



深圳市昱晟通讯设备有限公司

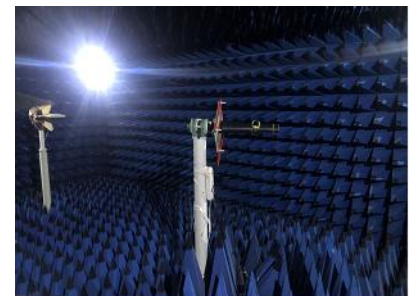
Yusheng Communications-equipment Co.,LTD

OduLifang T1029THB Antenna Test Report

Radio frequency: Zhou Junyu

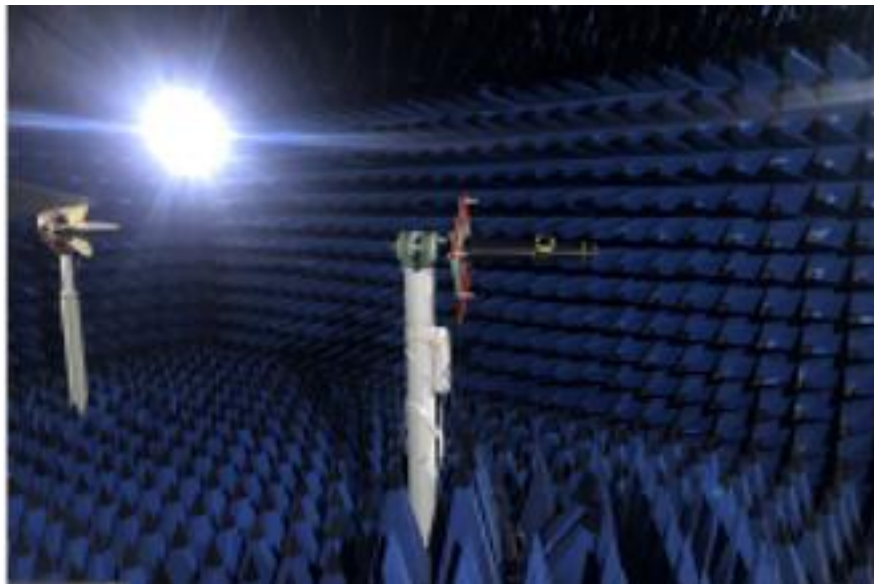
Date: 2023-10-10

Contact: 18728611828



Project development environment

We are transitioning from the Internet era to the intelligent era, with the country building a digital society and smart cities. In the next 5-10 years, both the consumer electronics market and the Internet of Things (IoT) market will have enormous potential for development. The wireless communications field is highly diversified, and in the future, Yusheng will leverage its customer platform advantages in antenna business and its overall strength to strive for providing customers with market-competitive professional-grade product solutions.



Yusheng Communications products almost cover all antenna applications for wireless terminal devices, including automotive antennas, high-precision measurement and surveying antennas, UAV ground and satellite data navigation, high-precision positioning antennas, medical device wireless transmission, consumer antennas (mobile phone antennas, PADs, notebook computer antennas), base station/indoor distribution antennas, smart wearable antennas (smartwatches, TWS headphones), security and home appliances antennas, as well as various wireless data transmission and wireless control intelligent device antennas.

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Summary & Additional Notes

Project debugging
introduction

type	dull and stereotyped			
template	motherboard			
Band and antenna material	main antenna	frequency range		material quality
		2G	GSM850/900/1800/1900	FPC+ coaxial cable
		3G	WCDMA B1/2/4/ 5/8	
		4G	LTE B2/3/4/5/7/8/12/13/17/26/28AB 38/40	
	Other antennas	GWB	1575. 42MHz/2. 450GHz/5. 8GHz	FPC
		DRX	824 MHz–2700 MHz	FPC
performance requirement	To be carried out according to customer requirements			

Outline of report
versions

Report version	Report time	The problem solved by this antenna development
V0.1	2023-9-9	Complete machine test report
V0.2	2023-9-14	On-off screen comparison report
V0.3	2023-10-10	Test report of pilot production machine

Antenna active parameters

			Screen out		Light up the screen	
	frequency range	CH	TRP (db)	TIS (dbm)	TRP (db)	TIS (dbm)
2G	GSM850	CH(low)	27.53		26.93	
		CH(centre)	27.75		27.11	
		CH(tall)	27.86	-101.34	27.26	-93.26
	EGSM900	CH(low)	27.01		26.41	
		CH(centre)	26.79		26.39	
		CH(tall)	26.84	-101.11	26.41	-90.15
	DCS1800	CH(low)	25.17		24.21	
		CH(centre)	26.48		25.58	
		CH(tall)	26.4	-103.34	25.5	-101.48
	PCS1900	CH(low)	25.72		24.9	
		CH(centre)	26.05		25.58	
		CH(tall)	25.36	-103.53	25.5	102.61

Antenna active parameters

			Screen out		Light up the screen	
	frequency range	CH	TRP (db)	TIS (dbm)	TRP (db)	TIS (dbm)
3G	B1	CH(low)	18.32		17.82	
		CH(centre)	18.29		18.39	
		CH(tall)	18.67	-102.74	18.29	-102.55
	B2	CH(low)	17.47		17.95	
		CH(centre)	18.37		18.3	
		CH(tall)	18.07	-104.73	18.35	-104.49
	B4	CH(low)	17.69		17.09	
		CH(centre)	17.38		17.85	
		CH(tall)	17.39	-102.59	17.94	-101.66
	B5	CH(low)	17.55		16.41	
		CH(centre)	17.33		17.93	
		CH(tall)	17.09	-102.5	17.81	-96.68

Antenna active parameters

			Screen out		Light up the screen	
	frequency range	CH	TRP (db)	TIS (dbm)	TRP (db)	TIS (dbm)
3G	B8	CH(low)	17.62		16.26	
		CH(centre)	17.06		17.66	
		CH(tall)	17.45	-102.83	17.1	88.03
4G	B2	CH(low)	19.48		18.88	
		CH(centre)	19.11		19.23	
		CH(tall)	18.93	-95.22	19.54	-93.67
	B3	CH(low)	18.95		18.02	
		CH(centre)	18.87		18.68	
		CH(tall)	18.47	-93.71	18.85	-91.4
	B4	CH(low)	18.9		18	
		CH(centre)	19.1		18.61	
		CH(tall)	18.56	-93.93	18.73	-93.82

Antenna active parameters

			Screen out		Light up the screen	
	frequency range	CH	TRP (db)	TIS (dbm)	TRP (db)	TIS (dbm)
4G	B5	CH(low)	17.84		17.86	
		CH(centre)	17.53		17.26	
		CH(tall)	17.42	-92.27	17.9	-90.06
	B7	CH(low)	18.67		18.48	
		CH(centre)	18.23		18.23	
		CH(tall)	18.69	-94.53	18.4	-93.6
	B8	CH(low)	18.36		18.05	
		CH(centre)	18.44		18.35	
		CH(tall)	18.46	-93.14	18.01	-87.97
	B12	CH(low)	16.24		16.19	
		CH(centre)	17.35		17.86	
		CH(tall)	17.12	-91.92	17.52	-85.74

Antenna active parameters

			Screen out		Light up the screen	
	frequency range	CH	TRP (db)	TIS (dbm)	TRP (db)	TIS (dbm)
4G	B13	CH(low)				
		CH(centre)	18.16	-92.25	17.57	-85.25
		CH(tall)				
	B17	CH(low)	16.16		16.89	
		CH(centre)	17.35		17.13	
		CH(tall)	17.22	-91.4	17.61	-83.47
	B26	CH(low)	18.35		18.09	
		CH(centre)	18.41		18.17	
		CH(tall)	18.43	-92.27	18.81	-89.19
	B28A	CH(low)	17.07		16.71	
		CH(centre)	17.2		17.78	
		CH(tall)	18.47	-92.83	18.29	-86.33

Antenna active parameters

			Screen out		Light up the screen	
	frequency range	CH	TRP (db)	TIS (dbm)	TRP (db)	TIS (dbm)
4G	B28B	CH(low)	17.13		17.22	
		CH(centre)	18.03		17	
		CH(tall)	18.73	-92.12	18.18	-89.17
	B66	CH(low)	19.43		19.53	
		CH(centre)	19.56		19.5	
		CH(tall)	19.55	-93.9	19.22	-93.4
	B38	CH(low)	18.36		18.42	
		CH(centre)	18.51		18.34	
		CH(tall)	19.07	-92.42	18.87	-92.16
	B40	CH(low)	19.16		18.48	
		CH(centre)	18.82		18.56	
		CH(tall)	18.63	-92.93	18.22	-92.13

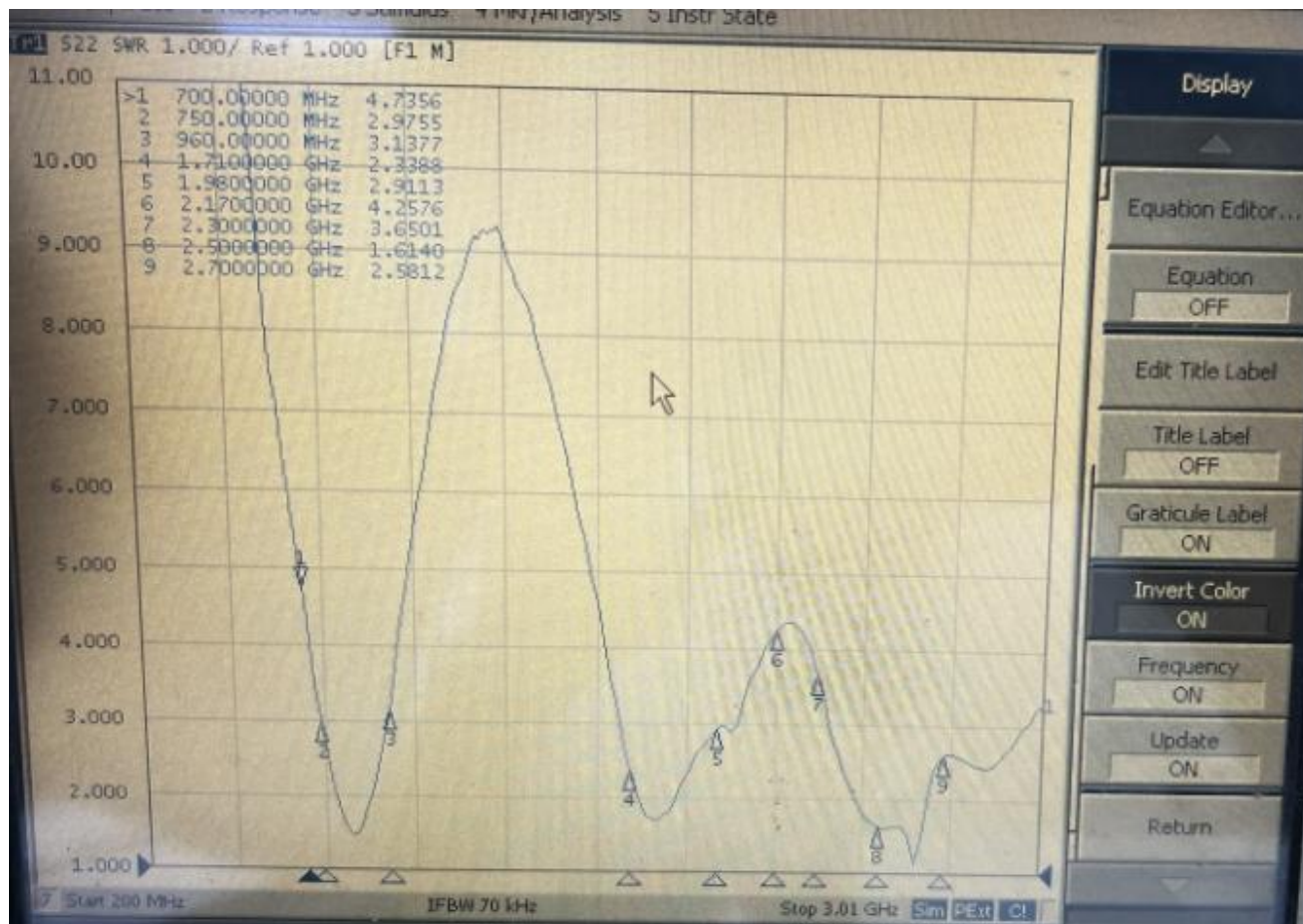
Antenna active parameters

			Screen out		Light up the screen	
	frequency range	CH	TRP (db)	TIS (dbm)	TRP (db)	TIS (dbm)
WIFI	11B	CH1	14.21		14.11	
		CH7	14.3		14.15	
		CH13	15.31	-85.23	15.21	-84.66
	11G	CH1	12.5		12.65	
		CH7	13.91		13.78	
		CH13	14.74	-71.55	14.37	-70.23
	11N	CH1	12.66		12.64	
		CH7	13.58		13.52	
		CH13	14.45	-67.33	14.34	-66.6
	11A	CH36	10.27		10.61	
		CH64	10.86		10.71	
		CH165	10.28	-72.44	10.68	-72.61

GPS test



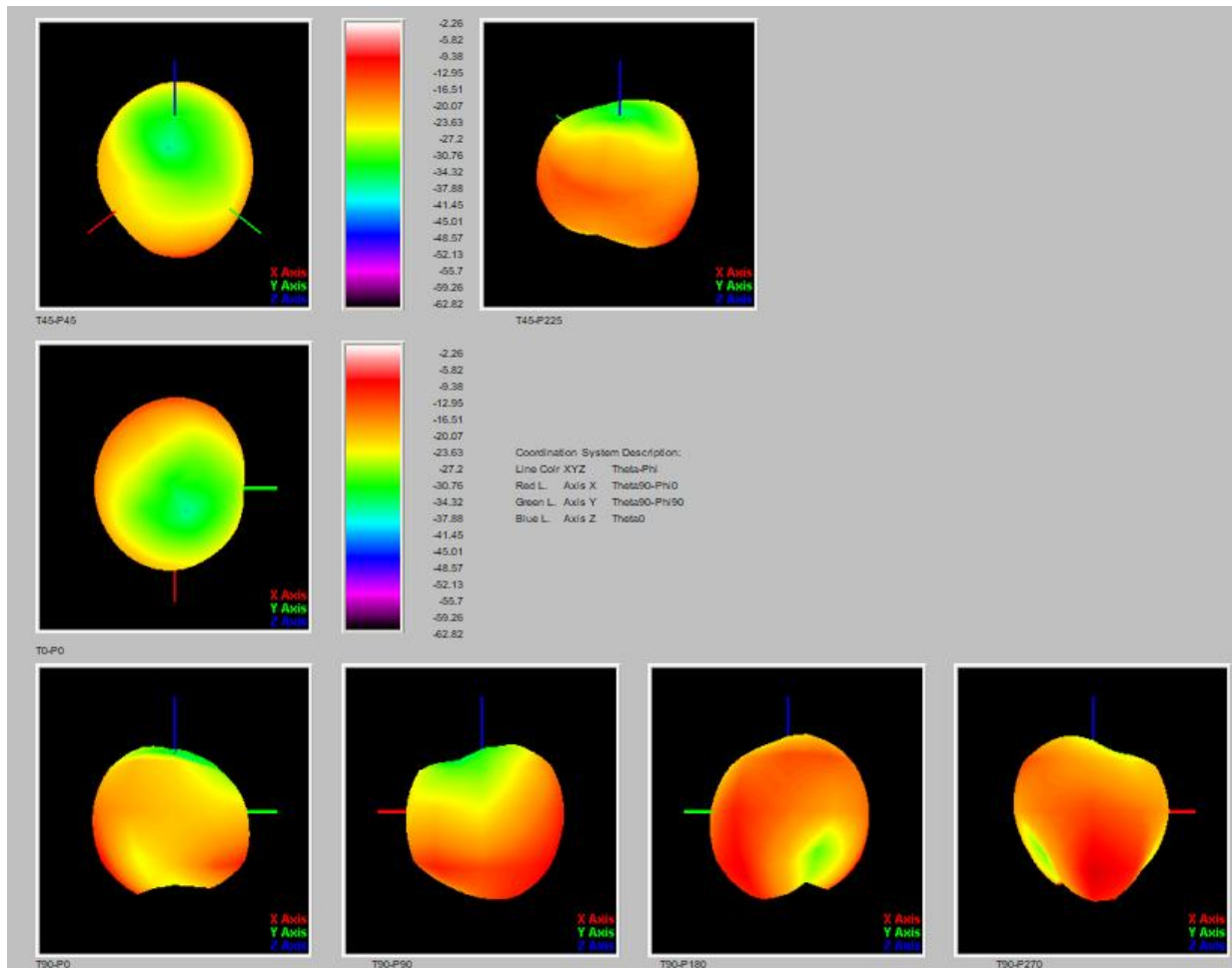
Antenna passive parameters-
main antenna



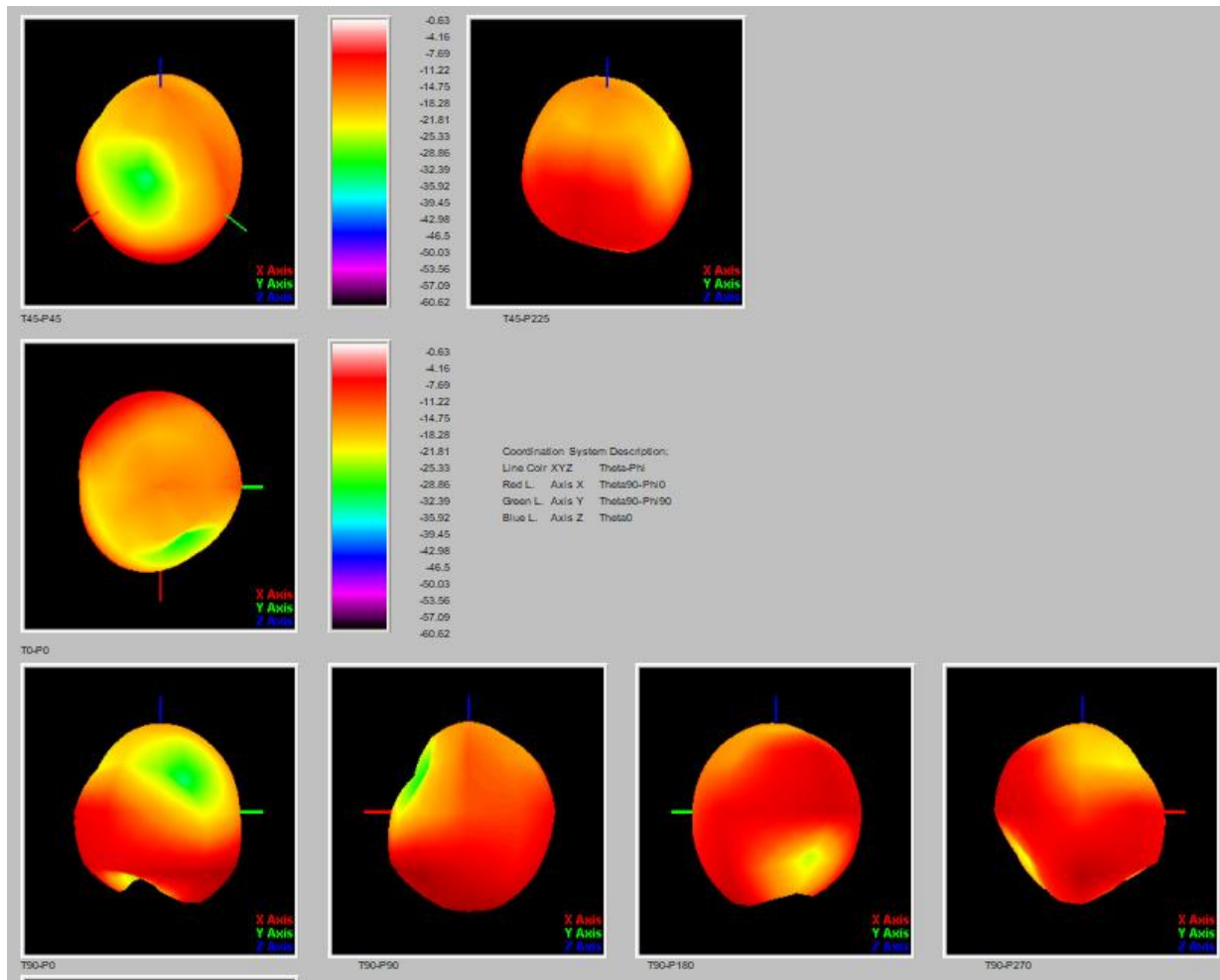
Antenna passive parameters

Freq (main antenna efficiency)	Effi (%)	Efficiency (dB)	Freq (main antenna efficiency)	Effi (%)	Efficiency (dB)	Freq (main antenna efficiency)	Effi (%)	Efficiency (dB)	Freq (main antenna efficiency)	Effi (%)	Efficiency (dB)
700.0	16.8%	-7.74	880.0	43.2%	-3.65	1880.0	34.4%	-4.63			
710.0	18.3%	-7.38	890.0	41.6%	-3.81	1900.0	32.6%	-4.86	2340.0	25.0%	-6.02
720.0	17.1%	-7.68	900.0	39.4%	-4.05	1920.0	32.4%	-4.89	2360.0	29.8%	-5.25
730.0	19.7%	-7.05	910.0	37.3%	-4.29	1940.0	32.7%	-4.85	2380.0	33.9%	-4.70
740.0	19.1%	-7.18	920.0	32.7%	-4.85	1960.0	33.7%	-4.72	2400.0	33.1%	-4.80
750.0	25.0%	-6.02	930.0	29.6%	-5.28	1980.0	31.1%	-5.07	2420.0	27.7%	-5.58
760.0	29.8%	-5.25	940.0	27.6%	-5.58	2000.0	21.0%	-6.78	2440.0	32.2%	-4.93
770.0	33.9%	-4.70	950.0	24.1%	-6.18	2020.0	20.8%	-6.82	2460.0	40.1%	-3.97
780.0	33.1%	-4.80	960.0	21.6%	-6.66	2040.0	23.3%	-6.32	2480.0	42.4%	-3.73
790.0	35.5%	-4.50	1700.0	32.2%	-4.92	2060.0	19.6%	-7.08	2500.0	39.9%	-3.99
800.0	38.4%	-4.16	1720.0	37.5%	-4.26	2080.0	21.7%	-6.63	2520.0	36.8%	-4.34
810.0	35.7%	-4.47	1740.0	39.2%	-4.07	2100.0	22.8%	-6.42	2540.0	37.3%	-4.28
820.0	39.3%	-4.06	1760.0	35.5%	-4.50	2120.0	20.9%	-6.80	2560.0	35.3%	-4.52
830.0	45.0%	-3.47	1780.0	34.6%	-4.61	2140.0	23.2%	-6.35	2580.0	33.2%	-4.79
840.0	52.8%	-2.78	1800.0	37.9%	-4.22	2160.0	26.3%	-5.80	2600.0	28.9%	-5.40
850.0	53.4%	-2.72	1820.0	33.5%	-4.75	2180.0	26.9%	-5.71	2620.0	28.9%	-5.40
860.0	53.1%	-2.75	1840.0	38.3%	-4.17	2300.0	21.0%	-6.78	2640.0	30.6%	-5.14
870.0	48.3%	-3.16	1860.0	36.9%	-4.32	2320.0	21.5%	-6.67	2660.0	27.4%	-5.62
									2680.0	24.8%	-6.06

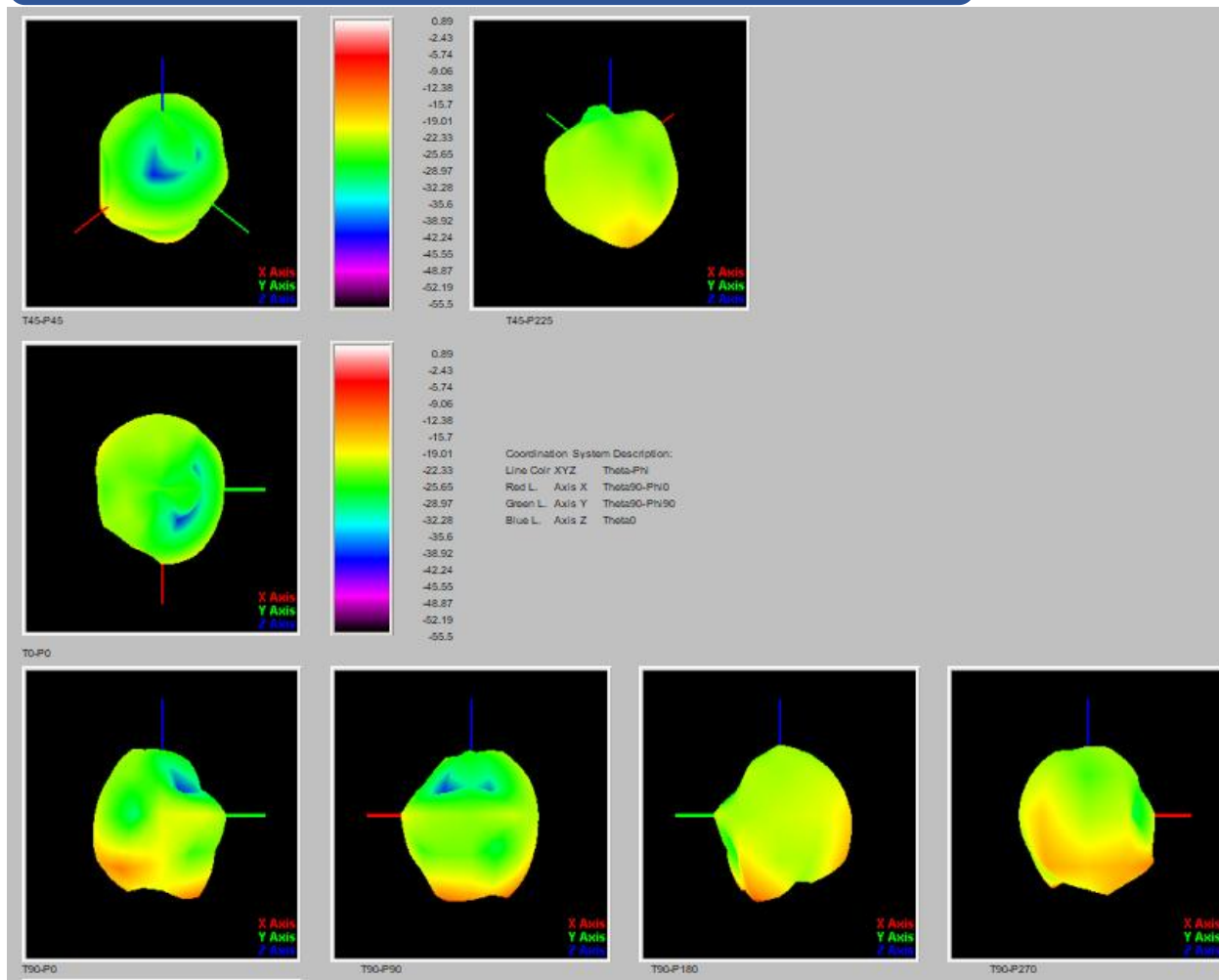
Antenna passive parameters-direction graph- main antenna-750MHz



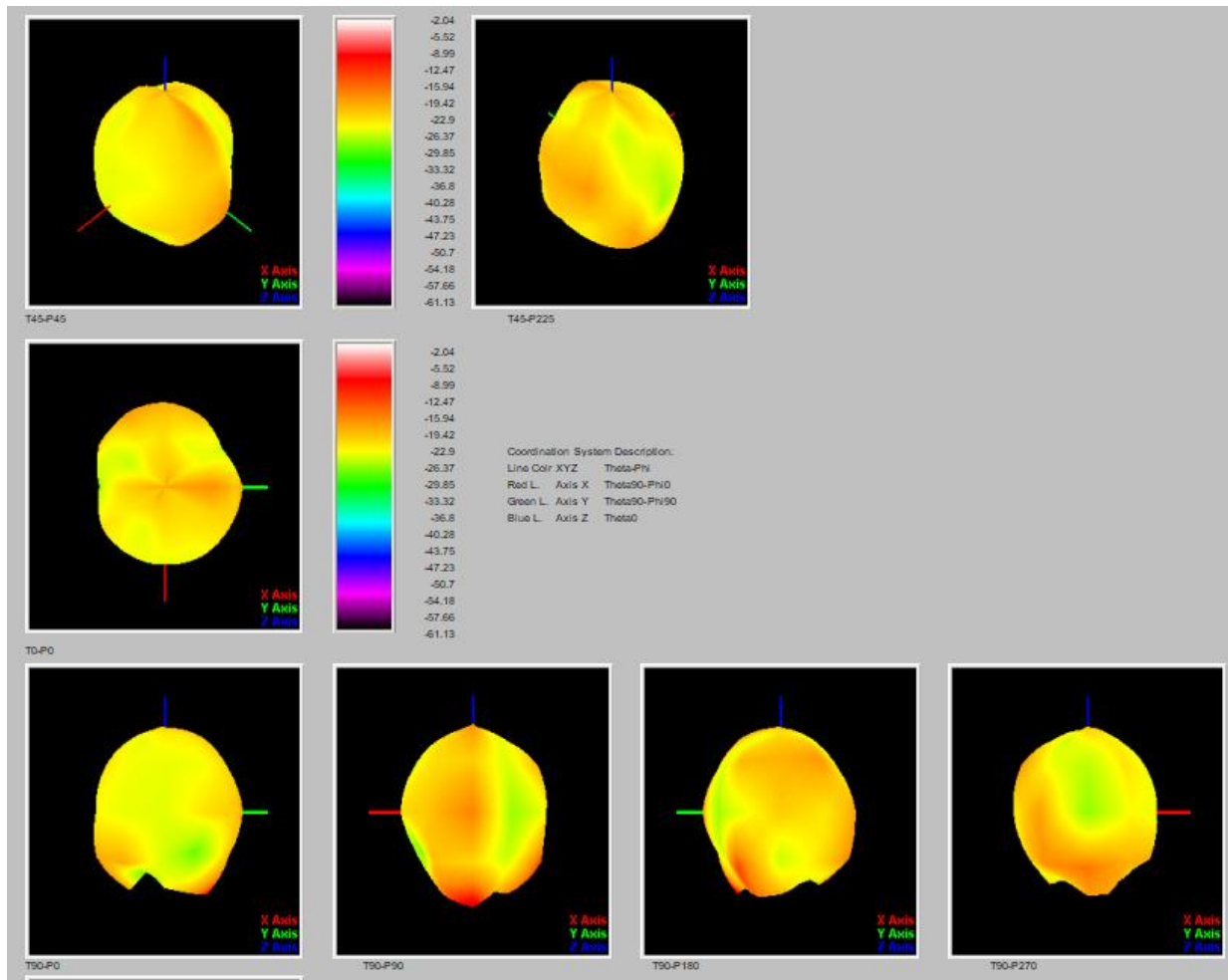
Antenna passive parameters-direction diagram-main antenna-880MHz



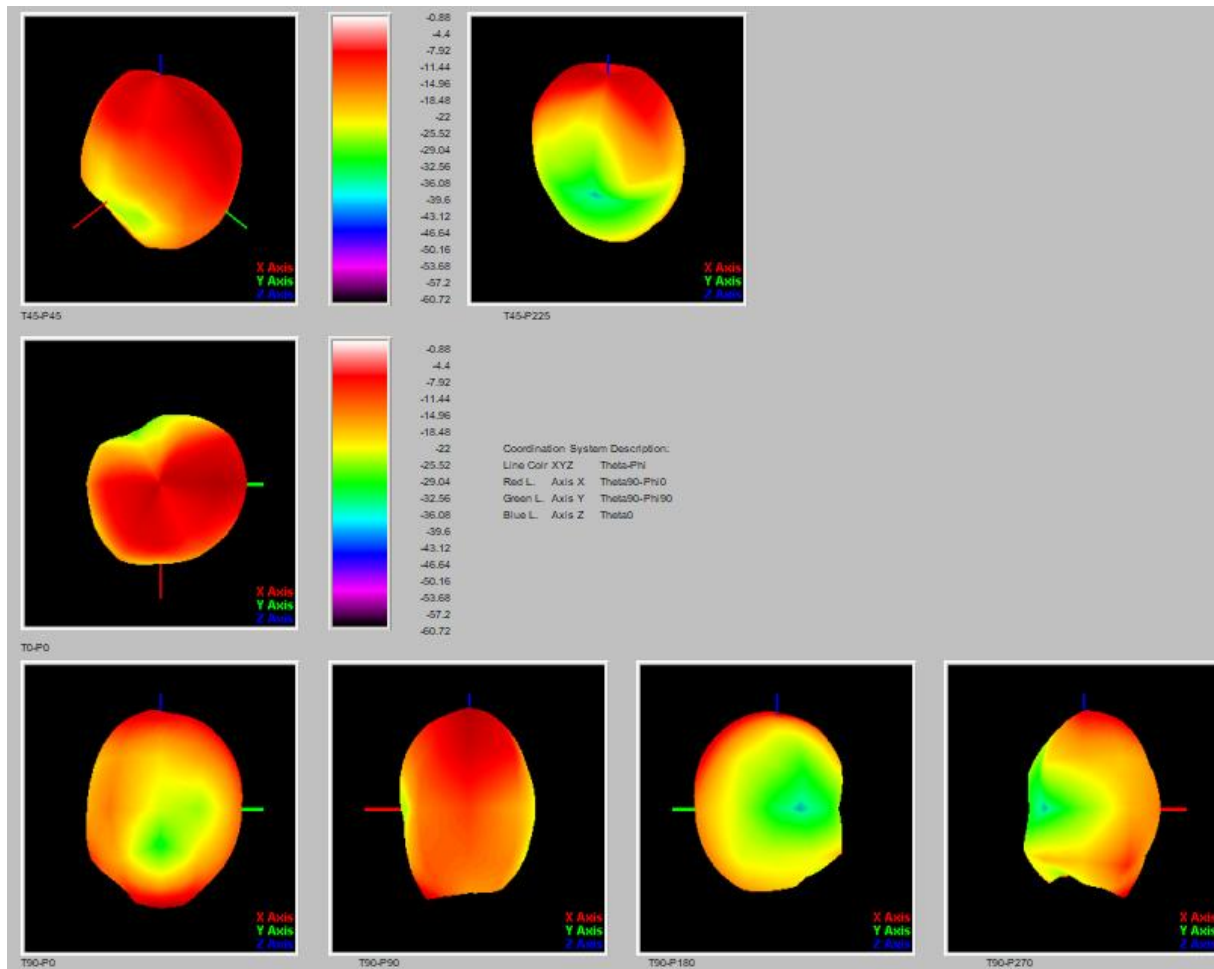
Antenna passive parameters-direction graph-main antenna-1800MHz



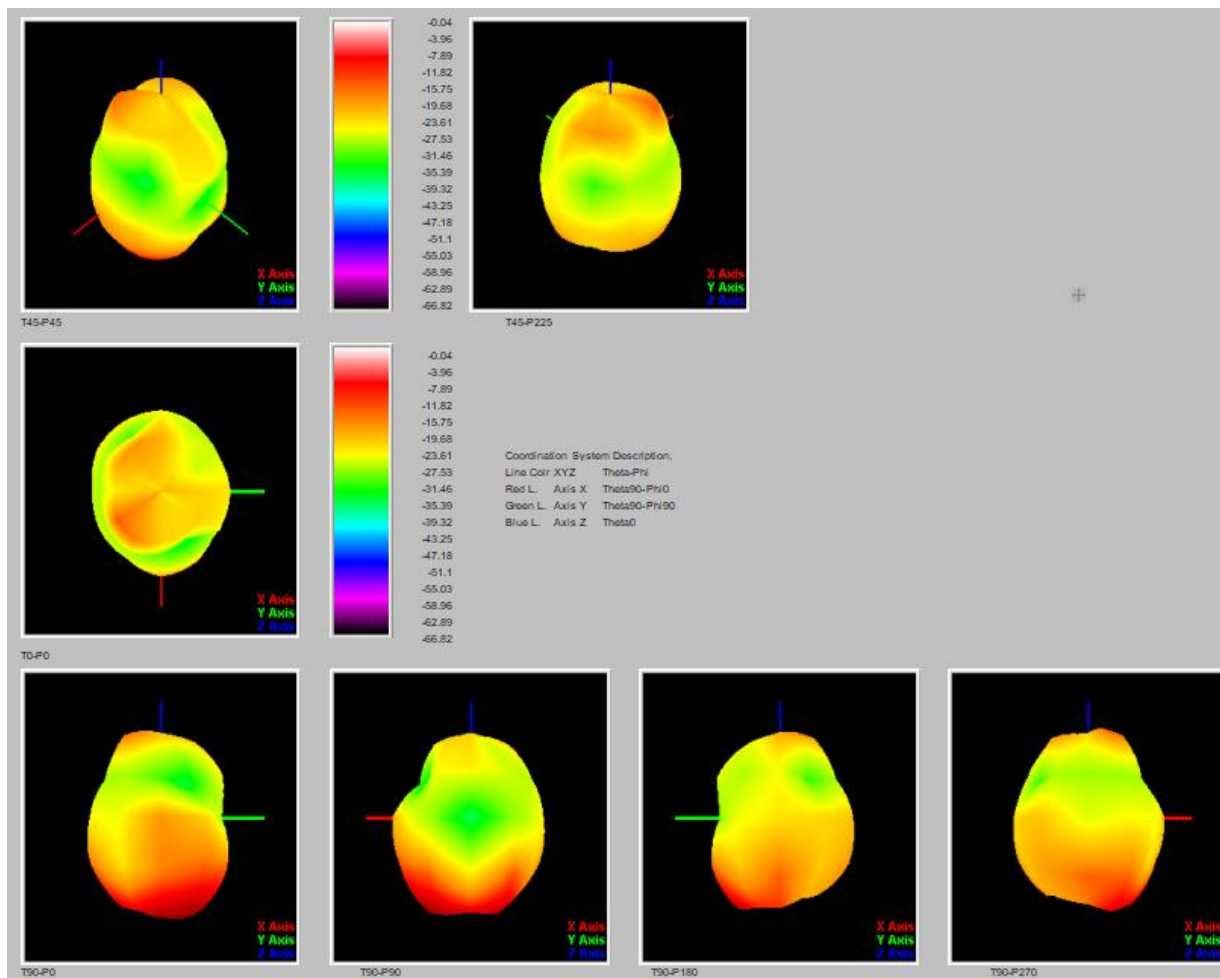
Antenna passive parameters-direction chart- main antenna-2000MHz



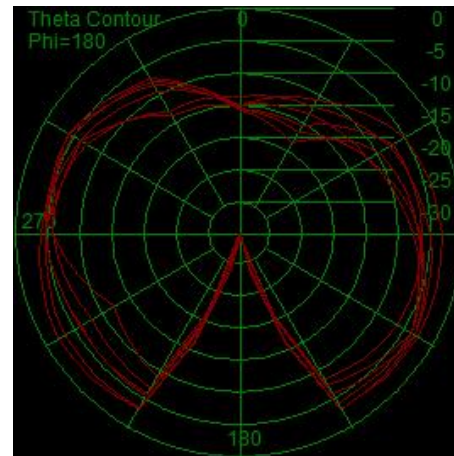
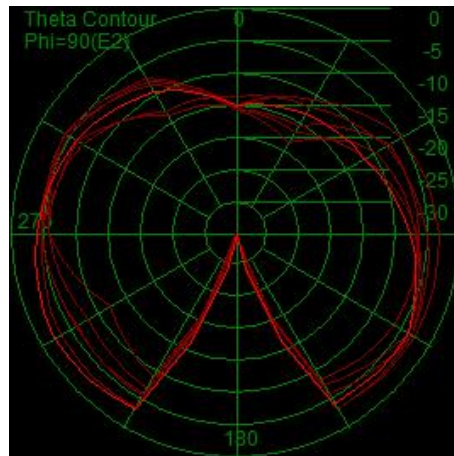
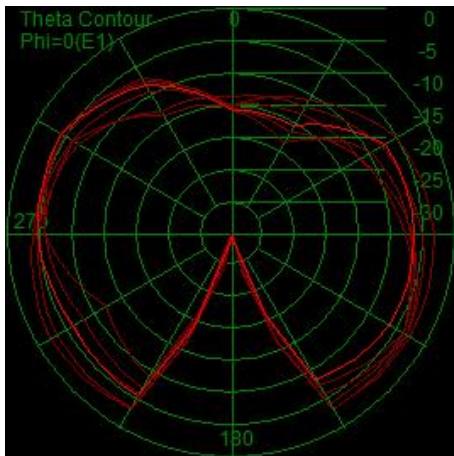
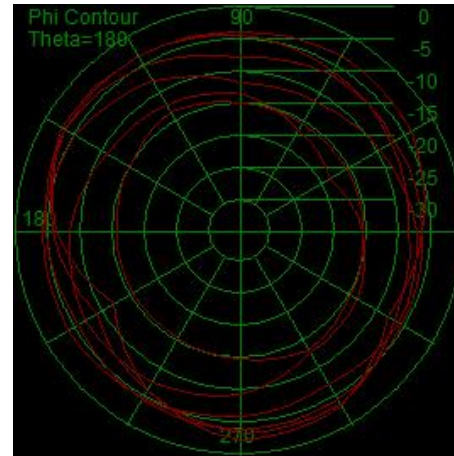
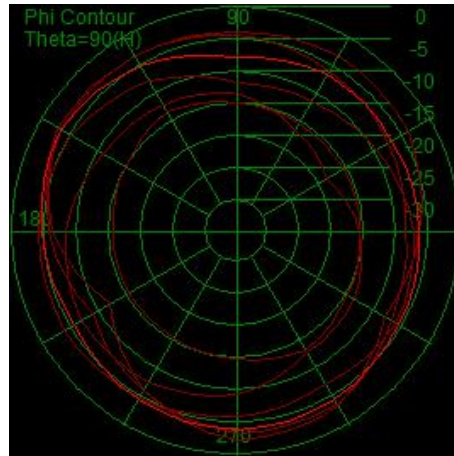
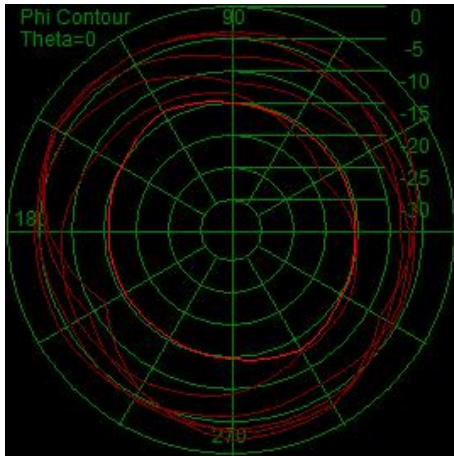
Antenna passive parameters-direction diagram-main antenna-2400MHz



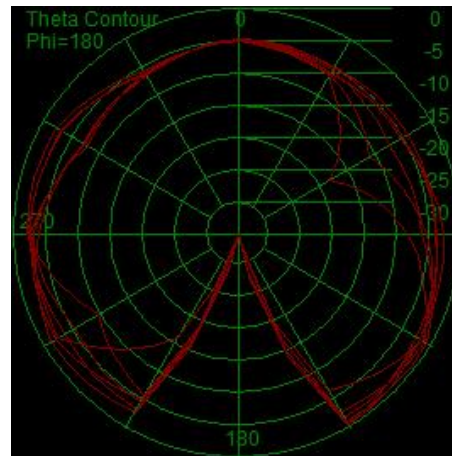
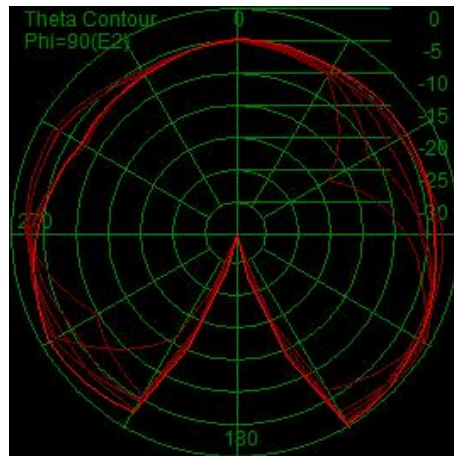
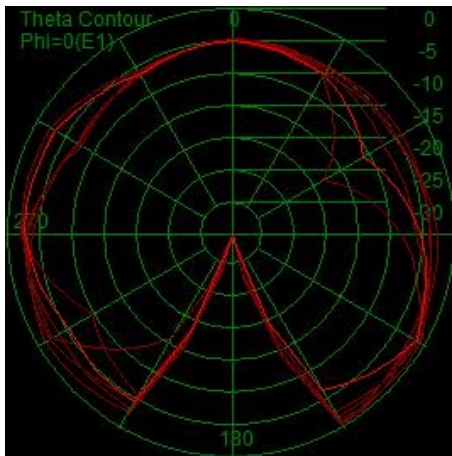
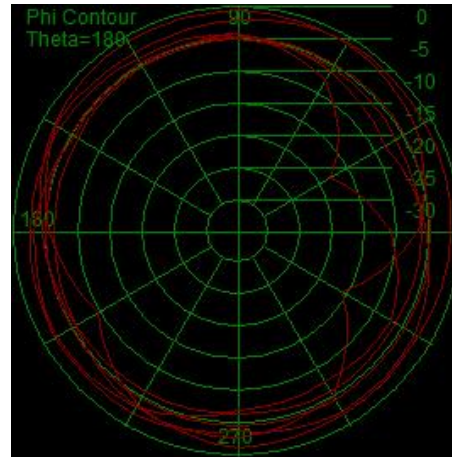
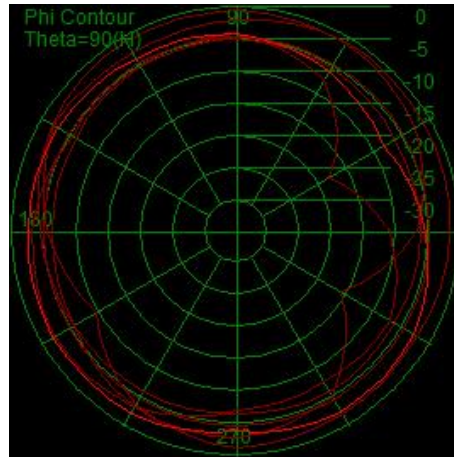
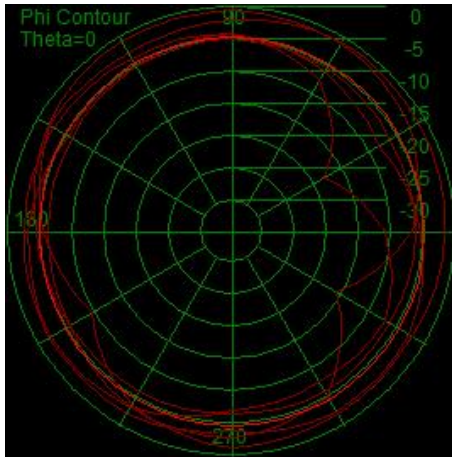
Antenna passive parameters-direction diagram-main antenna-2600MHz



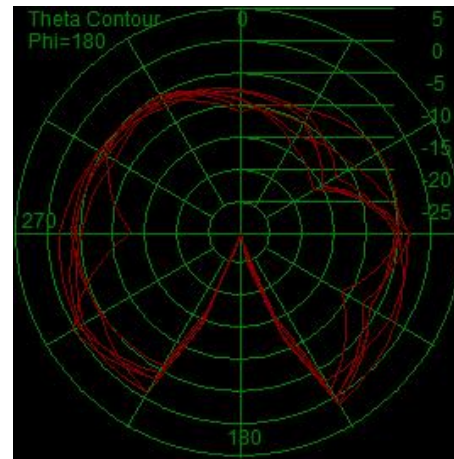
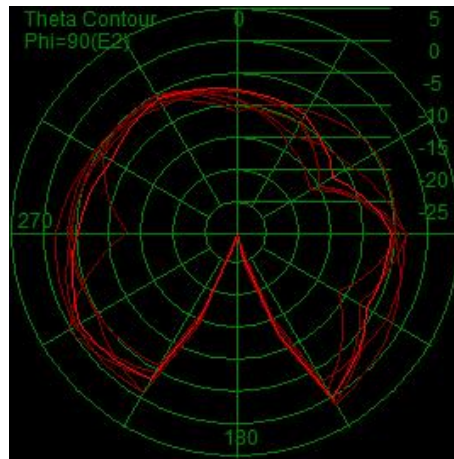
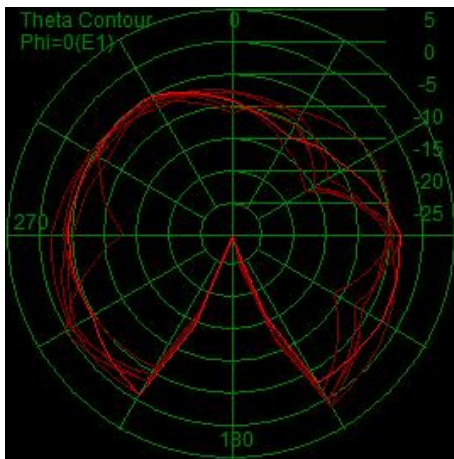
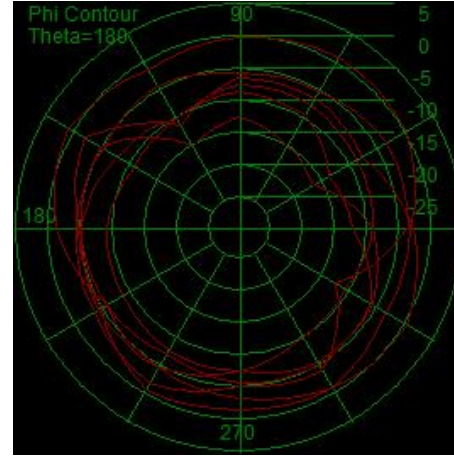
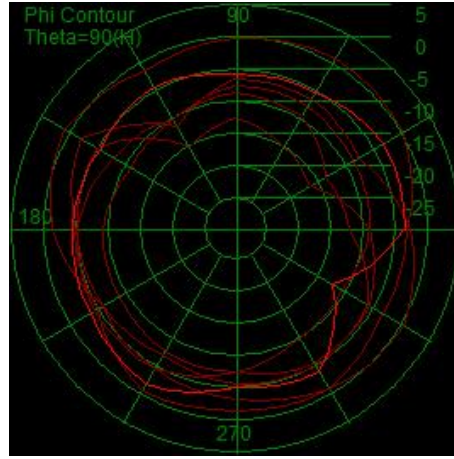
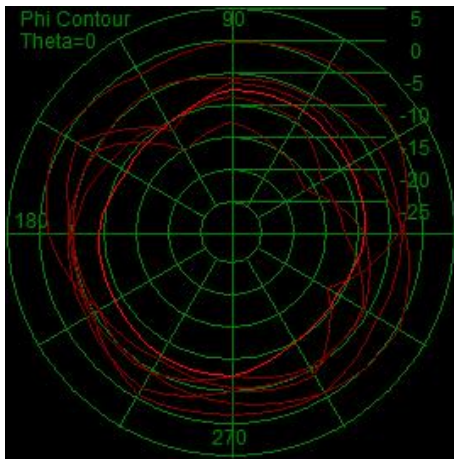
Antenna passive parameters-direction
diagram-main antenna-750MHz



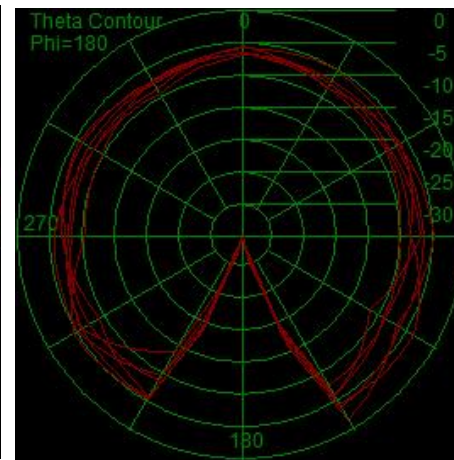
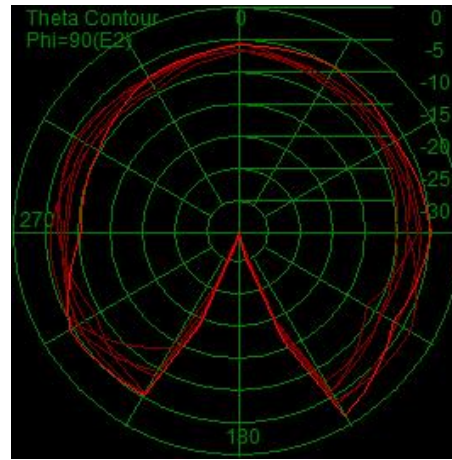
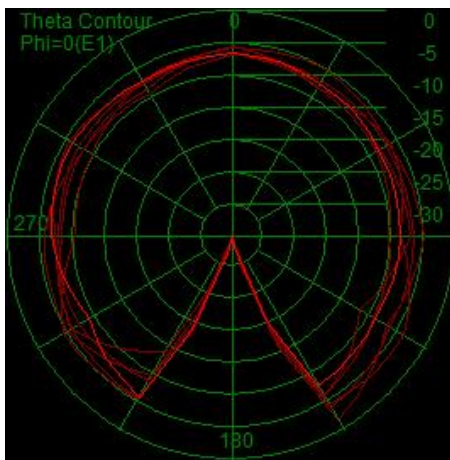
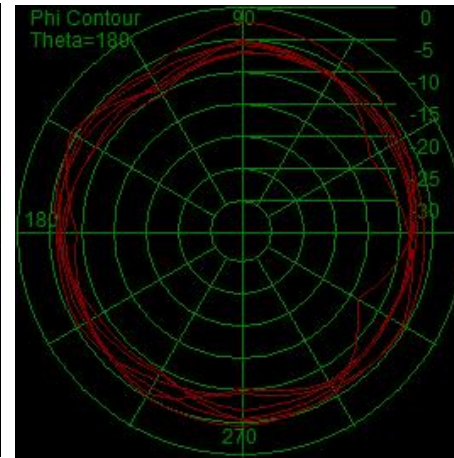
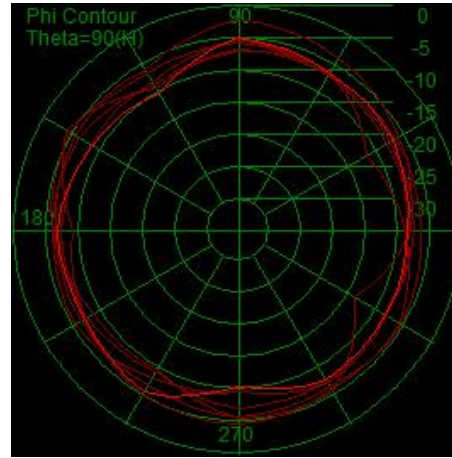
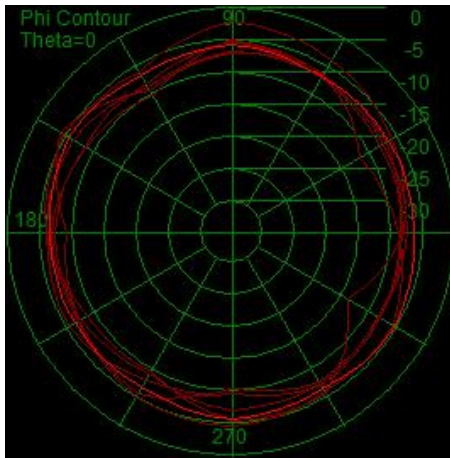
Antenna passive parameters-plan view-main antenna-880MHz



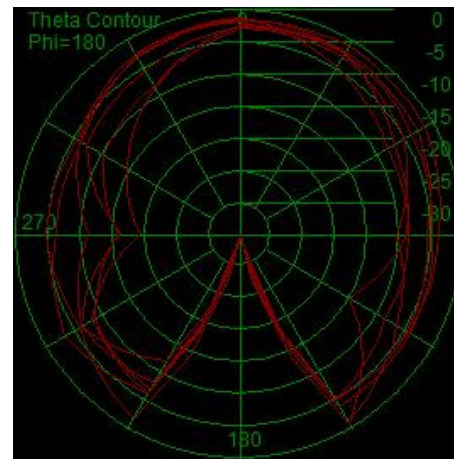
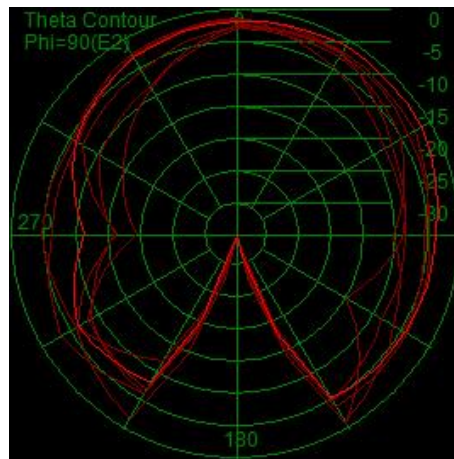
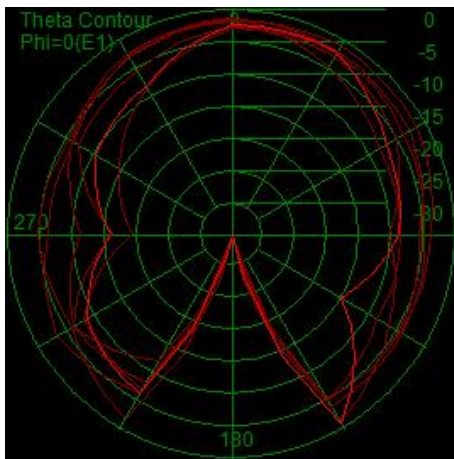
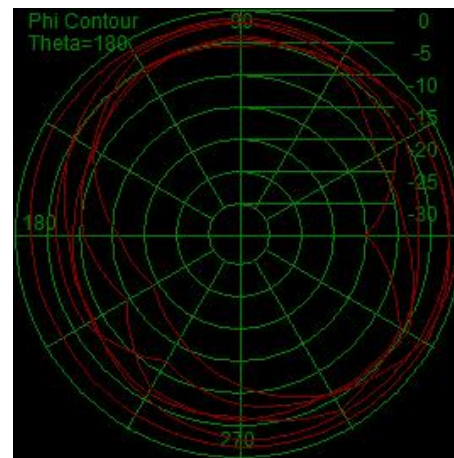
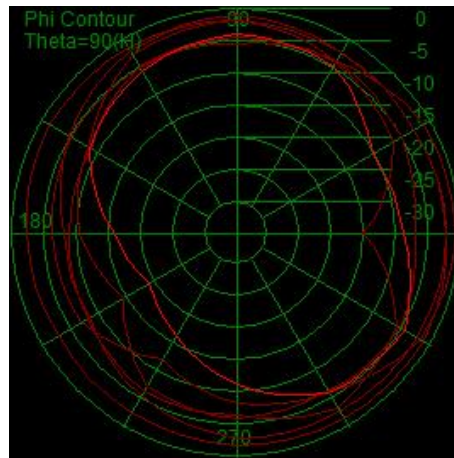
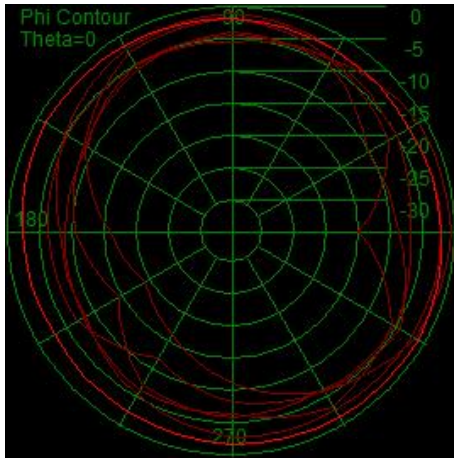
Antenna passive parameters-plan view-main
antenna-1800MHz



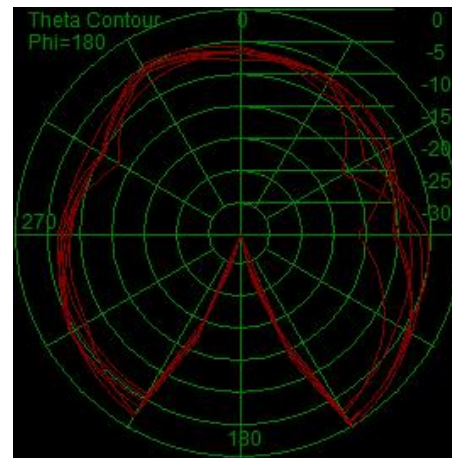
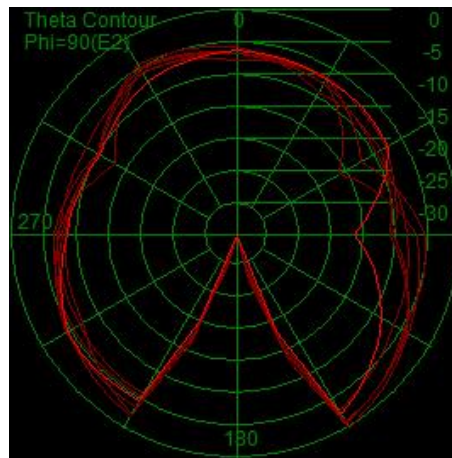
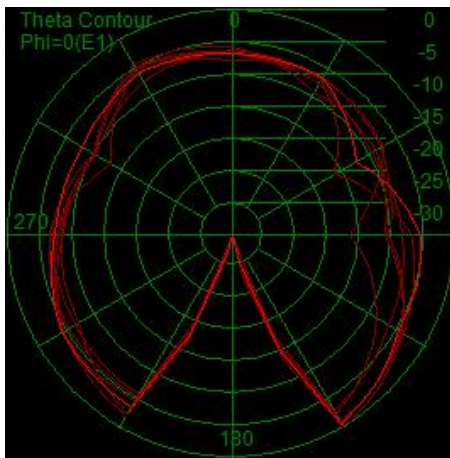
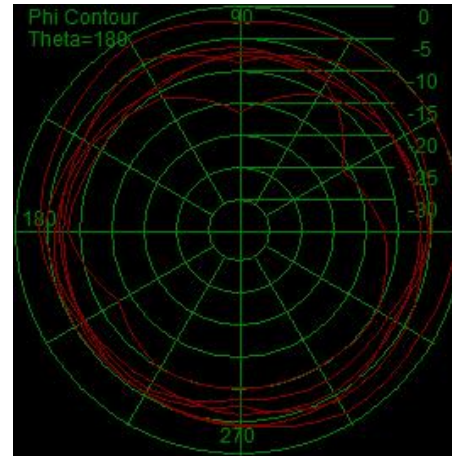
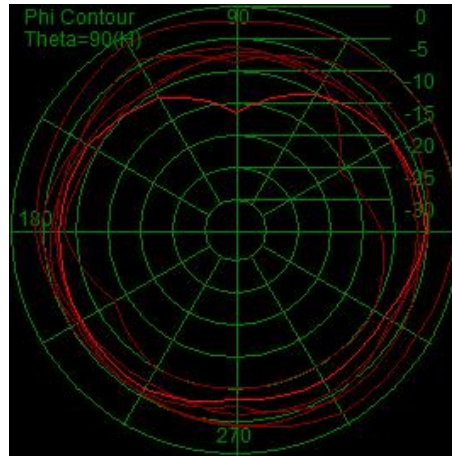
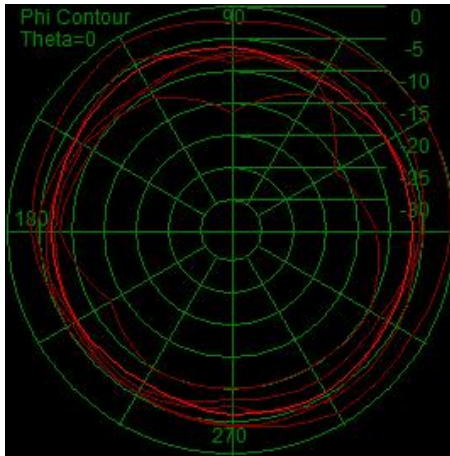
Antenna passive parameters-plan view-main
antenna-2000MHz



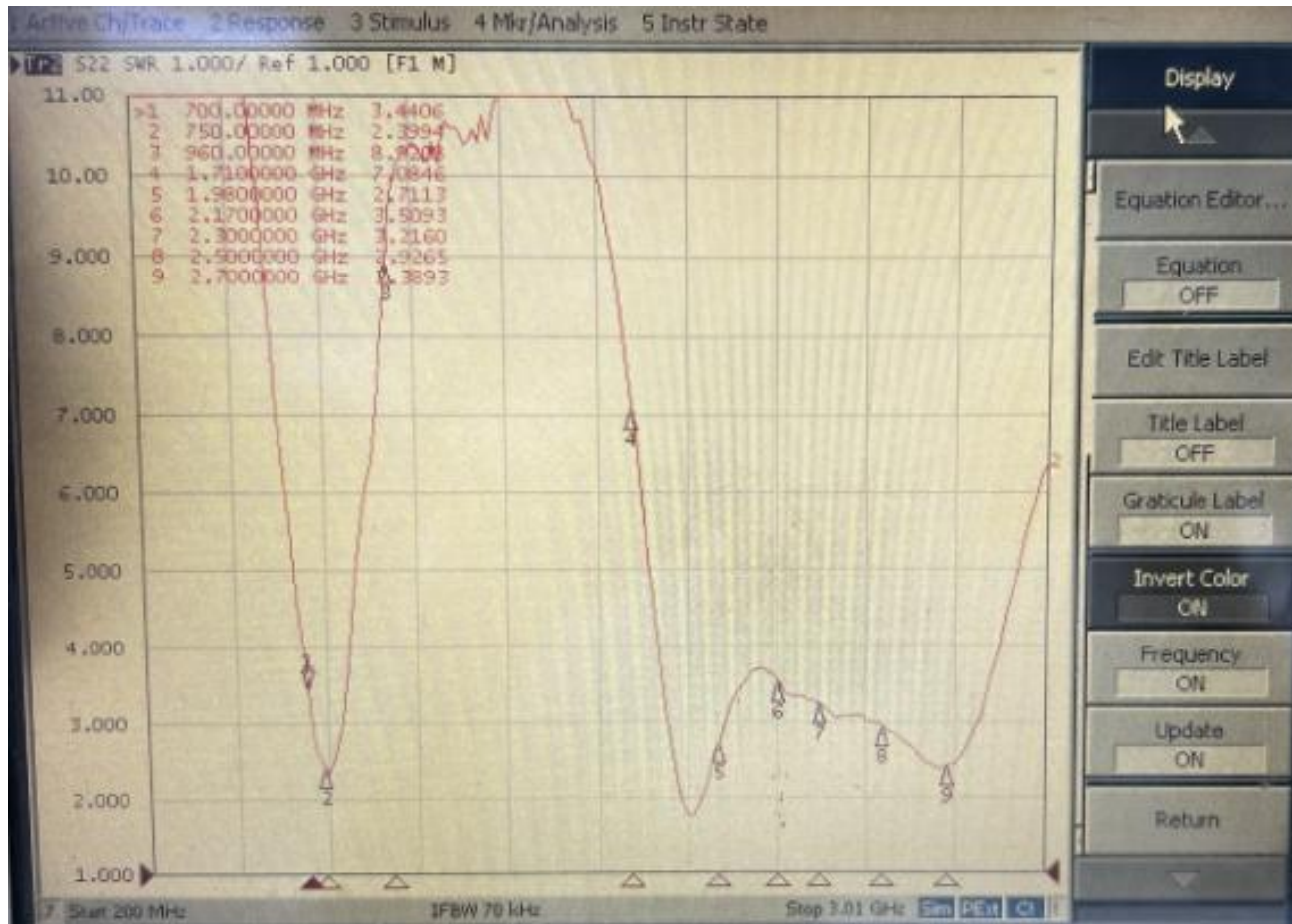
Antenna passive parameter-plan view-main
antenna-2400MHz



Antenna passive parameters-plan view-main
antenna-2600MHz



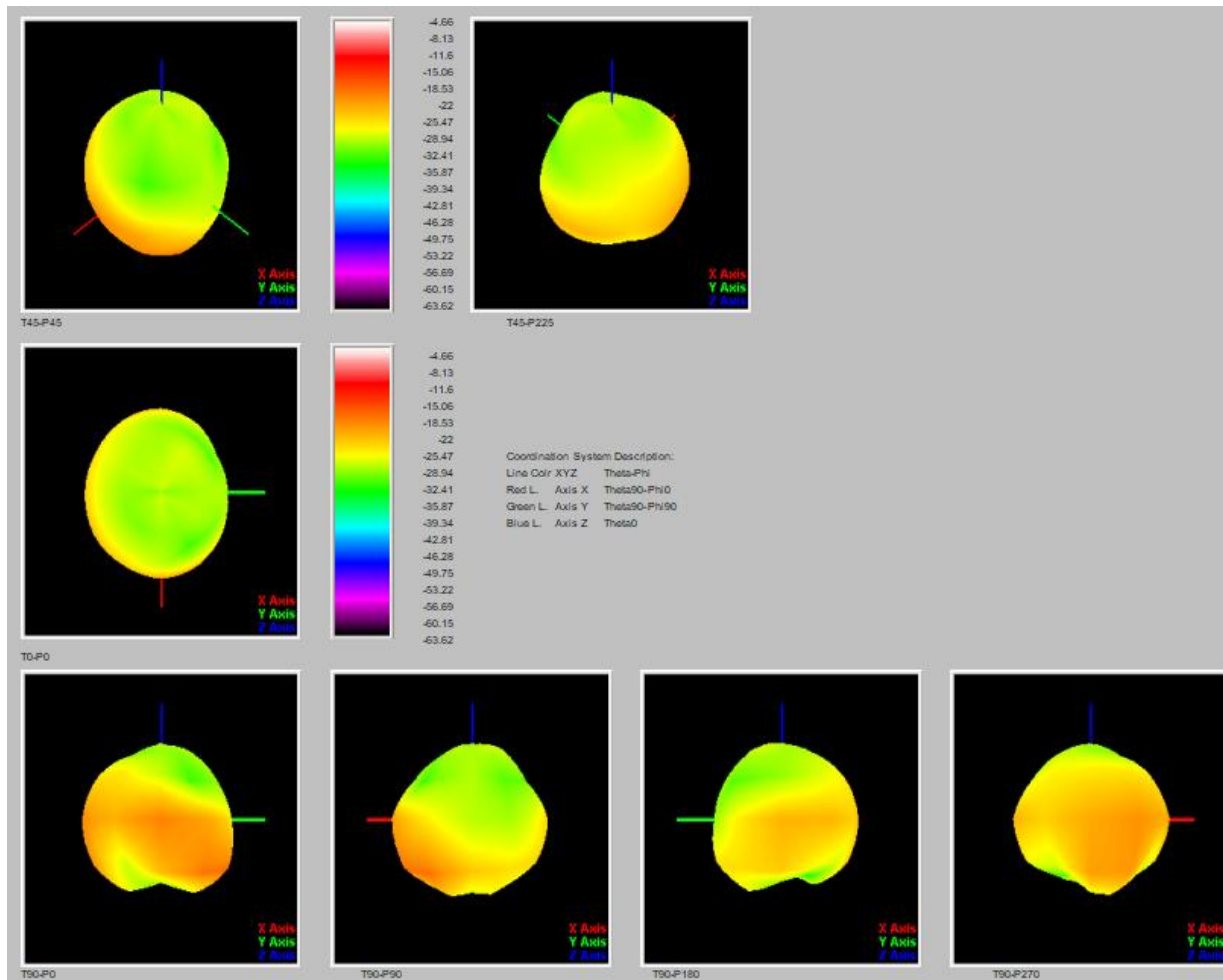
Antenna passive parameter- diversity antenna



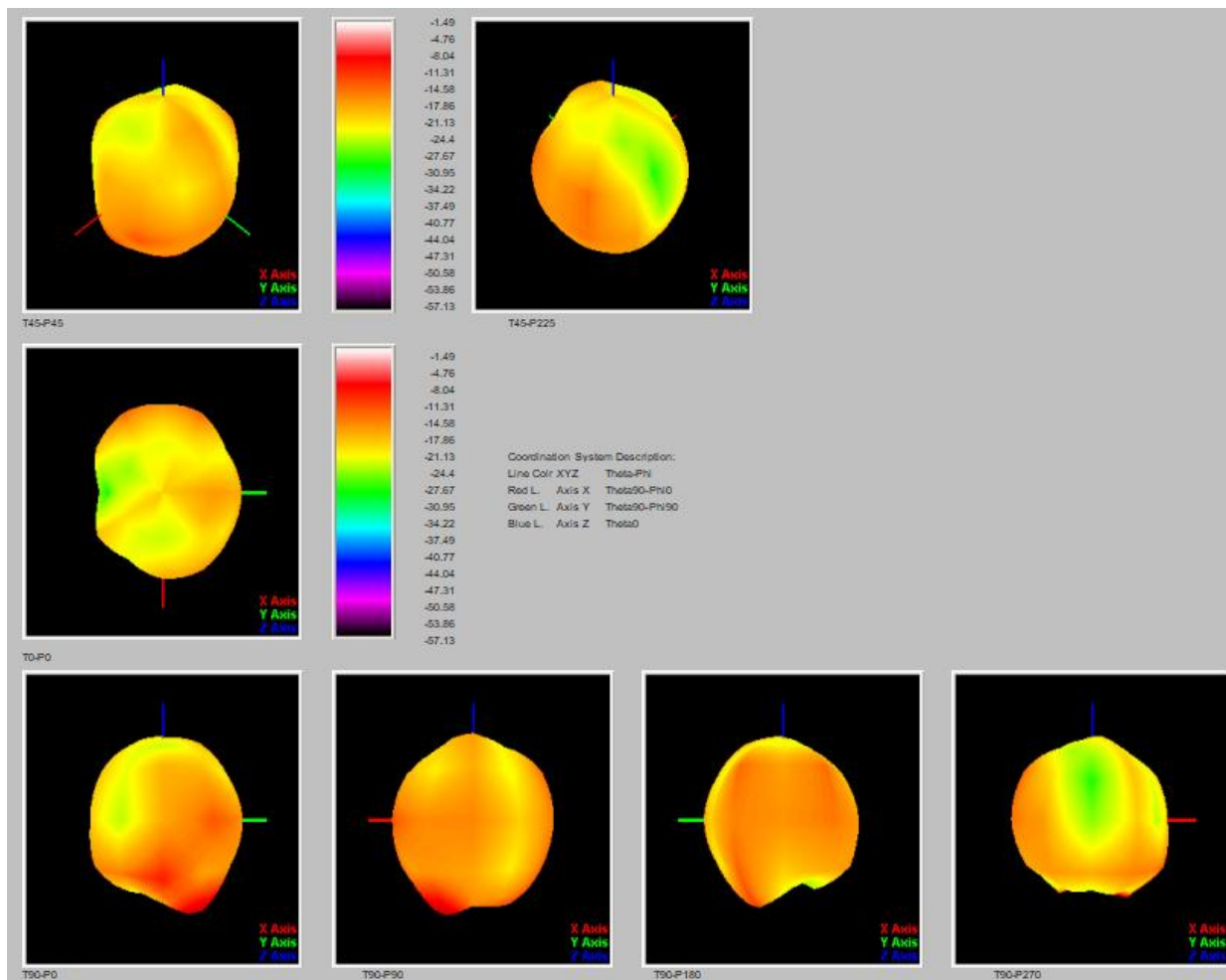
Antenna passive parameters-diversity

Freq (main antenna efficiency)	Effi (%)	Efficiency (dB)	Freq (main antenna efficiency)	Effi (%)	Efficiency (dB)	Freq (main antenna efficiency)	Effi (%)	Efficiency (dB)	Freq (main antenna efficiency)	Effi (%)	Efficiency (dB)
700.0	5.9%	-12.26	880.0	16.8%	-7.74	1880.0	20.3%	-6.92	2340.0	18.2%	-7.40
710.0	7.7%	-11.13	890.0	15.6%	-8.06	1900.0	25.5%	-5.94	2360.0	18.8%	-7.25
720.0	9.2%	-10.37	900.0	16.4%	-7.85	1920.0	30.4%	-5.17	2380.0	21.2%	-6.73
730.0	10.6%	-9.73	910.0	11.9%	-9.26	1940.0	31.0%	-5.08	2400.0	25.5%	-5.94
740.0	15.4%	-8.11	920.0	8.8%	-10.54	1960.0	31.2%	-5.05	2420.0	26.2%	-5.81
750.0	17.5%	-7.57	930.0	6.7%	-11.72	1980.0	27.1%	-5.68	2440.0	22.8%	-6.42
760.0	18.2%	-7.41	940.0	5.7%	-12.44	2000.0	18.4%	-7.35	2460.0	20.0%	-6.99
770.0	17.3%	-7.63	950.0	5.0%	-13.05	2020.0	17.2%	-7.65	2480.0	20.2%	-6.96
780.0	16.5%	-7.83	960.0	4.7%	-13.25	2040.0	19.2%	-7.18	2500.0	18.8%	-7.25
790.0	17.6%	-7.54	1700.0	5.9%	-12.26	2060.0	16.0%	-7.96	2520.0	18.4%	-7.35
800.0	19.8%	-7.03	1720.0	7.0%	-11.53	2080.0	17.4%	-7.61	2540.0	17.2%	-7.65
810.0	19.2%	-7.17	1740.0	10.9%	-9.61	2100.0	18.3%	-7.38	2560.0	19.2%	-7.18
820.0	20.0%	-6.98	1760.0	15.5%	-8.08	2120.0	17.1%	-7.68	2580.0	16.0%	-7.96
830.0	21.6%	-6.88	1780.0	15.7%	-8.03	2140.0	19.7%	-7.05	2600.0	17.4%	-7.61
840.0	20.3%	-6.93	1800.0	17.7%	-7.51	2160.0	24.7%	-6.08	2620.0	18.3%	-7.38
850.0	20.0%	-6.98	1820.0	17.9%	-7.48	2180.0	26.1%	-5.84	2640.0	20.2%	-6.95
860.0	19.6%	-7.08	1840.0	18.0%	-7.45	2300.0	15.6%	-8.06	2660.0	19.9%	-7.02
870.0	16.8%	-7.74	1860.0	15.6%	-8.07	2320.0	17.3%	-7.63	2680.0	18.7%	-7.29

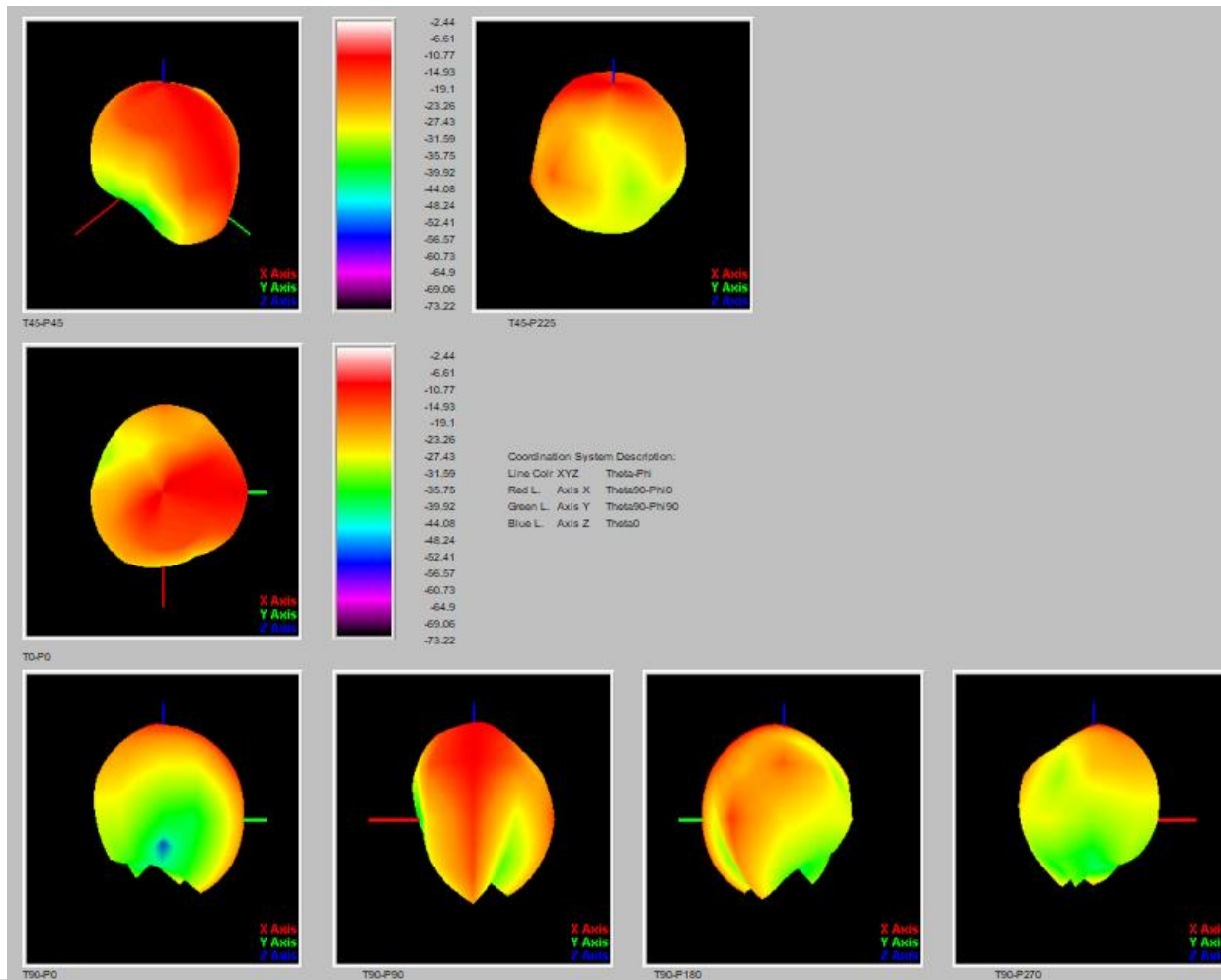
Antenna passive parameter-directional pattern-diversification antenna-800MHz



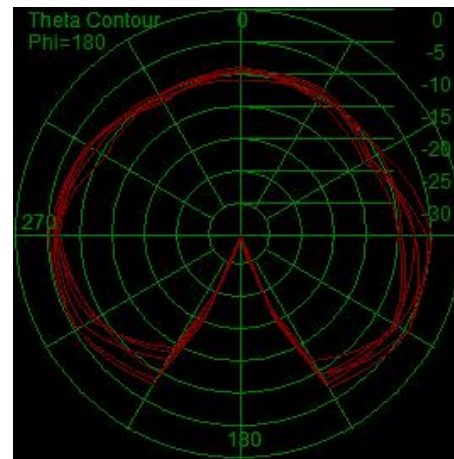
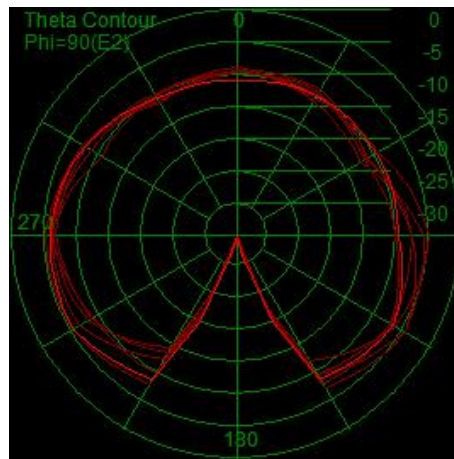
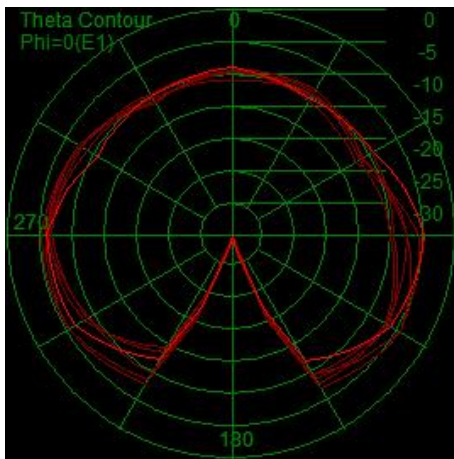
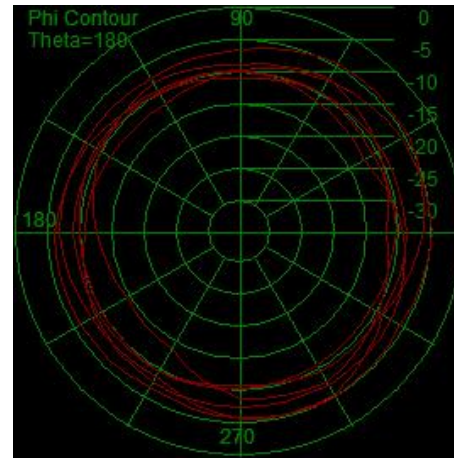
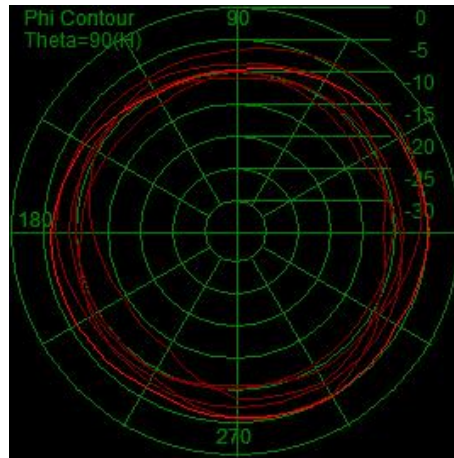
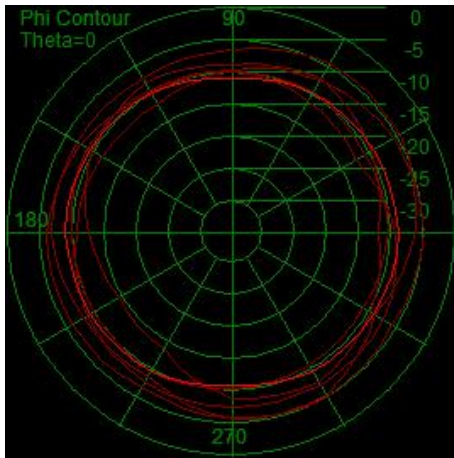
Antenna passive parameter-direction graph- diversity antenna-1900MHz



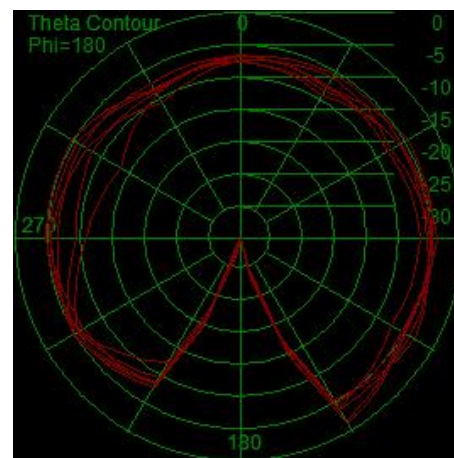
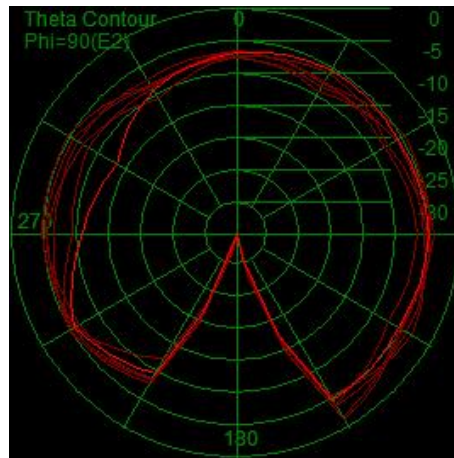
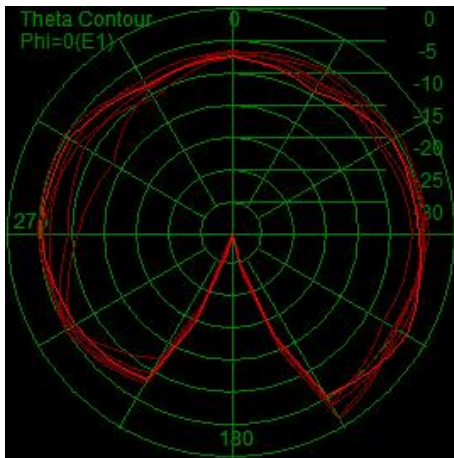
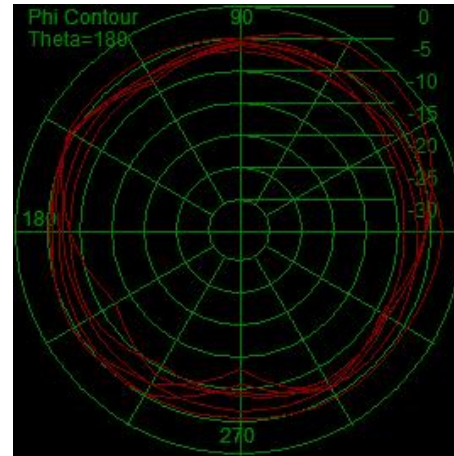
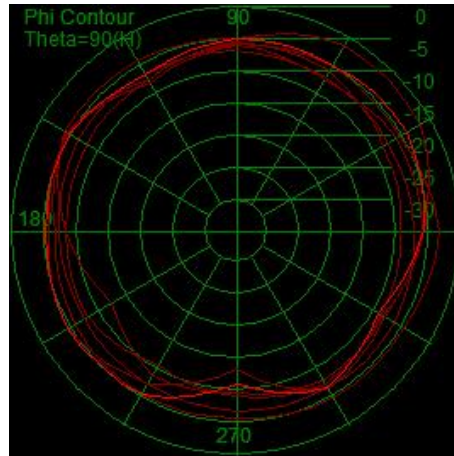
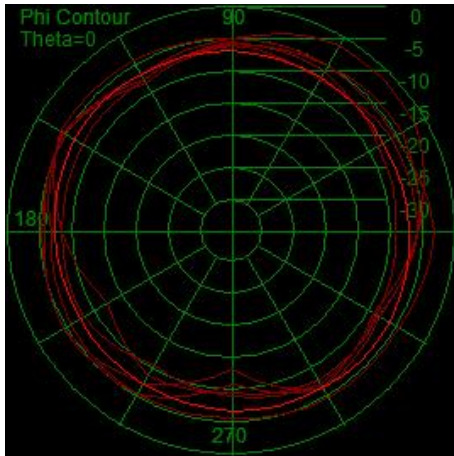
Antenna passive parameter-directional pattern- diversity antenna-2500MHz



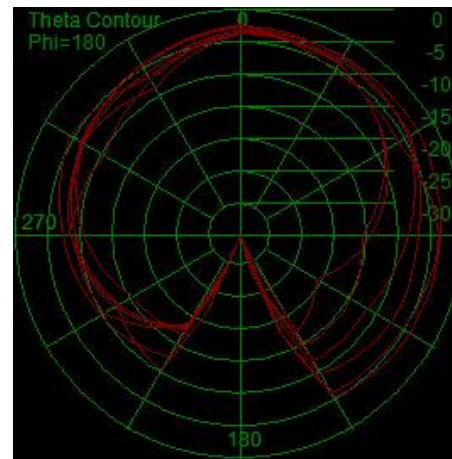
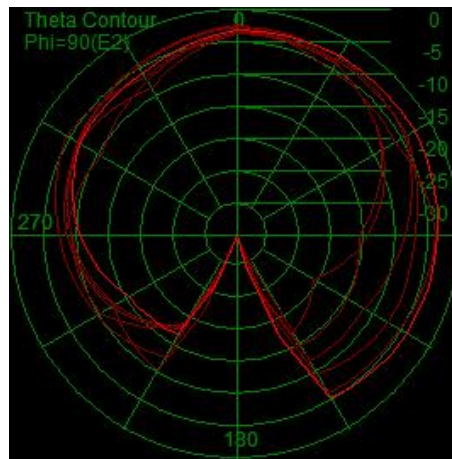
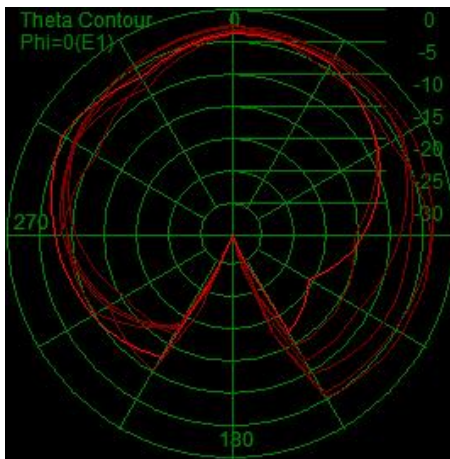
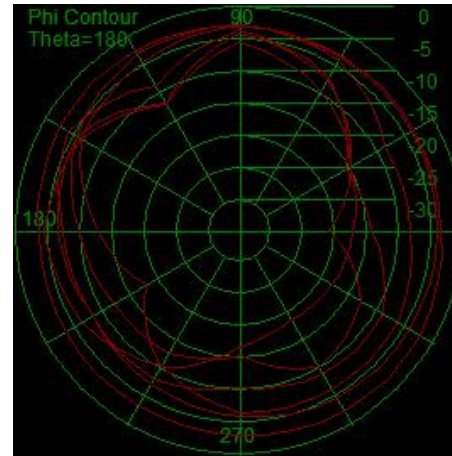
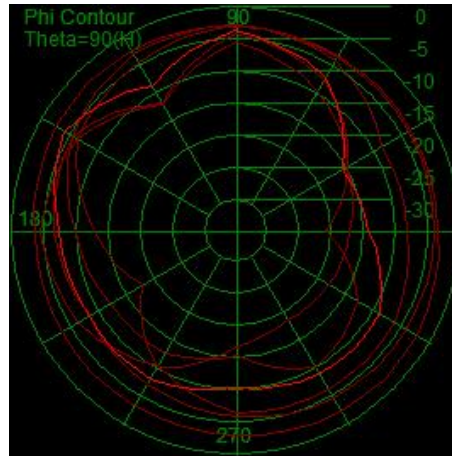
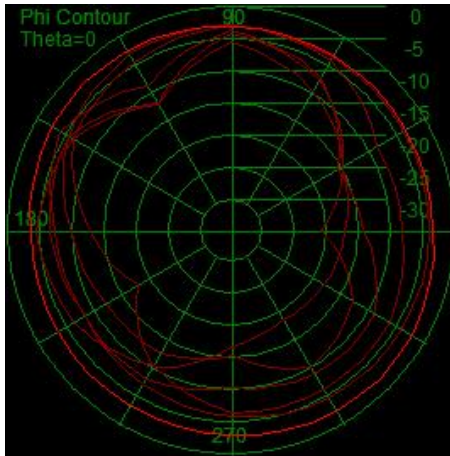
Antenna passive parameters-plan view-diversity
antenna-800MHz



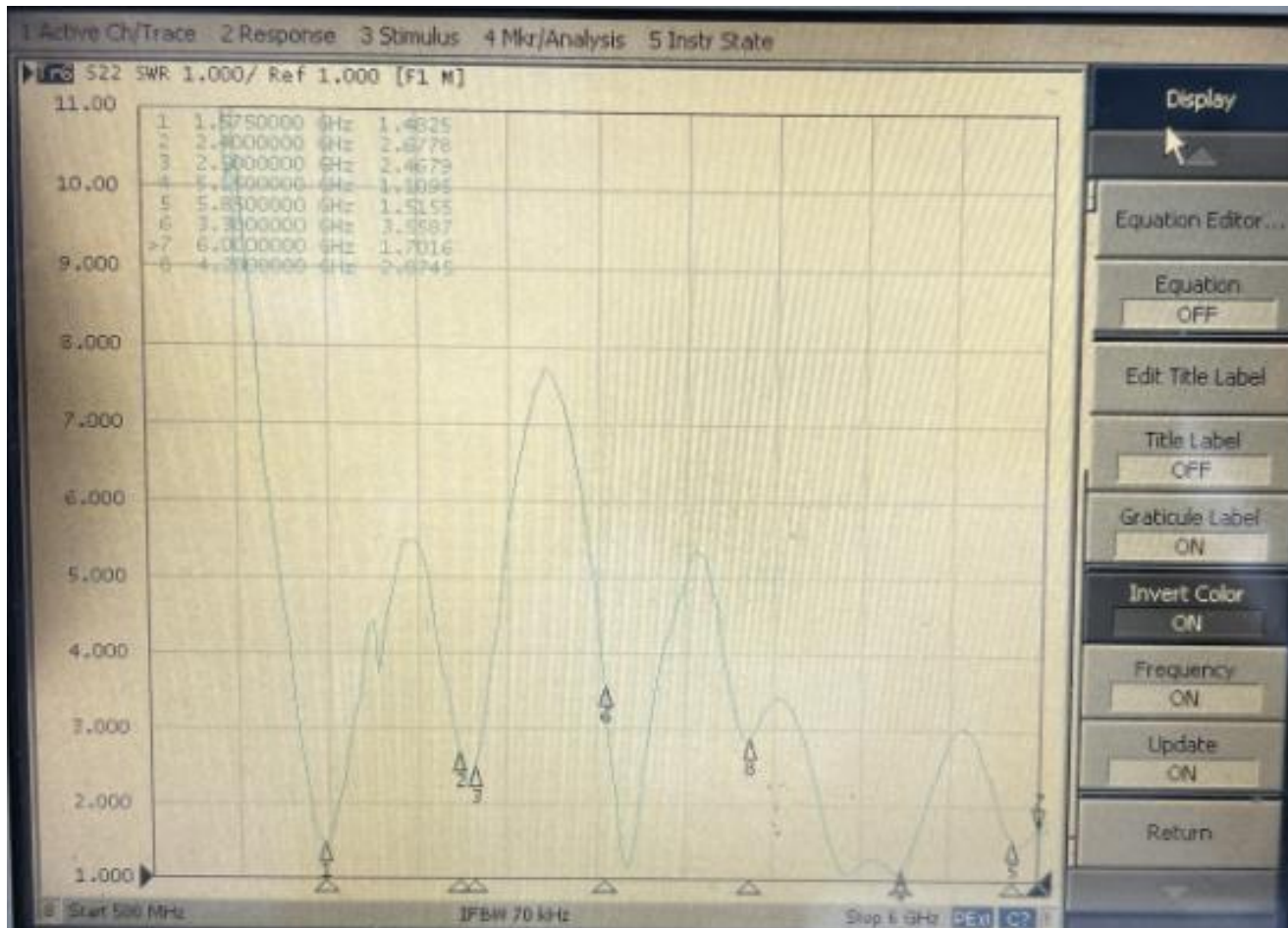
Antenna passive parameters-plan-diversity antenna-1900MHz



Antenna passive parameter-plan view-diversity
antenna-2500MHz



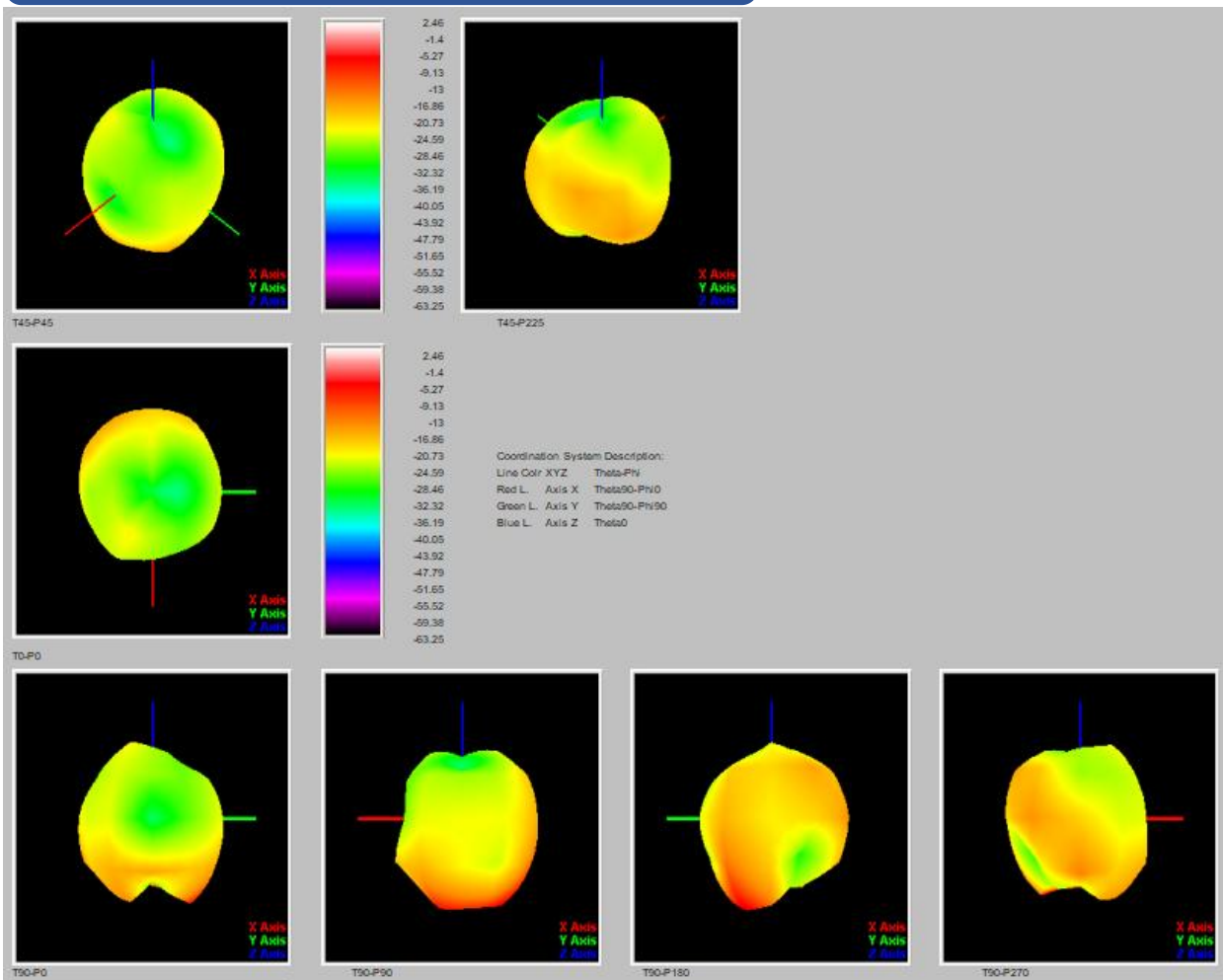
Antenna without source parameter-GWB antenna



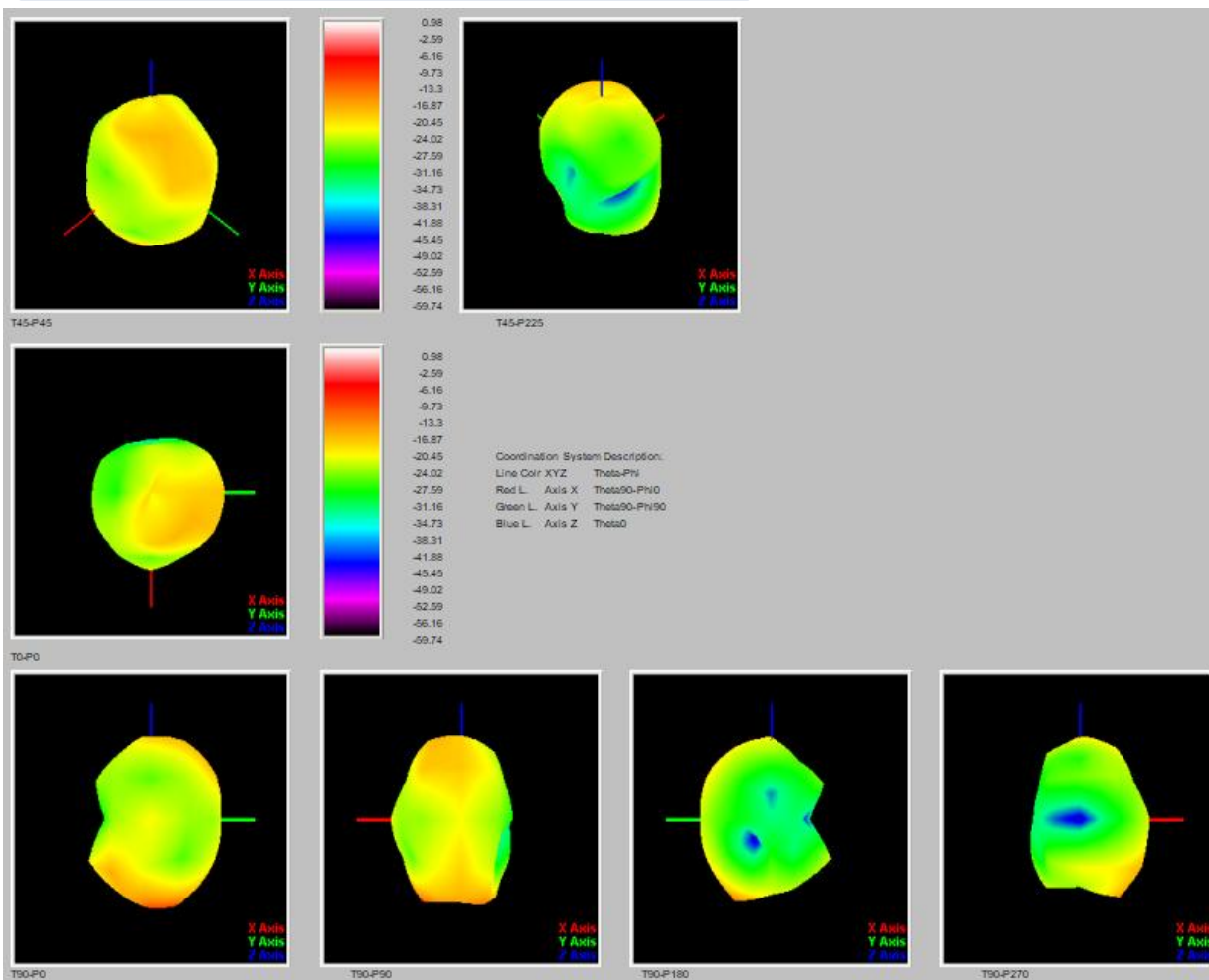
Antenna without source parameters-GWB antenna

Freq (main antenna efficiency)	Effi (%)	Efficiency (dB)	Freq (main antenna efficiency)	Effi (%)	Gain (dBi)	Freq (main antenna efficiency)	Effi (%)	Gain (dBi)	Freq (main antenna efficiency)	Effi (%)	Gain (dBi)
1550.0	49.6%	-3.04	5100.0	41.7%	-3.80	5460.0	29.7%	-5.27	2400.0	39.8%	-4.00
1560.0	46.2%	-3.35	5120.0	38.3%	-4.17	5480.0	26.9%	-5.71	2410.0	42.0%	-3.77
1570.0	48.1%	-3.18	5140.0	38.9%	-4.10	5500.0	24.6%	-6.08	2420.0	42.8%	-3.69
1580.0	47.7%	-3.21	5160.0	41.3%	-3.84	5520.0	28.0%	-5.53	2430.0	42.8%	-3.69
1590.0	42.3%	-3.74	5180.0	43.4%	-3.62	5540.0	24.7%	-6.08	2440.0	41.1%	-3.86
1600.0	43.2%	-3.65	5200.0	40.1%	-3.97	5560.0	29.2%	-5.35	2450.0	38.5%	-4.14
			5220.0	35.9%	-4.45	5580.0	28.1%	-5.51	2460.0	36.8%	-4.34
			5240.0	35.1%	-4.55	5600.0	26.4%	-5.79	2470.0	33.4%	-4.76
			5260.0	33.7%	-4.72	5620.0	26.0%	-5.86	2480.0	36.7%	-4.36
			5280.0	32.0%	-4.95	5640.0	25.4%	-5.95	2490.0	37.9%	-4.22
			5300.0	28.3%	-5.48	5660.0	24.8%	-6.05	2500.0	34.6%	-4.61
			5320.0	33.3%	-4.78	5680.0	23.5%	-6.30			
			5340.0	31.0%	-5.09	5700.0	31.8%	-4.98			
			5360.0	30.6%	-5.14	5720.0	28.0%	-5.53			
			5380.0	32.0%	-4.95	5740.0	28.6%	-5.44			
			5400.0	30.9%	-5.11	5760.0	30.7%	-5.13			
			5420.0	31.8%	-4.98	5780.0	28.8%	-5.40			
			5440.0	27.6%	-5.59	5800.0	27.7%	-5.58			

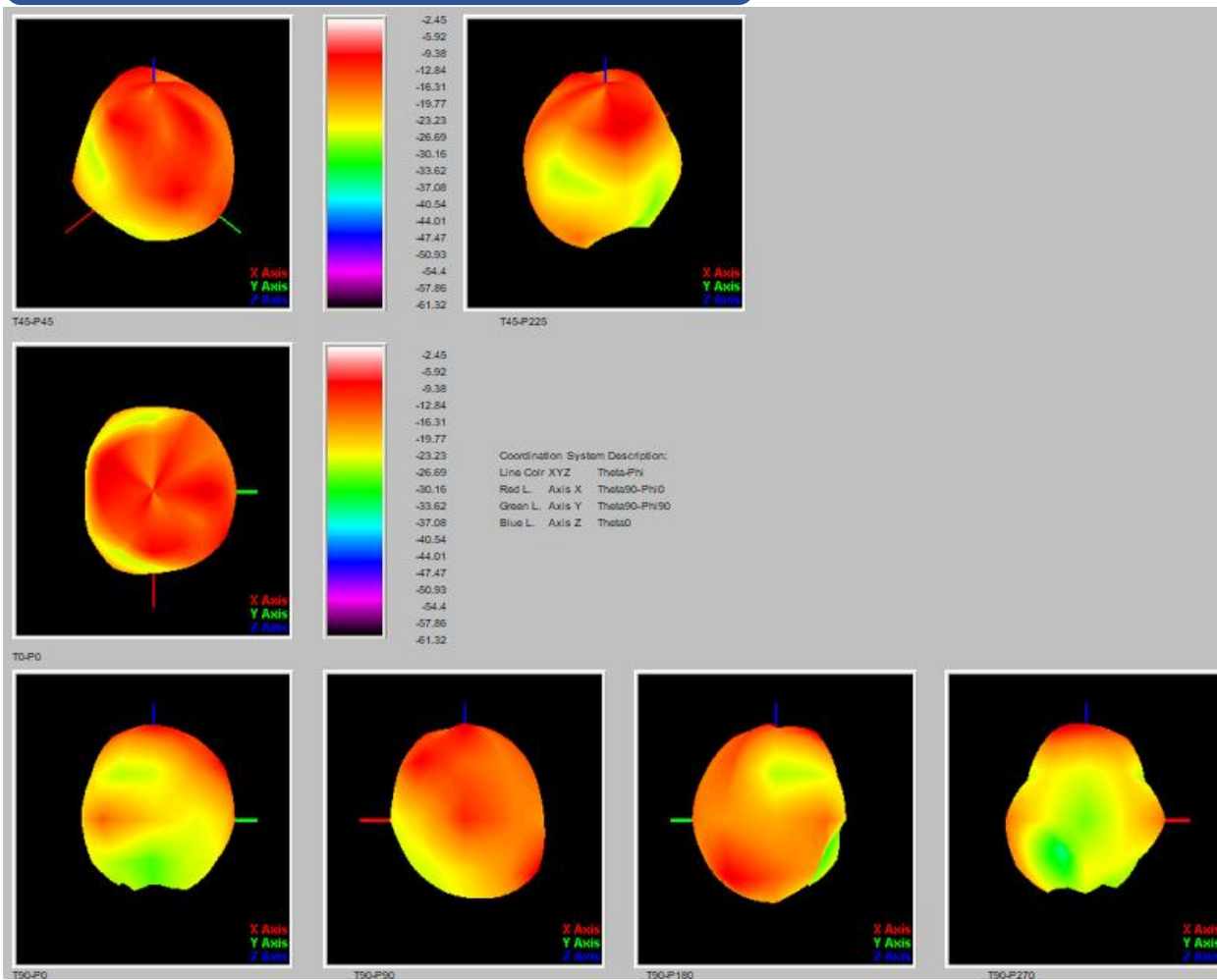
Antenna passive parameters- direction graph GPS



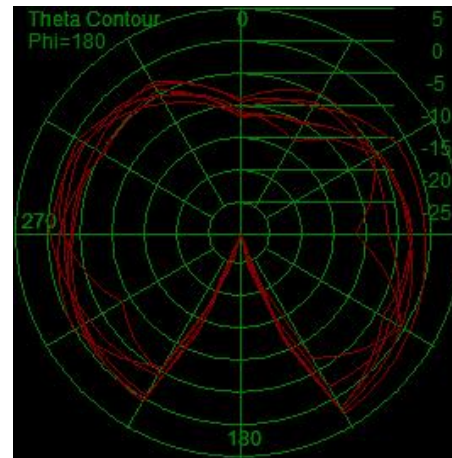
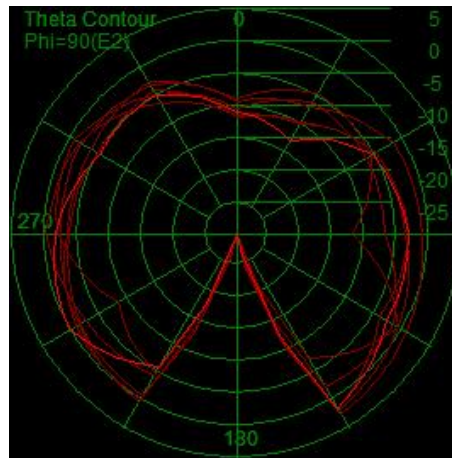
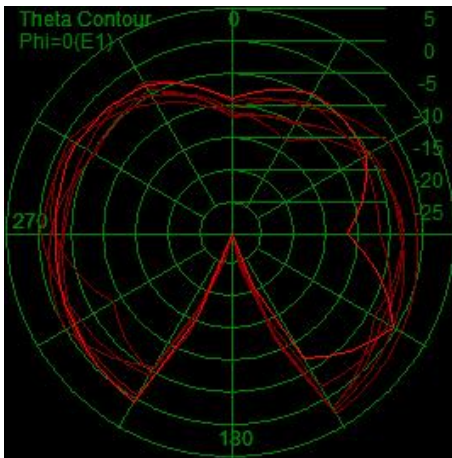
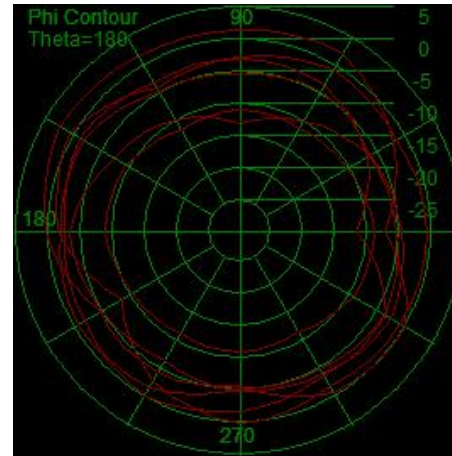
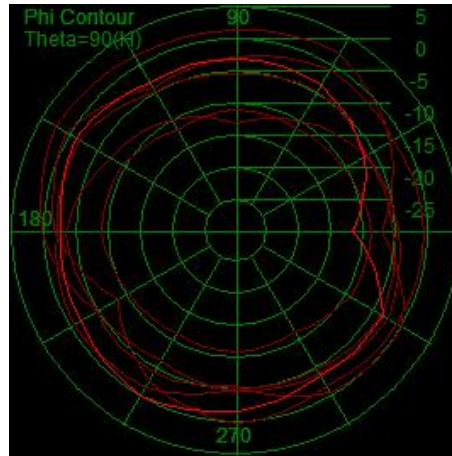
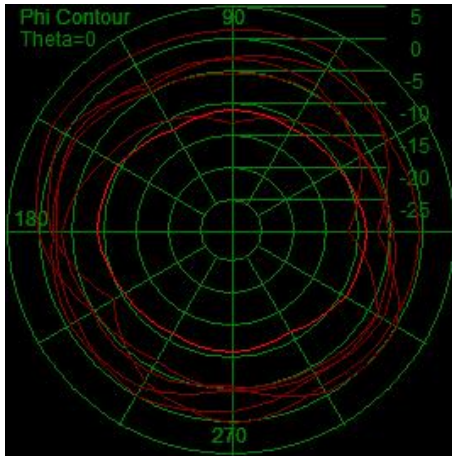
Antenna passive parameters- direction graph-2.4G



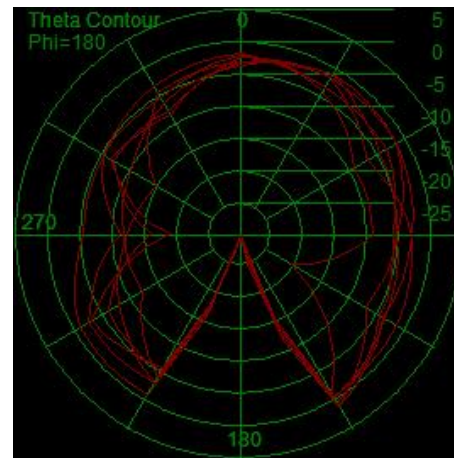
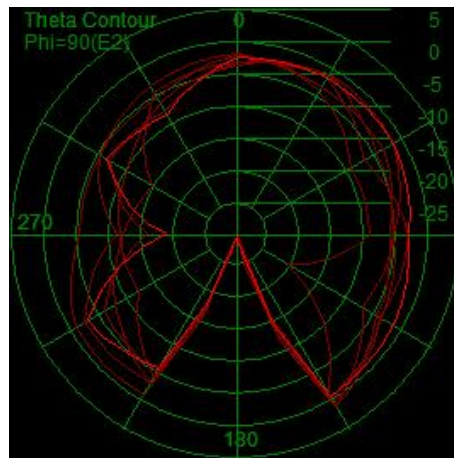
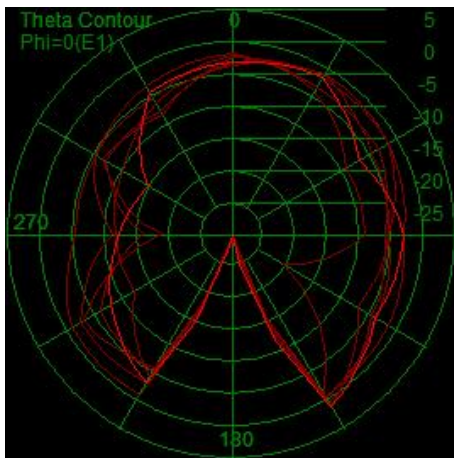
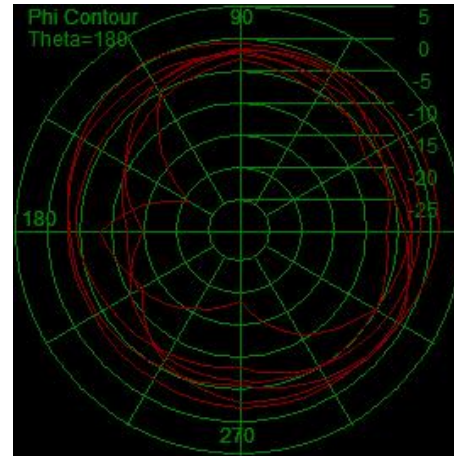
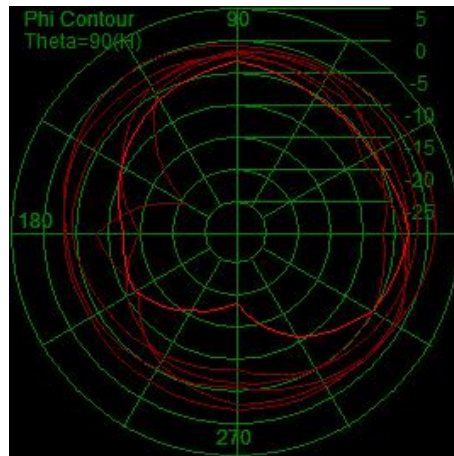
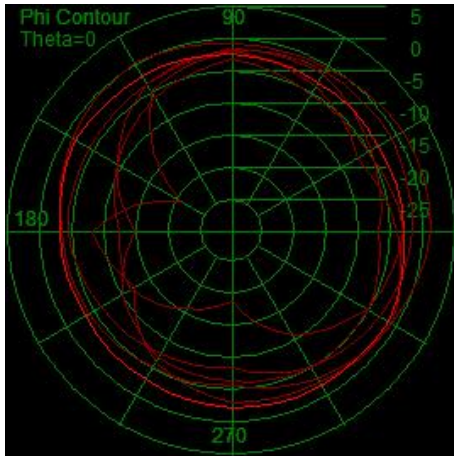
Antenna passive parameters- direction chart-5.8G



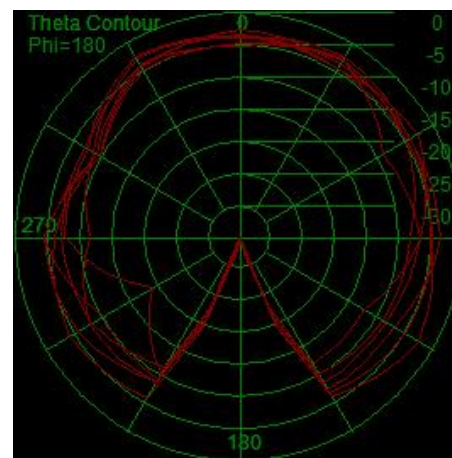
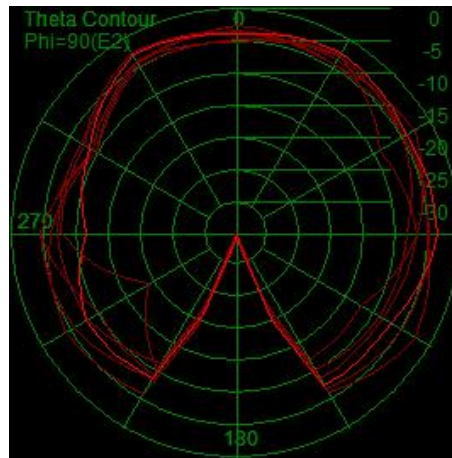
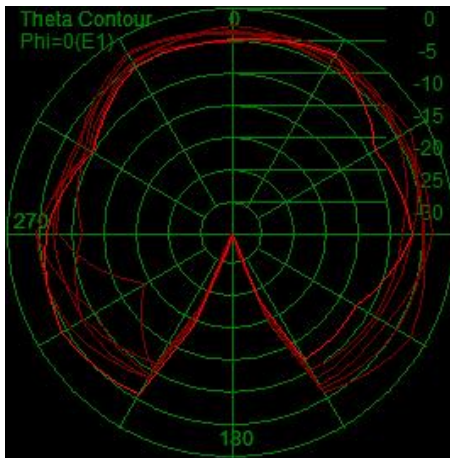
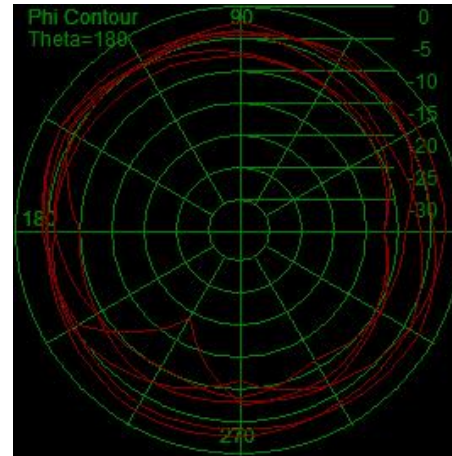
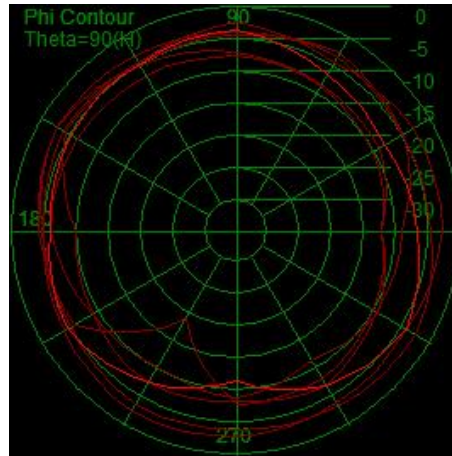
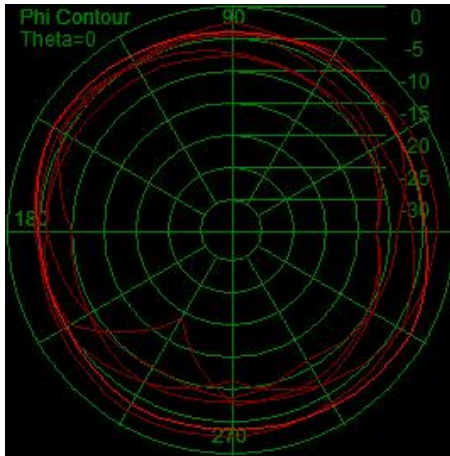
Antenna passive parameters-plan view GPS



Antenna passive parameters-plan view- 2.4G



Antenna passive parameters-plan view-
5.8G



antenna gain

Band	Gain (MAX)		
GSM850	-0.59	Band17	-5.6
GSM900	-1.39	Band26	-1.01
GSM1800	1.01	Band28A	-5.6
GSM1900	0.56	Band28B	-4.5
WB1	-1.38	Band38	0.01
WB2	0.56	Band40	-0.94
WB5	-0.59	BT	1.02
WB8	-1.39	2.4G	1.02
Band2	0.56	5.8G	-0.56
Band3	1.01		
Band4	1.24		
Band5	-0.59		
Band7	0.2		
Band8	-1.39		
Band12	-5.6		
Band13	-1.48		

Thank you!



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