

Antenna Test Report

Version:V1
2024-8-12

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1. Test Information

Equipment	E5071C and SATIMO microwave anechoic chamber
Applicant	Han-Networks
Manufacturer	T&W

2. Testing Location

Testing Location	
T&W	ADD: No. 2 Danzi North Road, Kengzi Street, Pingshan District, Shenzhen, Guangdong, China

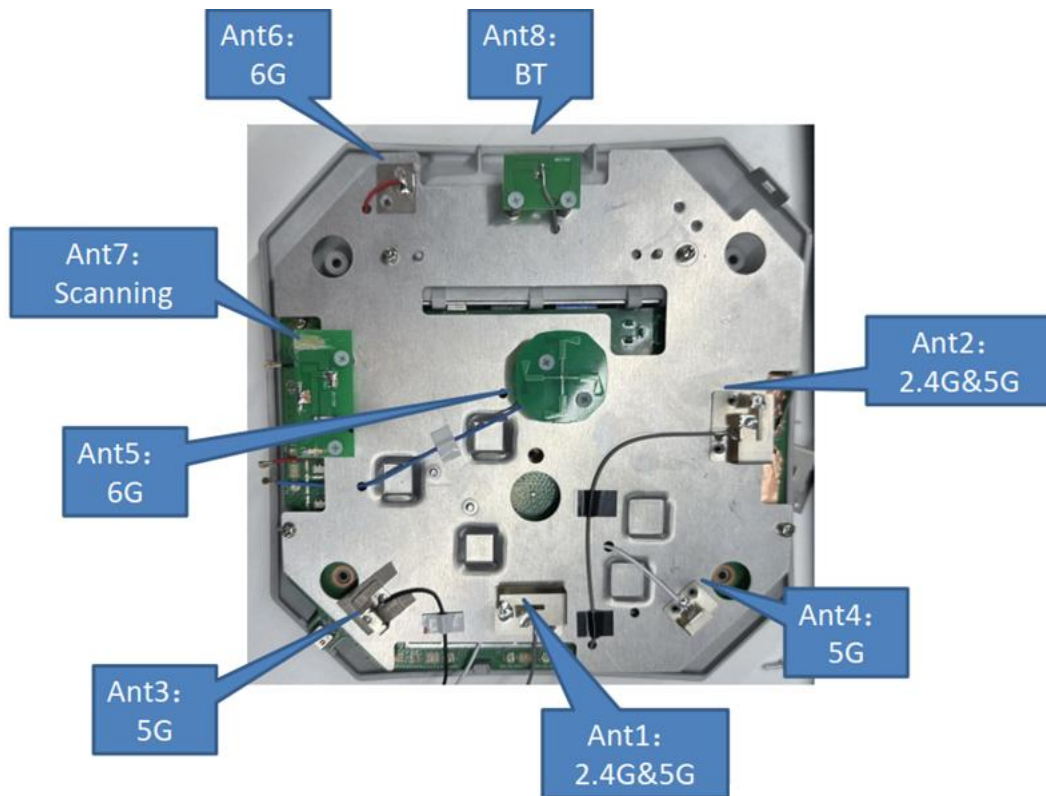
Test Condition	Test Engineer	Test Environment (°C / %)	Test Date
Radiated	Winty	22-26 / 45-60	7.20.2024~7.25.2024

3. Test Frequency

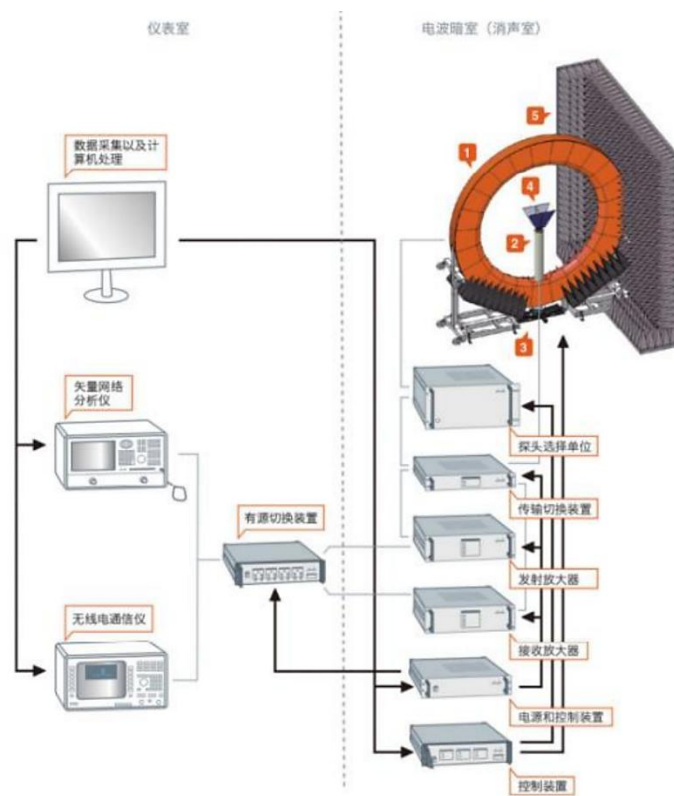
Band (MHz)	Test Frequency (MHz)
2400-2500	2450
5150-5850	5200/5300/5500/5850
5925-7125	6225/6525/6725/7025

4. Antenna Information

	Frequency	Type	Size(L*W*H)	Cable Length(mm)	Polarization type
ANT1	WiFi 2+5G	PIFA	26*19*8	41	Vertical
ANT2	WiFi 2+5G	PIFA	26*19*8	152	Vertical
ANT3	WiFi 5G	PIFA	16.5*13.4*7	89	Vertical
ANT4	WiFi 5G	PIFA	16.5*13.4*7	131	Vertical
ANT5	WiFi 6G	Dipole	32.5*32.5*0.6	183	Horizontal
ANT6	WiFi 6G	PIFA	17*14*6.5	136	Vertical
ANT7	Scanning	Dipole	45*20*0.8	119	Horizontal
ANT8	BLE	Dipole	26+17.7*0.8	152	Horizontal

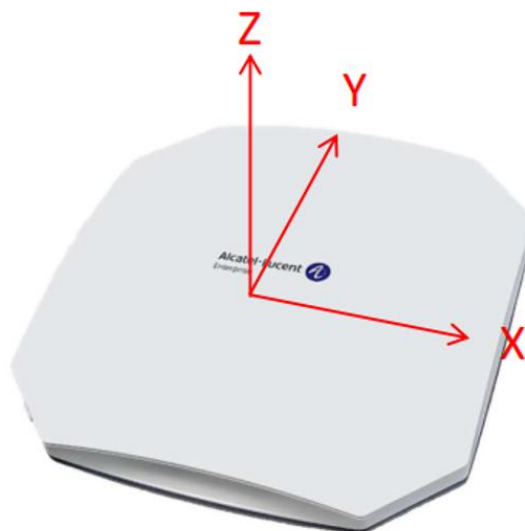


5. Test Configuration

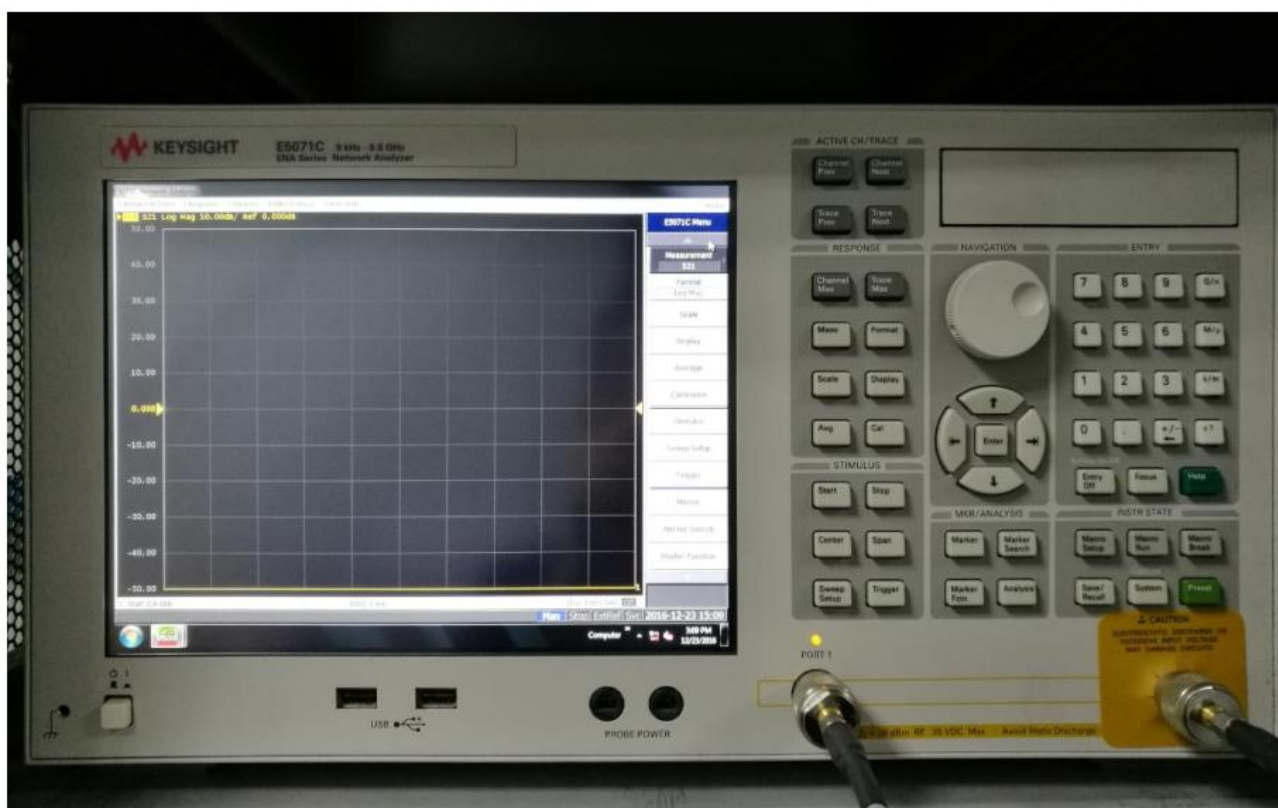




Microwave anechoic chamber



6. Reference Test



The network Analyzer

7. Test Method

The “great circle” cut method, whereby the Measurement Antenna remains fixed and the EUT is rotated about two axes in sequential order. The radiated RF performance of the Equipment Under Test (EUT) is measured by sampling the radiated transmit power of the mobile at various locations surrounding the device. A three-dimensional characterization of the 'transmit' performance of the EUT is pieced together by analyzing the data from the spatially distributed measurements.

Data points taken every 2 degrees in the theta and in the phi axes are deemed sufficient to fully characterize the EUT's Far-Field radiation pattern and total radiated power. All of the measured power values will be integrated.

8. Measured Values and Calculation of Correlated / Uncorrelated Gains

Summary of Antenna Peak Gain

Antenna Peak Gain Table (Ant. Position: 2.4G Ant.1~2)

Band (MHz)	2400-2500
Ant.1 Max Gain (dBi)	3.7
Ant.2 Max Gain (dBi)	4.6

Antenna Peak Gain Table (Ant. Position: 5G Ant.1~4)

Band (MHz)	5150 ~ 5250	5250 ~ 5350	5470 ~ 5725	5725 ~ 5850
Ant.1 Max Gain (dBi)	4.8	5.3	5.8	4.7
Ant.2 Max Gain (dBi)	4.2	4.8	4.4	4.8
Ant.3 Max Gain (dBi)	4.9	4.6	5.9	5.7
Ant.4 Max Gain (dBi)	4.8	4.9	4.2	4.9

Antenna Peak Gain Table (Ant. Position: 6G Ant.5~6)

Band (MHz)	5925 ~ 6425	6425 ~ 6525	6525 ~ 6875	6875 ~ 7125
Ant.5 Max Gain (dBi)	3.2	3.5	3.2	2.2
Ant.6 Max Gain (dBi)	5.7	6.4	6.3	4.7

Antenna Peak Gain Table (Ant. Position: Scanning Ant.7)

Band (MHz)	2400-2500			
Ant.7 Max Gain (dBi)	4.8			
Band (MHz)	5150 ~ 5250	5250 ~ 5350	5470 ~ 5725	5725 ~ 5850
Ant.7 Max Gain (dBi)	6.3	6.1	6.2	6.3
Band (MHz)	5925 ~ 6425	6425 ~ 6525	6525 ~ 6875	6875 ~ 7125
Ant.7 Max Gain (dBi)	5.0	4.3	2.9	4.9

Antenna Peak Gain Table (Ant. Position: BLE/Zigbee Ant.8)

Band (MHz)	2400-2500
Ant.8 Max Gain (dBi)	5.3

Result for Uncorrelated Gain and Correlated Gain

Maximum Correlated Gain Calculation

Because the antennas are fixed in location within the device the directional antenna gain for MIMO is calculated over a sphere using the raw spatial data taken at 10 degree steps of theta and 10 degree of theta phi for each antenna using the equations from KDB 662911 D01. The raw antenna data is located in the appendix of this report.

The correlated antenna gain was calculated using KDB 662911 D01 F(2)(d)(i).

$$\text{Directional gain} = 10 \log[(10^{G_1/20} + 10^{G_2/20} + \dots + 10^{G_N/20})^2 / N_{\text{ANT}}] \text{ dBi}$$

The uncorrelated antenna gain was calculated using KDB 662911 D01 F(2)(d)(ii)

$$\text{Directional gain} = 10 \log[(10^{G_1/10} + 10^{G_2/10} + \dots + 10^{G_N/10}) / N_{\text{ANT}}] \text{ dBi}$$

The correlated gains were calculated for each point in the spatial data and the highest values reported.

Correlated Directional Gain for 2.4GHz (Ant. Position: 2.4G Ant.1~2)

Frequency (MHz)	2450
Directional Gain	5.82

Ant.1~2 @2.45GHz

Phi (deg)	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
Theta (deg)	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
0	-16.24	-12.82	-5.54	-3.91	-5.62	-5.79	-1.07	-0.39	-0.08	0.40	1.64	3.44	4.95	5.58	5.16	3.39	1.07	1.73	3.23
10	-16.24	-11.73	-5.91	-4.77	-5.62	-1.31	0.16	1.36	2.19	2.59	3.74	5.95	5.97	5.29	3.70	1.29	1.97	3.23	3.39
20	-16.24	-10.05	-4.43	-1.86	-4.27	-4.63	-2.48	-0.26	1.78	2.94	3.27	4.09	5.95	5.22	4.09	3.66	1.88	2.10	3.23
30	-16.24	-10.09	-4.42	-1.47	-3.42	-4.11	-2.42	-0.32	1.62	3.09	3.65	4.09	4.56	4.46	4.13	3.29	1.07	2.39	3.23
40	-16.24	-10.06	-4.74	-2.16	-3.69	-3.45	-1.89	-0.53	0.76	2.24	3.19	3.50	3.49	3.61	3.61	3.08	2.22	2.69	3.23
50	-16.24	-10.41	-4.65	-3.82	-3.95	-3.53	-2.32	-1.09	0.43	1.49	1.84	1.80	2.16	3.22	3.07	2.67	3.00	3.23	3.75
60	-16.24	-10.87	-7.21	-6.03	-7.23	-4.72	-4.17	-4.30	-2.65	-0.97	0.19	1.04	1.75	2.52	3.29	3.21	3.19	3.31	3.23
70	-16.24	-11.14	-8.76	-11.06	-7.01	-4.06	-3.54	-3.35	-1.88	-0.32	0.94	2.00	2.43	3.07	3.29	3.36	3.70	3.58	3.23
80	-16.24	-11.04	-8.79	-8.36	-6.95	-5.65	-3.13	-2.84	-1.85	0.07	1.27	2.46	3.13	3.01	3.10	3.49	4.11	3.91	3.23
90	-16.24	-10.77	-7.43	-6.95	-4.60	-3.54	-3.33	-2.86	-1.59	-0.02	1.02	2.20	3.09	2.90	2.96	3.64	4.33	3.96	3.23
100	-16.24	-10.57	-6.29	-4.49	-3.06	-2.30	-2.29	-1.92	-0.94	0.03	1.21	2.43	2.29	2.65	3.75	4.34	4.01	3.23	3.27
110	-16.24	-10.59	-5.31	-3.92	-4.01	-3.37	-2.80	-2.60	-0.92	-0.15	-0.73	0.74	1.84	2.35	2.93	3.72	4.14	3.99	3.23
120	-16.24	-10.80	-5.00	-4.66	-4.80	-3.17	-2.88	-2.15	-2.06	-1.56	-0.54	0.76	1.89	2.36	2.81	3.26	3.79	3.89	3.23
130	-16.24	-11.49	-5.72	-5.83	-3.47	-1.53	-0.49	0.04	0.46	0.47	1.27	2.21	2.37	2.53	2.44	3.35	3.75	3.23	2.40
140	-16.24	-12.30	-6.85	-6.68	-6.61	-2.54	-0.72	0.17	0.77	1.27	1.10	1.98	2.89	2.71	2.03	2.00	2.94	3.98	3.23
150	-16.24	-13.40	-7.82	-6.31	-4.71	-1.80	-0.26	0.21	1.14	1.90	2.86	3.51	2.96	2.22	2.11	2.66	3.42	3.23	1.96
160	-16.24	-14.20	-8.98	-6.31	-4.49	-2.34	-1.08	-0.20	0.36	1.41	3.01	4.11	4.39	3.86	2.76	1.96	2.29	3.29	3.23
170	-16.24	-14.36	-9.01	-4.17	-6.80	-3.91	-1.93	-0.24	0.68	2.12	3.57	4.10	3.71	3.46	2.85	2.16	2.39	3.22	3.23

Uncorrelated Directional Gain for 2.4GHz (Ant. Position: 2.4G Ant.1~2)

Frequency (MHz)	2450
Directional Gain	2.83

Ant.1~2 @2.45GHz

Phi (deg)	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
Theta (deg)	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
0	-19.13	-14.85	-8.11	-6.84	-8.12	-5.77	-4.05	-3.35	-0.09	-0.95	-1.33	0.43	2.01	2.83	2.69	0.80	-0.82	-1.19	0.24
10	-19.13	-14.27	-1.85	-6.95	-7.64	-6.50	-4.31	-3.85	-1.85	-0.77	-0.32	0.78	2.24	2.57	2.66	1.15	-1.41	-1.07	0.24
20	-19.13	-13.90	-7.30	-4.76	-7.27	-7.53	-6.36	-5.19	-1.20	-0.82	0.30	1.10	2.84	2.35	2.33	1.11	-0.74	-0.86	0.24
30	-19.13	-13.94	-7.23	-4.76	-6.28	-6.99	-5.84	-4.95	-1.29	0.12	0.72	1.14	1.58	1.47	1.30	0.65	-1.06	-0.59	0.24
40	-19.13	-13.05	-7.69	-5.06	-6.67	-6.41	-4.33	-3.20	-2.19	-0.75	0.23	0.95	0.49	0.61	0.73	0.26	-0.34	-0.24	0.67
50	-19.13	-13.42	-6.61	-7.46	-7.17	-6.53	-4.23	-3.96	-4.00	-2.84	-1.49	-1.19	-0.23	0.30	0.15	-0.32	0.01	0.24	0.76
60	-19.13	-13.80	-10.21	-11.80	-10.21	-7.68	-6.07	-5.14	-3.30	-4.47	-3.14	-2.79	-1.95	-1.25	-0.17	0.36	0.26	0.16	0.30
70	-19.13	-14.14	-11.76	-14.19	-10.00	-7.03	-6.58	-4.35	-4.57	-3.26	-2.06	-1.01	-0.36	0.14	0.36	0.39	0.69	0.55	0.24
80	-19.13	-14.95	-13.69	-11.32	-9.84	-6.89	-6.12	-5.84	-4.66	-3.93	-1.73	-0.96	0.17	0.12	0.16	0.49	1.10	0.80	0.24
90	-19.13	-13.76	-10.41	-8.89	-7.68	-6.39	-5.20	-4.85	-4.60	-3.03	-1.99	-0.81	0.11	-0.13	-0.02	0.83	1.33	0.95	0.24
100	-19.13	-13.61	-9.11	-7.46	-7.05	-5.77	-4.55	-3.30	-4.91	-3.93	-2.98	-1.70	-0.68	-0.62	-0.16	0.75	1.34	1.00	0.24
110	-19.13	-13.90	-8.22	-6.91	-7.02	-6.34	-4.99	-3.40	-6.41	-6.02	-4.15	-3.27	-1.16	-0.64	-0.67	0.73	1.15	0.90	0.24
120	-19.13	-14.80	-9.66	-7.57	-7.69	-6.16	-5.95	-4.16	-5.08	-4.44	-3.63	-2.22	-1.31	-0.63	-0.19	0.39	0.80	0.80	0.24
130	-19.13	-14.44	-6.73	-6.73	-6.83	-6.49	-5.54	-3.49	-2.96	-2.51	-2.63	-1.84	-0.79	-0.62	-0.45	-0.80	0.39	0.74	0.24
140	-19.13	-15.36	-9.85	-8.67	-8.58	-6.54	-5.73	-3.82	-2.24	-1.74	-1.81	-0.86	-0.84	-0.22	-0.80	-0.80	0.00	0.80	0.24
150	-19.13	-16.40	-10.83	-8.30	-7.57	-6.25	-5.84	-3.10	-2.70	-1.77	-0.68	0.27	0.74	0.14	0.04	-0.60	-0.73	-0.59	0.24
160	-19.13	-17.21	-11.86	-9.05	-7.14	-6.25	-5.09	-2.61	-2.36	-1.36	0.13	1.33	1.62	1.14	0.04	-0.60	-0.52	0.29	0.24
170	-19.13	-17.76	-12.82	-9.00	-8.11	-6.87	-5.82	-3.54	-2.30	-0.89	0.59	1.15	0.81	0.65	0.06	-0.45	-0.36	0.23	0.24

Frequency (MHz)	5200	5300	5500	5800
Directional Gain	9.12	9.09	8.95	8.69

[illegible][illegible][illegible][illegible]

Frequency (MHz)	5200	5300	5500	5800
Directional Gain	3.18	3.18	3.16	3.08

[illegible]

[illegible][illegible][illegible]

Frequency (MHz)	6225	6525	6725	7025
Directional Gain	4.16	4.84	4.09	2.91

Ant.5~6 @6.225GHz

(deg)	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350	360
0	-0.00	-0.17	-0.35	-0.50	-0.60	-0.65	-0.68	-0.69	-0.69	-0.68	-0.66	-0.63	-0.59	-0.54	-0.49	-0.43	-0.37	-0.30	-0.23	-0.16	-0.09	-0.02	0.04	0.09	0.13	0.16	0.18	0.19	0.19	0.18	0.16	0.14	0.11	0.08	0.05	0.02	0.00
10	-0.00	-0.17	-0.35	-0.50	-0.60	-0.65	-0.68	-0.69	-0.69	-0.68	-0.66	-0.63	-0.59	-0.54	-0.49	-0.43	-0.37	-0.30	-0.23	-0.16	-0.09	-0.02	0.04	0.09	0.13	0.16	0.18	0.19	0.19	0.18	0.16	0.14	0.11	0.08	0.05	0.02	0.00
20	-0.00	-0.17	-0.35	-0.50	-0.60	-0.65	-0.68	-0.69	-0.69	-0.68	-0.66	-0.63	-0.59	-0.54	-0.49	-0.43	-0.37	-0.30	-0.23	-0.16	-0.09	-0.02	0.04	0.09	0.13	0.16	0.18	0.19	0.19	0.18	0.16	0.14	0.11	0.08	0.05	0.02	0.00
30	-0.00	-0.17	-0.35	-0.50	-0.60	-0.65	-0.68	-0.69	-0.69	-0.68	-0.66	-0.63	-0.59	-0.54	-0.49	-0.43	-0.37	-0.30	-0.23	-0.16	-0.09	-0.02	0.04	0.09	0.13	0.16	0.18	0.19	0.19	0.18	0.16	0.14	0.11	0.08	0.05	0.02	0.00
40	-0.00	-0.17	-0.35	-0.50	-0.60	-0.65	-0.68	-0.69	-0.69	-0.68	-0.66	-0.63	-0.59	-0.54	-0.49	-0.43	-0.37	-0.30	-0.23	-0.16	-0.09	-0.02	0.04	0.09	0.13	0.16	0.18	0.19	0.19	0.18	0.16	0.14	0.11	0.08	0.05	0.02	0.00
50	-0.00	-0.17	-0.35	-0.50	-0.60	-0.65	-0.68	-0.69	-0.69	-0.68	-0.66	-0.63	-0.59	-0.54	-0.49	-0.43	-0.37	-0.30	-0.23	-0.16	-0.09	-0.02	0.04	0.09	0.13	0.16	0.18	0.19	0.19	0.18	0.16	0.14	0.11	0.08	0.05	0.02	0.00
60	-0.00	-0.17	-0.35	-0.50	-0.60	-0.65	-0.68	-0.69	-0.69	-0.68	-0.66	-0.63	-0.59	-0.54	-0.49	-0.43	-0.37	-0.30	-0.23	-0.16	-0.09	-0.02	0.04	0.09	0.13	0.16	0.18	0.19	0.19	0.18	0.16	0.14	0.11	0.08	0.05	0.02	0.00
70	-0.00	-0.17	-0.35	-0.50	-0.60	-0.65	-0.68	-0.69	-0.69	-0.68	-0.66	-0.63	-0.59	-0.54	-0.49	-0.43	-0.37	-0.30	-0.23	-0.16	-0.09	-0.02	0.04	0.09	0.13	0.16	0.18	0.19	0.19	0.18	0.16	0.14	0.11	0.08	0.05	0.02	0.00
80	-0.00	-0.17	-0.35	-0.50	-0.60	-0.65	-0.68	-0.69	-0.69	-0.68	-0.66	-0.63	-0.59	-0.54	-0.49	-0.43	-0.37	-0.30	-0.23	-0.16	-0.09	-0.02	0.04	0.09	0.13	0.16	0.18	0.19	0.19	0.18	0.16	0.14	0.11	0.08	0.05	0.02	0.00
90	-0.00	-0.17	-0.35	-0.50	-0.60	-0.65	-0.68	-0.69	-0.69	-0.68	-0.66	-0.63	-0.59	-0.54	-0.49	-0.43	-0.37	-0.30	-0.23	-0.16	-0.09	-0.02	0.04	0.09	0.13	0.16	0.18	0.19	0.19	0.18	0.16	0.14	0.11	0.08	0.05	0.02	0.00
100	-0.00	-0.17	-0.35	-0.50	-0.60	-0.65	-0.68	-0.69	-0.69	-0.68	-0.66	-0.63	-0.59	-0.54	-0.49	-0.43	-0.37	-0.30	-0.23	-0.16	-0.09	-0.02	0.04	0.09	0.13	0.16	0.18	0.19	0.19	0.18	0.16	0.14	0.11	0.08	0.05	0.02	0.00
110	-0.00	-0.17	-0.35	-0.50	-0.60	-0.65	-0.68	-0.69	-0.69	-0.68	-0.66	-0.63	-0.59	-0.54	-0.49	-0.43	-0.37	-0.30	-0.23	-0.16	-0.09	-0.02	0.04	0.09	0.13	0.16	0.18	0.19	0.19	0.18	0.16	0.14	0.11	0.08	0.05	0.02	0.00
120	-0.00	-0.17	-0.35	-0.50	-0.60	-0.65	-0.68	-0.69	-0.69	-0.68	-0.66	-0.63	-0.59	-0.54	-0.49	-0.43	-0.37	-0.30	-0.23	-0.16	-0.09	-0.02	0.04	0.09	0.13	0.16	0.18	0.19	0.19	0.18	0.16	0.14	0.11	0.08	0.05	0.02	0.00
130	-0.00	-0.17	-0.35	-0.50	-0.60	-0.65	-0.68	-0.69	-0.69	-0.68	-0.66	-0.63	-0.59	-0.54	-0.49	-0.43	-0.37	-0.30	-0.23	-0.16	-0.09	-0.02	0.04	0.09	0.13	0.16	0.18	0.19	0.19	0.18	0.16	0.14	0.11	0.08	0.05	0.02	0.00
140	-0.00	-0.17	-0.35	-0.50	-0.60	-0.65	-0.68	-0.69	-0.69	-0.68	-0.66	-0.63	-0.59	-0.54	-0.49	-0.43	-0.37	-0.30	-0.23	-0.16	-0.09	-0.02	0.04	0.09	0.13	0.16	0.18	0.19	0.19	0.18	0.16	0.14	0.11	0.08	0.05	0.02	0.00
150	-0.00	-0.17	-0.35	-0.50	-0.60	-0.65	-0.68	-0.69	-0.69	-0.68	-0.66	-0.63	-0.59	-0.54	-0.49	-0.43	-0.37	-0.30	-0.23	-0.16	-0.09	-0.02	0.04	0.09	0.13	0.16	0.18	0.19	0.19	0.18	0.16	0.14	0.11	0.08	0.05	0.02	0.00
160	-0.00	-0.17	-0.35	-0.50	-0.60	-0.65	-0.68	-0.69	-0.69	-0.68	-0.66	-0.63	-0.59	-0.54	-0.49	-0.43	-0.37	-0.30	-0.23	-0.16	-0.09	-0.02	0.04	0.09	0.13	0.16	0.18	0.19	0.19	0.18	0.16	0.14	0.11	0.08	0.05	0.02	0.00
170	-0.00	-0.17	-0.35	-0.50	-0.60	-0.65	-0.68	-0.69	-0.69	-0.68	-0.66	-0.63	-0.59	-0.54	-0.49	-0.43	-0.37	-0.30	-0.23	-0.16	-0.09	-0.02	0.04	0.09	0.13	0.16	0.18	0.19	0.19	0.18	0.16	0.14	0.11	0.08	0.05	0.02	0.00
180	-0.00	-0.17	-0.35	-0.50	-0.60	-0.65	-0.68	-0.69	-0.69	-0.68	-0.66	-0.63	-0.59	-0.54	-0.49	-0.43	-0.37	-0.30	-0.23	-0.16	-0.09	-0.02	0.04	0.09	0.13	0.16	0.18	0.19	0.19	0.18	0.16	0.14	0.11	0.08	0.05	0.02	0.00
190	-0.00	-0.17	-0.35	-0.50	-0.60	-0.65	-0.68	-0.69	-0.69	-0.68	-0.66	-0.63	-0.59	-0.54	-0.49	-0.43	-0.37	-0.30	-0.23	-0.16	-0.09	-0.02	0.04	0.09	0.13	0.16	0.18	0.19	0.19	0.18	0.16	0.14	0.11	0.08	0.05	0.02	0.00
200	-0.00	-0.17	-0.35	-0.50	-0.60	-0.65	-0.68	-0.69	-0.69	-0.68	-0.66	-0.63	-0.59	-0.54	-0.49	-0.43	-0.37	-0.30	-0.23	-0.16	-0.09	-0.02	0.04	0.09	0.13	0.16	0.18	0.19	0.19	0.18	0.16	0.14	0.11	0.08	0.05	0.02	0.00
210	-0.00	-0.17	-0.35	-0.50	-0.60	-0.65	-0.68	-0.69	-0.69	-0.68	-0.66	-0.63	-0.59	-0.54	-0.49	-0.43	-0.37	-0.30	-0.23	-0.16	-0.09	-0.02	0.04	0.09	0.13	0.16	0.18	0.19	0.19	0.18	0.16	0.14	0.11	0.08	0.05	0.02	0.00
220	-0.00	-0.17	-0.35	-0.50	-0.60	-0.65	-0.68	-0.69	-0.69	-0.68	-0.66	-0.63	-0.59	-0.54	-0.49	-0.43	-0.37	-0.30	-0.23	-0.16	-0.09	-0.02	0.04	0.09	0.13	0.16	0.18	0.19	0.19	0.18	0.16	0.14	0.11	0.08	0.05	0.02	0.00
230	-0.00	-0.17	-0.35	-0.50	-0.60	-0.65	-0.68	-0.69	-0.69	-0.68	-0.66	-0.63	-0.59	-0.54	-0.49	-0.43	-0.37	-0.30	-0.23	-0.16	-0.09	-0.02	0.04	0.09	0.13	0.16	0.18	0.19	0.19	0.18	0.16	0.14	0.11	0.08	0.05	0.02	0.00
240	-0.00	-0.17	-0.35	-0.50	-0.60	-0.65	-0.68	-0.69	-0.69	-0.68	-0.66	-0.63	-0.59	-0.54	-0.49	-0.43	-0.37	-0.30	-0.23	-0.16	-0.09	-0.02	0.04	0.09	0.13	0.16	0.18	0.19	0.19	0.18	0.16	0.14	0.11	0.08	0.05	0.02	0.00
250	-0.00	-0.17	-0.35	-0.50	-0.60	-0.65	-0.68	-0.69	-0.69	-0.68	-0.66	-0.63	-0.59	-0.54	-0.49	-0.43	-0.37	-0.30	-0.23	-0.16	-0.09	-0.02	0.04	0.09	0.13	0.16	0.18	0.19	0.19	0.18	0.16	0.14	0.11	0.08	0.05	0.02	0.00
260	-0.00	-0.17	-0.35	-0.50	-0.60	-0.65	-0.68	-0.69	-0.69	-0.68	-0.66	-0.63	-0.59	-0.54	-0.49	-0.43	-0.37	-0.30	-0.23	-0.16	-0.09	-0.02	0.04	0.09	0.13	0.16	0.18	0.19	0.19	0.18	0.16	0.14	0.11	0.08	0.05	0.02	0.00
270	-0.00	-0.17	-0.35	-0.50	-0.60	-0.65	-0.68	-0.69	-0.69	-0.68	-0.66	-0.63	-0.59	-0.54	-0.49	-0.43	-0.37	-0.30	-0.23	-0.16	-0.09	-0.02	0.04	0.09	0.13	0.16	0.18	0.19	0.19	0.18	0.16	0.14	0.11	0.08	0.05	0.02	0.00
280	-0.00	-0.17	-0.35	-0.50	-0.60	-0.65	-0.68	-0.69	-0.69	-0.68	-0.66	-0.63	-0.59	-0.54	-0.49	-0.43	-0.37	-0.30	-0.23	-0.16	-0.09	-0.02	0.04	0.09	0.13	0.16	0.18	0.19	0.19	0.18	0.16	0.14	0.11	0.08	0.05	0.02	0.00
290	-0.00	-0.17	-0.35	-0.50	-0.60	-0.65	-0.68	-0.69	-0.69	-0.68	-0.66	-0.63	-0.59	-0.54	-0.49	-0.43	-0.37	-0.30	-0.23	-0.16	-0.09	-0.02	0.04	0.09	0.13	0.16	0.18	0.19	0.19	0.18	0.16	0.14	0.11	0.08	0.05	0.02	0.00
300	-0.00	-0.17	-0.35	-0.50	-0.60	-0.65	-0.68	-0.69	-0.69	-0.68	-0.66	-0.63	-0.59	-0.54	-0.49	-0.43	-0.37	-0.30	-0.23	-0.16	-0.09	-0.02	0.04	0.09	0.13	0.16	0.18	0.19	0.19	0.18	0.16	0.14	0.11	0.08	0.05	0.02	0.00
310	-0.00	-0.17	-0.35	-0.50	-0.60	-0.65	-0.68	-0.69	-0.69	-0.68	-0.66	-0.63	-0.59	-0.54	-0.49	-0.43	-0.37	-0.30	-0.23	-0.16	-0.09	-0.02	0.04	0.09	0.13	0.16	0.18	0.19	0.19	0.18	0.16	0.14	0.11	0.08	0.05	0.02	0.00
320	-0.00	-0.17	-0.35	-0.50	-0.60	-0.65	-0.68	-0.69	-0.69	-0.68	-0.66	-0.63	-0.59	-0.54	-0.49	-0.43	-0.37	-0.30	-0.23	-0.16	-0.09	-0.02	0.04	0.09	0.13	0.16	0.18	0.19	0.19	0.18	0.16	0.14	0.11	0.08	0.05	0.02	0.00
330	-0.00	-0.17	-0.35	-0.50	-0.60	-0.65	-0.68	-0.69	-0.69	-0.68	-0.66	-0.63	-0.59	-0.54	-0.49	-0.43	-0.37	-0.30	-0.23	-0.16	-0.09	-0.02	0.04	0.09	0.13	0.16	0.18	0.19	0.19	0.18	0.16	0.14	0.11	0.08	0.05	0.02	0.00
340	-0.00	-0.17	-0.35	-0.50	-0.60	-0.65	-0.68	-0.69	-0.69	-0.68	-0.66	-0.63	-0.59	-0.54	-0.49	-0.43	-0.37	-0.30	-0.23	-0.16	-0.09	-0.02	0.04	0.09	0.13	0.16	0.18	0.19	0.19	0.18	0.16	0.14	0.11	0.08	0.05	0.02	0.00
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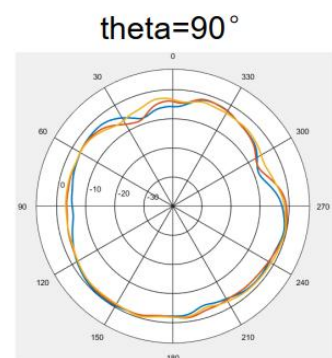
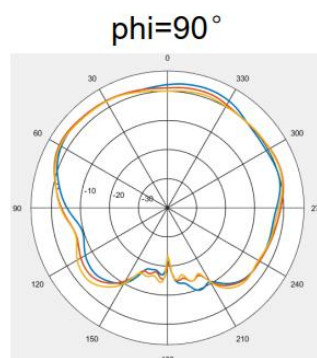
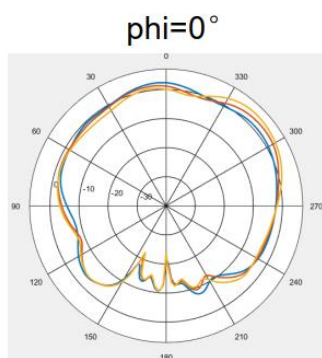
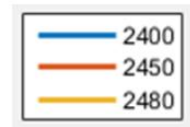
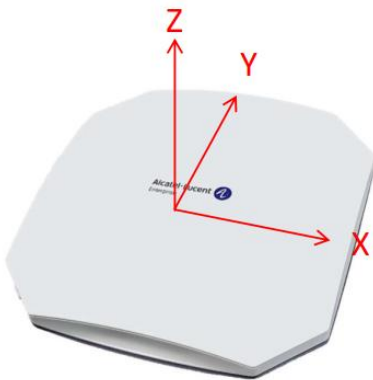
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Time (days)		T ₁ (s)		T ₂ (s)		T ₃ (s)		T ₄ (s)		T ₅ (s)		T ₆ (s)		T ₇ (s)		T ₈ (s)		T ₉ (s)		T ₁₀ (s)		T ₁₁ (s)		T ₁₂ (s)		T ₁₃ (s)		T ₁₄ (s)		T ₁₅ (s)		T ₁₆ (s)		T ₁₇ (s)		T ₁₈ (s)		T ₁₉ (s)		T ₂₀ (s)		T ₂₁ (s)		T ₂₂ (s)		T ₂₃ (s)		T ₂₄ (s)		T ₂₅ (s)		T ₂₆ (s)		T ₂₇ (s)		T ₂₈ (s)		T ₂₉ (s)		T ₃₀ (s)		T ₃₁ (s)		T ₃₂ (s)		T ₃₃ (s)		T ₃₄ (s)		T ₃₅ (s)		T ₃₆ (s)		T ₃₇ (s)		T ₃₈ (s)		T ₃₉ (s)		T ₄₀ (s)		T ₄₁ (s)		T ₄₂ (s)		T ₄₃ (s)		T ₄₄ (s)		T ₄₅ (s)		T ₄₆ (s)		T ₄₇ (s)		T ₄₈ (s)		T ₄₉ (s)		T ₅₀ (s)		T ₅₁ (s)		T ₅₂ (s)		T ₅₃ (s)		T ₅₄ (s)		T ₅₅ (s)		T ₅₆ (s)		T ₅₇ (s)		T ₅₈ (s)		T ₅₉ (s)		T ₆₀ (s)		T ₆₁ (s)		T ₆₂ (s)		T ₆₃ (s)		T ₆₄ (s)		T ₆₅ (s)		T ₆₆ (s)		T ₆₇ (s)		T ₆₈ (s)		T ₆₉ (s)		T ₇₀ (s)		T ₇₁ (s)		T ₇₂ (s)		T ₇₃ (s)		T ₇₄ (s)		T ₇₅ (s)		T ₇₆ (s)		T ₇₇ (s)		T ₇₈ (s)		T ₇₉ (s)		T ₈₀ (s)		T ₈₁ (s)		T ₈₂ (s)		T ₈₃ (s)		T ₈₄ (s)		T ₈₅ (s)		T ₈₆ (s)		T ₈₇ (s)		T ₈₈ (s)		T ₈₉ (s)		T ₉₀ (s)		T ₉₁ (s)		T ₉₂ (s)		T ₉₃ (s)		T ₉₄ (s)		T ₉₅ (s)		T ₉₆ (s)		T ₉₇ (s)		T ₉₈ (s)		T ₉₉ (s)		T ₁₀₀ (s)																																																												
0	-170	-170	-170	-160	-160	-150	-150	-140	-140	-130	-130	-120	-120	-110	-110	-100	-100	-90	-90	-80	-80	-70	-70	-60	-60	-50	-50	-40	-40	-30	-30	-20	-20	-10	-10	0	0	10	10	20	20	30	30	40	40	50	50	60	60	70	70	80	80	90	90	100	100	110	110	120	120	130	130	140	140	150	150	160	160	170	170	180	180	190	190	200	200	210	210	220	220	230	230	240	240	250	250	260	260	270	270	280	280	290	290	300	300	310	310	320	320	330	330	340	340	350	350	360	360	370	370	380	380	390	390	400	400	410	410	420	420	430	430	440	440	450	450	460	460	470	470	480	480	490	490	500	500	510	510	520	520	530	530	540	540	550	550	560	560	570	570	580	580	590	590	600	600	610	610	620	620	630	630	640	640	650	650	660	660	670	670	680	680	690	690	700	700	710	710	720	720	730	730	740	740	750	750	760	760	770	770	780	780	790	790	800	800	810	810	820	820	830	830	840	840	850	850	860	860	870	870	880	880	890	890	900	900	910	910	920	920	930	930	940	940	950	950	960	960	970	970	980	980	990	990	1000	1000	1010	1010	1020	1020	1030	1030	1040	1040	1050	1050	1060	1060	1070	1070	1080	1080	1090	1090	1100	1100	1110	1110	11

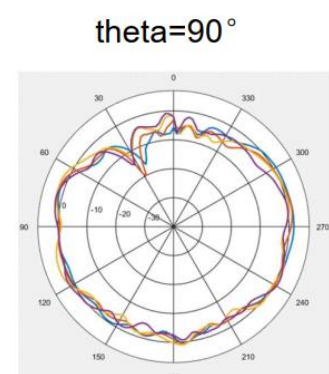
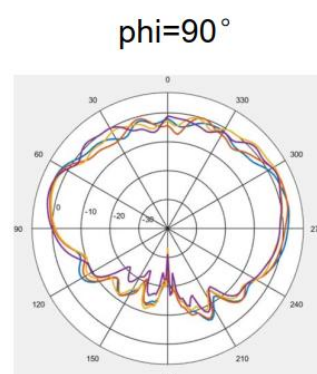
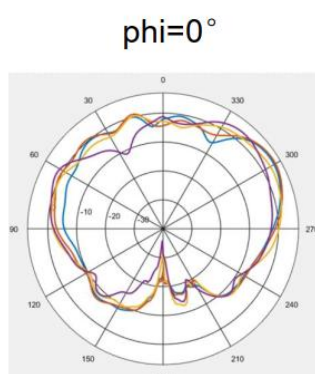
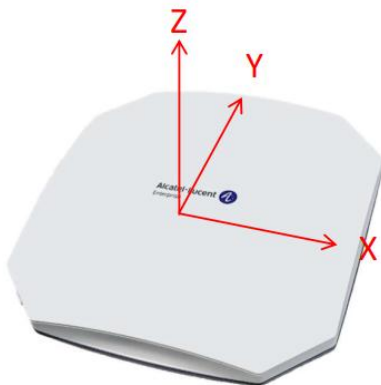
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9. Radiation Pattern

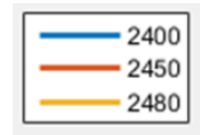
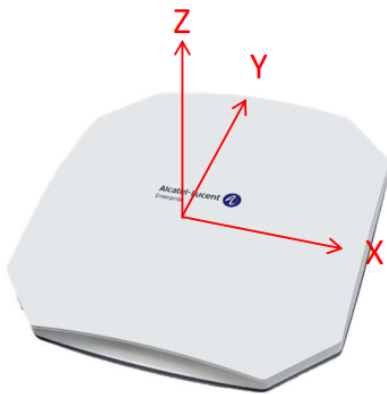
Ant. Position: 2.4G Ant.1



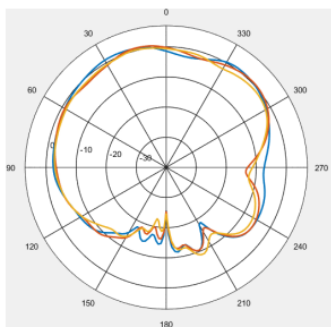
Ant. Position: 5G Ant.1



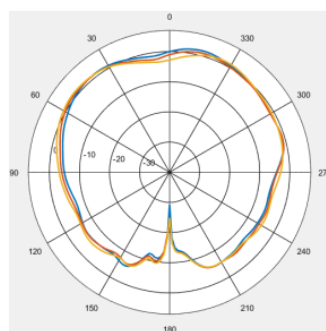
Ant. Position: 2.4G Ant.2



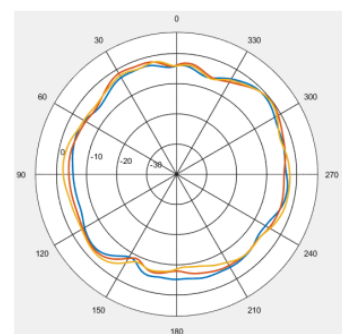
$\phi=0^\circ$



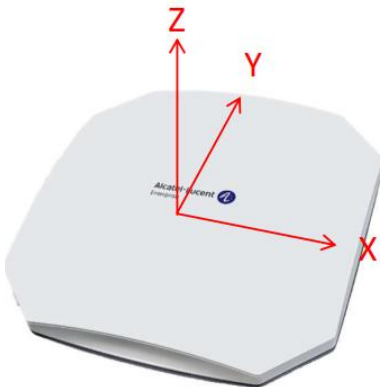
$\phi=90^\circ$



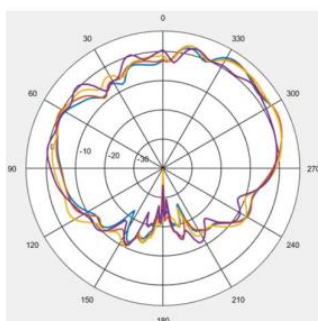
$\theta=90^\circ$



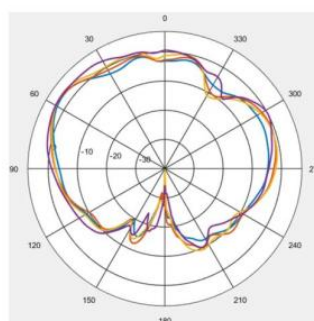
Ant. Position: 5G Ant.2



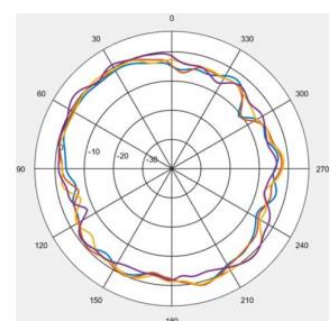
$\phi=0^\circ$



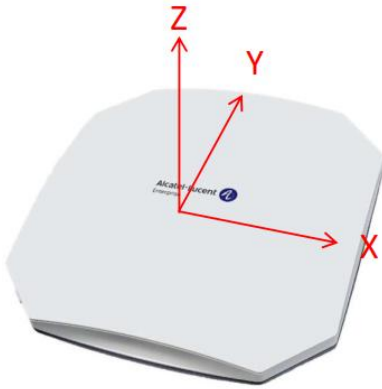
$\phi=90^\circ$



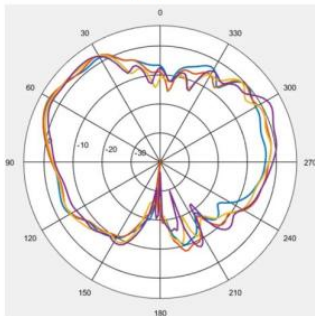
$\theta=90^\circ$



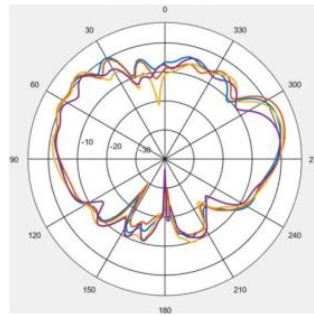
Ant. Position: 5G Ant.3



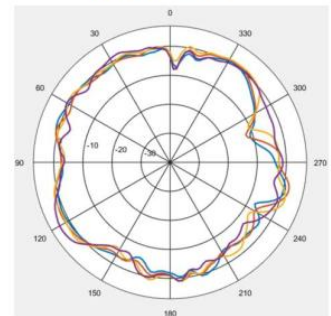
$\phi=0^\circ$



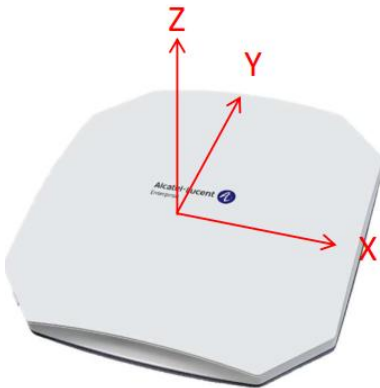
$\phi=90^\circ$



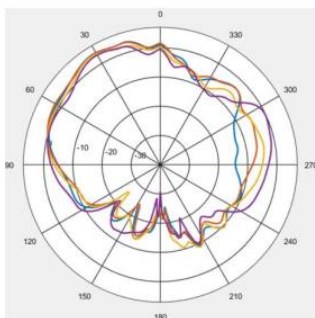
$\theta=90^\circ$



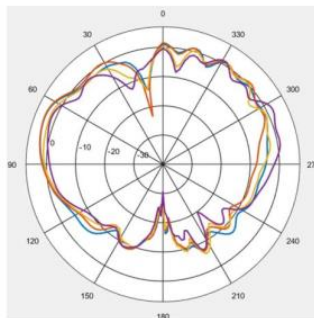
Ant. Position: 5G Ant.4



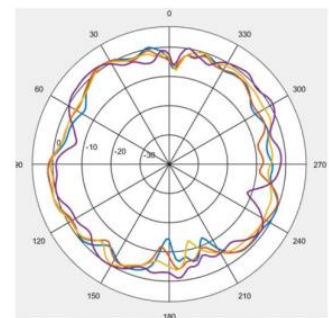
$\phi=0^\circ$



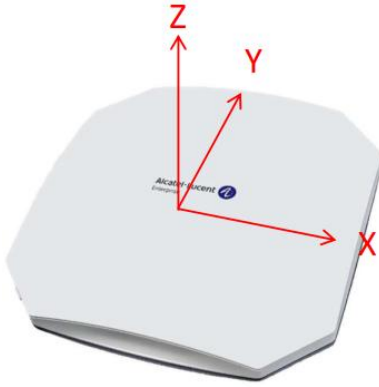
$\phi=90^\circ$



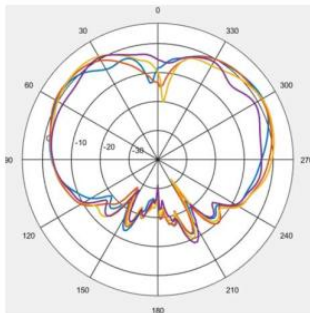
$\theta=90^\circ$



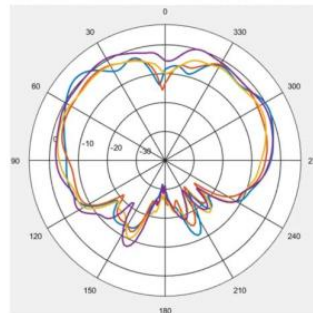
Ant. Position: 6G Ant.5



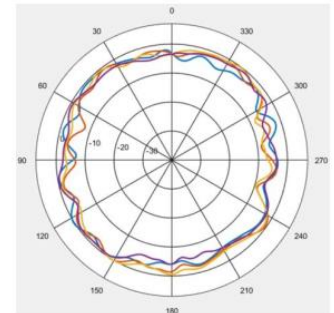
$\phi=0^\circ$



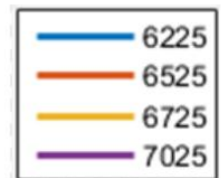
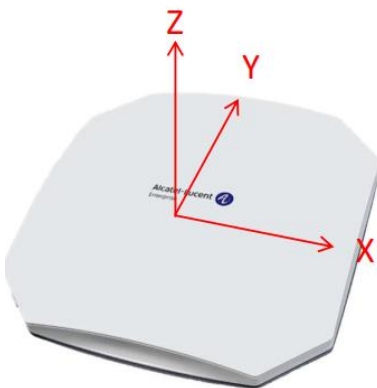
$\phi=90^\circ$



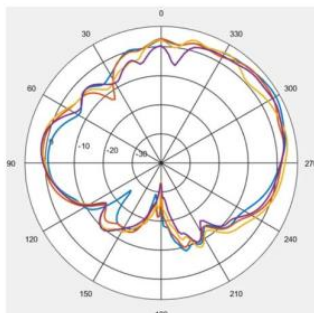
$\theta=90^\circ$



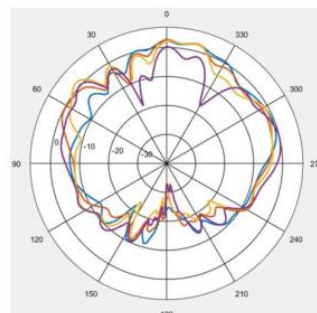
Ant. Position: 6G Ant.6



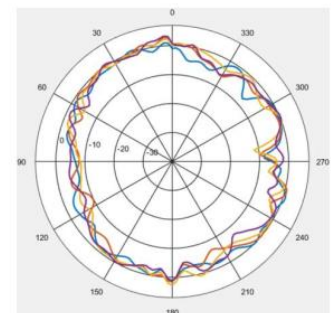
$\phi=0^\circ$



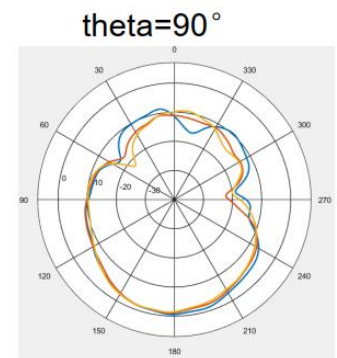
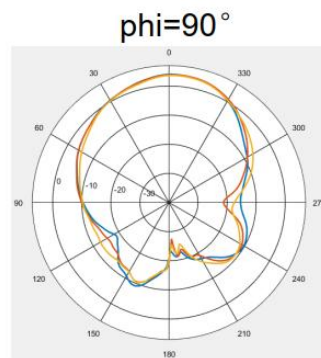
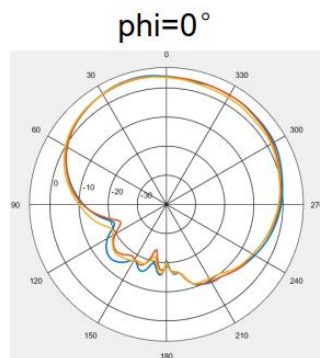
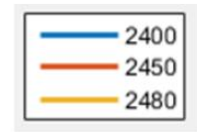
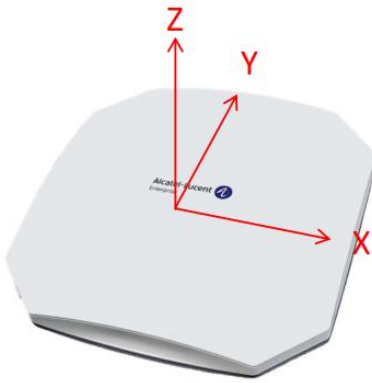
$\phi=90^\circ$



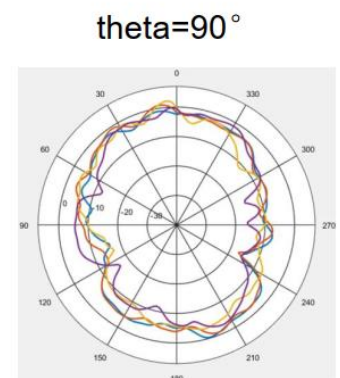
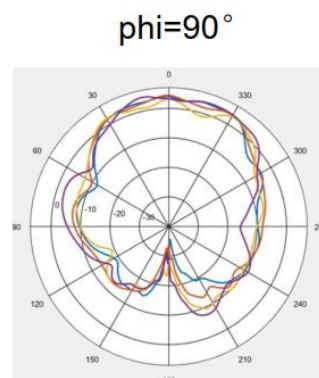
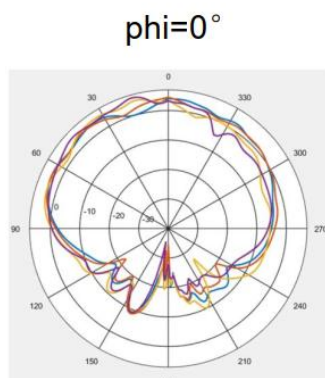
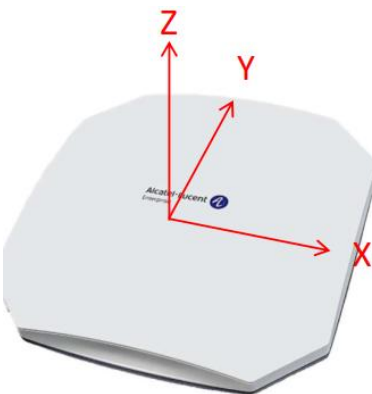
$\theta=90^\circ$



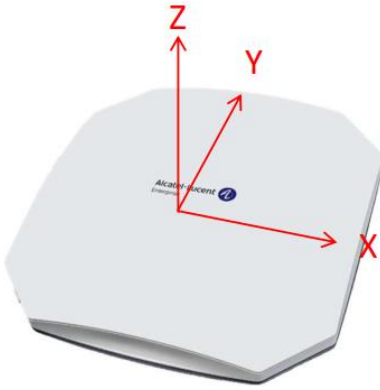
Ant. Position: 2.4G Ant.7



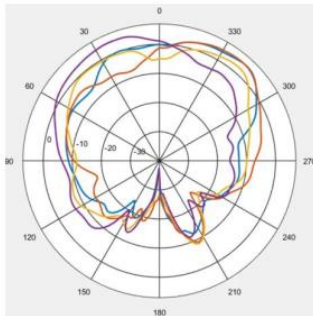
Ant. Position: 5G Ant.7



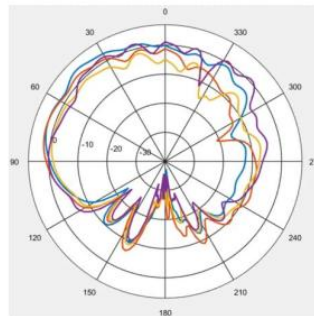
Ant. Position: 6G Ant.7



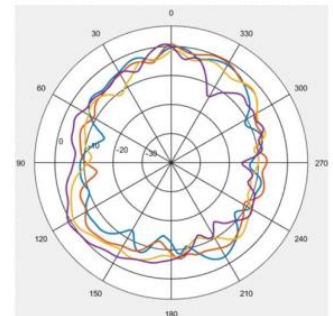
$\phi=0^\circ$



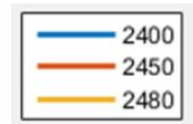
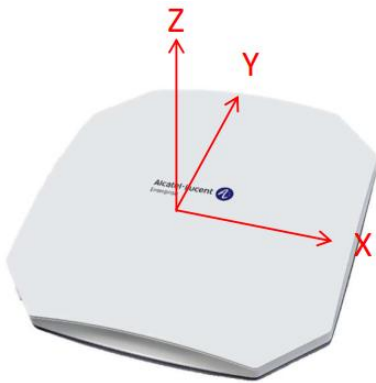
$\phi=90^\circ$



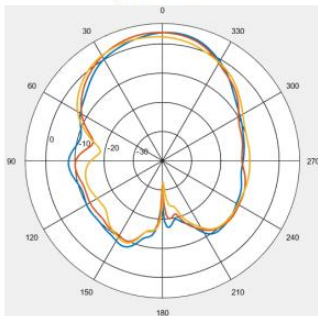
$\theta=90^\circ$



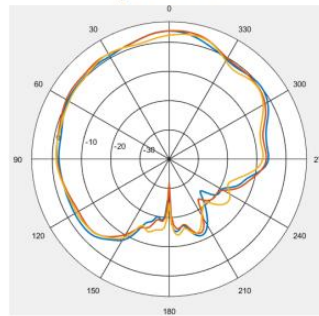
Ant. Position: BLE Ant.8



$\phi=0^\circ$



$\phi=90^\circ$



$\theta=90^\circ$

