



ikotek

QDM075 Antenna Performance Report V4.0

2th Dec. 2025

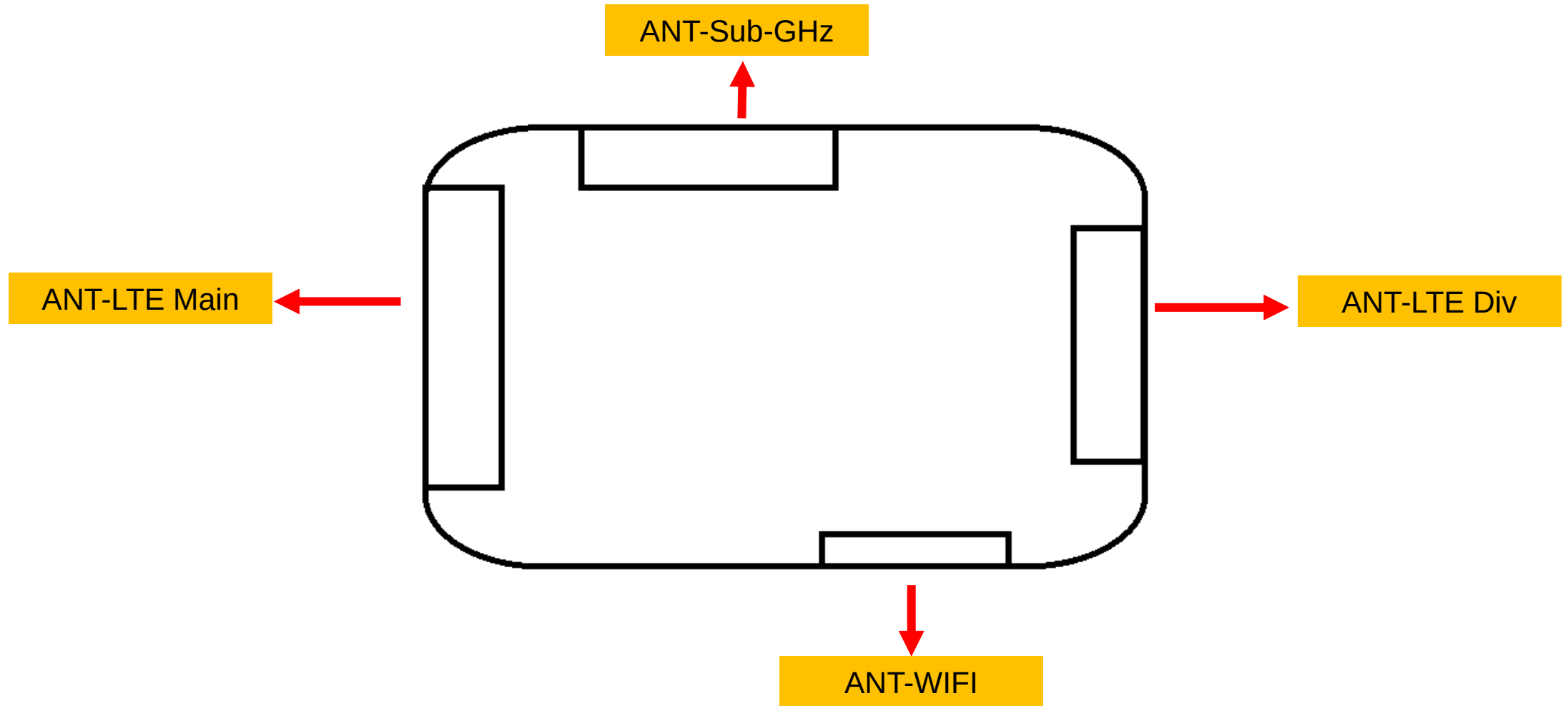
RF: Damon Zhang
E-mail: Damon.Zhang@quectel.com

Revision History

Version	Date	Author	Note
1.0	2023-12-04	Damon Zhang	QDM075 Antenna Debug Report
2.0	2023-12-06	Damon Zhang	Updated antenna OTA testing
3.0	2025-11-14	Damon Zhang	DVT Antenna Test Report
4.0	2025-12-02	Damon Zhang	DVT Antenna Test Report

Project Overview- QDM075

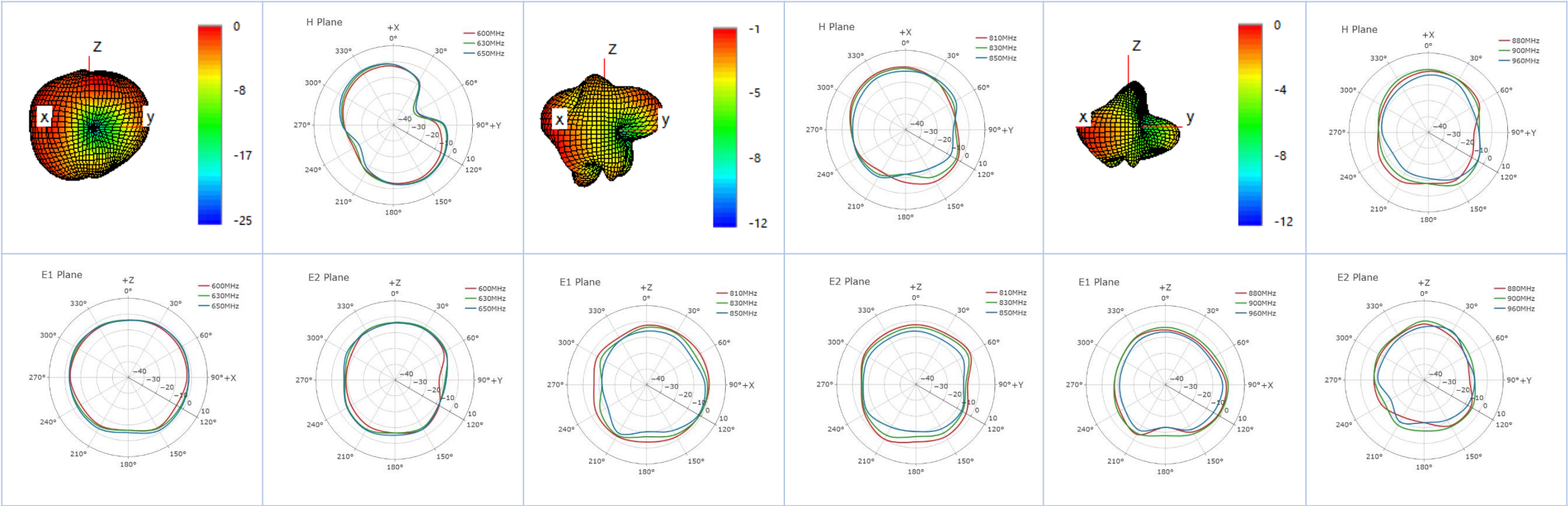
- Project Name: QDM075
- Device Dimensions: 152.4mm*101.9mm*26.6mm
Mainboard Dimensions: 140.5mm*90.6mm*1.6mm
- Antenna Number: 4
- Antenna Network Type & Frequency Band:
 - LTE-Main*1 :617-960MHz&1710-2690MHz
 - LTE-Div*1 :617-960MHz&1710-2690MHz
 - WIFI*1: 2400-2500MHz
 - SUB-GHZ*1: 868.4-916MHz
- Module No: EG91-NAXD



Passive Test—LTE Main

Fre(MHz)	Gain(dBi)	Eff(%)		Fre(MHz)	Gain(dBi)	Eff(%)		Fre(MHz)	Gain(dBi)	Eff(%)		Fre(MHz)	Gain(dBi)	Eff(%)
600	-1.27	22.87		1710	-0.27	56.53		2110	2.51	55.18		2510	2.88	66.35
610	-0.57	25.8		1720	-0.36	57.27		2120	2.58	53.89		2520	2.82	65.16
620	-0.46	29.07		1730	-0.36	58.07		2130	2.58	52.25		2530	2.75	63.91
630	-0.34	32.47		1740	-0.41	58.27		2140	2.78	50.56		2540	2.77	62.36
640	-0.16	35.94		1750	-0.43	57.94		2150	2.86	49.45		2550	2.57	60.37
650	0.02	39.19		1760	-0.46	57.33		2160	2.76	49.53		2560	2.49	58.27
660	-0.13	41.9		1770	-0.53	56.24		2170	2.84	50.96		2570	2.35	56.29
670	0.85	44.17		1780	-0.57	55.32		2180	2.91	53.81		2580	2.22	54.33
680	0.67	46.8		1790	-0.48	54.59		2190	2.73	57.61		2590	2.13	52.69
690	0.99	48.78		1800	-0.41	54.45		2200	2.67	61.54		2600	2.02	51.49
700	1.88	50.04		1810	-0.19	54.88		2210	2.78	64.64		2610	2.07	50.39
710	1.76	54.24		1820	0.22	55.91		2220	2.67	66.45		2620	2	49.26
720	2.44	57.81		1830	0.19	56.75		2230	2.61	67.1		2630	2.01	48.71
730	2.27	59.82		1840	0.18	57.43		2240	2.65	67.04		2640	1.94	48.64
740	2.02	62.77		1850	0.37	57.6		2250	2.69	66.46		2650	1.97	48.39
750	2.29	65.42		1860	0.37	57.6		2260	2.62	65.63		2660	1.98	48.26
760	2.46	63.49		1870	0.43	57.55		2270	2.59	64.86		2670	2.03	48.44
770	1.97	61.78		1880	0.69	58.15		2280	2.69	64.36		2680	2.05	48.12
780	2.16	59.62		1890	0.96	58.8		2290	2.68	63.99		2690	2.11	47.47
790	1.98	57.26		1900	1.17	59.74		2300	2.64	64.13				
800	1.12	55.24		1910	1.41	59.18		2310	2.82	64.76				
810	0.72	53.66		1920	1.42	58.53		2320	3.03	65.6				
820	-0.38	50.54		1930	1.35	57.41		2330	3.02	66.64				
830	-1.19	48.06		1940	1.32	56.24		2340	3.01	67.92				
840	-1.42	45.1		1950	1.47	54.93		2350	3.16	69.42				
850	-2.02	42.48		1960	1.65	55.01		2360	3.13	70.53				
860	-2.32	39.86		1970	1.99	56.68		2370	2.81	71.61				
870	-1.88	38.65		1980	2.04	58.27		2380	2.85	72.4				
880	-1.52	37.43		1990	2.23	59.9		2390	2.85	73.25				
890	-0.83	36.08		2000	2.22	61.52		2400	2.62	73.84				
900	-0.39	34.53		2010	2.15	63.19		2410	2.48	74.3				
910	-0.59	32.78		2020	2.2	63.11		2420	2.39	74.34				
920	-1.25	30.9		2030	2.25	62.83		2430	2.4	74.29				
930	-1.96	28.83		2040	2.38	62.35		2440	2.49	73.83				
940	-2.67	26.69		2050	2.4	61.55		2450	2.6	72.99				
950	-3.4	24.62		2060	2.54	60.59		2460	2.73	72.13				
960	-3.82	22.75		2070	2.61	59.37		2470	2.96	70.98				
				2080	2.69	58.34		2480	2.91	69.72				
				2090	2.53	57.38		2490	2.84	68.37				
				2100	2.51	56.44		2500	2.91	67.32				

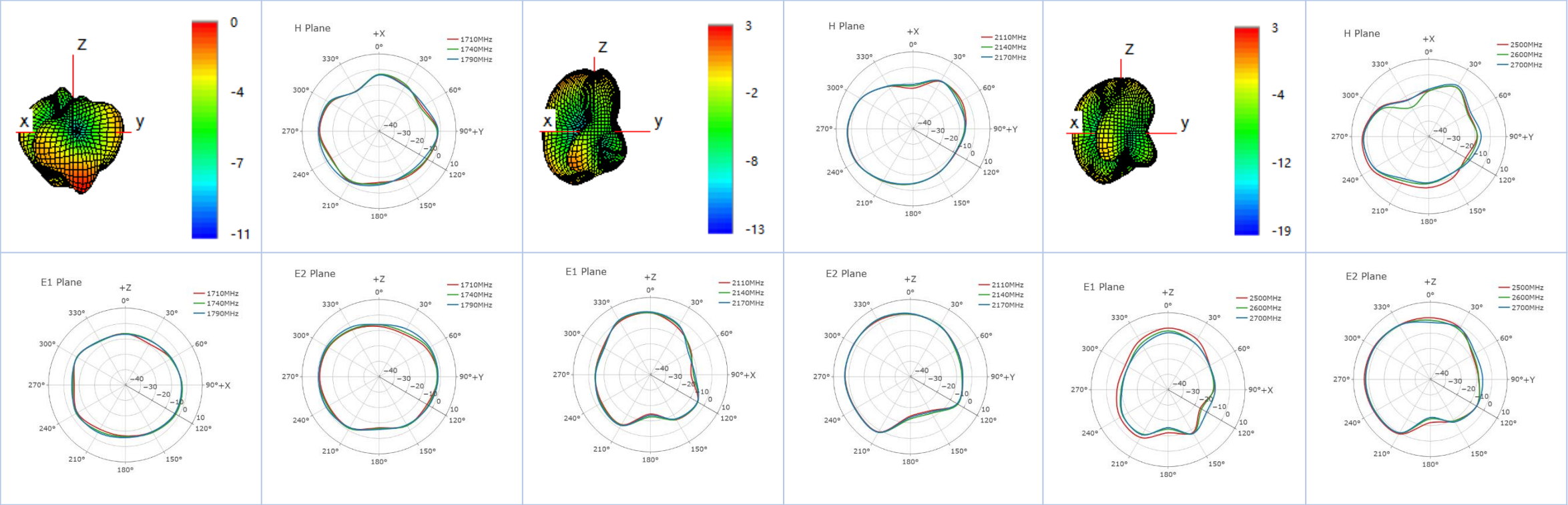
Max Gain: 3.2 dBi (2350MHz)



630 MHz

830 MHz

900 MHz



1740 MHz

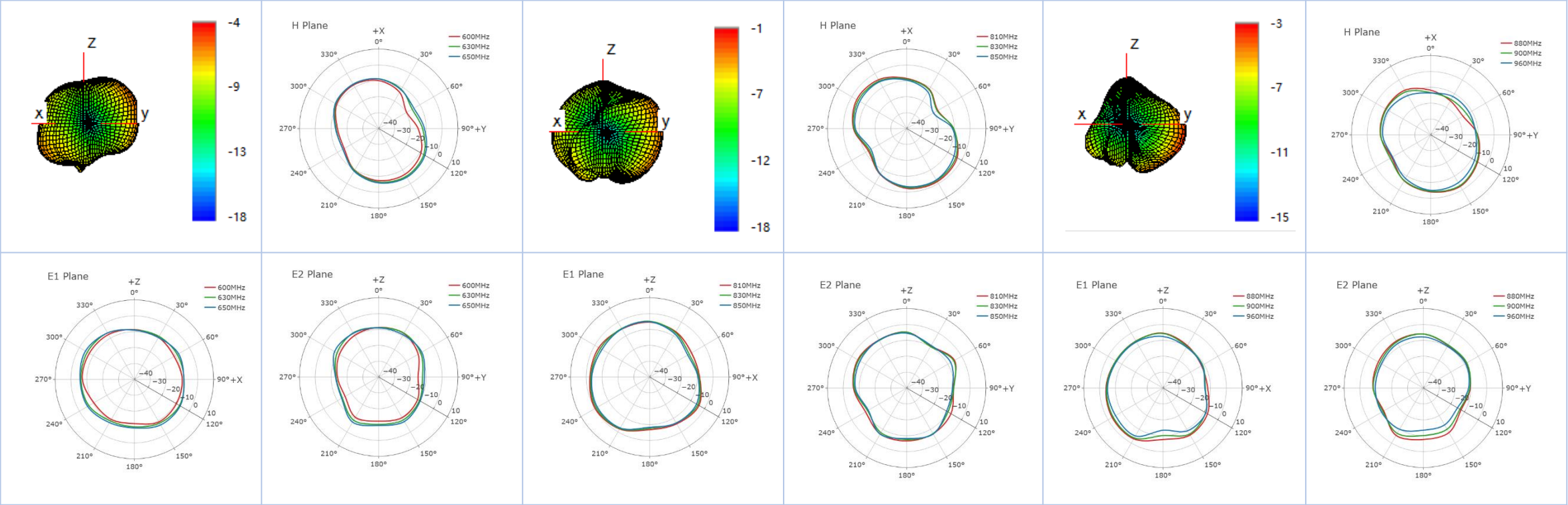
2140 MHz

2600 MHz

Passive Test—LTE Div

Fre(MHz)	Gain(dBi)	Eff(%)		Fre(MHz)	Gain(dBi)	Eff(%)		Fre(MHz)	Gain(dBi)	Eff(%)		Fre(MHz)	Gain(dBi)	Eff(%)
600	-5.96	10.01		1710	-0.2	46.2		2110	3.38	62.77		2510	2.31	51.06
610	-5.12	12.17		1720	0.01	47.57		2120	3.42	63.35		2520	2.31	50.95
620	-4.93	13.44		1730	0.14	48.57		2130	3.44	64.55		2530	2.34	50.05
630	-4.8	14.15		1740	0.02	49.48		2140	3.53	66.11		2540	2.3	50.07
640	-4.18	15.73		1750	-0.01	50.85		2150	3.64	67.86		2550	2.1	49.22
650	-3.74	16.6		1760	-0.04	51.46		2160	3.74	68.85		2560	1.98	49.26
660	-3.6	18.04		1770	0.03	51.9		2170	3.76	69.98		2570	2.07	49.11
670	-3.42	19.12		1780	-0.02	51.43		2180	3.71	70.3		2580	2.08	48.41
680	-3	20.39		1790	0.33	52.56		2190	3.56	69.51		2590	2.07	48.3
690	-1.9	23.01		1800	0.57	52.44		2200	3.49	67.7		2600	2.03	47.11
700	-1.13	25.93		1810	0.72	53.05		2210	3.38	66.81		2610	2.06	47.09
710	-0.75	27.82		1820	0.89	55.17		2220	3.46	66.05		2620	1.95	46.54
720	-0.18	31.45		1830	1.04	54.52		2230	3.38	64.85		2630	1.87	46.15
730	-0.11	32.3		1840	1.14	53.61		2240	3.24	64.18		2640	1.71	45.78
740	-0.36	31.93		1850	1.11	53.08		2250	3.17	64.36		2650	1.66	46.74
750	-0.43	32.28		1860	1.21	52.86		2260	3.18	64.63		2660	1.58	46.6
760	-0.63	30.93		1870	1.16	53.02		2270	3.21	64.4		2670	1.64	47.24
770	-0.77	30.84		1880	1.18	53.79		2280	3.18	65		2680	1.83	48
780	-0.58	30.52		1890	1.22	54.89		2290	3.31	64.41		2690	2.03	48.63
790	-0.45	31.23		1900	1.47	57.12		2300	3.24	63.03				
800	-0.35	31.46		1910	1.7	58.77		2310	3.36	63.92				
810	-0.29	30.73		1920	1.76	58.98		2320	3.37	64.25				
820	-0.57	28.23		1930	1.77	59.02		2330	3.37	63.31				
830	-1.08	25.94		1940	1.82	58.56		2340	3.11	62.43				
840	-1.49	23.96		1950	2.04	59.08		2350	3.02	64.06				
850	-1.92	22.01		1960	2.21	59.66		2360	2.8	62.81				
860	-2.26	21.05		1970	2.37	60		2370	2.65	60.96				
870	-2.39	20.08		1980	2.34	58.62		2380	2.65	59.8				
880	-2.53	19.29		1990	2.4	58.5		2390	2.54	58.41				
890	-2.81	18.29		2000	2.45	59.18		2400	2.31	55.57				
900	-3.02	17.25		2010	2.3	59.01		2410	2.29	53.7				
910	-3.52	15.34		2020	2.42	59.48		2420	2.15	53.22				
920	-4	14.42		2030	2.64	60.38		2430	2.01	51.23				
930	-3.97	14.63		2040	2.87	61.18		2440	1.84	50.19				
940	-4.26	14.09		2050	2.78	61.02		2450	1.92	50.54				
950	-4.65	13.77		2060	2.79	60.82		2460	1.97	50.21				
960	-4.96	12.99		2070	2.72	61.22		2470	2.13	51.6				
				2080	2.75	61.31		2480	2.22	51.38				
				2090	2.96	61.6		2490	2.3	51.56				
				2100	3.13	62.64		2500	2.47	51.99				

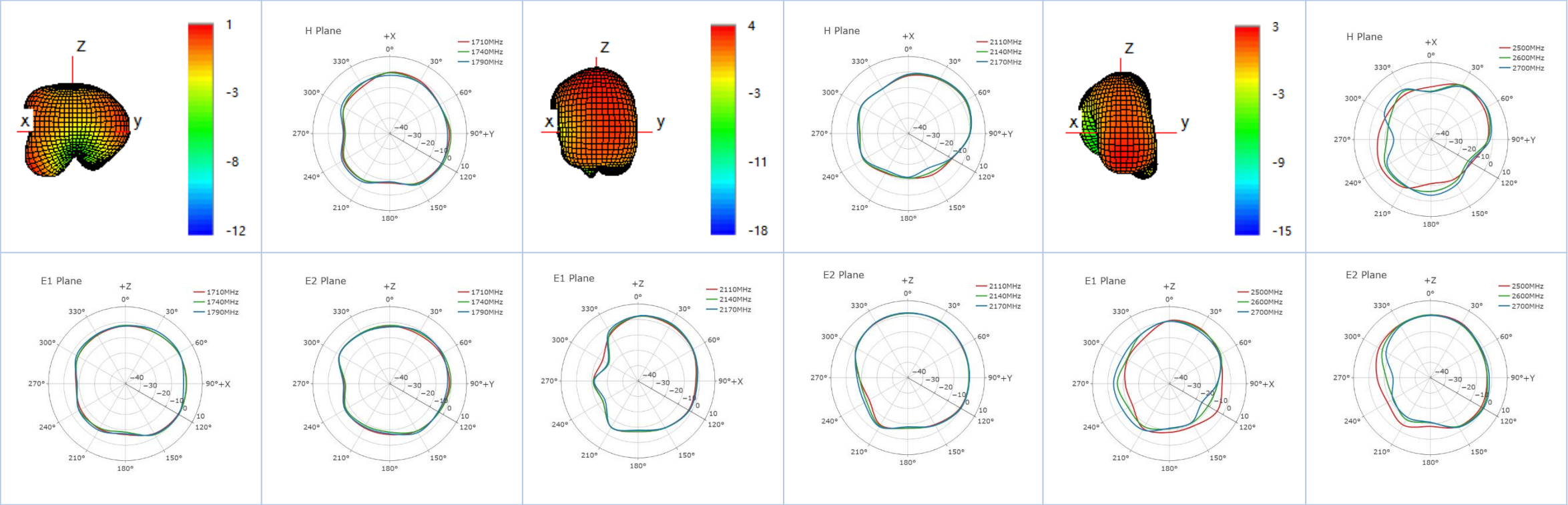
Max Gain: 3.8 dBi (2170MHz)



630 MHz

830 MHz

900 MHz



1740 MHz

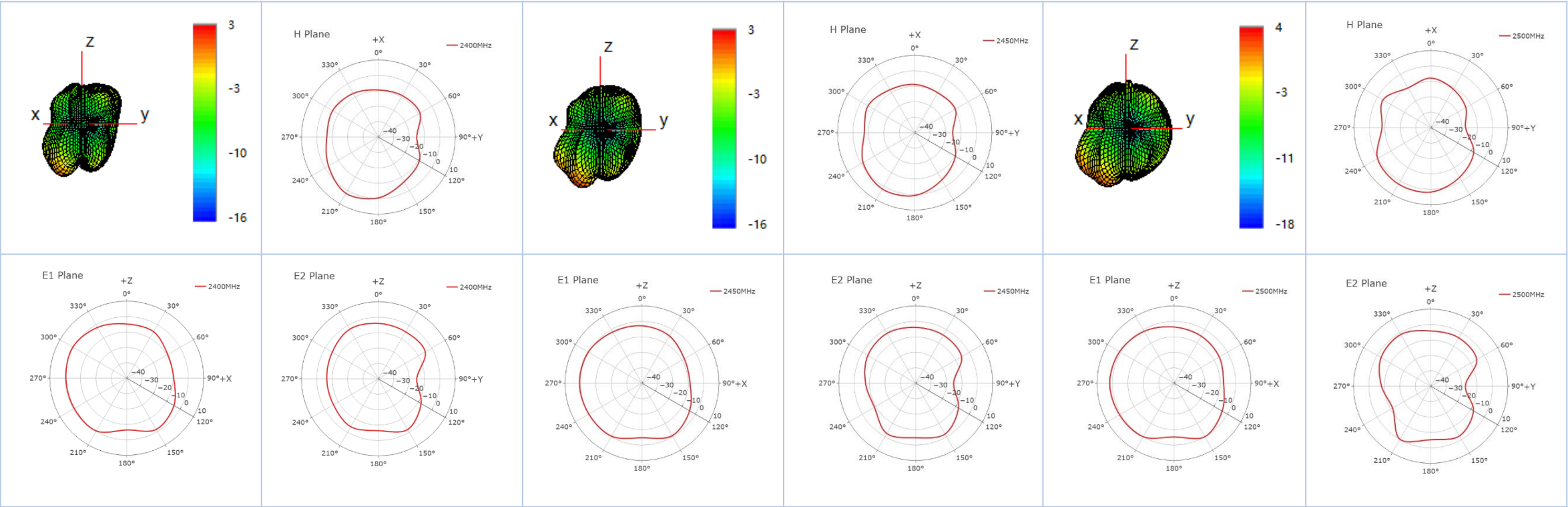
2140 MHz

2600 MHz

Passive Test--WIFI

Fre(MHz)	Gain(dBi)	Eff(%)		Fre(MHz)	Gain(dBi)	Eff(%)		Fre(MHz)	Gain(dBi)	Eff(%)
2000	-0.83	28.78		2310	1.42	39.08		2650	3.8	62.5
2010	-0.83	28.24		2320	1.56	39.57		2660	3.85	62.14
2020	-0.8	27.43		2330	1.69	40.84		2670	3.85	62.6
2030	-0.62	28.36		2340	1.7	41.38		2680	3.91	63.1
2040	-0.55	28.75		2350	2.04	44.2		2690	3.88	63.78
2050	-0.55	28.64		2360	2.28	44.97		2700	3.83	63.27
2060	-0.48	29.05		2370	2.29	45.95		2710	3.85	63.45
2070	-0.46	29.64		2380	2.36	47.07		2720	3.88	64.52
2080	-0.53	29.27		2390	2.29	46.48		2730	3.94	64.83
2090	-0.78	28.14		2400	2.16	45.83		2740	4.01	65.53
2100	-0.72	29.33		2410	2.01	45.33		2750	4.05	64.72
2110	-0.74	29.69		2420	2.09	46.58		2760	4.15	64.94
2120	-0.76	30.55		2430	2.09	46.8		2770	4.16	64.03
2130	-0.73	31.32		2440	2.05	48		2780	4.01	62.96
2140	-0.71	31.78		2450	2.17	49.16		2790	3.79	60.69
2150	-0.75	32.54		2460	2.33	50.01		2800	3.72	59.47
2160	-0.65	32.47		2470	2.49	52.07		2810	3.56	57.64
2170	-0.45	33.39		2480	2.54	51.77		2820	3.57	57.99
2180	-0.55	33.29		2490	2.83	53.95		2830	3.51	56.4
2190	-0.3	34.09		2500	3.06	56.45		2840	3.54	55.84
2200	-0.17	34.33		2510	3.04	57.01		2850	3.58	56.97
2210	-0.04	34.39		2520	3.16	57.75		2860	3.57	56.45
2220	-0.18	34.13		2530	3.02	58.08		2870	3.47	54.7
2230	-0.33	33.63		2540	2.97	59.48		2880	3.01	50.63
2240	-0.21	33.87		2550	2.92	58.65		2890	3.13	51.66
2250	-0.1	33.83		2560	3.08	59.21		2900	2.93	49.48
2260	0.06	34.67		2570	3.27	59.49		2910	2.82	48.88
2270	0.36	35.02		2580	3.4	59.63		2920	2.47	46.37
2280	0.78	36.11		2590	3.49	60.04		2930	2.59	47.07
2290	1.05	37.35		2600	3.53	59.42		2940	2.55	45.83
2300	1.19	37.86		2610	3.64	60.66		2950	2.37	45.38
				2620	3.64	60.96		2960	2.26	43.66
				2630	3.7	61.27		2970	2.42	44.27
				2640	3.76	61.7		2980	2.53	44.68
								2990	2.37	43.95
								3000	2.46	44.86

Max Gain: 3.1 dBi (2500MHz)



2400 MHz

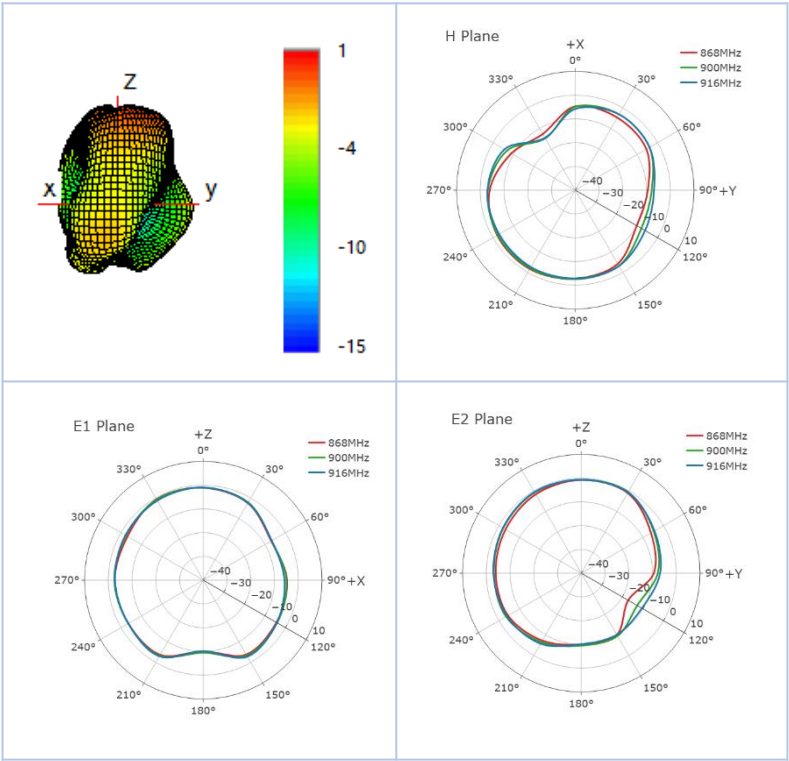
2450 MHz

2500 MHz

Passive Test--Sub-GHz

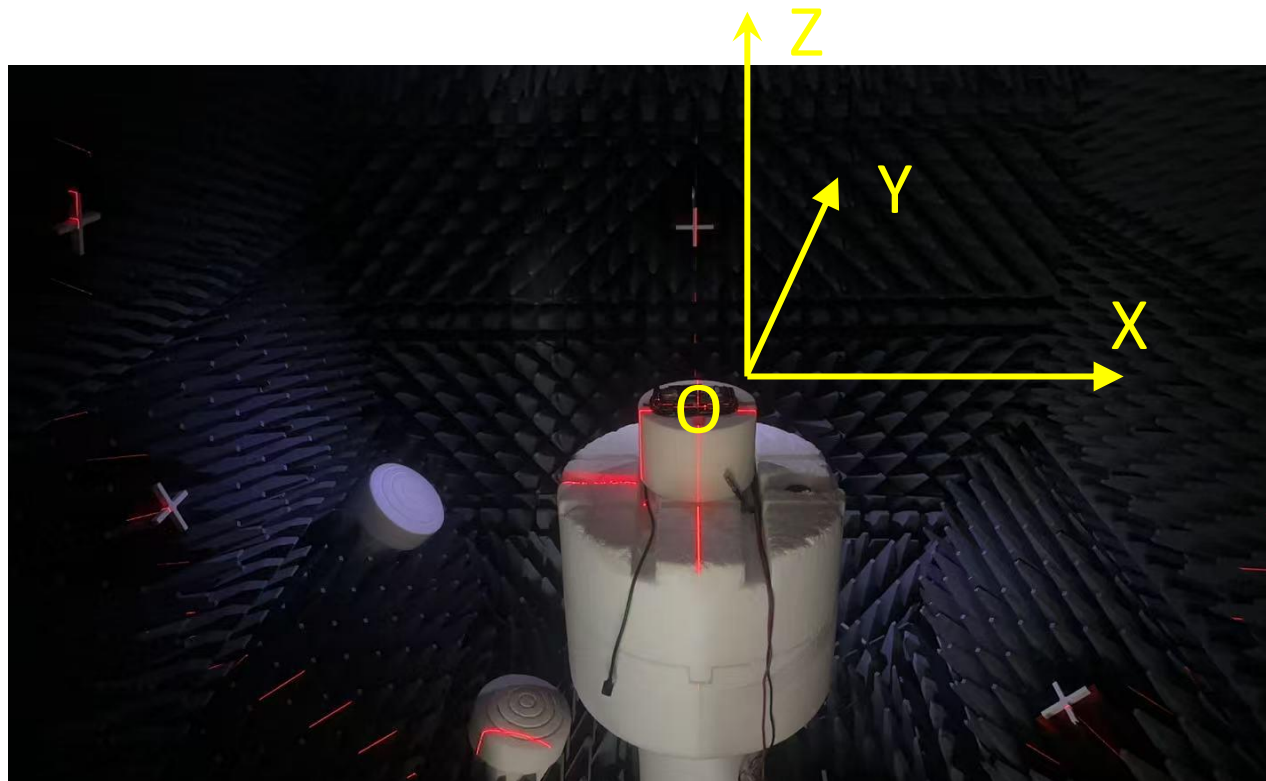
Fre(MHz)	Gain(dBi)	Eff(%)	Fre(MHz)	Gain(dBi)	Eff(%)	Fre(MHz)	Gain(dBi)	Eff(%)	Fre(MHz)	Gain(dBi)	Eff(%)
800	-4.38	18.64	850	0.38	55.76	901	1.47	65.83	951	0.38	55.04
801	-4.12	19.4	851	0.43	56.08	902	1.46	65.82	952	0.36	54.58
802	-3.81	20.24	852	0.47	56.37	903	1.43	65.76	953	0.33	54.11
803	-3.45	21.21	853	0.52	56.67	904	1.4	65.7	954	0.29	53.6
804	-3.08	22.31	854	0.56	56.93	905	1.38	65.65	955	0.25	53.12
805	-2.7	23.53	855	0.6	57.19	906	1.36	65.71	956	0.22	52.66
806	-2.32	24.82	856	0.64	57.44	907	1.36	65.8	957	0.19	52.25
807	-1.94	26.12	857	0.68	57.67	908	1.36	65.95	958	0.15	51.84
808	-1.58	27.39	858	0.71	57.91	909	1.38	66.13	959	0.12	51.49
809	-1.29	28.5	859	0.74	58.17	910	1.4	66.29	960	0.08	51.1
810	-1.07	29.45	860	0.77	58.38	911	1.42	66.32	961	0.04	50.75
811	-0.9	30.28	861	0.8	58.64	912	1.43	66.34	962	-0.01	50.33
812	-0.77	31.06	862	0.81	58.87	913	1.43	66.28	963	-0.06	49.91
813	-0.69	31.87	863	0.82	59.11	914	1.42	66.17	964	-0.11	49.46
814	-0.57	32.87	864	0.82	59.33	915	1.41	66.05	965	-0.16	49.06
815	-0.43	34.08	865	0.82	59.59	916	1.39	65.89	966	-0.19	48.65
816	-0.26	35.46	866	0.84	59.87	917	1.37	65.7	967	-0.22	48.3
817	-0.09	36.94	867	0.86	60.15	918	1.36	65.5	968	-0.24	47.98
818	0.08	38.44	868	0.89	60.4	919	1.34	65.34	969	-0.25	47.74
819	0.26	40.01	869	0.92	60.65	920	1.31	65.14	970	-0.26	47.45
820	0.43	41.56	870	0.96	60.85	921	1.27	64.89	971	-0.28	47.14
821	0.59	43.03	871	0.99	60.98	922	1.22	64.63	972	-0.31	46.82
822	0.74	44.4	872	1.03	61.16	923	1.17	64.34	973	-0.34	46.49
823	0.88	45.67	873	1.06	61.33	924	1.12	64.02	974	-0.36	46.13
824	1	46.71	874	1.1	61.51	925	1.07	63.74	975	-0.39	45.82
825	1.11	47.65	875	1.13	61.73	926	1.03	63.54	976	-0.41	45.5
826	1.23	48.55	876	1.16	61.92	927	1	63.33	977	-0.42	45.22
827	1.35	49.49	877	1.19	62.06	928	0.98	63.14	978	-0.43	44.9
828	1.48	50.53	878	1.21	62.16	929	0.97	62.96	979	-0.45	44.6
829	1.57	51.52	879	1.23	62.21	930	0.96	62.71	980	-0.47	44.26
830	1.59	52.36	880	1.23	62.23	931	0.96	62.38	981	-0.49	43.88
831	1.56	53.03	881	1.23	62.25	932	0.95	62.07	982	-0.51	43.47
832	1.46	53.46	882	1.22	62.3	933	0.94	61.76	983	-0.54	43.07
833	1.3	53.57	883	1.21	62.38	934	0.92	61.41	984	-0.57	42.67
834	1.12	53.53	884	1.19	62.58	935	0.91	61.11	985	-0.6	42.33
835	0.94	53.35	885	1.19	62.8	936	0.89	60.86	986	-0.63	42.02
836	0.74	53.05	886	1.19	63.09	937	0.87	60.62	987	-0.65	41.73
837	0.54	52.7	887	1.21	63.42	938	0.85	60.32	988	-0.66	41.48
838	0.34	52.35	888	1.23	63.73	939	0.81	60.02	989	-0.68	41.26
839	0.18	52.15	889	1.26	63.96	940	0.78	59.67	990	-0.7	41.03
840	0.08	52.13	890	1.29	64.16	941	0.73	59.27	991	-0.72	40.78
841	0.03	52.29	891	1.32	64.35	942	0.68	58.75	992	-0.74	40.52
842	0.02	52.58	892	1.34	64.43	943	0.63	58.29	993	-0.77	40.25
843	0.06	53.01	893	1.35	64.54	944	0.57	57.76	994	-0.8	39.94
844	0.1	53.41	894	1.37	64.64	945	0.53	57.29	995	-0.82	39.61
845	0.13	53.84	895	1.38	64.79	946	0.49	56.89	996	-0.84	39.36
846	0.17	54.24	896	1.4	64.98	947	0.46	56.55	997	-0.87	39.06
847	0.22	54.65	897	1.42	65.21	948	0.44	56.2	998	-0.9	38.79
848	0.28	55.04	898	1.45	65.46	949	0.42	55.88	999	-0.92	38.54
849	0.33	55.42	899	1.47	65.66	950	0.41	55.5	1000	-0.96	38.26
850	0.38	55.76	900	1.47	65.78						

Max Gain: 1.5 dBi (900MHz)



900 MHz

- DUT In Chamber



H Plane : XY
E1 Plane : XZ
E2 Plane : YZ

➤ Antenna Performance

- **LTE Main**

Low frequency 617-960MHz efficiency >23%; High frequency 1700-2700MHz efficiency > 47% ;
The main antenna has excellent passive performance;

- **LTE Div**

Low frequency 617-960MHz efficiency >10%; High frequency 1700-2700MHz efficiency > 46%;

- **Sub-GHz:**

868.4-916MHz efficiency >60%;

- **WIFI:**

2400-2500MHz efficiency >45%;

Thank you!