

Huizhou SPEED Wireless  
Technology Co., Ltd.  
(Huizhou SPEED)

Customer: TCL Communication Ltd.

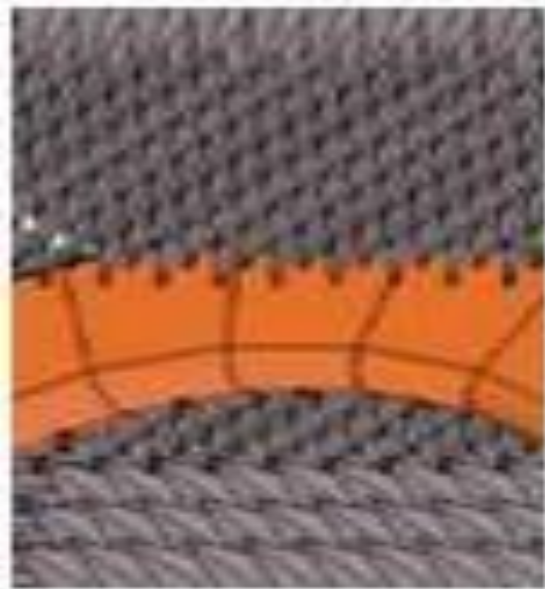
Project name: T431D

Product name: T431D- cellular & wifi  
antenna

Material: FPC

Date: 2022.12.07

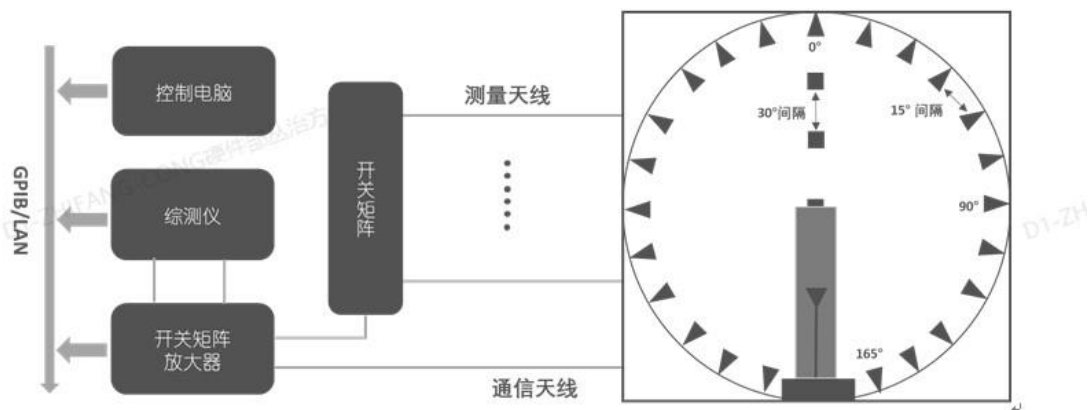
1: chamber room introduction and testing scope



Our company has a number of OTA test darkrooms, ranging from 400MHz to 8.5ghz, which can provide passive test and active test (including OTA overall 2G,3G,4G,5GFR test, WiFi multi-mode test, GPS active test, Bluetooth active test, which can provide antenna gain and efficiency. 2D orientation and apple chart analysis and upper and lower hemisphere efficiency values, mutual disturbance correlation coefficient test items

## WiFi a/b/g/n/ac/ax

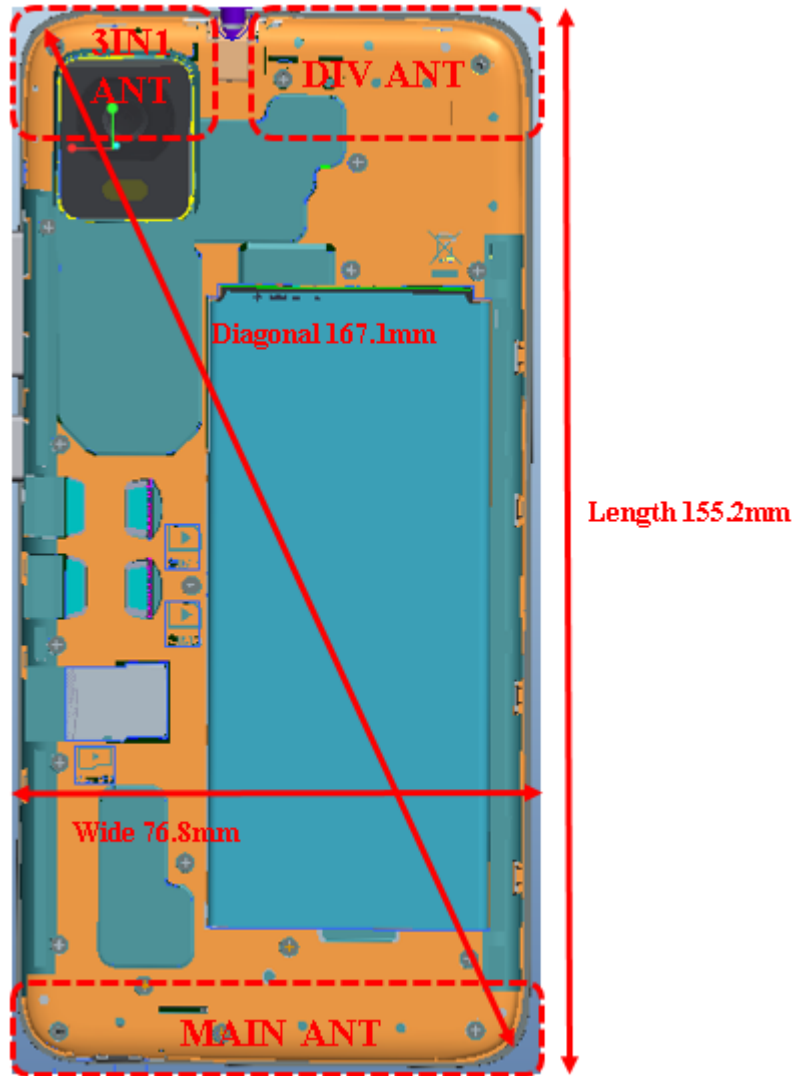
### 2: test system introduction:



The figure above shows the connection and control process between the darkroom of our company and the testing system and computer. The testing system has the characteristics of accurate, fast and simple testing  
The operation interface is simple and humanized

### 3: Test result

#### Antenna placement:



DIV ANT_900M			
Frequency (MHz)	AVG Gain	efficiency (%)	Peak Gain
800	-5.91	25.67	-2.84
810	-5.61	27.51	-2.54
820	-5.27	29.72	-2.19
830	-5	31.61	-1.72
840	-4.99	31.7	-1.56
850	-5.04	31.35	-1.68
860	-5.21	30.12	-1.96
870	-5.56	27.83	-2.29
880	-5.94	25.5	-1.82
890	-6.4	22.89	-1.73
900	-7.06	19.68	-2.19
910	-7.72	16.9	-2.87

AVG	-5.80	26.70	-2.11
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DIV ANT_800M			
Frequency (MHz)	AVG Gain	efficiency (%)	Peak Gain
700	-6.07	24.7	-1.42
710	-6.06	24.77	-1.68
720	-6.43	22.74	-1.71
730	-6.33	23.29	-1.95
740	-6.4	22.92	-2.19
750	-6.85	20.64	-2.02
760	-7.04	19.77	-1.86
770	-7.13	19.39	-1.61
780	-7.4	18.19	-1.46
790	-7.78	16.68	-1.37
AVG	-6.86	20.82	-1.73

MAIN ANT_900M			
Frequency (MHz)	AVG Gain	efficiency (%)	Peak Gain
820	-11.98	6.34	-3.23
830	-11.17	7.65	-2.41
840	-10.56	8.8	-1.51
850	-10.01	9.98	-2.52
860	-9.56	11.07	-3.31
870	-9.15	12.17	-4.82
880	-8.63	13.7	-3.38
890	-8.09	15.52	-2.74
900	-7.69	17.03	-1.82
910	-7.17	19.2	-2.53
920	-6.92	20.32	-3.28
930	-6.91	20.36	-3.16
AVG	-8.98	13.51	-2.89

MAIN ANT_1900M			
Frequency (MHz)	AVG Gain	efficiency (%)	Peak Gain
1880	-4.72	33.71	-1.5
1890	-4.89	32.46	-1.55
1900	-4.86	32.69	-1.43

1910	-4.94	32.08	-1.54
1920	-4.97	31.86	-1.62
1930	-5.01	31.52	-1.61
1940	-5.17	30.42	-1.72
1950	-5.29	29.6	-1.81
1960	-5.39	28.91	-1.88
1970	-5.66	27.14	-1.96
1980	-5.95	25.4	-2.04
1990	-6.43	22.74	-2.35
AVG	-5.27	29.87	-1.75

MAIN ANT_1700M			
Frequency (MHz)	AVG Gain	efficiency (%)	Peak Gain
1700	-4	39.82	-1.83
1710	-4.01	39.73	-1.71
1720	-4.16	38.34	-1.66
1730	-4.18	38.18	-1.59
1740	-4.23	37.71	-1.49
1750	-4.26	37.48	-1.46
1760	-4.35	36.74	-1.22
1770	-4.41	36.25	-1.43
1780	-4.42	36.12	-1.28
1790	-4.3	37.15	-1.18
1800	-4.41	36.25	-1.43
1810	-4.44	36.01	-1.42
1820	-4.49	35.54	-1.42
1830	-4.54	35.15	-1.52
1840	-4.44	35.98	-1.36
1850	-4.63	34.41	-1.61
1860	-4.65	34.26	-1.52
1870	-4.79	33.19	-1.7
1880	-4.72	33.71	-1.67
AVG	-4.39	36.42	-1.50

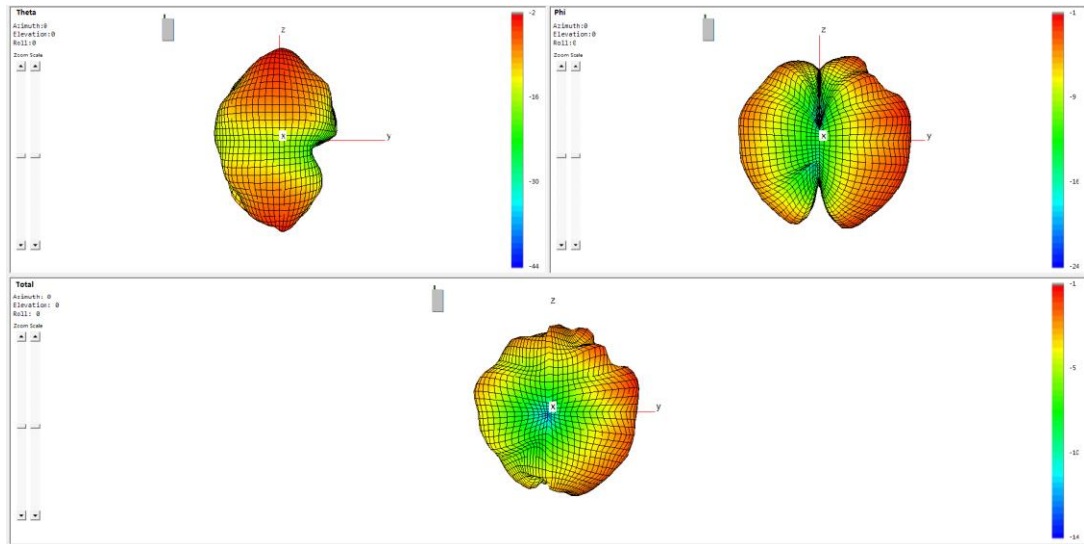
MAIN ANT_2500M			
Frequency (MHz)	AVG Gain	efficiency (%)	Peak Gain
2500	-4.21	37.93	-1.62
2510	-4.35	36.77	-1.57
2520	-4.47	35.73	-1.42
2530	-4.63	34.42	-1.25
2540	-4.86	32.65	-1.07
2550	-5.14	30.62	-1.44
2560	-5.26	29.76	-1.48
2570	-5.5	28.15	-1.83
2580	-5.63	27.34	-1.81
2590	-5.77	26.47	-1.54
2600	-6.01	25.08	-1.52
2610	-6.09	24.59	-1.36
2620	-6.24	23.75	-1.48
2630	-6.35	23.18	-1.75
2640	-6.48	22.49	-2.08
2650	-6.64	21.68	-2.23
2660	-6.74	21.17	-2.2
2670	-6.9	20.41	-2.33
2680	-7.03	19.79	-2.44
2690	-7.13	19.38	-2.62
AVG	-5.77	27.07	-1.75

3in1 ANT_2400M			
Frequency (MHz)	AVG Gain	efficiency (%)	Peak Gain
2400	-4.93	32.16	-1.28
2410	-5.04	31.33	-1.27
2420	-5.13	30.69	-1.32
2430	-5.19	30.26	-1.56
2440	-5.26	29.81	-1.56
2450	-5.26	29.77	-1.75
2460	-5.39	28.91	-1.83
2470	-5.4	28.87	-1.77
2480	-5.52	28.07	-1.75
2490	-5.59	27.63	-1.62
2500	-5.71	26.84	-1.48

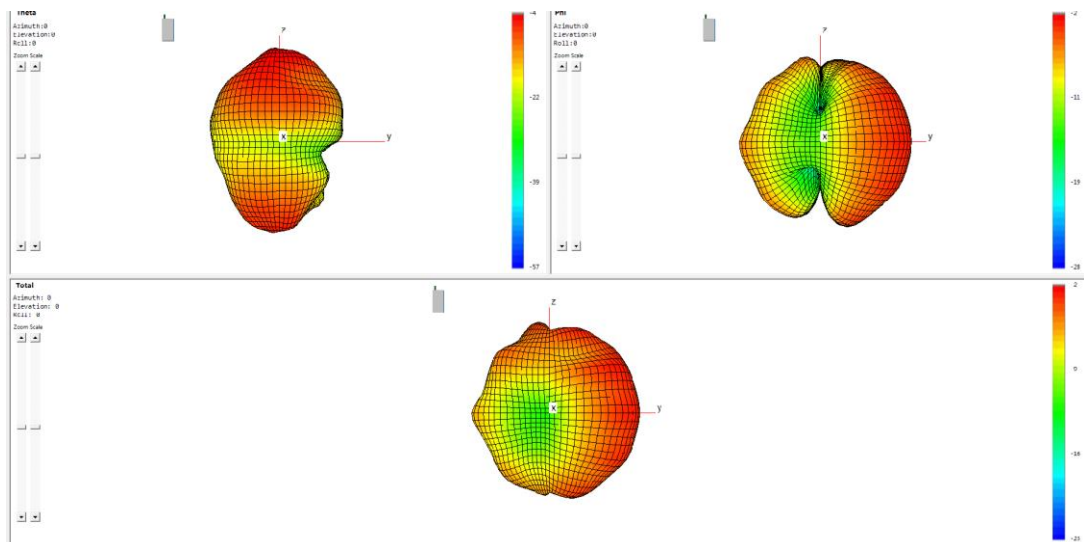
AVG	-5.31	29.49	-1.56
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### 3D Pattern

#### DIV ANT\_ 900M (Frequency=850MHz)

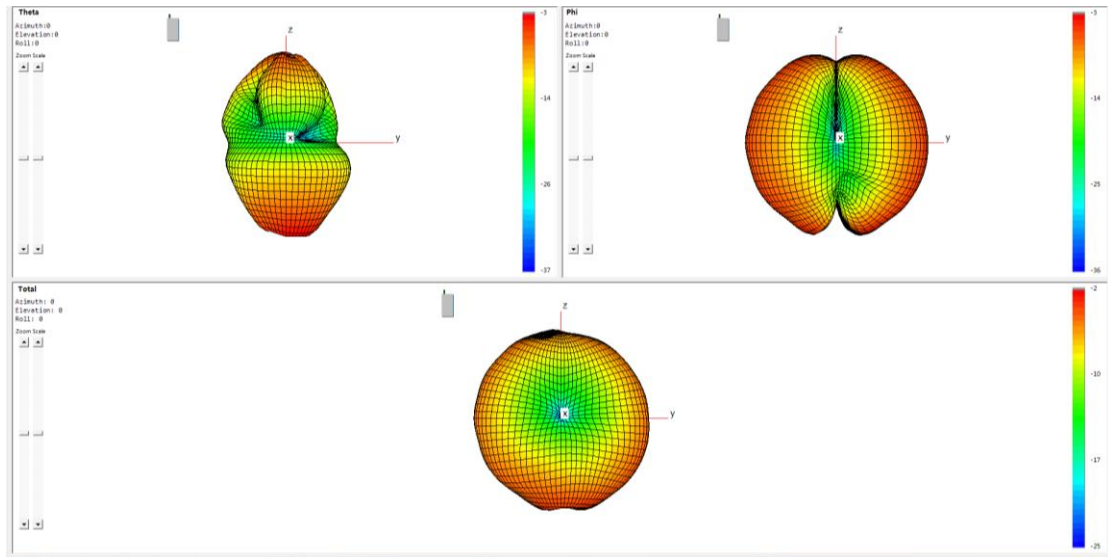


#### DIV ANT\_ 900M (Frequency=890MHz)

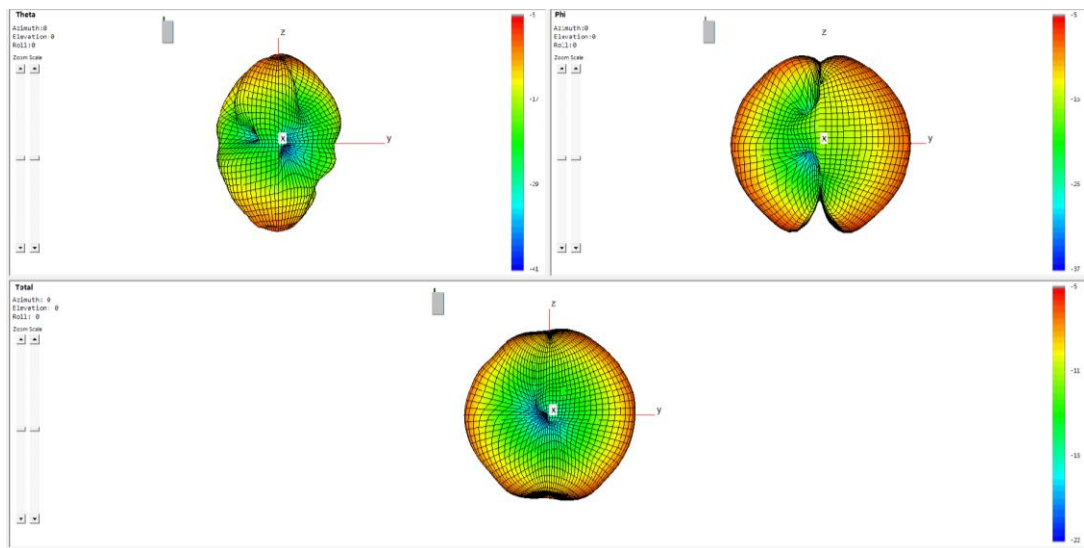


#### DIV ANT\_ 800M (Frequency=720MHz)

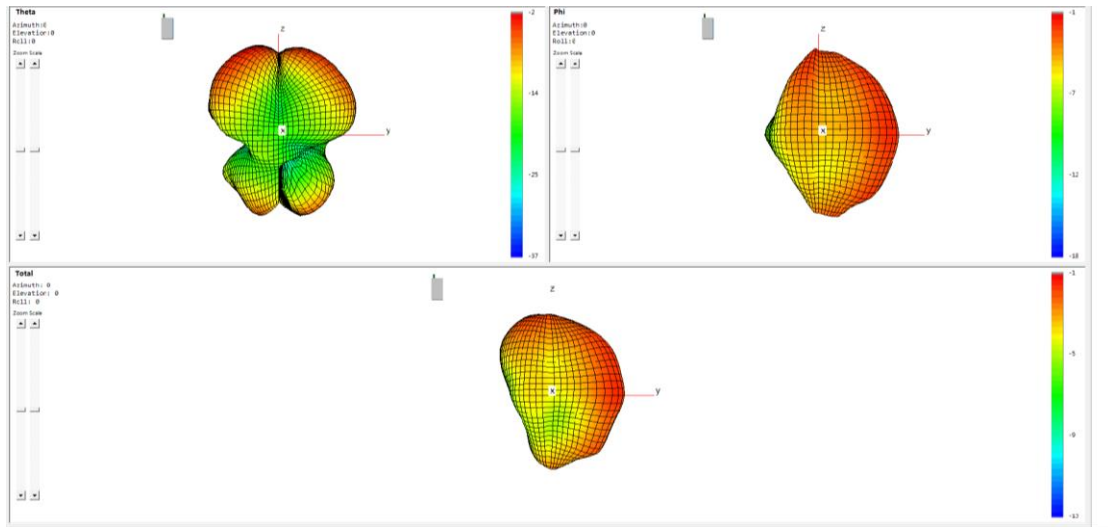




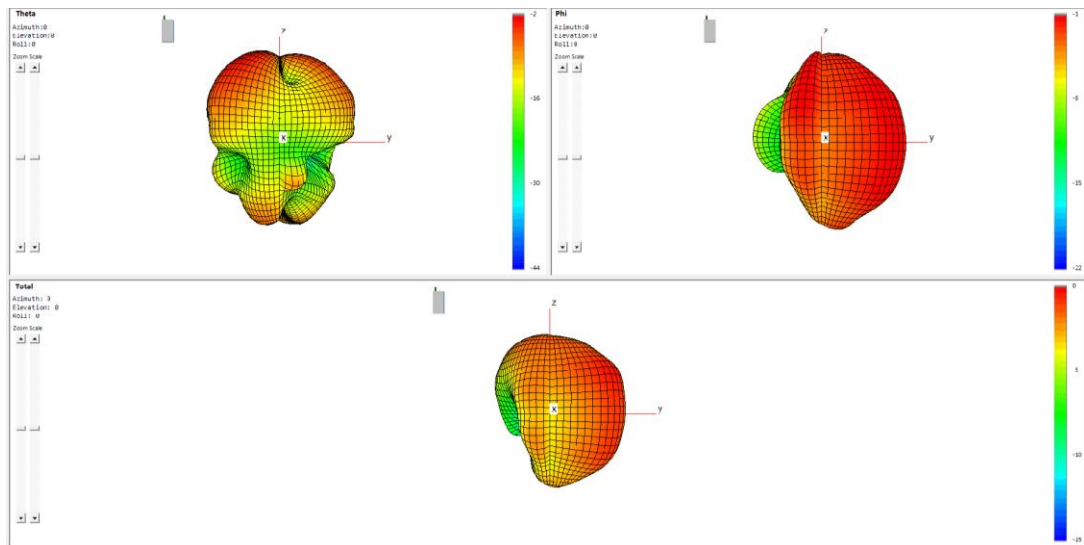
## MAIN ANT\_ 900M (Frequency=900MHz)



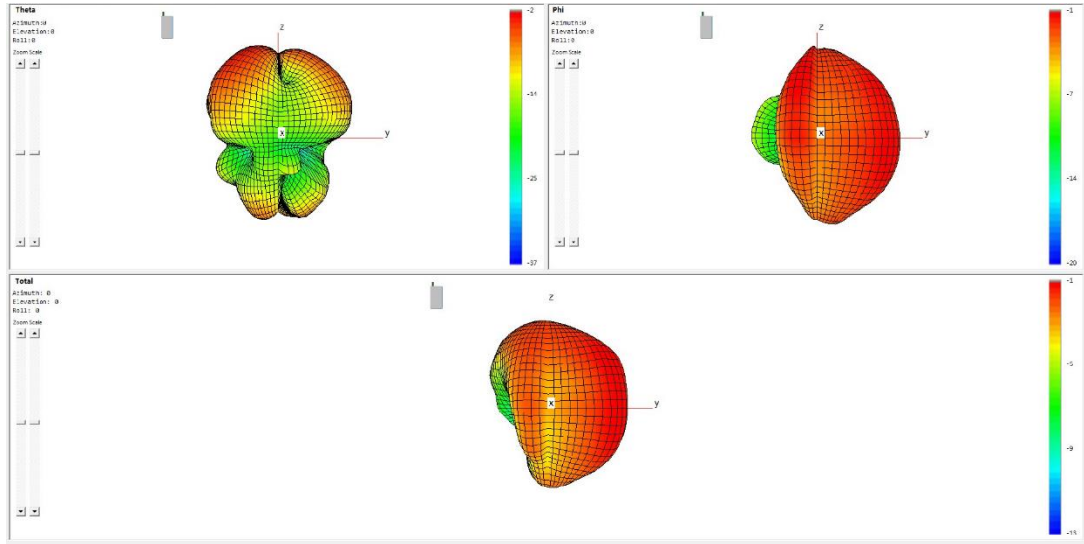
## MAIN ANT \_ 1900M (Frequency=1930MHz)



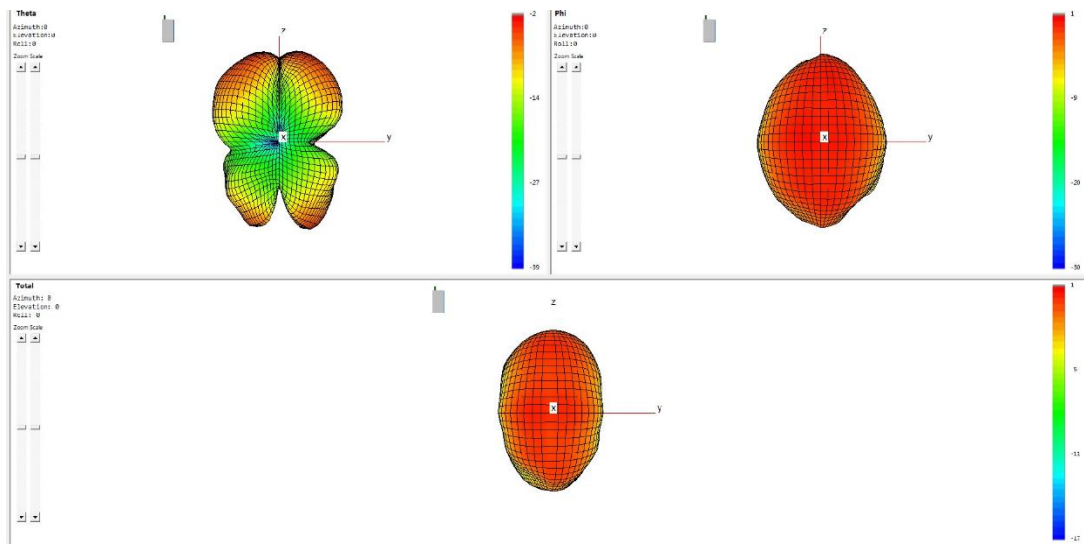
MAIN ANT \_ 1700M (Frequency=1730MHz)



MAIN ANT \_ 1700M (Frequency=1760MHz)



### MAIN ANT \_ 2500M (Frequency=2530MHz)



### 3IN1 ANT\_ 2400M (Frequency=2450MHz)

