2G/3G/4G/5G/6G Antenna

Model : TH-89i

1. GENERAL DESCRIPTION

P/N
TH89i-SMA(M)

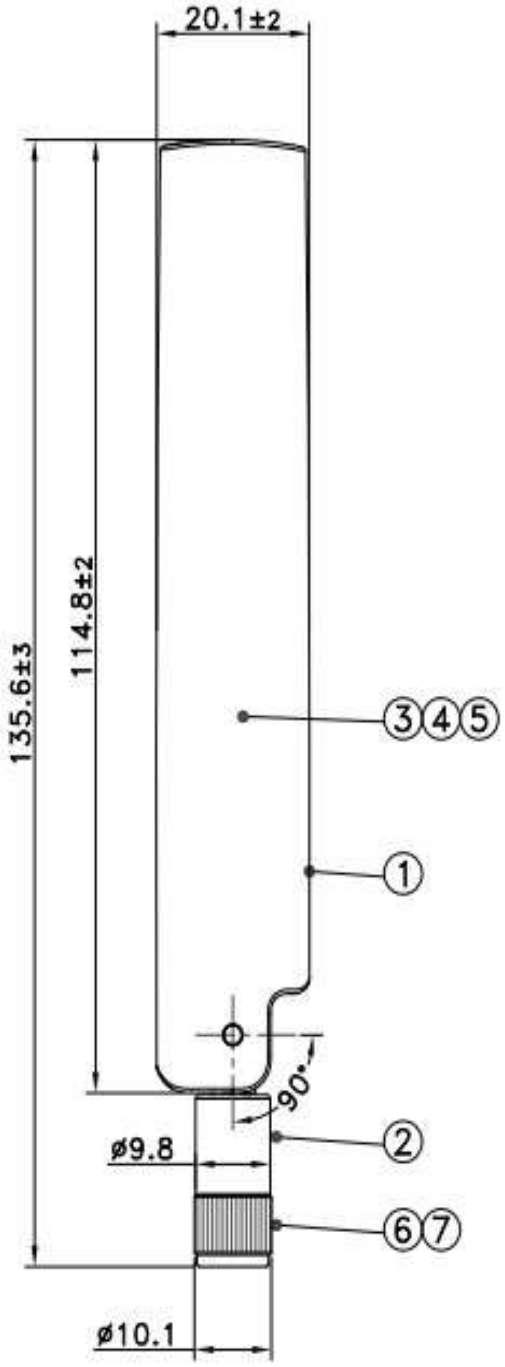
1.1 Electrical Properties

Parameter	Description
Frequency Band	600~960/1710~2700/3300~3800/ 4000~5000 /5000~6000MHz
Nominal Impedance	50 ohm
Polarization	Vertical
V.S.W.R	3.5：1

1.2 Mechanical Properties

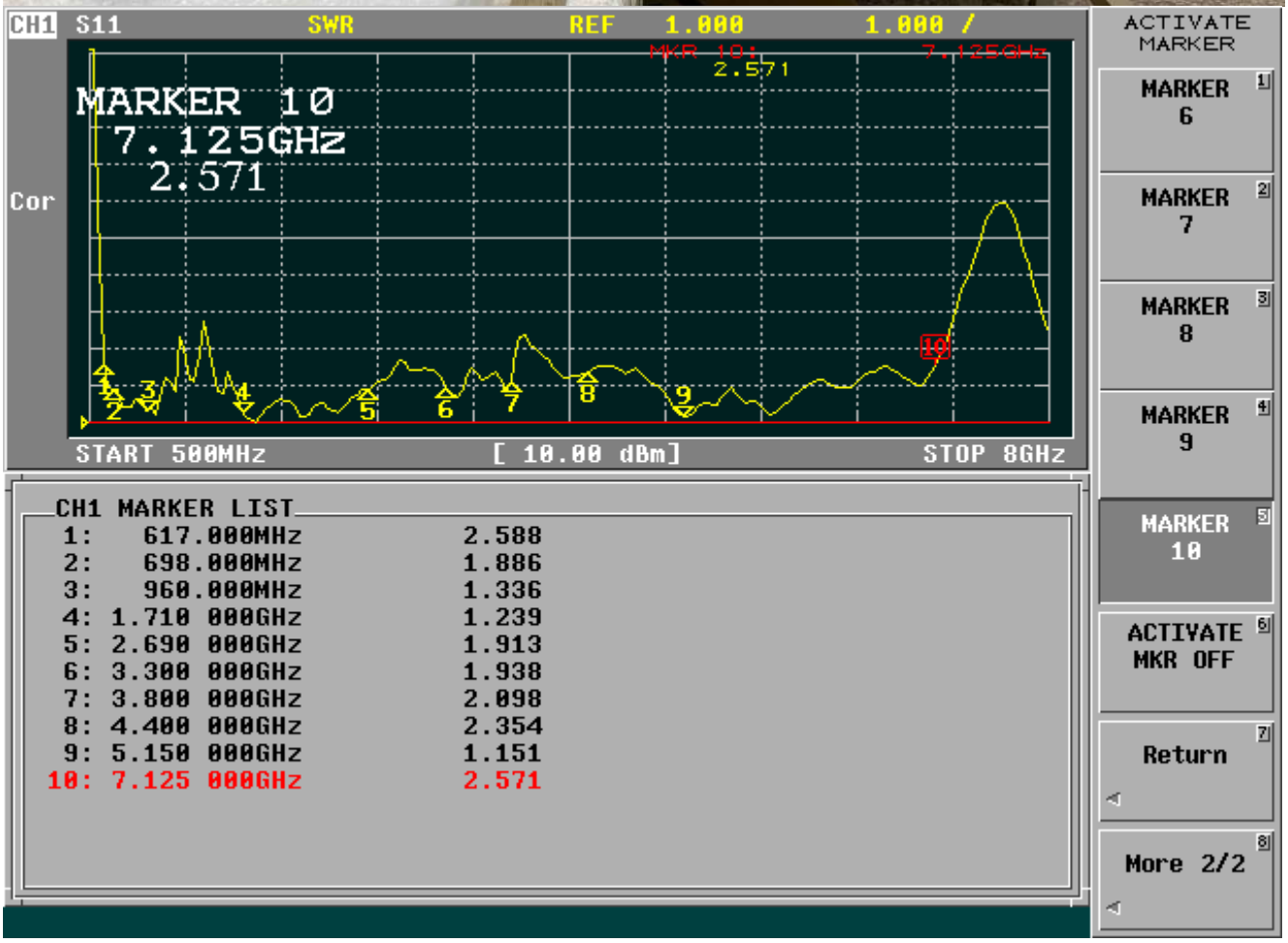
Parameter	Description
Antenna Type	External Antenna
Touch Type	Screw Type
Connector Type	SMA 180°(Male)
Antenna Dimensions	135.6mm±3
Antenna Color	Black
Operating Temperature Range	-30°C~+70°C
Storage Temperature Range	-30°C~+70°C

2. APPEARANCE:



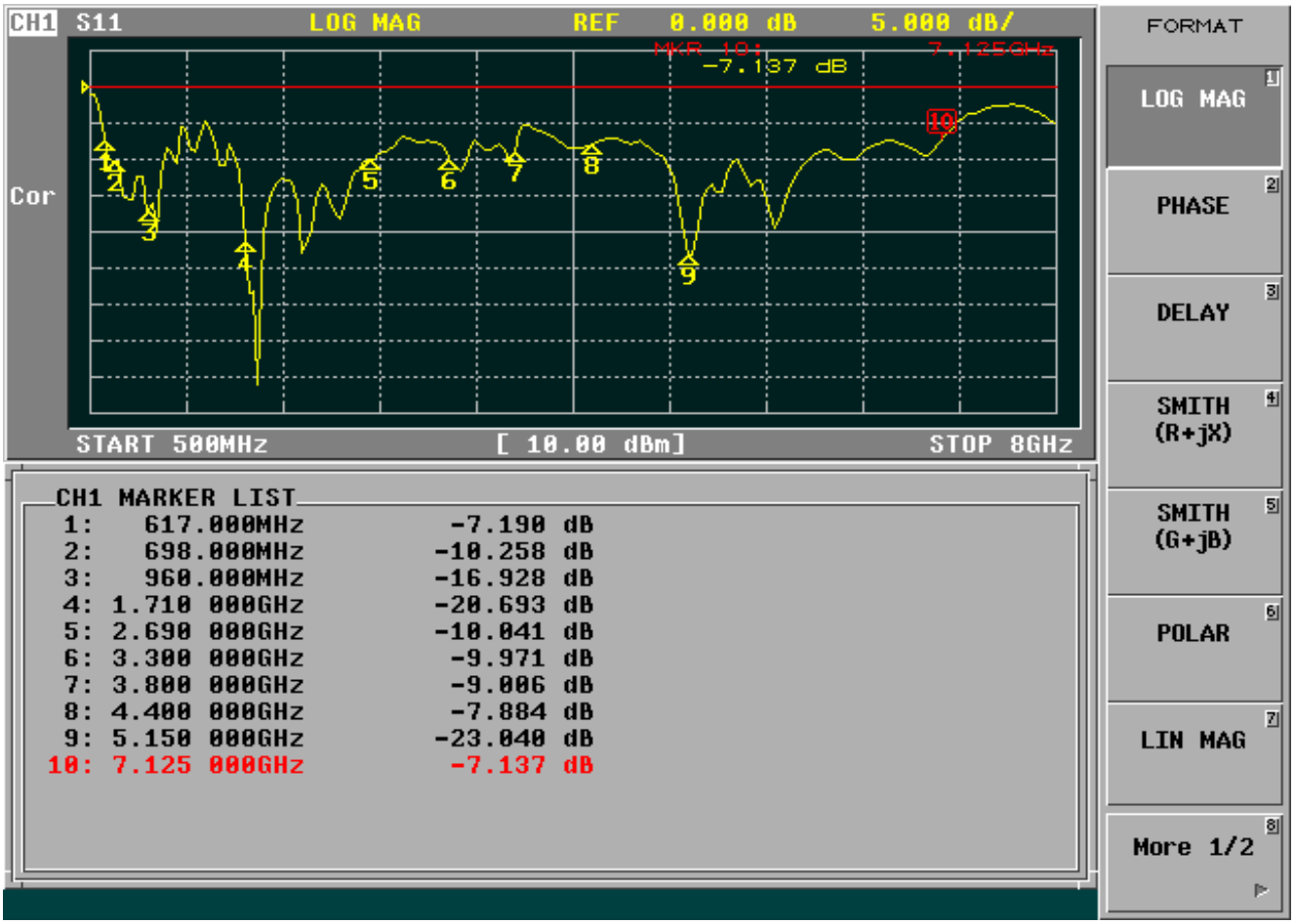
ITEM	Name	Material	Finish	QTY
⑦	Conn. Cover	POM	Black	1
⑥	SMA PLUG	Brass	Ni	1
⑤	Cable	RG178	Brown	1
④	Sponge	EVA	Black	1
③	PCB	FR4	Black	1
②	Antenna Base	ABS	Black	1
①	Antenna Cover	ABS	Black	1

3. Return Loss, V.S.W.R. and Smith Chart



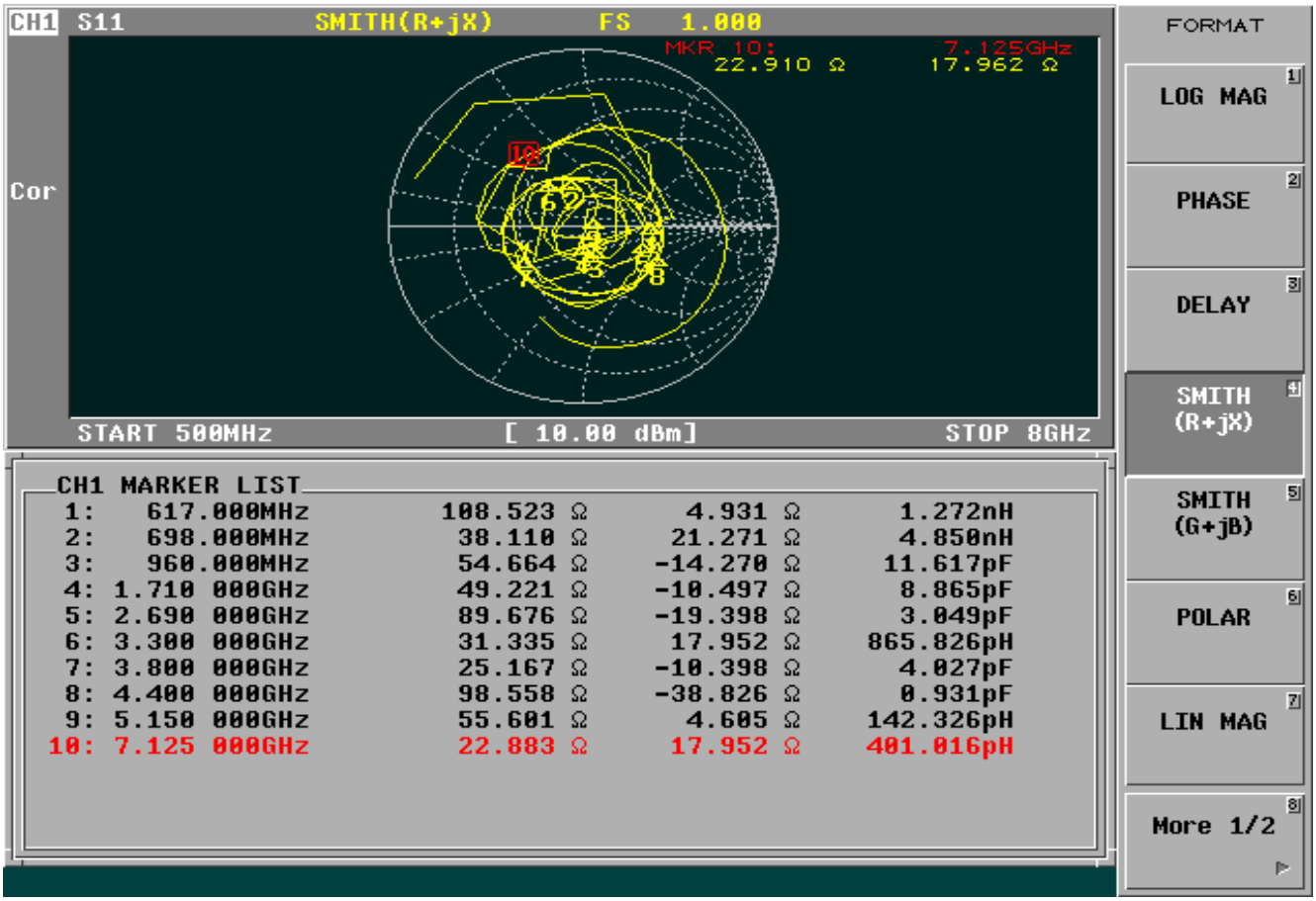
CH1 MARKER LIST

1:	617.000MHz	2.588
2:	698.000MHz	1.886
3:	960.000MHz	1.336
4:	1.710 000GHz	1.239
5:	2.690 000GHz	1.913
6:	3.300 000GHz	1.938
7:	3.800 000GHz	2.098
8:	4.400 000GHz	2.354
9:	5.150 000GHz	1.151
10:	7.125 000GHz	2.571



CH1 MARKER LIST

1:	617.000MHz	-7.190 dB
2:	698.000MHz	-10.258 dB
3:	960.000MHz	-16.928 dB
4:	1.710 000GHz	-20.693 dB
5:	2.690 000GHz	-10.041 dB
6:	3.300 000GHz	-9.971 dB
7:	3.800 000GHz	-9.006 dB
8:	4.400 000GHz	-7.884 dB
9:	5.150 000GHz	-23.040 dB
10:	7.125 000GHz	-7.137 dB



CH1 MARKER LIST

1:	617.000MHz	108.523 Ω	4.931 Ω	1.272nH
2:	698.000MHz	38.110 Ω	21.271 Ω	4.850nH
3:	960.000MHz	54.664 Ω	-14.270 Ω	11.617pF
4:	1.710 000GHz	49.221 Ω	-10.497 Ω	8.865pF
5:	2.690 000GHz	89.676 Ω	-19.398 Ω	3.049pF
6:	3.300 000GHz	31.335 Ω	17.952 Ω	865.826pH
7:	3.800 000GHz	25.167 Ω	-10.398 Ω	4.027pF
8:	4.400 000GHz	98.558 Ω	-38.826 Ω	0.931pF
9:	5.150 000GHz	55.601 Ω	4.605 Ω	142.326pH
10:	7.125 000GHz	22.883 Ω	17.952 Ω	401.016pH

Antenna Efficiency

Antenna Efficiency and Gain - Low Band

Frequency (MHZ)	617	635	652	663	671	698	703	746	780
Efficiency (%)	31	32	35	36	41	37	38	37	37
Peak Gain(dBi)	-3.1	-2.8	-1.8	-2.3	-1.5	-1.6	-1.5	-1.2	-1.3

Frequency (MHZ)	791	824	849	862	869	880	894	900	915
Efficiency (%)	39	39	37	37	38	38	37	37	36
Peak Gain(dBi)	-1.0	-1.1	-1.0	-1.2	-1.1	-1.6	-1.6	-1.5	-1.4

Frequency (MHZ)	925	945	960
Efficiency (%)	37	38	37
Peak Gain(dBi)	-1.5	-1.5	-1.5

Antenna Efficiency

Antenna Efficiency and Gain - Middle Band

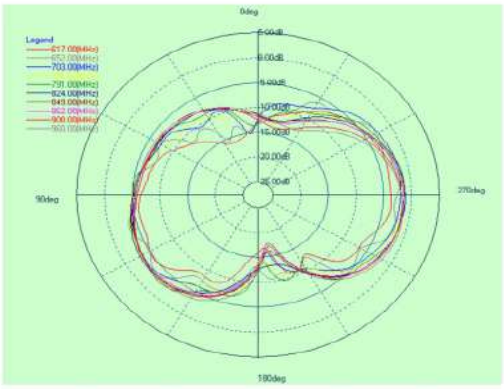
Frequency(MHZ)	1517	1710	1805	1850	1880	1920	1950	1980	2000
Efficiency (%)	55	61	57	58	56	57	59	58	58
Peak Gain(dBi)	1.4	1.7	1.8	1.9	2.0	2.1	2.2	2.3	1.9
Frequency(MHZ)	2050	2110	2140	2170	2300	2350	2400	2496	2500
Efficiency (%)	60	51	48	43	40	41	38	45	45
Peak Gain(dBi)	1.8	1.8	1.8	1.7	0.4	1.5	2.0	2.8	2.8
Frequency(MHZ)	2570	2620	2690						
Efficiency (%)	50	52	52						
Peak Gain(dBi)	2.9	2.9	3.1						

Antenna Efficiency

Antenna Efficiency and Gain - High Band

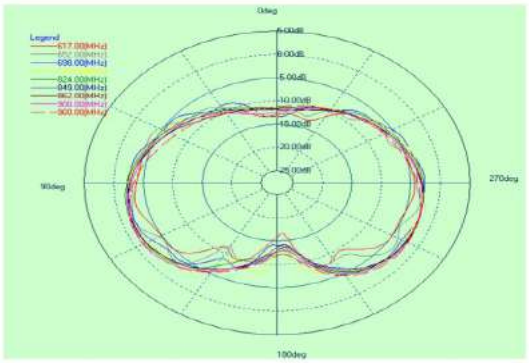
Frequency(MHZ)	3300	3500	3600	3700	3800	4200	4400	4500	4700
Efficiency (%)	53	55	47	45	49	53	45	46	47
Peak Gain(dBi)	1.5	1.5	1.6	1.2	0.9	1.7	1.6	1.7	1.8
Frequency(MHZ)	4800	5000	5150	5250	5350	5450	5550	5650	5750
Efficiency (%)	54	50	50	53	55	54	56	55	52
Peak Gain(dBi)	2.1	3.0	3.6	3.7	4.1	3.9	4.1	3.7	3.2
Frequency(MHZ)	5850	5925							
Efficiency (%)	46	46							
Peak Gain(dBi)	3.2	3.5							

2D Radiation Pattern
617 ~ 960 MHz
XZ Plane

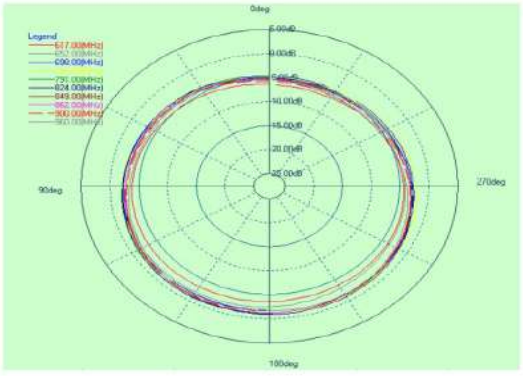


2D Radiation Pattern :

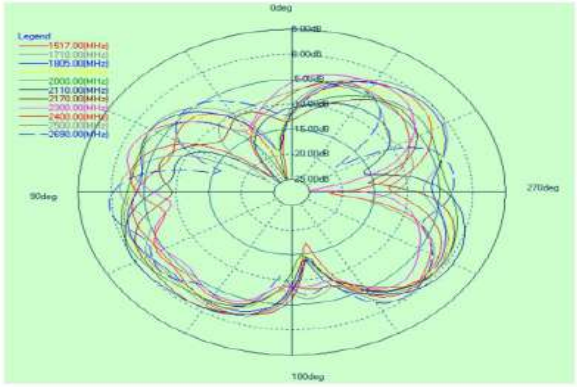
2D Radiation Pattern
617 ~ 960 MHz
YZ Plane



2D Radiation Pattern
617 ~ 960 MHz
XY Plane



2D Radiation Pattern
1517 ~ 2690 MHz
XZ Plane



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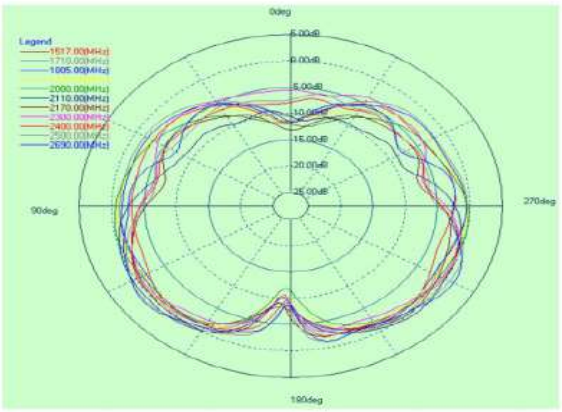
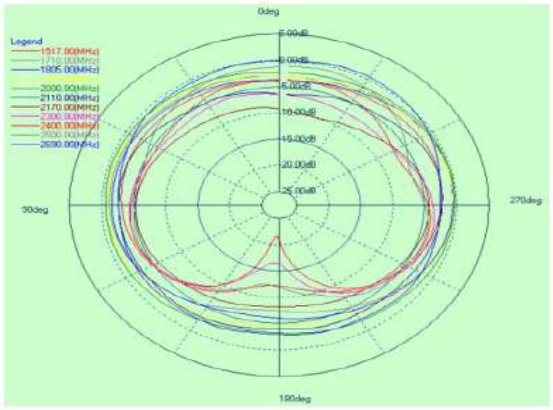
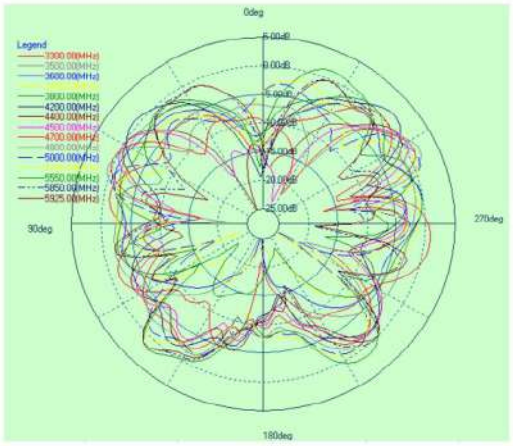


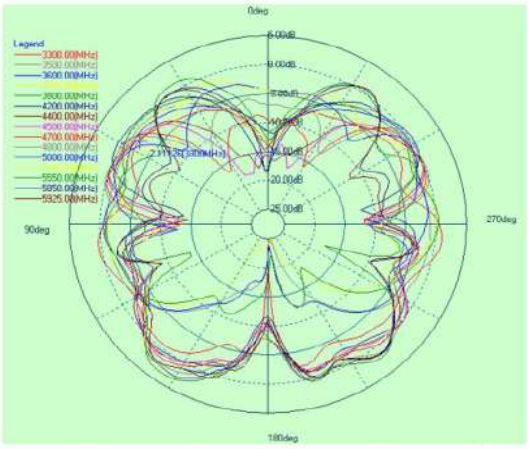
2D Radiation Pattern
1517 ~ 2690 MHz
XY Plane



2D Radiation Pattern
3300 ~ 6000 MHz
XZ Plane



2D Radiation Pattern
3300 ~ 6000 MHz
YZ Plane



2D Radiation Pattern
3300 ~ 6000 MHz
XY Plane