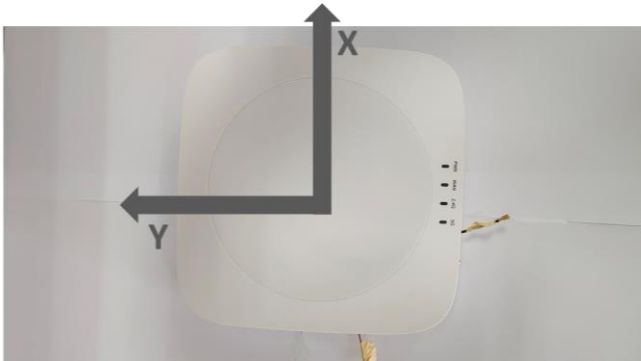
5150 MHz
5500 MHz
5850 MHz



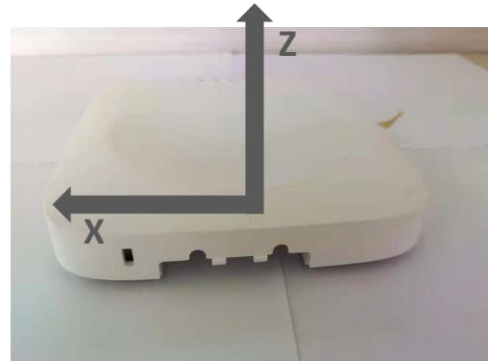
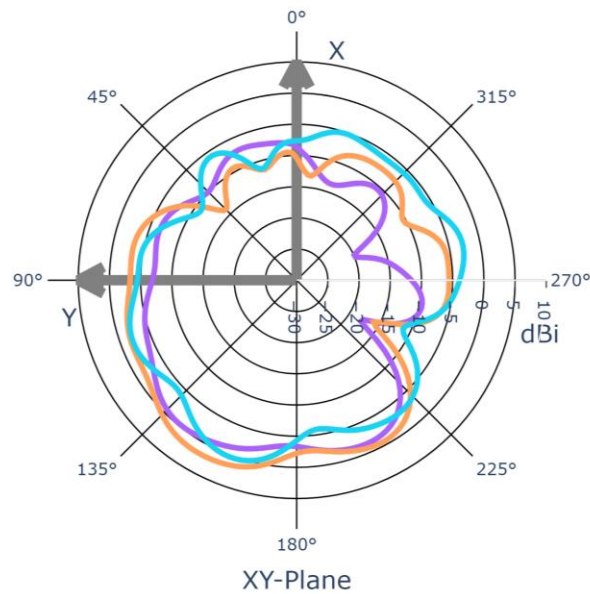
5150 MHz
5500 MHz
5850 MHz



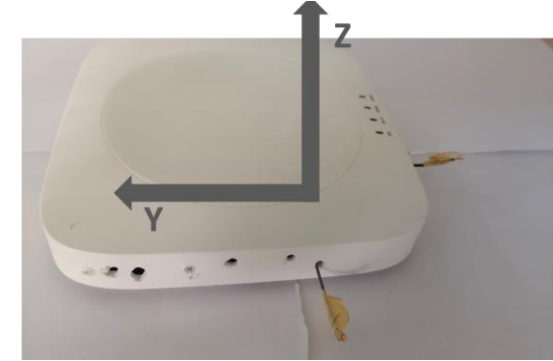
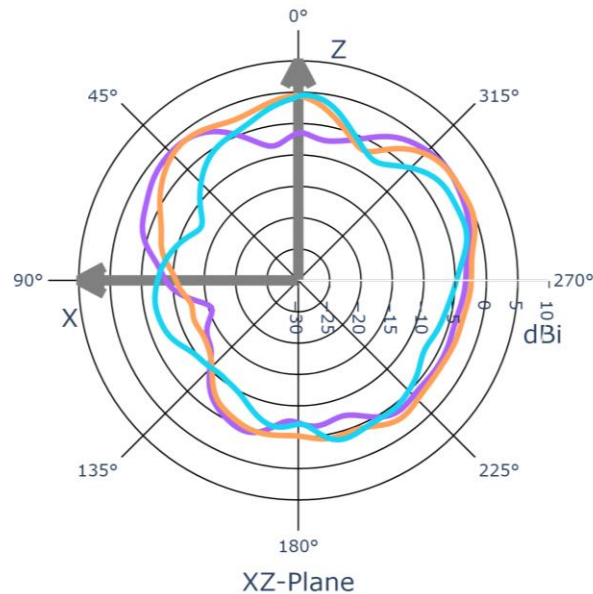
Realized Gain Radiation Patterns of A3_BT Antenna in BT Band: Total Polarization



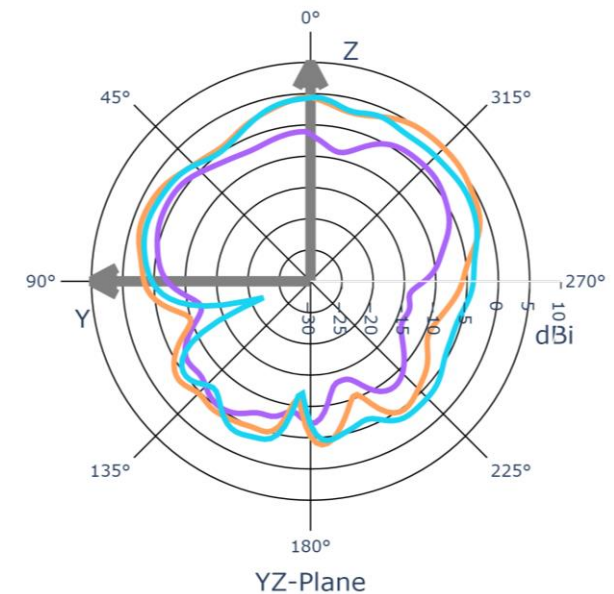
— 2400 MHz
— 2450 MHz
— 2490 MHz



— 2400 MHz
— 2450 MHz
— 2490 MHz



— 2400 MHz
— 2450 MHz
— 2490 MHz



Radiation Patterns: 3D Representation - Grouped by Polarizations

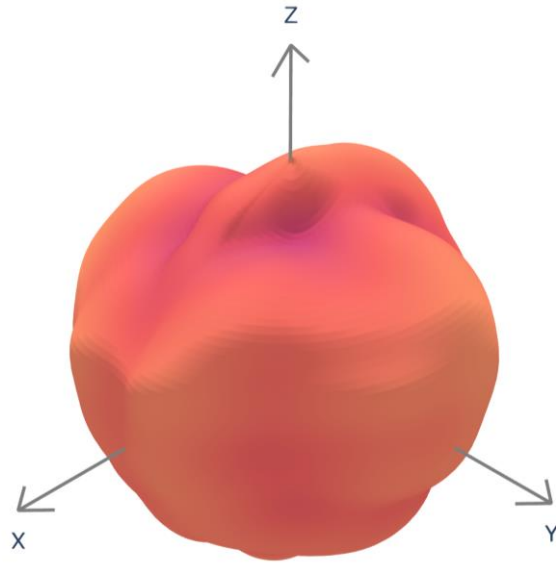
- Realized Gain



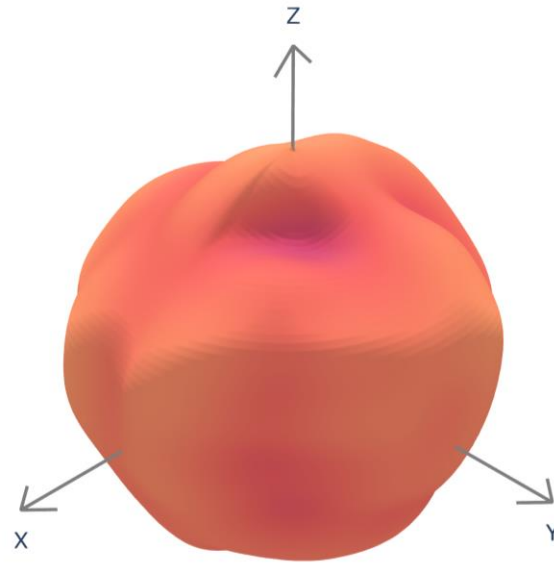
Realized Gain Radiation Patterns of A1_Dual Antenna in 2G4 Band: Total Polarization

[dBi]
10
5
0
-5
-10
-15
-20
-25
-30

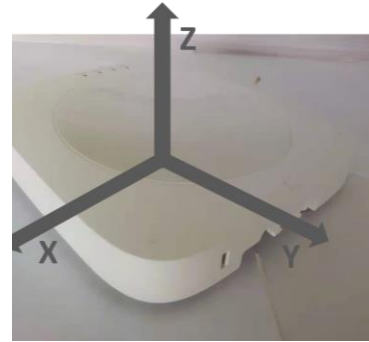
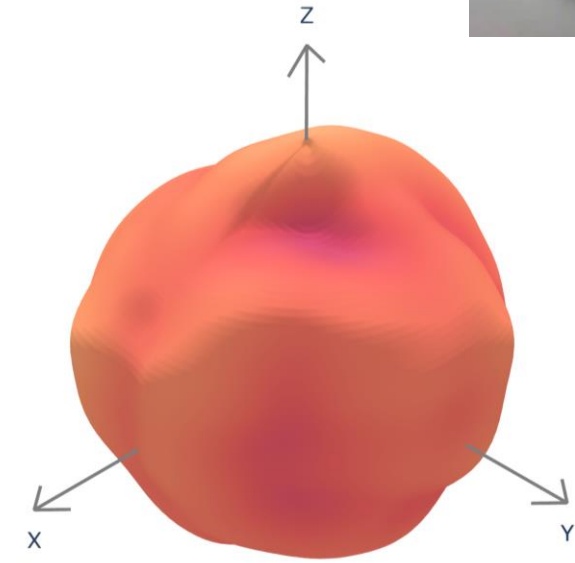
2400 MHz



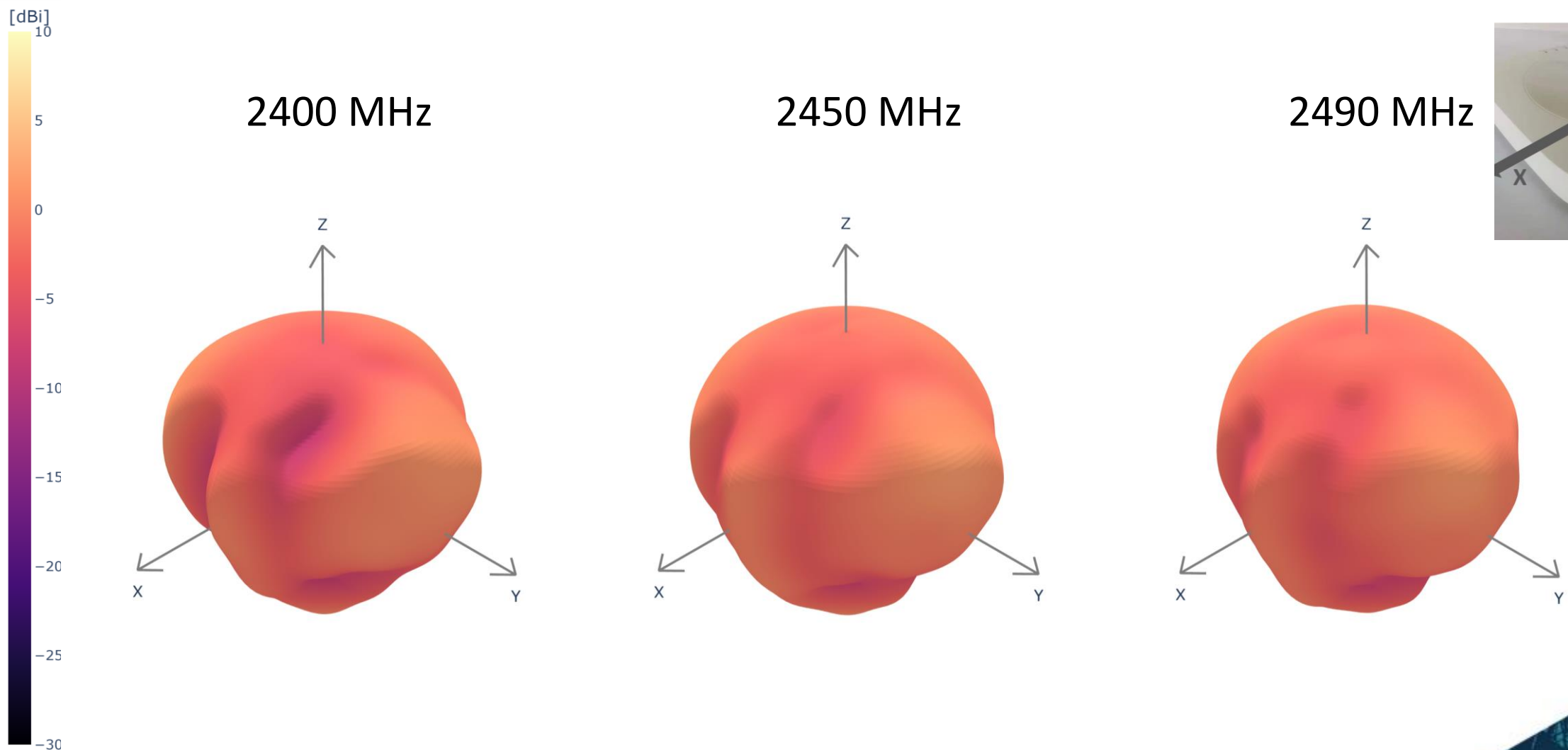
2450 MHz



2490 MHz



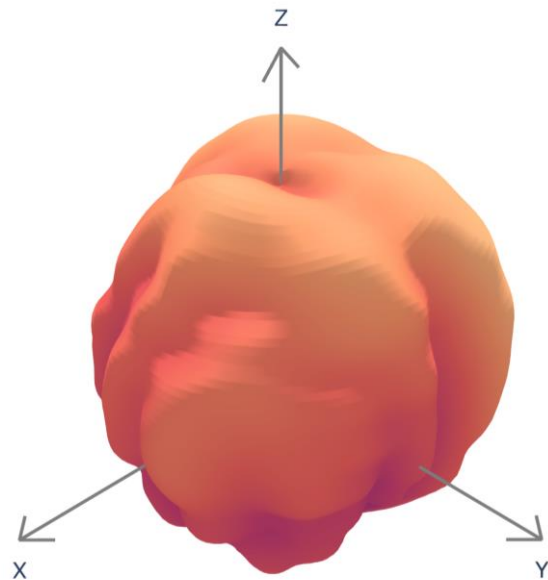
Realized Gain Radiation Patterns of A2_Dual Antenna in 2G4 Band: Total Polarization



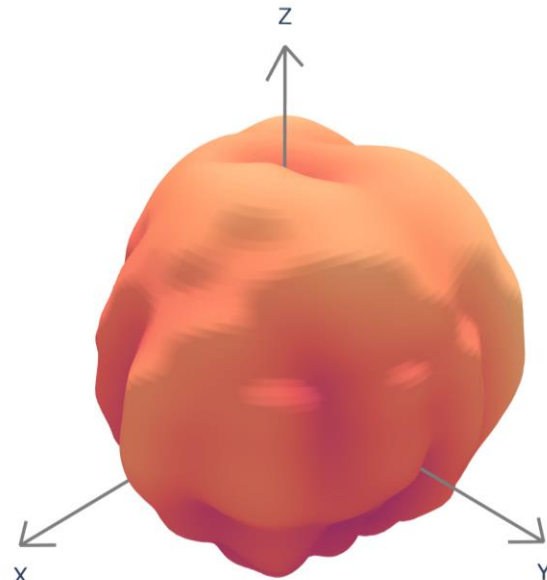
Realized Gain Radiation Patterns of A1_Dual Antenna in 5G Band: Total Polarization

[dBi]
10
5
0
-5
-10
-15
-20
-25
-30

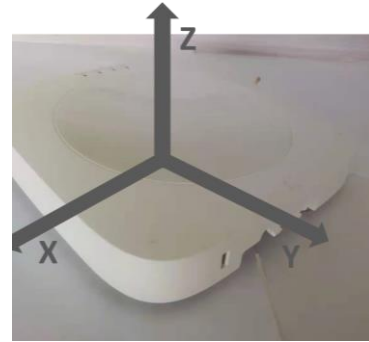
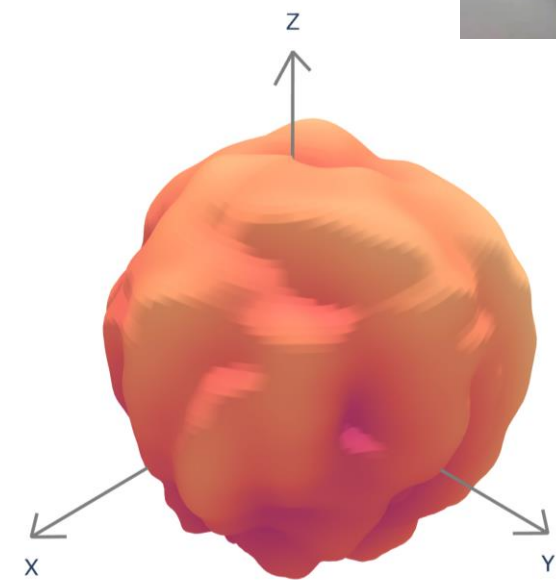
5150 MHz



5500 MHz



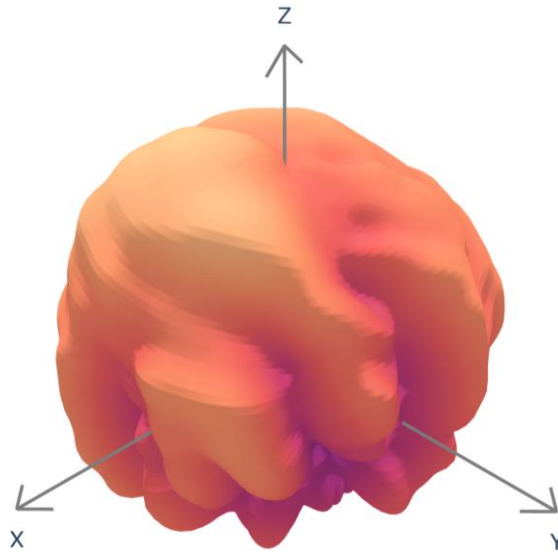
5850 MHz



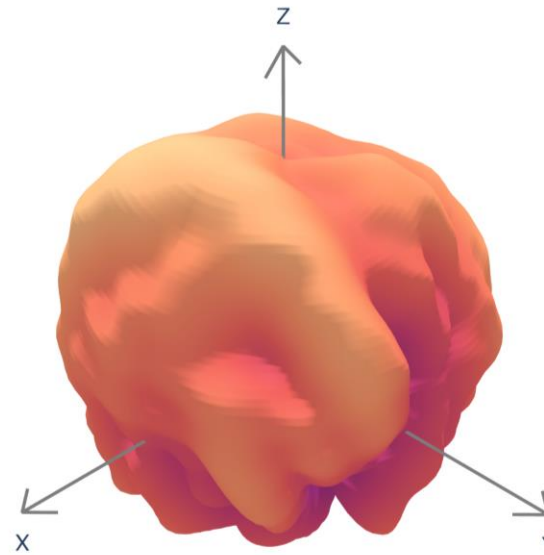
Realized Gain Radiation Patterns of A2_Dual Antenna in 5G Band: Total Polarization

[dBi]
10
5
0
-5
-10
-15
-20
-25
-30

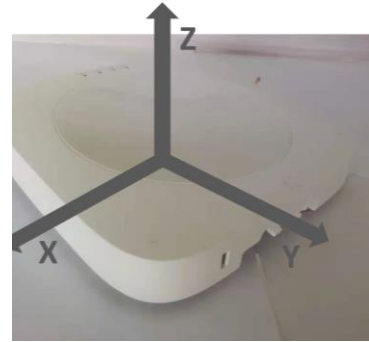
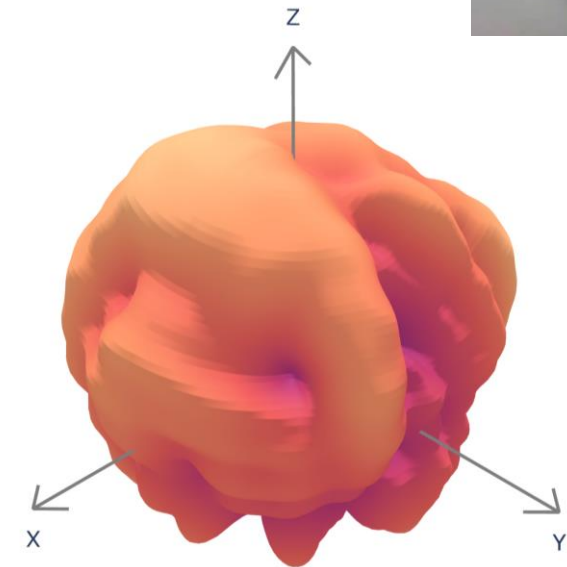
5150 MHz



5500 MHz



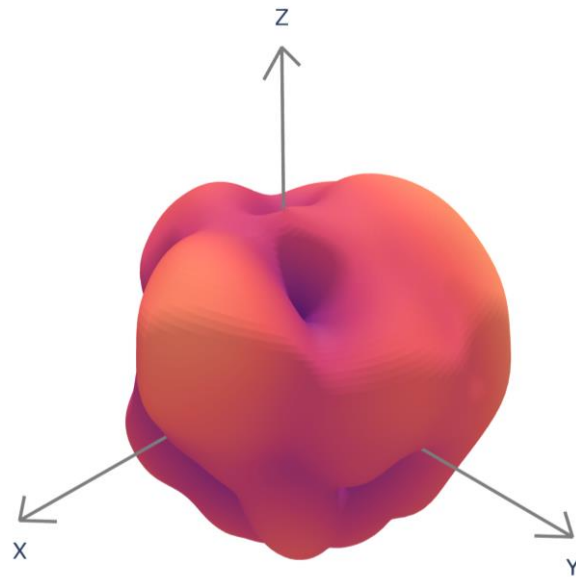
5850 MHz



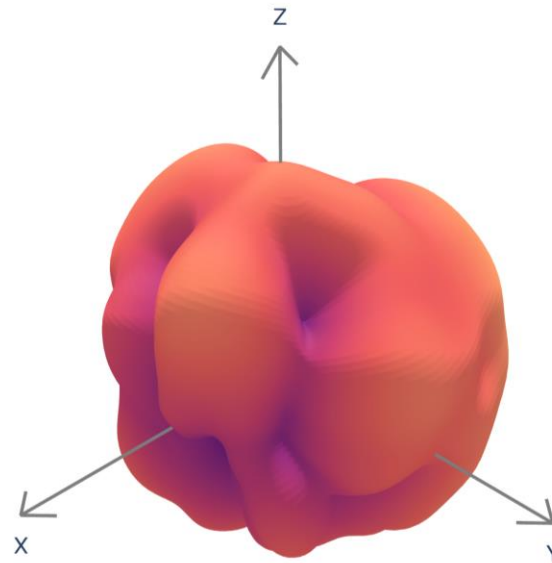
Realized Gain Radiation Patterns of A3_BT Antenna in BT Band: Total Polarization



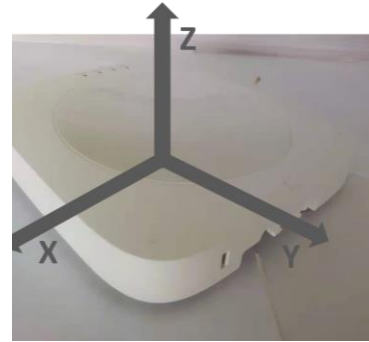
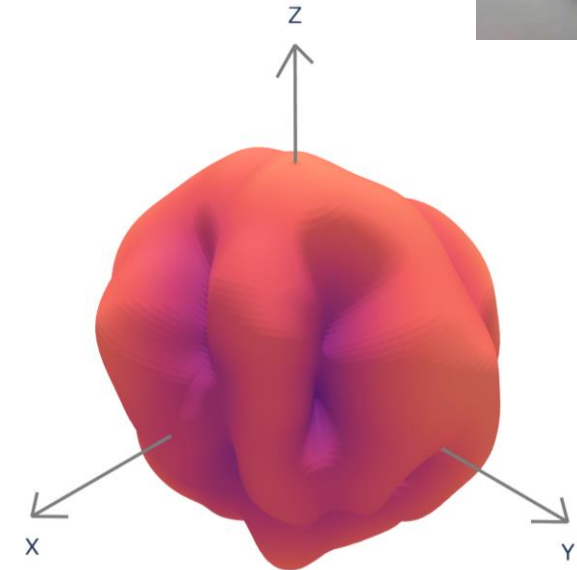
2400 MHz



2450 MHz



2490 MHz

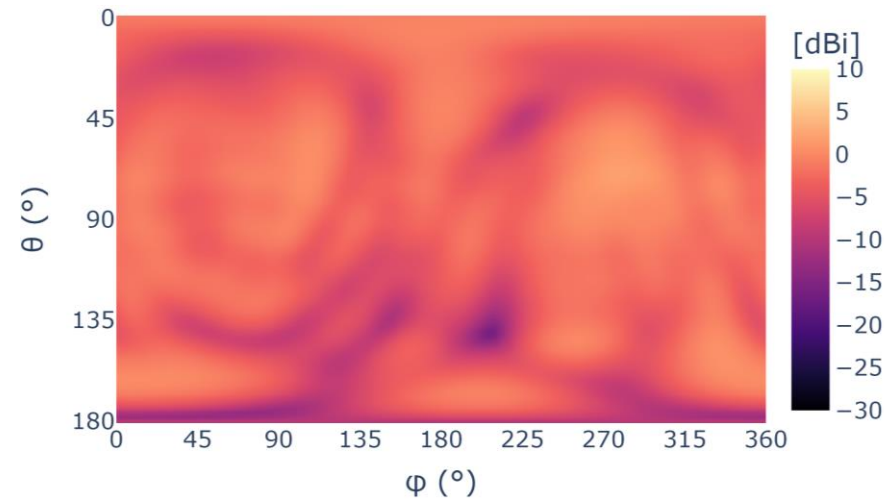


Radiation Patterns: Heatmap Representation - Grouped by Extraction Frequencies

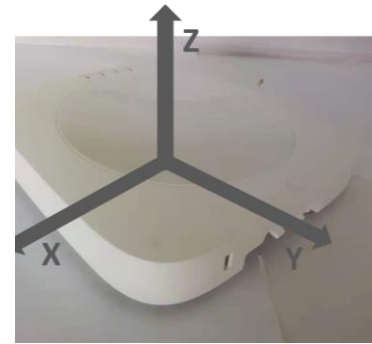
- Realized Gain



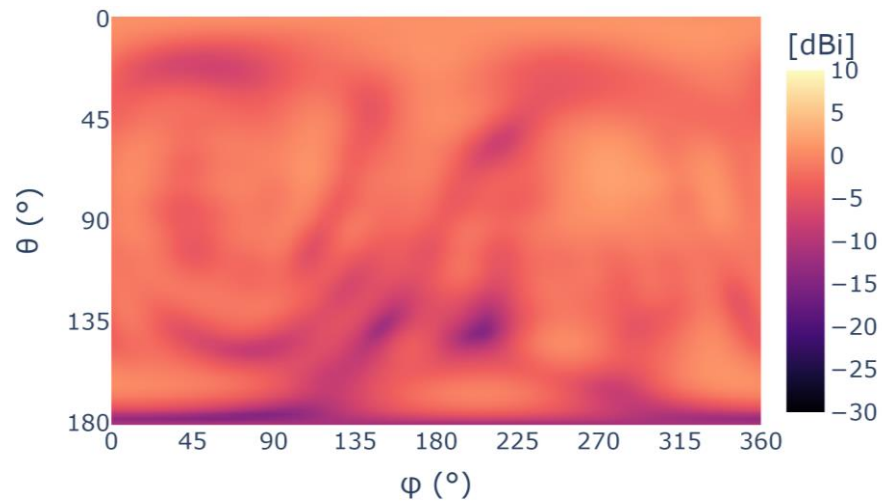
Realized Gain Radiation Patterns of A1_Dual Antenna in 2G4 Band: Total Polarization



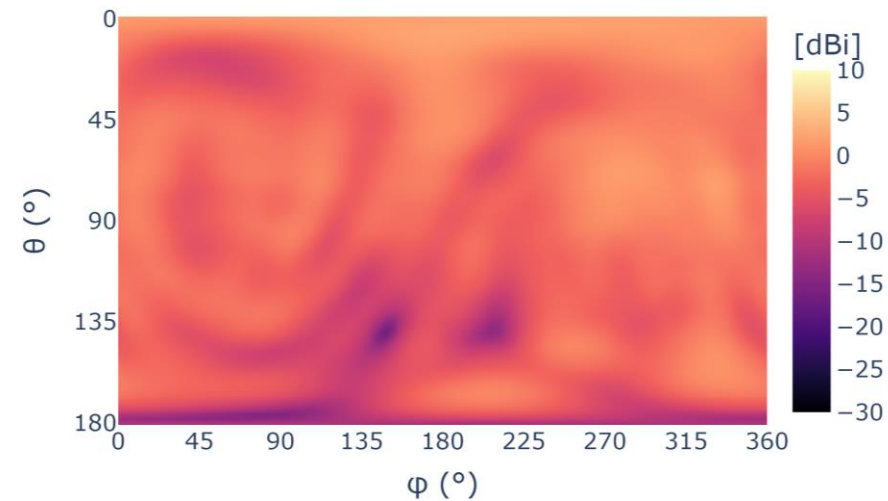
2400 MHz



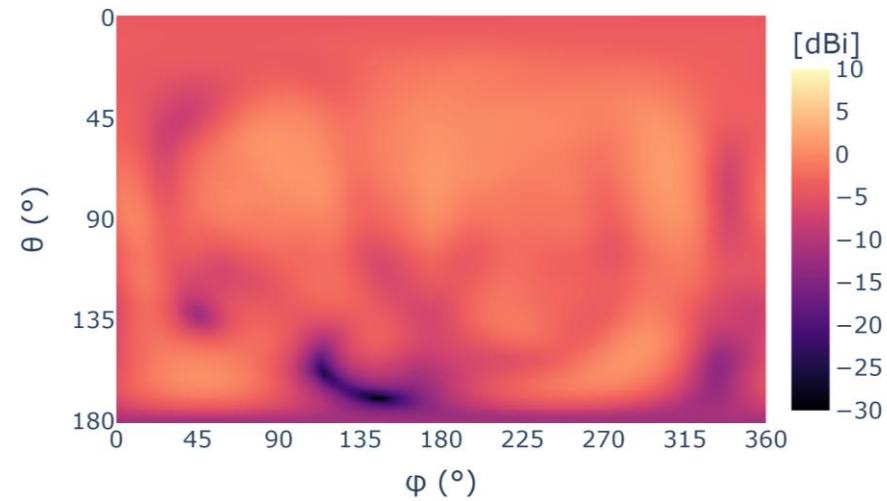
2450 MHz



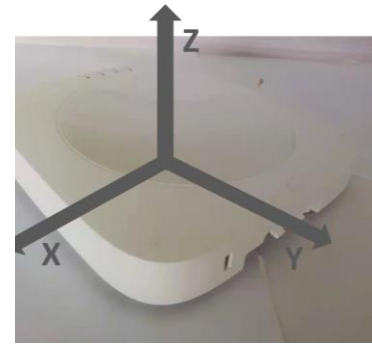
2490 MHz



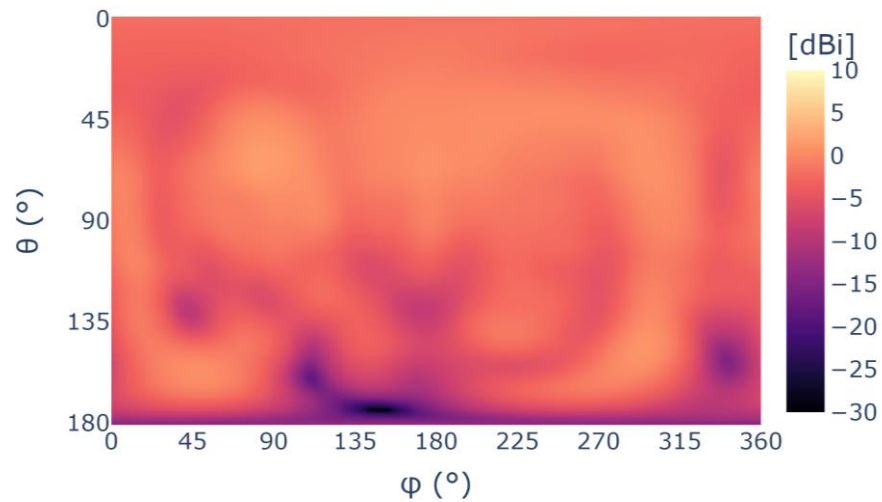
Realized Gain Radiation Patterns of A2_Dual Antenna in 2G4 Band: Total Polarization



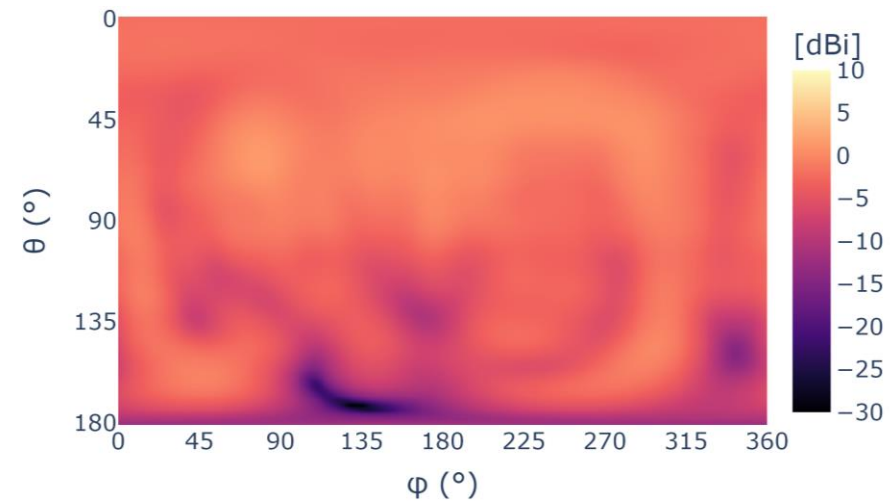
2400 MHz



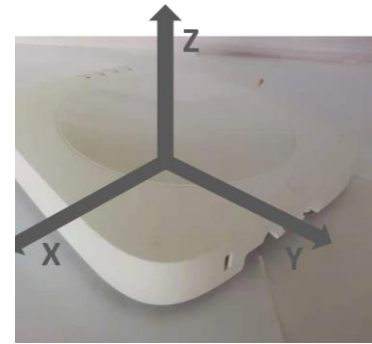
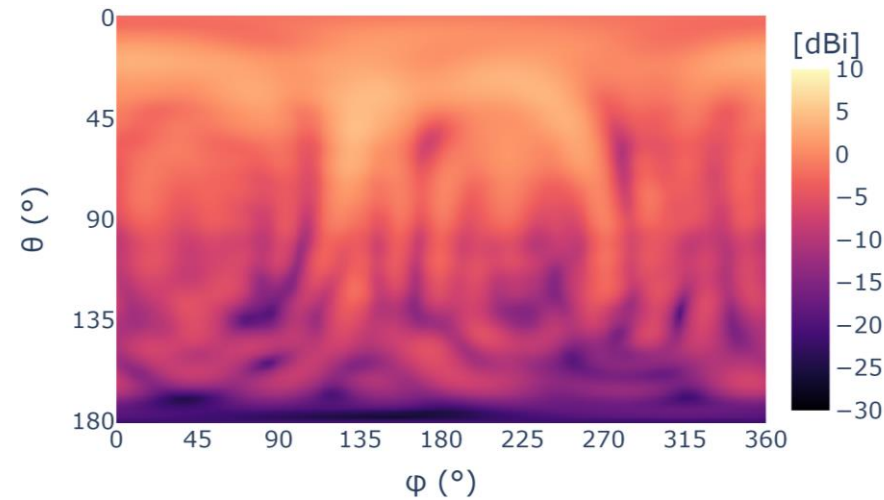
2450 MHz



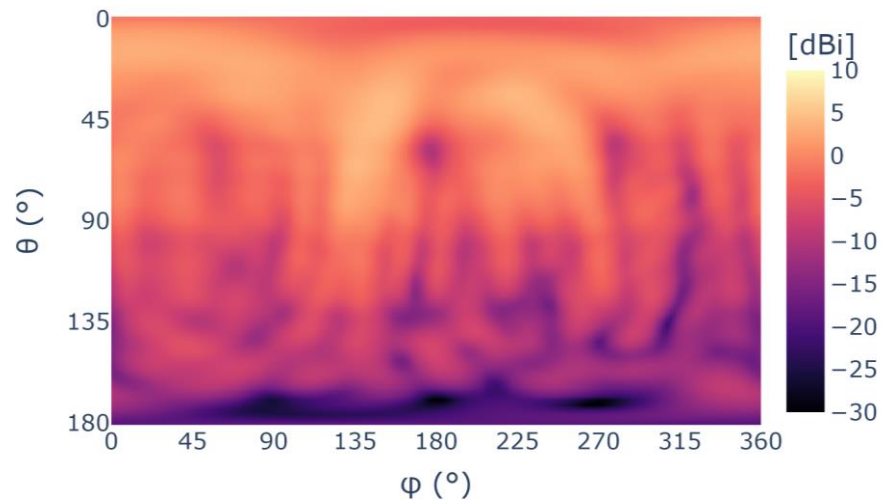
2490 MHz



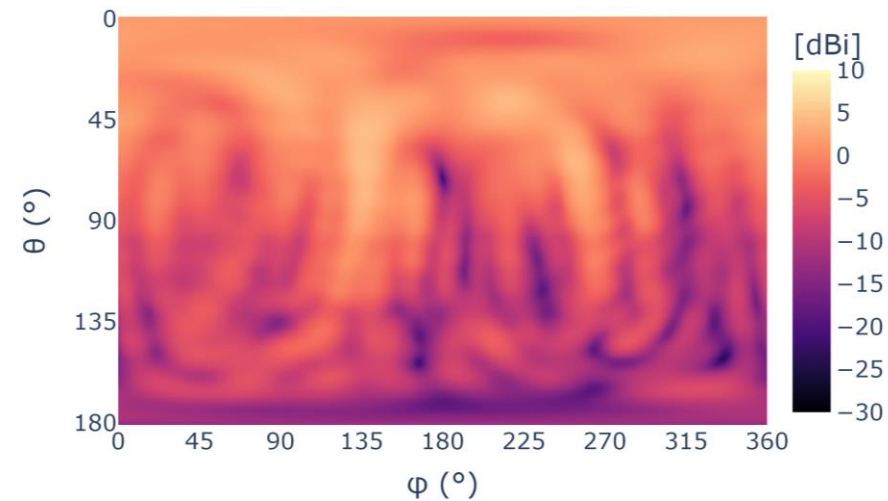
Realized Gain Radiation Patterns of A1_Dual Antenna in 5G Band: Total Polarization



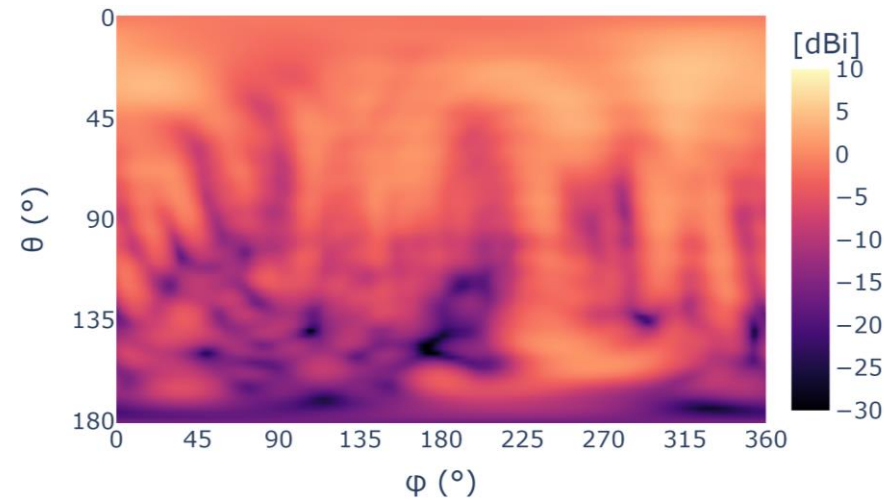
5500 MHz



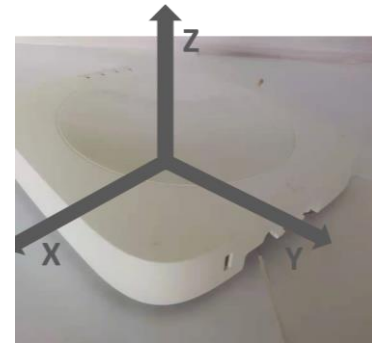
5850 MHz



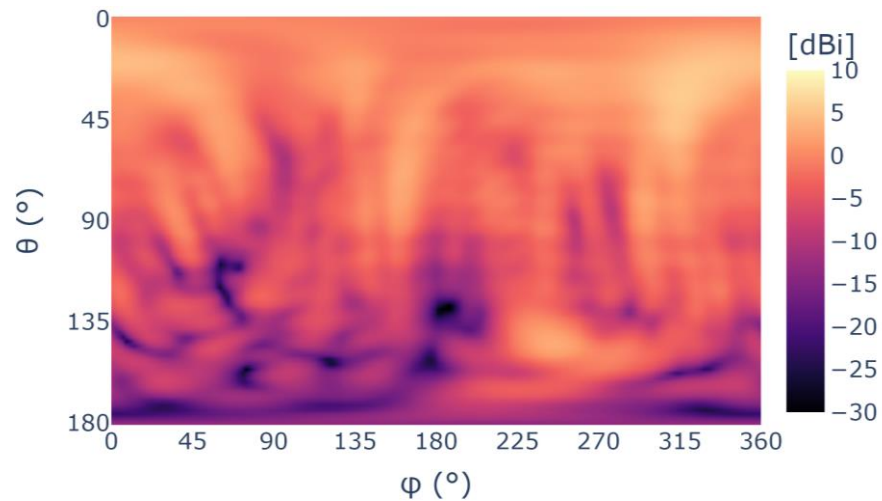
Realized Gain Radiation Patterns of A2_Dual Antenna in 5G Band: Total Polarization



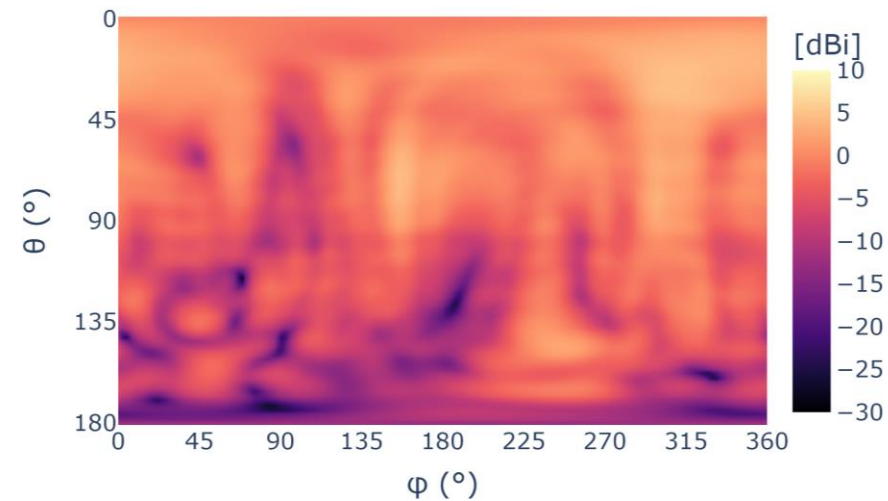
5150 MHz



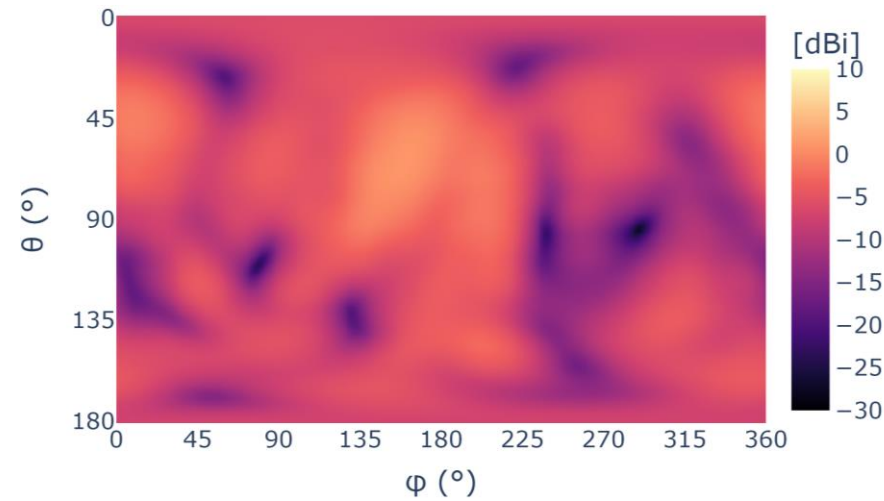
5500 MHz



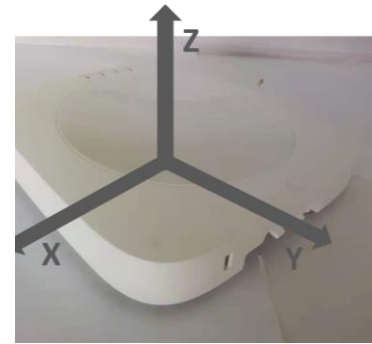
5850 MHz



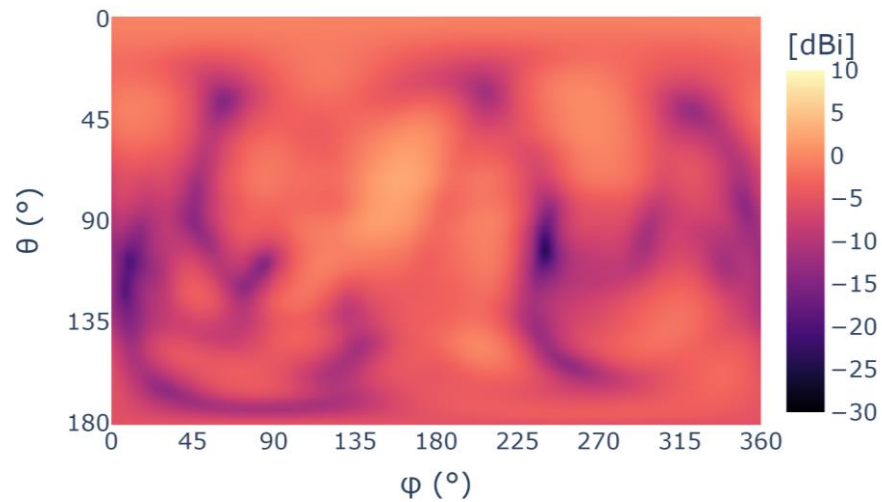
Realized Gain Radiation Patterns of A3_BT Antenna in BT Band: Total Polarization



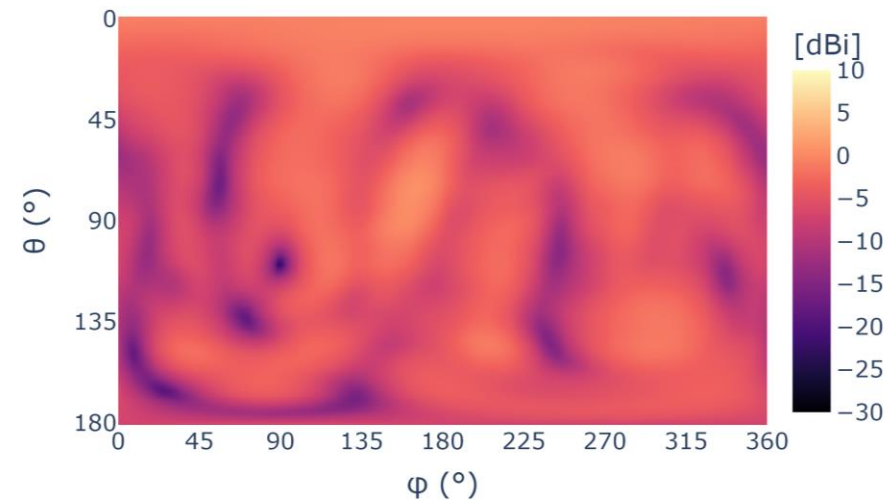
2400 MHz



2450 MHz



2490 MHz



Conclusion

- Measurement results for HL Global antenna system for CIG WF-186 were presented
- All results were measured with the tooling housing and real PCBA
- HL Global antenna system exhibits
 - Return Loss >10dB for all antennas
 - Isolation between all WLAN antennas
 - > 20dB @ 2.4GHz band for dual band antennas
 - > 20dB @ 5GHz band for dual band antennas
 - > 20dB @ 2.4GHz band for dual band and BT antennas
 - > 20dB @ 5GHz band for dual band and BT antennas
 - Efficiency
 - >57% @ 2.4GHz band for dual band antennas
 - >54% @ 5GHz band for dual band antennas
 - >28% @ 2.4GHz band for BT antennas



THANK YOU



HL GLOBAL