



## 1. Explanation of part number :

(1) Model Name : M8PLUS

(2) Frequency : 690-960Mhz, 1710-2170MHz, 2300-2690MHz,  
5100-5800MHz

(3) Suffix :

## 2. Electrical Specification :

### 2-1. Frequency Band:

Frequency Band	MHz
LTE	690-970Mhz, 1710-2170MHz, 2300-2400MHz, 2500-2690MHz,5100-5800MHz

### 2-2. Impedance

50 ohm nominal

Frequency Band	880	960	1710	2170	2500	2690
2-3-1. Typical Value:	$\leq 3$	$\leq 3.5$	$\leq 2$	$\leq 2.0$	$\leq 2$	$\leq 3$

2-3-2 Measuring Method

1. A 50Ω coaxial cable is connected to the fpcb antenna. Then this cable is connected to a network analyzer to measure the VSWR.
2. Keeping this jig away from metal at least 20 cm.



## 2-4. Measure and Chamber

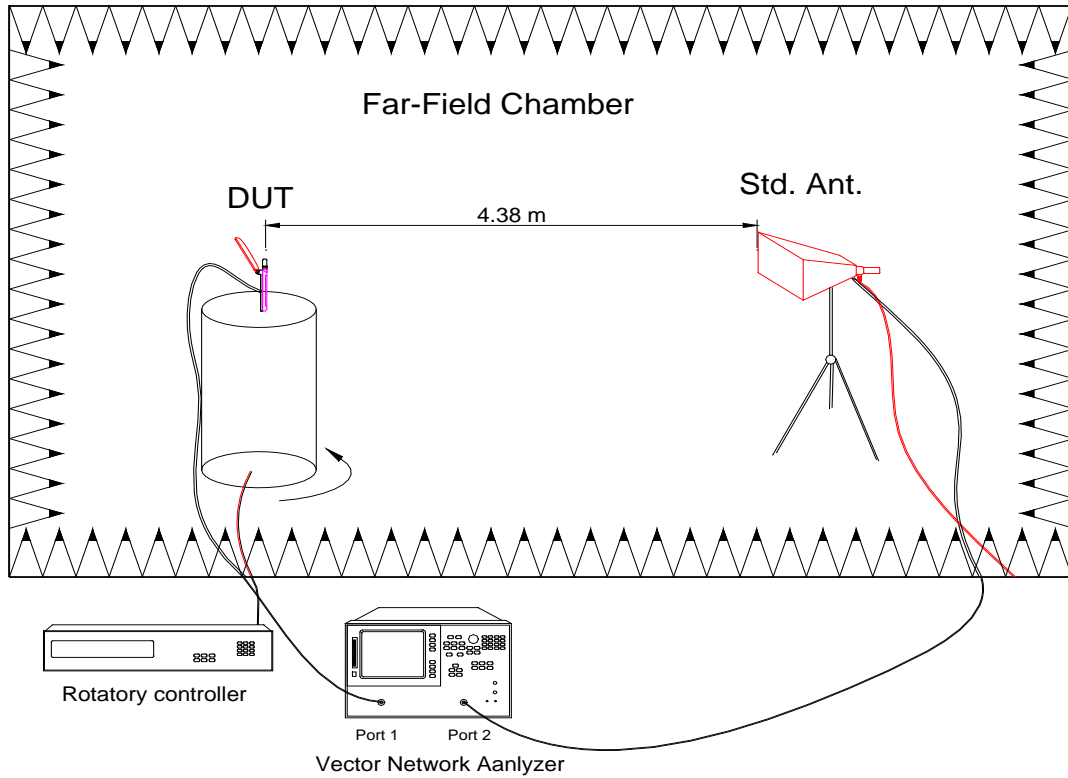
### 2-4-1 Measure method

1. Using a low loss coaxial cable to link a standard handset jig
2. Fixed this handset jig on chamber's rotator plane
3. Linking jig into network analyzer port and using a probing horn antenna to

collect data.

4. Using another standard gain horn antenna to calibrated those data

### 2-4-2 Chamber definition



1. An anechoic chamber (8mx4mx3.5m) which satisfied far-field condition was applied to avoid multi-path effect
2. The quiet room region is 40cmx40cmx40cm at the center of rotator
3. The distance between DUT and standard antenna is 4.38 m
4. Probing antenna (9120D horn antenna) and standard gain horn antenna (BBHA9120 LPF 700MHz ~6GHz)

### 2-4-3 Antenna OTA

### 2-4-4 Antenna Efficiency

Frequency (MHz)	RF1 234G			RF2			RF3 BT/Wi-Fi			RF4		
	Gain (dBi)	Efficiency (dB)	Efficiency (%)	Gain (dBi)	Efficiency (dB)	Efficiency (%)	Gain (dBi)	Efficiency (dB)	Efficiency (%)	Gain (dBi)	Efficiency (dB)	Efficiency (%)
690	-0.68	-4.77	33.4%									
700	-0.81	-4.87	32.6%									
710	-1.34	-5.20	30.2%									
720	-2.03	-5.72	26.8%									
730	-2.24	-5.87	25.9%									

740	-1.88	-5.85	26.0%									
750	-1.31	-5.61	27.5%									
760	-1.00	-5.57	27.7%									
770	-0.71	-5.50	28.2%									
780	-0.57	-5.48	28.3%									
790	-0.48	-5.45	28.5%									
800	0.16	-5.32	29.4%									
810	0.43	-5.27	29.7%									
820	0.58	-5.23	30.0%									
830	0.28	-5.59	27.6%									
840	-0.35	-6.05	24.8%									
850	-0.17	-6.50	22.4%									
860	0.25	-6.50	22.4%									
870	0.69	-6.32	23.4%									
880	1.38	-5.89	25.8%									
890	1.75	-5.75	26.6%									
900	2.19	-5.54	27.9%									
910	1.81	-5.77	26.5%									
920	1.48	-6.08	24.7%									
930	1.19	-6.45	22.7%									
940	1.31	-6.49	22.4%									
950	1.66	-6.38	23.0%									
960	2.00	-6.28	23.5%									
970	2.35	-6.21	24.0%									
1700	-13.85	-19.27	1.2%									
1710	-15.24	-20.33	0.9%									
1720	-16.46	-21.38	0.7%									
1730	-17.21	-21.86	0.7%									
1740	-17.44	-22.10	0.6%									
1750	-16.35	-22.22	0.6%									
1760	-15.49	-21.95	0.6%									
1770	-15.06	-21.48	0.7%									
1780	-14.88	-20.80	0.8%									
1790	-15.20	-20.23	0.9%									
1800	-14.94	-19.82	1.0%									
1810	-14.03	-19.33	1.2%									
1820	-13.63	-18.97	1.3%									
1830	-13.01	-18.53	1.4%									
1840	-13.20	-17.88	1.6%									
1850	-12.75	-17.11	1.9%									
1860	-11.32	-16.01	2.5%									
1870	-10.94	-15.46	2.8%									
1880	-9.39	-14.43	3.6%									
1890	-8.59	-13.89	4.1%									
1900	-7.90	-13.37	4.6%									
1910	-7.45	-12.84	5.2%									
1920	-6.84	-12.37	5.8%									

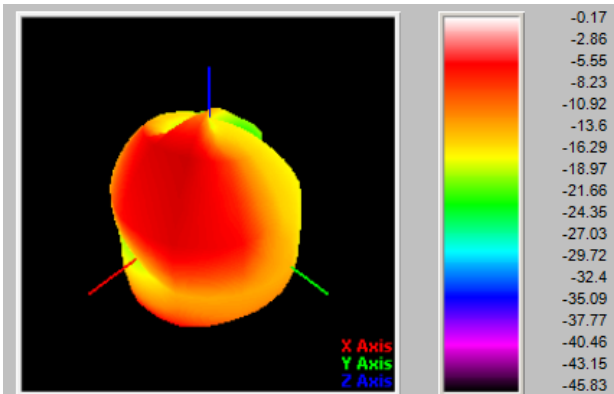
1930	-6.31	-11.73	6.7%									
1940	-5.91	-11.24	7.5%									
1950	-5.62	-11.09	7.8%									
1960	-4.70	-10.62	8.7%									
1970	-4.36	-10.56	8.8%									
1980	-4.55	-10.40	9.1%									
1990	-4.22	-10.33	9.3%									
2000	-4.22	-9.96	10.1%									
2010	-4.12	-9.68	10.8%									
2020	-4.54	-9.85	10.4%									
2030	-4.98	-9.85	10.4%									
2040	-5.37	-9.99	10.0%									
2050	-5.25	-9.78	10.5%									
2060	-5.29	-9.80	10.5%									
2070	-4.52	-9.38	11.5%									
2080	-3.58	-8.78	13.2%									
2090	-3.29	-8.80	13.2%									
2100	-3.50	-8.88	12.9%									
2110	-3.89	-8.94	12.8%									
2120	-4.33	-9.05	12.5%									
2130	-4.22	-8.78	13.2%									
2140	-4.47	-9.02	12.5%									
2150	-4.23	-8.72	13.4%									
2160	-3.97	-8.54	14.0%									
2170	-3.68	-8.48	14.2%									
2300	-3.82	-8.85	13.0%									
2310	-3.45	-8.64	13.7%									
2320	-3.23	-8.86	13.0%									
2330	-3.39	-9.04	12.5%									
2340	-3.86	-9.05	12.4%									
2350	-3.81	-8.78	13.3%									
2360	-3.68	-8.50	14.1%									
2370	-3.32	-7.97	16.0%									
2380	-3.27	-7.88	16.3%									
2390	-2.95	-7.47	17.9%									
2400	-2.70	-7.28	18.7%				5.71	-1.74	66.9%			
2410							5.69	-1.73	67.1%			
2420							5.57	-1.82	65.8%			
2430							5.41	-1.86	65.1%			
2440							5.26	-1.89	64.8%			
2450							5.08	-2.08	62.0%			
2460							5.02	-2.15	61.0%			
2470							4.67	-2.51	56.1%			
2480							4.75	-2.37	57.9%			
2490							4.35	-2.82	52.2%			
2500	0.42	-5.24	29.9%				4.20	-2.92	51.0%			

2510	0.96	-4.74	33.6%									
2520	1.25	-4.67	34.1%									
2530	1.68	-4.31	37.0%									
2540	1.99	-3.91	40.7%									
2550	0.76	-4.81	33.0%									
2560	1.04	-4.20	38.0%									
2570	1.04	-3.67	42.9%									
2580	-0.29	-4.45	35.9%									
2590	-1.07	-4.86	32.6%									
2600	-0.18	-3.86	41.1%									
2610	-0.28	-4.04	39.4%									
2620	-1.29	-5.62	27.4%									
2630	-0.73	-5.31	29.4%									
2640	-0.01	-4.23	37.7%									
2650	-0.81	-4.98	31.7%									
2660	-0.75	-5.37	29.0%									
2670	-0.42	-5.22	30.0%									
2680	-0.39	-5.31	29.5%									
2690	-0.28	-5.66	27.2%									
5100							-0.30	-6.62	21.8%			
5150							1.81	-5.46	28.5%			
5200							0.26	-6.61	24.2%			
5250							1.29	-6.16	24.2%			
5300							1.40	-5.65	27.2%			
5350							0.96	-5.85	26.0%			
5400							0.33	-6.23	23.8%			
5450							1.75	-5.49	28.2%			
5500							0.70	-5.60	27.6%			
5550							-0.32	-6.71	21.4%			
5600							0.19	-6.29	23.5%			
5650							0.01	-6.40	22.9%			
5700							0.46	-5.97	25.3%			
5750							-0.24	-6.42	22.8%			
5800							0.55	-5.93	25.5%			

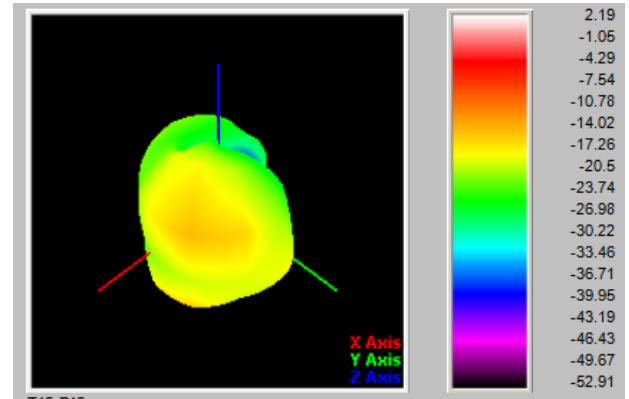
### 3. 3D Radiation Pattern

#### 2G-GSM

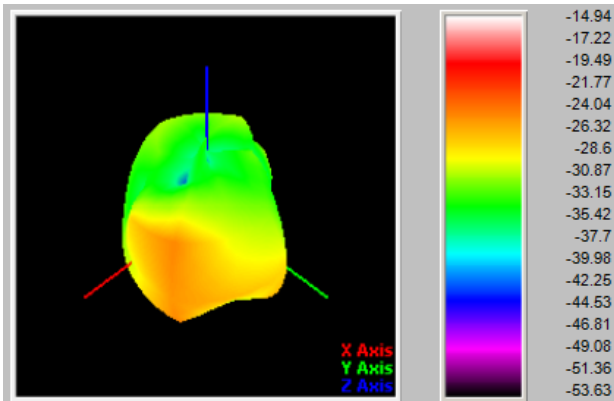
GSM850[850MHz]



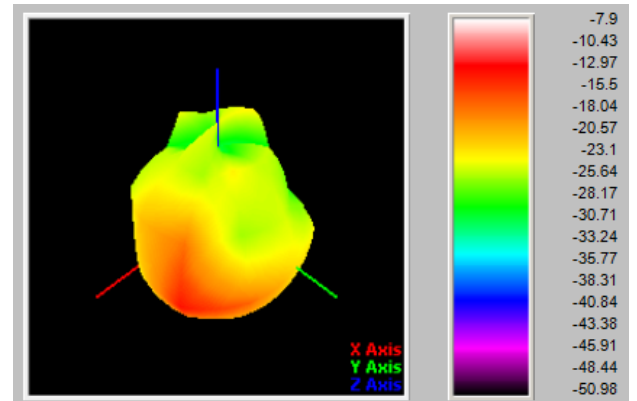
EGSM[900MHz]



DCS[1800MHz]



PCS[1900MHz]

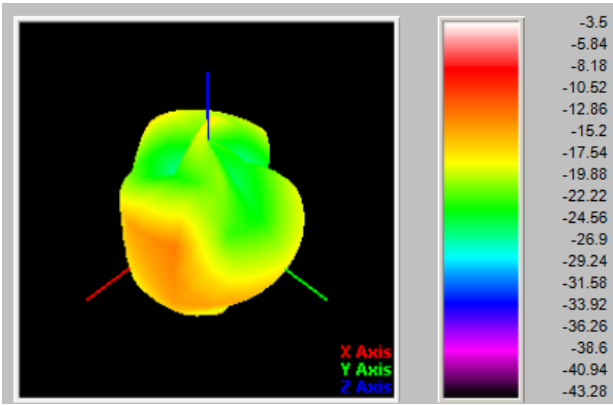


### 3G-WCDMA

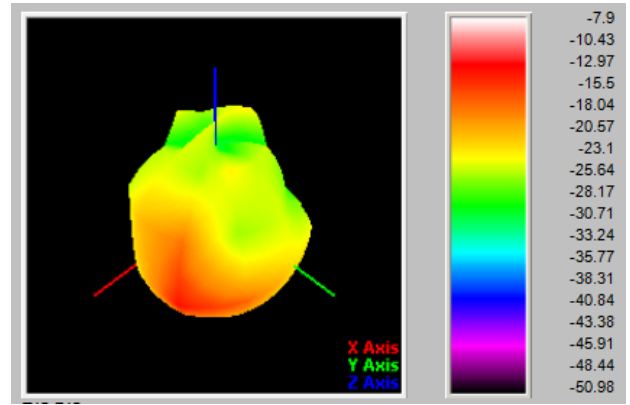
W1[2100MHz]

W2[1900MHz]

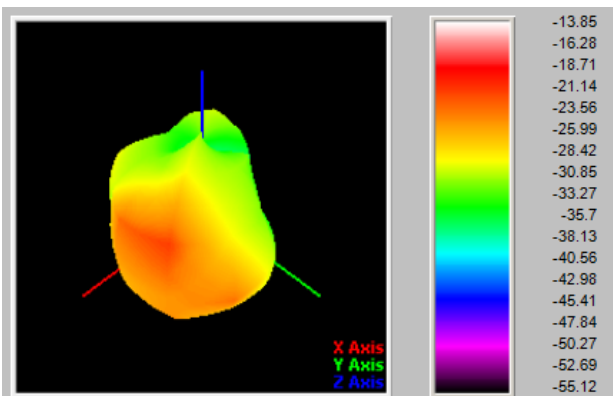




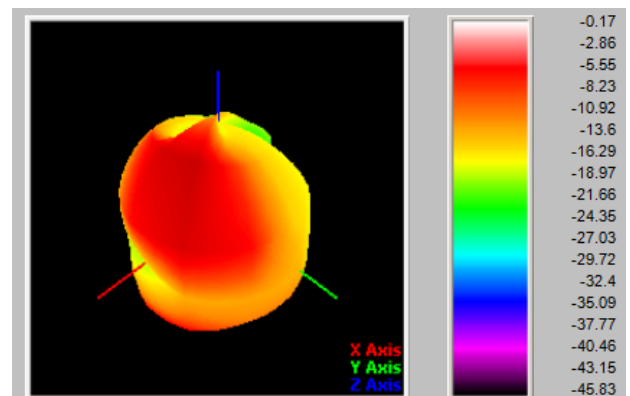
W4[1700MHz]



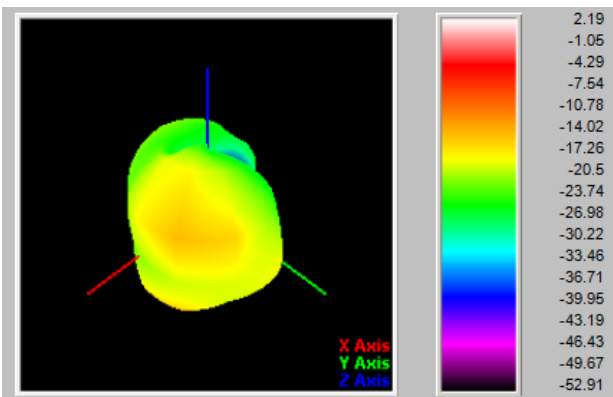
W5[850MHz]



W8[900MHz]



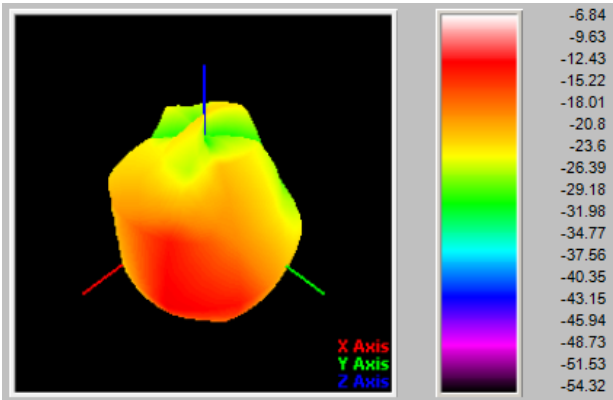
LTEB2[1850MHz]



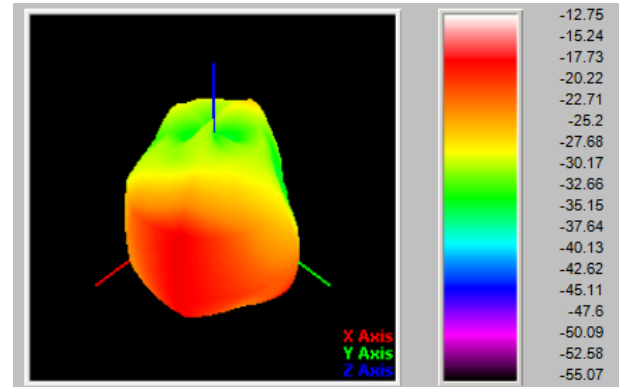
LTEB1[1920MHz]

**4G-LTE**

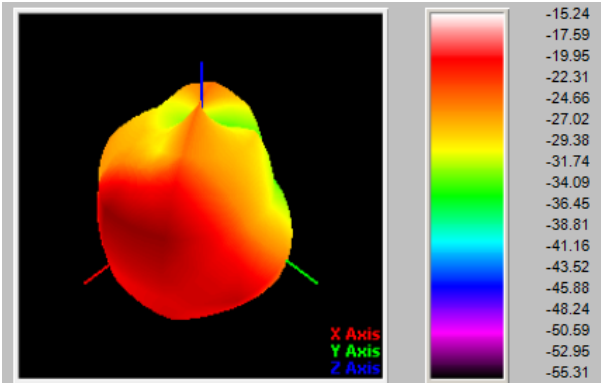
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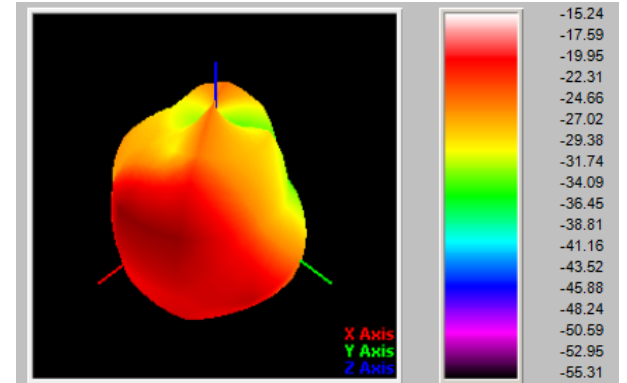
LTEB3[1710MHz]



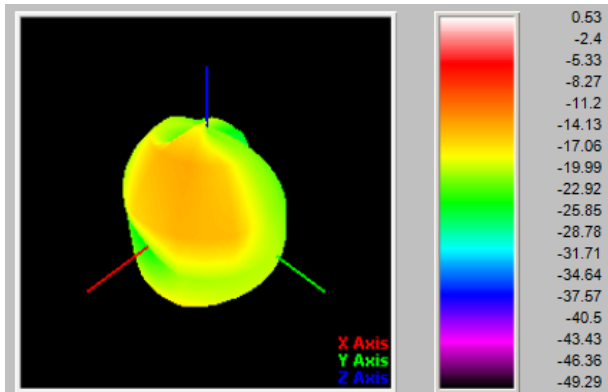
LTEB4[1710MHz]



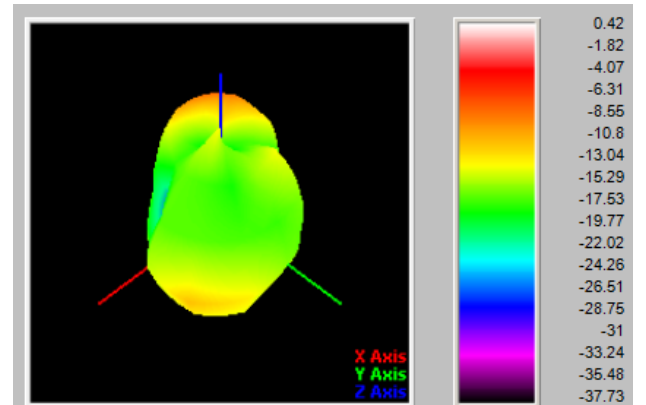
LTEB5[824MHz]



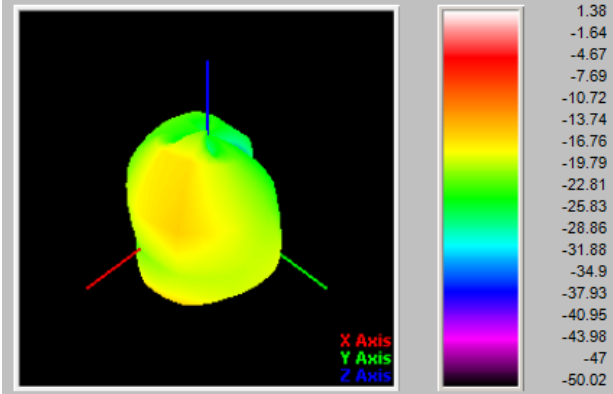
LTEB7[2500MHz]



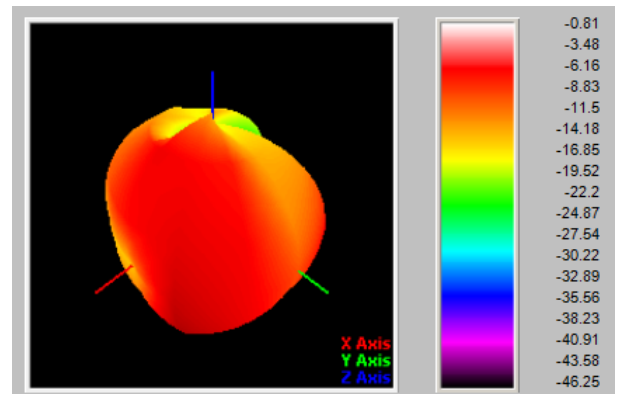
LTEB8[880MHz]



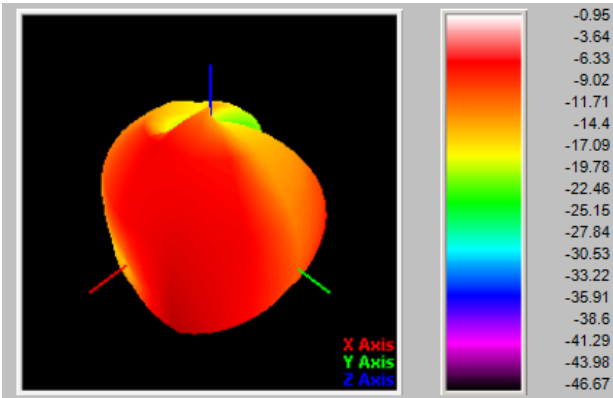
LTEB12[699MHz]



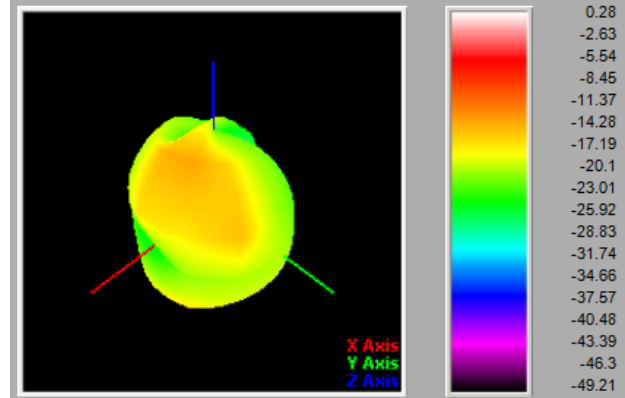
LTEB17[704MHz]



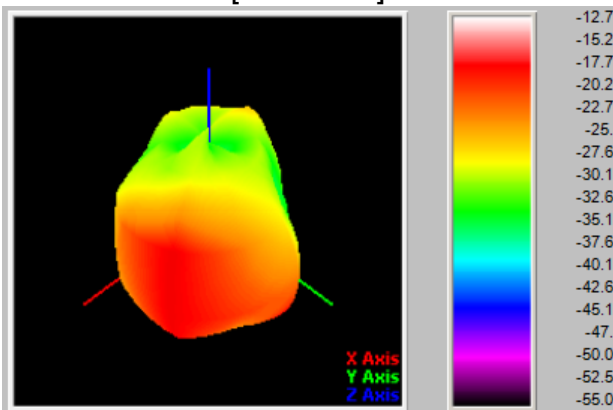
LTEB20[832MHz]



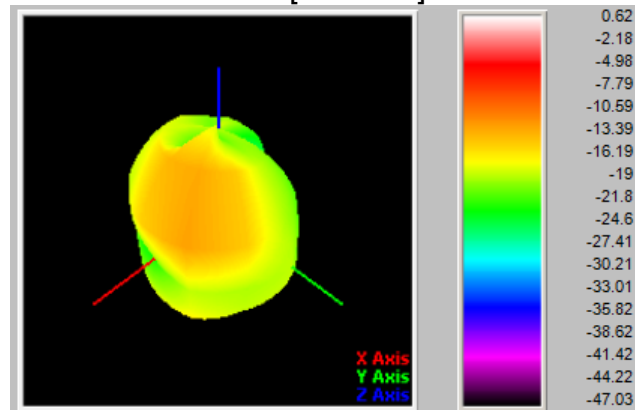
LTEB25[1850MHz]



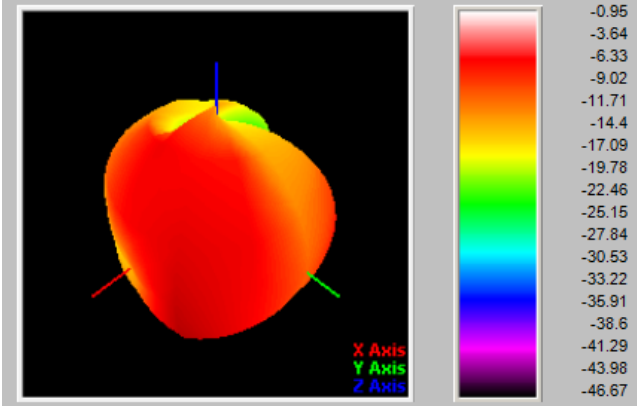
LTEB26[814MHz]



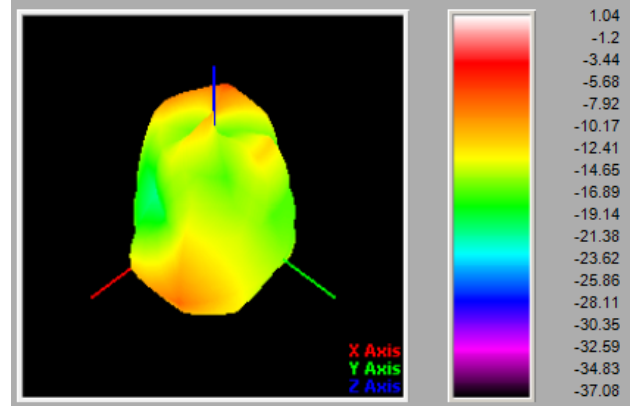
LTEB28[703MHz]



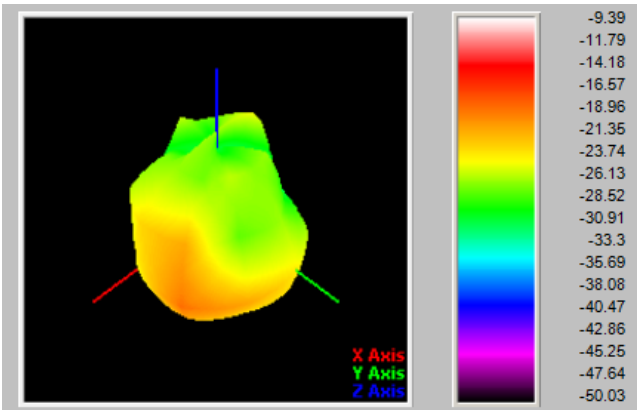
LTEB38[2570MHz]



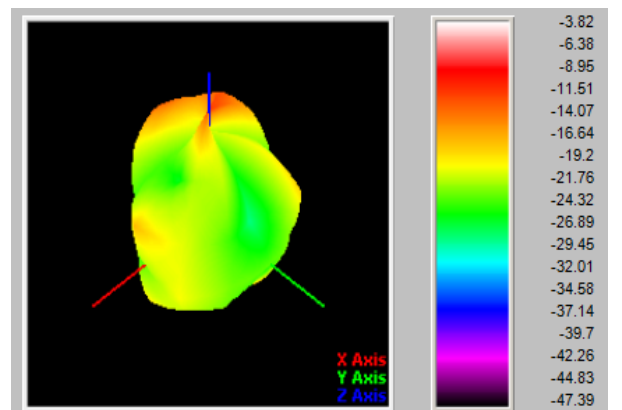
LTEB39[1880MHz]



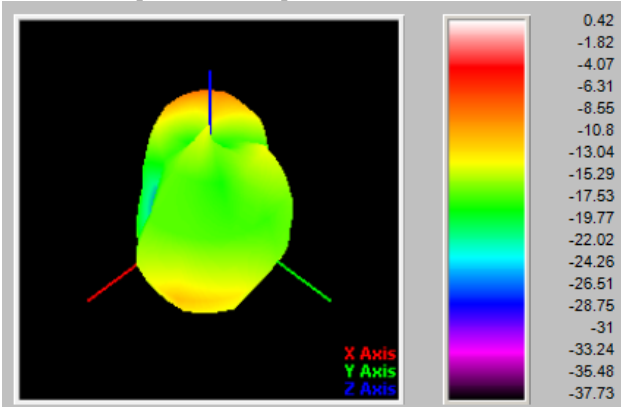
LTEB40[2300MHz]



LTEB41[2500MHz]



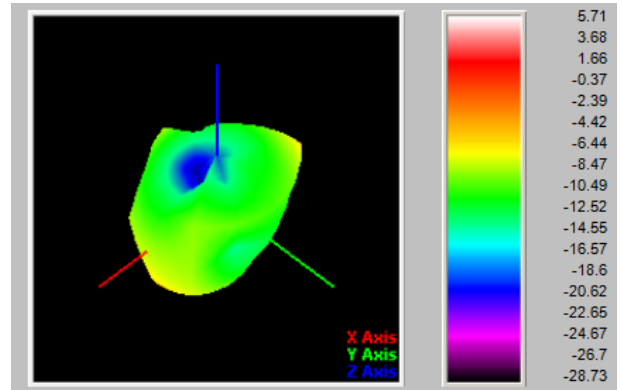
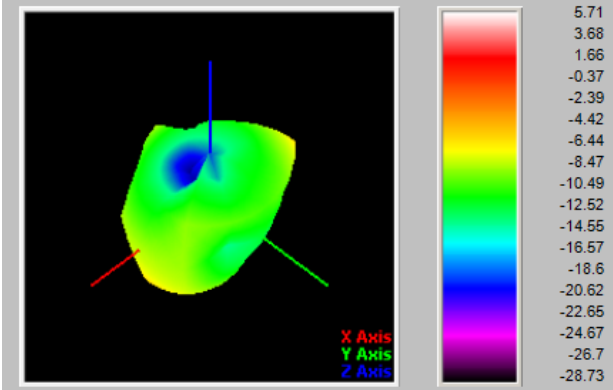
2.4G-BT



2.4G-WIFI

2.4G WIFI[2400MHz]

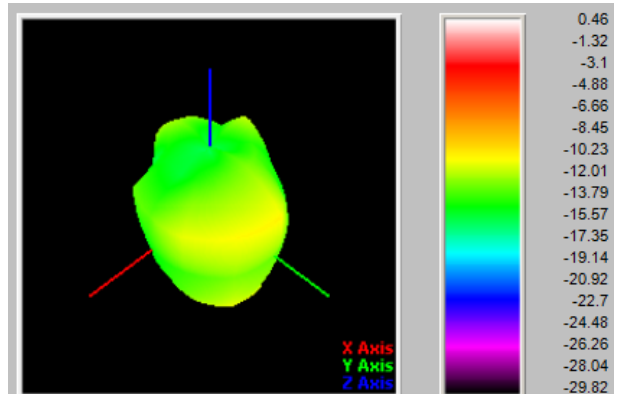
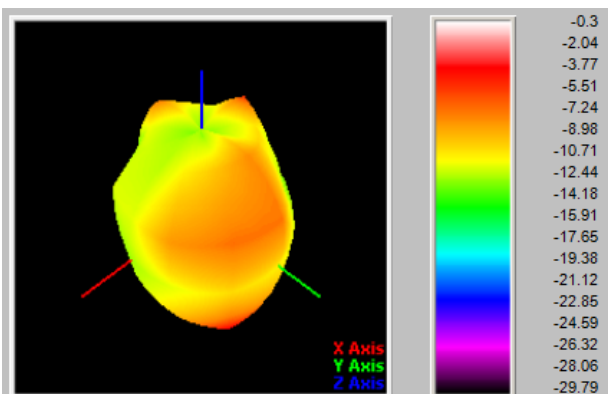
2.4G BT[2400MHz]



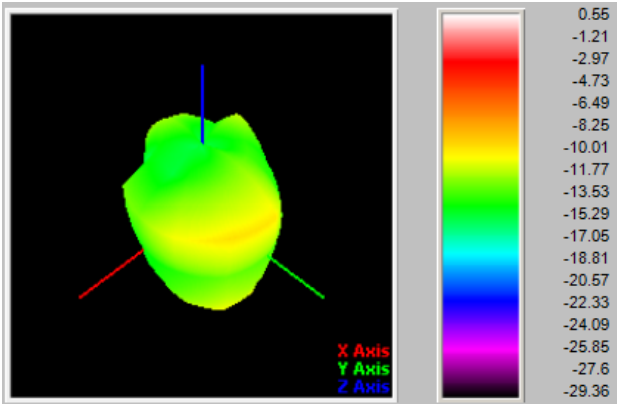
**5G-WIFI**

5G WIFI[5100MHz]

5G WIFI[5700MHz]



5G WIFI[5800MHz]



#### 4. Antenna Dimensions:

