

Antenna Composite Gain Test Report

1. Test Information

Equipment	GTS
Brand Name	Nokia
Model Name	G10
Applicant	Nokia
Manufacturer	Nokia

2. Testing Location

Testing Location	
INPAQ	ADD: No. 81, Antai 1st Road, Xishan District, Wuxi City, Jiangsu Province, China

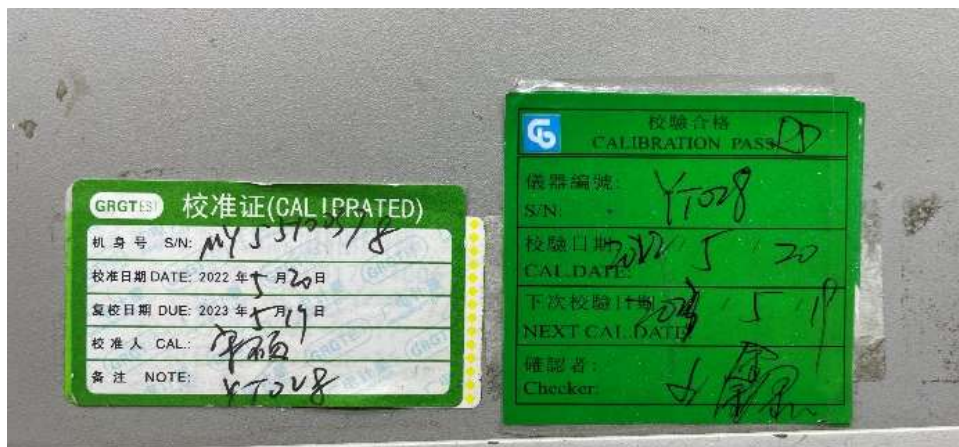
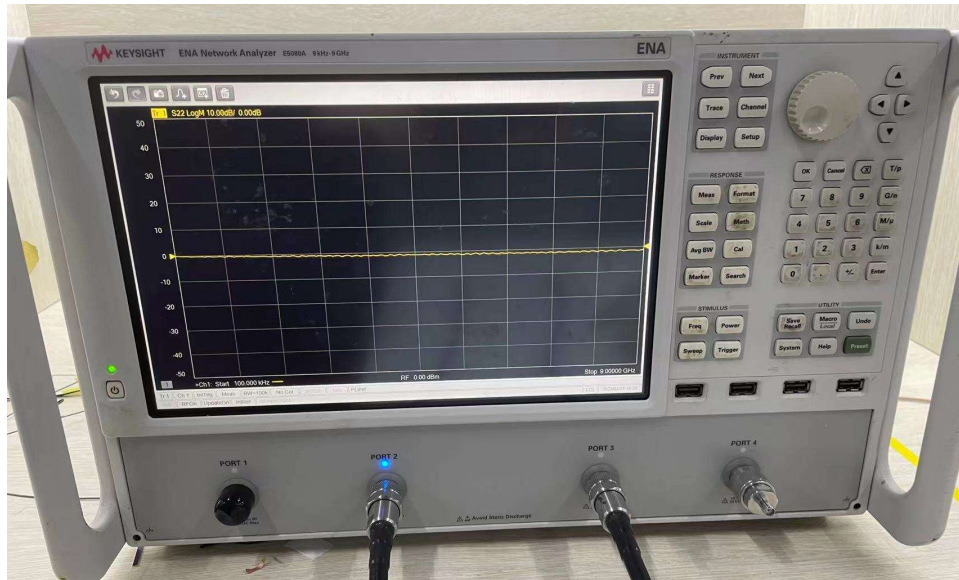
Test Condition	Test Engineer	Test Environment (°C / %)	Test Date
Radiated	Hao Qin	20-24 / 45-60	03.22.2023~03.23.2023

3. Test Frequency

Band (MHz)	Test Frequency (MHz)
6000-7000	6000 / 6500 / 7000

4. Antenna Information

Ant. Position	Brand Name	Model Name	Ant. Type	Connector
Antenna 5 (6G)	Nokia		Dipole	I-PEX
Antenna 6 (6G)	Nokia		Dipole	I-PEX
Antenna 7 (6G)	Nokia		Dipole	I-PEX
Antenna 8 (6G)	Nokia		Dipole	I-PEX



Calibration date:
Last Calibration date: 2022/05/20
Next Calibration date: 2023/05/19

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 15 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 Gains

Antenna Peak Gain Table (Ant. Position: 6G Ant.5~8)

Band (MHz)	6000-7000		
Frequency (MHz)	6000	6500	7000
Ant.5 Max Gain (dBi)	0.53	2.63	1.75
Ant.6 Max Gain (dBi)	0.56	2.24	2.61
Ant.7 Max Gain (dBi)	2.67	1.57	2.71
Ant.8 Max Gain (dBi)	2.17	1.38	1.99
Max Gain (dBi)	2.67	2.63	2.71

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 15 degree steps of theta and 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)(f)(ii) for CDD and KDB 662911 D01, F(2)(e)(ii) for TxBF.

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

- (ii) If antenna gains are not equal, the user may use either of the following methods to calculate directional gain, provided that each transmit antenna is driven by only one spatial stream:
- Directional gain may be calculated by using the formulas applicable to equal gain antennas with G_{ANT} set equal to the gain of the antenna having the highest gain; or,

$$DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$$

Maximum Correlated Gain Calculation

(Ant. Position: 6G Ant.5~8)

Frequency (MHz)	6000	6500	7000
Ant.5 Gain (dBi)	-2.96	0.77	0.59
Ant.6 Gain (dBi)	0.16	0.39	-6.05
Ant.7 Gain (dBi)	0.53	0.73	-2.78
Ant.8 Gain (dBi)	-2.5	-10.6	1.99
Phi (°)	270	255	15
Theta (°)	90	90	90
Beamforming	4.97	4.91	4.99
Non Beamforming (CDD MODE)	4.97	4.91	4.99

Calculation example :

$$10 \times \log \left\{ \left[10^{(-2.96 \text{ dBi} / 20)} + 10^{(0.16 \text{ dBi} / 20)} + 10^{(0.53 \text{ dBi} / 20)} + 10^{(-2.5 \text{ dBi} / 20)} \right]^2 / 4 \right\}$$

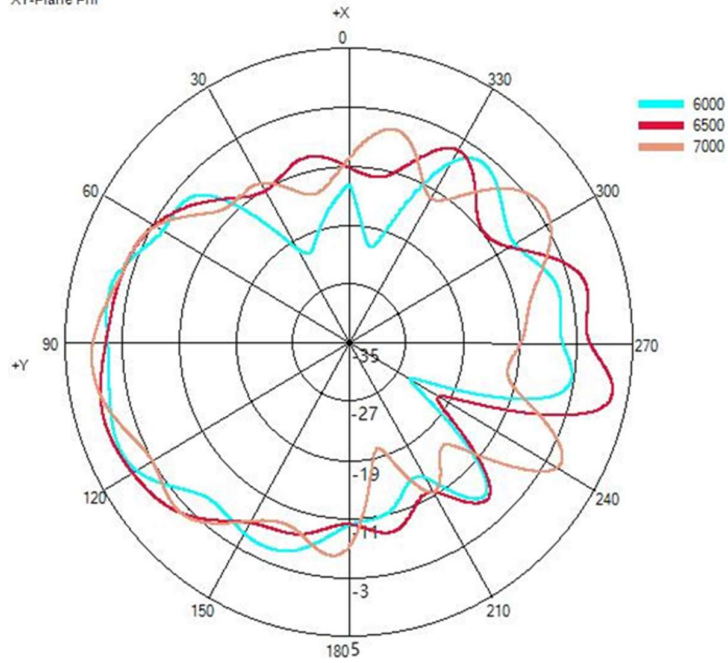
=4.97 dBi

9. Radiation Pattern

Ant. Position: 6G Ant.5~8

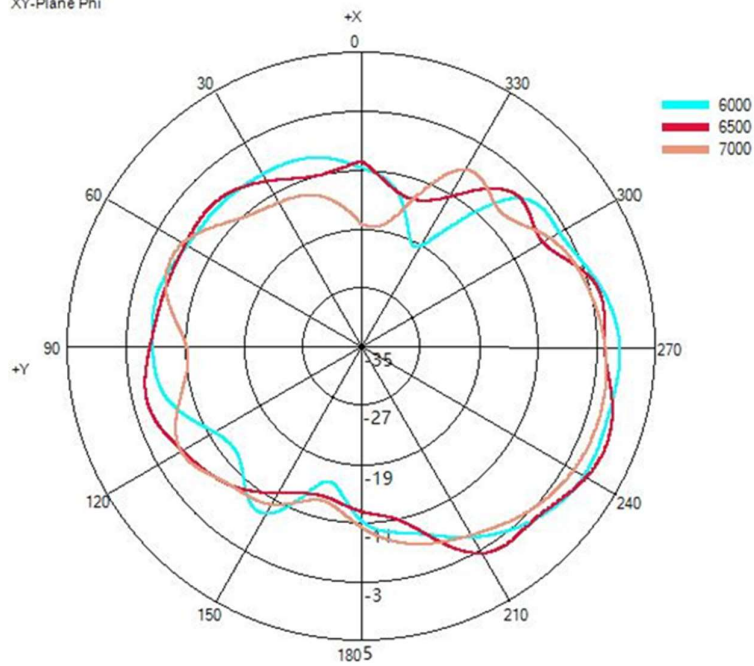
XY_Pol._Phi_Ant.5

XY-Plane Phi



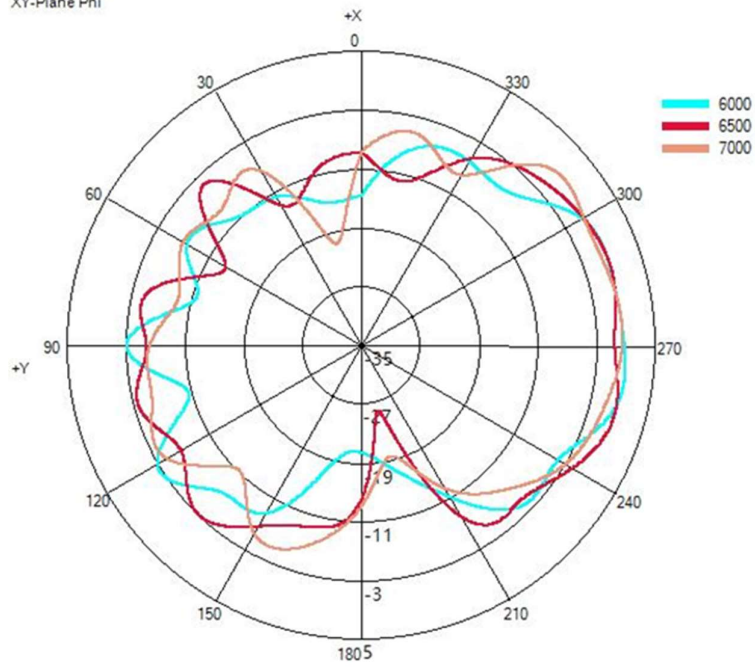
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XY-Plane Phi



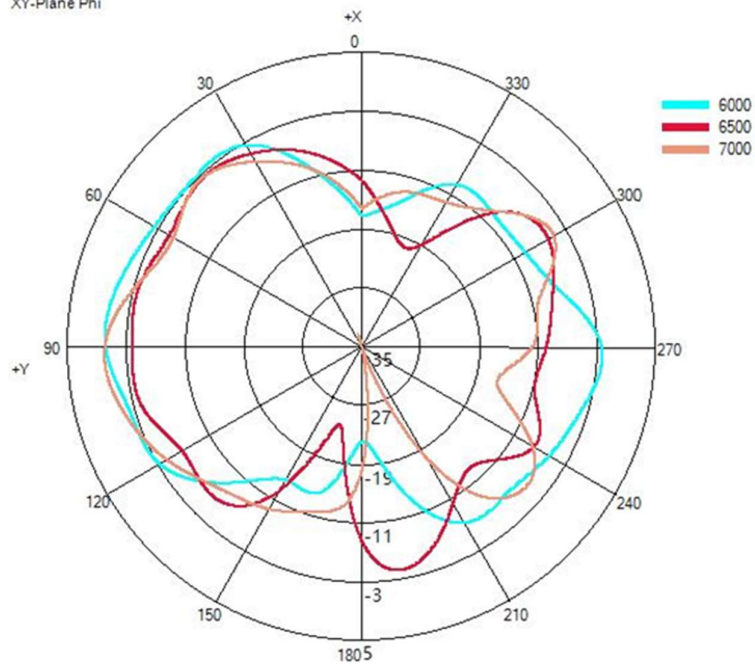
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XY-Plane Phi

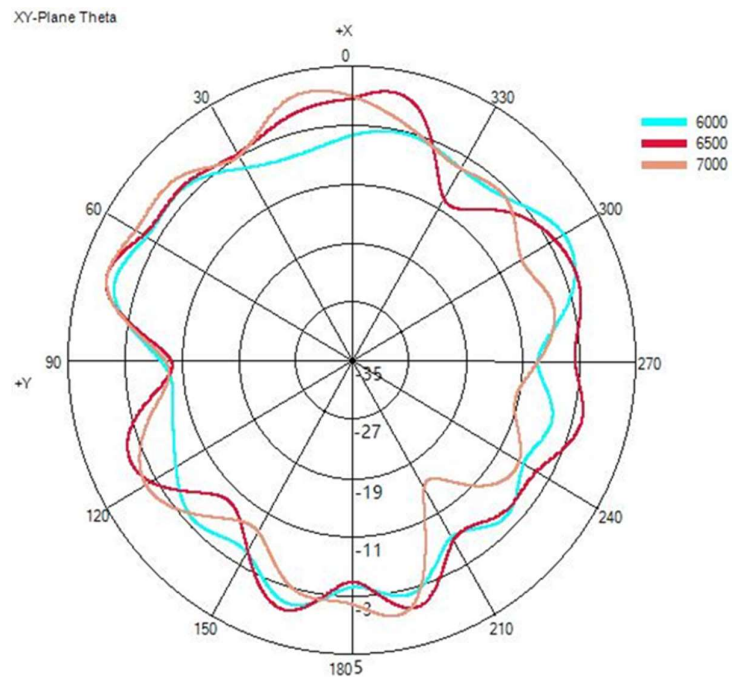


XY_Pol._Phi_Ant.8

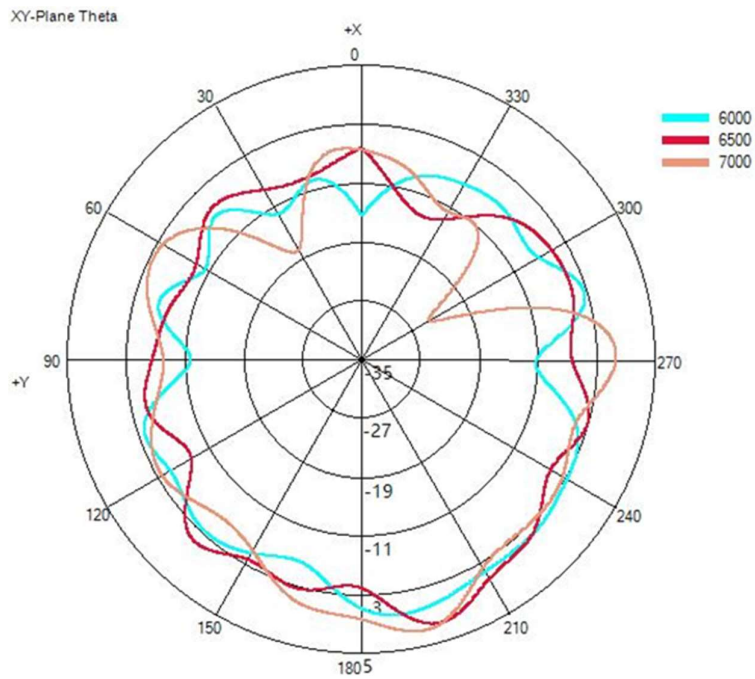
XY-Plane Phi



XY_Pol_theta_Ant.5

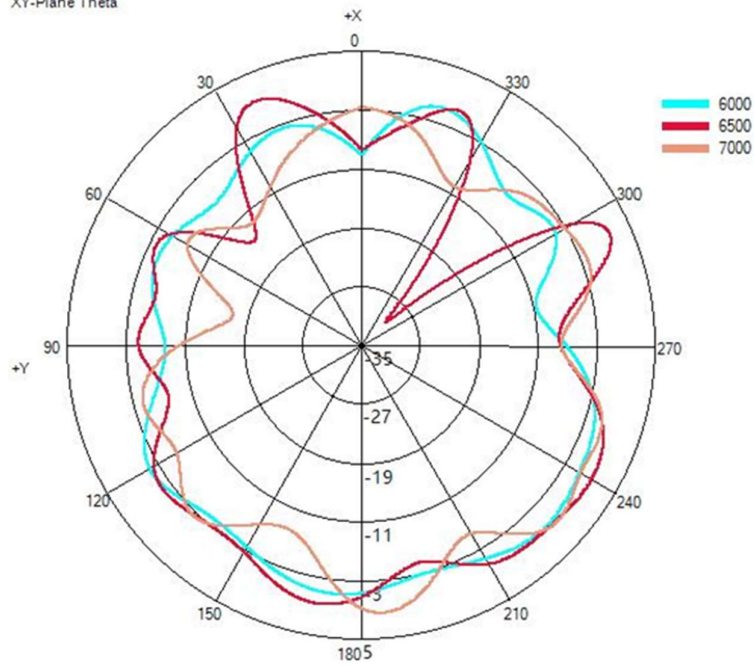


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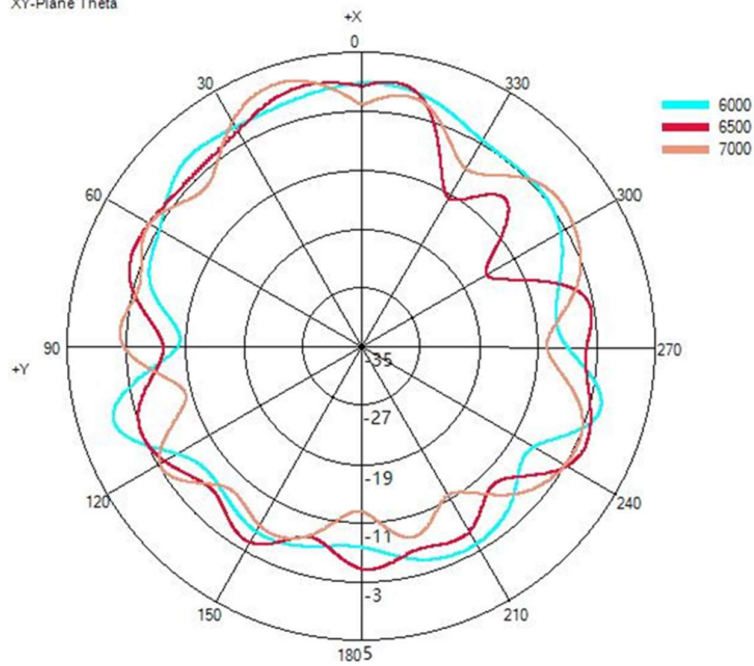
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XY-Plane Theta



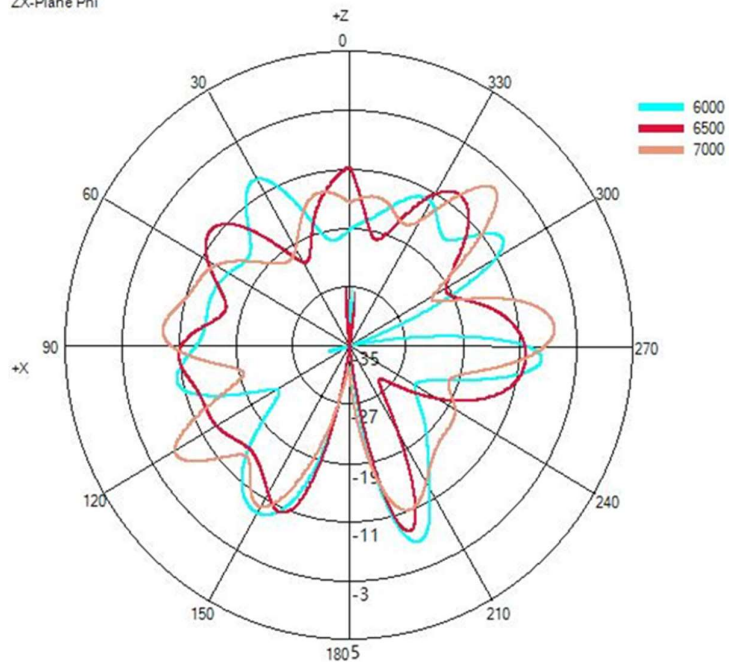
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XY-Plane Theta



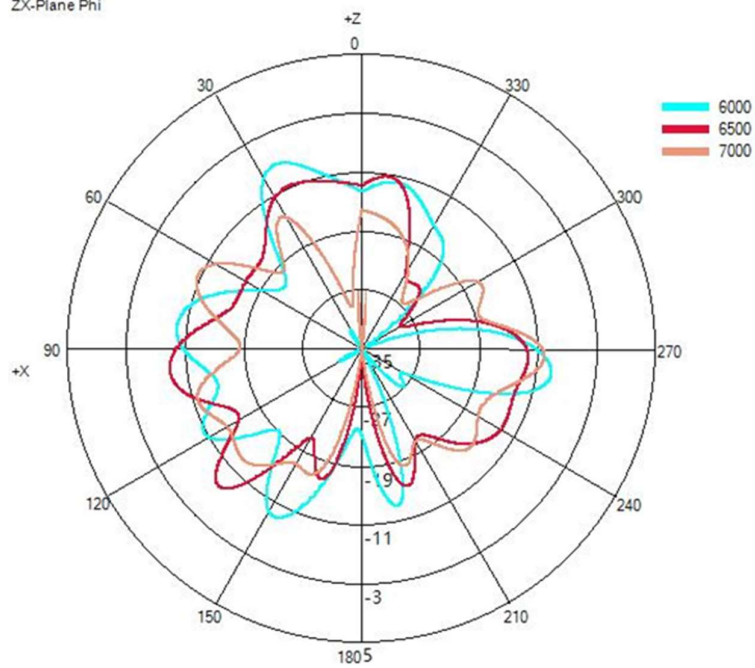
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ZX-Plane Phi



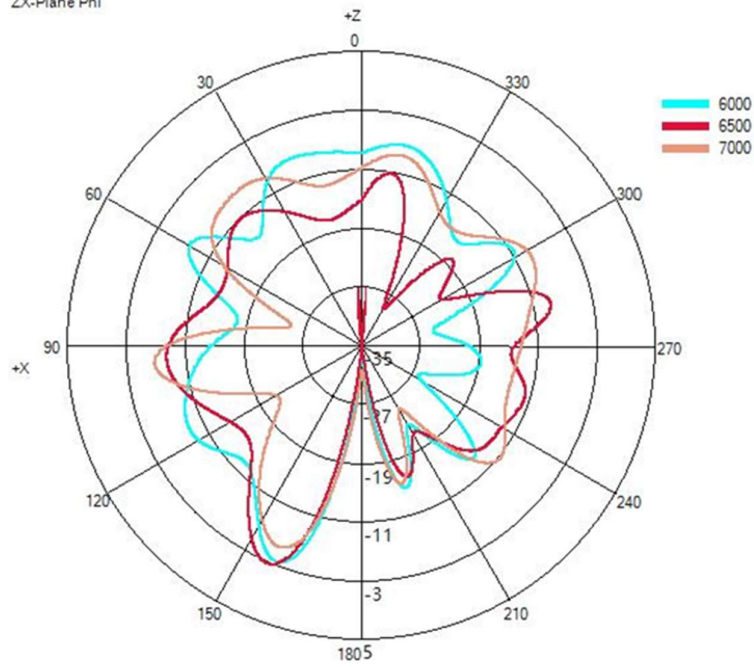
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ZX-Plane Phi



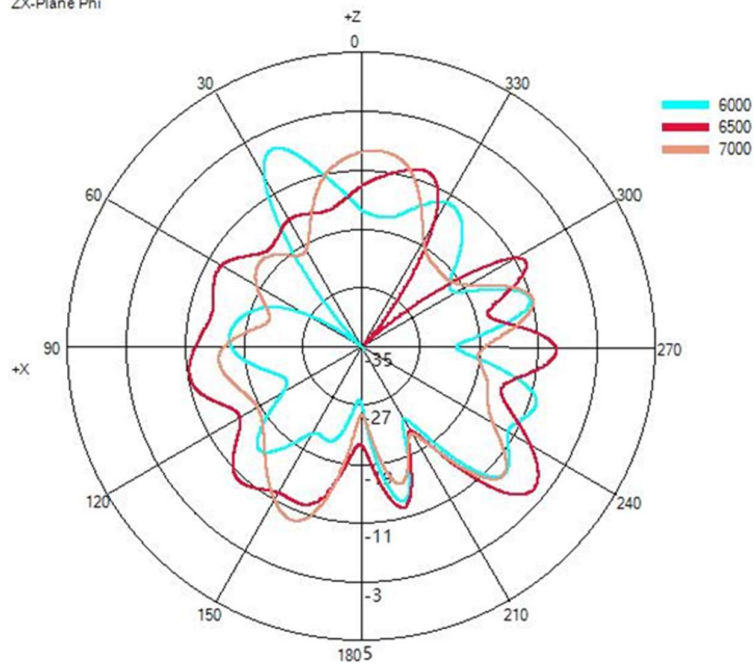
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ZX-Plane Phi



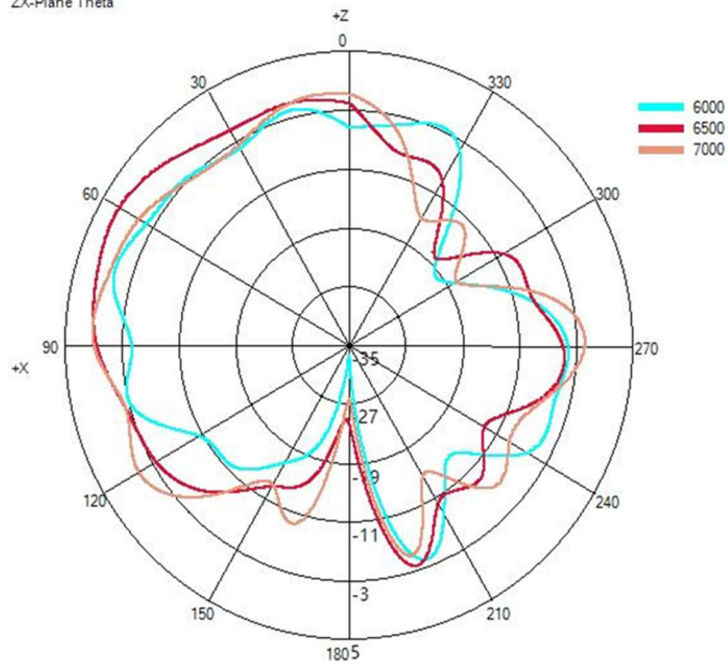
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ZX-Plane Phi



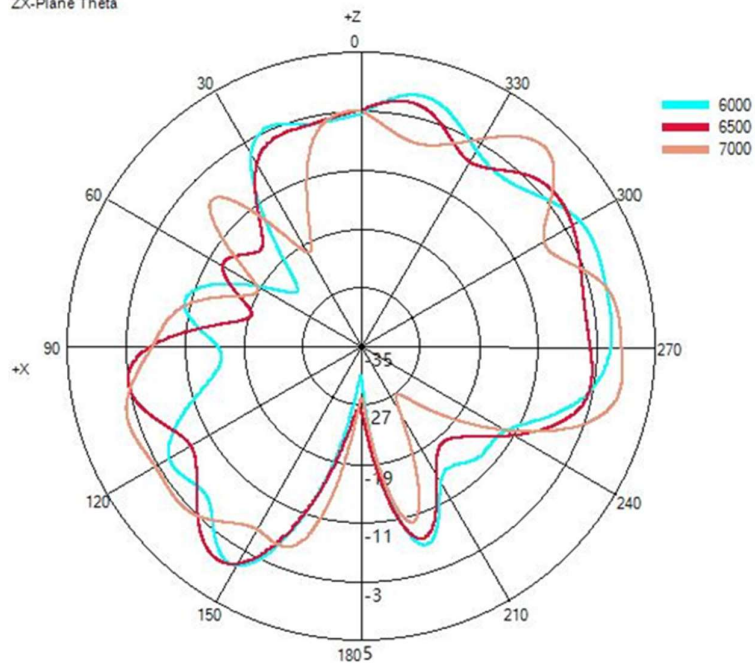
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ZX-Plane Theta



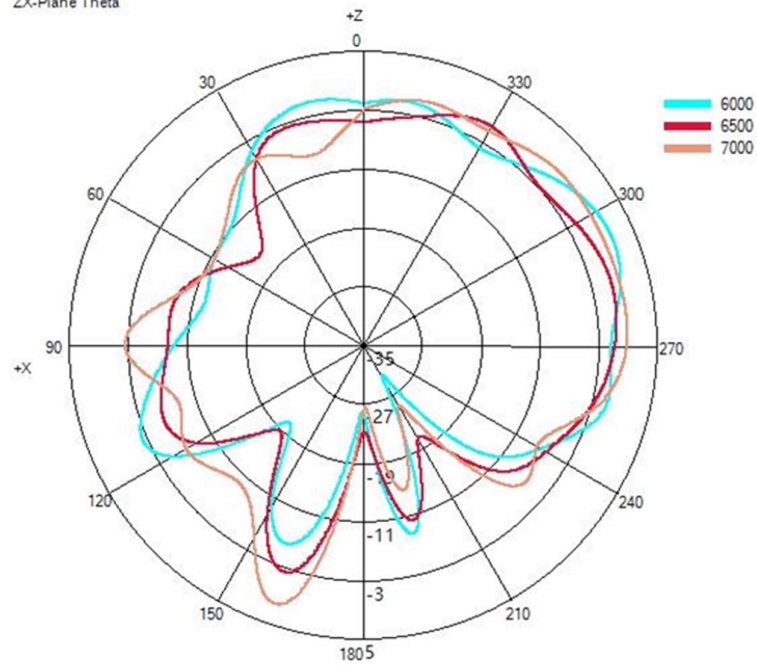
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ZX-Plane Theta



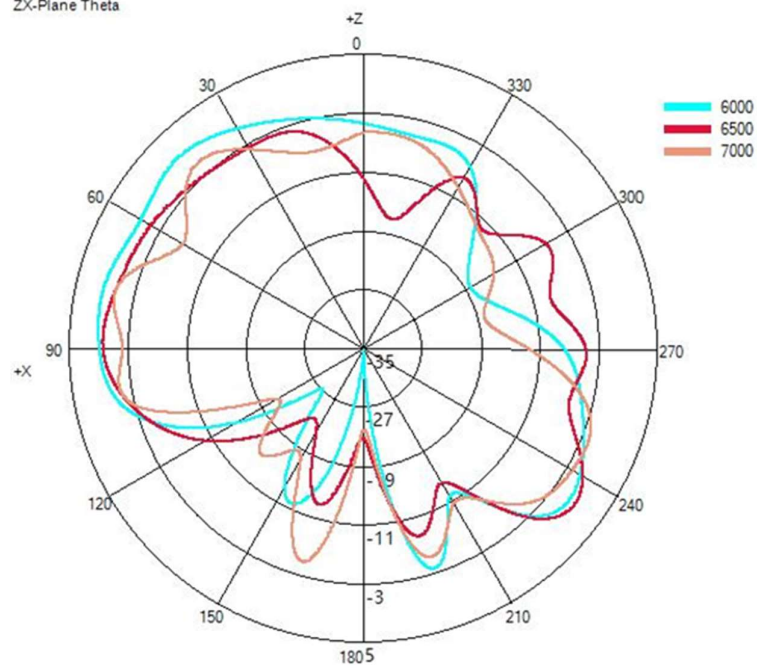
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ZX-Plane Theta



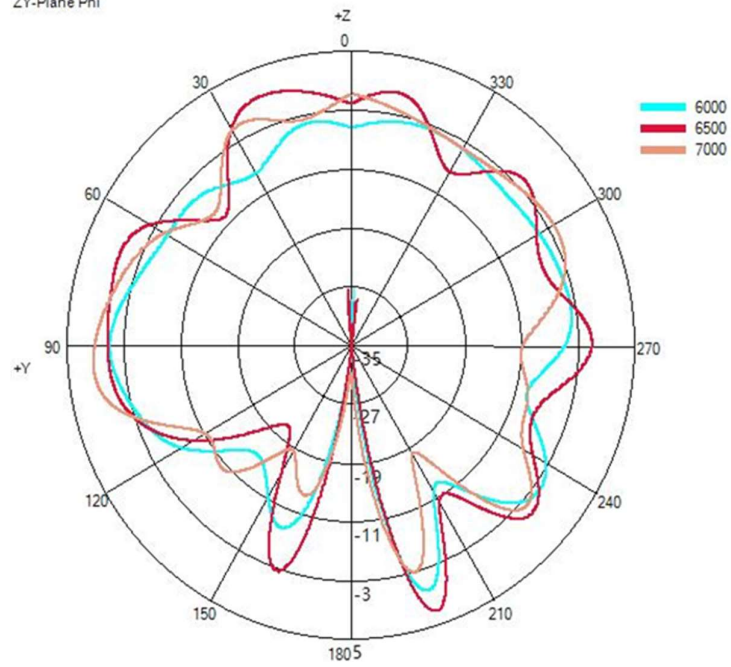
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ZX-Plane Theta



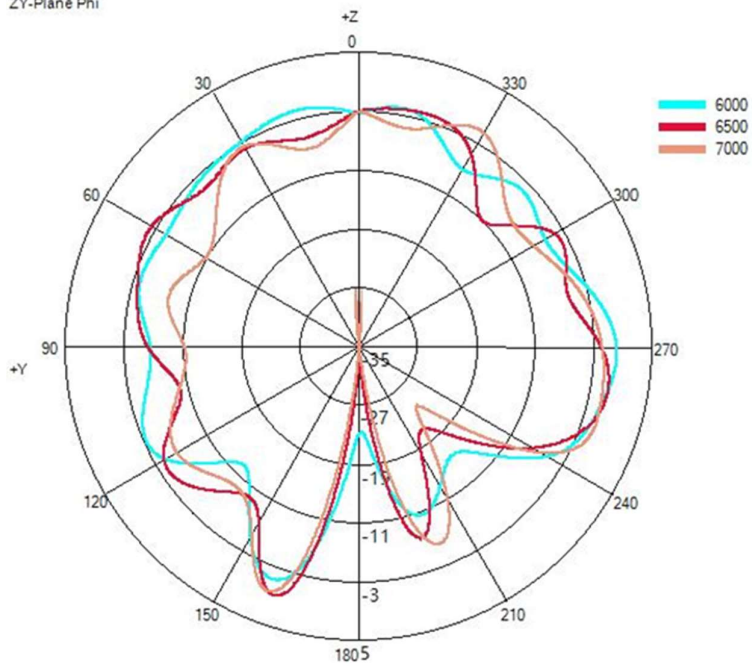
YZ_Pol._Phi_Ant.5

ZY-Plane Phi

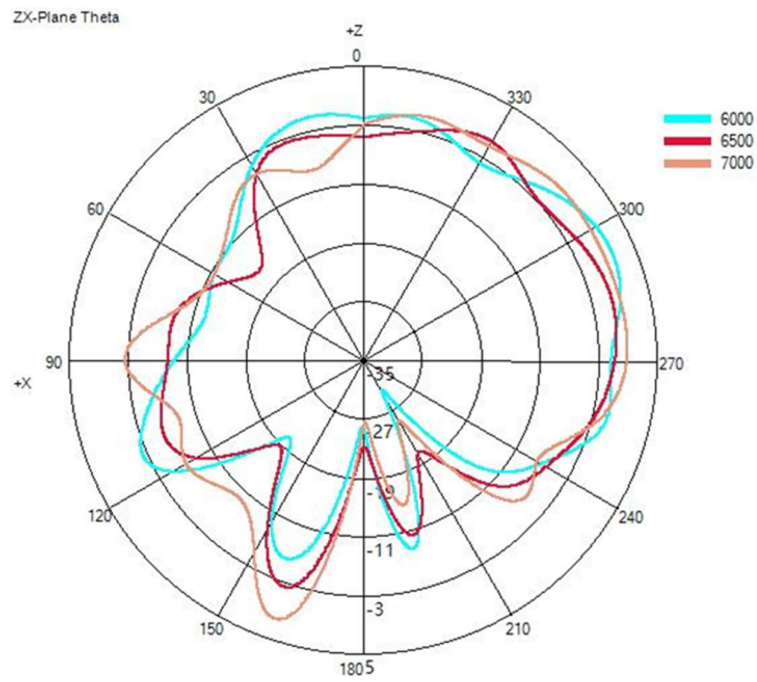


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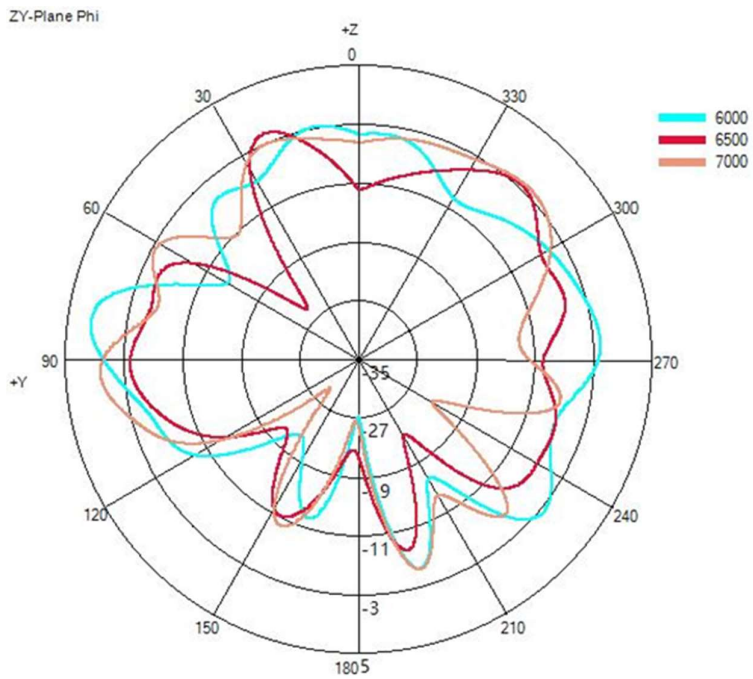
ZY-Plane Phi



YZ_Pol._Phi_Ant.7

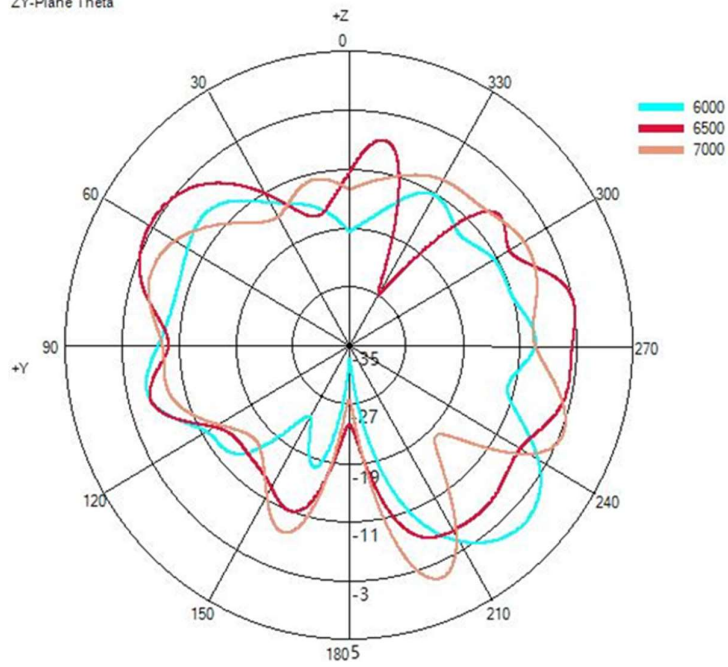


YZ_Pol._Phi_Ant.8



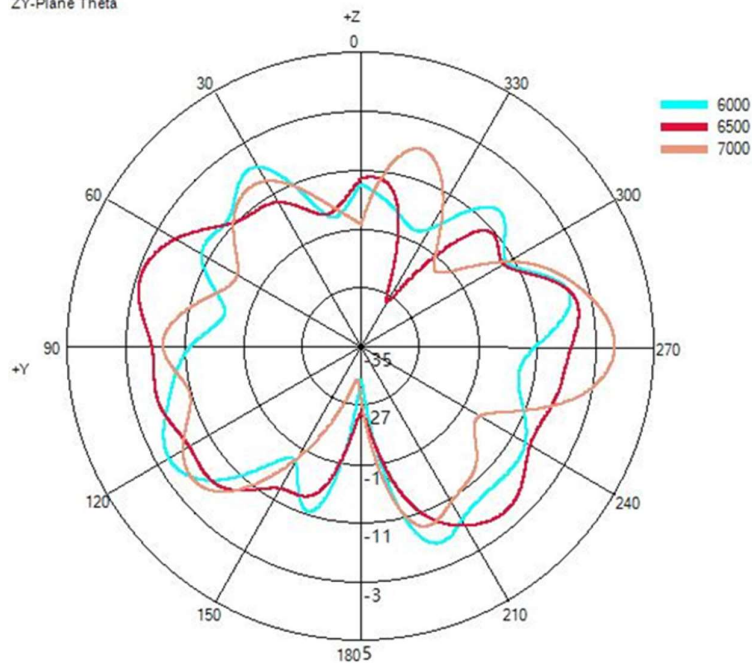
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ZY-Plane Theta



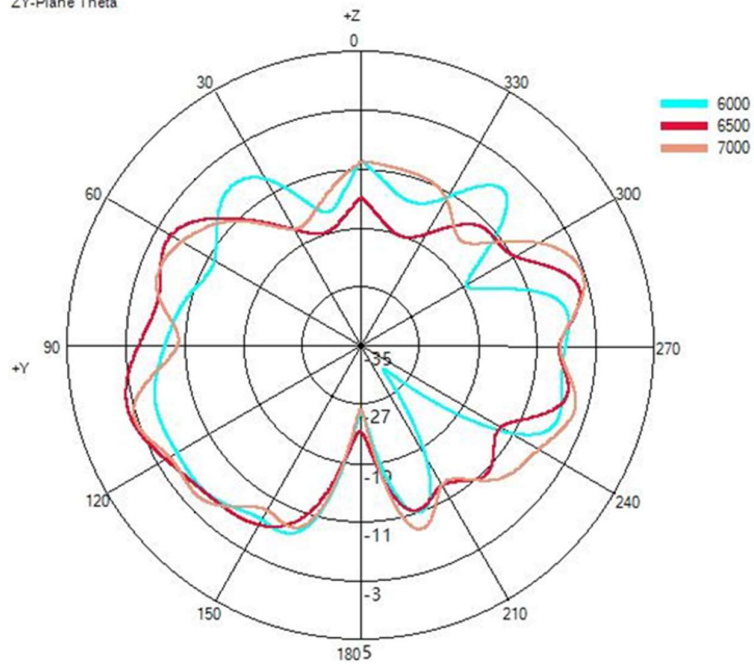
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ZY-Plane Theta



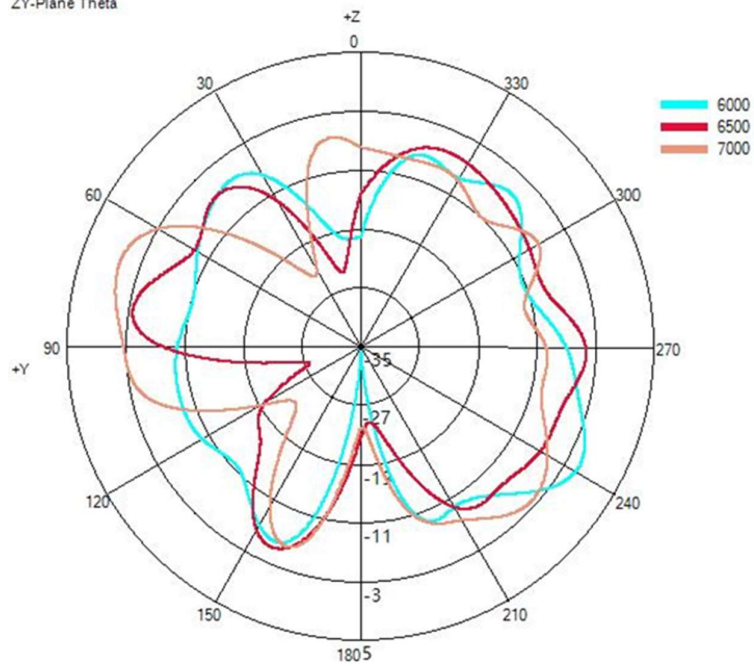
YZ_Pol_theta_Ant.7

ZY-Plane Theta



YZ_Pol_theta_Ant.8

ZY-Plane Theta



Appendix _Radiated Total Gain Result

Ant. Position: 6G Ant.5_GAIN Vertical

Frequency	Phi \Theta	0	15	30	45	60	75	90	105	120	135	150	165	180
6000	0	-21.01	-13.15	-7.52	-12.96	-16.83	-15.75	-13.81	-9.78	-27.71	-15.09	-6.8	-18.37	-37.69
6000	15	-14.16	-23.39	-13.28	-24.18	-24.06	-15.02	-17.01	-18.22	-19.4	-15.56	-11.86	-37.69	-37.69
6000	30	-9.06	-11.71	-18.38	-12.47	-15.99	-11.24	-21.15	-8.63	-11.84	-14.4	-12.51	-10.1	-37.69
6000	45	-6.41	-6.07	-8.24	-13.57	-11.63	-7.8	-6.12	-8.16	-10.91	-20.26	-18.64	-16.81	-37.69
6000	60	-5.01	-4.02	-7.04	-10.37	-6.96	-4.75	-4.15	-7.58	-9.78	-13.24	-16.77	-11.41	-37.69
6000	75	-3.89	-4.21	-7.28	-7.19	-5.55	-2.65	-0.37	-3.21	-9.89	-25.74	-21.28	-22.41	-37.69
6000	90	-3.93	-3.64	-6.77	-6.84	-4.3	-2.3	0.02	-3.06	-7.95	-15.67	-10.69	-16.54	-37.69
6000	105	-3.9	-3.13	-7.57	-6.21	-6.67	-0.61	0.38	-3.53	-8.31	-25.35	-11.39	-16.97	-37.69
6000	120	-5.17	-4.28	-4.86	-9.82	-5.68	-4.19	-0.16	-3.21	-17	-18.37	-13.14	-19.73	-37.69
6000	135	-6.51	-7.4	-4.54	-9.42	-13.58	-4.88	-5.99	-8.56	-13.8	-11.35	-15.23	-17.37	-37.69
6000	150	-9.44	-14.27	-6.14	-9.63	-16.02	-9.81	-5.48	-6.38	-8.07	-7.85	-19.53	-28.06	-37.69
6000	165	-13.22	-26.32	-8.19	-9.86	-12.55	-15.46	-6.01	-12.74	-8.42	-9.01	-9.94	-20.34	-37.69
6000	180	-18.84	-15.63	-11.34	-11.89	-11.32	-21	-10.99	-16.81	-27.9	-17.6	-11.53	-10.77	-37.69
6000	195	-15.38	-10.65	-10.68	-11.73	-13.86	-18.49	-10.99	-8.69	-9.7	-17.86	-10.16	-16.47	-37.69
6000	210	-10.35	-7.82	-8.13	-6.6	-9.44	-9.74	-11.49	-9.57	-12.21	-7.59	-1.47	-11.6	-37.69
6000	225	-7.36	-5.15	-7.24	-4.17	-3.26	-8.54	-8.42	-3.98	-2.48	-11.39	-6.5	-7.41	-37.69
6000	240	-6.03	-3.64	-5.09	-4.22	-8.34	-8.82	-15.01	-6.04	-0.81	-7.33	-6.81	-2.19	-37.69
6000	255	-4.72	-4.3	-5.68	-8.66	-4.57	-1.23	-4.66	-13.81	-1.4	-2.41	-12.08	-0.9	-37.69
6000	270	-4.27	-5.04	-2.05	-4.04	-4.87	-1.87	-2.96	-6.52	-4.22	-4.97	-9.48	-1.46	-37.69
6000	285	-4.7	-3.62	-1.54	-3.04	-5.08	-5.02	-3.97	-9.53	-7.74	-0.45	-15.09	-0.23	-37.69
6000	300	-9.92	-7.61	-4.76	-8.42	-5.72	-3.15	-6.39	-9.07	-8.79	-12.2	-18.04	-2.3	-37.69
6000	315	-14.26	-7.77	-5.82	-12.02	-9.97	-4.89	-6.29	-8.7	-12.45	-7.22	-20.76	-10.83	-37.69
6000	330	-15.69	-9.39	-7.26	-7.02	-13.44	-11.31	-6.45	-8.46	-13.51	-8.08	-19.52	-16.83	-37.69
6000	345	-15.76	-12.59	-7.29	-7.8	-11.87	-17.88	-16.52	-7.59	-10.04	-13.6	-17.37	-36	-37.69
6000	360	-21.01	-13.15	-7.52	-12.96	-16.83	-15.75	-13.81	-9.78	-27.71	-15.09	-6.8	-18.37	-37.69
6500	0	-10.44	-16.35	-21.86	-11.52	-11.87	-16.79	-11.19	-12.56	-13.24	-15.05	-11.94	-18.12	-49.96
6500	15	-19.52	-21.99	-18.01	-17.28	-12.41	-36.62	-9.02	-8.96	-18.74	-11.89	-14.55	-20.58	-49.96
6500	30	-16.66	-15.68	-8.28	-13.68	-11.55	-13.73	-11.09	-13	-20.62	-14.41	-7.25	-14.71	-49.96
6500	45	-8.88	-9.53	-6.94	-8.93	-6.86	-11.1	-7.56	-6.47	-13.5	-12.87	-10.44	-15.46	-49.96
6500	60	-5.14	-3.33	-4.33	-8.68	-3.5	-3.61	-3.05	-2.19	-17.56	-14.37	-10.28	-6.93	-49.96
6500	75	-3.29	-0.15	0.32	-6.83	-3.82	-3.21	-1.43	-1.03	-9.25	-15.65	-12.8	-5.44	-49.96
6500	90	-2.03	0.95	-0.93	-9.83	-2	-0.09	-0.55	-1.96	-9.18	-19.53	-15.23	-6.73	-49.96
6500	105	-1.69	0.3	-5.84	-9.87	-4.2	-3.12	1.16	-1.89	-10.54	-18.39	-11.47	-9.29	-49.96
6500	120	-1.97	-1.08	-6.89	-8.47	-5.12	-6.35	0.42	-1.1	-8.07	-14.28	-11.18	-14.07	-49.96
6500	135	-2.88	-3.03	-5.68	-9.08	-8.85	-3.58	-1.95	-5.61	-30.74	-13.3	-12.06	-49.96	-49.96
6500	150	-4.42	-6.68	-5.06	-7.69	-18.36	-5.94	-6.69	-8.72	-12.13	-9.73	-20.3	-21.02	-49.96
6500	165	-7.06	-11.94	-8.75	-9.38	-21.9	-13.42	-7.99	-12.13	-10.58	-11.97	-11.6	-16.84	-49.96
6500	180	-11.46	-20.01	-11.13	-11.25	-19.31	-14.66	-10.25	-12.05	-20.58	-28.52	-21.15	-11.26	-49.96
6500	195	-20.25	-26.23	-10.22	-9.08	-11.45	-13.6	-8.68	-12.9	-10.83	-11.87	-11.47	-18.1	-49.96
6500	210	-16.04	-18.13	-7.08	-5.83	-19.9	-10.33	-11.52	-12.4	-15.1	-9.74	-5.4	-22.45	-49.96
6500	225	-10	-19.53	-5.71	-9.34	-5.5	-12.49	-6.91	-6.61	-1.25	-4.96	-4.17	-9.47	-49.96
6500	240	-6.57	-10.34	-9.79	-3.54	-2.77	-1.21	-20.44	-8.38	-2.59	-0.79	-9.53	-0.78	-49.96
6500	255	-4.18	-3.83	-10.17	-1.58	-6.7	0.08	0.77	-6.27	-3.83	0.3	-11.29	0.87	-49.96
6500	270	-2.86	-0.6	-7.48	-1.97	-4.81	-5.02	-1.06	-6.71	-5.46	-1.68	-10.24	-0.32	-49.96
6500	285	-2.22	0.26	-2.29	-0.82	-2.08	-1.12	-0.88	-2.87	-6	-7.02	-8.63	-1.32	-49.96
6500	300	-8.36	-5.4	-4.64	-3.69	-1	-4.78	-8.9	-2.14	-28.49	-5.39	-16.01	-3.57	-49.96
6500	315	-9	-6.99	-6.62	-5.93	-4.74	-2.55	-9.57	-6.91	-9.22	-15.94	-9.67	-8.99	-49.96
6500	330	-4.68	-10.23	-7.88	-6.79	-13.13	-5.2	-4.59	-9.02	-12.01	-4.96	-17.81	-13.88	-49.96
6500	345	-12.17	-13.29	-13.53	-10.03	-12.81	-9	-11.05	-12.89	-17.04	-7.03	-24.92	-17.39	-49.96
6500	360	-10.44	-16.35	-21.86	-11.52	-11.87	-16.79	-11.19	-12.56	-13.24	-15.05	-11.94	-18.12	-49.96
7000	0	-11.57	-13.12	-19.73	-22.98	-17.94	-18.64	-13.4	-19.48	-7.11	-13.71	-12.26	-20.22	-39.02
7000	15	-16.83	-16.84	-32.12	-12.2	-14.39	-15.1	-10.85	-21.99	-12.46	-19.09	-16.58	-20.82	-39.02
7000	30	-13.09	-10.19	-20.79	-6.98	-10.75	-10.64	-12.69	-13.1	-12.54	-14.32	-14.57	-17.59	-39.02
7000	45	-8.65	-6.83	-8.31	-8.22	-6.77	-6.94	-8.55	-4.94	-9.98	-25.85	-13.85	-18.87	-39.02
7000	60	-5.96	-4.77	-3.88	-5.57	-4.14	-7.16	-3.51	-3.66	-8.87	-25.33	-24.58	-12.29	-39.02
7000	75	-3.92	-3.37	-2.89	-6.76	-4.91	-3.15	-2.12	-3.33	-10.46	-22.06	-9.74	-11.91	-39.02
7000	90	-2.9	-2.55	-2.07	-10.88	-3.53	-1.89	-0.09	-2.5	-13.39	-12.52	-28.71	-12.51	-39.02
7000	105	-2.42	-2.01	-2.5	-12.28	-5.77	-5.96	-0.33	-2.39	-9.96	-25.41	-10.21	-15.55	-39.02
7000	120	-2.45	-3.66	-3.68	-7.72	-7.07	-11.84	-2.74	-4.78	-12.19	-14.29	-12.53	-16.41	-39.02
7000	135	-3.3	-5.59	-7.4	-6.64	-11.7	-3.91	-1.65	-4.75	-20.27	-15.81	-13.37	-39.02	-39.02
7000	150	-4.66	-7.64	-8.47	-5.31	-14.91	-7.8	-6.95	-10.18	-16.51	-9.85	-19.29	-17.55	-39.02
7000	165	-6.89	-10.71	-10.74	-4.13	-15.41	-13.56	-7.85	-12.81	-8.48	-12.56	-15.47	-15.3	-39.02
7000	180	-10.22	-15.02	-16.21	-4.87	-22.31	-9.8	-7.46	-15.38	-14.92	-16.71	-14.86	-12.75	-39.02
7000	195	-16.52	-21.65	-16.82	-5.85	-17.16	-13.08	-15.94	-17.87	-24.15	-21.12	-11.41	-11.79	-39.02
7000	210	-18.33	-18.38	-11.59	-4	-11.02	-7.15	-11.02	-8.08	-10	-7.71	-6.96	-19.57	-39.02
7000	225	-11.22	-10.6	-10.11	-4.81	-6.47	-8.3	-13.5	-10.24	-3.79	-3.73	-6.35	-5.4	-39.02
7000	240	-6.54	-6.93	-4.78	-6.23	-12.93	-2.52	-3.39	-11.64	-5.85	-1.26	-13.31	-0.11	-39.02
7000	255	-4.26	-5.12	-6.42	-3.67	-6.91	-12.44	-7.62	-3.23	-9.34	-1.54	-8.4	-1.6	-39.02
7000	270	-3.13	-4.48	-6.11	-3.52	-1.89	-8.27	-7.24	-10.15	-8.23	-3.74	-15.64	-4.65	-39.02
7000	285	-2.29	-3.1	-2.64	-2.57	-3.23	-8.08	-8.53	-4.22	-8.52	-6.86	-7	-6.17	-39.02
7000	300	-1.4	-1.47	-2.66	-0.81	-2.92	-7.45	-3.45	-11.07	-7.47	-9.01	-10.58	-4.98	-39.02
7000	315	-1.9	-1.53	-4.44	-4.19	-3.03	-5.43	-6.22	-4.17	-13.33	-7.49	-19.76	-8.56	-39.02
7000	330	-2.37	-3.17	-6.96	-9.51	-7.09	-5.2	-9.73	-7.91	-17.26	-10.73	-23.09	-34.37	-39.02
7000	345	-5.1	-6.64	-10.33	-14.53	-10.82	-8.77	-6.36	-13.37	-7.96	-12.83	-18.16	-24.52	-39.02
7000	360	-11.57	-13.12	-19.73	-22.98	-17.94	-18.64	-13.4	-19.48	-7.11	-13.71	-12.26	-20.22	-39.02

Ant. Position: 6G Ant.5_GAIN Horizontal

Frequency	Phi\Theta	0	15	30	45	60	75	90	105	120	135	150	165	180
6000	0	-4.12	-2.35	-3.16	-2.3	-1.51	-0.33	-4.66	-3.24	-10.27	-12.87	-18.72	-25.28	-25.28
6000	15	-4.08	-1.62	-1.48	-0.65	-0.57	-1.38	-5.62	-4.4	-12.2	-10.56	-18.99	-15.49	-25.28
6000	30	-5.35	-2.16	-1.51	-0.47	0.34	-1.86	-4.53	-1.34	-6.85	-16.48	-12.29	-11.76	-25.28
6000	45	-6.69	-4.26	-3.58	-4.87	-5.07	-3.4	-1.16	-2.7	-7.61	-14.13	-14.19	-21.4	-25.28
6000	60	-9.63	-8.24	-8	-7.03	-7.52	-1.35	-0.47	-1.2	-7.02	-20.48	-14.93	-22.29	-25.28
6000	75	-13.41	-11.31	-9.14	-8.28	-1.84	0.53	-0.15	-2.04	-5.79	-9.34	-19.18	-22.3	-25.28
6000	90	-19.02	-18.14	-11.35	-7.63	-8.11	-9.91	-9.58	-6.64	-13.24	-14.17	-26.96	-13.97	-25.28
6000	105	-15.56	-18.42	-10.34	-12.65	-9.95	-5.96	-8.72	-13.52	-18.65	-30.22	-15.27	-11.32	-25.28
6000	120	-10.53	-7.63	-8.92	-14.23	-17.74	-6.94	-5.66	-10.52	-12.45	-12.7	-9.16	-15.19	-25.28
6000	135	-7.55	-4.42	-10.9	-10.56	-13.44	-8.62	-4.35	-4.36	-11.74	-16.53	-5.46	-17.11	-25.28
6000	150	-6.22	-3.8	-6.7	-25.71	-17.48	-16.98	-4.79	-6.15	-5.05	-8.19	-3.19	-23.08	-25.28
6000	165	-4.91	-4.57	-3.37	-19.48	-20.21	-4.26	0.35	-2.35	-4.59	-9.63	-9.08	-16.29	-25.28
6000	180	-4.45	-5.12	-3.13	-25.97	-12.21	-11.32	-4.17	-5.21	-7.01	-14.27	-8.09	-6.35	-25.28
6000	195	-4.89	-4.41	-5.32	-33.09	-9.56	-8.65	-0.77	-1.18	-1.91	-5.58	-10.17	-20.09	-25.28
6000	210	-10.1	-3.77	-10.16	-11.14	-13.75	-13.13	-7.66	-2.85	-3.17	-4.76	-6.98	-10.23	-25.28
6000	225	-14.44	-4.55	-10.34	-8.38	-11	-4.7	-3.65	-4.4	-3.83	-3.39	-12.2	-10.06	-25.28
6000	240	-15.87	-9.03	-15.62	-11.28	-6.04	-15.41	-8.93	-5.13	-2.21	-1.63	-5.68	-6.28	-25.28
6000	255	-15.95	-18.64	-16.49	-21.25	-12.1	-10.16	-5.22	-11.99	0.3	-0.79	-4.74	-13.1	-25.28
6000	270	-21.19	-13.03	-14.11	-14.67	-10.19	-10.32	-6.88	-11.73	-3.49	0.11	-4.39	-17.64	-25.28
6000	285	-14.34	-11.59	-11.73	-6.97	-8.17	-5.89	-4.29	-3.81	-10.87	-3.78	-5.08	-10.11	-25.28
6000	300	-9.24	-7.72	-7.91	-7.67	-7.97	-4.65	-1.15	-4.92	-2.75	-8.23	-10.81	-11.43	-25.28
6000	315	-6.59	-6.34	-2.74	-3.47	-6.09	-4.59	-3.28	-2.16	-15.17	-6.23	-10.59	-11.12	-25.28
6000	330	-5.19	-4.25	-1.37	-2.37	-6.1	-2.38	-3.93	-1.71	-11.07	-4.92	-11.74	-16.76	-25.28
6000	345	-4.07	-3.53	-1.42	-0.64	-1.59	0.08	-2.61	-3.21	-5.03	-11	-20.6	-14.23	-25.28
6000	360	-4.12	-2.35	-3.16	-2.3	-1.51	-0.33	-4.66	-3.24	-10.27	-12.87	-18.72	-25.28	-25.28
6500	0	-1.92	-0.81	-1.11	0.84	2.63	1.96	0.71	-2.26	-3.41	-6.86	-12.84	-16.93	-24.18
6500	15	-1.57	-0.65	-1.37	0.03	2.16	2.36	-0.46	-4.23	-10.25	-10.63	-32.8	-19.05	-24.18
6500	30	-1.85	-0.96	-0.79	-0.84	0.42	0.39	-2.42	-2.47	-5.31	-11.66	-27.27	-10.51	-24.18
6500	45	-2.76	-2.06	-0.69	-1.27	0.02	-1.62	-1.2	-0.17	-7.03	-12.39	-16.83	-16.92	-24.18
6500	60	-4.31	-3.89	-3.15	-4.09	-3.61	-2.6	-0.77	0.87	-3.25	-12.42	-13.41	-18.53	-24.18
6500	75	-6.94	-8.33	-9.43	-7.57	-6.15	-1.22	0.92	-1.39	-10.8	-18.25	-16.67	-16.42	-24.18
6500	90	-11.35	-16.73	-10.96	-4.21	-2.33	-4.85	-9.39	-5.99	-12.89	-14.48	-12.81	-12.61	-24.18
6500	105	-20.13	-22.6	-10.17	-9.96	-9.08	-3.42	-2.96	-5.16	-13.48	-17.48	-12.73	-13.87	-24.18
6500	120	-15.92	-13.84	-7.62	-11.19	-12.48	-8.68	-2.02	-4.43	-5.55	-11.04	-9.2	-24.18	-24.18
6500	135	-9.89	-8.84	-10.96	-14.84	-22.99	-13.27	-8.83	-6.84	-19.03	-9.74	-3.6	-20.47	-24.18
6500	150	-6.45	-7.08	-23.98	-16.81	-8	-12.9	-5.3	-9.99	-11.76	-14.16	-2.63	-14.55	-24.18
6500	165	-4.06	-7.45	-11.9	-14.05	-10.91	-3.42	0.24	-2.34	-6.89	-16.51	-12.39	-10.24	-24.18
6500	180	-2.75	-7.79	-8.88	-17.92	-9.9	-8.47	-4.86	-7.09	-12.99	-9.09	-10.08	-4.45	-24.18
6500	195	-2.1	-7.91	-10.38	-16.14	-7.29	-9.34	-0.2	0.36	-0.24	-3.96	-11.44	-8.07	-24.18
6500	210	-8.25	-12.27	-7.32	-7.06	-9.69	-6.34	-6.61	-2.66	-2.9	-5.78	-17.3	-13.27	-24.18
6500	225	-8.89	-15.9	-8.3	-6.92	-7.88	-7.93	-5.43	-4.46	-0.14	-1.85	-5.31	-8.94	-24.18
6500	240	-4.57	-7.22	-17.55	-15.33	-4.44	-10.95	-4.95	-2.13	-0.46	-2.53	-3.38	-8.73	-24.18
6500	255	-12.05	-5.27	-14.12	-11.81	-3.54	-6.19	-1.64	-1.76	-5.76	-6.74	-5.73	-20.43	-24.18
6500	270	-10.33	-8.8	-26.73	-9.45	-8.93	-3.45	-3.56	-3.99	-7.1	-6.03	-5.9	-10.75	-24.18
6500	285	-19.4	-30.22	-11.14	-6.44	-7.14	-1.63	-1.59	-4.41	-8.96	-13.29	-8.88	-11.25	-24.18
6500	300	-16.55	-7.36	-5.85	-11.8	-6.46	-2.22	-2	0.35	-0.93	-4.24	-6.54	-10.7	-24.18
6500	315	-8.76	-5	-5.99	-8.05	-4.67	-0.12	-5.97	-1.95	-3.87	-3.25	-17.96	-13.08	-24.18
6500	330	-5.02	-3.24	-0.94	-2.29	-5.71	-4.1	-9.32	-4.05	-13.23	-1.38	-25.91	-12	-24.18
6500	345	-3.17	-2	0.08	-1.42	-5.02	-0.32	0.66	-2.24	-7.78	-2	-20.06	-11.02	-24.18
6500	360	-1.92	-0.81	-1.11	0.84	2.63	1.96	0.71	-2.26	-3.41	-6.86	-12.84	-16.93	-24.18
7000	0	-2.9	-1.58	-3.8	-1.52	0.68	-0.16	1.65	-2.26	-0.89	-6.57	-16.16	-8.24	-23.73
7000	15	-2.42	-2.67	-3.97	0.38	1.75	0.55	0.59	-5.08	-3.47	-9.56	-21.77	-7.51	-23.73
7000	30	-2.45	-3.44	-3.05	0.29	-0.47	-2.83	-2.1	-5.29	-4.98	-11.81	-17.82	-7.89	-23.73
7000	45	-3.3	-4.81	-3.35	-0.91	0.79	-0.05	-0.33	0.8	-3.79	-31.48	-21.55	-17.86	-23.73
7000	60	-4.66	-6.1	-5.14	-1.88	-2.4	-5.85	-0.58	-0.24	-4.51	-16.81	-14.11	-11.7	-23.73
7000	75	-6.89	-8.47	-5.58	-4.72	-7	-4.29	1.02	-0.63	-11.29	-19.43	-10.54	-10.98	-23.73
7000	90	-10.22	-14.4	-23.83	-8.6	-5.14	-5.75	-7.88	-6.68	-15.02	-14.74	-10.63	-13.26	-23.73
7000	105	-16.52	-16.1	-11.55	-5.55	-21.94	-6.31	-5.48	-6.79	-13.16	-12.72	-16.34	-13.52	-23.73
7000	120	-18.33	-12.64	-10.79	-6.97	-17.58	-12.39	-1.21	-3.14	-9.17	-11.46	-11.03	-17.26	-23.73
7000	135	-11.23	-11.66	-6.46	-5.89	-21.82	-8.44	-5.73	-10.46	-17.96	-12.07	-3.32	-23.73	-23.73
7000	150	-6.55	-12.18	-7.63	-24.26	-9.71	-8.26	-8.03	-20.85	-16.31	-11.85	-2.22	-9.86	-23.73
7000	165	-4.26	-11.48	-10.29	-10.61	-4.31	-6.3	-3.01	-4.89	-11.23	-12.04	-13.37	-6.23	-23.73
7000	180	-3.13	-9.41	-15.04	-23.52	-14.73	-7.07	-2.91	-8.01	-11.83	-9.48	-16.5	-5.69	-23.73
7000	195	-2.29	-8.63	-10.75	-8.27	-27.15	-13.79	-0.73	-0.85	-3.43	-3.69	-7.62	-9.49	-23.73
7000	210	-1.4	-7.11	-6.82	-11.67	-13.13	-7.8	-11.02	-10.04	-8.83	-2.16	-13.39	-20.06	-23.73
7000	225	-1.9	-5.3	-10.81	-15.77	-11.66	-19.32	-11.49	-4.7	-5.02	-2.99	-10.16	-12.2	-23.73
7000	240	-2.37	-5.33	-10.75	-12.16	-13.68	-7.71	-9.41	-4.68	-0.95	-8.69	-7.58	-12.06	-23.73
7000	255	-5.1	-7.27	-7.37	-7.51	-10.45	-11.05	-7.78	-4.52	-3.88	-4.4	-6.3	-6.75	-23.73
7000	270	-11.57	-11.78	-9.27	-10.38	-7.44	-13.15	-7.82	-4.56	-7.94	-11.27	-4.55	-5.24	-23.73
7000	285	-16.84	-11.11	-10.05	-7.83	-13.54	-5.23	-4.16	-3.64	-3.47	-11.99	-9.58	-8.4	-23.73
7000	300	-13.09	-10.6	-16.1	-9.76	-4.06	-7.79	-5.63	-2.09	-7.92	-3.07	-7.72	-15.81	-23.73
7000	315	-8.65	-5.26	-6.2	-2.19	-0.79	-0.87	-5.4	-2.07	-1.57	-5.02	-7.39	-11.49	-23.73
7000	330	-5.96	-3	-2.79	-2.17	-2.25	-1.83	-4.64	-6.8	-5.35	-11.82	-8.47	-19.18	-23.73
7000	345	-3.92	-1.92	-2.66	-4.62	-2.1	-2.5	-1.76	-4.93	-4.17	-4.99	-18.18	-14.16	-23.73
7000	360	-2.9	-1.58	-3.8	-1.52	0.68	-0.16	1.65	-2.26	-0.89	-6.57	-16.16	-8.24	-23.73

Ant. Position: 6G Ant.6_GAIN Vertical

Regulatory WIFI Antenna Information

Frequency	Phi\Theta	0	15	30	45	60	75	90	105	120	135	150	165	180
6000	0	-8.65	-8.68	-9.47	-18.06	-20.01	-12.34	-9.29	-14.53	-10.39	-19.16	-8.32	-15.85	-21.35
6000	15	-5.44	-5.84	-9.31	-11.2	-11.76	-11.03	-7.28	-12.29	-12.19	-11.64	-20.67	-21.35	-21.35
6000	30	-3.38	-4.1	-6.86	-5.7	-7	-7.66	-7.72	-10.77	-11.55	-7.78	-10.4	-11.33	-21.35
6000	45	-2.21	-2.7	-4.99	-5.03	-5.13	-5.49	-8.47	-8.31	-8.86	-7.76	-4.19	-14.59	-21.35
6000	60	-1.64	-2.23	-4.13	-4.21	-4.57	-3.39	-6.16	-7.59	-7.76	-7.93	-2.02	-8.74	-21.35
6000	75	-1.46	-1.3	-3.98	-2.95	-2.11	-2.65	-6.62	-6.94	-5.91	-5.33	-3.86	-5.25	-21.35
6000	90	-2.09	-1.38	-3.33	-3.29	-3.35	-3.18	-5.96	-4.85	-3.65	-9.21	-6.22	-7.72	-21.35
6000	105	-3.28	-2.34	-4.06	-4.86	-4.33	-3.12	-5.84	-6.91	-7.38	-7.62	-7.13	-3.11	-21.35
6000	120	-5.52	-4.74	-5.92	-3.86	-3.85	-9.06	-12.53	-6.56	-8.78	-5.2	-7.98	-3.99	-21.35
6000	135	-9.05	-8.15	-10.47	-6.79	-6.33	-7.66	-11.13	-10.23	-10.25	-5.47	-7.5	-9.13	-21.35
6000	150	-15.44	-13.91	-15.01	-8.56	-12.11	-7.56	-8.6	-13.75	-12.7	-15.67	-7.79	-12.04	-21.35
6000	165	-14.35	-14.9	-12.94	-15.91	-12.68	-10.02	-15.45	-17.75	-24.01	-19.68	-25.67	-14.02	-21.35
6000	180	-8.42	-9.65	-12.63	-34.35	-26.03	-19.22	-9.39	-12.36	-20.97	-20.14	-28.99	-15.95	-21.35
6000	195	-5.15	-6.03	-8.28	-17	-15.68	-12.7	-7.97	-10.72	-15.21	-28.39	-44.08	-17.32	-21.35
6000	210	-2.92	-3.9	-4.89	-8.71	-9.48	-9.68	-5.01	-5.32	-13.93	-17.99	-20.12	-10.38	-21.35
6000	225	-1.8	-2.54	-3.46	-5.26	-5.35	-4.34	-2.01	-3.94	-9.62	-16.71	-18.28	-11.52	-21.35
6000	240	-1.22	-1.66	-4.2	-4.18	-1.96	-3.37	0.56	-3.62	-9.06	-8.93	-23.01	-7.24	-21.35
6000	255	-1.35	-1.28	-6.42	-4.45	-2.97	-3.26	-0.29	-3.95	-7.33	-12.53	-13.7	-9.95	-21.35
6000	270	-2.01	-2	-8.24	-4.08	-5.48	-3.38	0.16	-0.99	-5	-15.08	-12.59	-12.85	-21.35
6000	285	-3.15	-3.03	-10.31	-5.1	-6.04	-4.9	-2.03	-2.74	-4.37	-7.84	-13.51	-7.14	-21.35
6000	300	-5.5	-5.37	-12.82	-8.08	-6.43	-5.25	-3.91	-7.33	-6.21	-7.96	-15.09	-7.45	-21.35
6000	315	-9.22	-9.02	-16.58	-10.94	-7.14	-8.21	-7.69	-6.3	-14.32	-13.72	-16.4	-14.31	-21.35
6000	330	-16.61	-18.51	-15.99	-11.14	-10.22	-11.76	-23.12	-12.89	-15.94	-12.53	-19.81	-13.98	-21.35
6000	345	-15.82	-18.03	-10.89	-15.13	-16.91	-14.91	-14.37	-12.66	-11.81	-17.38	-22.78	-19.65	-21.35
6000	360	-8.65	-8.68	-9.47	-18.06	-20.01	-12.34	-9.29	-14.53	-10.39	-19.16	-8.32	-15.85	-21.35
6500	0	-12.73	-11.34	-11.19	-16.14	-16.68	-15.74	-9.64	-10.58	-15.62	-8.17	-20.99	-17.21	-35.04
6500	15	-11.78	-10.29	-7.57	-10.76	-12.09	-12.91	-10.87	-9.55	-17.28	-6.28	-20.25	-21.32	-35.04
6500	30	-8.7	-7.83	-5.07	-7.32	-7.17	-7.26	-8.92	-8.58	-8.21	-7.37	-7.31	-20.5	-35.04
6500	45	-6.18	-5.73	-3.48	-6.63	-4.57	-5.93	-6.94	-8.5	-6.3	-5.71	-4.71	-10.33	-35.04
6500	60	-4.43	-5.06	-2.15	-5.46	-1.92	-3.94	-7.14	-9.9	-7.39	-4.55	-1.37	-3.55	-35.04
6500	75	-3.27	-4.89	-1.92	-4.92	-0.8	-1.41	-7.02	-8.46	-2.95	-7.66	-1.71	-2.01	-35.04
6500	90	-2.78	-5.58	-3.79	-4.79	-2.23	-3.65	-6.1	-9.82	-4.23	-7.22	-7.57	-1.96	-35.04
6500	105	-2.77	-5.03	-4.75	-4.58	-1.71	-1.45	-4.81	-3.2	-4.92	-7.51	-8.23	-2.75	-35.04
6500	120	-3.32	-5.44	-7.38	-8.86	-3.86	-3.46	-6.7	-9.61	-11.86	-9.62	-8.17	-4.06	-35.04
6500	135	-4.54	-7.06	-7.57	-7.22	-6.35	-6.67	-8.73	-15.15	-9.5	-11.13	-14.08	-11.2	-35.04
6500	150	-6.45	-10.55	-11.53	-7.35	-9.98	-12.77	-11.95	-8.77	-9.16	-16.27	-10.38	-13.65	-35.04
6500	165	-9.03	-22.42	-21.16	-13.1	-33.98	-12.85	-13.99	-11.91	-21.41	-17.47	-19.96	-16.19	-35.04
6500	180	-12.11	-12.6	-22.98	-23.8	-28.97	-20	-12.51	-13.29	-13.08	-16.82	-20.45	-16.65	-35.04
6500	195	-12.67	-6.12	-12.3	-12.53	-14.25	-13.86	-9.87	-13.03	-16.03	-12.75	-22.08	-35.04	-35.04
6500	210	-9.27	-3.44	-5.65	-8.54	-8.61	-9.78	-2.51	-6.93	-18.51	-13.4	-16.48	-13.98	-35.04
6500	225	-6.26	-2.22	-2.6	-6.8	-6	-6.89	-1.74	-1.83	-9.76	-29.8	-17.69	-16.9	-35.04
6500	240	-4.35	-1.33	-1.57	-6.41	-7.55	-6.96	0.42	-5.33	-14.53	-13.98	-14.12	-15.81	-35.04
6500	255	-3.1	-1.62	-2.66	-5.84	-6.75	-4.48	0.39	-1.47	-8.86	-13	-15.41	-13.61	-35.04
6500	270	-2.45	-1.94	-4.45	-10.91	-4.15	-5.62	-1.92	-0.94	-7.47	-18.27	-17.95	-9.34	-35.04
6500	285	-2.54	-2.41	-6.54	-8.49	-3.27	-3.66	-1.98	-0.86	-3.73	-15.66	-9.88	-7.54	-35.04
6500	300	-3.05	-2.8	-10.66	-9.21	-6.42	-3.99	-6.5	-6.19	-7.07	-8.86	-12.82	-10.31	-35.04
6500	315	-4.33	-4.43	-14.16	-8.86	-10.86	-11.64	-5.48	-6.96	-9.75	-34.04	-23.13	-25.49	-35.04
6500	330	-6.28	-7.05	-15.33	-27.69	-10.27	-16.8	-11.38	-8.05	-47.24	-15.03	-12.66	-17.03	-35.04
6500	345	-9.39	-9.09	-13.29	-12.8	-16	-13.95	-13.57	-13.61	-11.77	-28.61	-18.71	-16.25	-35.04
6500	360	-12.73	-11.34	-11.19	-16.14	-16.68	-15.74	-9.64	-10.58	-15.62	-8.17	-20.99	-17.21	-35.04
7000	0	-13.83	-15.58	-14.65	-15.31	-13.47	-16.68	-36.62	-14.58	-15.31	-11.08	-20.25	-18.44	-34.68
7000	15	-10.26	-13.41	-12.69	-11.58	-10.39	-14.25	-18.51	-12.28	-9.45	-10.2	-19.77	-23.65	-34.68
7000	30	-7.76	-9.54	-11.96	-9.86	-6.72	-14.39	-13.62	-8.74	-12.74	-5.82	-3.67	-11.88	-34.68
7000	45	-6.02	-7.34	-10.9	-11.2	-4.66	-5.25	-9.27	-6.56	-10.94	-5.63	-1.72	-10.25	-34.68
7000	60	-5.09	-7.03	-5.89	-10.9	-7.09	-3.65	-6.19	-9.37	-4.33	-8.64	-3.39	-4.56	-34.68
7000	75	-4.77	-7.64	-3.61	-8.8	-7.29	-5.14	-5.9	-10.98	-5.18	-8.32	-4.47	-3.4	-34.68
7000	90	-4.89	-9.21	-5.13	-11.18	-9.43	-6.38	-8.29	-8.85	-6.6	-9.44	-7.32	-5.78	-34.68
7000	105	-5.87	-8.63	-8.72	-7.94	-6.61	-8.56	-11.15	-14.72	-9.22	-10.87	-19.24	-8.04	-34.68
7000	120	-7.31	-7.23	-5.68	-7.71	-7.14	-4.99	-8.16	-12.87	-13.73	-10.86	-18.48	-11.8	-34.68
7000	135	-9.28	-7.63	-7.79	-11.75	-9.27	-8.08	-9.94	-19.47	-11.22	-11.06	-22.61	-22.86	-34.68
7000	150	-12.56	-11.54	-15.34	-16.04	-17.14	-11.34	-8.58	-13.27	-13.55	-20.1	-6.67	-19.76	-34.68
7000	165	-18.06	-17.66	-22.31	-14.81	-23.78	-14.91	-14.06	-20.55	-29.06	-24.07	-31.3	-34.68	-34.68
7000	180	-16.3	-19.78	-25.32	-23.49	-19.53	-21.86	-14.12	-17.03	-16.64	-15.65	-18.34	-24.07	-34.68
7000	195	-11.2	-11.9	-15.91	-7.92	-16.18	-14.35	-7.54	-13.65	-15.38	-17.24	-18.18	-32.59	-34.68
7000	210	-7.97	-8.84	-9.06	-4.88	-13.6	-13.31	-4.66	-10.58	-16.94	-10.74	-21.06	-19.59	-34.68
7000	225	-5.93	-7.54	-4.5	-3.07	-10.05	-10.97	-3.94	-6.11	-12.65	-29.41	-20.61	-17	-34.68
7000	240	-4.84	-6.99	-2.98	-3.26	-9.14	-12.14	-1.09	-3.93	-26.2	-13.99	-19.21	-12.77	-34.68
7000	255	-4.54	-5.9	-3.22	-6.83	-8.76	-5.56	-1.42	-6.22	-10.62	-13.41	-12.36	-11.69	-34.68
7000	270	-4.85	-4.93	-2.8	-8.13	-8.28	-5.56	-1.99	-2.83	-6.92	-21	-12.51	-12.56	-34.68
7000	285	-5.89	-5.58	-3.44	-8.09	-7.07	-5.05	-3.56	-2.15	-4.45	-15.52	-16.04	-11.25	-34.68
7000	300	-7.57	-7.27	-5.25	-10.36	-8.19	-7.96	-5.95	-3.97	-9.75	-14.78	-19.2	-12.72	-34.68
7000	315	-10.59	-8.31	-5.78	-12.4	-8.49	-14.91	-8.72	-6.81	-11.33	-20.55	-20.65	-24.09	-34.68
7000	330	-15.27	-9.04	-9.84	-8.34	-17.32	-12.43	-8.1	-13.19	-23.32	-26.56	-22.09	-15.1	-34.68
7000	345	-18.24	-11.28	-12.47	-17.72	-20.28	-11.65	-11.54	-13.36	-12.5	-22.14	-23.55	-14.14	-34.68
7000	360	-13.83	-15.58	-14.65	-15.31	-13.47	-16.68	-36.62	-14.58	-15.31	-11.08	-20.25	-18.44	-34.68

Ant. Position: 6G Ant.6_GAIN Horizontal

Regulatory WIFI Antenna Information