



深圳市国质信网络通讯有限公司
ShenZhen NQI network communication ltd

Antenna Test Report

For

Project W635C

Version:

Customer	Ucair	Project	W635C
Band	LTE:B1/2/3/4/5/7/8/12/13/17/ 20/25/26/28/39/40/41/66 GSM: B2/B3/B5/B8 WCDMA:B1/B2//B5//B8 WIFI:2.4G&5.8G GPS	Color	
Issued by	LH	Checked by	
Confirmed by		Date	2025.02.12

1. Machine picture:

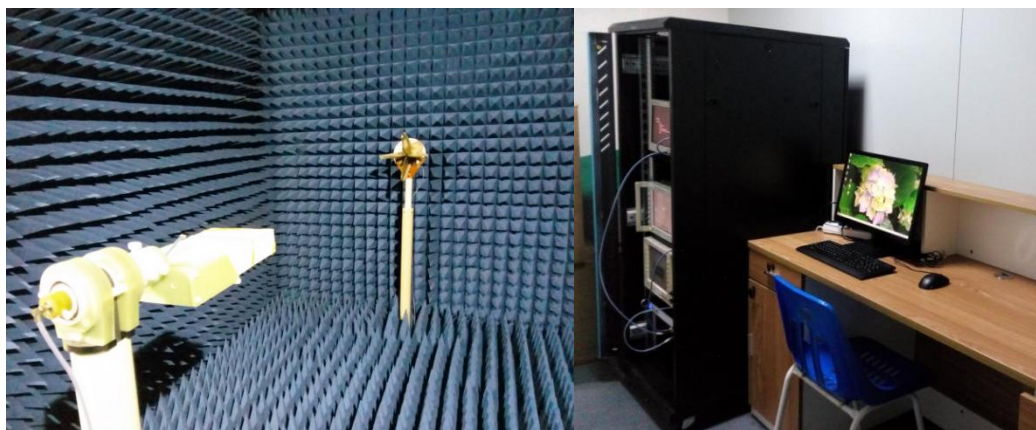


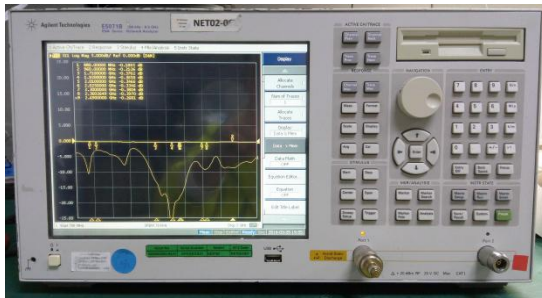
2. Test equipment and items:

Class	Test item	Equipment
1. S parameter	1. RL 2. VSWR 3. Smith chart	VNA: Agilent E5071B R&S ZVB8 Protek A333

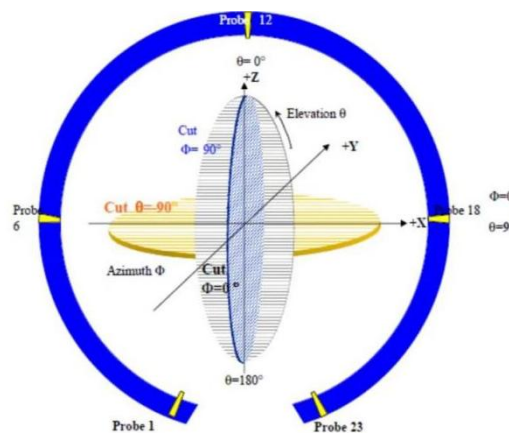
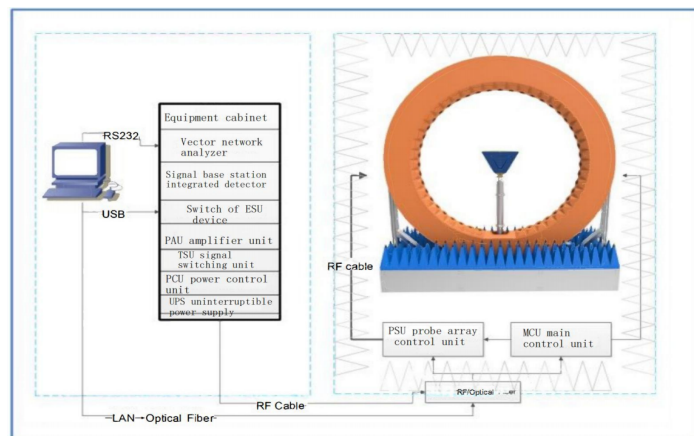


2. Coupling testing	1. MAX Power 2. MIN Sens	1.2G/3G Tester: Agilent 8960 2.The coupling box: TESCOM TC-5060A 3. 3D Chamber: ETS 3D Chamber(5x3x3)
4.3D Active Test	1. 3D TRP 2. 3D TIS 3.Throughput rate	1. 3D Chamber: TEM24 3D Chamber (5x5x5) ETS 3D Chamber (5x3x3) 2.2G/3G Tester: Agilent 8960 3.4G Tester: MT8820C/CMW500 4.WIFI/BT/NB-iot Tester: CMW500 5. 5G Tester: SP9500-CTS 6.Head: HEAD-P10 (FACE-P10)



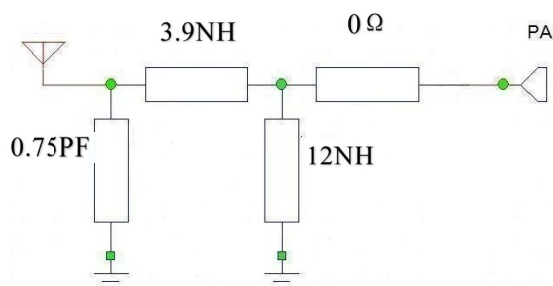


3. Darkroom (Chamber) connections and coordinates:



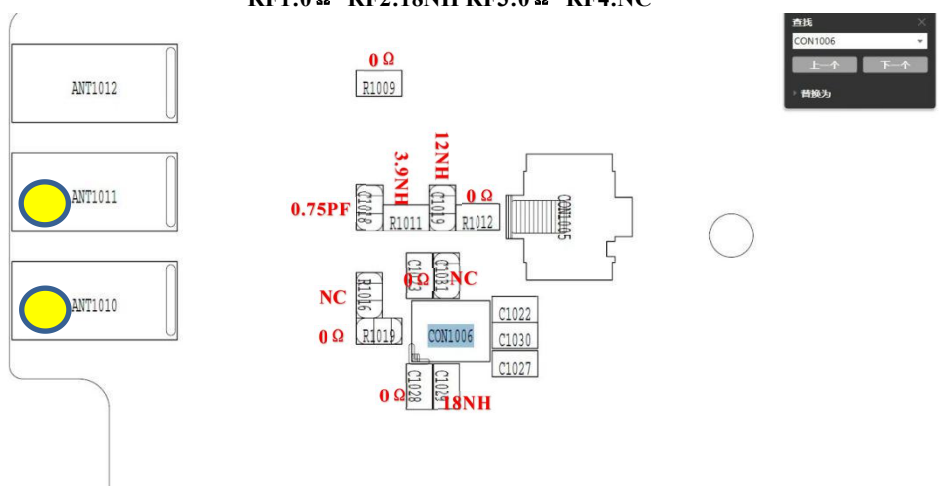
4. Antenna matching network:

4G main antenna



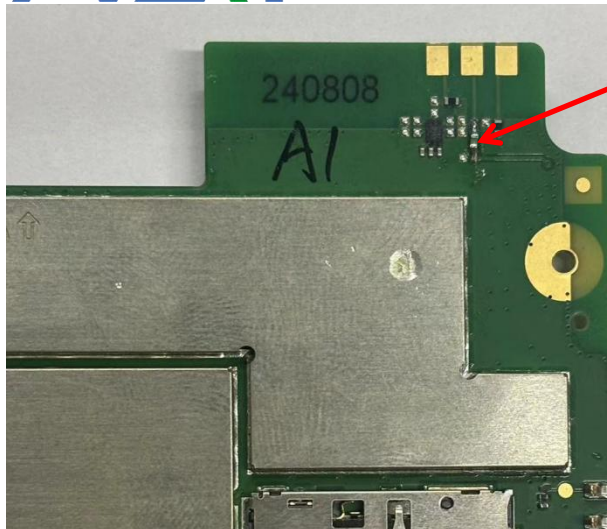
4G main antenna switch matching and logic:

RF1:0Ω RF2:18NH RF3:0Ω RF4:NC

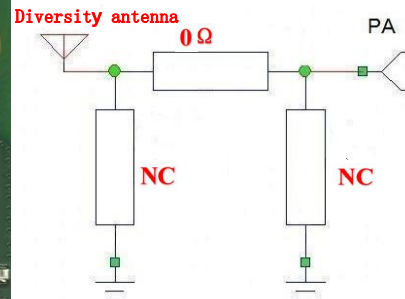


ANT RF	LTE	WCDMA	GSM
RF1	B1/B2/B3/B4/B7/B8/B25/B38/B39/B41/B66	B1/B2/B8	EGSM/DCS/PCS
RF2	B12/B13/B17/B28		
RF3	B5/B20/B26	B5	GSM850
RF4	B40		

Diversity antenna



Notice that the diversity antenna matches back to 0Ω this time



Other antenna matches are original matches (string bits are 0 Ω and bits are null)

5. Antenna assembly method and environmental treatment :



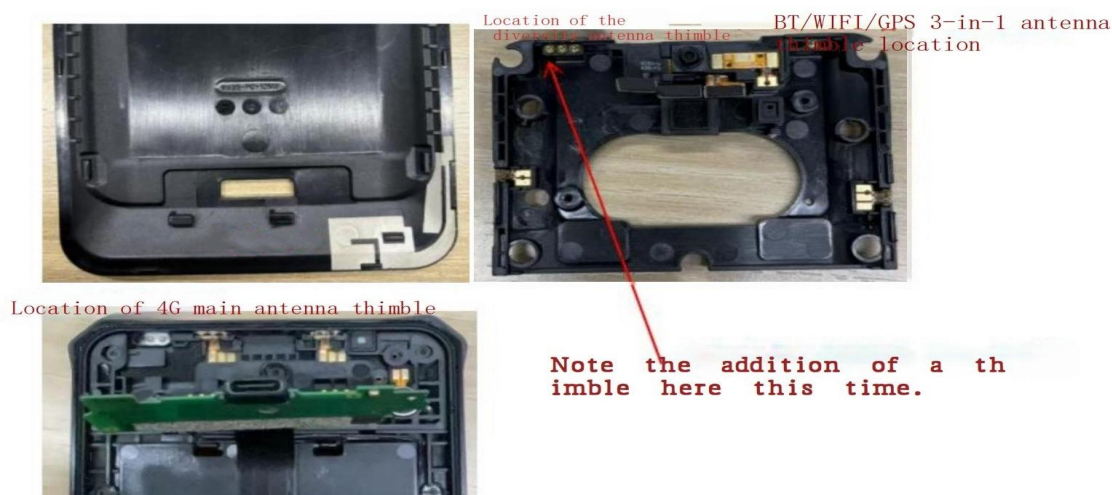
Attach conductive foam for grounding

It is recommended to paste conductive foam on the small board or increase the thickness of the foam here to prevent bad contact.

Apply insulation tape to the FPC cables and ground them with conductive cloth



BT/WIFI/GPS triple antenna

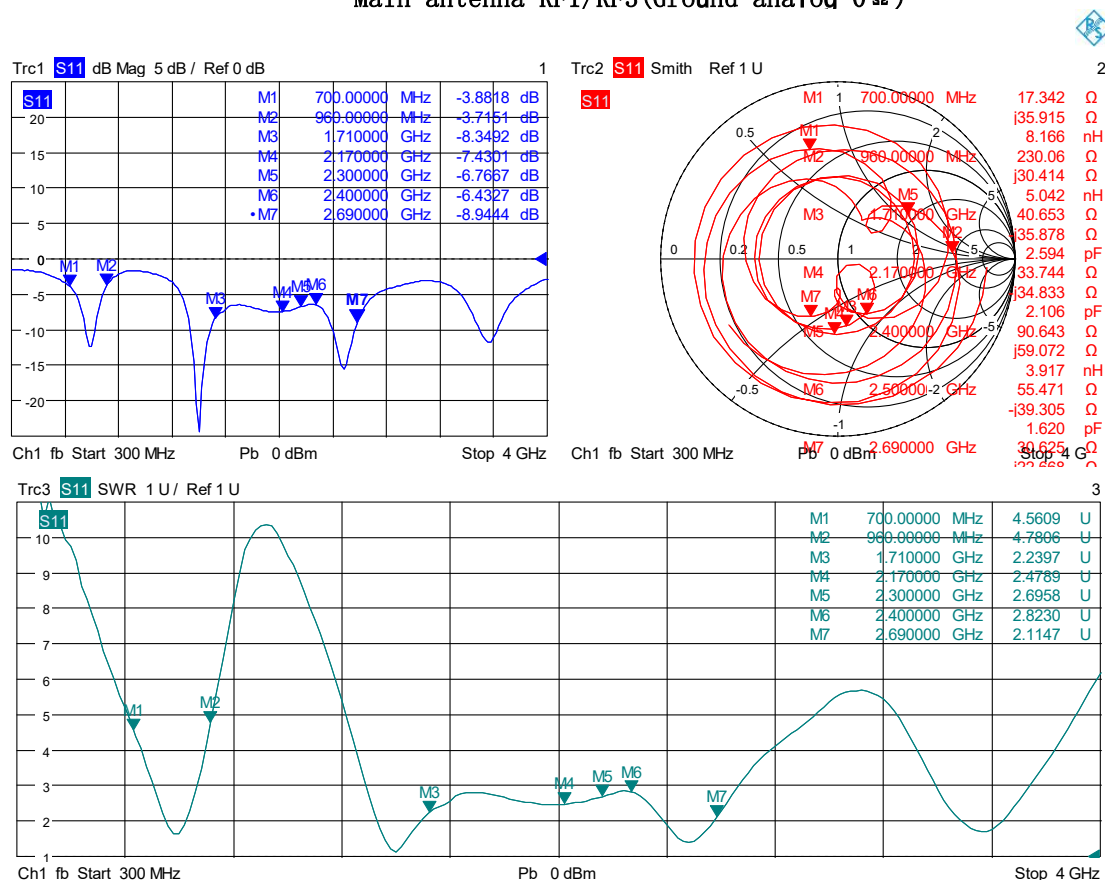


6. Antenna electrical performance test data:

6.1. Antenna passive parameters

6.1.1. Antenna Return Loss (RL)

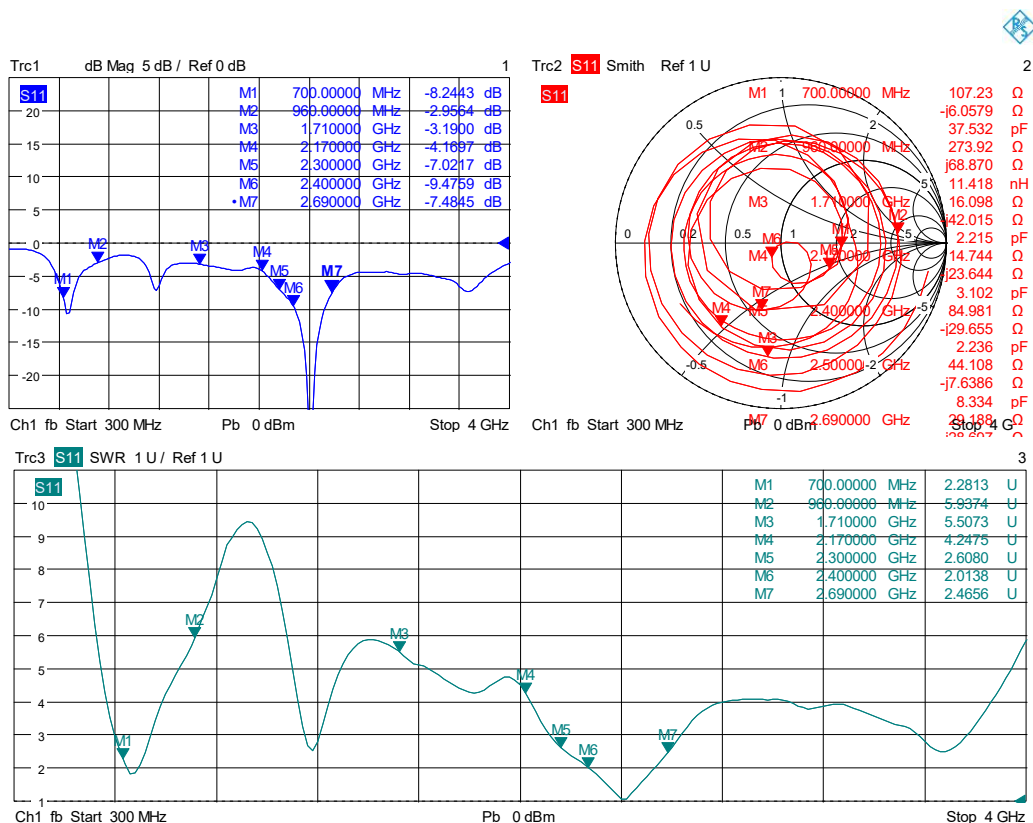
Main antenna RF1/RF3(Ground analog 0Ω)



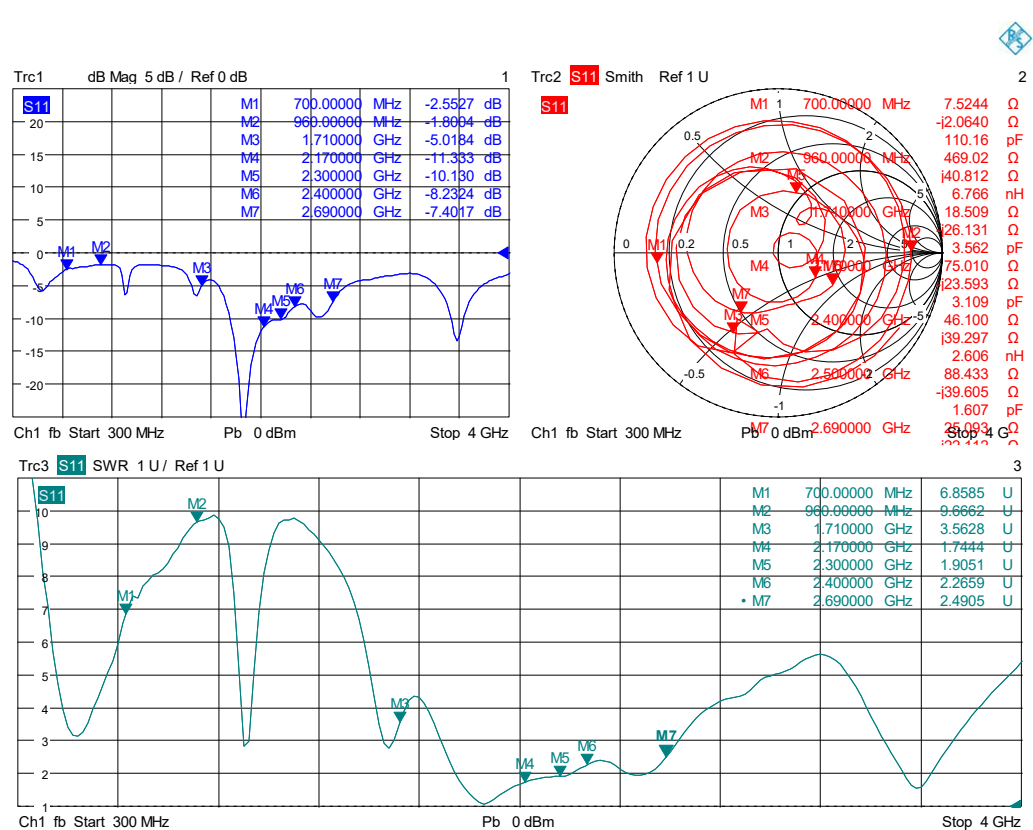
7/26/2024, 2:22 PM



Main antenna RF2(Ground analog 18NH)

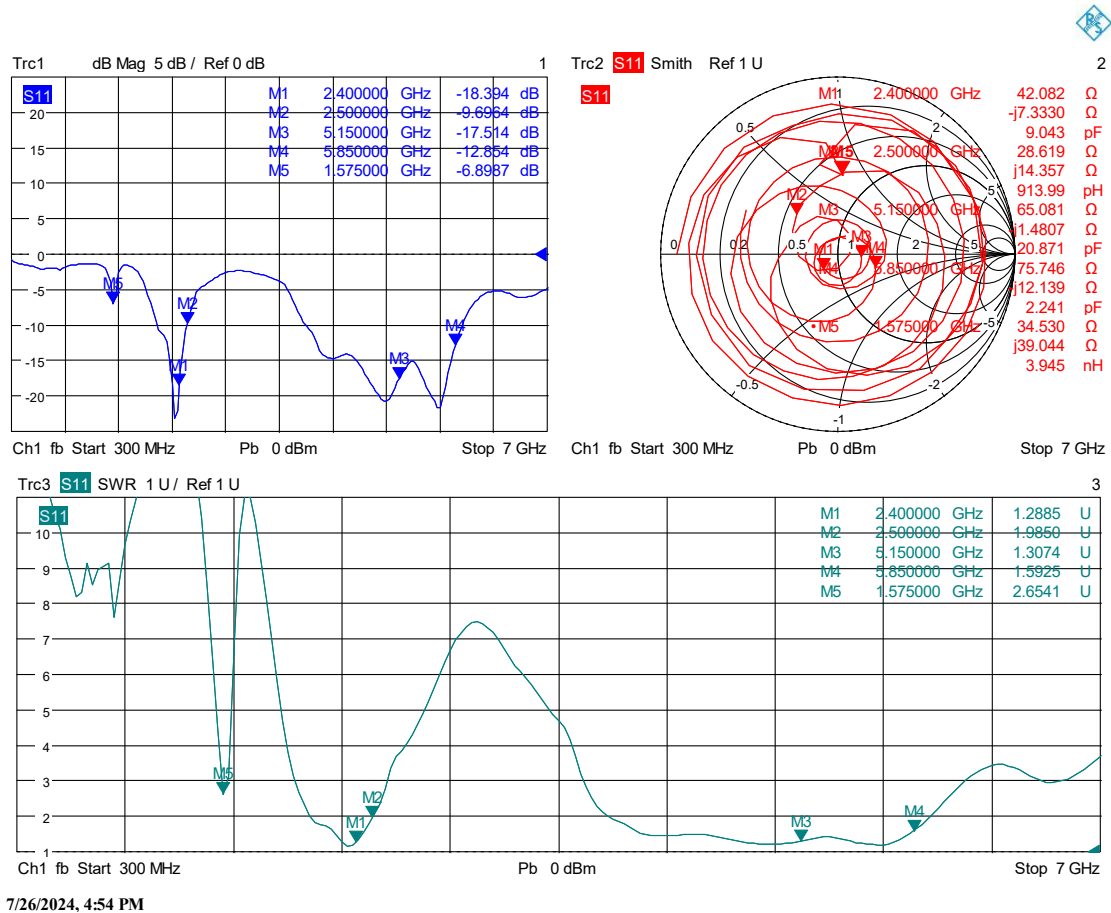


Main antenna RF4(Ground analog NC)





WIFI/BT



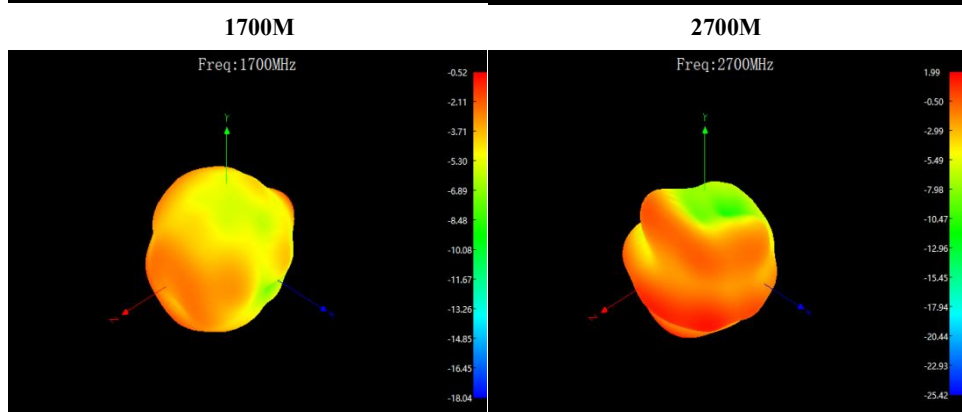
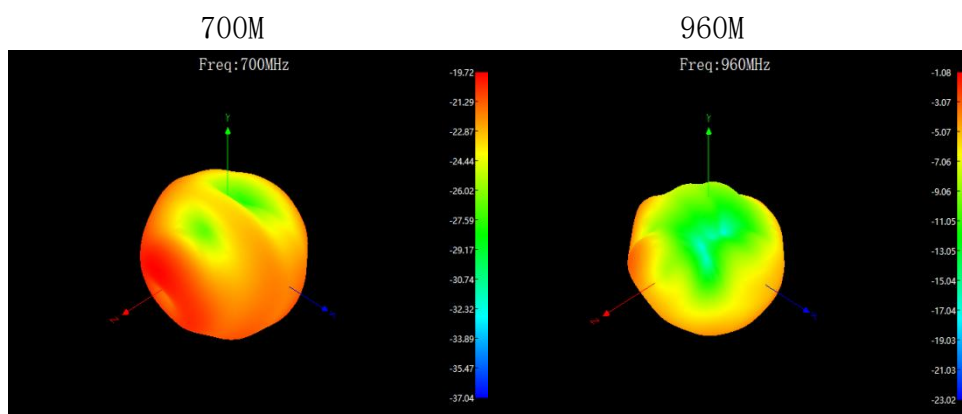
6.2 Antenna efficiency/gain

4G main antenna

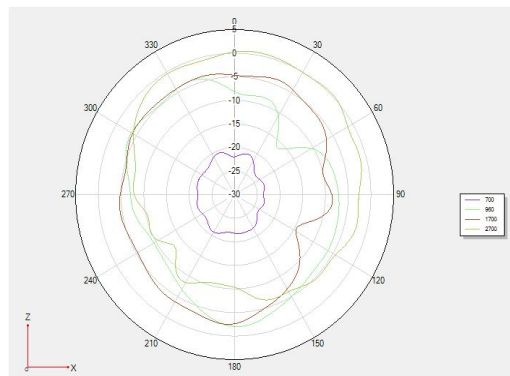
Passive Test For ANT1 700-960 1710-2690								
Freq(MHz)	Effi (%)	Gain(dBi)	Freq(MHz)	Effi (%)	Gain(dBi)	Freq(MHz)	Effi (%)	Gain(dBi)
700	5.82	-19.72	1700	29.85	-0.52	2260	34.67	1.45
720	6.79	-17.24	1740	30.76	-0.15	2300	34.04	1.57
740	8.34	-14.37	1780	29.85	-1.31	2340	33.42	1.39
760	10.42	-13.66	1820	29.44	-1.12	2380	35.65	1.95
780	14.42	-12.96	1860	26.42	-1.73	2420	36.39	1.7



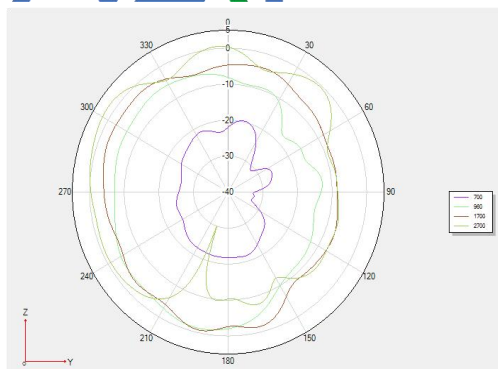
800	16.6	-9.66	1900	25.35	-1.49	2460	39.36	1.64
820	32.51	-7.32	1940	25.35	-2.37	2500	36.98	2.22
840	31.7	-5.57	1980	28.58	-1.86	2540	41.4	3.48
860	33.57	-3.31	2020	28.91	-2.96	2580	39.26	3.4
880	32.89	-0.19	2060	29.58	-3.3	2620	38.99	2.95
900	33.42	1.05	2100	28.97	-3.41	2660	35.73	2.45
920	28.51	1.74	2140	23.17	-3.17	2700	36.48	1.99
940	31.62	1.12	2180	21.53	-3.23			
960	31.84	-1.08	2220	18.92	-2.8			



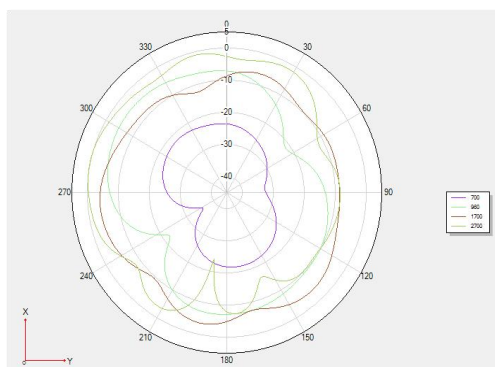
PHI 0°



Phi 90°



Theta 90°

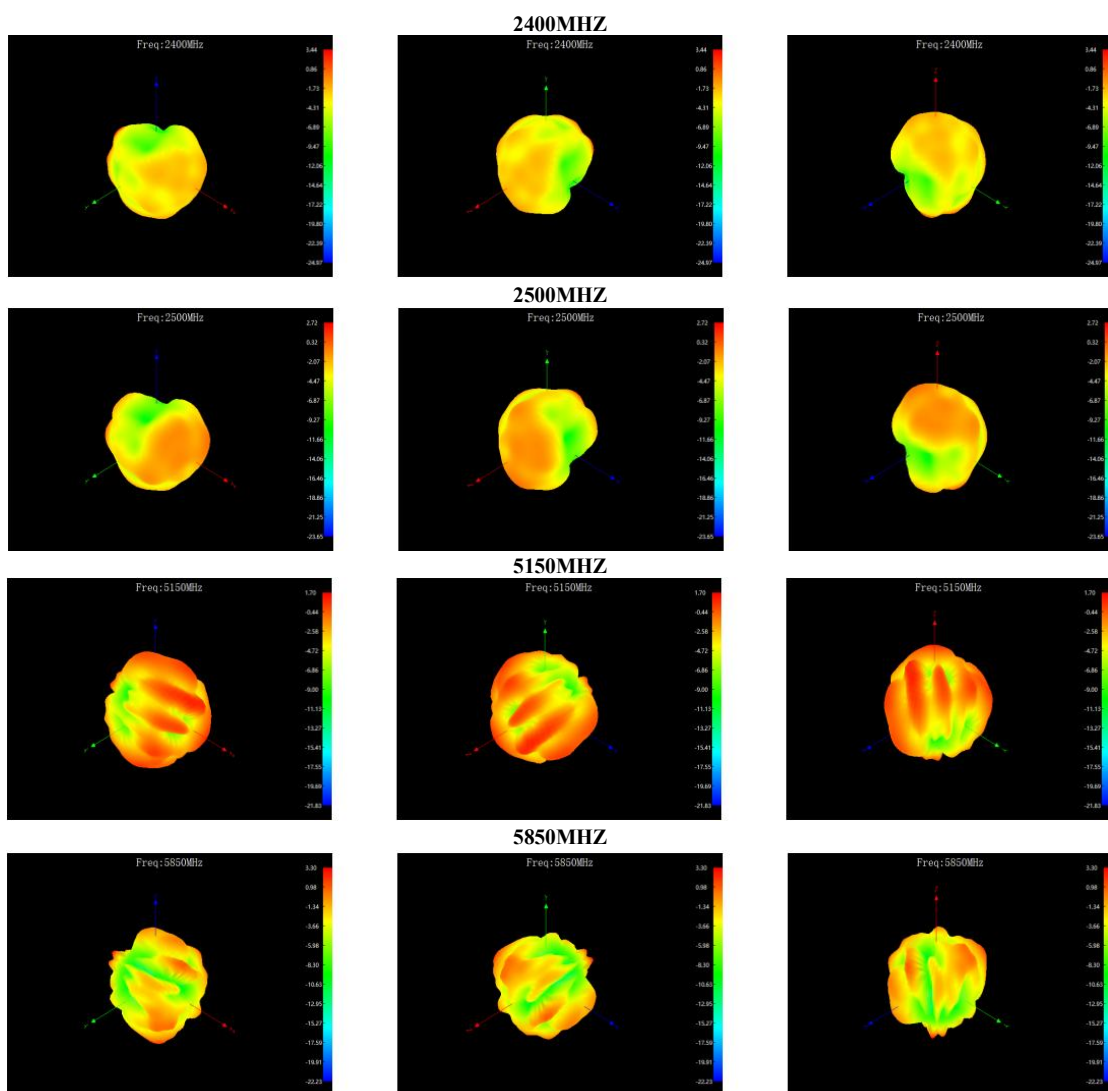


WIFI/BT

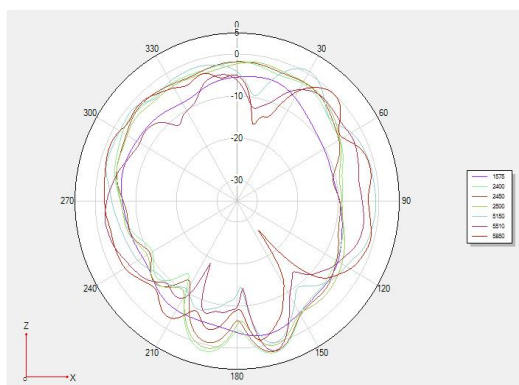
Freq (MHz)	Effi (%)	MAXGain (dBi)	Freq (MHz)	Effi (%)	MAXGain (dBi)	Freq (MHz)	Effi (%)	MAXGain (dBi)
2400	35.81	3.44	2490	37.67	3.38	5470	40.74	2.26
2410	34.04	2.61	2500	35.65	2.72	5490	38.55	2.13
2420	35.16	2.74				5510	40.36	2.18
2430	35.4	2.49	5150	54.58	1.7	5530	37.41	1.68
2440	37.07	2.66	5170	52	1.27	5550	40.36	2.26
2450	36.39	2.93	5190	53.83	1.94	5570	42.27	2.83
2460	36.98	2.97	5210	53.83	1.98	5590	41.78	2.24
2470	38.37	3.46	5230	49.66	1.64	5610	41.4	1.7
2480	37.15	3.06	5250	52.72	1.34	5630	42.85	1.58
			5270	52.48	2.12	5650	39.36	1.32
			5290	49.77	2.34	5670	38.64	1.27
			5310	49.43	2.55	5690	43.45	1.91



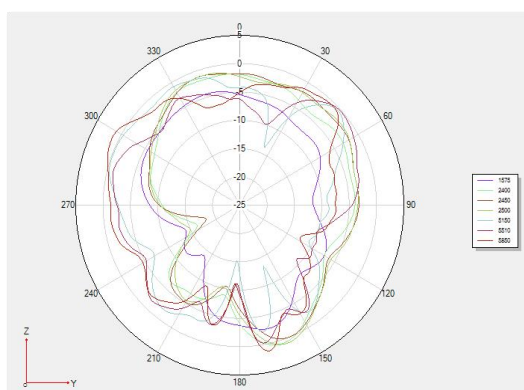
			5330	49.55	2.16	5710	40.18	1.85
			5350	44.16	1.98	5730	45.08	2.41
			5370	46.13	2.84	5750	48.08	3.02
			5390	44.67	2.82	5770	50.7	3.42
			5410	46.03	2.98	5790	47.75	2.96
			5430	43.15	2.33	5810	48.42	3.3
			5450	43.35	2.56	5830	46.99	4.11
						5850	42.95	3.3



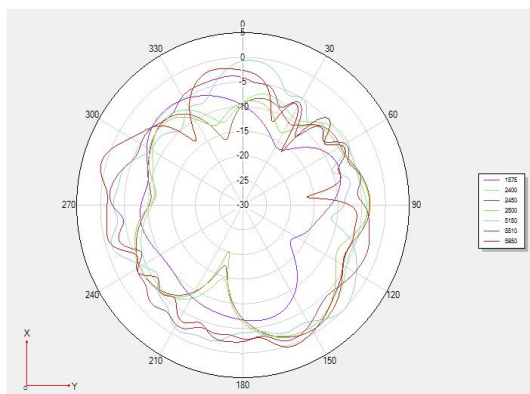
PHI0°



Phi 90°



Theta 90°



7.2 Antenna active parameter

7.2.1. TRP/TIS

LTE

NQI ANT TRP&TIS parameter Summary of W635		
BAND	LTE-B1	LTE-B2



CHANNEL	18050		18550	18650		19150
TRP (dBm)	19.7		18.03	19.05		18.73
CHANNEL	50		550	650		1150
TIS (dBm)			-94.18			-94.7
BAND	LTE-B3			LTE-B4		
CHANNEL	19250		19900	20000		20350
TRP (dBm)	17.56		18.12	17.98		18.28
CHANNEL	11250		1900	2000		2350
TIS (dBm)			-95.08			-94.4
BAND	LTE-B5			LTE-B7		
CHANNEL	20450		20600	21100		21400
TRP (dBm)	19.84		19.73	18.72		18.81
CHANNEL	2450		2600	2800		3400
TIS (dBm)			-93.61			-94.04
BAND	LTE-B8			LTE-B12		
CHANNEL	21500		21750	23060		23130
TRP (dBm)	19.17		18.03	17.67		17.26
CHANNEL	3500		3750	5060		5130
TIS (dBm)			-92.95			-93.57
BAND	LTE-B13			LTE-B17		
CHANNEL		23230		23780		23800
TRP (dBm)		16.15		17.83		18.18
CHANNEL		5230		5780		5800
TIS (dBm)		-93.47				-93.82
BAND	LTE-B20			LTE-B25		
CHANNEL	24200		24400	26065		26665
TRP (dBm)	19.37		19.03	19.03		19.16
CHANNEL	6200		6400			8665
TIS (dBm)			-93.31			-95.84
BAND	LTE-B26			LTE-B28		
CHANNEL	26715		27015	27260		27610
TRP (dBm)	18.36		19.77	17.17		16.93
CHANNEL			9015			9610
TIS (dBm)			-94.11			-93.67
BAND	LTE-B66			LTE-B38		
CHANNEL	132022		132622	37850		38100
TRP (dBm)	17.56		17.67	18.97		19.4
CHANNEL			67086	37850		38100
TIS (dBm)			-94.75			-90.39
BAND	LTE-B39			LTE-B40		
CHANNEL	38350		38500	38750		39550
TRP (dBm)	18.35		18.59	18.68		17.37



CHANNEL	38350		38500	38750		39550
TIS (dBm)			-94.43			-90.42
BAND	LTE-B41			GSM 850		
CHANNEL	40240		41240	128	190	251
TRP (dBm)	18.83		19.41	27.47	27.39	27.65
CHANNEL	40240		41240	128	190	251
TIS (dBm)			-91.95	-103.51	-103.74	-104.18
BAND	EGSM			DCS		
CHANNEL	975	37	124	512	698	885
TRP (dBm)	27.69	26.52	26.91	24.72	24.61	24.18
CHANNEL	975	37	124	512	698	885
TIS (dBm)	-103.07	-103.19	-103.13	-102.49	-102.57	-102.69
BAND	PCS			WCDMA-B1		
CHANNEL	512	661	810	9612	9750	9888
TRP (dBm)	24.18	24.25	24.37	19.15		18.53
CHANNEL	512	661	810	10562	10700	10838
TIS (dBm)	-103.15	-103.12	-103.43			-106.28
BAND	WCDMA-B2			WCDMA-B5		
CHANNEL	9262	9400	9538	4132	4185	4233
TRP (dBm)	18.87		18.88	19.62		18.68
CHANNEL	9662	9800	9938	4357	4410	4458
TIS (dBm)			-106.93			-104.37
BAND	WCDMA-B8					
CHANNEL	2712	2788	2863			
TRP (dBm)	19.27		17.47			
CHANNEL	2937	3013	3088			
TIS (dBm)			-104.88			

6.2.1 BT TRP&TIS

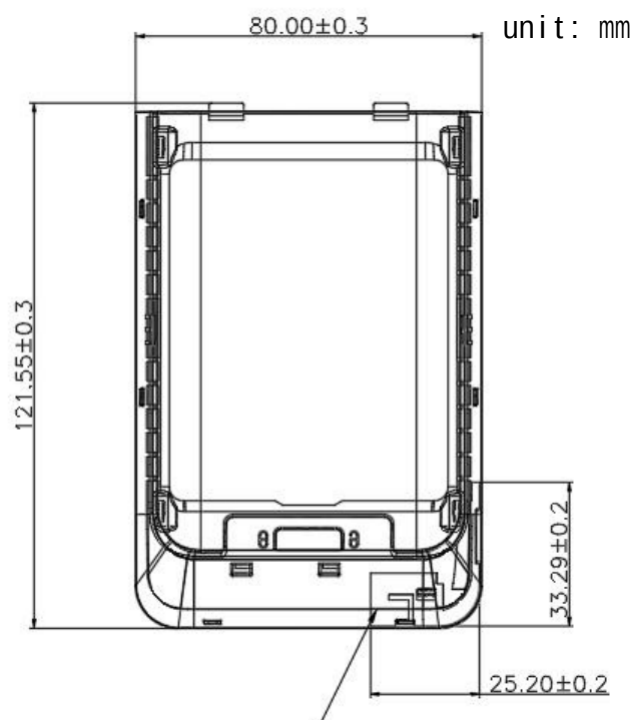
NQI ANT TRP&TIS parameter Summary of W635W			
BAND	BT		
CHANNEL	0	39	78
TRP (dBm)	6.26	6.45	6.28
TIS (dBm)	-87.47	-88.69	-87.38

6.2.2 WIFI TRP/TIS

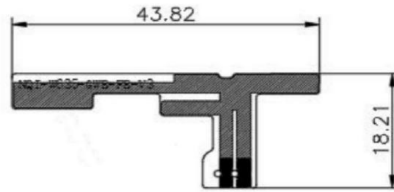
NQI ANT TRP&TIS parameter Summary of W635 41#			
BAND	WIFI-B		
CHANNEL	1	6	11



TRP (dBm)	12.15	13.32	12.09
TIS (dBm)	-85.33	-85.49	-85.18
BAND	WIFI-A		
CHANNEL	36	149	165
TRP (dBm)	12.19	12.37	12.48
TIS (dBm)	-72.27	-72.18	-70.19

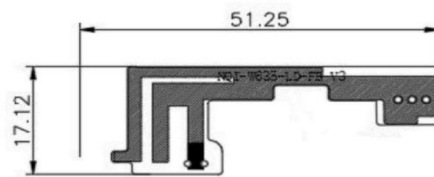


Main antenna LDS



GWB Antenna

WiFi/BT FPC Antenna



LD Antenna

Diversity Antenna