Confidential

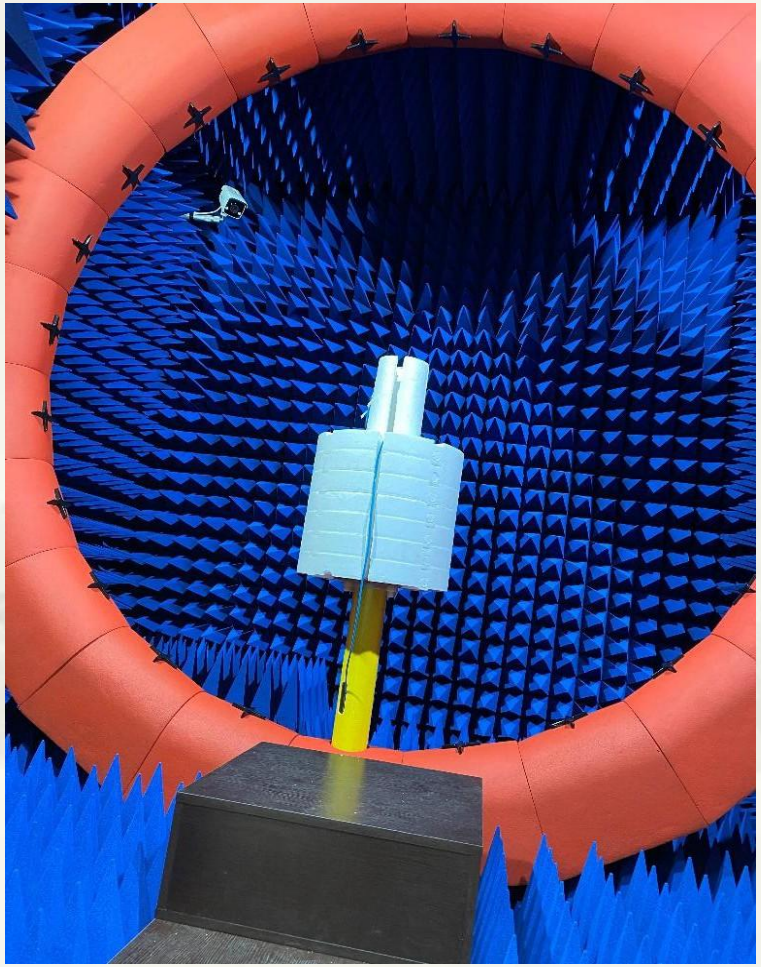
Antenna Test Report

Product model:	ZGB
Chip:	AD6976D
Date:	2021-10-23
Antenna type:	WAN3216F245H08

www.sunmore-etc.com TEL:0755-23498381 FAX:0755-23498380

深圳市森茂微科技有限公司
Sunmore Technology(HK)Company Limited

Experimental equipment



FTM-24D多探头微波暗室

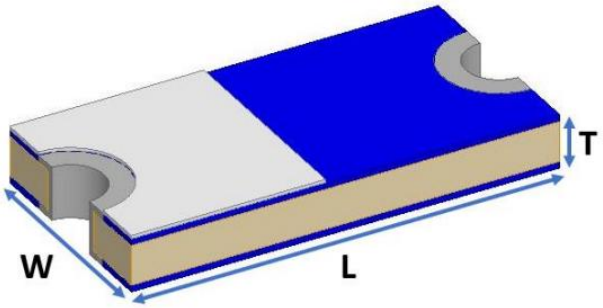
网络分析仪E5071C

无线综测仪CMW500

Antenna size

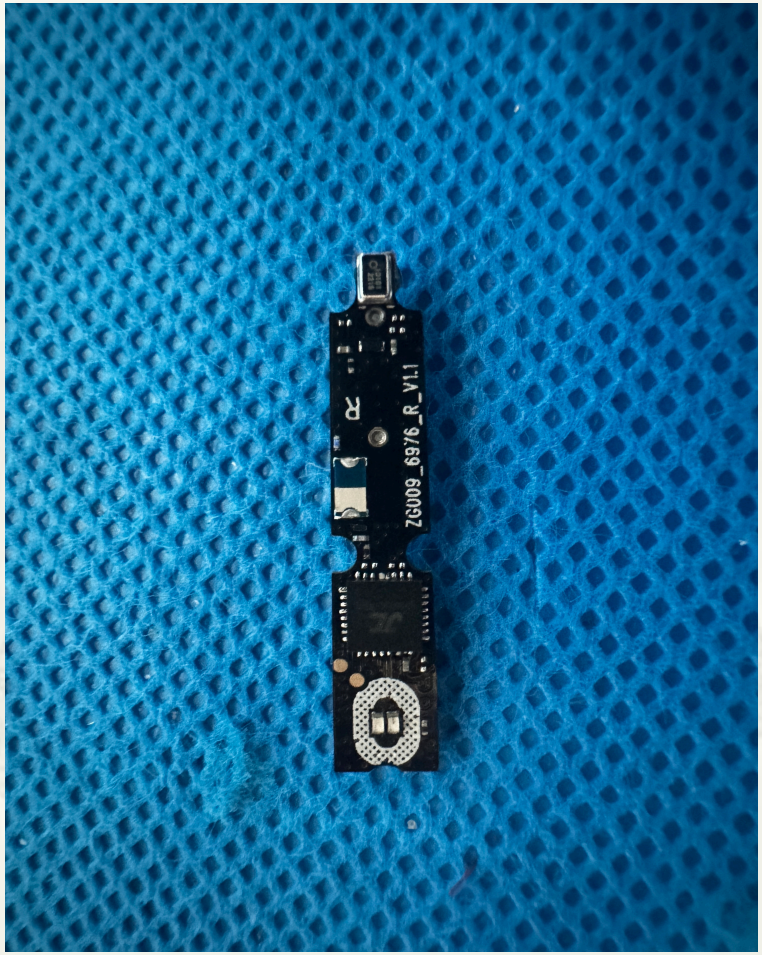
3216 Chip antenna

For Bluetooth / WLAN Applications



P/N: WAN3216F245H08

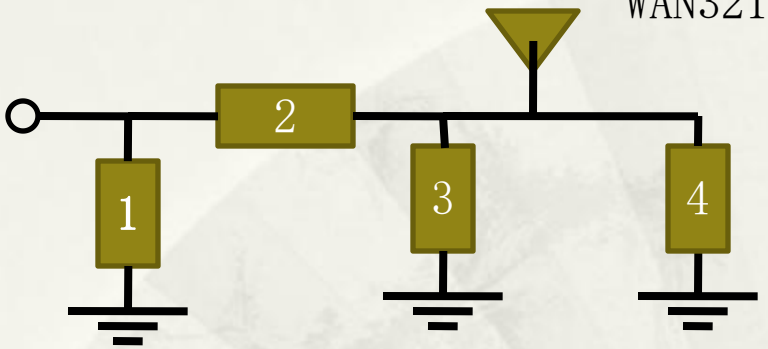
	Dimension (mm)
L	3.23 ± 0.20
W	1.66 ± 0.20
T	0.45 ± 0.20



Antenna matching

- Antenna matching parameter

WAN3216F245H08



		L/C	P/N
	ANT	WAN3216F245H08	
L/R	1	NC	
	2	0R	Yageo
	3	2.0PF+/-0.25PF	Murata
	4	1.0nH+/-0.2nH	Murata

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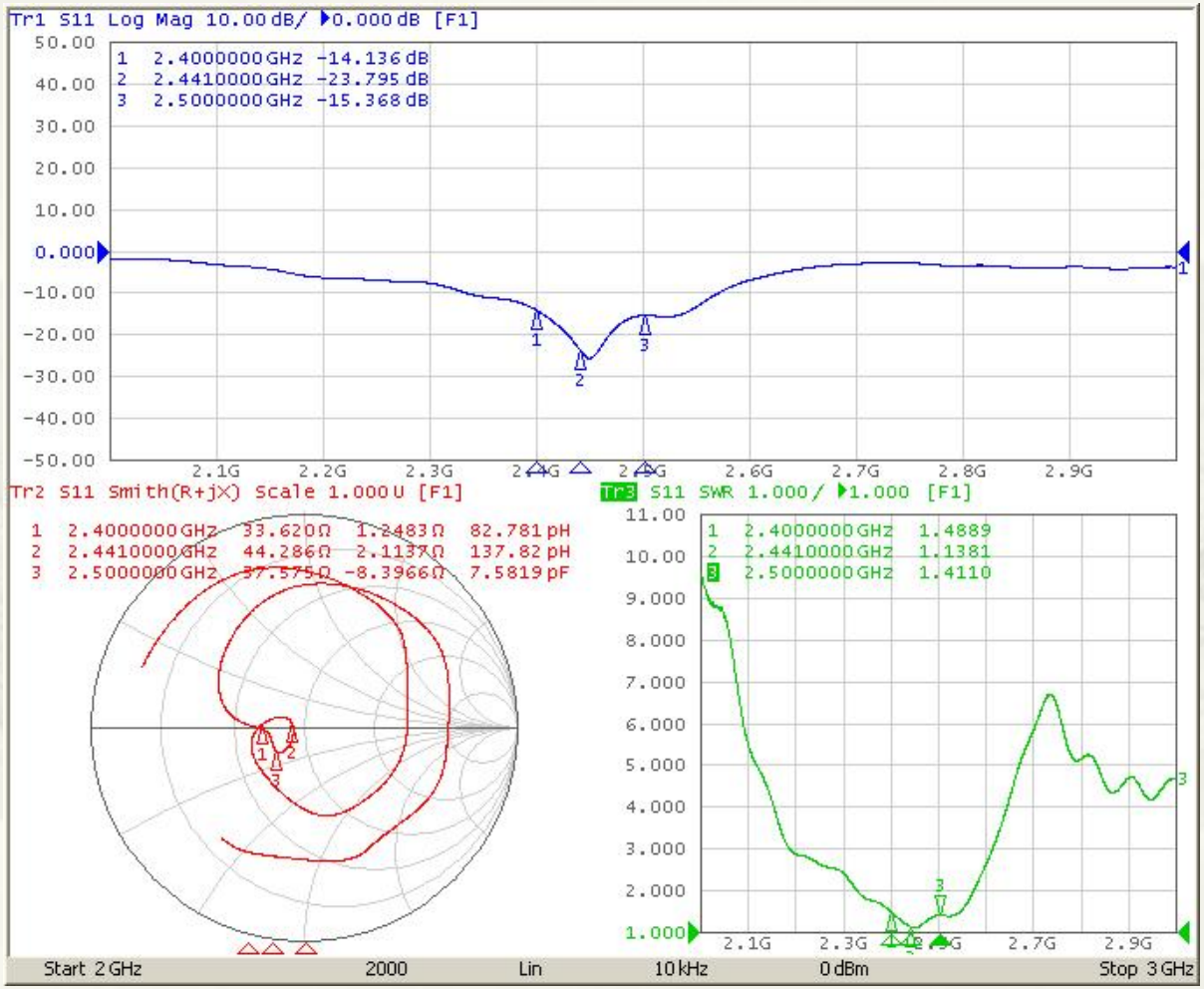
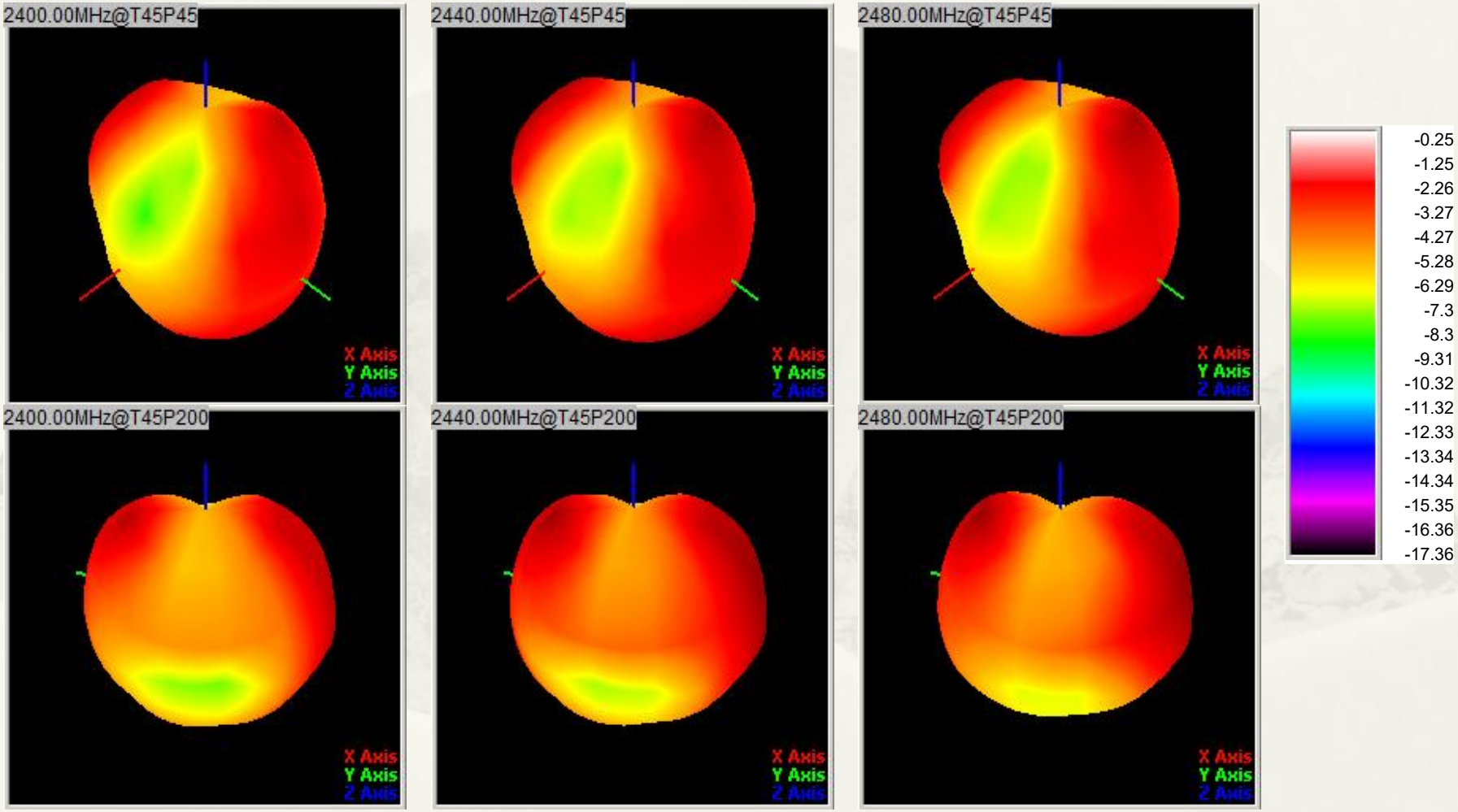
Passive standing wave pattern



Free-space passive data

Frequency ID	1	2	3	4	5	6	7	8	9	10	11
Frequency (MHz)	**2400.0**	**2410.0**	**2420.0**	**2430.0**	**2440.0**	**2450.0**	**2460.0**	**2470.0**	**2480.0**	**2490.0**	**2500.0**
Point Values											
Ant. Port Input Pwr. (dBm)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tot. Rad. Pwr. (dBm)	**-4.45**	**-4.11**	**-3.93**	**-3.73**	**-3.71**	**-3.52**	**-3.64**	**-3.83**	**-4.06**	**-4.18**	**-4.08**
Peak EIRP (dBm)	**-1.17**	**-0.75**	**-0.52**	**-0.28**	**-0.15**	**0.12**	**0.02**	**-0.07**	**-0.25**	**-0.26**	**-0.19**
Directivity (dBi)	3.27	3.36	3.40	3.45	3.56	3.64	3.66	3.76	3.82	3.92	3.89
Efficiency (dB)	**-4.45**	**-4.11**	**-3.93**	**-3.73**	**-3.71**	**-3.52**	**-3.64**	**-3.83**	**-4.06**	**-4.18**	**-4.08**
Efficiency (%)	**35.90**	**38.80**	**40.50**	**42.40**	**42.50**	**44.50**	**43.20**	**41.40**	**39.20**	**38.20**	**39.10**
Gain (dBi)	-1.17	-0.75	-0.52	-0.28	-0.15	0.12	0.02	-0.07	-0.25	-0.26	-0.19
NHPRP ±Pi/4 (dBm)	-5.74	-5.40	-5.20	-5.02	-5.02	-4.87	-5.01	-5.22	-5.47	-5.59	-5.50
NHPRP ±Pi/6 (dBm)	-7.53	-7.18	-6.98	-6.79	-6.81	-6.67	-6.81	-7.02	-7.25	-7.37	-7.27
NHPRP ±Pi/8 (dBm)	-10.65	-10.26	-10.02	-9.82	-9.92	-9.81	-9.95	-10.15	-10.33	-10.43	-10.31
Upper Hem. PRP (dBm)	-7.26	-6.93	-6.78	-6.61	-6.58	-6.37	-6.41	-6.53	-6.69	-6.74	-6.59
Lower Hem. PRP (dBm)	-7.66	-7.32	-7.10	-6.87	-6.86	-6.70	-6.91	-7.18	-7.49	-7.70	-7.67
Upper Hem. PRP (%)	18.80	20.29	20.99	21.85	21.96	23.09	22.85	22.23	21.41	21.20	21.95
Lower Hem. PRP (%)	17.13	18.53	19.51	20.54	20.59	21.37	20.39	19.15	17.81	16.99	17.11


2400.00MHz@T45P45
2440.00MHz@T45P45
2480.00MHz@T45P45
2400.00MHz@T45P200
2440.00MHz@T45P200
2480.00MHz@T45P200
X Axis
Y Axis
Z Axis
-0.25
-1.25
-2.26
-3.27
-4.27
-5.28
-6.29
-7.3
-8.3
-9.31
-10.32
-11.32
-12.33
-13.34
-14.34
-15.35
-16.36
-17.36

OTA Test data TRP/TIS

Bluetooth Band Antenna Performance Table

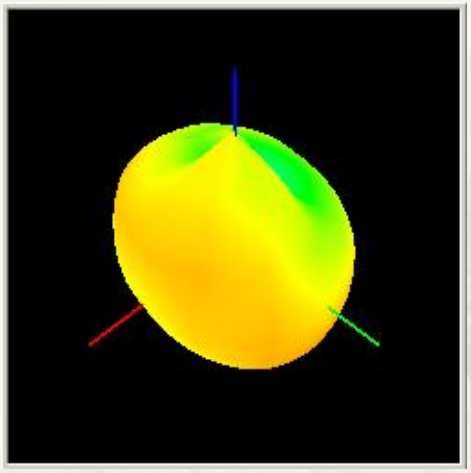
Whole Band TRP (dBm) 7.10

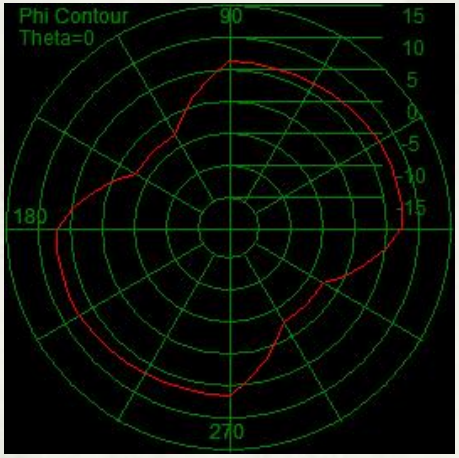
Whole Band TIS (dBm) -85.07

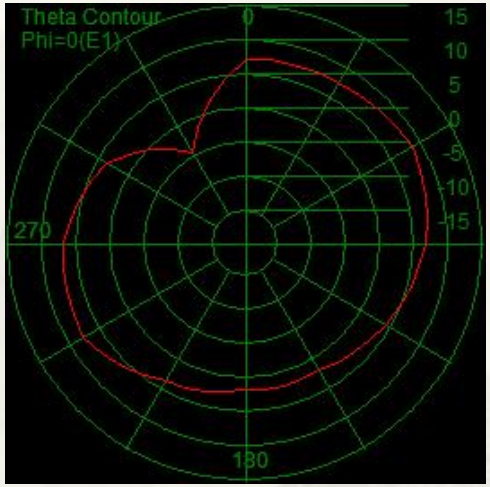
		Channel No.	Freq. (MHz)	TRP (dBm)	TIS (dBm)	Gain (dBi)	Directivity (dBi)	Efficiency (%)	Efficiency (dB)	Max (dBm)	Theta of Max	Phi of Max	Min (dBm)	Theta of Min	Phi of Min	AVG (dBm)	Max/Min (dB)	Max/AVG (dB)	Min/AVG (dB)
Phone Tx (Uplink Path)	1	0	--	7.72	--	--	--	--	--	11.63	0	0	-3.21	0	0	7.30	14.83	4.32	5.06
	2	39	--	6.73	--	--	--	--	--	10.31	0	1	-4.52	0	1	6.38	14.83	3.53	3.91
	3	78	--	6.77	--	--	--	--	--	10.54	0	2	-5.82	0	2	6.47	16.36	3.35	4.13
	4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Phone Rx (Downlink Path)	1	0	--	--		--	--	--	--	--	--	--	--	--	--	--	--	--	--
	2	39	--	--		--	--	--	--	--	--	--	--	--	--	--	--	--	--
	3	78	--	--	-89.84	--	--	--	--	-77.26	0	2	-93.62	0	2	-85.93	16.36	-86.43	-87.20
	4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

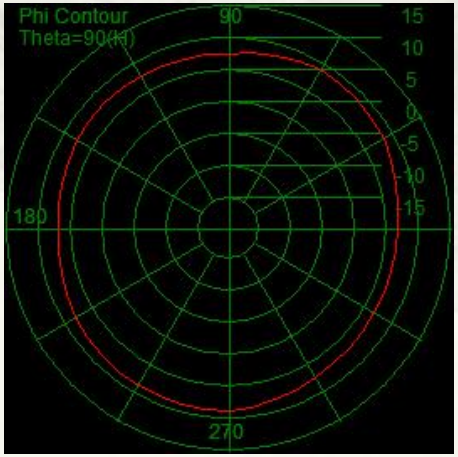
Active field pattern TRP

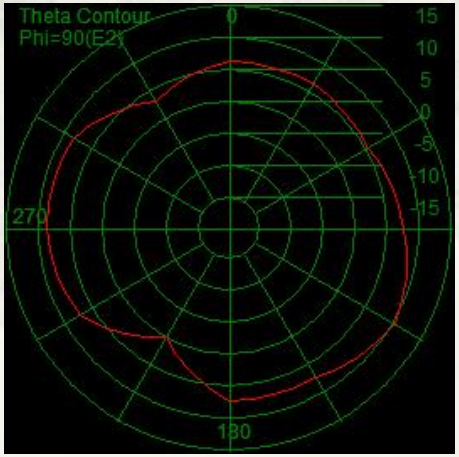
Channel 39 2440MHZ

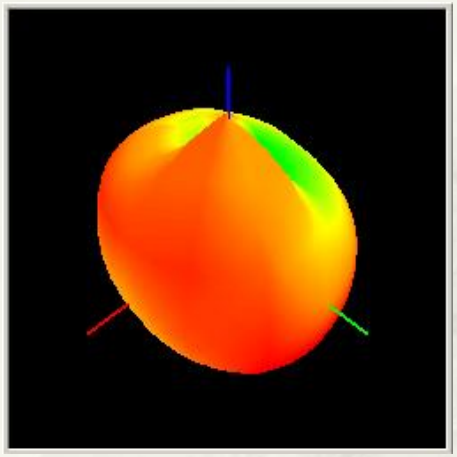
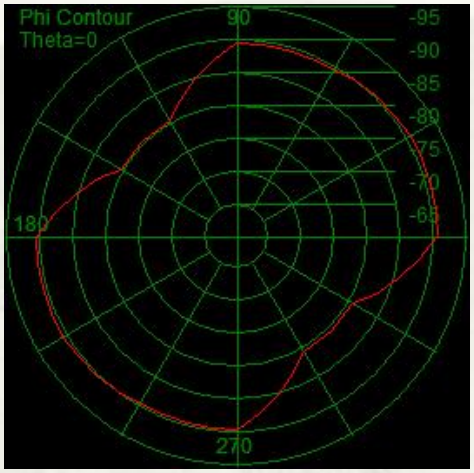
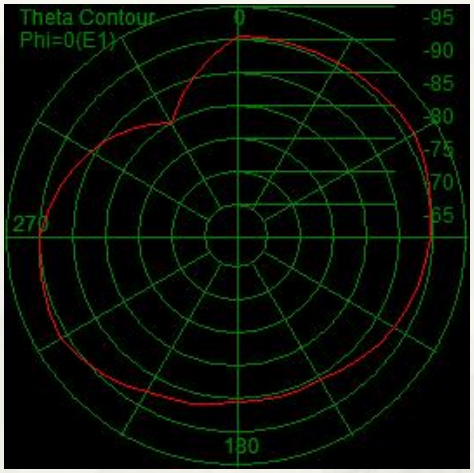
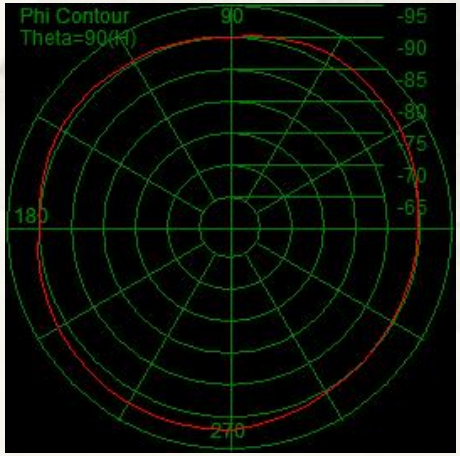
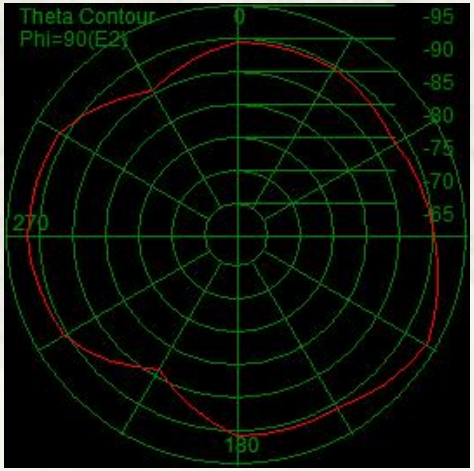










Active field pattern TIS

Channel 78 2480MHZ