

An aerial view of a city skyline at sunset, with a network of white lines and dots overlaid on the scene. The sun is low on the horizon, creating a bright glow. A semi-transparent blue banner is positioned across the middle of the image, containing the Airgain logo. Below the banner, a semi-transparent grey box contains project information. At the bottom left, there is a copyright notice.

Airgain®))

Customer Name & Project: EX7710-B0 Ver9.2

Test personnel: Jeffrey

Test date: 16th Jan 2023

Airgain Project Code:

- 4 pcs Wi-Fi Dual-band (2.4~2.49GHz, 5.15~5.85GHz)
- 1 pcs 5GHz Single-band (5.15~5.85GHz)
- 4 pcs 6GHz Single-band (5.925~7.125GHz)

- Return loss < -10dB
- Isolation < -20dB
- Efficiency > 70%

Airgain Antenna System Proposal

Antenna System Proposal



Antenna #	Antenna Type	Antenna Dimension	Part Number
Ant1_Dual-band	Dipole	31.7 x 14.4 x 0.5 mm	N03ZYAHA-PK1-G110U
Ant2_Dual-band	Dipole	31.7 x 14.4 x 0.5 mm	N03ZYAHB-PK1-B135U
Ant3_Dual-band	Dipole	31.7 x 14.4 x 0.5 mm	N03ZYAHC-PK1-W195U
Ant4	Dipole	39.7 x 14.4 x 0.5 mm	N03ZYAHD-PK1-A90U
Ant5_5GHz	Dipole	18.3x 8x 0.5 (mm)	N02ZYAHE-PK1-A105U
Ant6_6GHz	Dipole	16.2 x 5 x 0.5 (mm)	N06ZYAHF-PK1-E100U
Ant7_6GHz	Dipole	16.2 x 5 x 0.5 (mm)	N06ZYAHG-PK1-R95U
Ant8_6GHz	Dipole	16.2 x 5 x 0.5 (mm)	N06ZYAHH-PK1-Y75U
Ant9_6GHz	Dipole	16.2 x 5 x 0.5 (mm)	N06ZYAHJ-PK1-P75U

S-Parameters

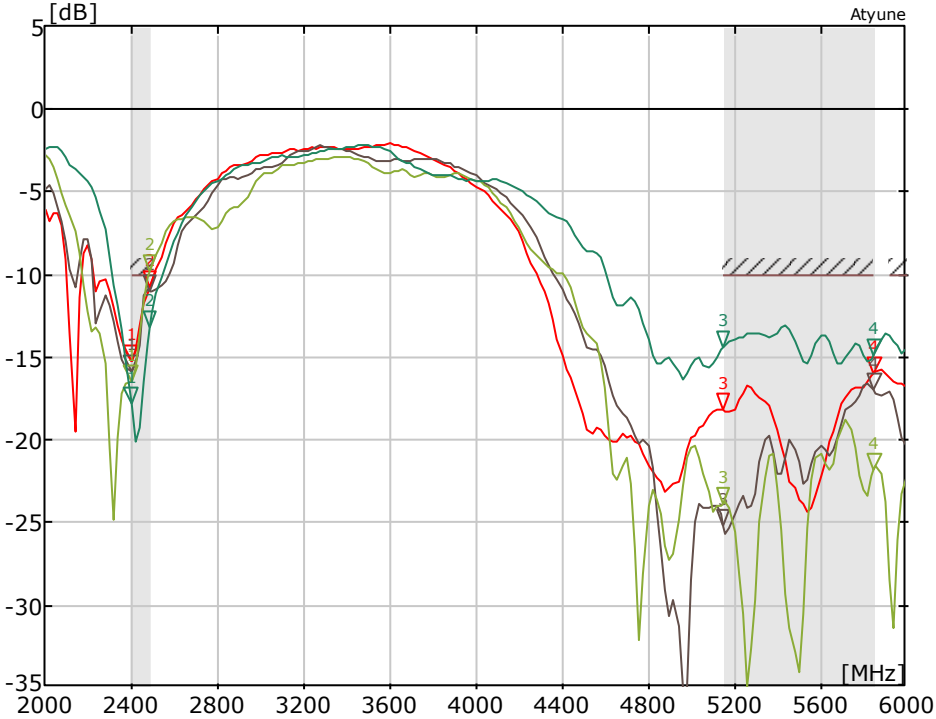
Actual Equipment List and Calibration Information



Vendor	Model	Calibrated Date	Calibrated Until
Agilent Technologies	E5071B	2022/8/26	2023/8/25

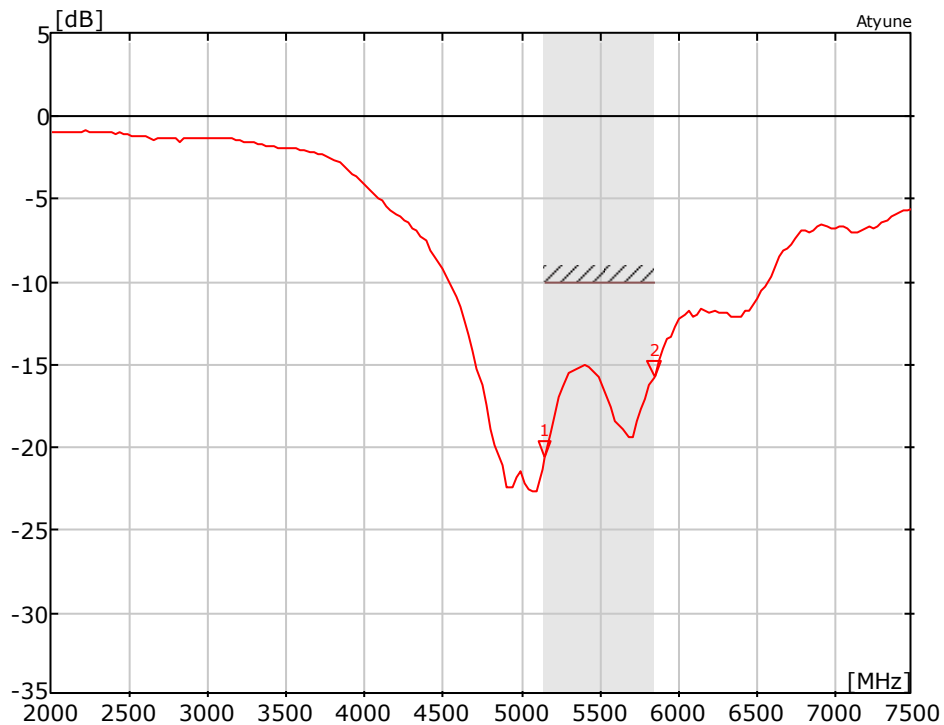


S-Parameter – Return Loss for Dual-band Wi-Fi Antennas



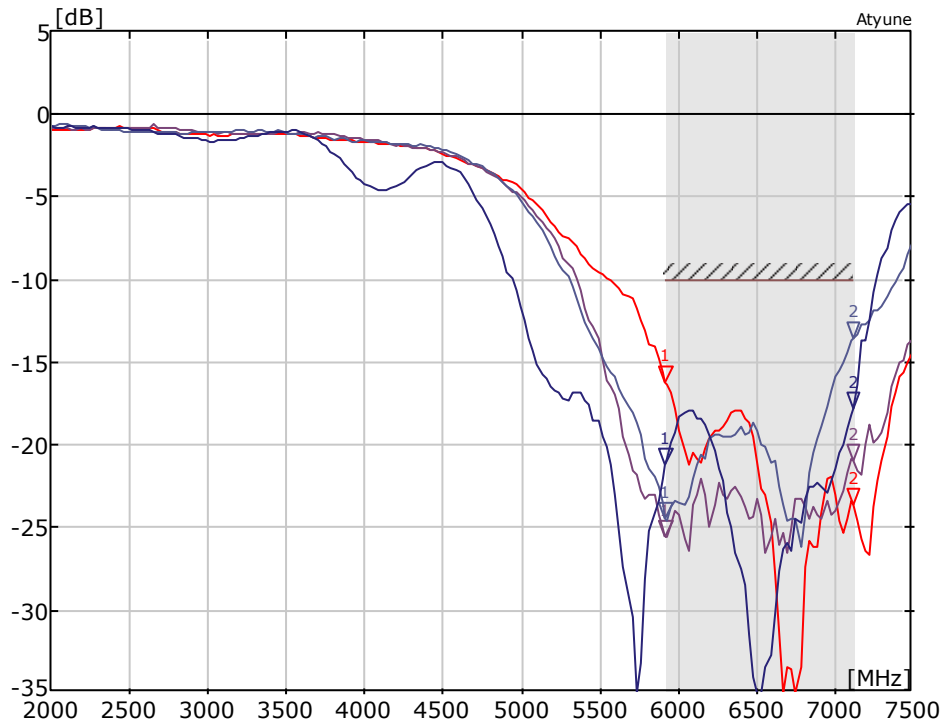
MARKERS:	MHz	dB	MHz	dB
Ant1_Dual-band				
—	1: 2400	-15.13	3: 5150	-18.12
—	2: 2490	-10.73	4: 5850	-15.92
Ant2_Dual-band				
—	1: 2400	-15.74	3: 5150	-25.07
—	2: 2490	-10.91	4: 5850	-16.91
Ant3_Dual-band				
—	1: 2400	-16.41	3: 5150	-23.80
—	2: 2490	-9.70	4: 5850	-21.70
Ant4_Dual-band				
—	1: 2400	-17.75	3: 5150	-14.29
—	2: 2490	-13.09	4: 5850	-14.78

S-Parameter – Return Loss for 5GHz Wi-Fi Antennas



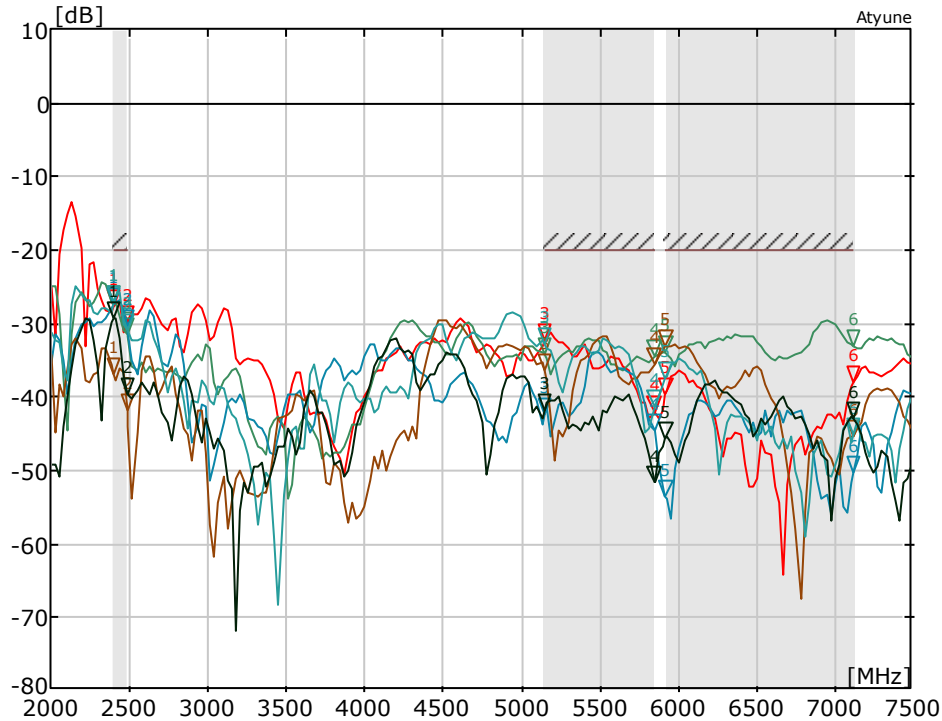
MARKERS:	MHz	dB
Ant5_5GHz		
—	1: 5150	-20.55
—	2: 5850	-15.63

S-Parameter – Return Loss for 6GHz Wi-Fi Antennas



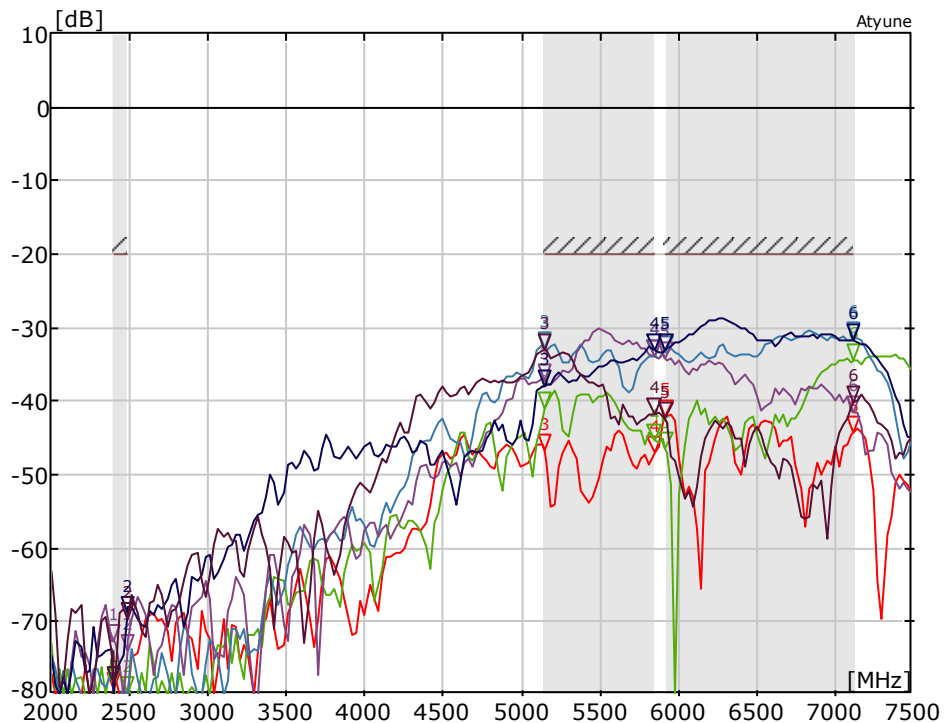
MARKERS:	MHz	dB
Ant6_6GHz		
—	1: 5925	-16.12
—	2: 7125	-23.60
Ant7_6GHz		
—	1: 5925	-25.48
—	2: 7125	-20.87
Ant8_6GHz		
—	1: 5925	-24.36
—	2: 7125	-13.47
Ant9_6GHz		
—	1: 5925	-21.11
—	2: 7125	-17.73

S-Parameter – Isolation Between All Dual-band Wi-Fi Antennas



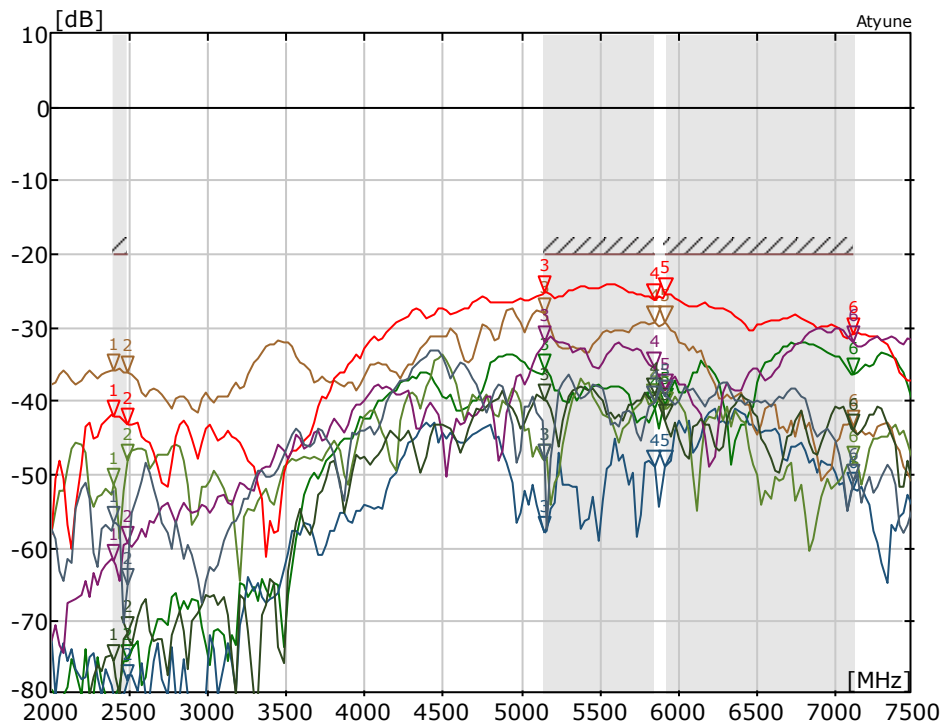
MARKERS:	MHz	dB	MHz	dB	MHz	dB
Ant1_Dual-band - Ant2_Dual-band						
—	1: 2400	-27.53	3: 5150	-32.21	5: 5925	-39.62
	2: 2490	-29.72	4: 5850	-42.04	6: 7125	-37.83
Ant1_Dual-band - Ant3_Dual-band						
—	1: 2400	-26.92	3: 5150	-34.08	5: 5925	-33.85
	2: 2490	-31.32	4: 5850	-34.43	6: 7125	-32.91
Ant1_Dual-band - Ant4_Dual-band						
—	1: 2400	-27.32	3: 5150	-42.23	5: 5925	-53.49
	2: 2490	-30.32	4: 5850	-44.35	6: 7125	-50.02
Ant2_Dual-band - Ant3_Dual-band						
—	1: 2400	-36.78	3: 5150	-36.15	5: 5925	-33.00
	2: 2490	-41.57	4: 5850	-35.48	6: 7125	-45.28
Ant2_Dual-band - Ant4_Dual-band						
—	1: 2400	-27.08	3: 5150	-32.66	5: 5925	-37.43
	2: 2490	-30.84	4: 5850	-41.27	6: 7125	-44.92
Ant3_Dual-band - Ant4_Dual-band						
—	1: 2400	-29.22	3: 5150	-41.65	5: 5925	-45.43
	2: 2490	-39.39	4: 5850	-51.57	6: 7125	-42.70

S-Parameter – Isolation Between All 6GHz Wi-Fi Antennas



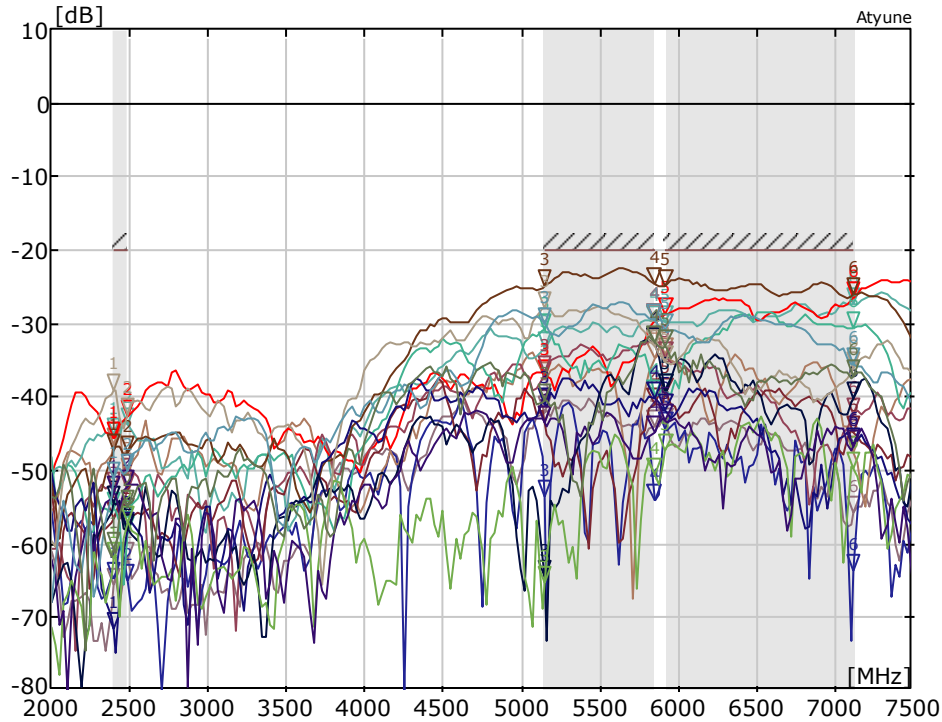
MARKERS:	MHz	dB	MHz	dB	MHz	dB
Ant6_6GHz - Ant7_6GHz						
—	1: 2400	-79.15	3: 5150	-46.69	5: 5925	-42.07
	2: 2490	-81.18	4: 5850	-46.82	6: 7125	-44.21
Ant6_6GHz - Ant8_6GHz						
—	1: 2400	-78.46	3: 5150	-40.97	5: 5925	-46.29
	2: 2490	-79.64	4: 5850	-45.36	6: 7125	-34.45
Ant6_6GHz - Ant9_6GHz						
—	1: 2400	-82.01	3: 5150	-32.66	5: 5925	-33.20
	2: 2490	-84.63	4: 5850	-33.70	6: 7125	-31.45
Ant7_6GHz - Ant8_6GHz						
—	1: 2400	-72.53	3: 5150	-37.08	5: 5925	-34.05
	2: 2490	-73.87	4: 5850	-33.77	6: 7125	-41.44
Ant7_6GHz - Ant9_6GHz						
—	1: 2400	-90.98	3: 5150	-37.76	5: 5925	-32.92
	2: 2490	-68.69	4: 5850	-32.94	6: 7125	-31.69
Ant8_6GHz - Ant9_6GHz						
—	1: 2400	-78.31	3: 5150	-32.92	5: 5925	-42.18
	2: 2490	-69.43	4: 5850	-41.60	6: 7125	-40.15

S-Parameter – Isolation Between 5GHz and other Wi-Fi Antennas



MARKERS:	MHz	dB	MHz	dB	MHz	dB
Ant5_5GHz - Ant8_6GHz						
	1: 2400	-82.97	3: 5150	-35.65	5: 5925	-40.33
	2: 2490	-75.16	4: 5850	-40.80	6: 7125	-36.31
Ant5_5GHz - Ant9_6GHz						
	1: 2400	-83.62	3: 5150	-57.82	5: 5925	-48.89
	2: 2490	-77.94	4: 5850	-48.68	6: 7125	-51.74
Ant2_Dual-band - Ant5_5GHz						
	1: 2400	-51.29	3: 5150	-47.87	5: 5925	-40.98
	2: 2490	-47.83	4: 5850	-39.87	6: 7125	-48.22
Ant3_Dual-band - Ant5_5GHz						
	1: 2400	-35.55	3: 5150	-27.97	5: 5925	-29.22
	2: 2490	-36.02	4: 5850	-29.05	6: 7125	-43.27
Ant1_Dual-band - Ant5_5GHz						
	1: 2400	-41.97	3: 5150	-25.17	5: 5925	-25.40
	2: 2490	-42.96	4: 5850	-26.03	6: 7125	-30.67
Ant5_5GHz - Ant6_6GHz						
	1: 2400	-61.61	3: 5150	-31.89	5: 5925	-38.32
	2: 2490	-59.06	4: 5850	-35.53	6: 7125	-31.90
Ant5_5GHz - Ant7_6GHz						
	1: 2400	-75.14	3: 5150	-39.72	5: 5925	-42.51
	2: 2490	-71.53	4: 5850	-38.97	6: 7125	-43.99
Ant4_Dual-band - Ant5_5GHz						
	1: 2400	-56.52	3: 5150	-48.01	5: 5925	-39.10
	2: 2490	-64.85	4: 5850	-39.98	6: 7125	-50.69

S-Parameter – Isolation Between Dual-band and 6GHz Wi-Fi Antennas



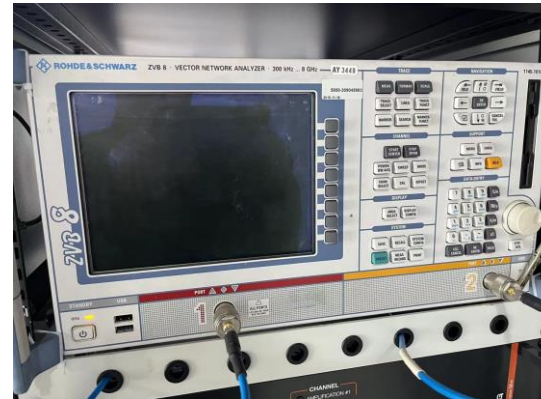
MARKERS:	MHz	dB	MHz	dB	MHz	dB
Ant4_Dual-band - Ant9_6GHz	1: 2400	-65.46	3: 5150	-41.91	5: 5925	-43.50
	2: 2490	-61.73	4: 5850	-43.78	6: 7125	-55.57
Ant4_Dual-band - Ant9_6GHz	1: 2400	-64.59	3: 5150	-53.46	5: 5925	-44.23
	2: 2490	-64.84	4: 5850	-54.09	6: 7125	-63.64
Ant2_Dual-band - Ant6_6GHz	1: 2400	-46.38	3: 5150	-37.19	5: 5925	-33.93
	2: 2490	-50.38	4: 5850	-34.69	6: 7125	-47.44
Ant2_Dual-band - Ant7_6GHz	1: 2400	-44.90	3: 5150	-33.17	5: 5925	-29.72
	2: 2490	-43.51	4: 5850	-29.66	6: 7125	-27.22
Ant1_Dual-band - Ant6_6GHz	1: 2400	-45.38	3: 5150	-36.92	5: 5925	-28.71
	2: 2490	-42.58	4: 5850	-29.44	6: 7125	-26.44
Ant1_Dual-band - Ant7_6GHz	1: 2400	-52.19	3: 5150	-36.62	5: 5925	-34.48
	2: 2490	-52.67	4: 5850	-32.67	6: 7125	-42.20
Ant2_Dual-band - Ant8_6GHz	1: 2400	-56.42	3: 5150	-43.35	5: 5925	-39.43
	2: 2490	-55.82	4: 5850	-40.83	6: 7125	-44.58
Ant2_Dual-band - Ant9_6GHz	1: 2400	-55.00	3: 5150	-30.77	5: 5925	-39.01
	2: 2490	-58.21	4: 5850	-39.68	6: 7125	-30.38
Ant1_Dual-band - Ant8_6GHz	1: 2400	-47.04	3: 5150	-24.82	5: 5925	-24.74
	2: 2490	-47.46	4: 5850	-24.39	6: 7125	-25.99
Ant1_Dual-band - Ant9_6GHz	1: 2400	-71.44	3: 5150	-40.75	5: 5925	-41.78
	2: 2490	-57.89	4: 5850	-40.10	6: 7125	-46.36
Ant4_Dual-band - Ant6_6GHz	1: 2400	-54.24	3: 5150	-64.36	5: 5925	-38.91
	2: 2490	-58.00	4: 5850	-32.79	6: 7125	-40.02
Ant4_Dual-band - Ant7_6GHz	1: 2400	-61.91	3: 5150	-65.00	5: 5925	-47.02
	2: 2490	-56.84	4: 5850	-50.52	6: 7125	-49.63
Ant3_Dual-band - Ant6_6GHz	1: 2400	-38.84	3: 5150	-27.77	5: 5925	-35.07
	2: 2490	-42.32	4: 5850	-32.94	6: 7125	-36.05
Ant3_Dual-band - Ant7_6GHz	1: 2400	-52.97	3: 5150	-43.32	5: 5925	-43.11
	2: 2490	-51.98	4: 5850	-44.58	6: 7125	-46.68
Ant3_Dual-band - Ant8_6GHz	1: 2400	-50.93	3: 5150	-29.85	5: 5925	-30.88
	2: 2490	-49.88	4: 5850	-29.34	6: 7125	-35.53
Ant3_Dual-band - Ant9_6GHz	1: 2400	-60.55	3: 5150	-40.34	5: 5925	-32.89
	2: 2490	-54.83	4: 5850	-32.28	6: 7125	-37.13

Radiated Measurements

Actual Equipment List and Calibration Information



Vendor	Model	Calibrated Date	Calibrated Until
MVG industries	SLv2	2022/12/13	2023/12/12
ROHDE&SCHWARZ	ZVB.8	2022/8/26	2023/8/25



- Test software:
Satimo Passive Measurement Version: 1.8.0
SatEnv Version: 3.0.3.0 build23

- location of the testing:
Airgain China office in Suzhou

Step 2: Connect DUT with Chamber



- Connect cable coming from DUT, designated as “Ant 1 ” to the chamber’s cable.
- Run sequence of radiated tests .
- Disconnect the chamber’s cable from Ant 1 .
- Repeat this process for all 9 RF ports of DUT.

Antenna Realized Efficiency (%) – 2.4 GHz Wi-Fi Antennas



Frequency (MHz)	Ant1_2G4 (%)	Ant2_2G4 (%)	Ant3_2G4 (%)	Ant4_2G4 (%)
2400	71.7	76.3	70.7	76.9
2410	70.0	77.2	69.9	77.3
2420	68.8	76.5	68.3	77.3
2430	68.7	74.8	67.3	77.2
2440	68.7	74.7	66.3	77.8
2450	68.9	74.0	64.9	78.1
2460	70.0	73.7	65.3	78.6
2470	70.4	75.1	65.5	79.9
2480	70.3	75.1	64.7	80.5
2490	69.9	74.3	63.8	80.2
Average	69.7	75.2	66.7	78.4

Antenna Realized Efficiency (%) – 5 GHz Wi-Fi Antennas



Frequency (MHz)	Ant1_5G (%)	Ant2_5G (%)	Ant3_5G (%)	Ant5_5G (%)
5150	76.7	75.4	69.0	74.1
5200	75.5	76.1	69.9	76.1
5300	76.4	76.0	68.9	73.1
5400	74.6	74.2	67.3	69.9
5500	78.4	76.5	68.5	71.2
5600	77.7	75.0	66.8	69.2
5700	78.3	74.8	66.4	71.7
5800	77.3	74.3	65.6	70.7
5850	76.3	73.4	64.8	69.7
Average	76.8	75.1	67.5	71.7

Antenna Efficiency (%) – 6 GHz Wi-Fi Antennas



Frequency (MHz)	Ant6_6G (%)	Ant7_6G (%)	Ant8_6G (%)	Ant9_6G (%)
5925	70.6	76.4	77.4	73.7
6000	71.4	75.8	75.9	73.4
6100	73.7	75.4	76.1	73.6
6200	73.6	74.5	75.2	73.8
6300	72.9	73.6	74.0	72.5
6400	71.8	73.3	72.5	71.6
6500	72.2	73.7	72.1	73.0
6600	71.9	72.6	70.8	71.8
6700	72.2	71.6	71.1	72.9
6800	72.0	70.5	69.7	71.5
6900	71.9	68.9	66.7	70.3
7125	68.5	65.6	62.9	60.0
Average	71.9	72.7	72.0	71.5

Antenna Peak Realized Gain – 2.4 GHz Wi-Fi Antennas



Frequency (MHz)	Ant1_2G4 (dBi)	Ant2_2G4 (dBi)	Ant3_2G4 (dBi)	Ant4_2G4 (dBi)
2400	3.0	4.3	2.9	5.0
2410	3.1	4.4	2.9	4.9
2420	3.2	4.3	2.9	4.9
2430	3.4	4.2	2.9	4.8
2440	3.5	4.4	3.1	4.8
2450	3.7	4.6	3.4	4.8
2460	3.8	4.3	3.3	4.7
2470	3.8	4.3	3.4	4.7
2480	3.7	4.3	3.3	4.7
2490	3.6	4.2	3.3	4.6

Antenna Peak Realized Gain – 5 GHz Wi-Fi Antennas



Frequency (MHz)	Ant1_5G (dBi)	Ant2_5G (dBi)	Ant3_5G (dBi)	Ant5_5G (dBi)
5150	3.6	5.1	5.0	4.2
5200	3.6	5.3	5.2	4.5
5300	4.1	5.0	5.3	4.1
5400	3.8	5.0	4.6	3.5
5500	3.6	4.9	4.8	3.7
5600	3.5	4.7	4.5	3.7
5700	3.7	4.9	4.3	4.3
5800	4.0	5.1	4.2	4.6
5850	4.2	5.2	4.1	4.5

Antenna Peak Gain – 6 GHz Wi-Fi Antennas



Frequency (MHz)	Ant6_6G (dBi)	Ant7_6G (dBi)	Ant8_6G (dBi)	Ant9_6G (dBi)
5925	4.7	5.1	4.7	3.7
6000	4.9	5.2	4.6	4.1
6100	5.4	5.5	5.1	4.6
6200	5.8	5.6	5.1	4.7
6300	5.8	5.6	5.3	4.3
6400	5.9	5.5	5.7	3.9
6500	5.9	5.5	5.9	3.7
6600	5.9	5.4	6.0	3.8
6700	5.6	5.2	5.9	3.9
6800	5.3	5.4	5.9	4.0
6900	4.8	5.6	5.9	4.0
7125	4.6	5.7	5.2	3.1

Antenna Uncorrelated & Correlated Gain – Wi-Fi Antennas



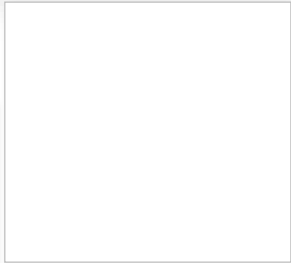
Frequency (MHz)	Uncorrelated (dBi)	Correlated (dBi)
2400	2.2	7.6
2410	2.1	7.5
2420	2.0	7.4
2430	1.9	7.4
2440	1.8	7.3
2450	1.7	7.2
2460	1.7	7.1
2470	1.6	7.1
2480	1.5	7.0
2490	1.4	6.9

Frequency (MHz)	Uncorrelated (dBi)	Correlated (dBi)
5150	2.5	8.5
5200	2.7	8.7
5300	2.9	8.9
5400	2.7	8.7
5500	2.3	8.3
5600	2.2	8.1
5700	2.0	7.9
5800	2.0	7.9
5850	2.0	7.9

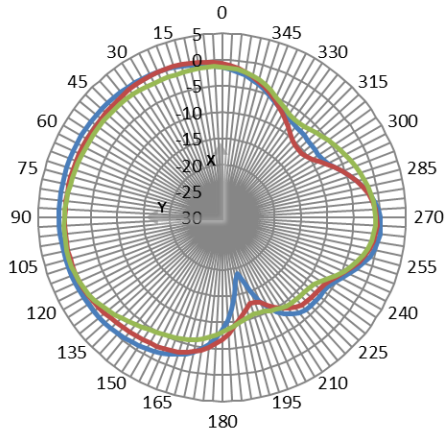
Frequency (MHz)	Uncorrelated (dBi)	Correlated (dBi)
5925	2.8	8.3
6000	3.1	8.6
6100	3.3	8.8
6200	3.3	8.8
6300	3.4	8.9
6400	3.4	8.9
6500	3.4	9.0
6600	3.3	8.9
6700	2.9	8.7
6800	2.9	8.7
6900	3.1	8.9
7125	2.5	8.2

Radiation Patterns

Total Gain Patterns: Ant1_2G4



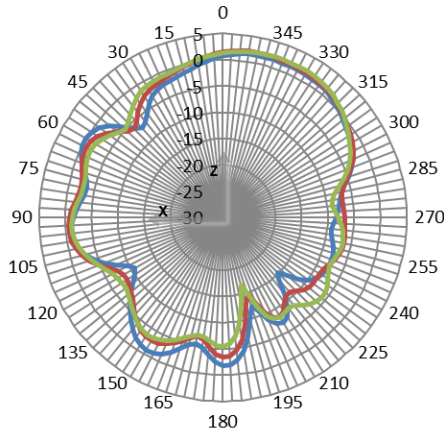
Ant1_2G4 Azimuth XY



— 2400MHz: Max=1.10 Avg=-1.64
— 2440MHz: Max=0.24 Avg=-2.32
— 2480MHz: Max=0.28 Avg=-2.71

Azimuth (XY)

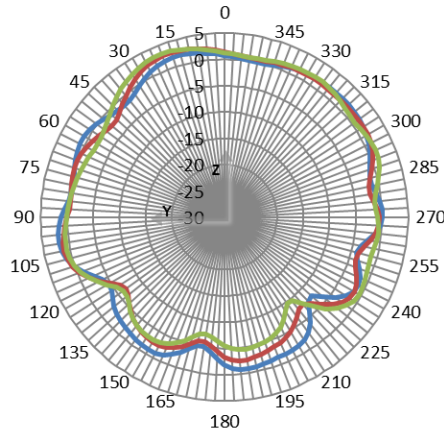
Ant1_2G4 Elevation XZ



— 2400MHz: Max=1.56 Avg=-2.61
— 2440MHz: Max=2.08 Avg=-2.44
— 2480MHz: Max=2.12 Avg=-2.49

Side to Side (XZ)

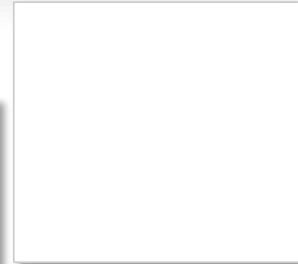
Ant1_2G4 Elevation YZ



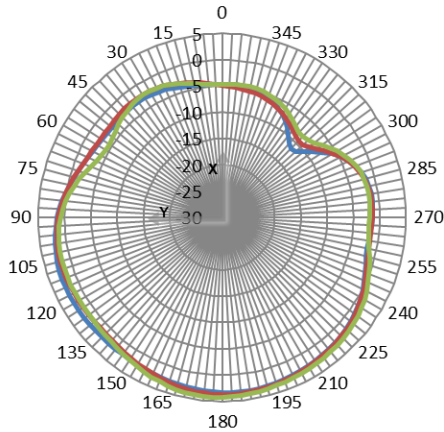
— 2400MHz: Max=1.97 Avg=-0.40
— 2440MHz: Max=2.88 Avg=-0.66
— 2480MHz: Max=3.25 Avg=-0.54

Front to Back (YZ)

Total Gain Patterns: Ant2_2G4



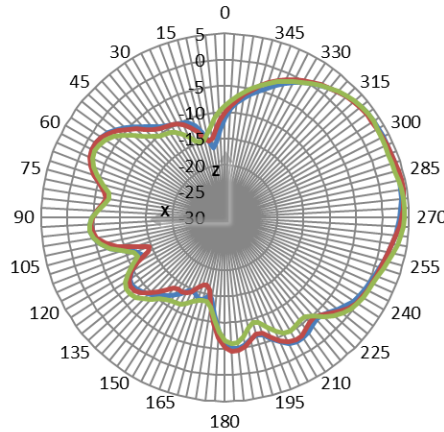
Ant2_2G4 Azimuth XY



— 2400MHz: Max=3.37 Avg=0.21
— 2440MHz: Max=3.70 Avg=0.17
— 2480MHz: Max=4.23 Avg=0.35

Azimuth (XY)

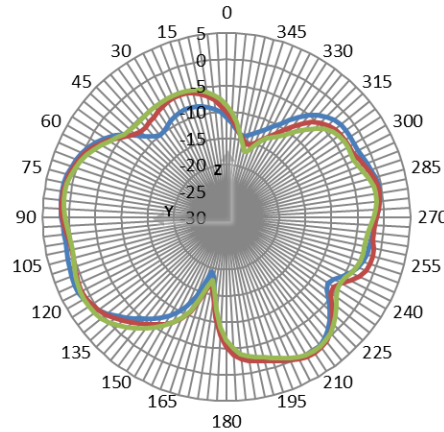
Ant2_2G4 Elevation XZ



— 2400MHz: Max=4.02 Avg=-1.71
— 2440MHz: Max=4.40 Avg=-1.60
— 2480MHz: Max=4.28 Avg=-1.64

Side to Side (XZ)

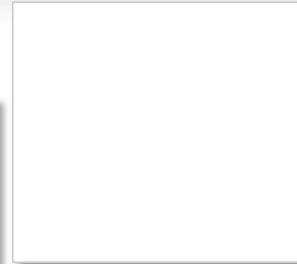
Ant2_2G4 Elevation YZ



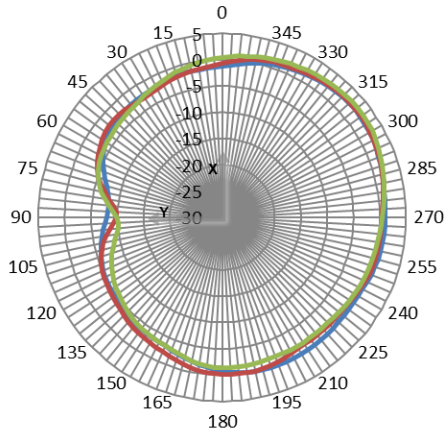
— 2400MHz: Max=1.71 Avg=-2.44
— 2440MHz: Max=1.54 Avg=-2.46
— 2480MHz: Max=1.39 Avg=-2.65

Front to Back (YZ)

Total Gain Patterns: Ant3_2G4



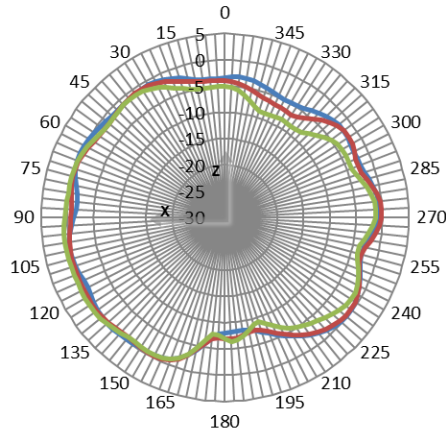
Ant3_2G4 Azimuth XY



— 2400MHz: Max=2.52 Avg=-0.80
— 2440MHz: Max=2.69 Avg=-0.78
— 2480MHz: Max=3.18 Avg=-0.83

Azimuth (XY)

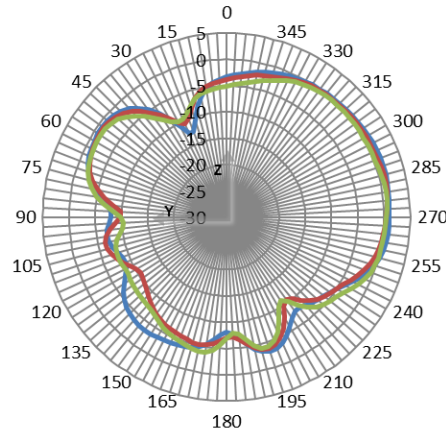
Ant3_2G4 Elevation XZ



— 2400MHz: Max=0.23 Avg=-1.79
— 2440MHz: Max=0.20 Avg=-1.91
— 2480MHz: Max=0.85 Avg=-2.33

Side to Side (XZ)

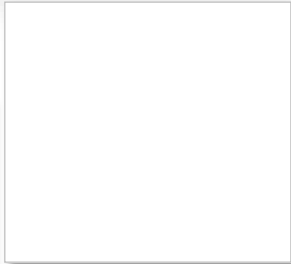
Ant3_2G4 Elevation YZ



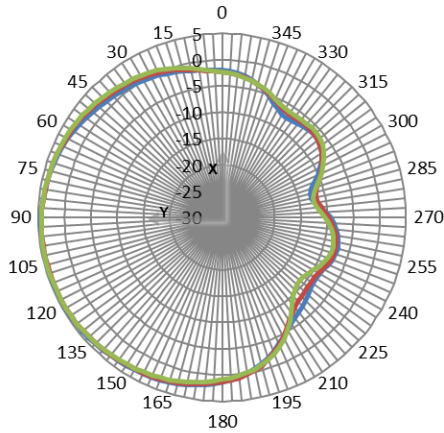
— 2400MHz: Max=1.44 Avg=-2.45
— 2440MHz: Max=1.06 Avg=-3.06
— 2480MHz: Max=0.75 Avg=-3.12

Front to Back (YZ)

Total Gain Patterns: Ant4_2G4



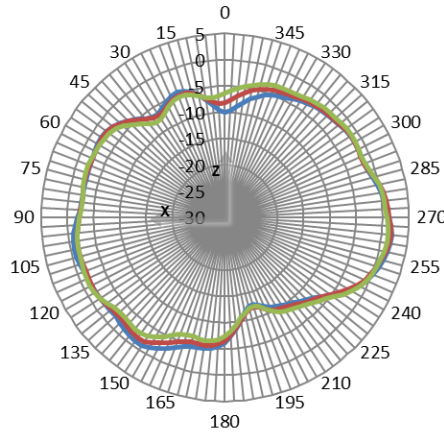
Ant4_2G4 Azimuth XY



— 2400MHz: Max=4.62 Avg=0.57
— 2440MHz: Max=4.52 Avg=0.61
— 2480MHz: Max=4.58 Avg=0.61

Azimuth (XY)

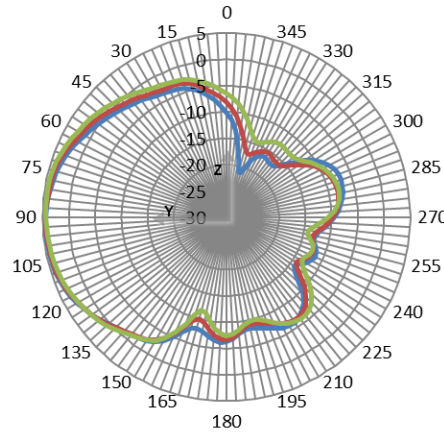
Ant4_2G4 Elevation XZ



— 2400MHz: Max=1.92 Avg=-2.74
— 2440MHz: Max=1.75 Avg=-2.87
— 2480MHz: Max=1.29 Avg=-2.93

Side to Side (XZ)

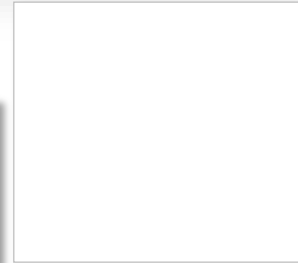
Ant4_2G4 Elevation YZ



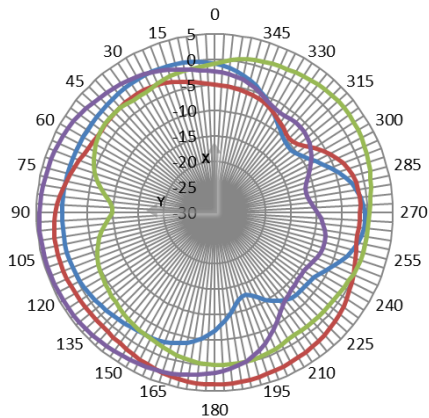
— 2400MHz: Max=4.56 Avg=-1.89
— 2440MHz: Max=4.44 Avg=-1.78
— 2480MHz: Max=4.49 Avg=-1.51

Front to Back (YZ)

Coverage Total Gain Patterns: Wi-Fi Antennas at 2440MHz



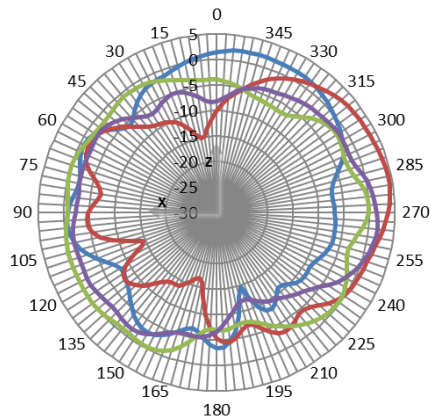
Azimuth XY 2440MHz



- Ant1_2G4: Max=0.24 Avg=-2.32
- Ant2_2G4: Max=3.70 Avg=-0.17
- Ant3_2G4: Max=2.69 Avg=-0.78
- Ant4_2G4: Max=4.52 Avg=-0.61

Azimuth (XY)

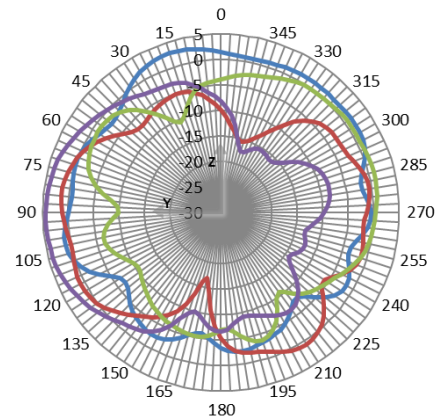
Elevation XZ 2440MHz



- Ant1_2G4: Max=2.08 Avg=-2.44
- Ant2_2G4: Max=4.40 Avg=-1.60
- Ant3_2G4: Max=0.20 Avg=-1.91
- Ant4_2G4: Max=1.75 Avg=-2.87

Side to Side (XZ)

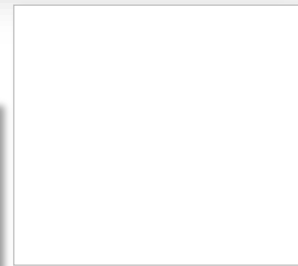
Elevation YZ 2440MHz



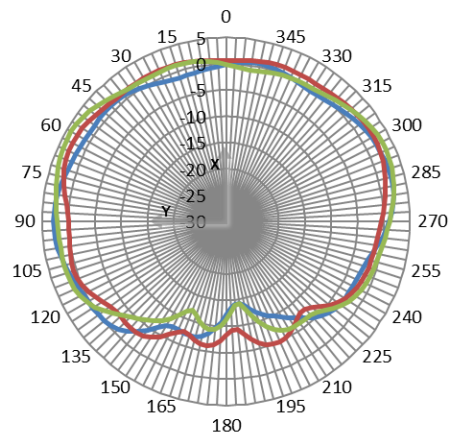
- Ant1_2G4: Max=2.88 Avg=-0.66
- Ant2_2G4: Max=1.54 Avg=-2.46
- Ant3_2G4: Max=1.06 Avg=-3.06
- Ant4_2G4: Max=4.44 Avg=-1.78

Front to Back (YZ)

Total Gain Patterns: Ant1_5G



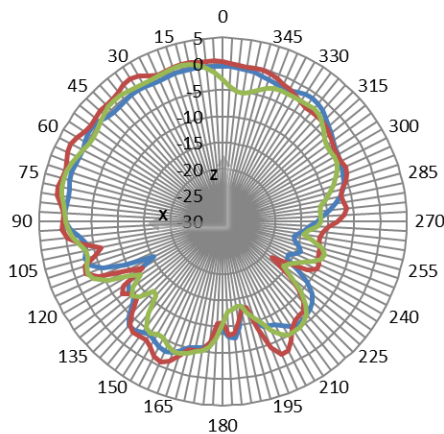
Ant1_5G Azimuth XY



— 5150MHz: Max=2.85 Avg=-0.36
— 5500MHz: Max=2.94 Avg=-0.15
— 5850MHz: Max=4.16 Avg=0.34

Azimuth (XY)

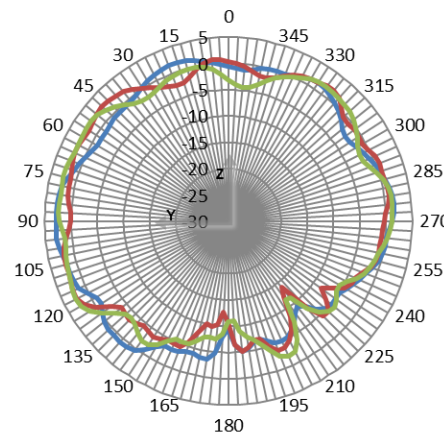
Ant1_5G Elevation XZ



— 5150MHz: Max=0.56 Avg=-3.15
— 5500MHz: Max=2.48 Avg=-2.05
— 5850MHz: Max=1.43 Avg=-3.27

Side to Side (XZ)

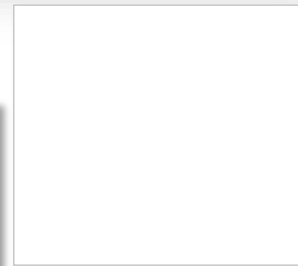
Ant1_5G Elevation YZ



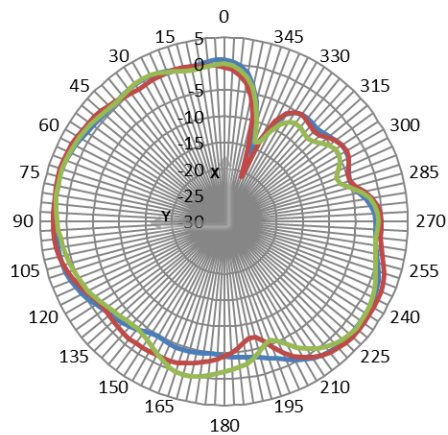
— 5150MHz: Max=2.90 Avg=-0.39
— 5500MHz: Max=2.44 Avg=-0.66
— 5850MHz: Max=2.71 Avg=-0.54

Front to Back (YZ)

Total Gain Patterns: Ant2_5G



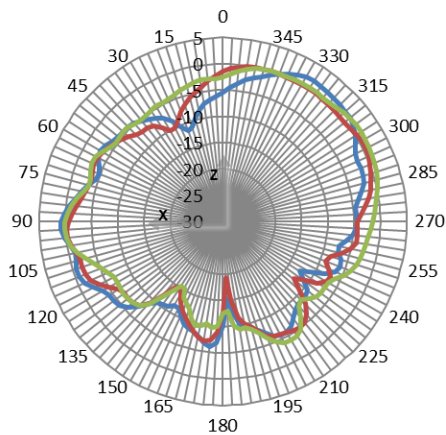
Ant2_5G Azimuth XY



— 5150MHz: Max=2.48 Avg=-0.40
 — 5500MHz: Max=2.86 Avg=-0.15
 — 5850MHz: Max=2.46 Avg=-0.60

Azimuth (XY)

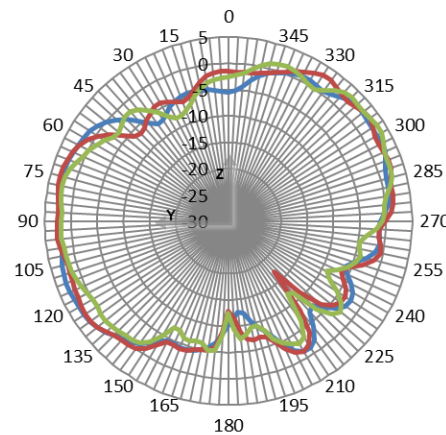
Ant2_5G Elevation XZ



— 5150MHz: Max=1.86 Avg=-3.38
 — 5500MHz: Max=0.60 Avg=-3.45
 — 5850MHz: Max=1.35 Avg=-2.81

Side to Side (XZ)

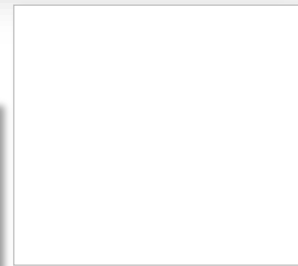
Ant2_5G Elevation YZ



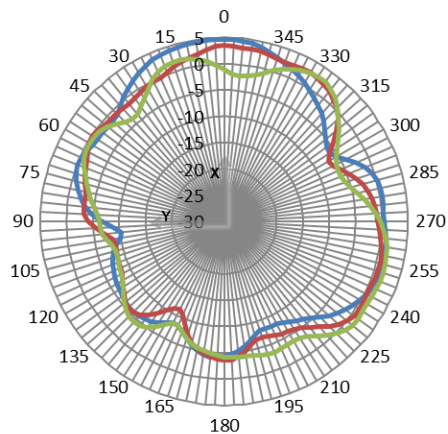
— 5150MHz: Max=3.07 Avg=-0.33
 — 5500MHz: Max=3.25 Avg=-0.13
 — 5850MHz: Max=3.66 Avg=-0.81

Front to Back (YZ)

Total Gain Patterns: Ant3_5G



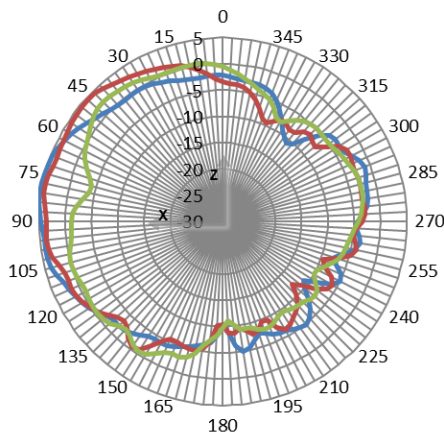
Ant3_5G Azimuth XY



— 5150MHz: Max=4.62 Avg=-0.62
 — 5500MHz: Max=3.48 Avg=-1.20
 — 5850MHz: Max=2.87 Avg=-1.51

Azimuth (XY)

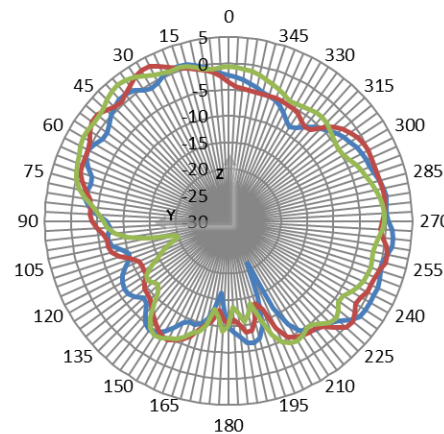
Ant3_5G Elevation XZ



— 5150MHz: Max=5.28 Avg=-0.74
 — 5500MHz: Max=4.60 Avg=-0.56
 — 5850MHz: Max=2.20 Avg=-2.39

Side to Side (XZ)

Ant3_5G Elevation YZ



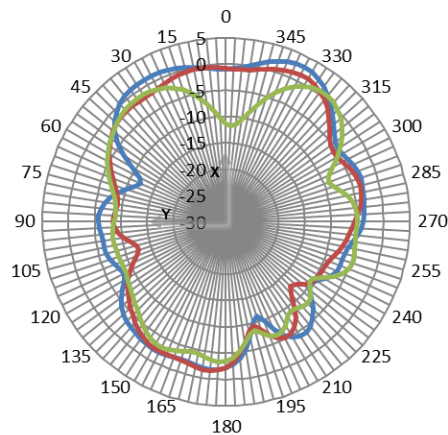
— 5150MHz: Max=1.60 Avg=-2.44
 — 5500MHz: Max=3.11 Avg=-2.10
 — 5850MHz: Max=3.42 Avg=-2.27

Front to Back (YZ)

Total Gain Patterns: Ant5_5G



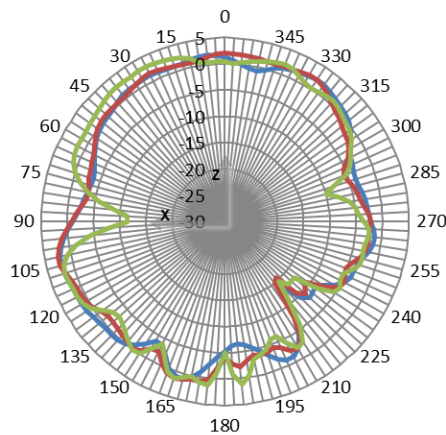
Ant5_5G Azimuth XY



— 5150MHz: Max=2.96 Avg=-2.45
— 5500MHz: Max=1.35 Avg=-3.49
— 5850MHz: Max=0.77 Avg=-4.62

Azimuth (XY)

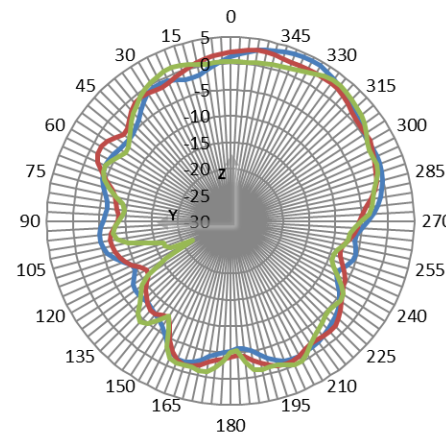
Ant5_5G Elevation XZ



— 5150MHz: Max=2.21 Avg=-0.68
— 5500MHz: Max=2.52 Avg=-0.67
— 5850MHz: Max=3.09 Avg=-0.50

Side to Side (XZ)

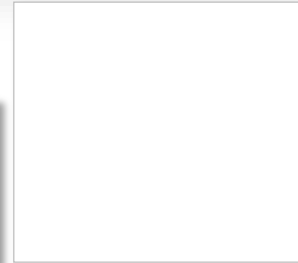
Ant5_5G Elevation YZ



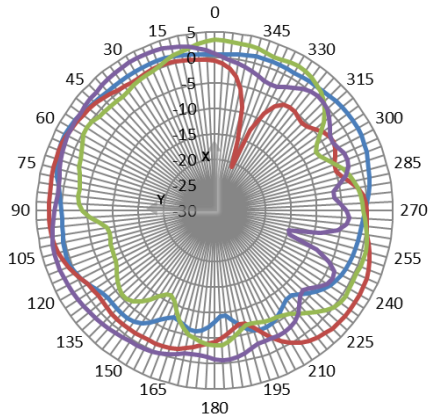
— 5150MHz: Max=4.21 Avg=-1.47
— 5500MHz: Max=2.90 Avg=-1.62
— 5850MHz: Max=3.19 Avg=-1.80

Front to Back (YZ)

Coverage Total Gain Patterns: Wi-Fi Antennas at 5500MHz



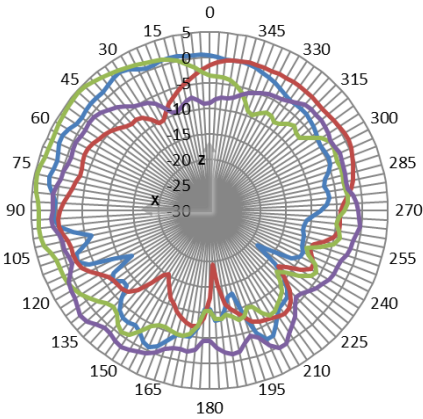
Azimuth XY 5500MHz



- Ant1_5G: Max=2.94 Avg=-0.15
- Ant2_5G: Max=2.86 Avg=-0.15
- Ant3_5G: Max=3.48 Avg=-1.20
- Ant4_5G: Max=3.59 Avg=-0.21

Azimuth (XY)

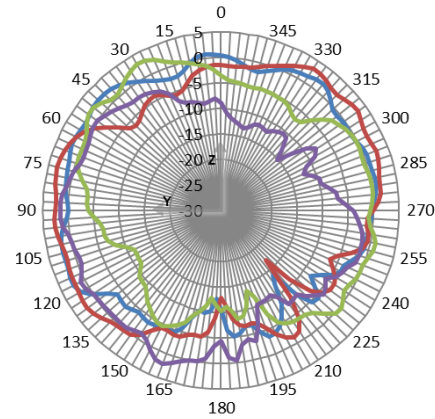
Elevation XZ 5500MHz



- Ant1_5G: Max=2.48 Avg=-2.05
- Ant2_5G: Max=0.60 Avg=-3.45
- Ant3_5G: Max=4.60 Avg=-0.56
- Ant4_5G: Max=2.73 Avg=-1.61

Side to Side (XZ)

Elevation YZ 5500MHz



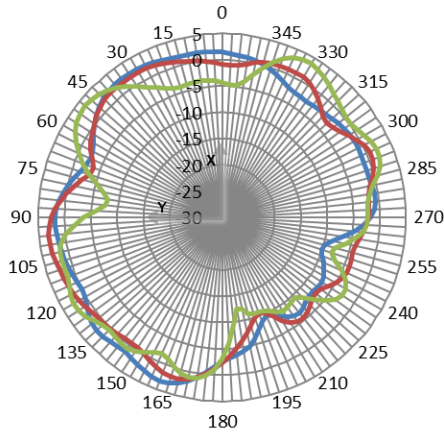
- Ant1_5G: Max=2.44 Avg=-0.66
- Ant2_5G: Max=3.25 Avg=-0.13
- Ant3_5G: Max=3.11 Avg=-2.10
- Ant4_5G: Max=2.16 Avg=-2.62

Front to Back (YZ)

Total Gain Patterns: Ant6_6G



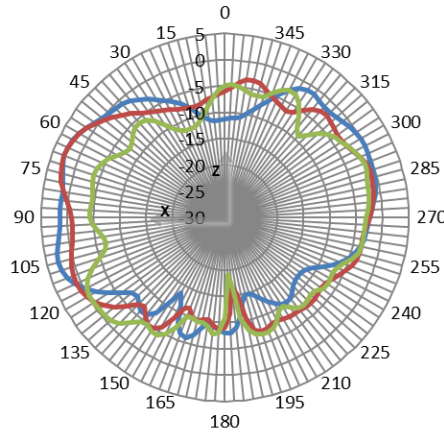
Ant6_6G Azimuth XY



— 5925MHz: Max=3.29 Avg=-0.26
 — 6500MHz: Max=3.23 Avg=-0.38
 — 7125MHz: Max=3.82 Avg=-0.45

Azimuth (XY)

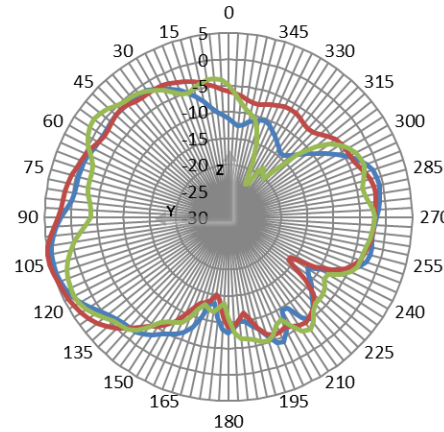
Ant6_6G Elevation XZ



— 5925MHz: Max=2.86 Avg=-2.42
 — 6500MHz: Max=2.77 Avg=-2.90
 — 7125MHz: Max=-0.16 Avg=-4.93

Side to Side (XZ)

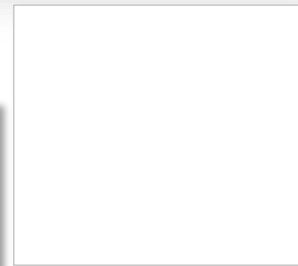
Ant6_6G Elevation YZ



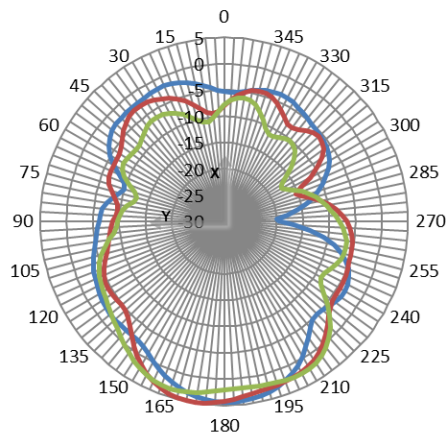
— 5925MHz: Max=4.55 Avg=-2.30
 — 6500MHz: Max=5.21 Avg=-1.67
 — 7125MHz: Max=3.04 Avg=-2.96

Front to Back (YZ)

Total Gain Patterns: Ant7_6G



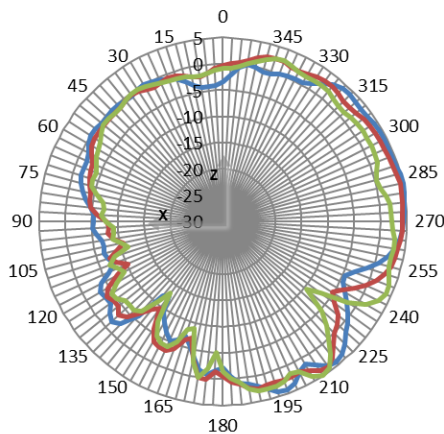
Ant7_6G Azimuth XY



— 5925MHz: Max=4.41 Avg=-1.95
 — 6500MHz: Max=4.89 Avg=-1.84
 — 7125MHz: Max=3.44 Avg=-2.68

Azimuth (XY)

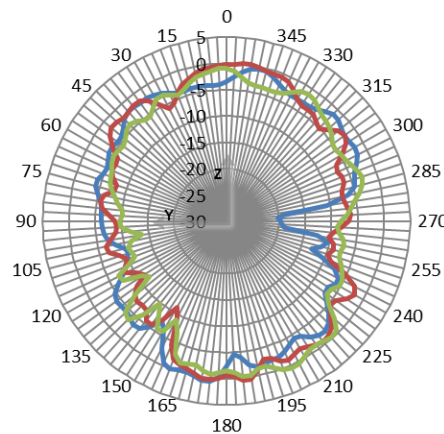
Ant7_6G Elevation XZ



— 5925MHz: Max=5.10 Avg=-0.69
 — 6500MHz: Max=4.51 Avg=0.59
 — 7125MHz: Max=5.03 Avg=-0.06

Side to Side (XZ)

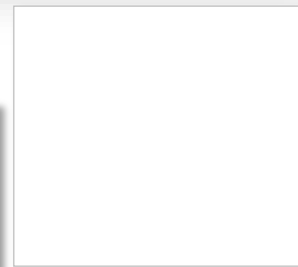
Ant7_6G Elevation YZ



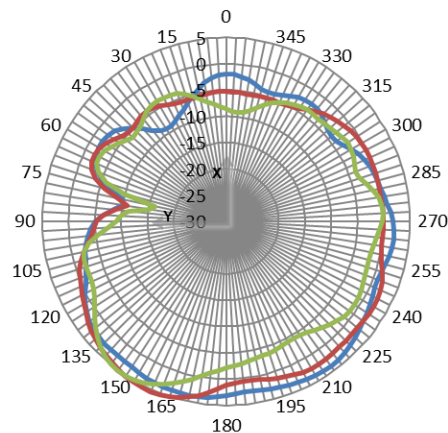
— 5925MHz: Max=0.72 Avg=-3.55
 — 6500MHz: Max=0.43 Avg=-3.31
 — 7125MHz: Max=0.65 Avg=-3.71

Front to Back (YZ)

Total Gain Patterns: Ant8_6G



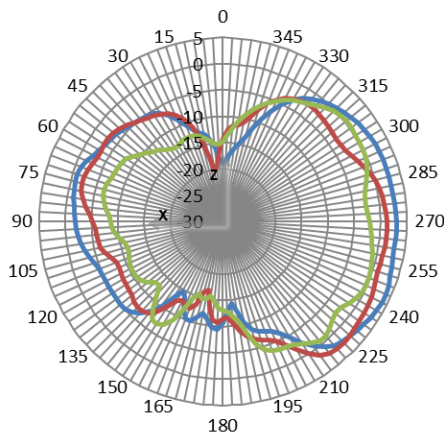
Ant8_6G Azimuth XY



— 5925MHz: Max=4.00 Avg=0.46
 — 6500MHz: Max=5.43 Avg=0.39
 — 7125MHz: Max=5.12 Avg=-1.57

Azimuth (XY)

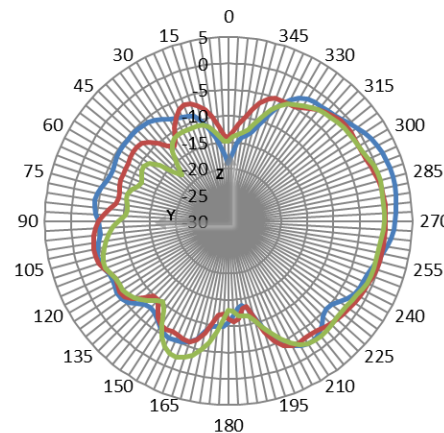
Ant8_6G Elevation XZ



— 5925MHz: Max=3.98 Avg=-1.29
 — 6500MHz: Max=2.67 Avg=-2.88
 — 7125MHz: Max=0.30 Avg=-4.61

Side to Side (XZ)

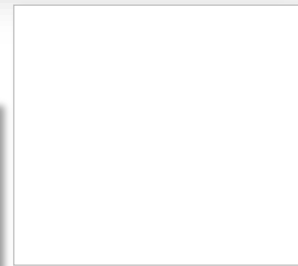
Ant8_6G Elevation YZ



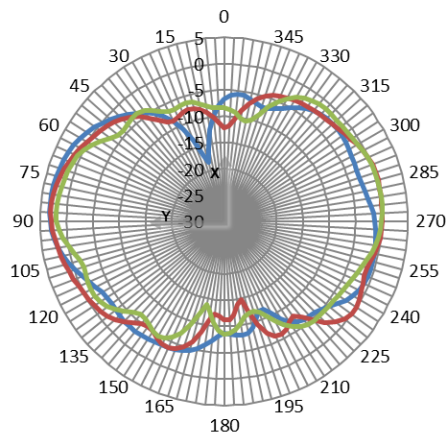
— 5925MHz: Max=2.40 Avg=-3.30
 — 6500MHz: Max=-0.01 Avg=-4.24
 — 7125MHz: Max=-0.01 Avg=-4.55

Front to Back (YZ)

Total Gain Patterns: Ant9_6G



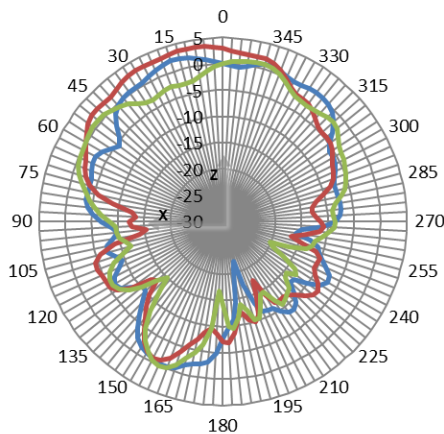
Ant9_6G Azimuth XY



— 5925MHz: Max=3.32 Avg=-2.11
— 6500MHz: Max=3.12 Avg=-1.77
— 7125MHz: Max=2.14 Avg=-2.65

Azimuth (XY)

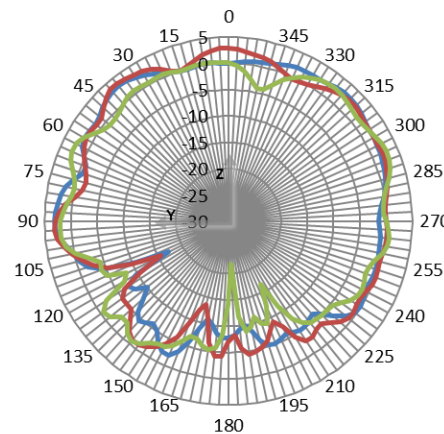
Ant9_6G Elevation XZ



— 5925MHz: Max=2.11 Avg=-3.08
— 6500MHz: Max=3.57 Avg=-2.19
— 7125MHz: Max=1.01 Avg=-3.77

Side to Side (XZ)

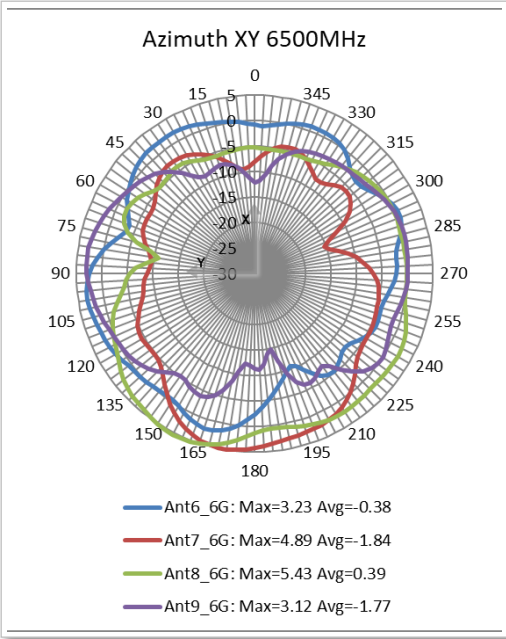
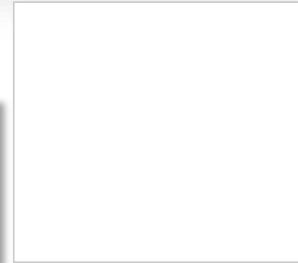
Ant9_6G Elevation YZ



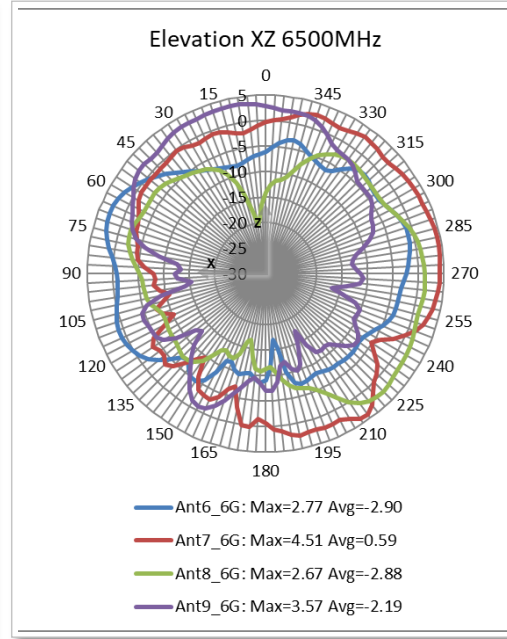
— 5925MHz: Max=3.14 Avg=-0.20
— 6500MHz: Max=3.69 Avg=0.04
— 7125MHz: Max=2.85 Avg=-0.67

Front to Back (YZ)

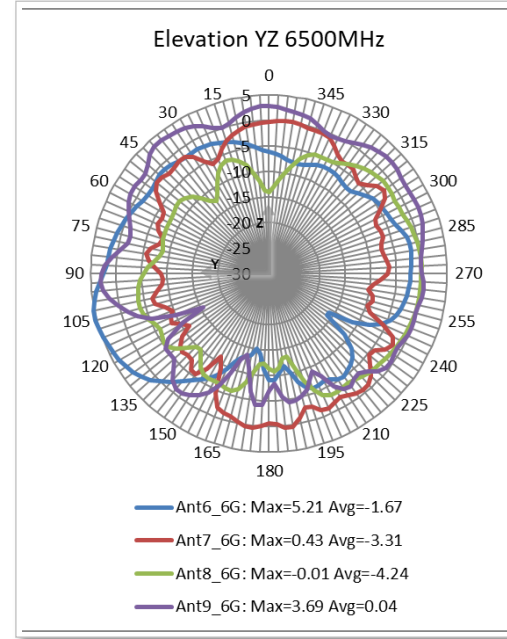
Coverage Total Gain Patterns: Wi-Fi Antennas at 6500MHz



Azimuth (XY)



Side to Side (XZ)



Front to Back (YZ)

- Return loss < -9.7dB
- Isolation < -20dB
- Efficiency > 60%
- 5GHz & 6GHz < 6 dBi, and 2.4GHz < 5 dBi
- The performance is similar to before