



Zhejiang Haitong Communicate Ltd.
(Shenzhen R&D)

Customer: TCL Communication Ltd.

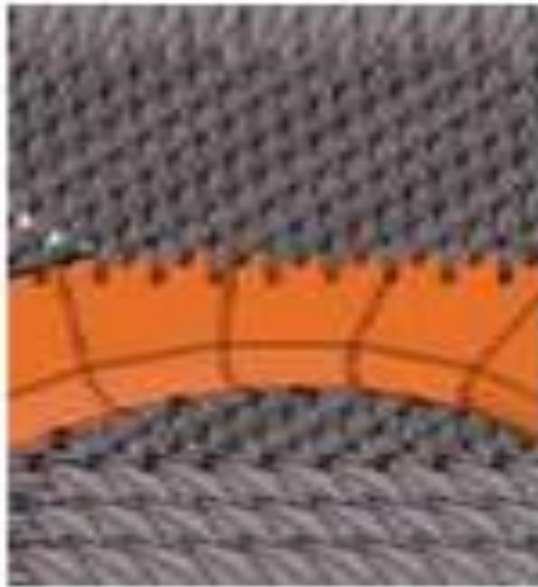
Project name: MW513U

Product name: MW513-WIFI antenna

Material: FPC

Date: 2022.6.18

1: chamber room introduction and testing scope

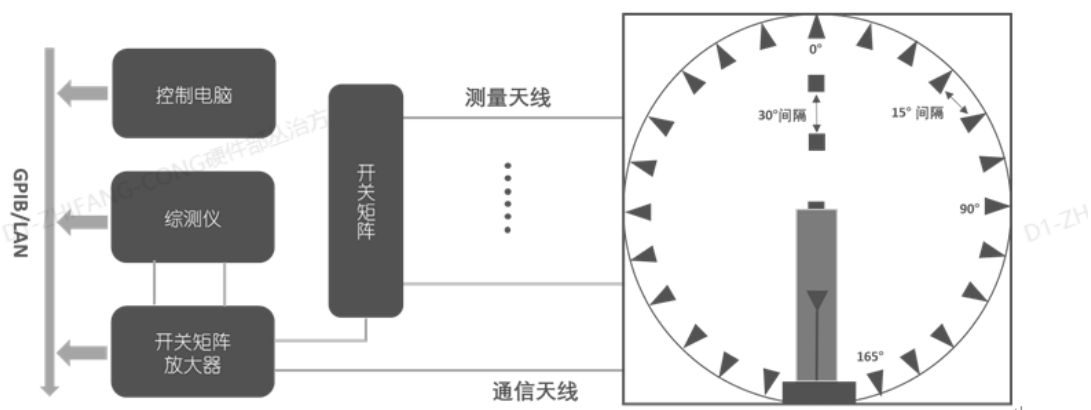


Our company has a number of OTA test darkrooms, ranging from 400MHz to

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:

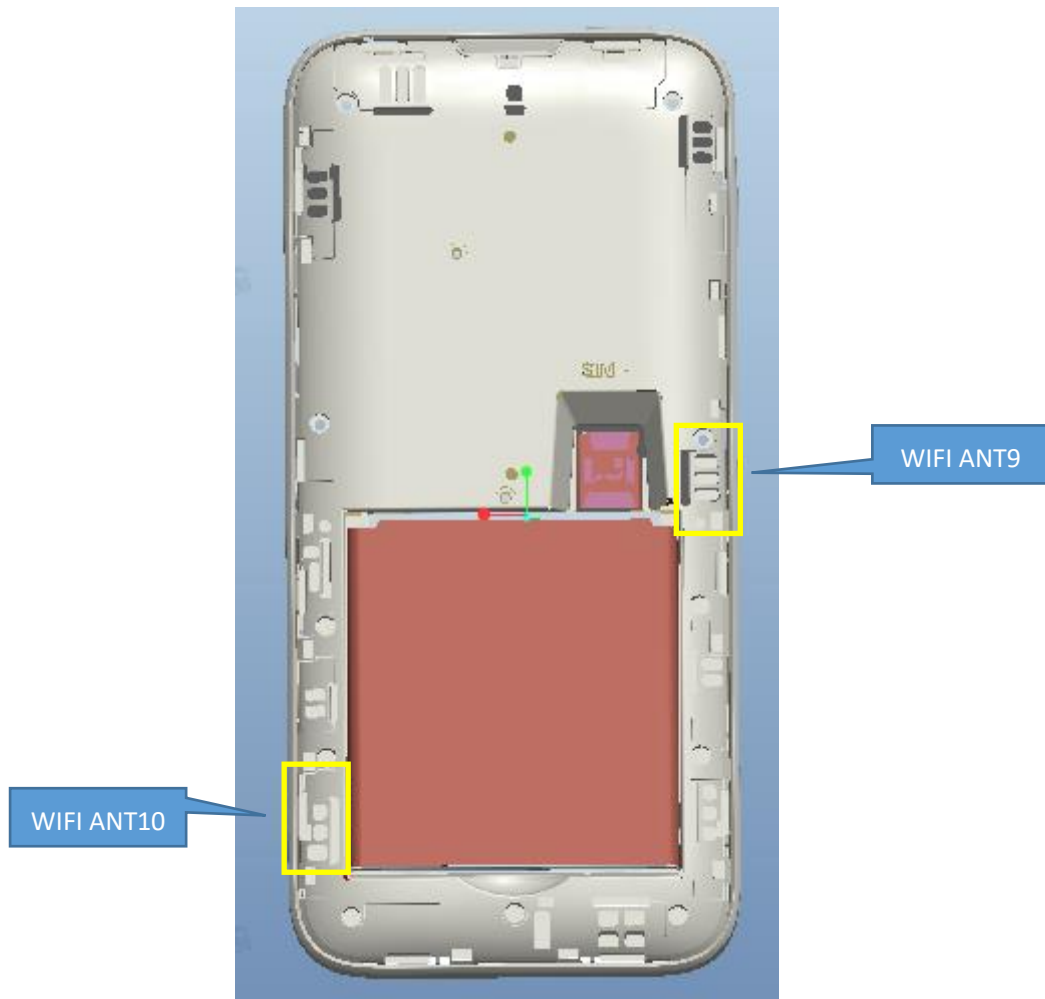


The figure above shows the connection and control process between the darkroom of our company and the testing system and computer. The testing system has the characteristics of accurate, fast and simple testing

The operation interface is simple and humanized

3: Test result

Antenna placement:



ANT10_2.4G			
Frequency (MHz)	AVG Gain	efficiency	Peak Gain
2400	-3.2	47.5%	0.9
2410	-3.2	47.8%	0.84
2420	-3.2	47.4%	0.85
2430	-3.3	46.6%	0.79
2440	-3.3	46.5%	0.75
2450	-3.4	46.0%	0.72
2460	-3.4	45.4%	0.8
2470	-3.5	44.2%	1.03
2480	-3.6	43.8%	1.17
AVG	-3.4	38.2%	0.87

ANT10_5G			
Frequency (MHz)	AVG Gain	efficiency	Peak Gain
5150	-3.52	44%	1.05
5200	-3.56	44%	0.77
5250	-4.21	38%	0.26
5300	-4.38	37%	0.27
5350	-4.65	34%	0.39
5400	-5.06	31%	0.61
5450	-4.79	33%	0.3
5500	-4.56	35%	0.07
5550	-4.21	38%	0.41
5600	-3.31	47%	0.02
5650	-3.08	49%	0.19
5700	-3.24	47%	0.42
5750	-3.27	47%	1.05
5800	-3.31	47%	1.26
5850	-3.33	46%	1.25
AVG	-3.90	41%	0.55

ANT10_6G			
Frequency (MHz)	AVG Gain	efficiency	Peak Gain
6000	-4.15	38.49%	1.65
6050	-4.28	37.36%	1.69
6100	-4.28	37.34%	1.71
6150	-4.32	37.00%	1.52
6200	-4.09	38.98%	1.79
6250	-4.17	38.28%	1.54
6300	-4.04	39.49%	1.73
6350	-4.15	38.46%	1.53
6400	-4.30	37.17%	1.2
6450	-4.69	33.98%	0.72
6500	-4.85	32.73%	0.65
6550	-5.39	28.88%	0.59
6600	-5.43	28.67%	0.56
6650	-5.74	26.64%	0.51
6700	-5.50	28.16%	0.62
6750	-5.57	27.74%	0.58
6800	-5.24	29.89%	0.66



6850	-5.23	29.98%	0.69
6900	-5.37	29.04%	0.61
6950	-5.40	28.82%	0.52
7000	-5.64	27.31%	0.48
7050	-5.63	27.38%	0.41
7100	-5.78	26.45%	0.38
7150	-6.08	24.64%	0.31
AVG	-4.97	0.32	0.94

ANT9_2.4G			
Frequency (MHz)	AVG Gain	efficiency	Peak Gain
2400	-4.1	38.6%	0.39
2410	-4.1	38.8%	0.49
2420	-4.1	38.6%	0.29
2430	-4.2	38.3%	0.16
2440	-4.2	38.1%	0.07
2450	-4.1	38.6%	0.27
2460	-4.1	38.9%	0.33
2470	-4.1	39.1%	0.45
2480	-4.0	39.4%	0.54
AVG	-4.1	38.2%	0.87

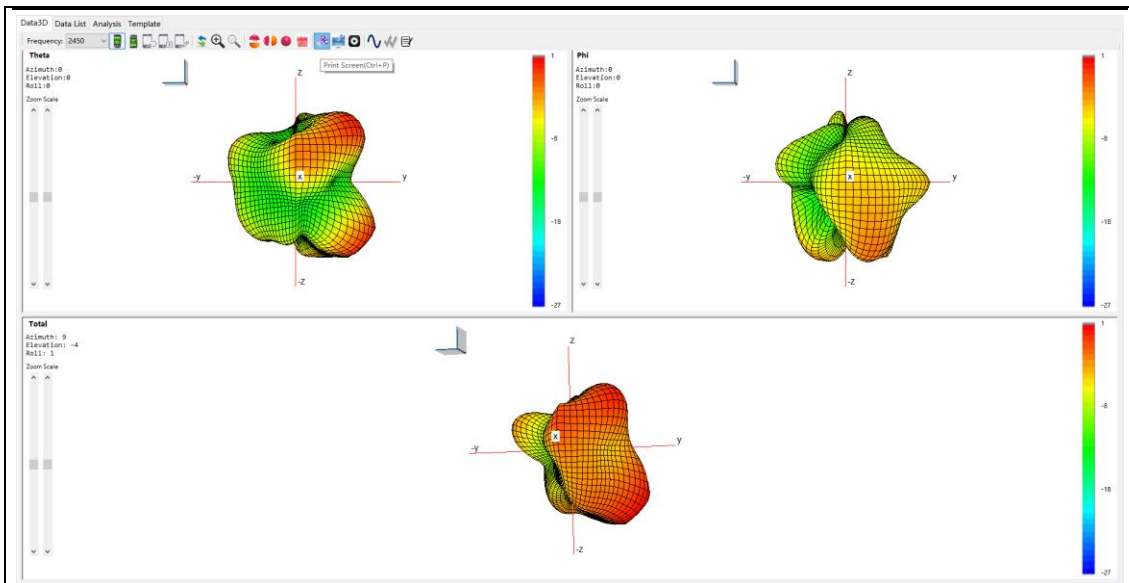
ANT9_5G			
Frequency (MHz)	AVG Gain	efficiency	Peak Gain
5150	-4.63	34%	0.22
5200	-4.81	33%	-0.09
5250	-5.17	30%	-0.22
5300	-5.34	29%	-0.29
5350	-5.10	31%	0.16
5400	-4.14	39%	0.42
5450	-3.76	42%	0.98
5500	-3.34	46%	0.87
5550	-3.09	49%	0.94
5600	-3.21	48%	0.93
5650	-3.89	41%	0.22
5700	-4.45	36%	-0.51
5750	-4.73	34%	-0.29
5800	-4.54	35%	-0.46
5850	-4.00	40%	-0.09

AVG	-4.28	38%	0.19
-----	-------	-----	------

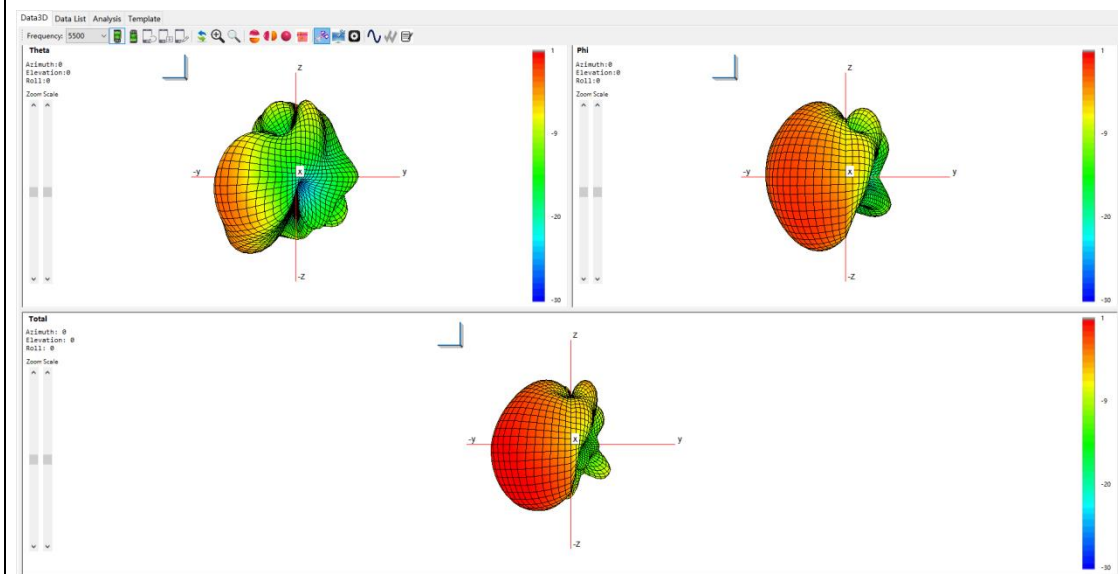
ANT9_6G			
Frequency (MHz)	AVG Gain	efficiency	Peak Gain
6000	-4.5	35.73%	0.78
6050	-4.4	36.51%	0.85
6100	-4.2	37.77%	0.87
6150	-4.2	37.72%	0.7
6200	-4.0	39.57%	1.01
6250	-4.2	38.25%	1.1
6300	-4.2	38.23%	1.1
6350	-4.2	37.66%	1.41
6400	-4.3	37.49%	1.6
6450	-4.6	34.51%	1.35
6500	-4.8	33.24%	1.15
6550	-5.5	28.33%	0.48
6600	-5.6	27.45%	0.06
6650	-6.1	24.29%	-0.83
6700	-6.1	24.80%	-1.23
6750	-6.3	23.44%	-1.74
6800	-6.2	24.03%	-1.74
6850	-6.1	24.27%	-1.88
6900	-6.4	23.04%	-1.43
6950	-6.5	22.59%	-1.62
7000	-6.4	22.94%	-1.88
7050	-6.5	22.58%	-2.21
7100	-6.6	21.93%	-2.45
7150	-6.9	20.59%	-3.06
AVG	-5.4	29.87%	-0.32

3D Pattern

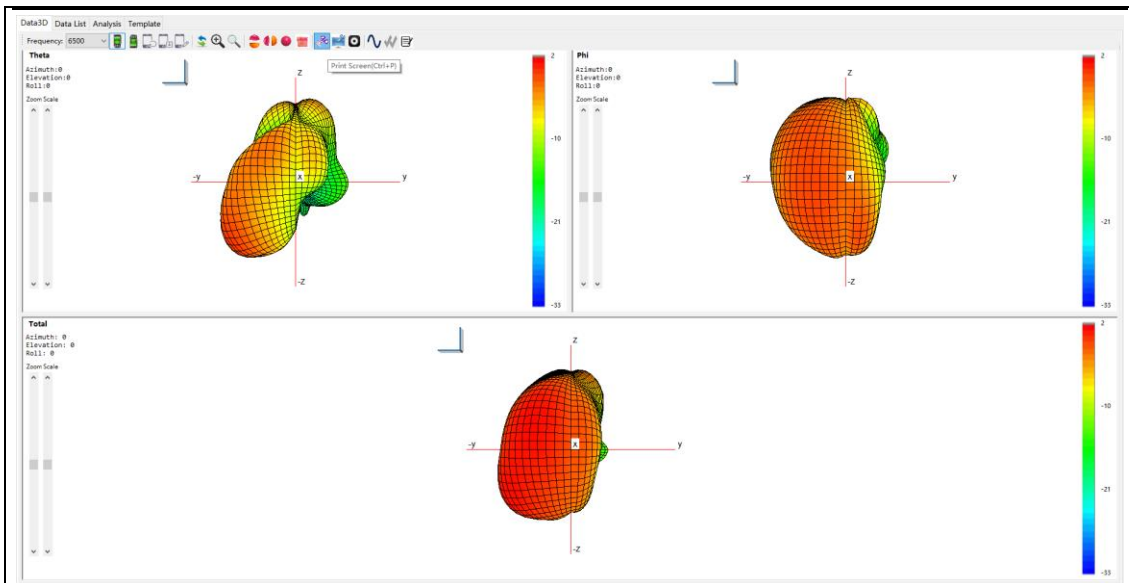
ANT 10_ 2.4G (Frequency=2450MHz)



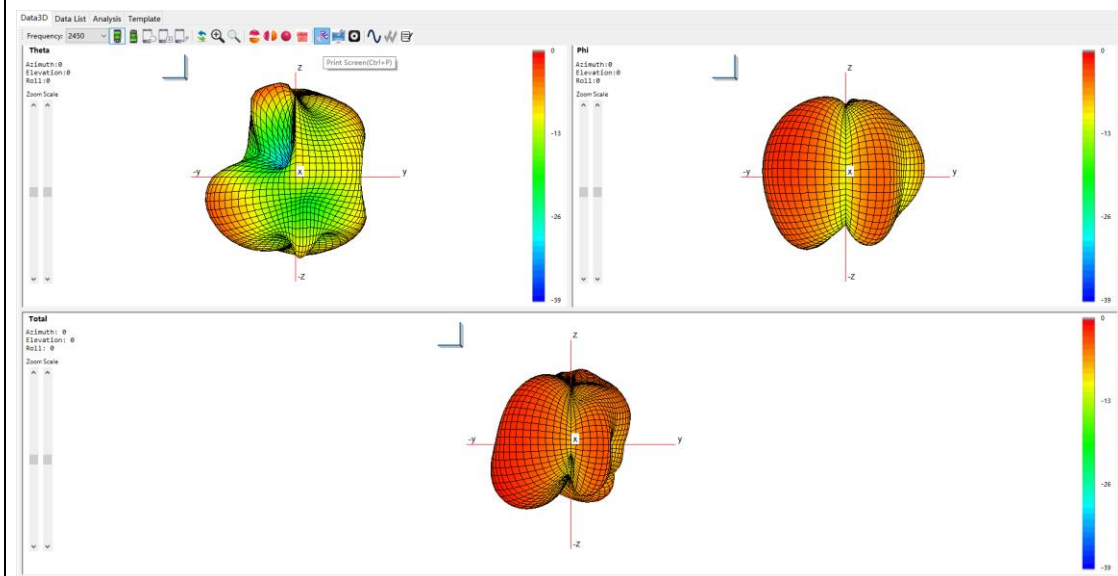
ANT10_5G (Frequency=5500MHz)



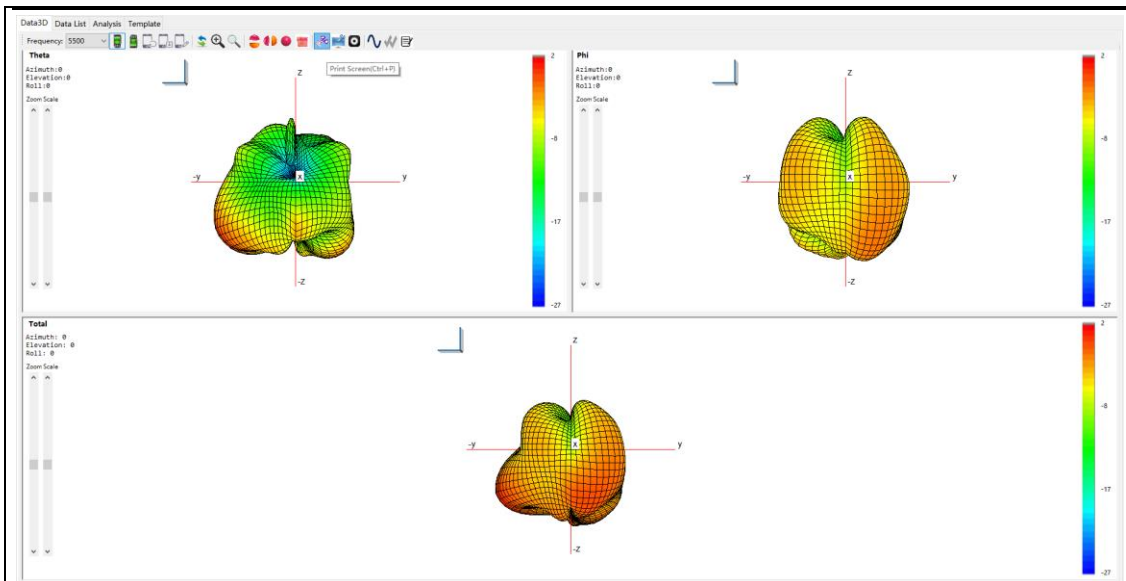
ANT10_6G (Frequency=6500MHz)



ANT 9_ 2.4G (Frequency=2450MHz)



ANT9_5G (Frequency=5500MHz)



ANT9_6G (Frequency=6500MHz)

