Antenna Composite Gain Test Report

1. Test Information

Equipment	EMT
Brand Name	Nokia
Model Name	B3.1
Applicant	Nokia
Manufacturer	Nokia

2. Testing Location

Testing Location	
AOT	ADD: 289 Jinghua Road,Shipai, BachengTown, Kunshan City, Jiangsu Province

Test Condition	Test Engineer	Test Environment (°C / %)	Test Date
Radiated	Changgan Lai	20-24 / 45-60	08.09.2023~08.09.2023

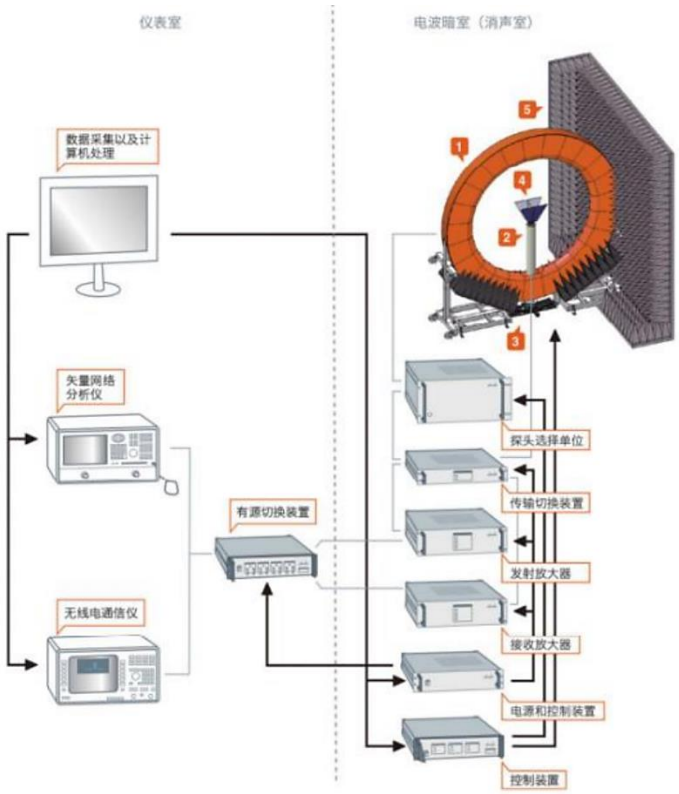
3. Test Frequency

Band (MHz)	Test Frequency (MHz)
2400-2500	2400 / 2450 / 2500
5150-5850	5150 / 5500 / 5850

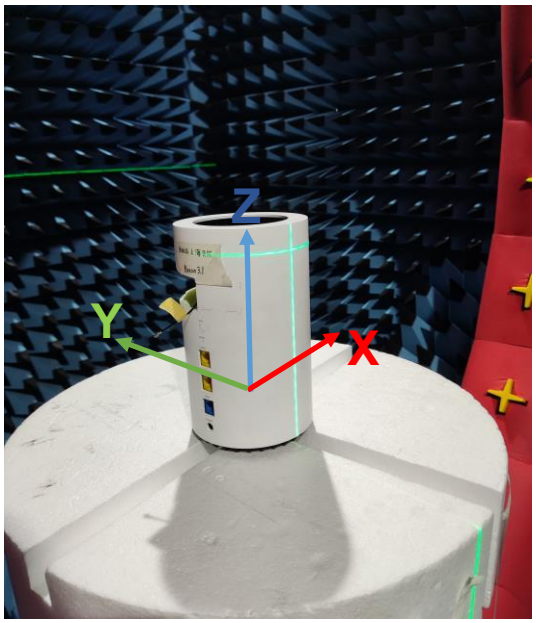
4. Antenna Information

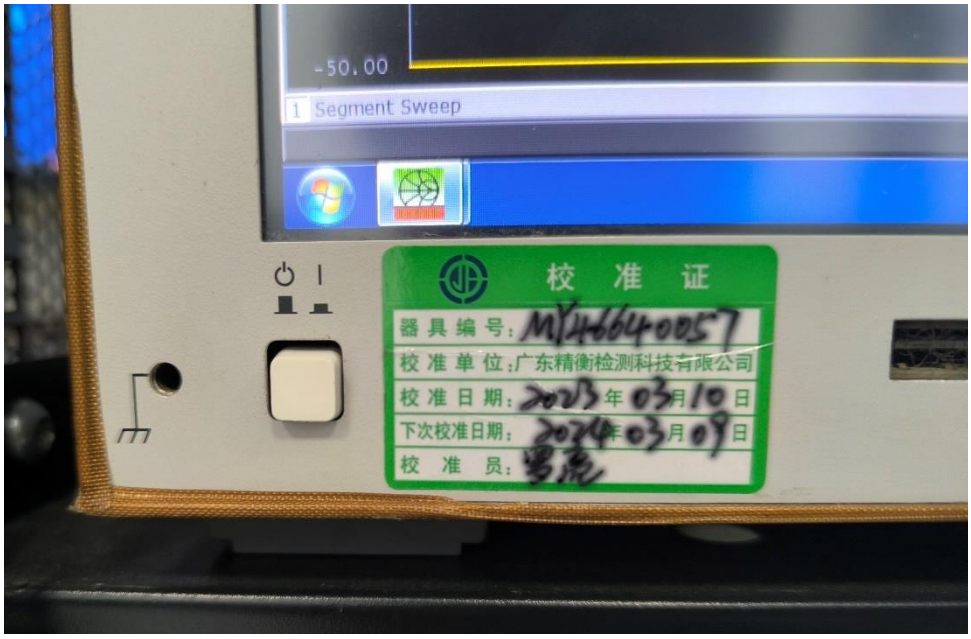
Ant. Position	Brand Name	Model Name	Ant. Type	Connector
Antenna 1 (5G)	Nokia		Dipole	I-PEX
Antenna 2 (5G)	Nokia		Dipole	I-PEX
Antenna 3 (2.4G)	Nokia		Dipole	I-PEX
Antenna 4 (2.4G)	Nokia		Dipole	I-PEX
Antenna 5 (2.4G)	Nokia		Dipole	I-PEX

5. Test Configuration



6. Reference Calibration





CALIBRATION PASS
CAL.DATA: 2023.3.10
NEXT CAL.DATA: 2024.3.09

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

Antenna Peak Gain Table (Ant. Position：5G Ant.1~2)

Band (MHz)	5150-5850		
Frequency (MHz)	5150	5500	5850
Ant.1 Max Gain (dBi)	3.0	2.9	2.8
Ant.2 Max Gain (dBi)	3.1	2.8	2.8
Max Gain (dBi)	3.1	2.9	2.8

Antenna Peak Gain Table (Ant. Position：2.4G Ant.3~5)

Band (MHz)	2400-2500		
Frequency (MHz)	2400	2450	2500
Ant.3 Max Gain (dBi)	2.7	2.7	2.7
Ant.4 Max Gain (dBi)	2.0	2.6	2.8
Ant.5 Max Gain (dBi)	3.0	3.0	2.9
Max Gain (dBi)	3.0	3.0	2.9

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 2 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 D01F(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 s driven by only one spatial stream.

- Directional gain may be calculated by using the formulas applicable to equal gain

antennas with Gur 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 / Uncorrelated Gain Calculation

(Ant. Position：2G Ant.3~5)

Frequency (MHz)	2400	2450	2500
Phi (°)	18	18	18
Theta (°)	68	68	68
Beamforming	3.9	3.0	2.9
Non Beamforming (CDD MODE)	3.9	4.0	4.0

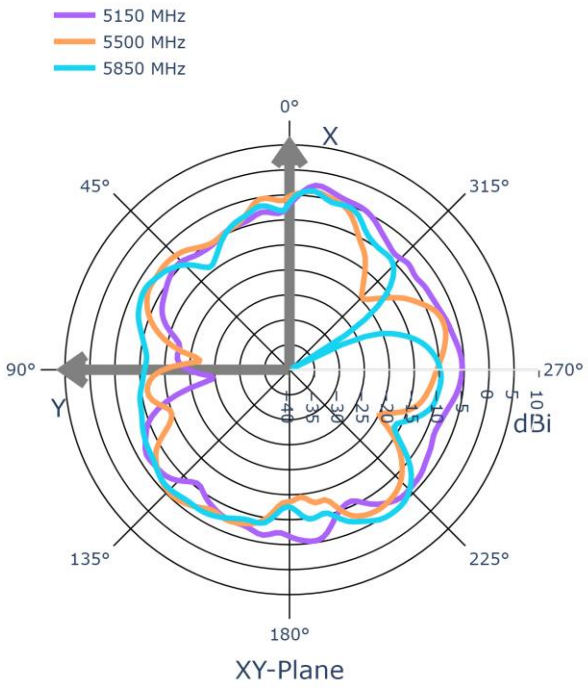
(Ant. Position：5G Ant.1~2)

Frequency (MHz)	5150	5500	5850
Phi (°)	80	80	84
Theta (°)	88	84	100
Beamforming	3.8	4.4	4.5
Non Beamforming (CDD MODE)	3.8	4.4	4.5

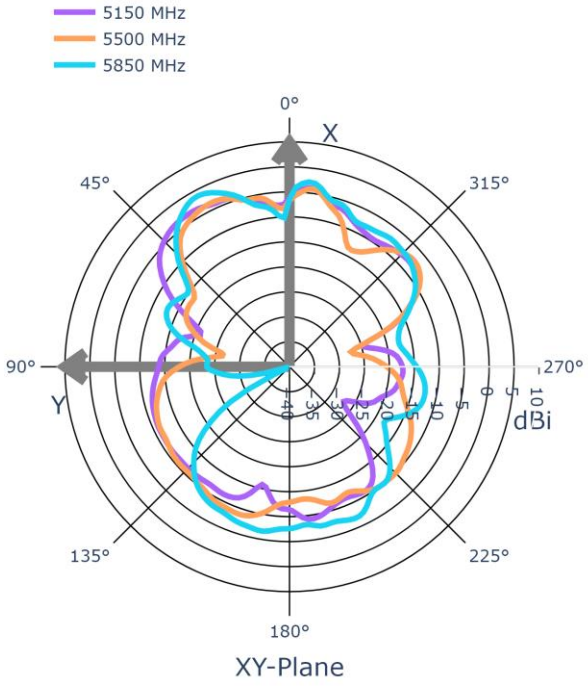
9. Radiation Pattern

Ant. Position：5G Ant.1~2

XY_Pol._Phi_Ant.1@5.xG



XY_Pol._Phi_Ant.2@5.xG



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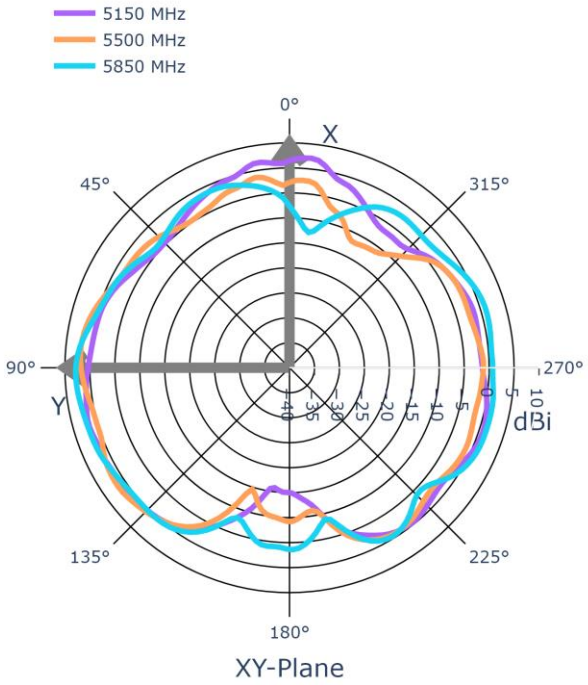

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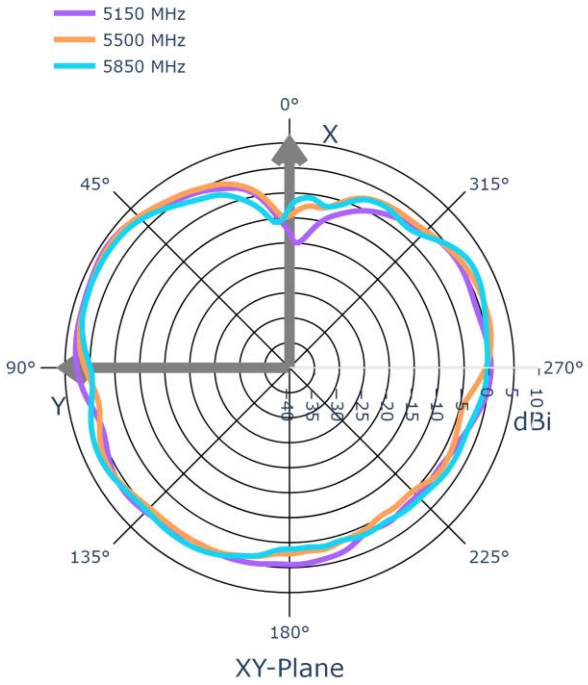

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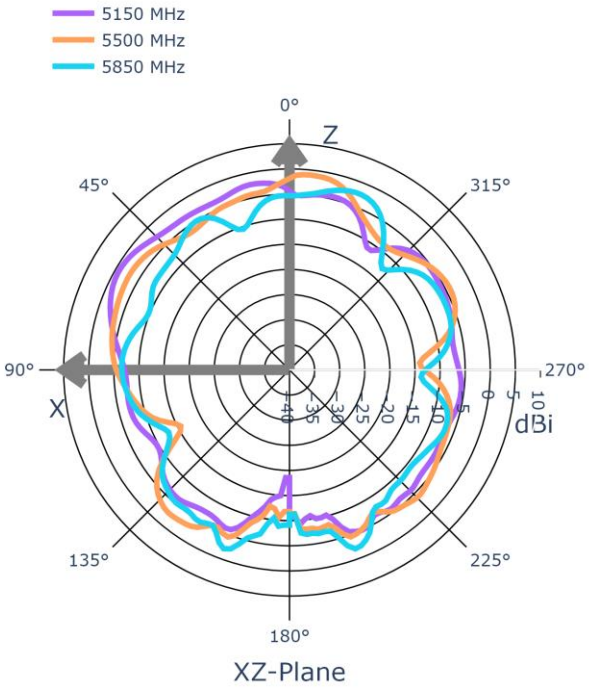

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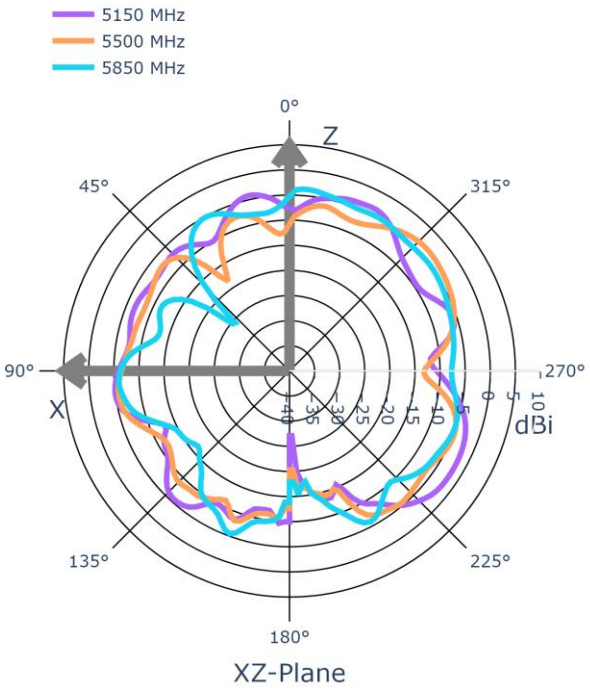

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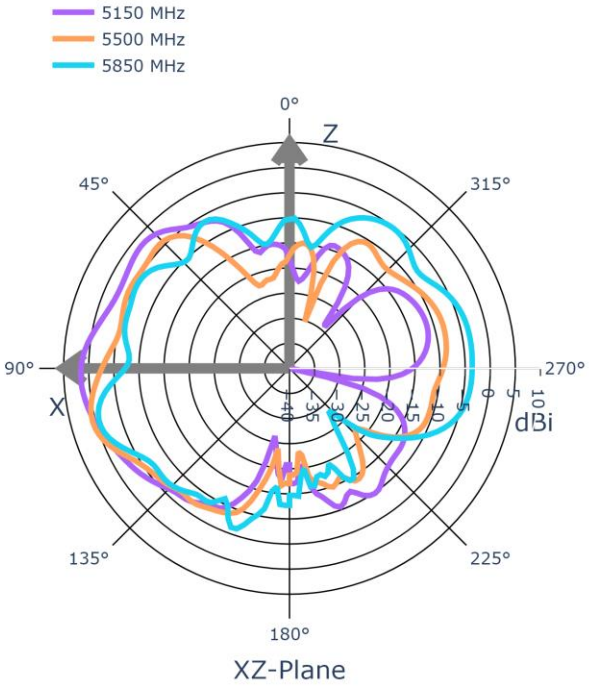

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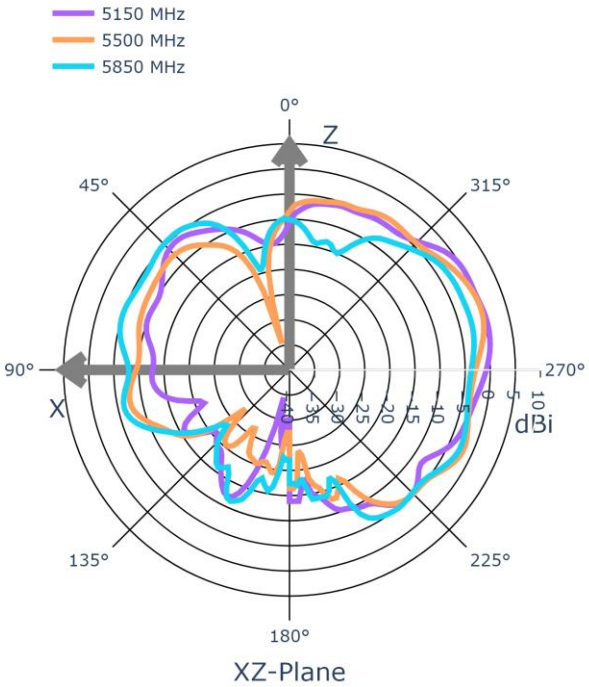

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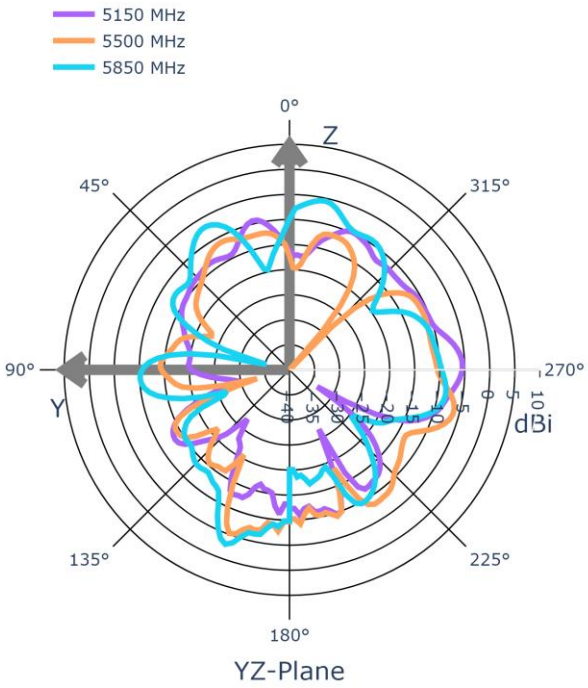

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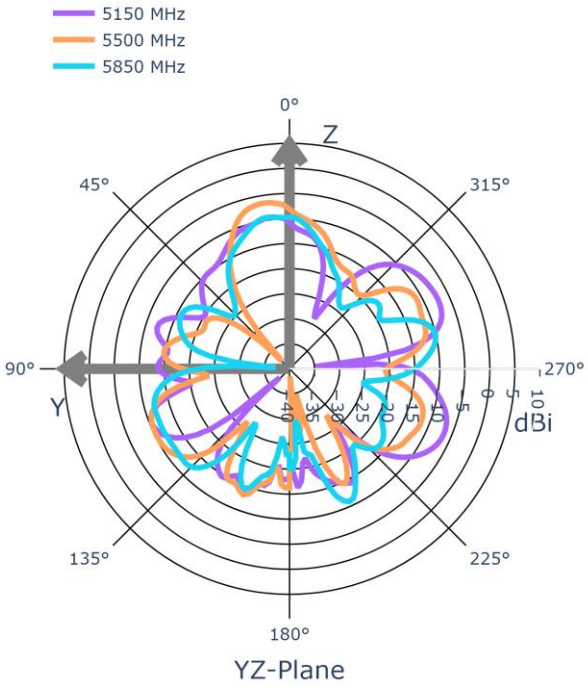

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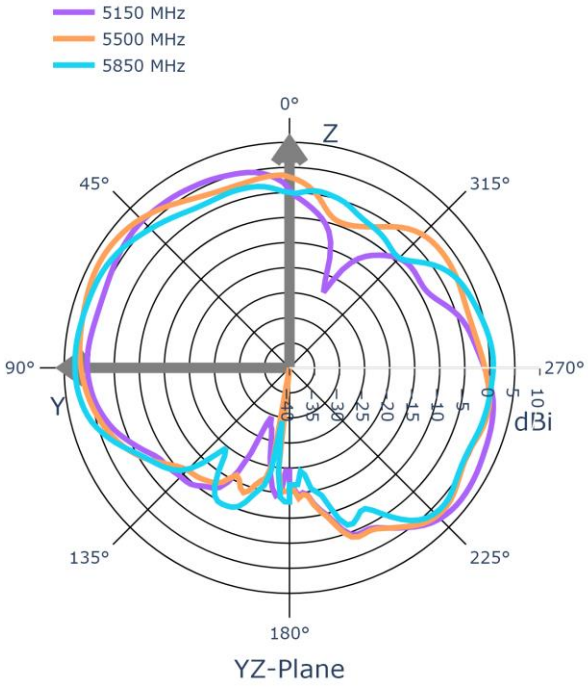

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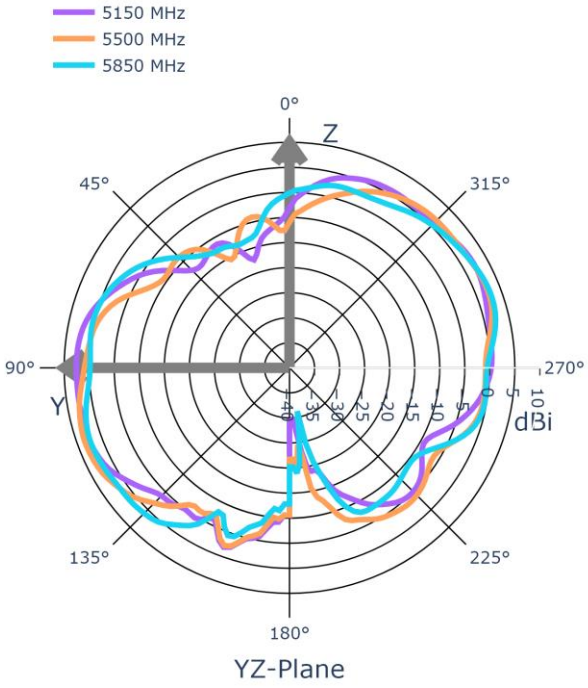

Ant. Position：2.4G Ant.3~5

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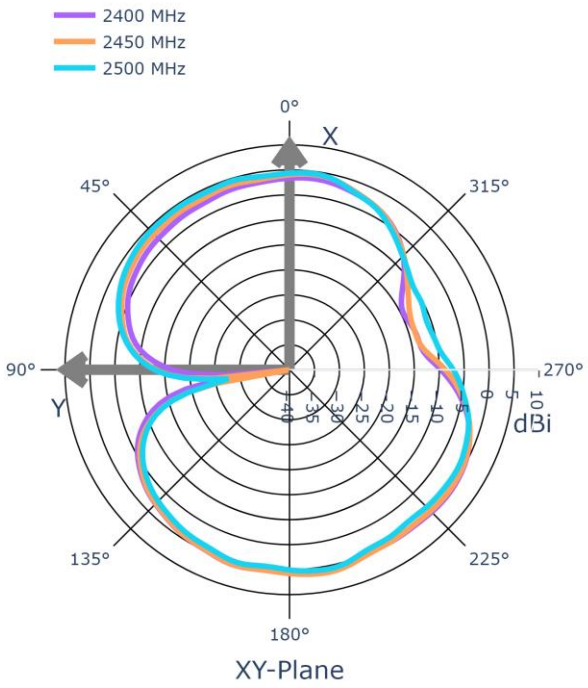
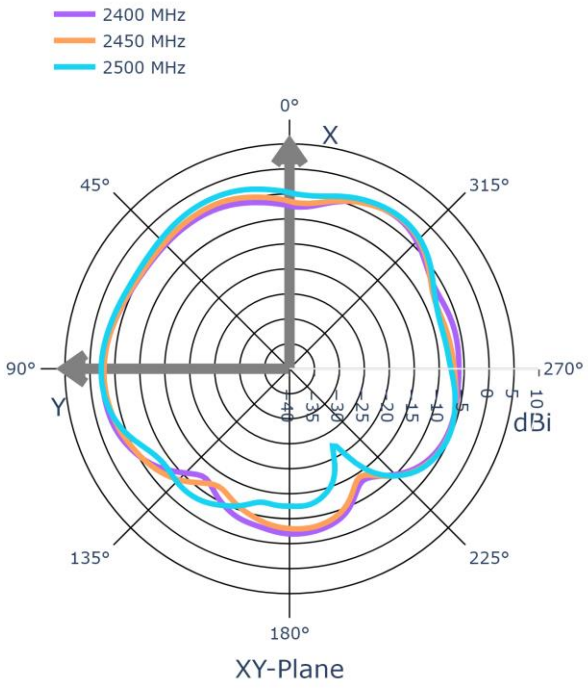
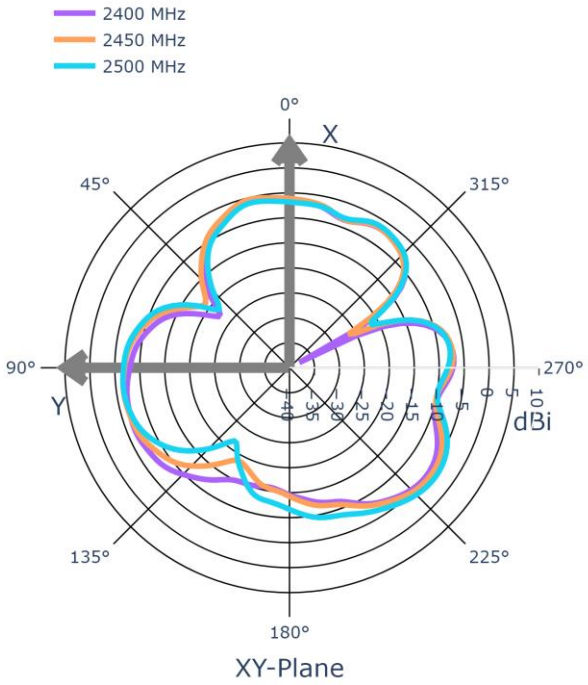


XY_Pol._Phi_Ant.4



XY_Pol._Phi_Ant.5



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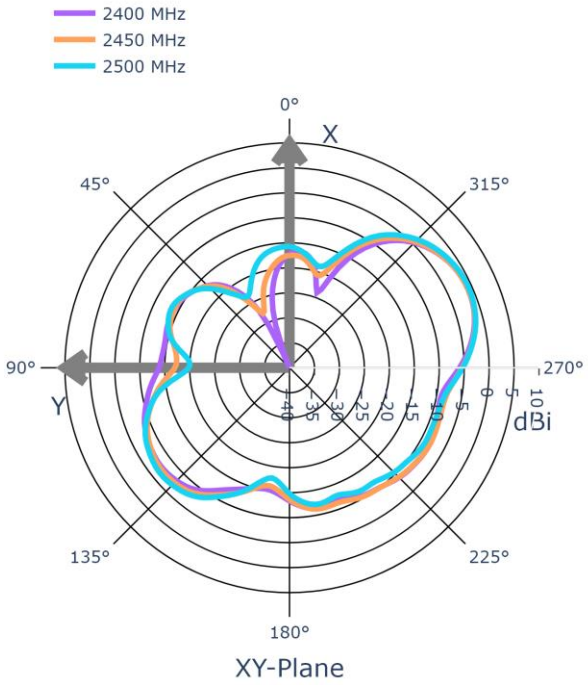

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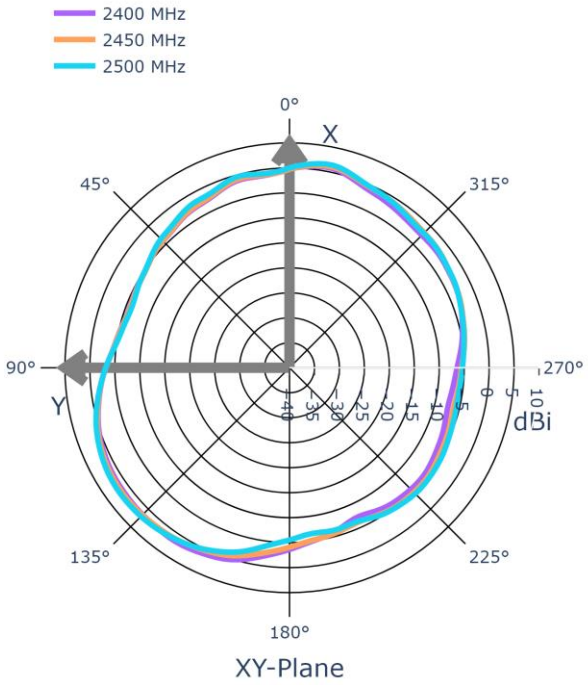

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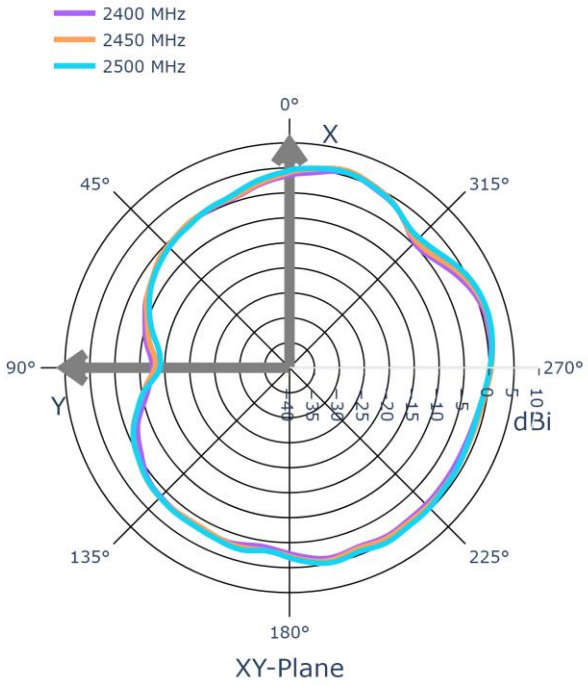

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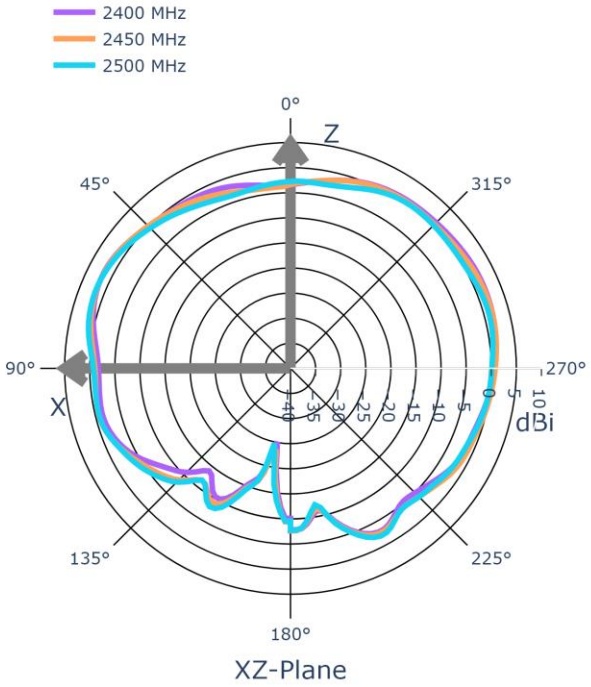

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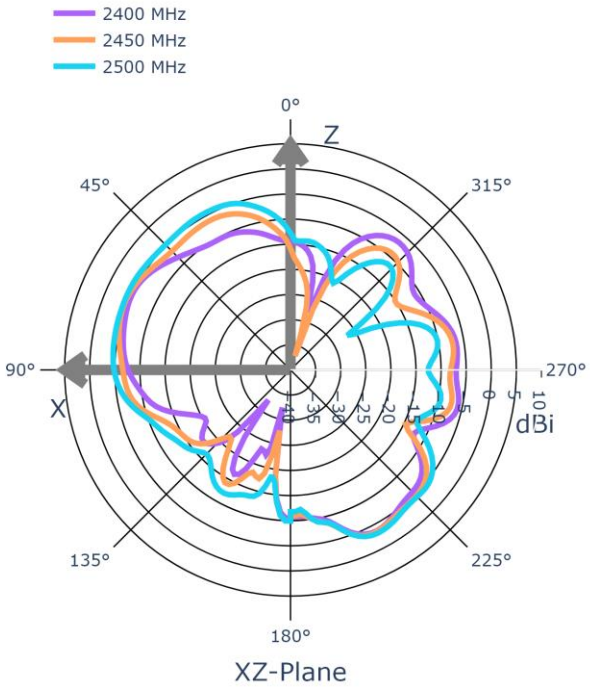

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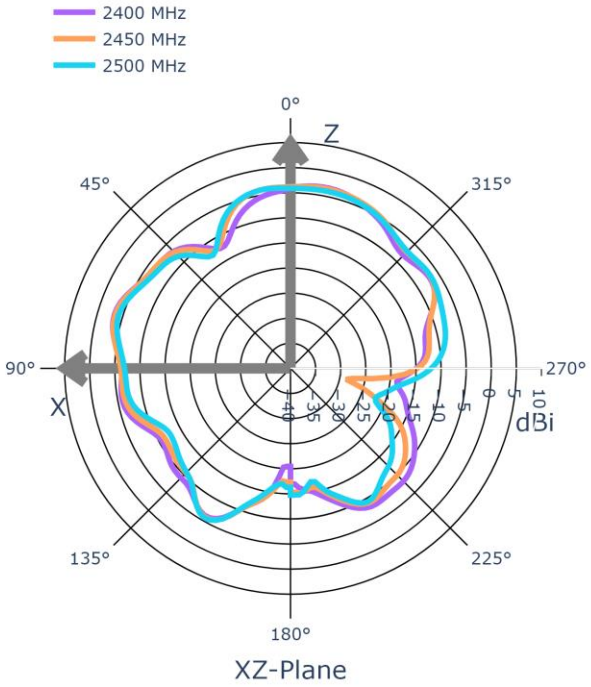

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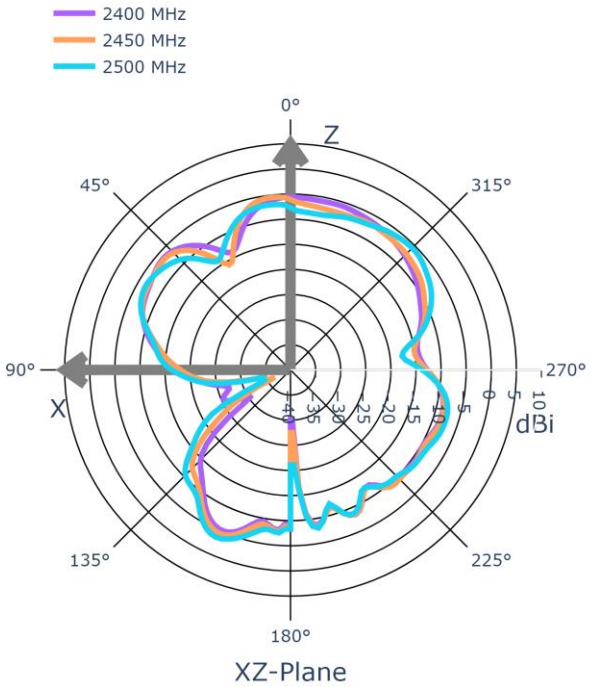

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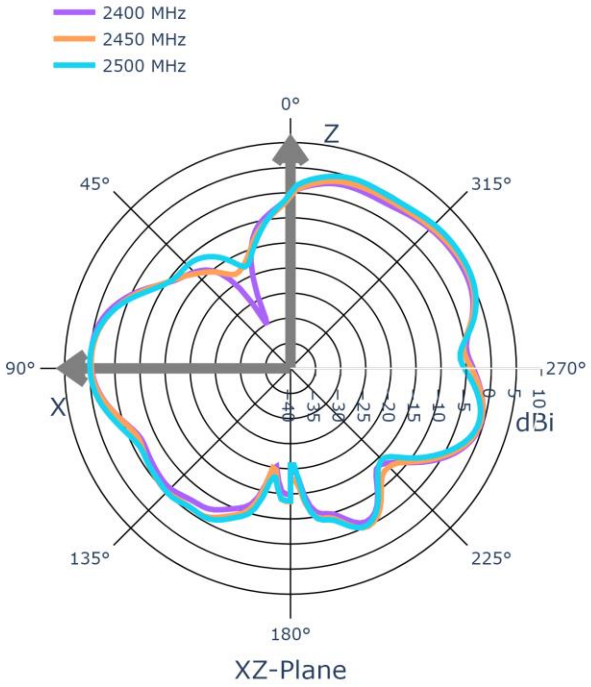

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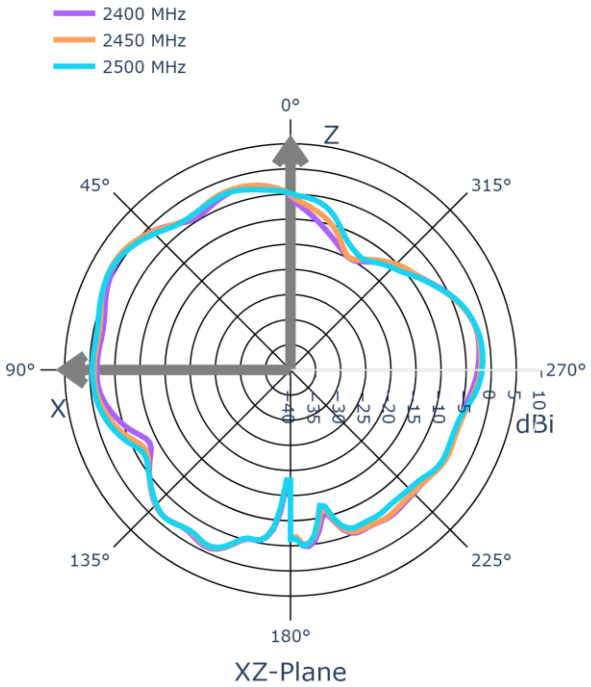

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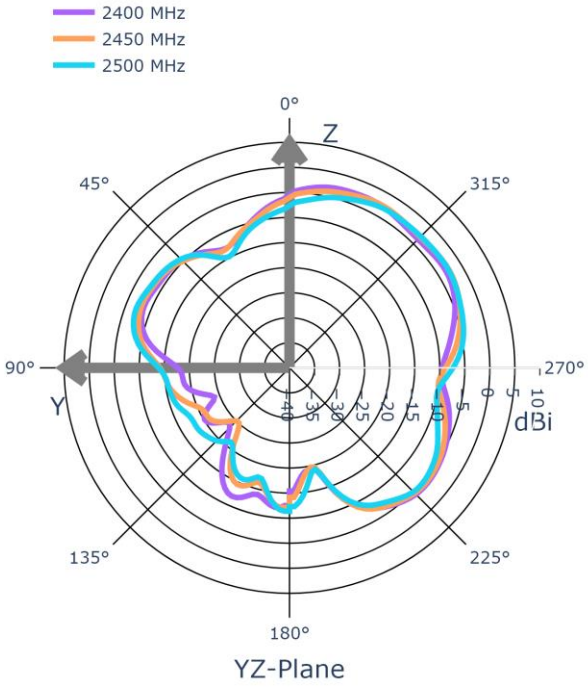

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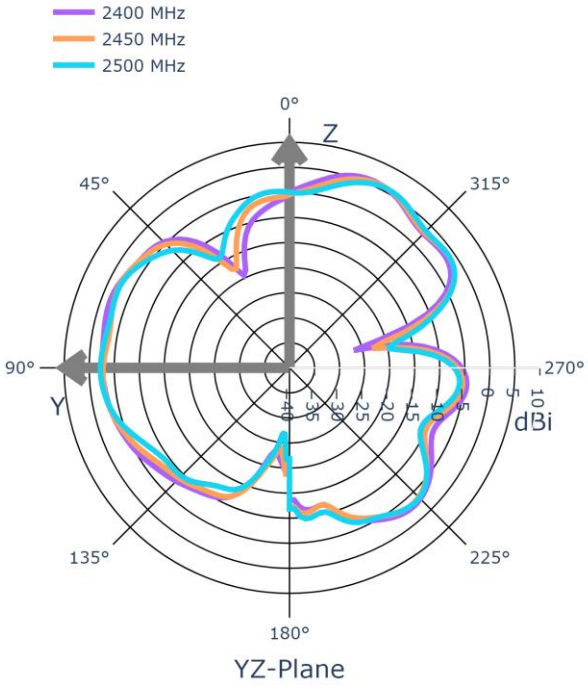

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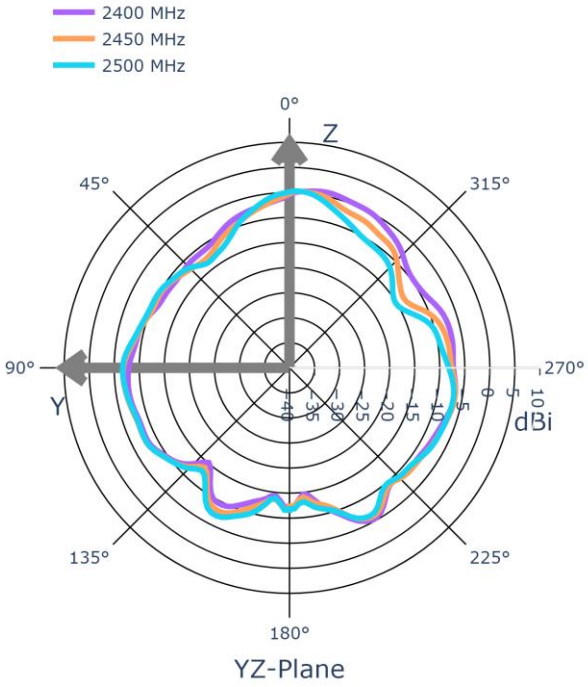

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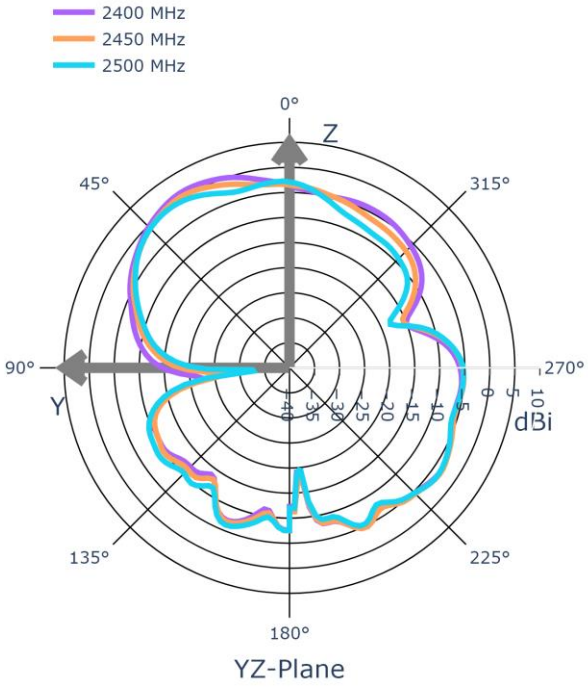

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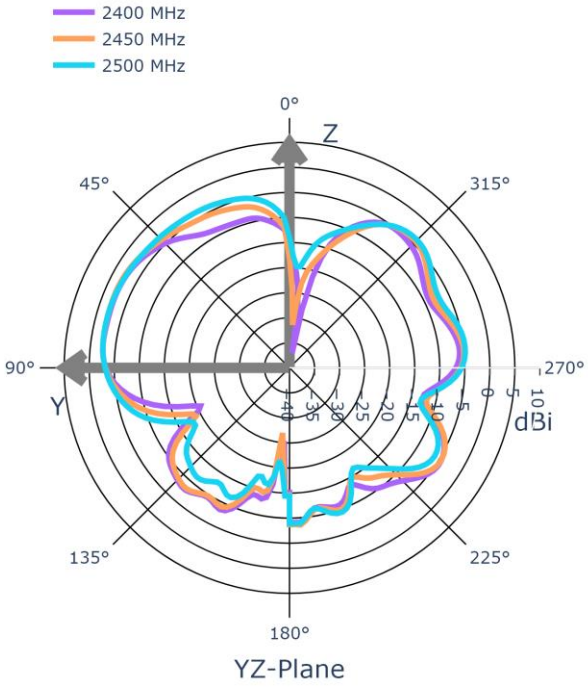

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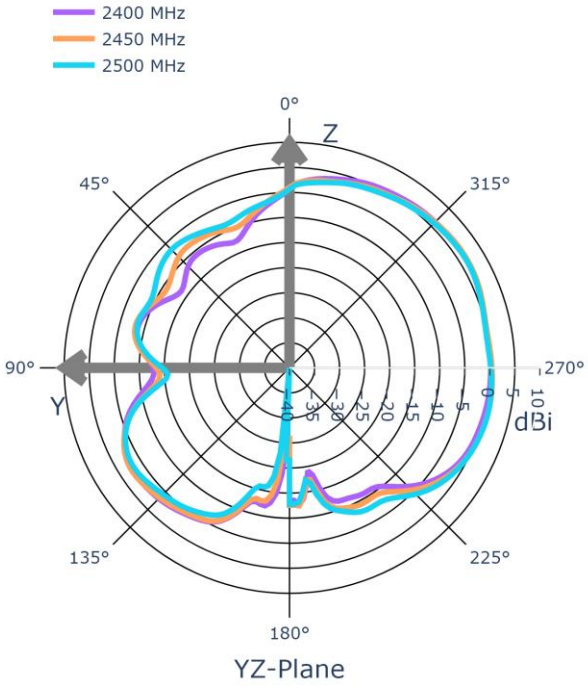


Appendix _Radiated Total Gain Result

Ant. Position：5G Ant.1_GAIN PHI

Frequency	Ph/Theta	180	170	160	150	140	130	120	110	100	90	80	70	60	50	40	30	20	10	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
5150	0	-25.0451	-9.9512	-5.7185	-5.5145	-5.1897	-5.4904	-5.6296	-5.9987	-5.5655	-5.3726	-5.9588	-5.9491	-5.5582	-5.7535	-5.9341	-5.9422	-5.8972	-5.466	-4.7962	-4.6899	-4.4522	-2.906	-3.5028	-3.6869	-2.0437	-0.7782	-1.8732	-3.4776	-5.7142	-7.5914	-7.8723	-9.5796	-7.474	-6.1504	-7.2894	-6.0906	-12.4798	-25.0451
5150	2	-24.7631	-9.4211	-5.0556	-5.1409	-5.8546	-6.2309	-6.2328	-7.2353	-5.6963	-5.961	-6.8066	-5.6783	-5.194	-5.4619	-9.2341	-9.1422	-4.664	-4.9151	-4.764	-2.4103	-2.9202	-3.6367	-3.3081	-2.3984	-1.3192	-2.8681	-5.8207	-8.2839	-8.5734	-8.5405	-9.2203	-7.5145	-6.4429	-7.4808	-6.0913	-12.6141	-24.7631
5150	4	-24.4891	-9.3775	-4.5554	-4.9855	-5.9564	-6.2356	-6.1021	-6.6641	-5.6267	-5.5535	-6.4554	-5.1381	-4.9493	-5.2013	-5.1983	-4.9493	-4.9512	-4.5966	-4.8357	-2.3795	-2.9548	-3.6367	-3.5604	-2.5337	-1.4433	-3.0742	-5.7577	-8.4604	-10.3936	-10.6719	-9.5183	-6.6365	-6.9581	-7.9929	-6.2212	-13.1292	-24.2521
5150	5	-24.0213	-9.3366	-3.9966	-5.0865	-5.2038	-5.6796	-5.8189	-6.1533	-5.6075	-5.3651	-5.1966	-4.9563	-5.1596	-4.6491	-4.5653	-5.0596	-4.6797	-5.3017	-5.0279	-2.341	-3.1408	-3.3072	-3.9955	-2.3035	-1.7673	-2.6669	-5.0925	-8.1263	-11.3714	-11.9071	-9.7973	-7.4653	-6.0144	-6.8474	-6.7781	-6.3078	-13.4417	-24.0214
5150	10	-23.806	-8.132	-3.9136	-5.0916	-5.0643	-5.9	-6.1573	-9.4651	-7.7407	-5.6915	-6.7925	-5.1777	-4.1717	-4.5625	-9.6333	-9.6164	-4.6869	-4.5777	-5.1321	-2.3387	-3.2515	-4.4976	-3.9636	-1.9891	-0.9342	-2.3339	-4.6584	-7.9933	-12.3523	-13.9474	-9.9646	-5.4536	-6.3748	-8.5537	-6.444	-13.7734	-23.806
5150	12	-23.6054	-8.0009	-3.9482	-5.7302	-5.9824	-6.1418	-9.4024	-9.9793	-9.0918	-5.631	-7.0733	-5.0977	-4.62	-4.7277	-9.8139	-9.5838	-4.6988	-5.6299	-5.2533	-2.3476	-3.3681	-4.6221	-3.9777	-1.6122	-0.7441	-2.2716	-4.7075	-8.2616	-13.4834	-13.0819	-9.8973	-5.9645	-5.6209	-8.5779	-6.5065	-14.11	-23.6055
5150	13	-23.4191	-7.9392	-4.0858	-5.9618	-5.003	-5.6282	-7.9496	-10.6249	-10.6854	-7.7304	-5.8303	-7.6024	-5.5448	-5.1866	-10.2034	-9.5713	-4.7182	-5.795	-5.3866	-2.3681	-3.4781	-4.6623	-3.9879	-1.3611	-0.7354	-2.4489	-5.0683	-8.7256	-14.4593	-12.7971	-9.6107	-6.4297	-6.4845	-8.8897	-6.6561	-14.433	-23.4191
5150	14	-23.2464	-7.9436	-4.3111	-6.3607	-5.1647	-7.0066	-9.1049	-11.2729	-11.8033	-9.9529	-9.6465	-9.0284	-6.6671	-5.6235	-10.9258	-9.5884	-4.7493	-5.968	-5.5226	-2.4003	-3.5672	-4.8183	-3.1295	-1.2937	-0.9485	-2.8348	-5.445	-9.0569	-15.1101	-12.4378	-9.0791	-6.4486	-6.2232	-8.8229	-6.7353	-14.7231	-23.2464
5150	15	-23.0868	-8.0104	-4.6061	-6.902	-5.4576	-7.5294	-10.2664	-11.8085	-11.986	-9.8957	-10.1779	-9.5061	-7.5614	-6.8513	-12.0337	-9.6615	-4.7971	-6.1498	-5.6916	-2.4444	-3.6255	-4.5154	-3.0213	-1.717	-1.4657	-3.3944	-6.0908	-9.1731	-15.3705	-12.1186	-8.4057	-6.3882	-3.7993	-8.5659	-6.7887	-14.9527	-23.0868
5150	20	-22.944	-8.1845	-5.4473	-7.5621	-5.6668	-7.9	-11.4831	-12.2196	-11.9997	-9.8957	-10.1779	-9.5061	-7.5614	-6.8513	-12.0337	-9.6615	-4.7971	-6.1498	-5.6916	-2.4444	-3.6255	-4.5154	-3.0213	-1.717	-1.4657	-3.3944	-6.0908	-9.1731	-15.3705	-12.1186	-8.4057	-6.3882	-3.7993	-8.5659	-6.7887	-14.9527	-23.0868
5150	22	-22.8055	-8.3115	-5.3079	-8.2954	-6.3243	-8.5922	-12.8375	-12.523	-10.7718	-10.8896	-9.7632	-8.1857	-7.0492	-7.9705	-14.9991	-9.9453	-4.9669	-6.5449	-6.0507	-2.568	-3.63	-4.3464	-3.434	-2.2055	-2.3839	-4.5009	-7.2014	-9.3703	-13.7687	-11.0528	-7.1911	-4.2808	-3.5986	-7.6739	-6.8057	-15.1735	-22.8055
5150	25	-22.6683	-8.5353	-5.6802	-9.0168	-6.9735	-9.2984	-14.4437	-12.996	-9.6885	-11.4178	-9.5488	-7.7784	-7.2454	-9.1744	-16.4466	-9.9969	-5.0613	-6.5498	-6.1477	-2.6766	-3.6319	-4.2967	-3.8065	-2.7318	-2.4076	-5.0636	-7.2114	-9.3976	-12.5398	-10.4724	-6.7813	-4.1612	-3.7553	-6.7407	-6.8274	-15.1435	-22.6683
5150	26	-22.5722	-8.7989	-5.9749	-9.7295	-7.6974	-10.1942	-16.3664	-12.2579	-9.3062	-10.4496	-9.0758	-7.171	-6.0205	-7.8143	-16.8824	-10.2619	-5.2647	-6.9925	-6.4682	-2.7384	-3.5095	-4.4591	-4.5242	-3.6689	-3.2394	-5.6272	-8.2998	-9.7331	-11.7183	-9.9191	-6.5428	-4.0158	-3.9759	-6.7324	-6.7014	-15.0194	-22.5722
5150	28	-22.4728	-9.0402	-6.2284	-10.3376	-8.7282	-11.4	-16.1602	-11.4484	-8.6955	-9.6	-8.5644	-6.6	-5.1533	-6.1992	-16.4983	-10.5931	-5.4966	-7.3389	-6.8491	-2.8784	-3.4224	-4.5866	-5.1404	-4.7377	-4.1446	-6.2316	-9.2526	-10.2586	-11.2389	-9.537	-6.3116	-3.9327	-4.1178	-6.8132	-6.6786	-15.0777	-22.4728
5150	32	-22.3846	-9.4137	-6.4064	-10.8161	-9.902	-12.5827	-18.4919	-10.3826	-7.232	-9.5854	-7.6113	-6.5784	-5.6021	-9.3386	-16.3541	-10.4516	-5.7194	-7.5078	-6.9499	-2.9548	-3.3539	-4.9505	-5.7326	-4.668	-4.6998	-7.2516	-9.6106	-10.4629	-11.1169	-9.2634	-4.4996	-3.8633	-4.3822	-6.1402	-6.5148	-14.5544	-22.3846
5150	33	-22.3074	-9.5419	-6.5033	-11.1324	-10.9009	-13.2268	-17.2733	-9.3195	-6.0453	-9.6	-6.9231	-6.5	-6.0	-10.0	-16.1608	-10.3131	-5.9902	-7.7862	-7.2169	-3.0994	-3.2994	-5.3354	-5.9235	-4.5435	-4.8405	-7.9942	-9.8525	-10.4652	-10.9942	-9.1525	-4.6652	-3.9856	-4.4934	-6.0336	-6.4477	-14.3529	-22.3074
5150	34	-22.2409	-10.0773	-6.5248	-11.1972	-11.1882	-12.8529	-15.012	-8.4511	-6.0586	-7.235	-6.6453	-5.927	-6.8285	-9.9628	-16.1918	-10.5744	-6.3372	-8.1079	-7.5039	-3.2176	-3.276	-5.7009	-6.7213	-6.1942	-6.1539	-8.2915	-10.1179	-10.7091	-10.7302	-9.1473	-6.9351	-4.2653	-4.5691	-6.0569	-6.3367	-13.9325	-22.2409
5150	36	-22.1851	-10.3979	-6.4833	-11.0647	-11.0417	-12.4467	-13.6184	-7.8	-6.1	-6.0	-6.0	-5.6	-7.5333	-9.7	-16.2569	-10.6	-6.8	-8.4	-7.8	-3.4	-3.4	-6.0	-7.2	-7.4	-7.4	-8.5	-10.4	-10.7	-10.4075	-10.4	-9.141	-7.2966	-4.8	-4.4	-5.8	-6.2	-13.6133	-22.1851
5150	38	-22.1398	-10.6939	-6.3928	-10.8441	-9.6194	-10.7482	-11.1982	-6.6117	-5.3903	-6.2812	-5.9136	-6.1854	-7.942	-11.7643	-16.4531	-10.8034	-7.1103	-8.8098	-8.1363	-3.5099	-3.3575	-6.5017	-7.6904	-7.8719	-7.4487	-9.0937	-10.1169	-10.5335	-9.9662	-9.1147	-7.7307	-5.0954	-4.8121	-6.4947	-6.2986	-13.3052	-22.1398
5150	40	-22.1049	-10.9536	-6.7681	-9.862	-8.6173	-9.8	-10.0	-5.6	-4.8	-5.6	-5.4	-5.6	-8.0	-13.2	-16.5491	-10.8	-7.4	-9.2	-8.5	-3.8	-3.5	-7.0	-8.1	-8.4	-8.4	-9.6	-10.2	-10.5	-9.5106	-9.4	-7.8	-5.2232	-5.0	-6.2	-6.0	-13.0	-22.1049
5150	42	-22.0803	-11.1662	-6.122	-9.2153	-7.6698	-8.6918	-8.366	-5.6584	-4.9486	-5.9869	-5.6979	-6.7445	-10.1951	-13.6761	-15.7344	-11.2269	-8.0216	-9.6306	-8.8621	-3.8933	-3.6302	-7.2113	-8.8267	-9.4368	-8.8241	-9.851	-10.0205	-9.8469	-9.2014	-9.3158	-9.2124	-6.0497	-5.3638	-7.3903	-6.4802	-12.7763	-22.0803
5150	44	-22.066	-11.3253	-5.9651	-8.6277	-7.0975	-7.6475	-6.5184	-5.2	-5.0	-5.6	-5.6	-6.4	-10.0	-13.6	-15.0	-11.4	-8.4	-9.8	-9.2	-4.0	-3.8	-7.4	-9.2	-9.8	-9.2	-9.8	-9.8	-9.8	-9.5	-9.2923	-9.6	-6.5021	-5.7591	-7.9721	-6.6963	-12.5	-22.066
5150	46	-22.062	-11.4276	-5.8065	-8.119	-6.5562	-7.219	-6.6773	-4.7828	-4.8363	-6.1766	-6.164	-7.7142	-13.2854	-15.7558	-14.243	-11.8379	-9.0485	-10.0893	-9.6957	-4.1377	-4.0852	-7.8441	-10.0914	-10.9627	-10.2221	-10.8846	-10.3039	-9.2834	-8.9004	-9.9367	-10.2163	-6.9501	-6.2044	-8.6097	-6.9858	-12.4033	-22.062
5150	48	-22.0682	-11.4728	-5.6545	-7.709	-6.1754	-7.1964	-6.9	-4.6	-4.8	-6.4	-6.5	-8.0	-13.4	-15.8	-13.2	-12.198	-9.4	-10.4	-9.8	-4.3	-4.3	-8.1	-10.5	-11.3	-10.9	-11.4	-10.9	-10.4	-9.4	-9.0474	-10.3467	-7.2	-6.6	-7.4	-7.2	-7.3	-12.0682	-22.0682
5150	50	-22.0847	-11.4727	-5.5174	-7.387	-5.806	-6.4032	-5.7747	-4.4015	-4.937	-6.3996	-7.047	-10.0831	-18.7247	-15.9562	-13.0423	-12.5902	-10.1618	-11.7031	-10.6576	-4.8109	-4.6929	-8.5488	-11.3284	-12.5407	-11.3876	-12.163	-11.2898	-9.6245	-9.0642	-10.8783	-11.2312	-7.8342	-7.1536	-9.9639	-7.8355	-12.2112	-22.0847
5150	52	-22.1114	-11.4798	-5.4033	-7.1425	-5.6014	-6.238	-5.5979	-4.4998	-5.0655	-6.6661	-7.4139	-10.7	-18.7	-15.9	-12.8	-12.5	-10.1	-11.7	-10.7	-4.8	-4.7	-8.6	-11.4	-12.6	-11.4	-12.2	-11.3	-9.7	-9.1	-10.9	-11.3	-7.9	-7.2	-10.0	-7.9	-12.3	-22.1114
5150	54	-22.1485	-11.3566	-5.3192	-6.9765	-5.5719	-6.1794	-5.474	-4.4969	-5.5337	-6.9708	-8.3764	-12.8327	-16.5394	-14.2308	-12.1387	-13.4438	-11.3186	-13.0309	-11.776	-5.363	-5.4747	-9.4931	-12.4734	-13.6427	-12.7874	-14.2277	-13.6253	-9.921	-10.1637	-12.3331	-12.0317	-8.6798	-8.0617	-11.3598	-9.0035	-12.7043	-22.1485
5150	56	-22.196	-11.2736	-5.2736	-6.8915	-5.5758	-6.2	-5.4	-4.5	-5.8	-7.2	-9.6	-14.8483	-16.4	-14.2	-12.7	-14.2	-12.0	-13.9	-12.7	-6.4	-6.2	-10.4	-13.5	-14.8	-13.9	-15.4	-15.1	-13.9	-10.3333	-10.7335	-12.9	-9.0	-9.0	-12.4	-9.0	-13.2	-22.196
5150	58	-22.254	-11.1617	-5.2725	-6.8944	-5.7749	-6.3748	-5.6466	-4.7652	-5.7506	-7.456	-9.9351	-16.1226	-21.1705	-12.5972	-11.9078	-14.1414	-12.4396	-14.5159	-13.099	-6.0435	-6.267	-10.7805	-13.6461	-14.7398	-14.5514	-18.3332	-17.0645	-11.0993	-13.7437	-12.658	-9.5087	-8.9767	-12.9926	-10.3696	-12.3726	-22.254
5150	60	-22.3227	-11.0193	-5.2077	-6.9943	-5.8156	-6.4466	-5.8619	-4.9465	-5.9	-7.6	-10.4	-15.8	-19.2	-12.8	-11.8	-14.2	-12.8	-15.3	-13.8	-6.8	-6.6	-11.0	-13.8	-14.9	-14.8	-18.4	-17.2	-11.2	-13.9	-12.8	-9.6	-9.0	-13.0	-10.4	-12.5	-22.3227
5150	62	-22.4023	-10.9634	-5.4231	-7.1191	-6.0286	-6.693	-6.151	-5.2782	-6.4145	-7.9967	-10.9447	-16.3992	-15.6585	-11.4811	-11.6463	-15.0046	-13.3781	-16.29	-14.6491	-7.8879	-7.2114	-12.4774	-15.0905	-15.5707	-16.7904	-22.6579	-21.5374	-11.287	-13.6098	-15.5036	-13.1383	-10.4426	-10.1437	-15.3502	-11.74	-12.6955	-22.4023
5150	64	-22.4928	-10.8796	-5.5803	-7.2997	-6.0672	-6.7488	-6.0553	-5.3	-6.8	-8.6	-12.2	-17.2	-12.0	-12.0	-11.6	-15.8	-14.0	-17.2	-15.4	-9.0	-8.0	-13.6	-16.5	-16.2	-17.2	-23.9	-23.9	-11.4	-13.2	-16.2	-13.6	-10.9	-9.9	-16.2	-12.0	-12.8	-22.4928
5150	66	-22.5946	-10.8136	-5.7936	-7.9774	-7.6606	-8.003	-7.0426	-6.0833	-7.1511	-8.3134	-10.8416	-13.971	-12.7312	-10.7922	-11.5838	-15.2777	-13.9364	-18.3494	-16.5227	-7.6476	-8.2496	-14.6376	-17.1181	-17.0526	-19.07	-23.7526	-22.9183	-12.179	-13.6099	-17.899	-13.3417	-11.4343	-11.7154	-19.2483	-12.8528	-13.1435	-22.5946
5150	68	-22.7076	-10.7004	-5.9062	-8.5237	-8.0975	-9.0	-8.0	-6.5184	-7.8	-8.6	-10.8	-13.9	-12.8	-10.8	-11.6	-15.3	-14.0	-18.4	-16.6	-7.8	-8.4	-14.8	-17.3	-17.3	-19.4	-24.1	-23.3	-12.3	-13.8	-17.9	-13.6	-11.2	-11.9	-19.4	-13.0	-13.6	-22.7076
5150	70	-22.8378	-10.74	-6.3756	-9.1579	-9.014	-9.5494	-8.6638	-7.076	-7.7674	-7.9475	-10.2334	-11.5764	-11.1554	-10.4188	-11.7195	-15.0272	-13.9662	-17.2415	-15.8431	-7.9242	-8.1763	-13.5799	-15.8475	-15.9165	-17.8431	-21.9135	-21.2122	-12.3706	-13.4407	-16.6232	-12.9871	-10.9591	-11.4343	-17.9	-12.3	-13.6176	-22.8378
5150	72	-22.9699	-10.7248	-6.7238	-9.8651	-9.7196	-10.2454	-9.6	-8.0	-8.0	-8.0	-9.6	-11.5	-10.8162	-10.6614	-10.6675	-14.0022	-13.9	-16.0	-14.7	-7.5	-7.8	-12.6	-14.7	-14.8	-16.4	-19.9	-19.8	-12.2	-13.2	-15.4	-12.5	-10.9	-11.0	-16.4	-12.0	-13.6	-22.6
5150	74	-23.1194	-10.7502	-7.1263	-10.5558	-10.411	-11.4893	-11.0142	-9.8084	-7.7532	-7.4546	-9.0494	-10.1005	-10.3968	-10.3706	-11.8991	-14.2962	-13.6388	-15.2886	-13.2303	-9.5168	-10.3175	-13.5288	-14.4938	-13.9518	-15.5585	-18.7544	-18.4673	-13.9196	-12.9467	-18.4648	-13.4931	-11.4333	-12.6749	-15.7887	-12.5031	-13.6858	-14.2472	-23.1194
5150	76	-23.2817	-10.7184	-7.5402	-11.2187	-11.0975	-12.2475	-12.3	-10.5	-8.8998	-8.6	-8.6	-9.5422	-9.7131	-9.8	-11.3	-13.9	-13.2	-14.5	-12.5	-8.2	-9.0	-12.0	-12.9	-12.0	-13.9	-16.9	-16.8	-13.2	-12.6	-18.9	-13.1348	-11.0149	-12.4	-13.0734	-15.6	-12.0	-13.6	-23.2817
5150	78	-23.4572	-10.8376	-7.9708	-11.6163	-13.0292	-14.3943	-9.7863	-9.6666	-8.6764	-6.6641	-6.161	-9.5277	-10.1948	-10.671	-11.987	-13.2151	-13.0769	-12.1411	-12.9279	-10.3829	-11.0583	-13.6422	-13.2437	-13.2371	-18.9897	-18.1266	-16.8809	-17.539	-20.2277	-17.1344	-10.8124	-13.0734	-18.1098	-21.4039	-13.5645	-14.7	-23.4572
5150	80	-23.6465	-10.9054	-8.4002	-12.2139	-15.0183	-16.4216	-10.5397	-10.4	-8.6	-6.2	-5.6	-8.6	-9.6	-10.0	-11.8	-12.6	-12.7	-9.6	-11.2	-11.2	-12.9	-13.9252	-12.0	-12.4	-18.0	-17.5	-15.4	-16.2	-19.3333	-20.7335	-16.2	-10.3333	-12.7335	-17.9	-20.9	-13.9	-14.7	-23.6465
5150	82	-23.8501	-10.9858	-8.8175	-12.4975	-12.36	-15.4074	-20.1295	-10.2929	-7.4385	-5.9516	-7.7007	-9.5939	-10.3089	-11.18	-12.0525	-11.9414	-12.4777	-20.2573	-22.1961	-11.0108	-11.3626	-17.6626	-19.7722	-19.9151	-17.0539	-17.4426	-16.205	-17.3462	-20.5402	-16.3892	-10.9794	-13.9579	-20.9279	-19.1429	-13.3378	-15.2796	-23.8502
5150	84	-24.0697	-11.0758	-9.2754	-13.1907	-13.7907	-17.6206	-17.8415	-26.7441	-10.9575	-5.5461	-6.6037	-9.9967	-10.6496	-11.6939	-12.1505	-10.6486	-11.899	-17.9862	-19.8663	-11.2405	-11.1667	-15.6536	-16.117	-16.6096	-15.579	-17.3637	-16.7481	-17.8408	-20.3377	-17.7045	-17.0115	-16.6057	-24.7636	-18.5712	-13.3994	-15.6036	-24.0697
5150	86	-24.3039	-11.1774	-9.5793	-13.7907	-13.7907	-17.6206	-17.8415	-26.7441	-10.9575	-5.5461	-6.6037	-9.9967	-10.6496	-11.6939	-12.1505	-10.6486	-11.899	-17.9862	-19.8663	-11.2405	-11.1667	-15.6536	-16.117	-16.6096	-15.579	-17.3637	-16.7481	-17.8408	-20.3377	-17.7045	-17.0115	-16.6057	-24.7636	-18.5712	-13.3994	-15.6036	-24.3039
5150	88	-24.4832	-11.1779	-9.8192	-14.2388	-14.2388	-22.9269	-16.0185	-10.8508	-8.6147	-5.8786	-8.8638	-11.8436	-11.7188	-12.7112	-11.7295	-8.4790	-10.3312	-13.6496	-14.5575	-10.0779	-9.3146	-13.0877	-13.5135	-13.6735	-14.8337	-17.9036	-20.7744	-24.7523	-31.6735	-28.0391	-14.6403	-13.9418	-28.9735	-21.5322	-12.1485	-15.2881	-25.7375
5150	90	-24.6211	-11.1779	-10.1882	-14.9165	-14.9165	-24.9165	-16.0652	-10.9161	-8.6	-5.8	-8.8	-11.8	-11.7	-12.7	-11.7	-8.4	-10.3	-13.6	-14.5	-10.0	-9.3	-13.0	-13.5	-13.6	-14.8	-17.9	-20.7	-24.7	-31.6	-28.0	-14.6	-13.9	-28.9	-21.5	-12.1	-15.2	-25.7
5150	92	-24.6969	-11.1474	-10.4245	-13.0629	-12.991	-21.9603	-19.0091	-11.2268	-8.2472	-5.4497	-8.097	-11.0455	-11.932	-12.386	-11.9665	-8.5	-10.3	-13.6	-14.5	-10.0	-9.3	-13.0	-13.5	-13.6	-14.8	-17.9	-20.7	-24.7	-31.6	-28.0	-14.6	-13.9	-28.9	-21.5	-12.1	-15.2	-25.7
5150	94	-24.7663	-11.1474	-10.5412	-13.1537	-13.0629	-22.991	-19.0603	-11.2268	-8.2472	-5.4497	-8.097	-11.0455	-11.932	-12.386	-11.9665	-8.5	-10.3	-13.6	-14.5	-10.0	-9.3	-13.0	-13.5	-13.6	-14.8	-17.9	-20.7	-24.7	-31.6	-28.0	-14.6	-13.9	-28.9	-21.5	-12.1	-15.2	-25.7
5150	96	-25.7172	-11.6663	-10.7415	-14.9534	-14.3288	-22.9269	-16.0185	-10.8508	-8.6147	-5.8786	-8.8638	-11.8436	-11.7188	-12.7112	-11.7295	-8.4790	-10.3312	-13.6496	-14.5575	-10.0779	-9.3146	-13.0877	-13.5135	-13.6735	-14.8337	-17.9036	-20.7744	-24.7523	-31.6735	-28.0391	-14.6403	-13.9418	-28.9735	-21.5322	-12.1485	-15.2881	-25.7375
5150	98	-25.9153	-11.6663	-10.8162	-15.0614	-15.0614	-25.0602	-16.0652	-10.9161	-8.6	-5.8	-8.8	-11.8	-11.7	-12.7	-11.7	-8.4	-10.3	-13.6	-14.5	-10.0	-9.3	-13.0	-13.5	-13.6	-14.8	-17.9	-20.7	-24.7	-31.6	-28.0	-14.6	-13.9	-28.9	-21.5	-12.1	-15.2	-25.9153
5150	100	-26.4551	-11.8494	-10.8798	-17.746	-17.6618	-18.3101	-10.7921	-9.5836	-8.4645	-6.4619	-10.1138	-12.4483	-13.0423	-17.5631	-11.0867	-7.8864	-9.5659	-13.6734	-13.0123	-9.2756	-8.478	-12.6646	-11.1448	-13.8704	-15.5585	-18.7544	-19.4673	-19.5196	-27.6018	-38.3933	-16.0854	-20.3998	-29.7966	-26.3631	-11.3827	-14.9333	-26.4551
5150	102	-26.6503	-11.9424	-10.7411	-18.0089	-19.9711	-21.5422	-11.2187	-9.6	-8.4	-6.4	-10.1	-12.4	-13.0	-17.6	-11.0	-7.9	-9.6	-13.7	-13.0	-9.3	-8.5	-12.7	-11.1	-13.9	-15.6	-18.8	-19.5	-19.6	-27.7	-38.5	-16.1	-20.5	-29.9	-26.5	-11.4	-15.0	-26.6503
5150	104	-27.2721	-12.0412	-10.6486	-17.7044	-20.3477	-13.1527	-7.9885	-7.7948	-7.5065	-6.8775	-11.6561	-13.5894	-12.0838	-12.1002	-10.8464	-7.2691	-8.7566	-10.9188	-11.7171	-8.8946	-7.1555	-10.6966	-11.65	-16.6412	-18.3237	-17.2813	-14.4806	-16.5653	-23.7005	-17.9451	-20.4863	-31.716	-24.6032	-10.471	-14.5544	-27.2721
5150	106	-27.7225	-12.1506	-10.4959	-16.9575	-17.4542	-10.7923	-6.9437	-6.9	-6.8	-6.2	-11.2	-13.2	-9.3	-6.8	-9.6	-6.9	-8.5	-10.8	-11.6	-8.8	-7.1	-10.6	-11.6	-16.6	-18.3	-17.2	-14.4	-16.5	-23.7	-17.9	-20.4	-31.7	-24.6	-10.4	-14.5	-27.2
5150	108	-28.2038	-12.2762	-10.2615	-14.494	-14.1133	-9.072	-5.9422	-6.0426	-6.3583	-7.3444	-13.4161	-15.1933	-11.8535	-11.8679	-10.4897	-6.6015	-7.9671	-9.9336	-10.602	-7.759	-6.8082	-9.3913	-9.9656	-11.2282	-15.2618	-14.851	-12.7032	-10.9435	-13.1228	-21.3072	-19.0284	-21.1783	-30.7627	-19.8892	-9.5333	-14.0903	-28.2038
5150	110	-28.7183	-12.4244	-9.9812	-12.791	-11.9531	-9.2358	-6.2437	-5.9	-6.0	-6.2	-9.5422	-9.7131	-9.8	-6.8	-9.6	-6.9	-8.5	-10.8	-11.6	-8.8	-7.1	-10.6	-11.6	-16.6	-18.3	-17.2	-14.4	-16.5	-23.7	-17.9	-20.4	-31.7	-24.6	-10.4	-14.5	-28.7183
5150	112	-29.2684	-12.6024	-9.6625	-11.3333	-9.2358	-6.2437	-4.3036	-4.2308	-5.1891	-7.7634	-15.5818	-16.714	-14.2528	-11.7321	-10.8464	-7.2691	-8.7566	-10.9188	-11.711	-8.8946	-7.1555	-10.6966	-11.65	-16.6412	-18.3237	-17.2813	-14.4806	-16.5653	-23.7005	-17.9451	-20.4863	-31.716	-24.6032	-10.471	-14.5544	-27.2721
5150	114	-29.9662	-12.8173	-9.3206	-10.1361	-7.5009	-4.2308	-5.1891	-7.7634	-15.5818	-16.714	-14.2528	-11.7321	-10.8464	-7.2691	-8.7566	-10.9188	-11.711	-8.8946	-7.1555	-10.6966	-11.65	-16.6412	-18.3237	-17.2813	-14.4806	-16.5653	-23.7005	-17.9451	-20.4863	-31.716	-24.6032	-10.471	-14.5544	-27.2721
5150	116	-30.4666	-13.0274	-9.9797	-9.1429	-6.1672	-4.232	-3.2942	-3.0357	-4.7617	-8.0492	-17.437	-18.0655	-10.7768	-10.7163	-8.9569	-5.4597	-6.642	-8.3279	-8.8703	-6.5764	-5.4387	-7.3199	-8.7363	-11.0095	-11.4953	-10.1846	-8.6668	-7.6857	-9.7795	-16.12	-23.6187	-26.8606	-15.3378	-11.4179	-7.9768	-13.4339	-30.4665
5150	118	-31.1567	-13.1916	-9.6496	-8.7265	-5.6229	-3.9903	-2.8386	-2.6	-4.5	-7.9	-18.0	-18.8	-10.8	-10.8	-9.0	-5.5	-6.7	-8.4	-8.9	-6.6	-5.5	-7.4	-8.8	-11.1	-11.6	-10.3	-8.8	-7.8	-9.9	-16.3	-24.1	-27.4	-15.5	-11.6	-8.1	-13.6	-30.9
5150	120	-31.8704	-13.3694	-9.3579	-7.7356	-4.2031	-2.6639	-2.301	-2.2725	-3.932	-8.1383	-16.3089	-16.7712	-9.8425	-9.8117	-8.1978	-5.079	-6.1503	-7.6449	-8.0999	-6.1165	-4.8216	-6.3055	-8.2294	-9.5141	-8.7433	-7.7262	-7.0598	-6.6812	-8.4188	-15.1543	-26.502	-23.424	-11.8161	-8.6085	-7.4151	-13.2962	-31.8703
5150	122	-32.6245	-13.4823	-9.1239	-7.2676	-3.9529	-2.5	-2.1	-2.1	-3.8	-8.1	-16.3	-16.8	-9.8	-9.8	-8.2	-5.1	-6.2	-7.7	-8.1	-6.2	-4.9	-6.4	-8.3	-9.6	-9.0	-7.9	-7.2	-7.1	-9.9	-15.4	-26.9	-23

Ant. Position：5G Ant.1_GAIN THETA

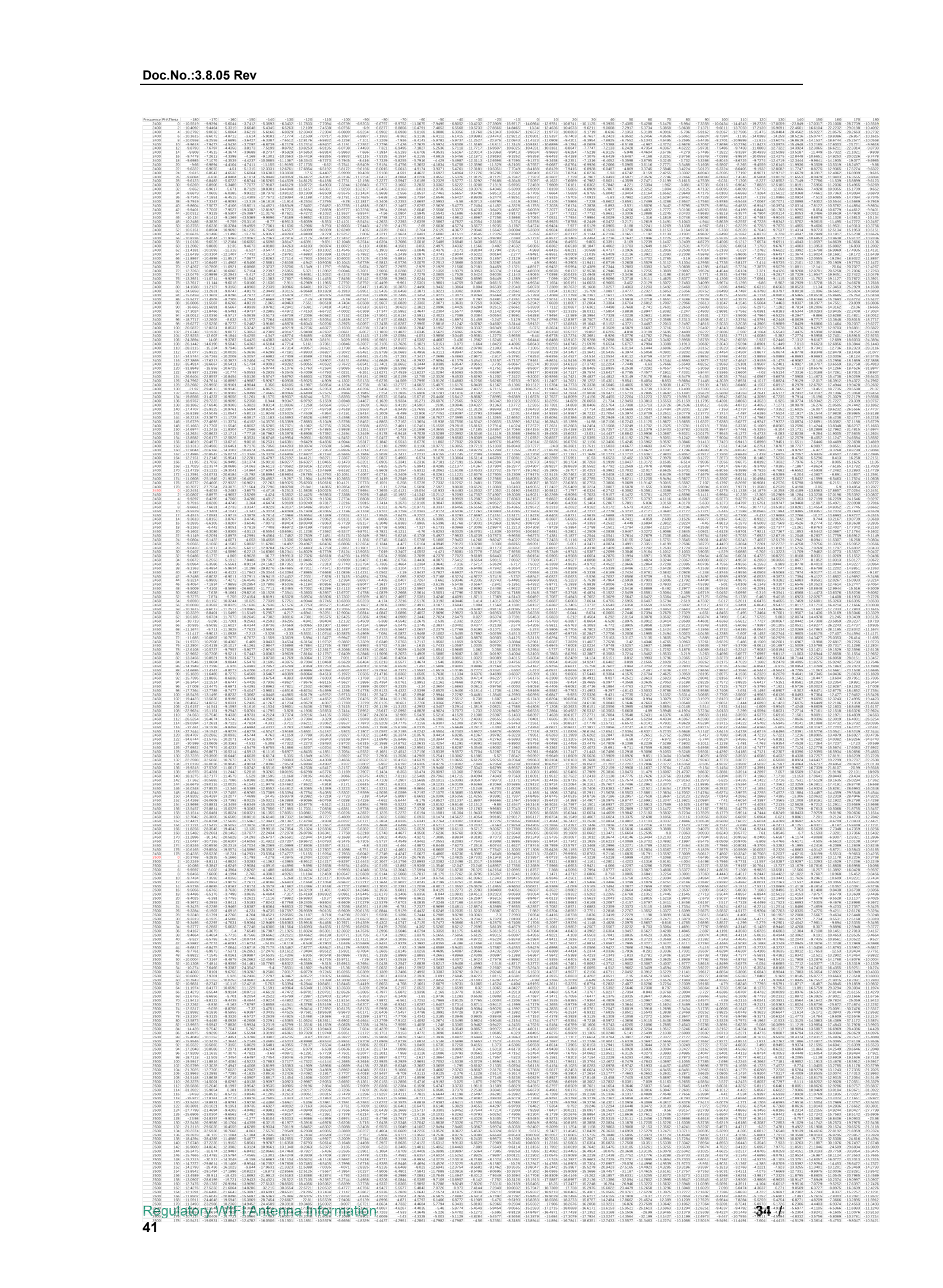
Ant. Position：5G Ant.2_GAIN PHI

Ant. Position：5G Ant.2_GAIN THETA

Ant. Position：2.4G Ant.3_GAIN PHI

Ant. Position：2.4G Ant.3_GAIN THETA

Ant. Position：2.4G Ant.4_GAIN PHI



Ant. Position：2.4G Ant.4_GAIN THETA

Ant. Position：2.4G Ant.5_GAIN PHI

Ant. Position：2.4G Ant.5_GAIN THETA