SUNNYWAY

SWB013

PN: SZ20421WB56

Features:



- Wide band from 698~6000MHz, support 2G/3G/4G/5G 2.4G and 5.8G WIFI
- 6in1 combine antenna (6*5G Sub6G and 1 Active GNSS optional)
- High Efficiency and Performance.
- Super small size: 80*70*25 mm
- IP67 support

Applications:



（SWB013 VS Mobile Phone）

- Application of 5G/4G/3G/2G equipment
- Network Devices
- Security Terminals
- Router/CPE
- Gateways
- Others

Sunnyway Technology

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1. Electrical Specifications

	ANT0	ANT1	ANT2	ANT3	ANT4	ANT5	ANT6
Polarization mode	Linear	Linear	Linear	Linear	Linear	Linear	Circular polarization
Radiation pattern	Omni-Directional	Omni-Directional	Omni-Directional	Omni-Directional	Omni-Directional	Omni-Directional	Directional antenna
Output impedance (Ω)	50	50	50	50	50	50	50
Max. Input Power(W)	5	5	5	5	5	5	5
Output impedance (Ω)	50	50	50	50	50	50	50
Max. Input Power(W)	5	5	5	5	5	5	5

2. Mechanical and Environmental Specification

Mounting Type	Connector Mount
Connector Type	SMA（M）
Antenna size(mm)	80*70*25
Material	ABS
Operating Temperature (˚C)	- 40 ˚C ~ + 85 ˚C
Storage Temperature(˚C)	- 40 ˚C ~ + 85 ˚C

3. Antenna parameters

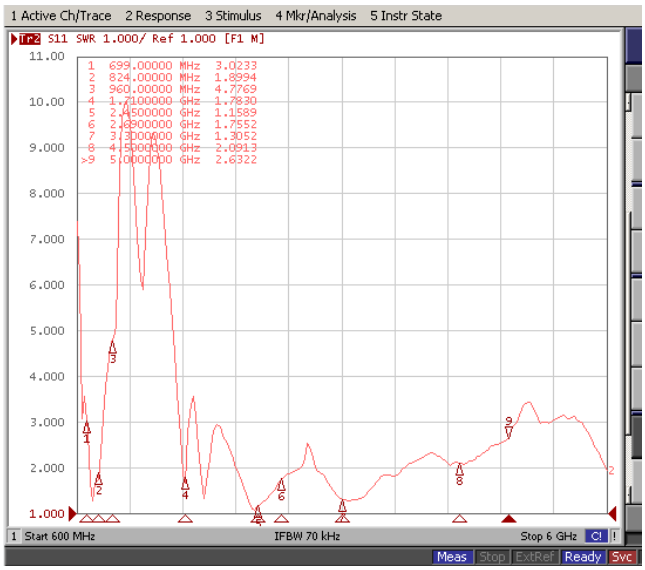
3.1 General Data

2/3/4/5G/WiFi Antenna										
Frequency (MHz)		LTE700	GSM850/900	5G NR Band 74, 75, 76	DCS PCS	WCDMA1	LTE2600	LTE2600	5G NR Band 77, 78, 79	LTE5200/ WiFi5800
		698 ~806	824 ~960	1427 ~1518	1710 ~1990	2170	2450	2690	3300 ~5000	5150 ~5925
Efficiency (%)										
ANT0	250mm	31.93~66.46	65.53~47.26	×	27.72~54.95	53.28	47.35	25.23	77.82~40.28	40.27~31.92
ANT1	250mm	20.87~44.47	33.26~55.27	×	31.99~54.49	24.95	42.43	41.92	72.86~38.22	33.47~26.3
ANT2	250mm	×	×	48.32~45.66	22.36~49.29	25.69	67.78	45.30	78.39~40.95	36.9~24.94
ANT3	250mm	×	×	42.58~42.36	31.07~21.83	22.90	44.99	31.11	79.79~38.88	36.45~36.94
ANT4	250mm	×	×	×	20.58~50.94	36.01	36.15	30.45	65.35~29.2	25.89~31.91
ANT5	250mm	×	×	×	19.87~27.04	17.01	52.23	12.96	51.23~43.15	39.67~35.21
ANT6	250mm	GPS(optional)								
Average Gain (dB)										
ANT0	250mm	-4.96~--1.77	-1.84~-3.25	×	-5.57~-2.6	-2.69	-3.22	-3.78	-1.13~3.95	-3.95~-4.96
ANT1	250mm	-6.81~-3.52	-4.78~-2.58	×	-4.95~-2.64	-4.95	-3.72	-3.96	-1.37~-4.18	-4.75~-5.8
ANT2	250mm	×	×	-3.16~-3.4	-6.51~-3.07	-5.9	-1.69	-3.44	-1.06~-3.88	-4.33~-6.03
ANT3	250mm	×	×	-3.71~-3.73	-5.08~-6.61	-6.4	-3.47	-5.07	-0.98~-4	-4.38~-4.33
ANT4	250mm	×	×	×	-6.86~-2.93	-4.44	-4.42	-5.16	-1.85~-5.35	-5.87~-4.96
ANT5	250mm	×	×	×	-7.02~-5.68	-7.69	-2.82	-8.87	-2.9~-3.65	-4.02~-4.53
ANT6	250mm	GPS(optional)								
Peak Gain (dBi)										
ANT0	250mm	-2.04~1.85	1.4~0.52	×	-0.53~1.93	3.14	3.09	0.45	4.28-1.73	1.73~0.96
ANT1	250mm	-0.98~0.08	-1.11~3.06	×	-0.57~1.9	-0.57	-0.3	0.83	3.59~-0.49	0.18~-2.07
ANT2	250mm	×	×	2.04~1.7	-2.39~1.17	-2.72	1.89	1.2	4.87~0.44	-0.56~-0.12
ANT3	250mm	×	×	0.69~1.44	-0.35~-0.93	-0.55	2.14	1.48	2.6~1.83	1.88~1.21
ANT4	250mm	×	×	×	-2.15~3.47	0.3	1.44	1.29	4.13~-0.24	-1.19~1.94
ANT5	250mm	×	×	×	-2.8~-1.74	-4.27	2.25	-3.58	1.9~1	0.6~-0.02
ANT6	250mm	GPS(optional)								

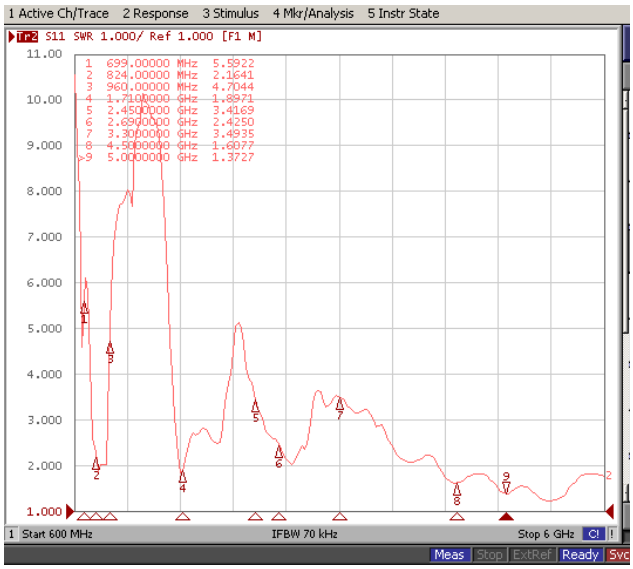
** Tested with 250mm cable length - RG174

3.2 VSWR

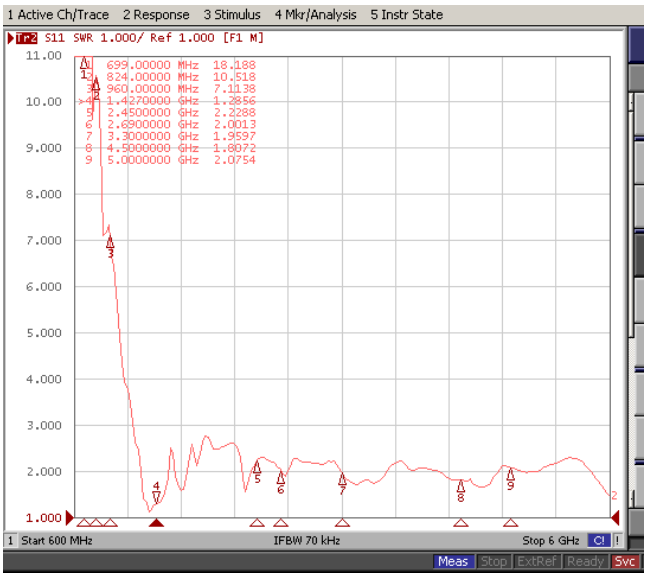
ANT0



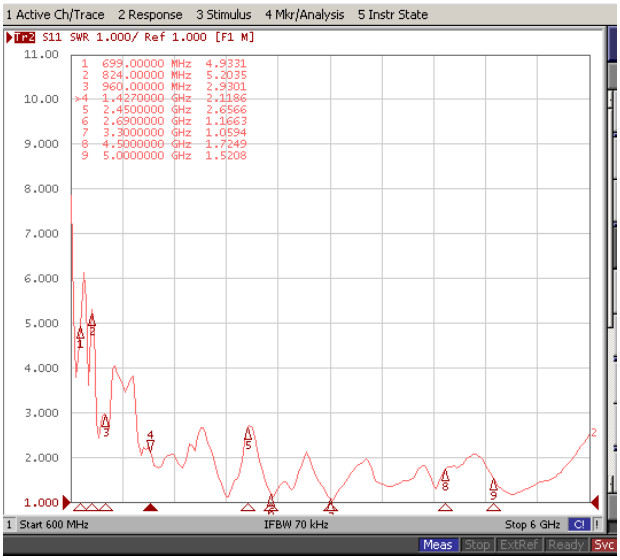
ANT1



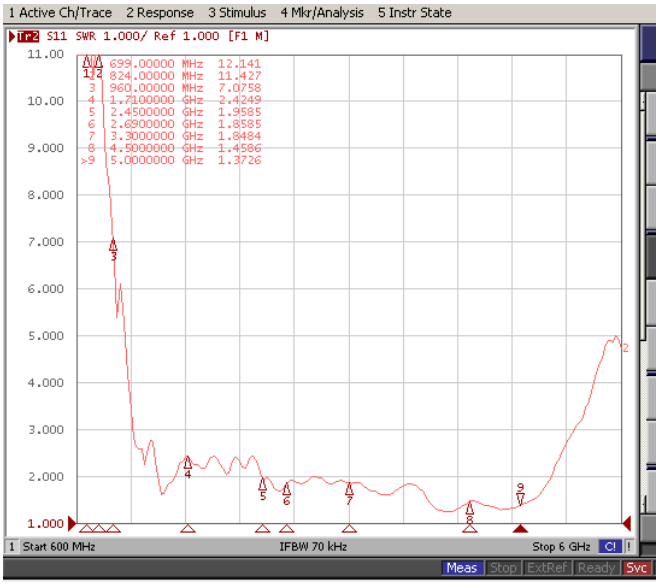
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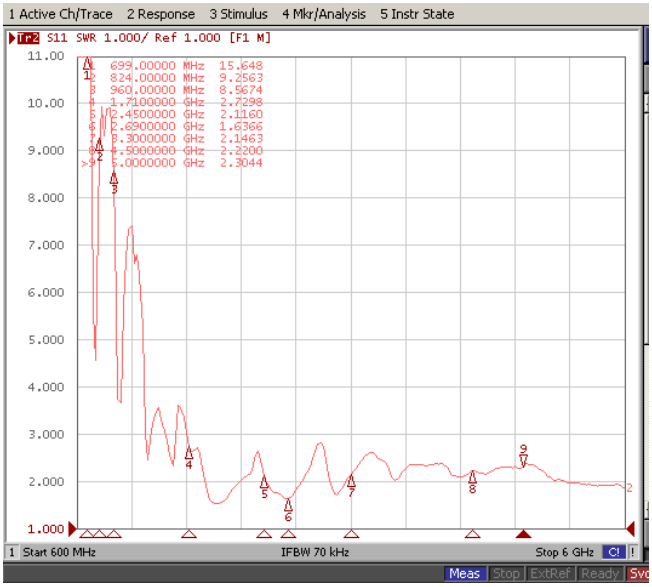
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ANT4

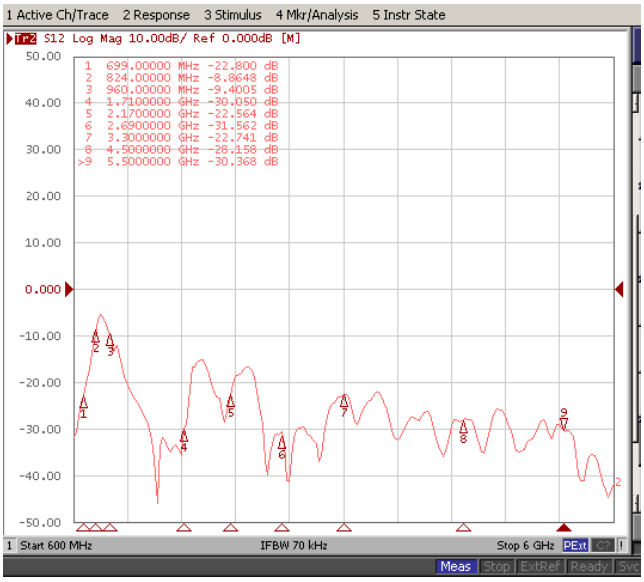


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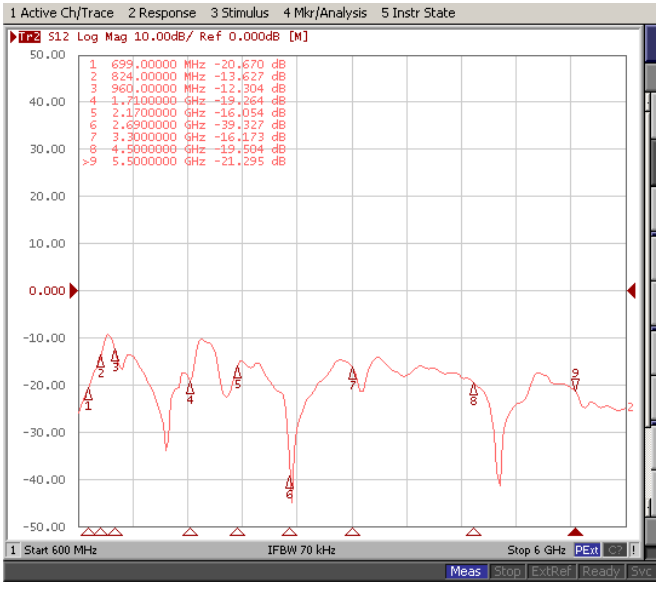


3.3 Antenna Isolation

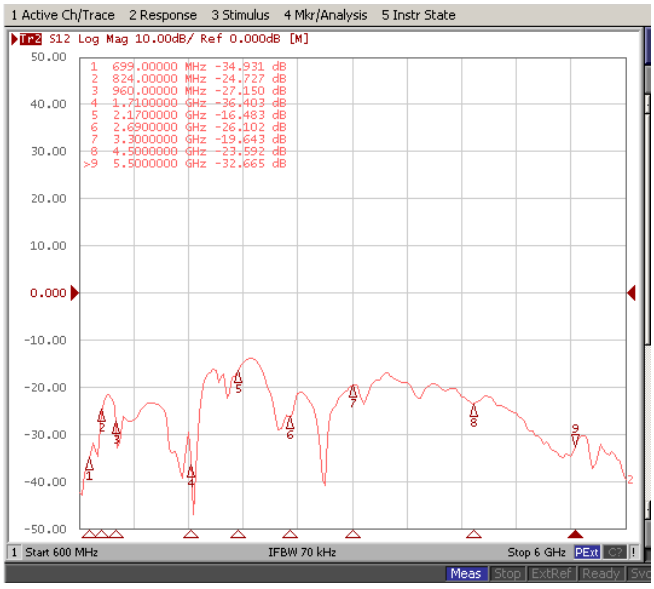
Ant0-ant1



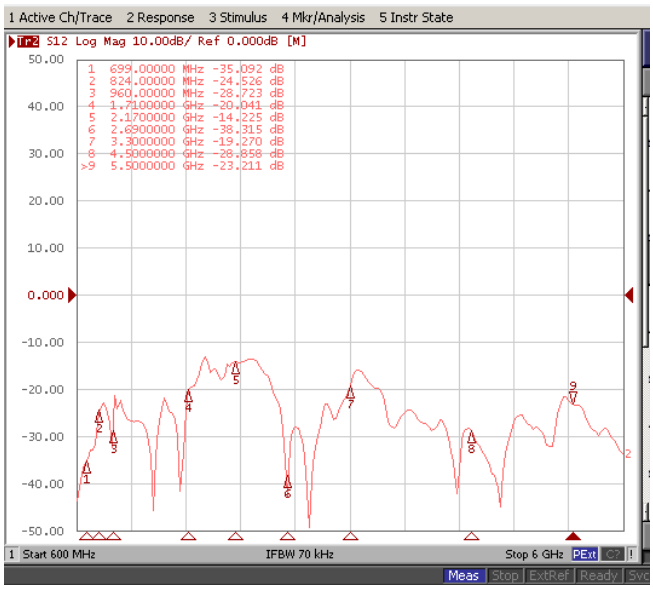
Ant0-ant2



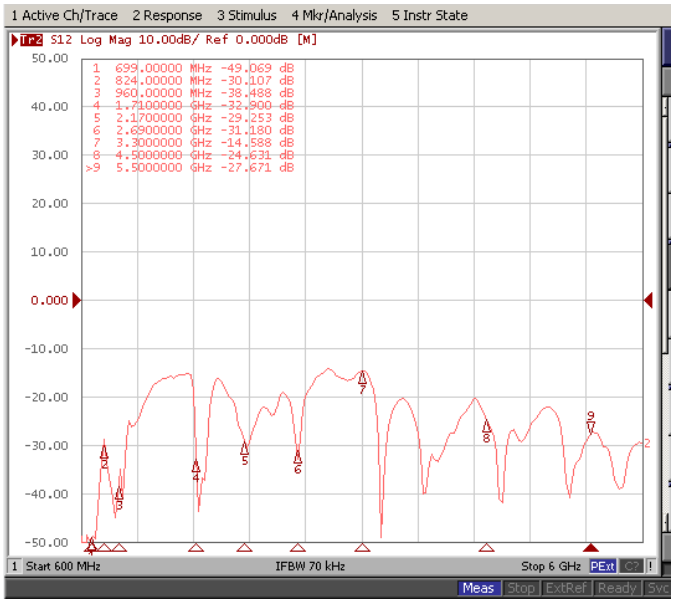
Ant0-ant4



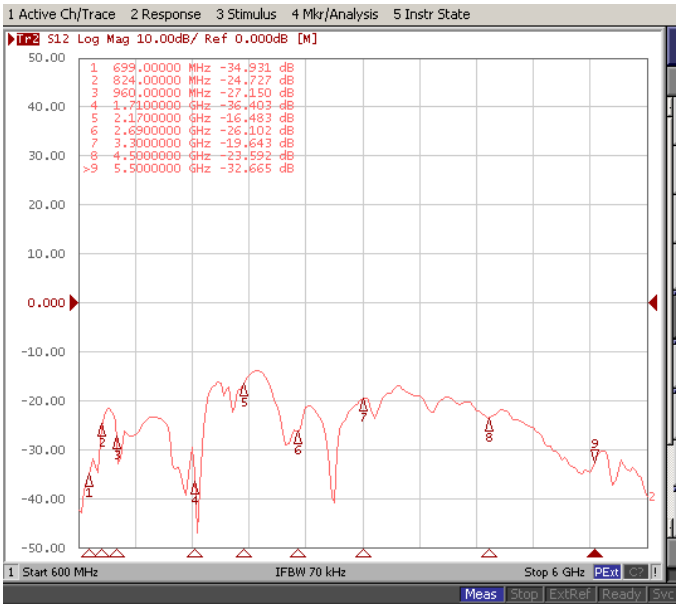
ant3-ant1



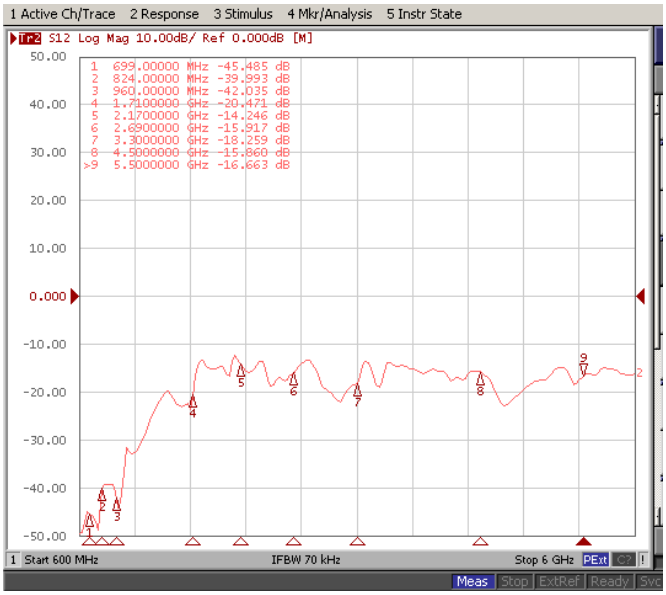
Ant3-ant2



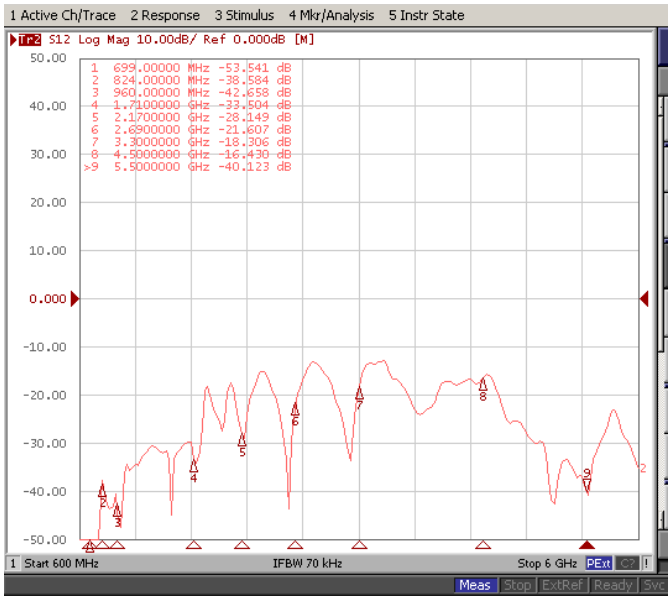
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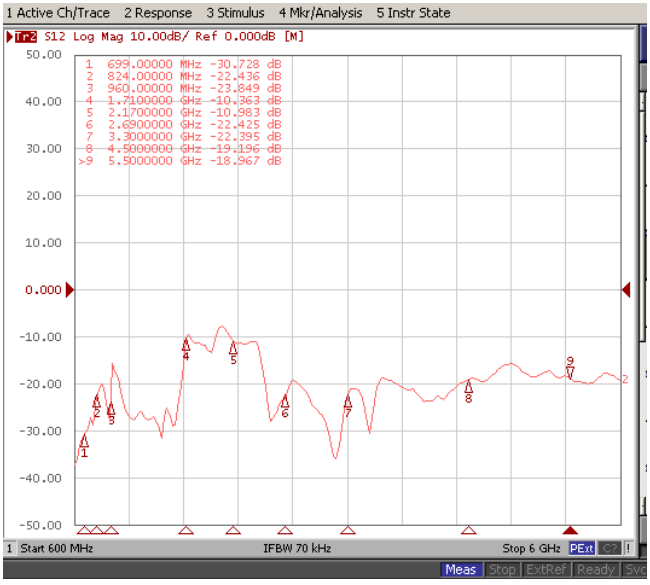
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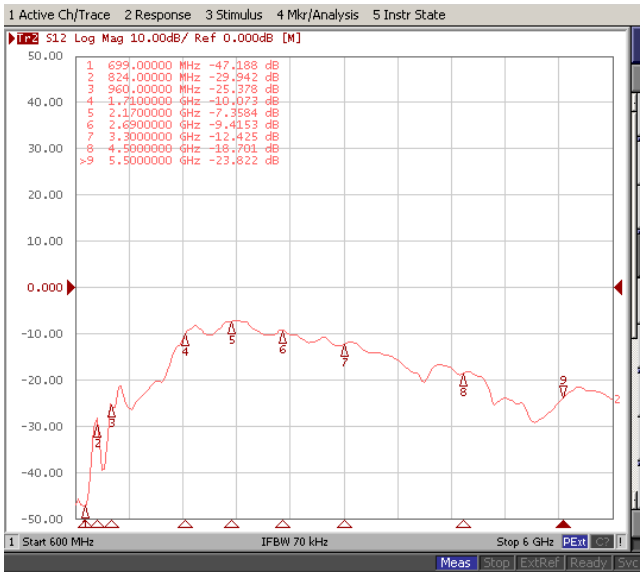
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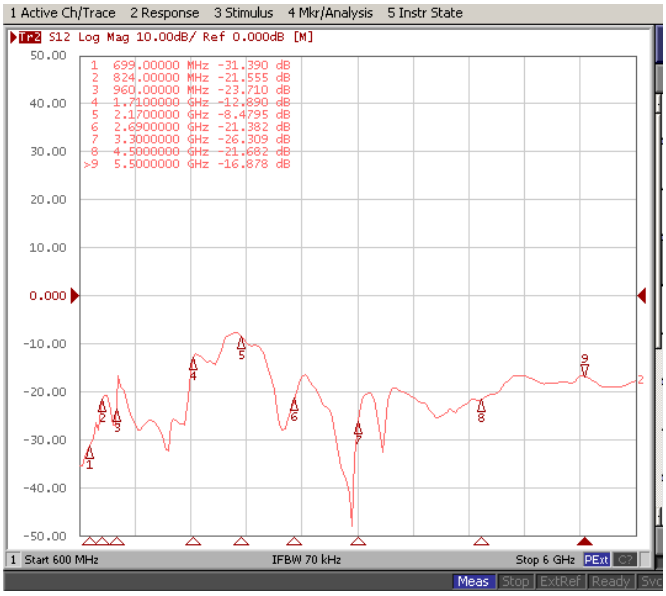
Ant5-ant0



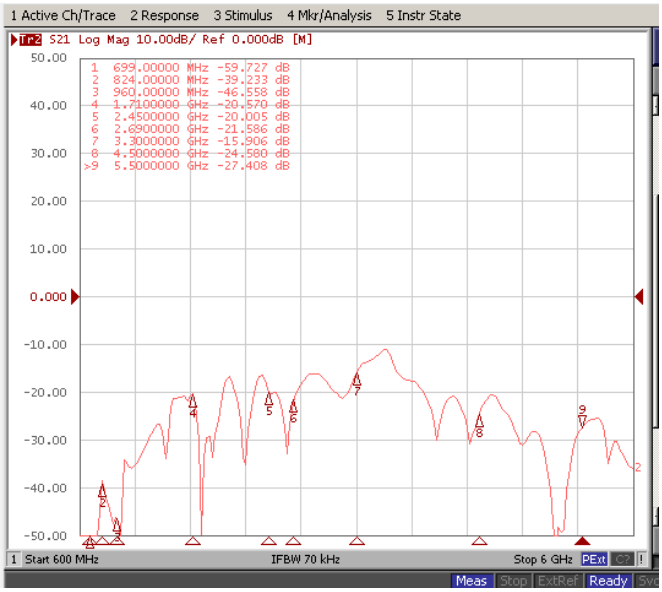
ant5-ant2



Ant5-ant1

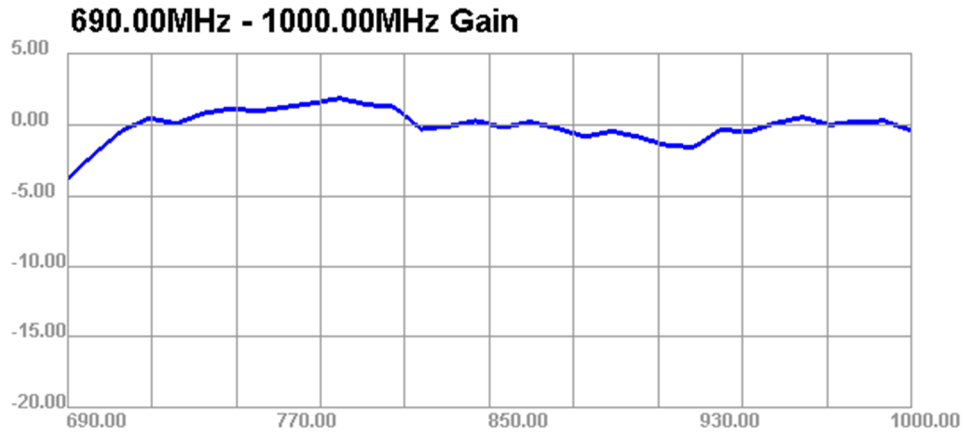


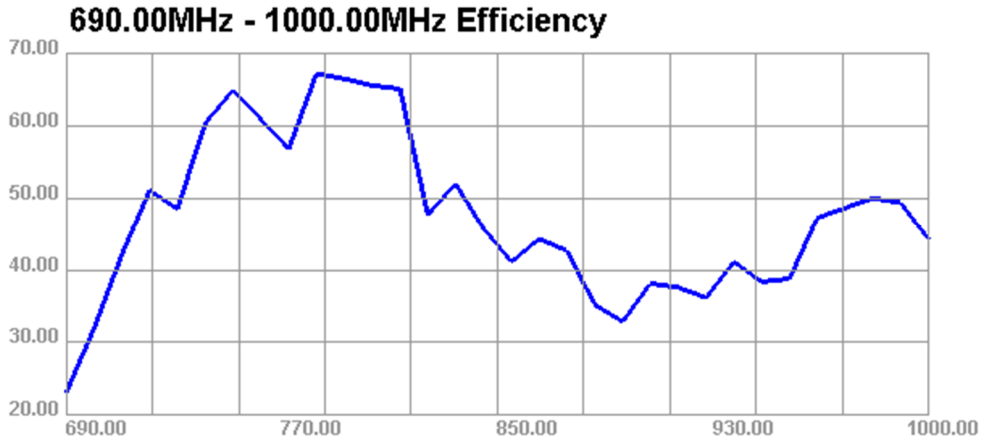
ant5-ant3

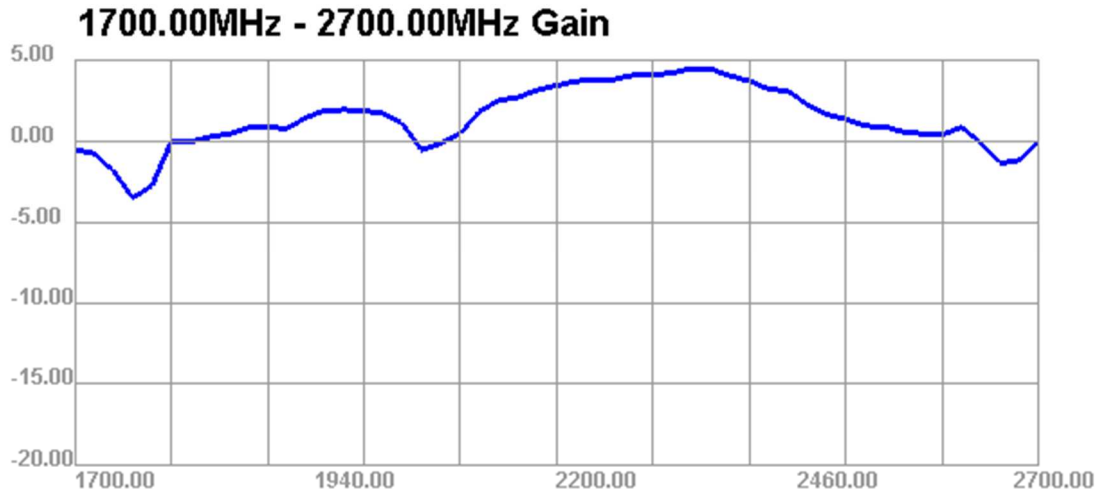


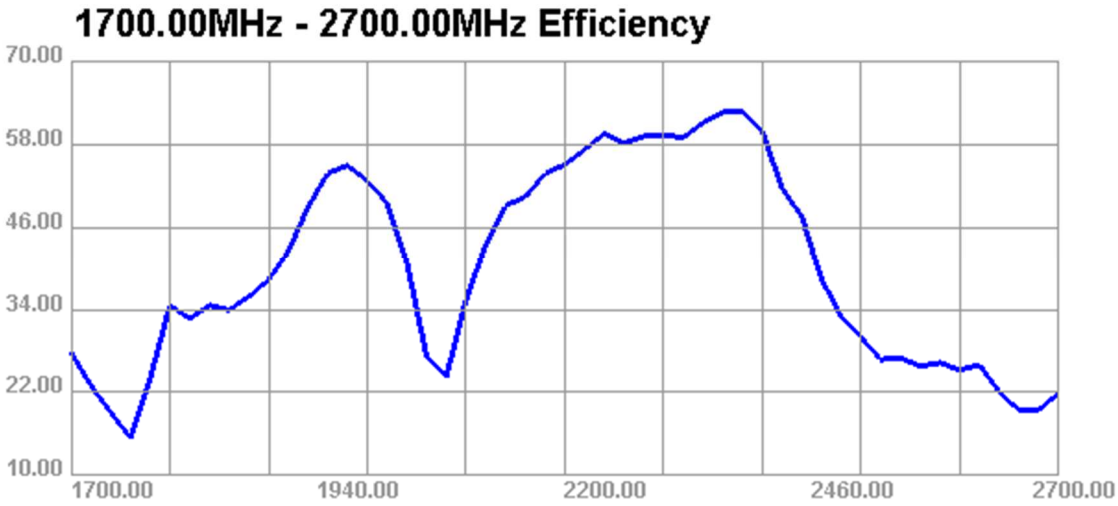
3.4 Gain & Efficiency

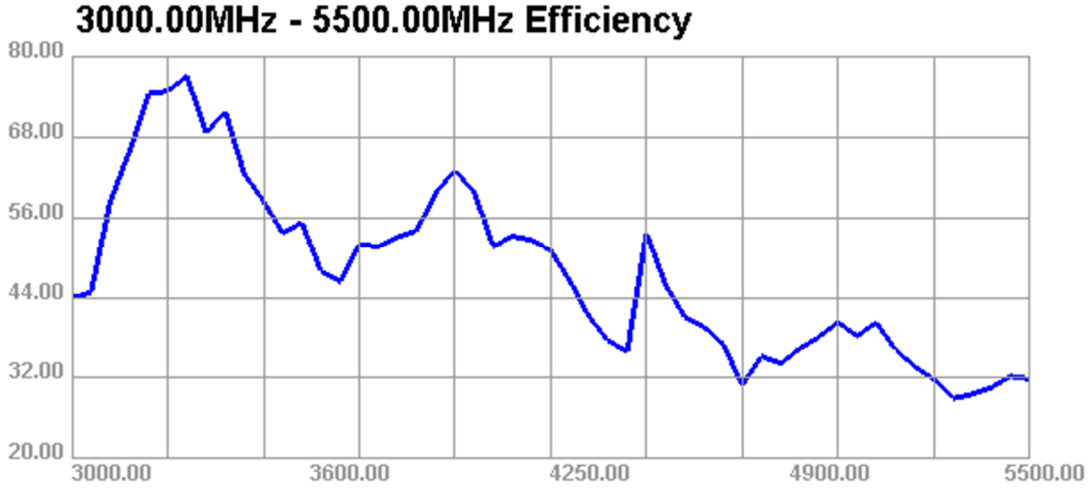
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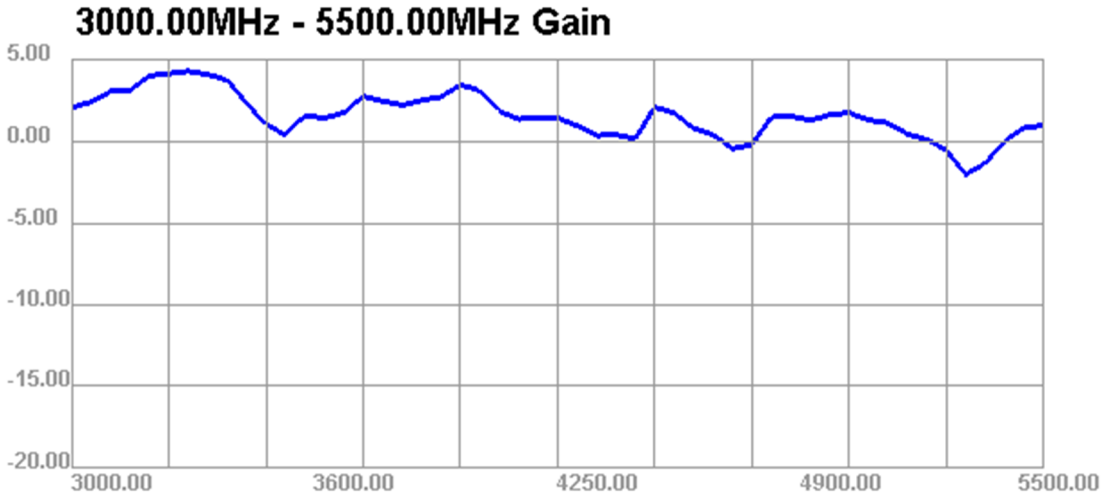


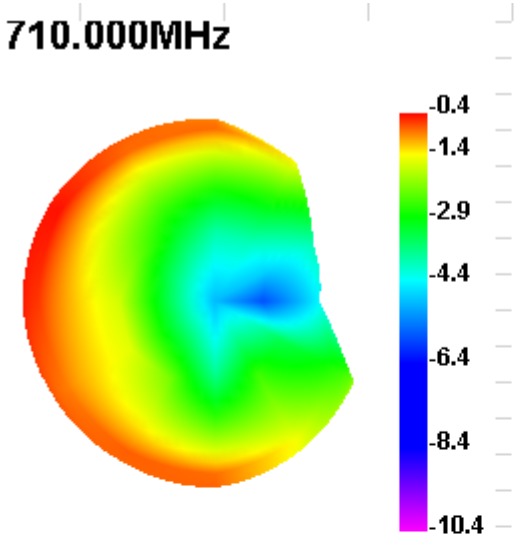


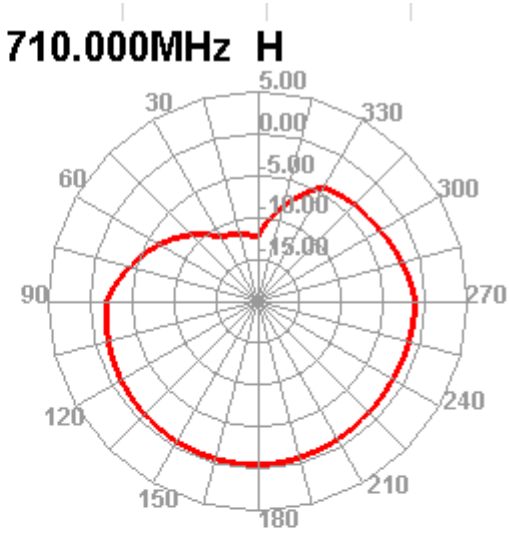

1700.00MHz - 2700.00MHz Gain
5.00
0.00
-5.00
-10.00
-15.00
-20.00
1700.00
1940.00
2200.00
2460.00
2700.00

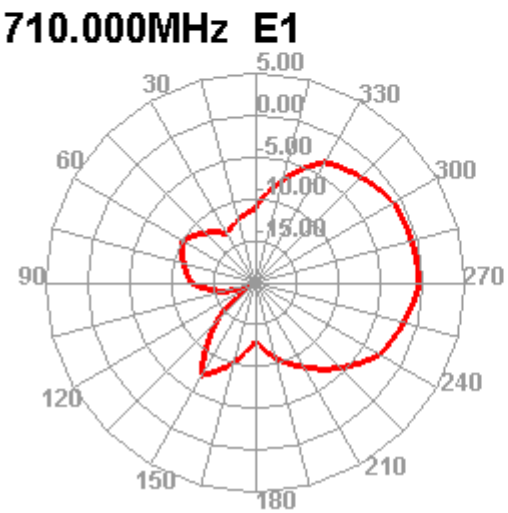

1700.00MHz - 2700.00MHz Efficiency
70.00
58.00
46.00
34.00
22.00
10.00
1700.00
1940.00
2200.00
2460.00
2700.00

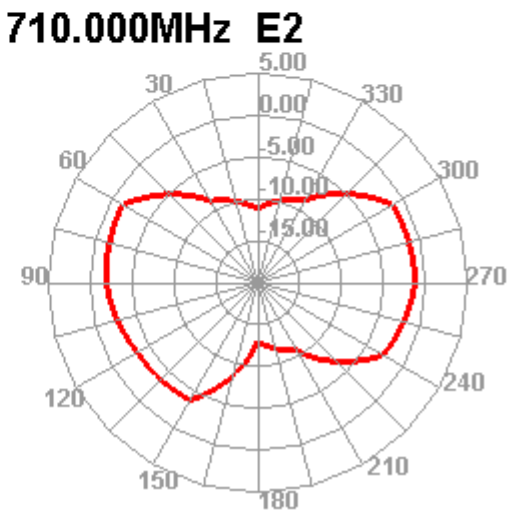

3000.00MHz - 5500.00MHz Efficiency
80.00
68.00
56.00
44.00
32.00
20.00
3000.00
3600.00
4250.00
4900.00
5500.00

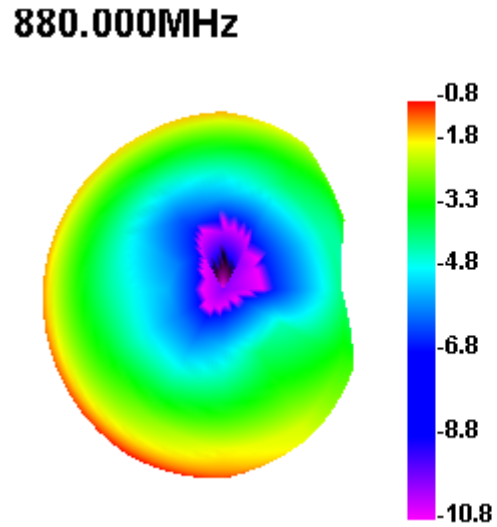

3000.00MHz - 5500.00MHz Gain
5.00
0.00
-5.00
-10.00
-15.00
-20.00
3000.00
3600.00
4250.00
4900.00
5500.00

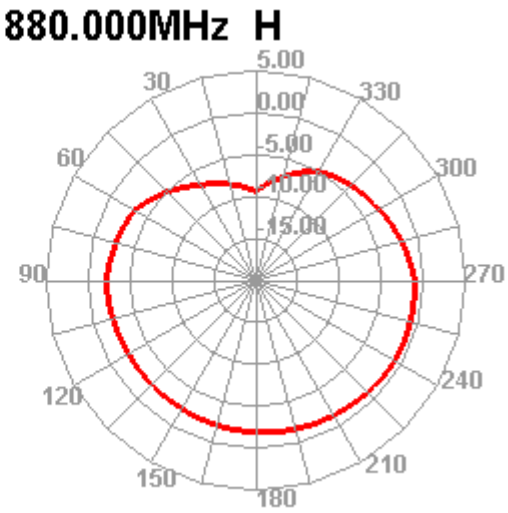

710.000MHz
-0.4
-1.4
-2.9
-4.4
-6.4
-8.4
-10.4

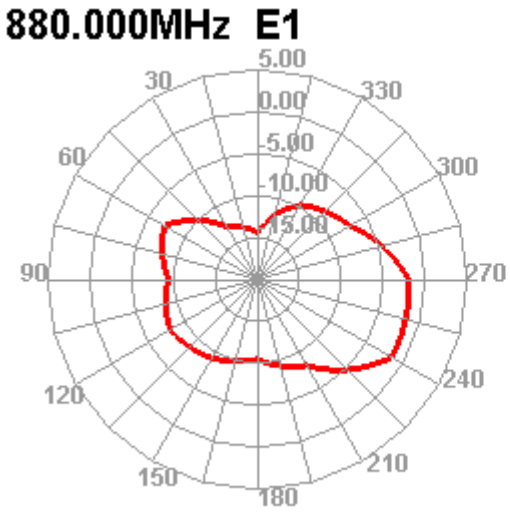

710.000MHz H
5.00
0.00
-5.00
-10.00
-15.00
30
330
60
300
90
270
120
240
150
210
180

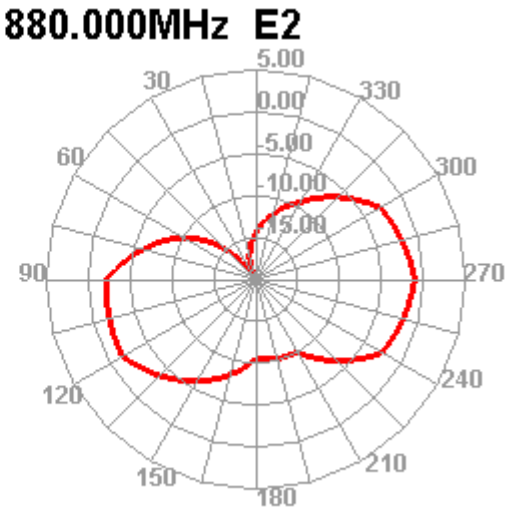

710.000MHz E1
5.00
0.00
-5.00
-10.00
-15.00
30
330
60
300
90
270
120
240
150
210
180

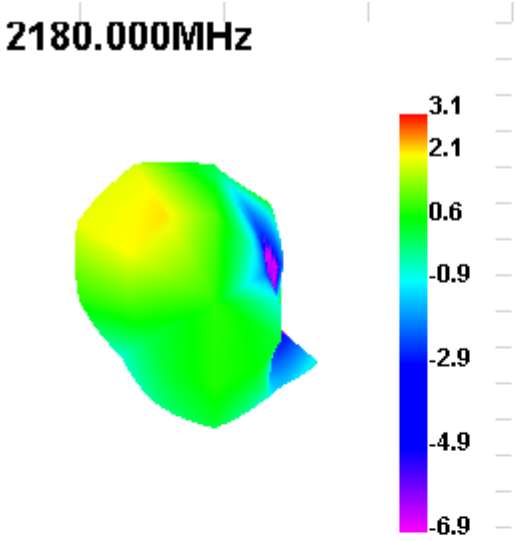

710.000MHz E2
5.00
0.00
-5.00
-10.00
-15.00
30
330
60
300
90
270
120
240
150
210
180

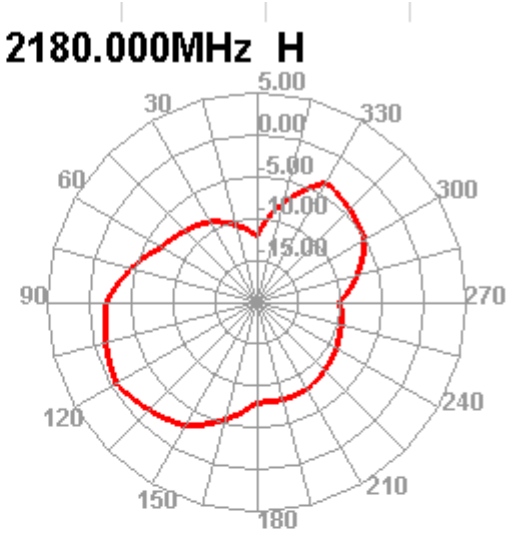

880.000MHz
-0.8
-1.8
-3.3
-4.8
-6.8
-8.8
-10.8

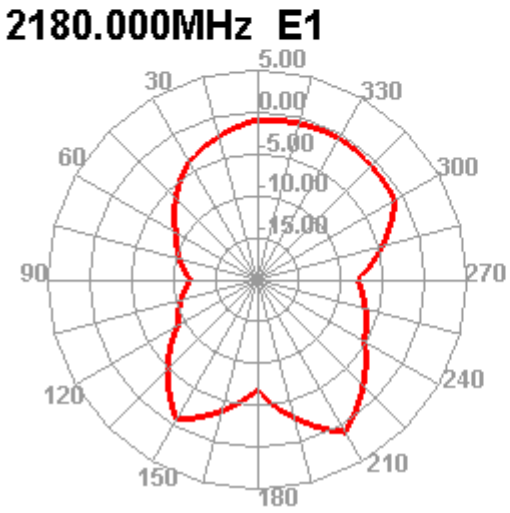

880.000MHz H
5.00
0.00
-5.00
-10.00
-15.00
30
330
60
300
90
270
120
240
150
210
180

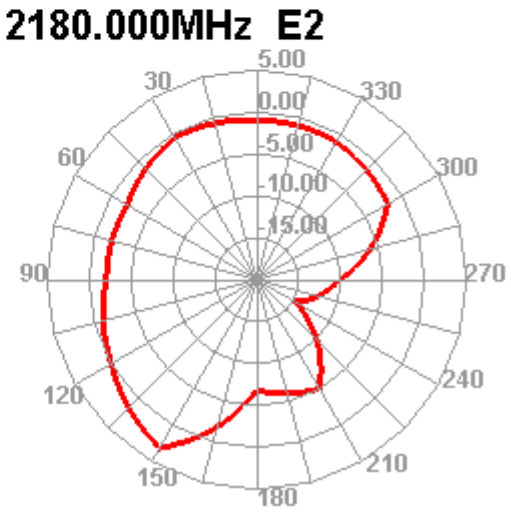

880.000MHz E1
5.00
0.00
-5.00
-10.00
-15.00
30
330
60
300
90
270
120
240
150
210
180

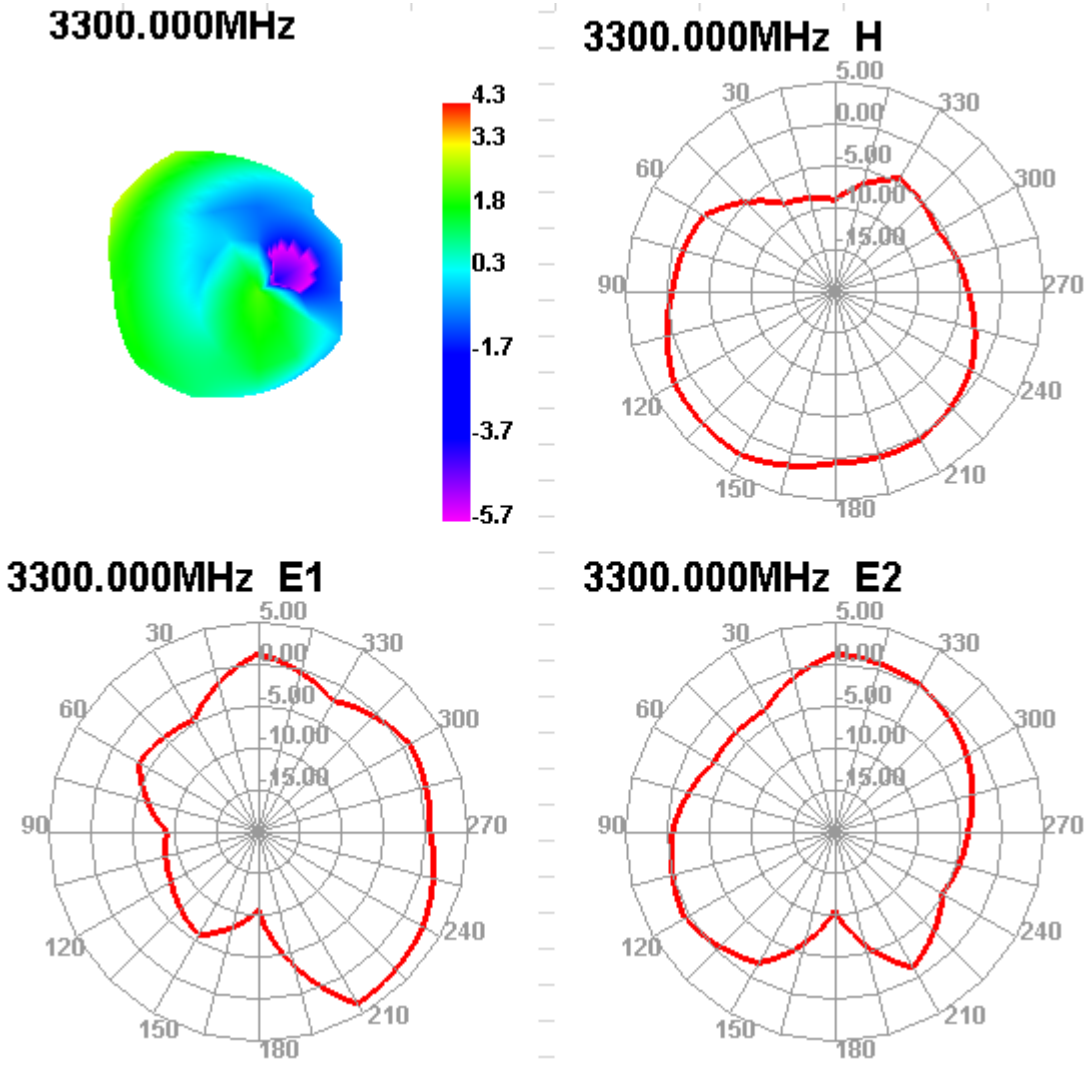

880.000MHz E2
5.00
0.00
-5.00
-10.00
-15.00
30
330
60
300
90
270
120
240
150
210
180


2180.000MHz
3.1
2.1
0.6
-0.9
-2.9
-4.9
-6.9

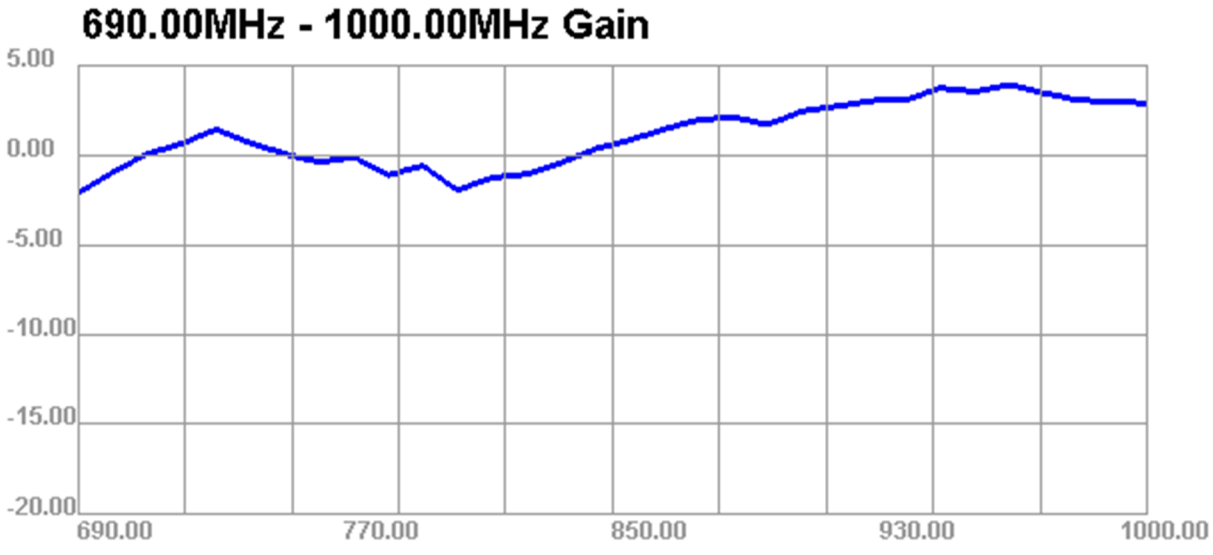

2180.000MHz H
5.00
0.00
-5.00
-10.00
-15.00
30
330
60
300
90
270
120
240
150
210
180

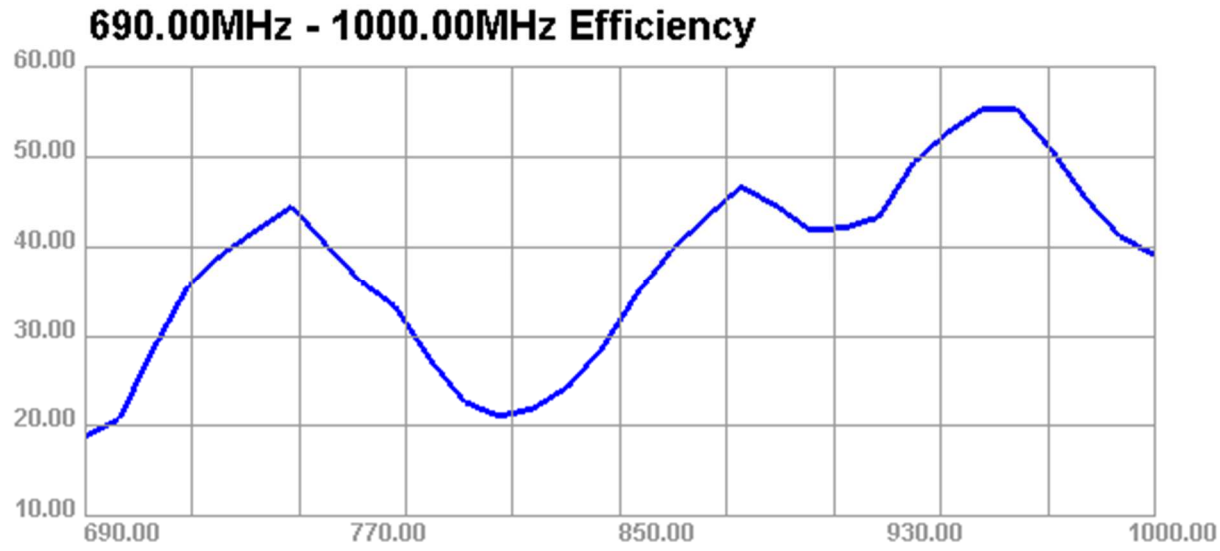

2180.000MHz E1
5.00
0.00
-5.00
-10.00
-15.00
30
330
60
300
90
270
120
240
150
210
180

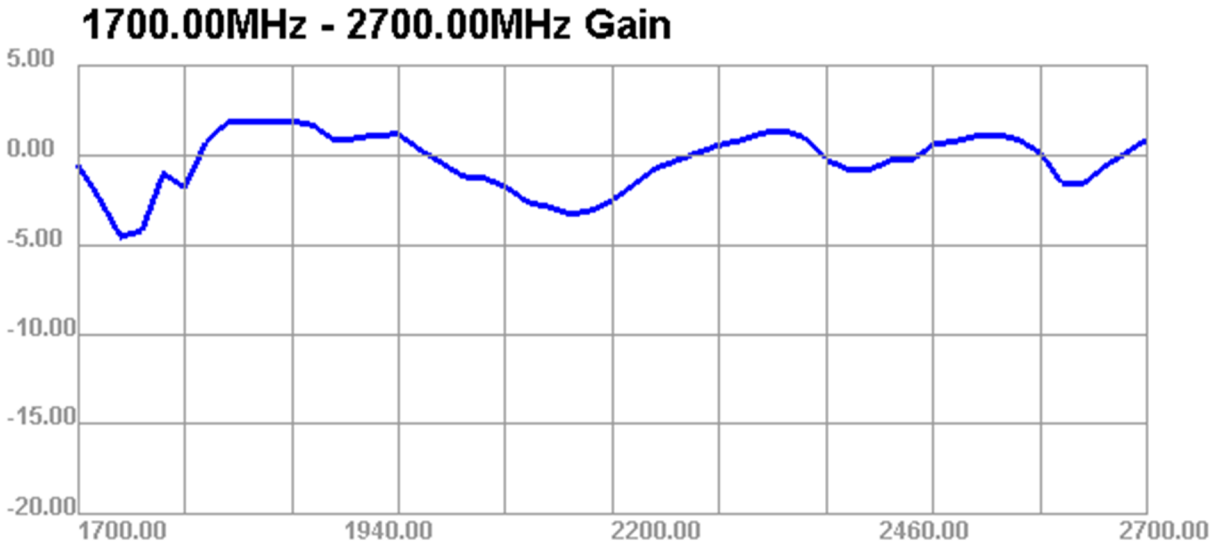

2180.000MHz E2
5.00
0.00
-5.00
-10.00
-15.00
30
330
60
300
90
270
120
240
150
210
180

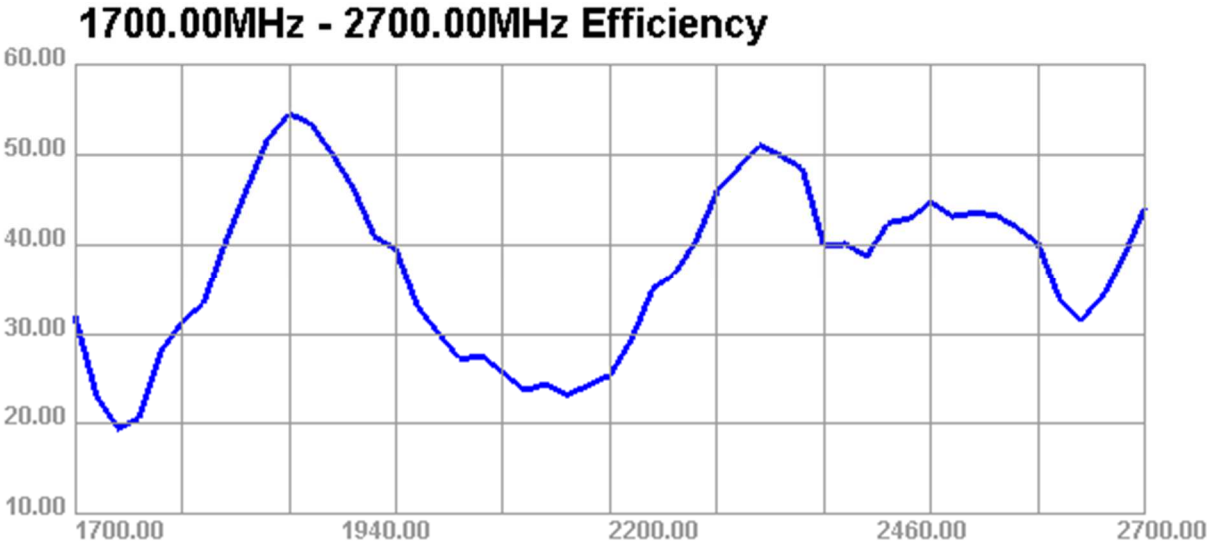

3300.000MHz
4.3
3.3
1.8
0.3
-1.7
-3.7
-5.7
3300.000MHz H
3300.000MHz E1
3300.000MHz E2
5.00
0.00
-5.00
-10.00
-15.00
30
330
60
300
90
270
120
240
150
210
180

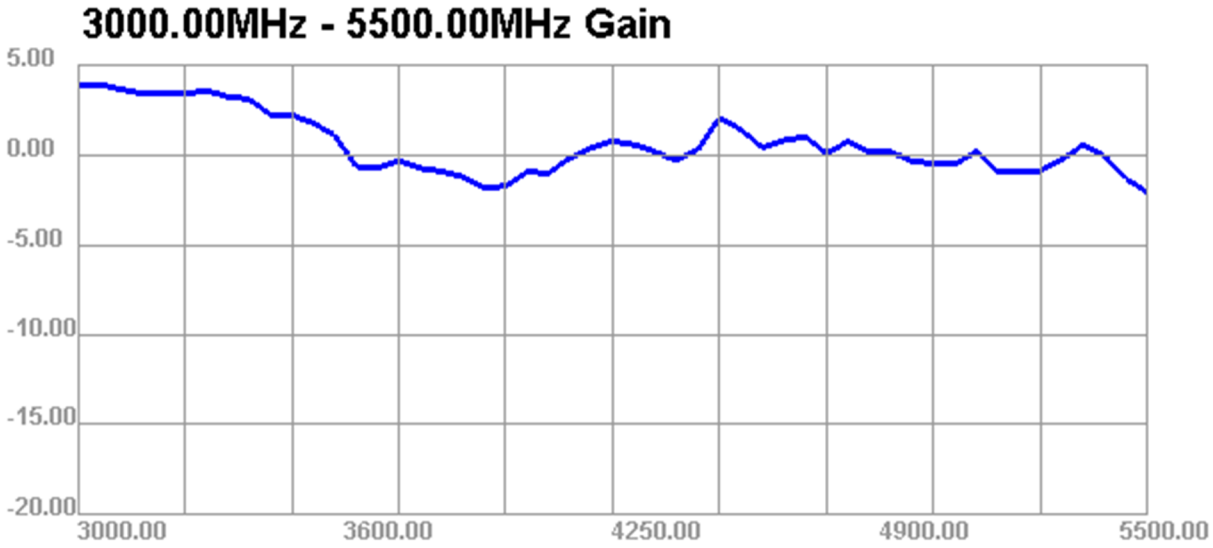
ANT1

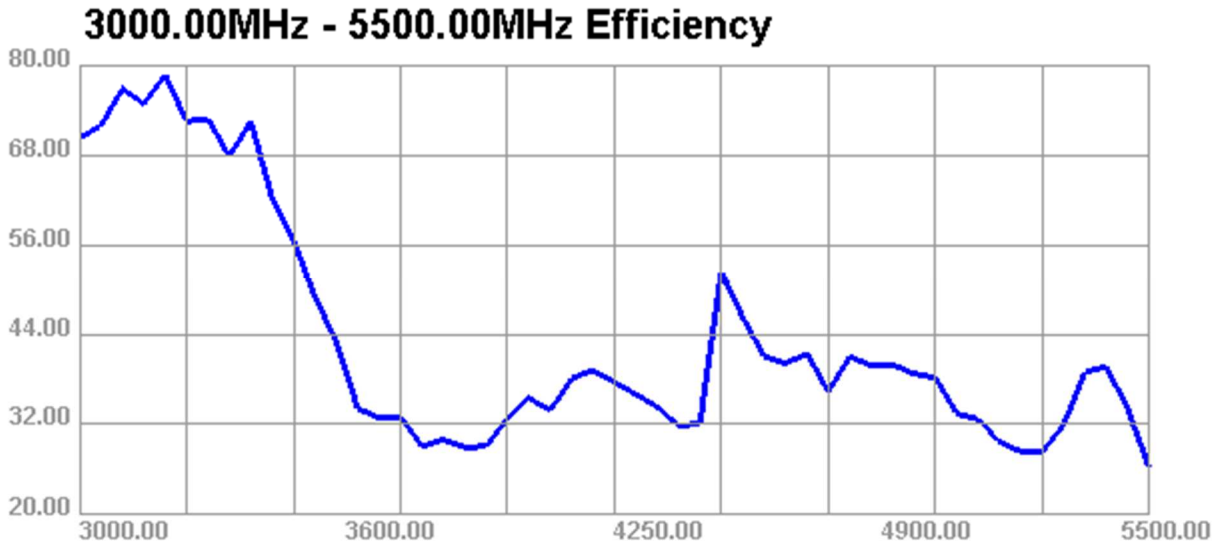

690.00MHz - 1000.00MHz Gain
5.00
0.00
-5.00
-10.00
-15.00
-20.00
690.00
770.00
850.00
930.00
1000.00

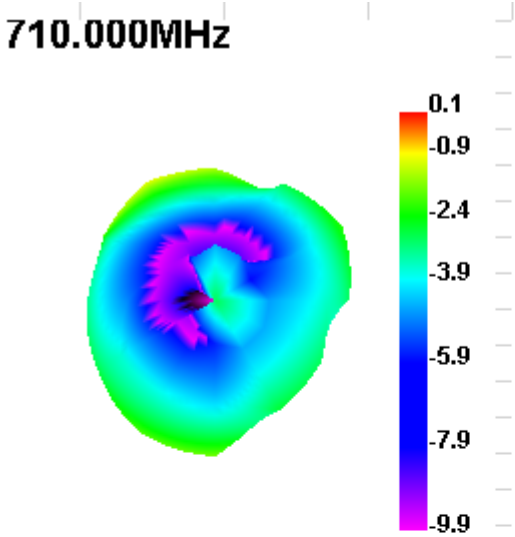

690.00MHz - 1000.00MHz Efficiency
60.00
50.00
40.00
30.00
20.00
10.00
690.00
770.00
850.00
930.00
1000.00

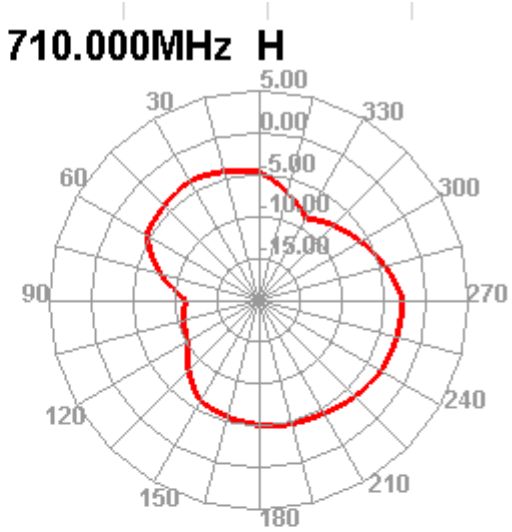

1700.00MHz - 2700.00MHz Gain
5.00
0.00
-5.00
-10.00
-15.00
-20.00
1700.00
1940.00
2200.00
2460.00
2700.00

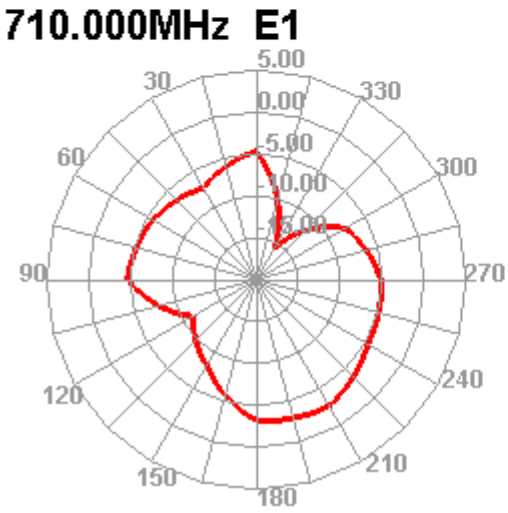

1700.00MHz - 2700.00MHz Efficiency
60.00
50.00
40.00
30.00
20.00
10.00
1700.00
1940.00
2200.00
2460.00
2700.00

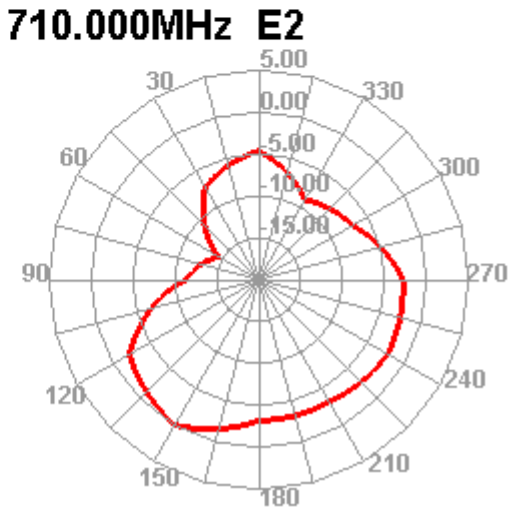

3000.00MHz - 5500.00MHz Gain
5.00
0.00
-5.00
-10.00
-15.00
-20.00
3000.00
3600.00
4250.00
4900.00
5500.00

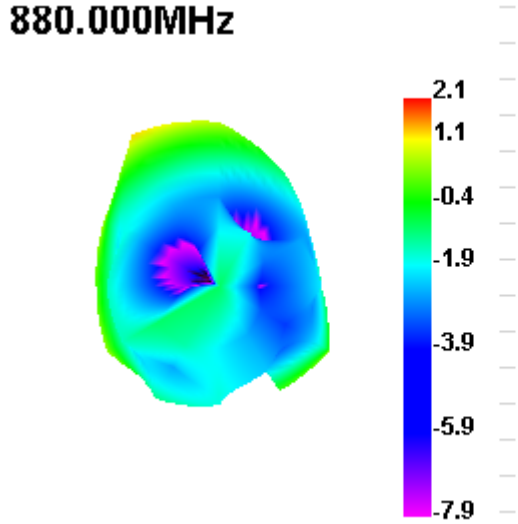

3000.00MHz - 5500.00MHz Efficiency
80.00
68.00
56.00
44.00
32.00
20.00
3000.00
3600.00
4250.00
4900.00
5500.00

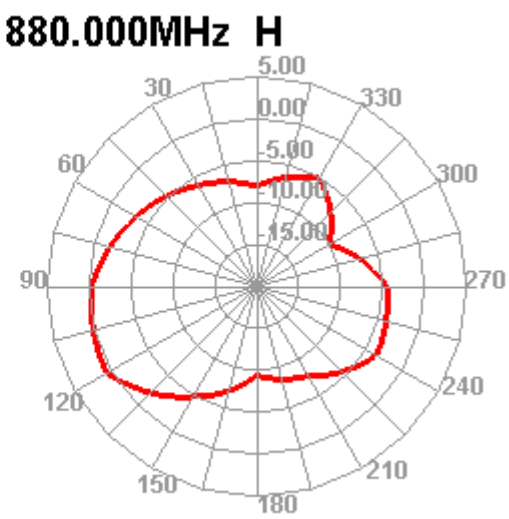

710.000MHz
0.1
-0.9
-2.4
-3.9
-5.9
-7.9
-9.9

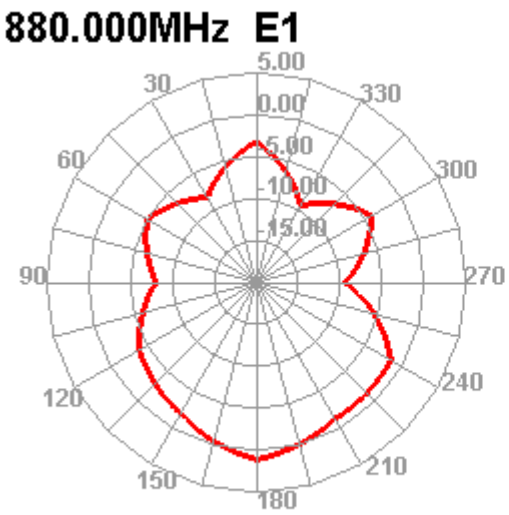

710.000MHz H
5.00
0.00
-5.00
-10.00
-15.00
30
330
60
300
90
270
120
240
150
210
180

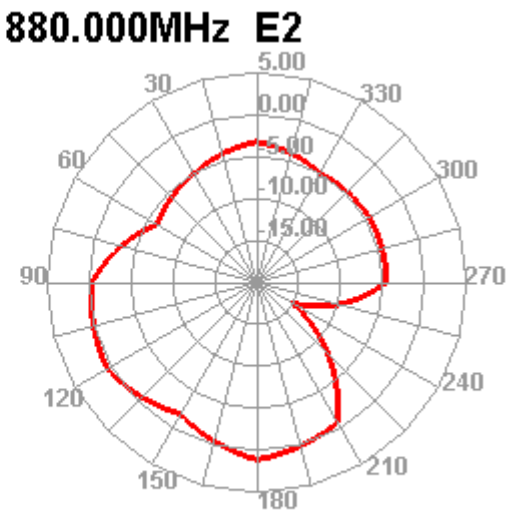

710.000MHz E1
5.00
0.00
-5.00
-10.00
-15.00
30
330
60
300
90
270
120
240
150
210
180

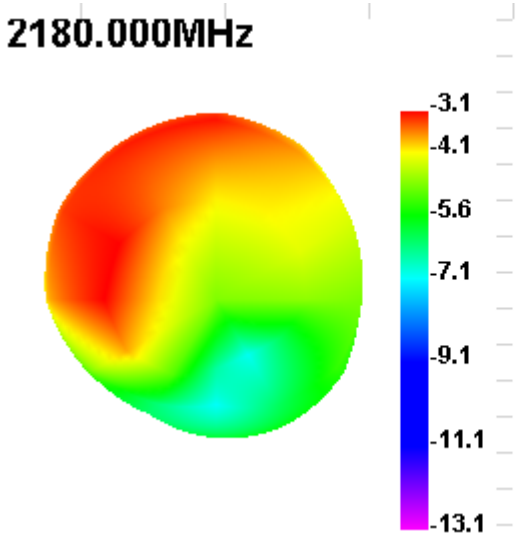

710.000MHz E2
5.00
0.00
-5.00
-10.00
-15.00
30
330
60
300
90
270
120
240
150
210
180

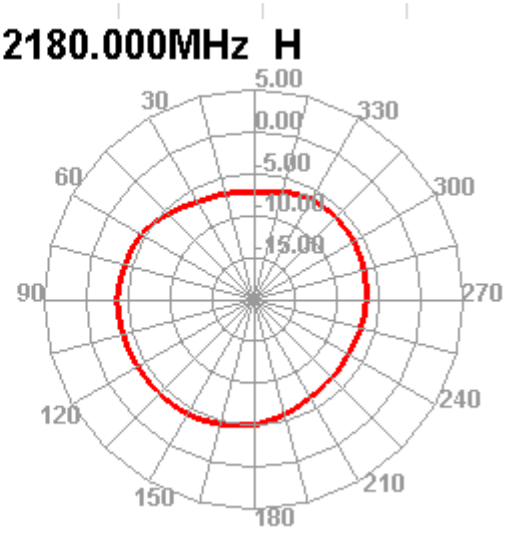

880.000MHz
2.1
1.1
-0.4
-1.9
-3.9
-5.9
-7.9

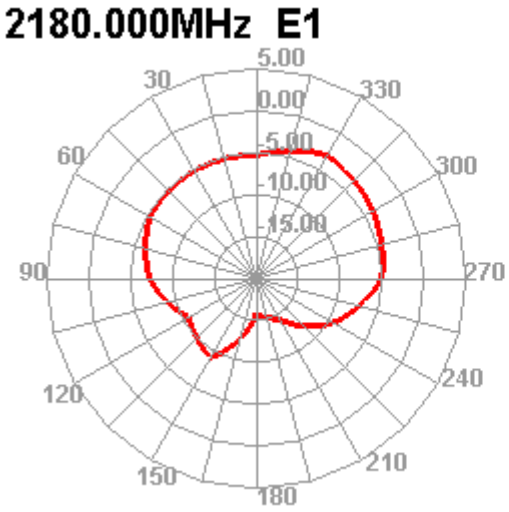

880.000MHz H
5.00
0.00
-5.00
-10.00
-15.00
30
330
60
300
90
270
120
240
150
210
180

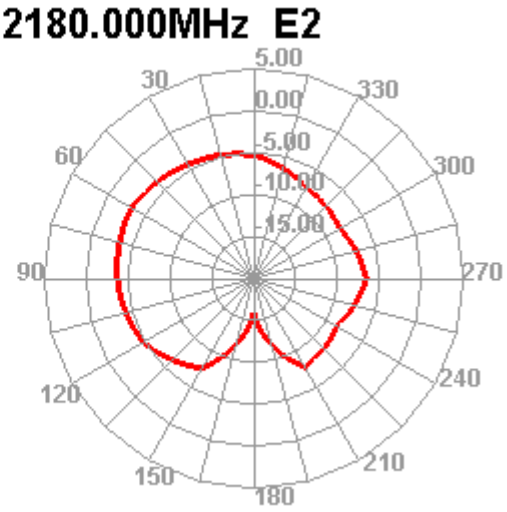

880.000MHz E1
5.00
0.00
-5.00
-10.00
-15.00
30
330
60
300
90
270
120
240
150
210
180

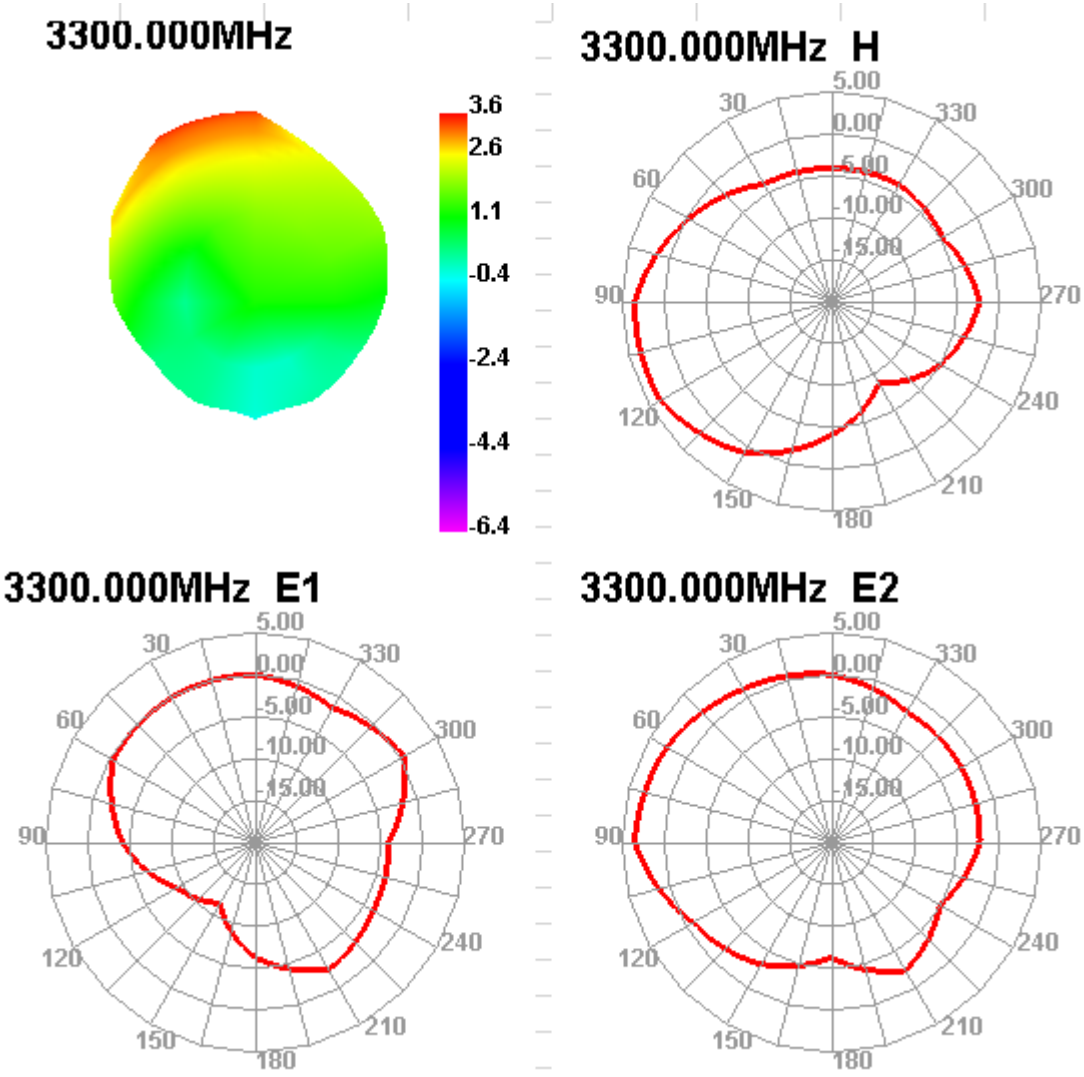

880.000MHz E2
5.00
0.00
-5.00
-10.00
-15.00
30
330
60
300
90
270
120
240
150
210
180


2180.000MHz
-3.1
-4.1
-5.6
-7.1
-9.1
-11.1
-13.1

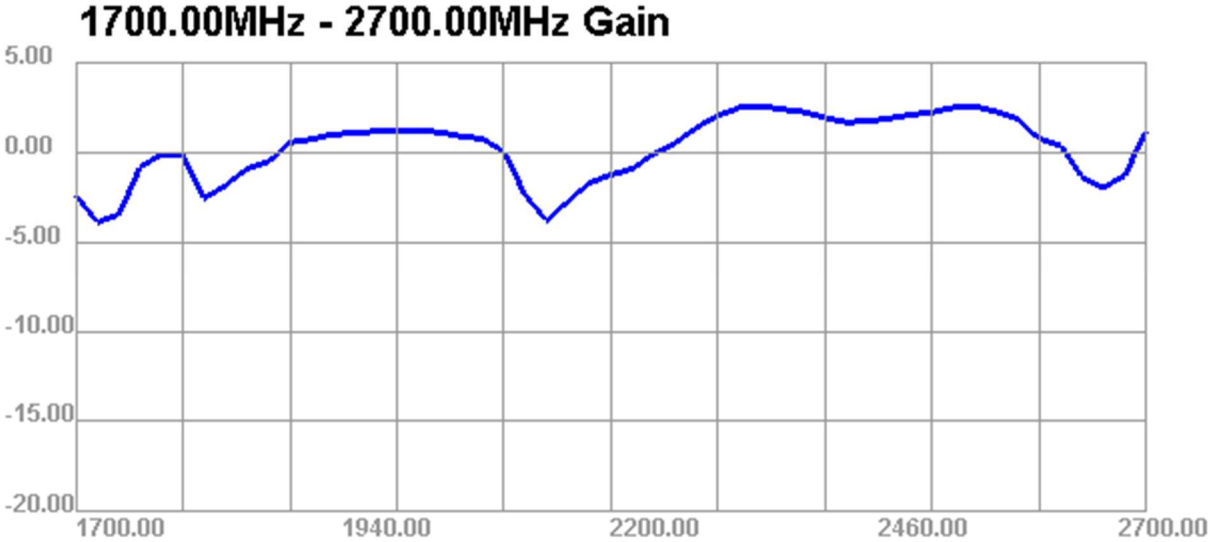

2180.000MHz H
5.00
0.00
-5.00
-10.00
-15.00
30
330
60
300
90
270
120
240
150
210
180

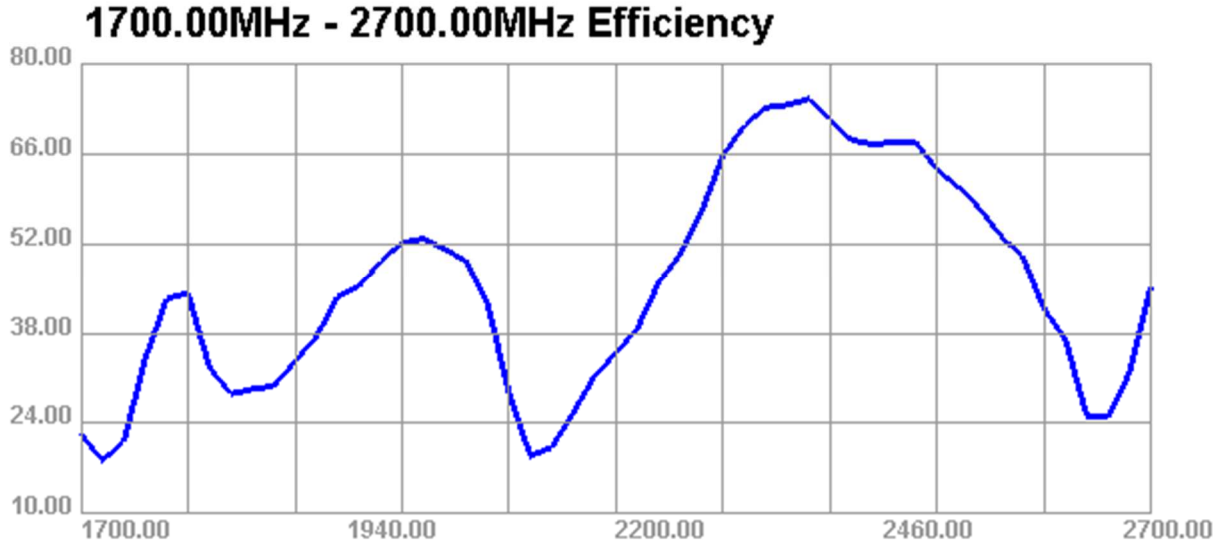

2180.000MHz E1
5.00
0.00
-5.00
-10.00
-15.00
30
330
60
300
90
270
120
240
150
210
180

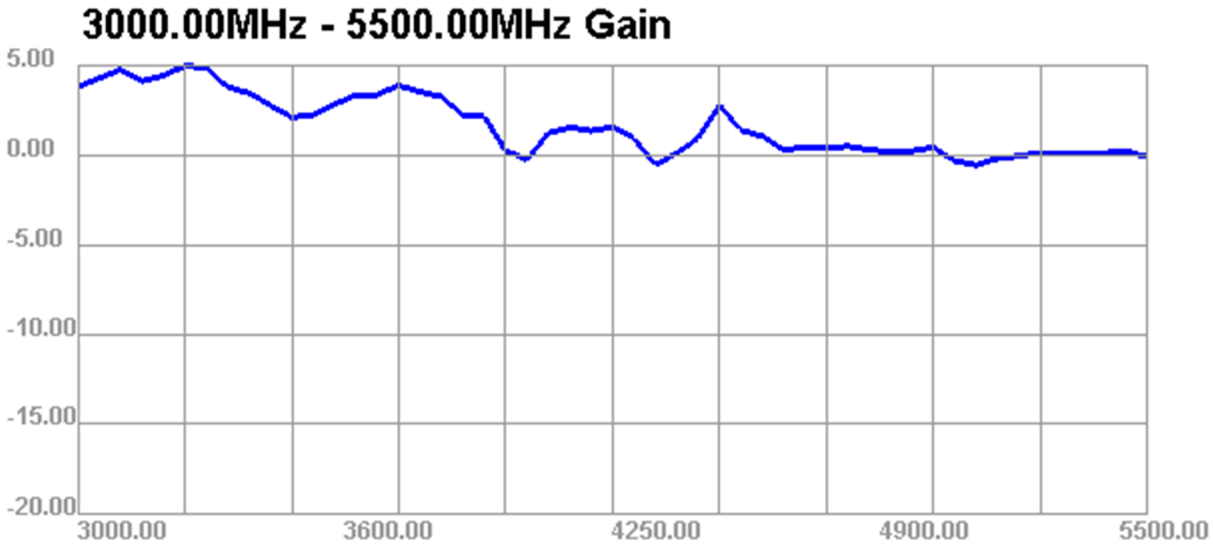

2180.000MHz E2
5.00
0.00
-5.00
-10.00
-15.00
30
330
60
300
90
270
120
240
150
210
180

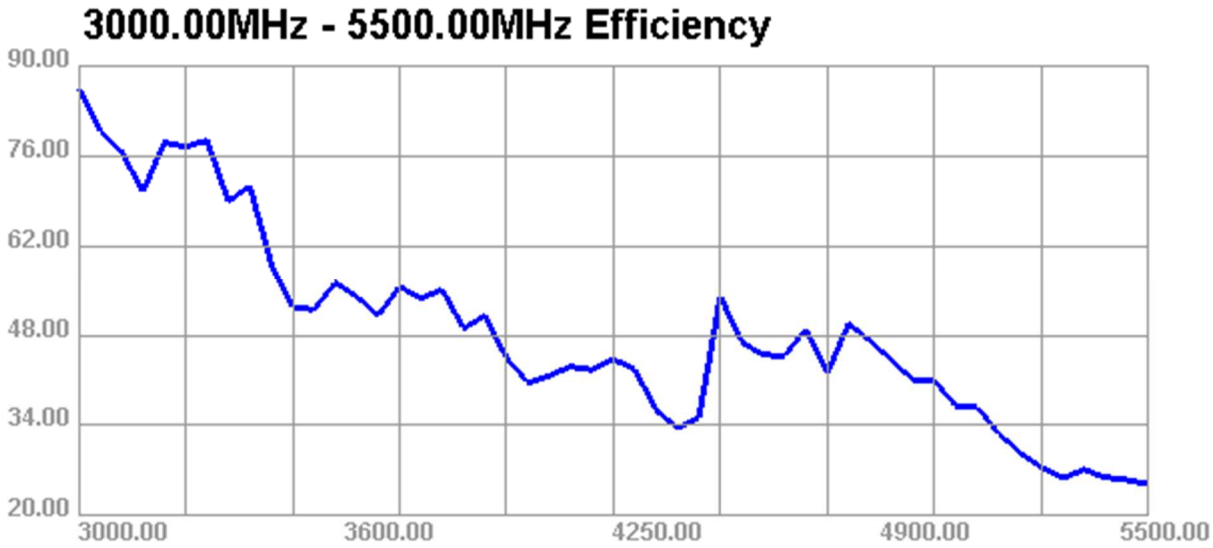

3300.000MHz
3.6
2.6
1.1
-0.4
-2.4
-4.4
-6.4
3300.000MHz H
3300.000MHz E1
3300.000MHz E2
5.00
0.00
-5.00
-10.00
-15.00
30
330
60
300
90
270
120
240
150
210
180

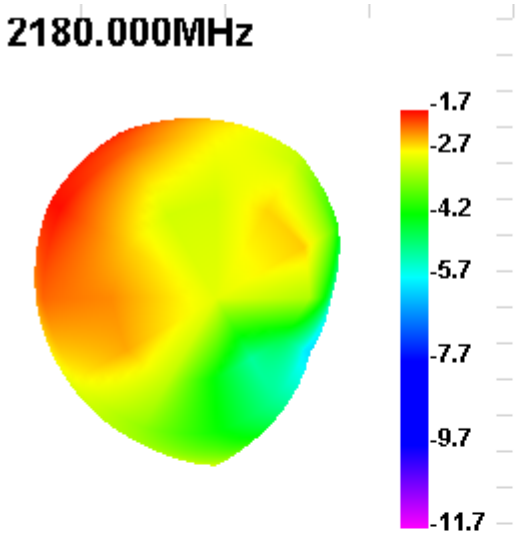
Ant2

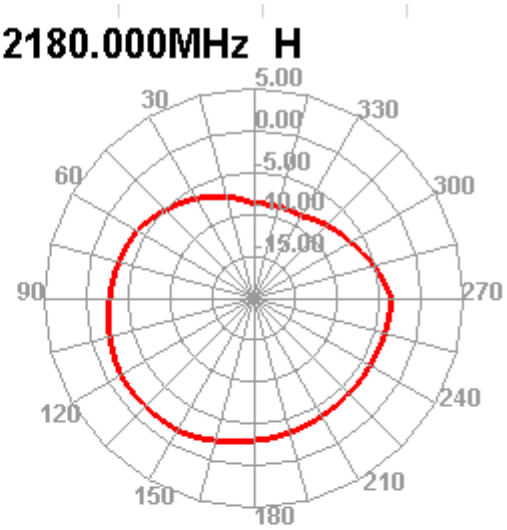

1700.00MHz - 2700.00MHz Gain
5.00
0.00
-5.00
-10.00
-15.00
-20.00
1700.00
1940.00
2200.00
2460.00
2700.00

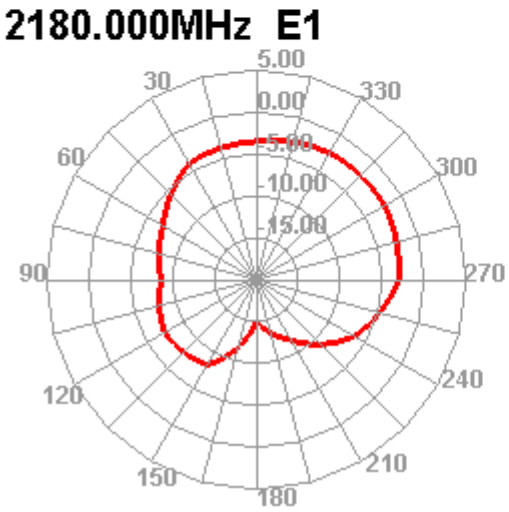

1700.00MHz - 2700.00MHz Efficiency
80.00
66.00
52.00
38.00
24.00
10.00
1700.00
1940.00
2200.00
2460.00
2700.00

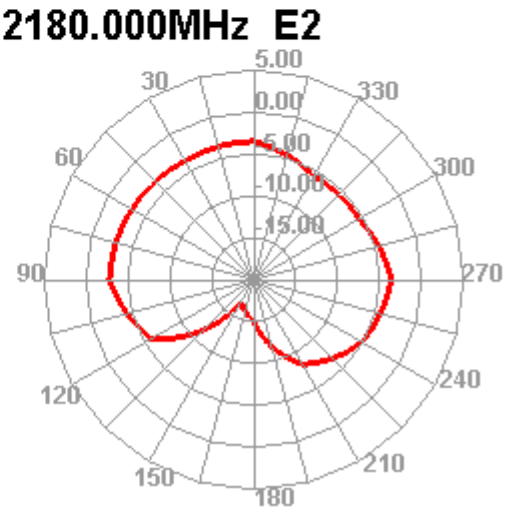

3000.00MHz - 5500.00MHz Gain
5.00
0.00
-5.00
-10.00
-15.00
-20.00
3000.00
3600.00
4250.00
4900.00
5500.00

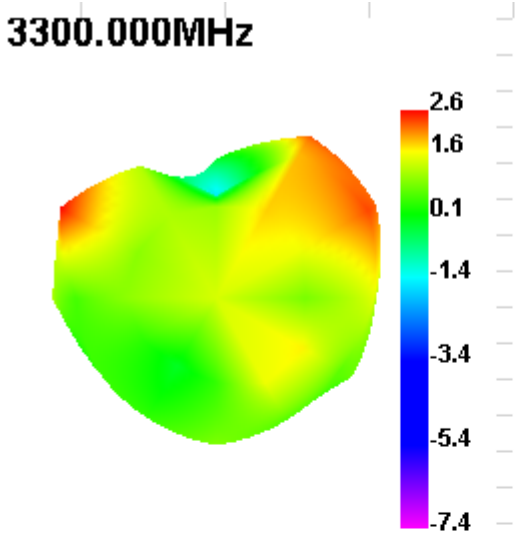

3000.00MHz - 5500.00MHz Efficiency
90.00
76.00
62.00
48.00
34.00
20.00
3000.00
3600.00
4250.00
4900.00
5500.00

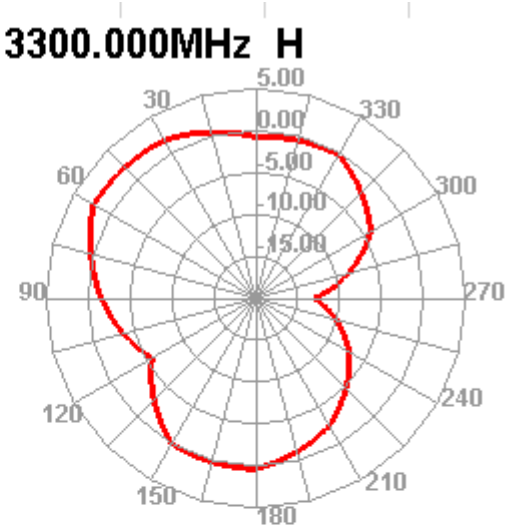

2180.000MHz
-1.7
-2.7
-4.2
-5.7
-7.7
-9.7
-11.7

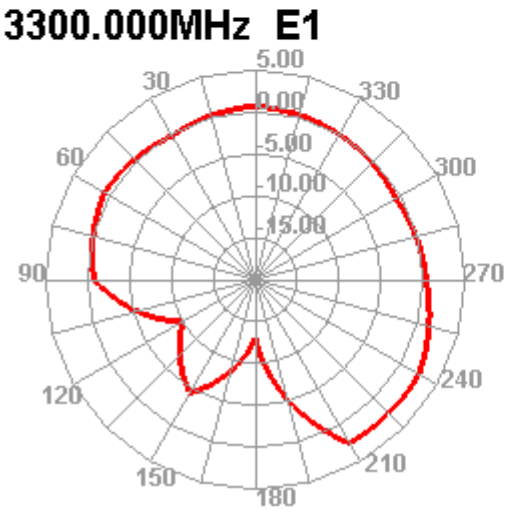

2180.000MHz H
5.00
0.00
-5.00
-10.00
-15.00
30
330
60
300
90
270
120
240
150
210
180

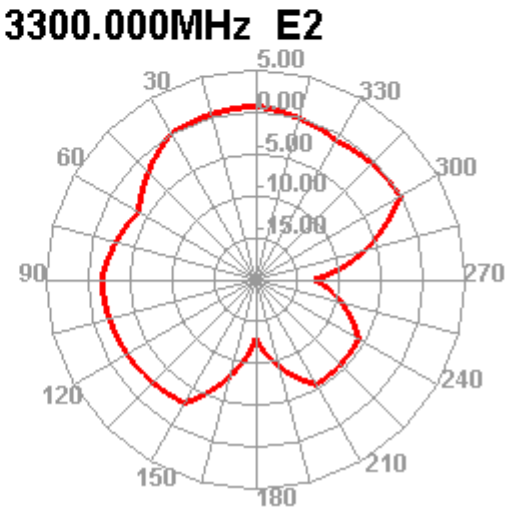

2180.000MHz E1
5.00
0.00
-5.00
-10.00
-15.00
30
330
60
300
90
270
120
240
150
210
180


2180.000MHz E2
5.00
0.00
-5.00
-10.00
-15.00
30
330
60
300
90
270
120
240
150
210
180

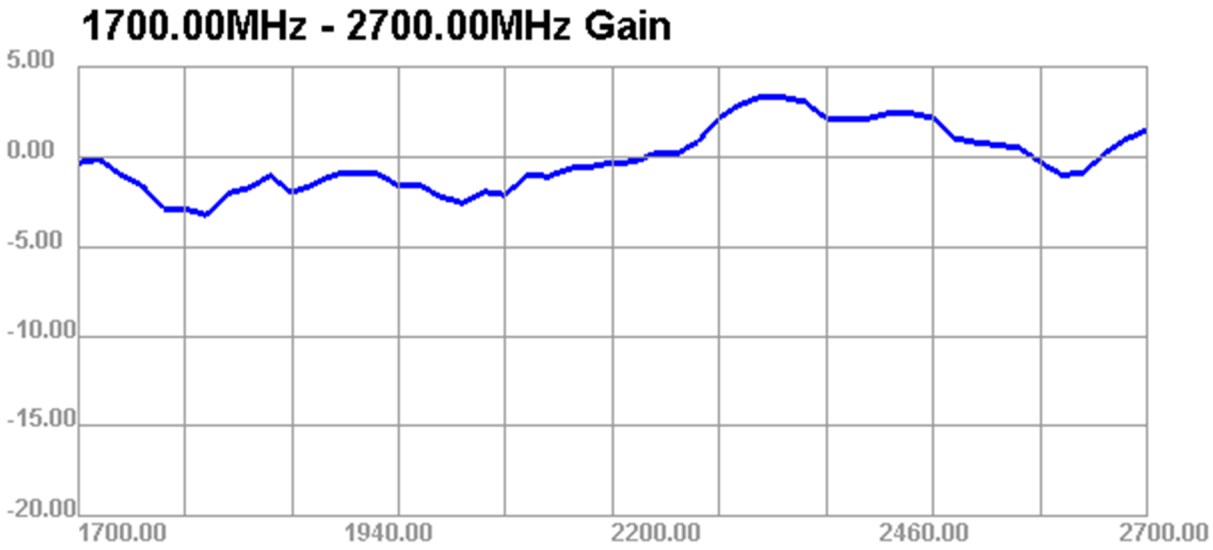

3300.000MHz
2.6
1.6
0.1
-1.4
-3.4
-5.4
-7.4

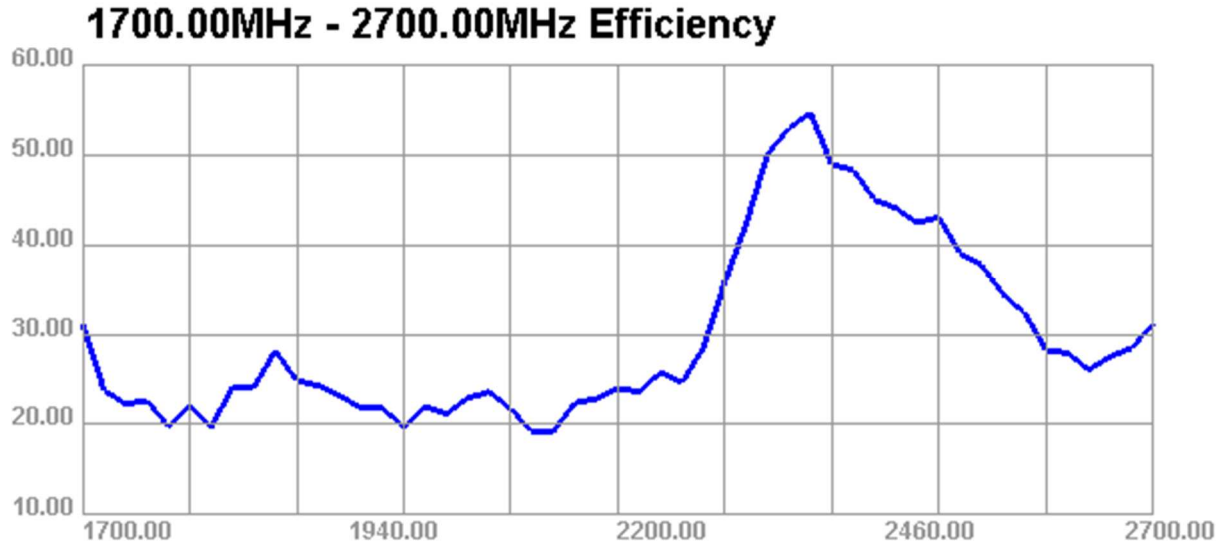

3300.000MHz H
5.00
0.00
-5.00
-10.00
-15.00
30
330
60
300
90
270
120
240
150
210
180

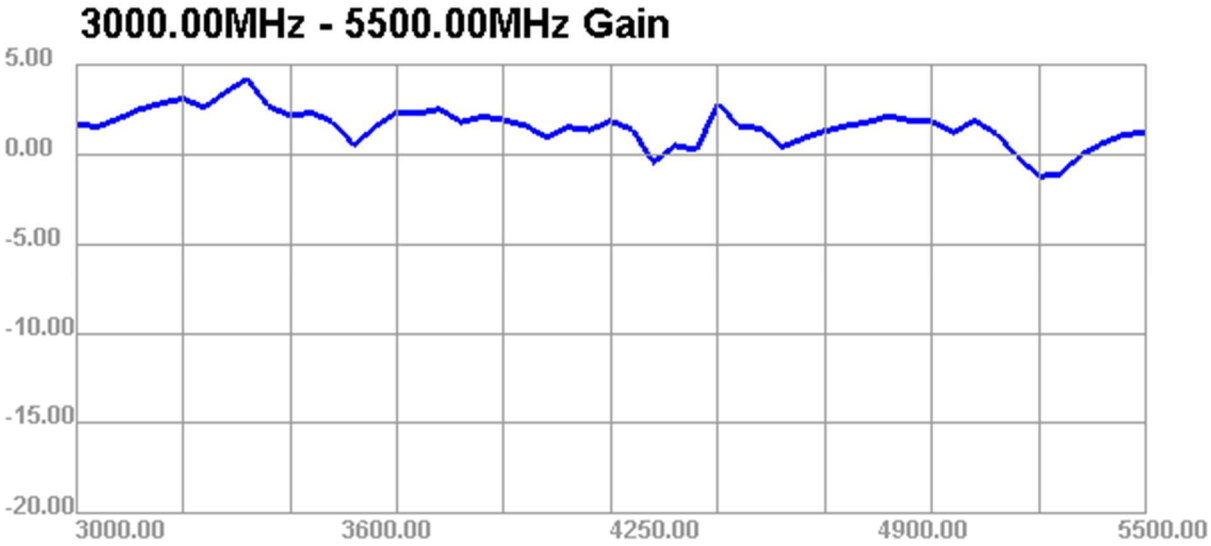

3300.000MHz E1
5.00
0.00
-5.00
-10.00
-15.00
30
330
60
300
90
270
120
240
150
210
180

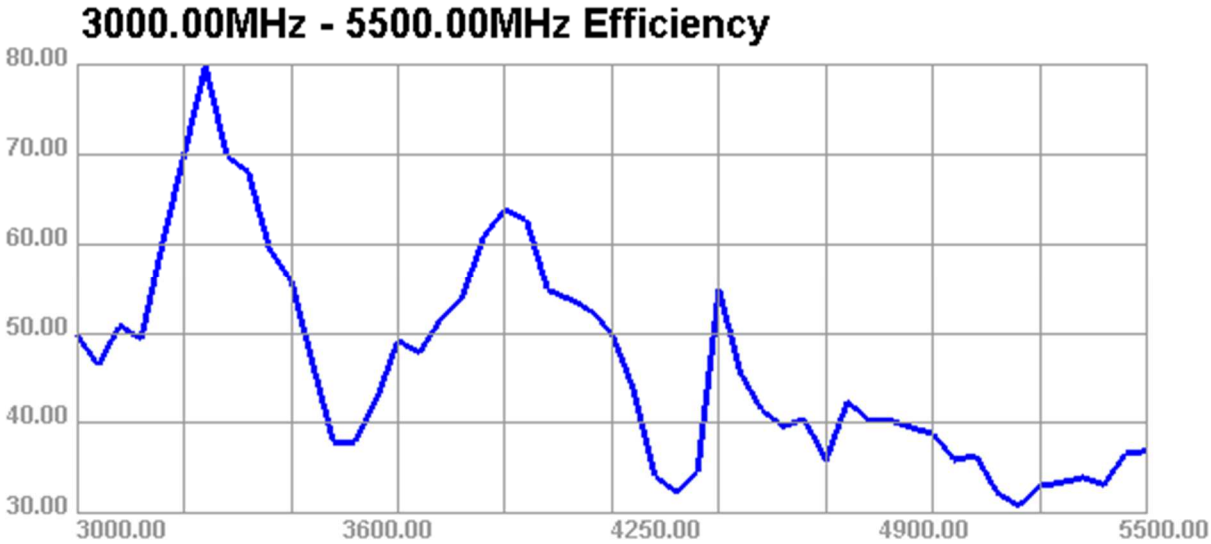

3300.000MHz E2
5.00
0.00
-5.00
-10.00
-15.00
30
330
60
300
90
270
120
240
150
210
180

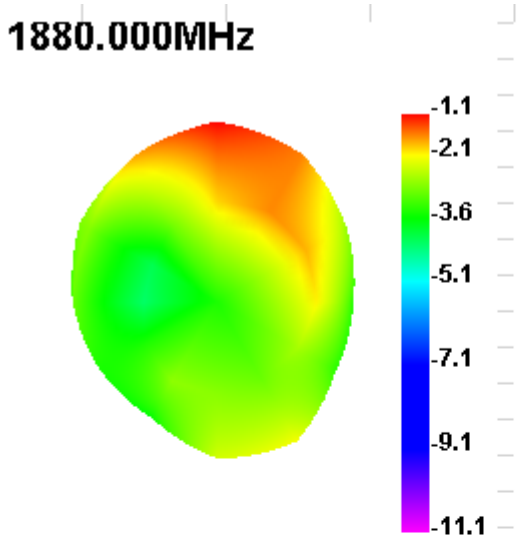
ANT3

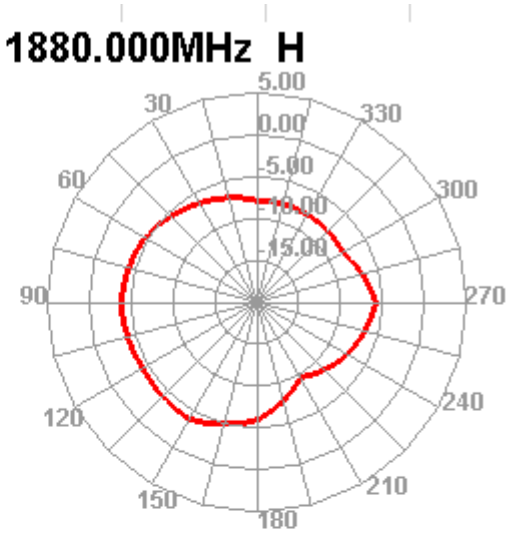

1700.00MHz - 2700.00MHz Gain
5.00
0.00
-5.00
-10.00
-15.00
-20.00
1700.00
1940.00
2200.00
2460.00
2700.00

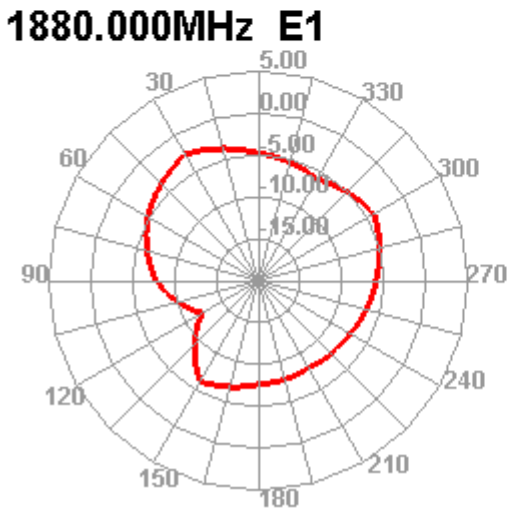

1700.00MHz - 2700.00MHz Efficiency
60.00
50.00
40.00
30.00
20.00
10.00
1700.00
1940.00
2200.00
2460.00
2700.00

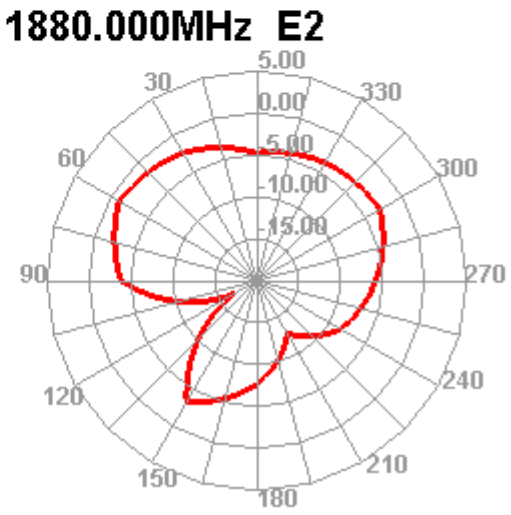

3000.00MHz - 5500.00MHz Gain
5.00
0.00
-5.00
-10.00
-15.00
-20.00
3000.00
3600.00
4250.00
4900.00
5500.00

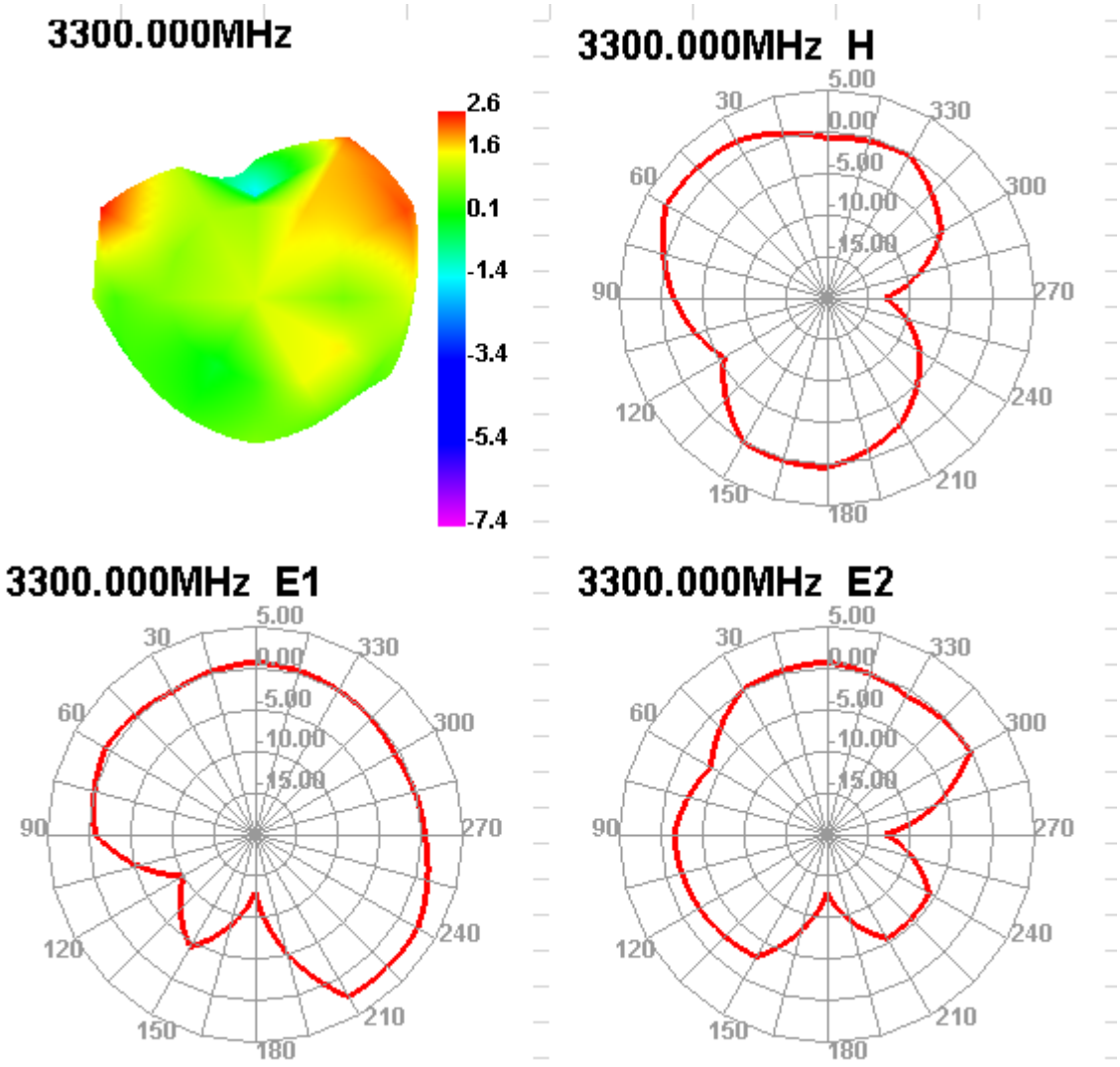

3000.00MHz - 5500.00MHz Efficiency
80.00
70.00
60.00
50.00
40.00
30.00
3000.00
3600.00
4250.00
4900.00
5500.00


1880.000MHz
-1.1
-2.1
-3.6
-5.1
-7.1
-9.1
-11.1

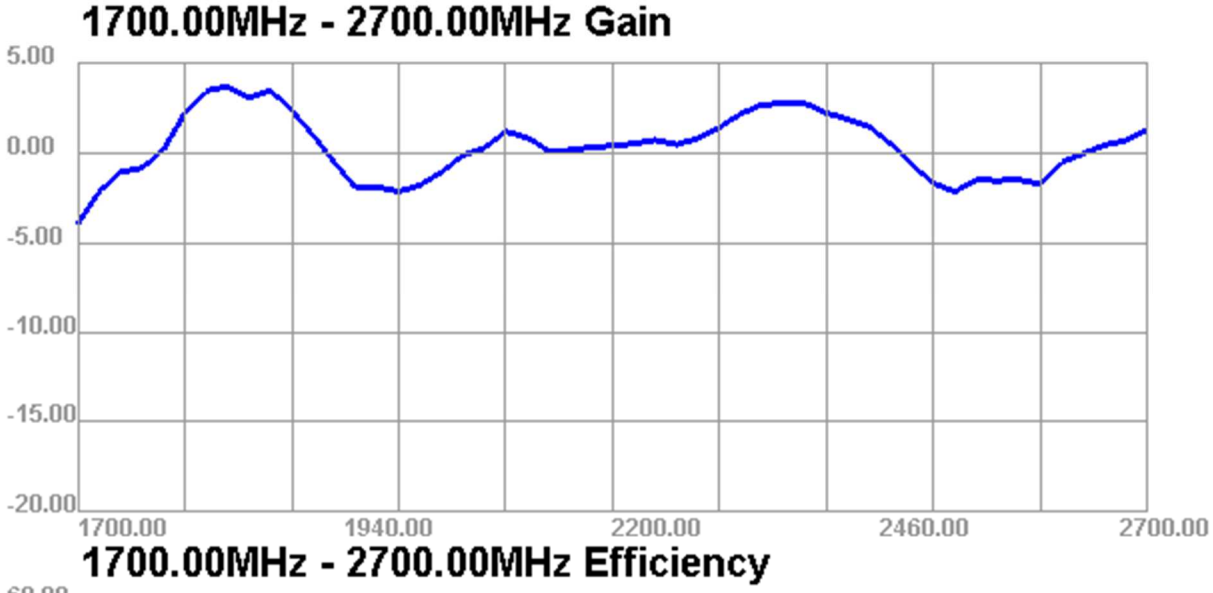

1880.000MHz H
5.00
0.00
-5.00
-10.00
-15.00
30
330
60
300
90
270
120
240
150
210
180

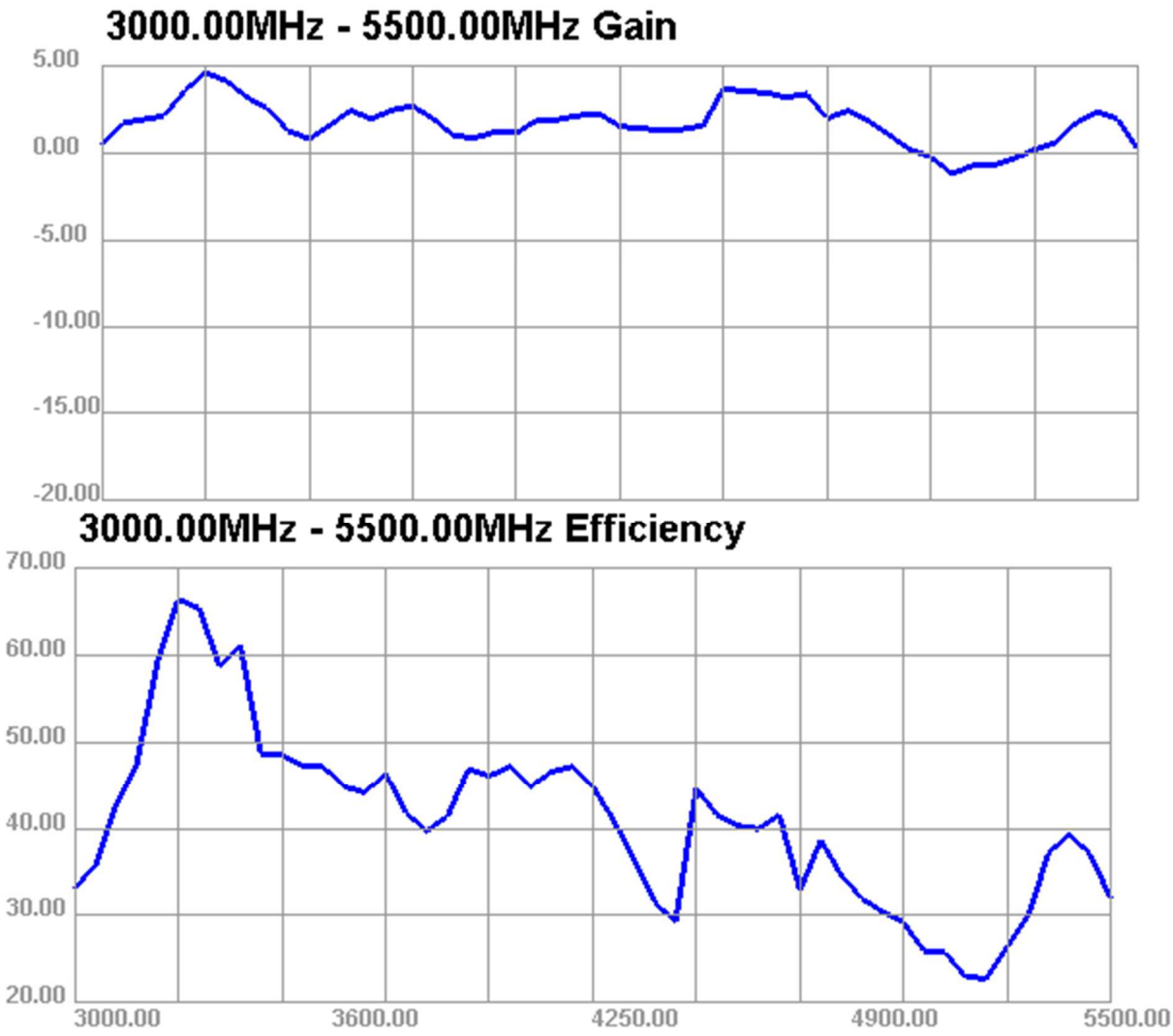

1880.000MHz E1
5.00
0.00
-5.00
-10.00
-15.00
30
330
60
300
90
270
120
240
150
210
180

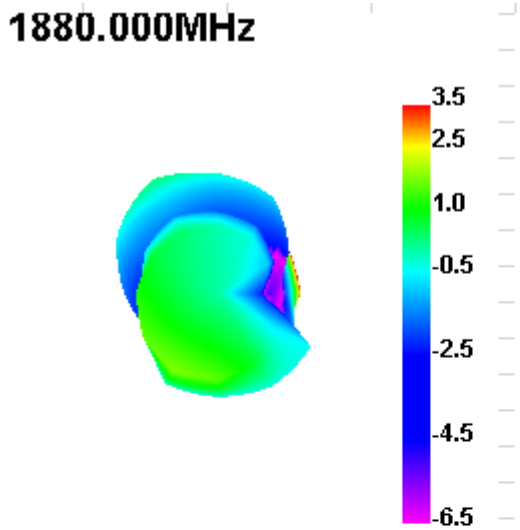

1880.000MHz E2
5.00
0.00
-5.00
-10.00
-15.00
30
330
60
300
90
270
120
240
150
210
180

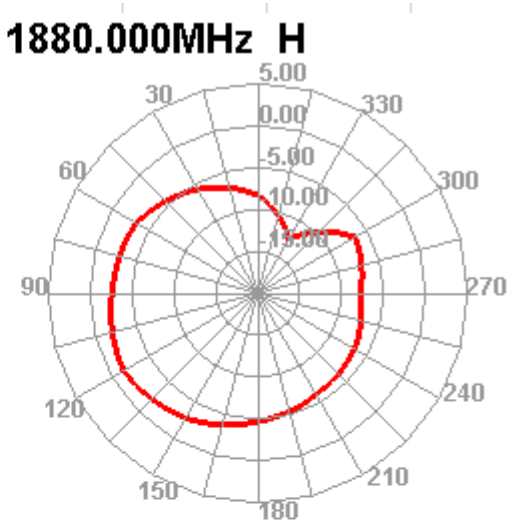

3300.000MHz
2.6
1.6
0.1
-1.4
-3.4
-5.4
-7.4
3300.000MHz H
3300.000MHz E1
3300.000MHz E2

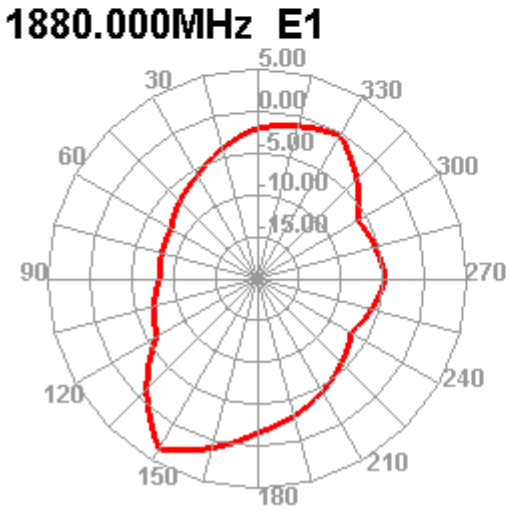
ANT4

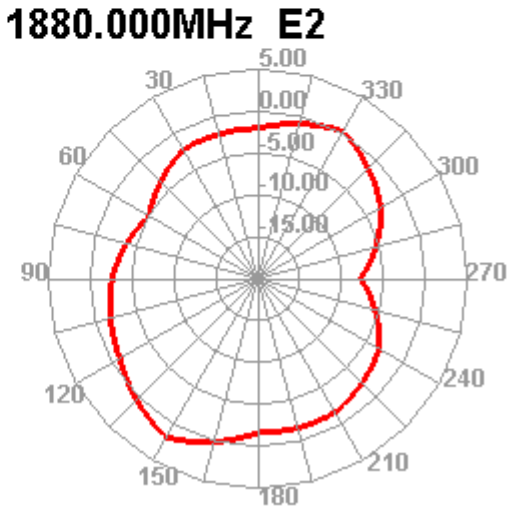

1700.00MHz - 2700.00MHz Gain
5.00
0.00
-5.00
-10.00
-15.00
-20.00
1700.00
1940.00
2200.00
2460.00
2700.00
1700.00MHz - 2700.00MHz Efficiency

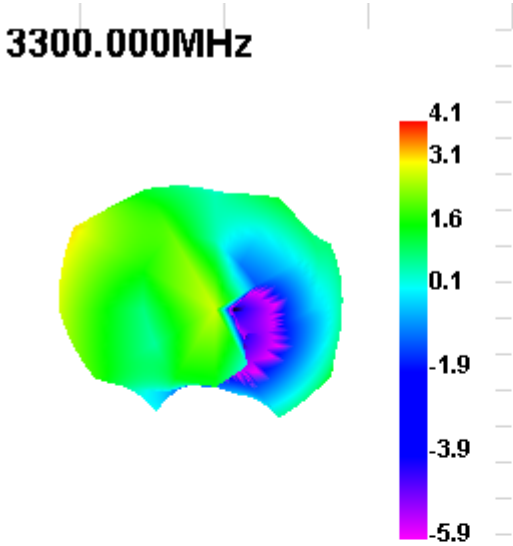

3000.00MHz - 5500.00MHz Gain
5.00
0.00
-5.00
-10.00
-15.00
-20.00
3000.00MHz - 5500.00MHz Efficiency
70.00
60.00
50.00
40.00
30.00
20.00
3000.00
3600.00
4250.00
4900.00
5500.00

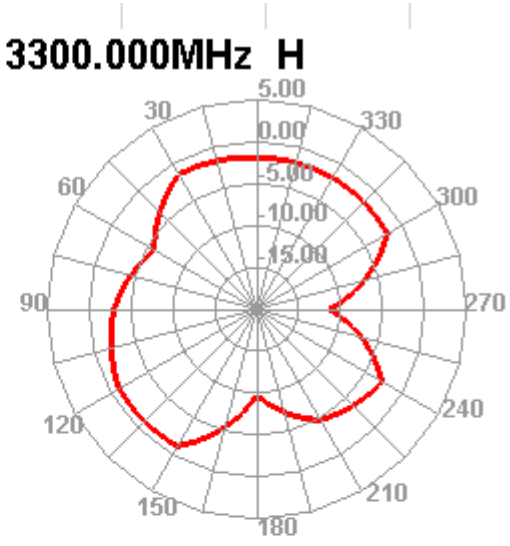

1880.000MHz
3.5
2.5
1.0
-0.5
-2.5
-4.5
-6.5

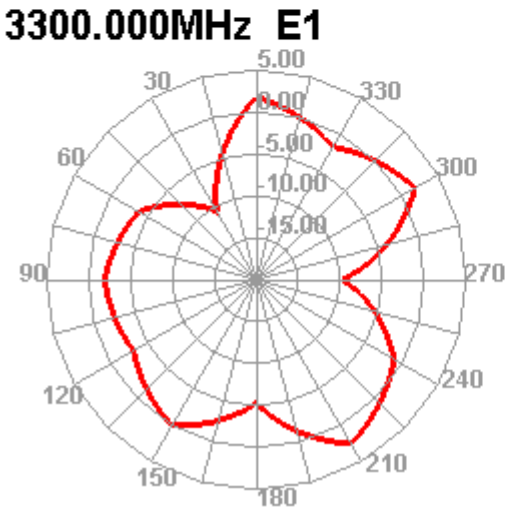

1880.000MHz H
5.00
0.00
-5.00
-10.00
-15.00
30
330
60
300
90
270
120
240
150
210
180

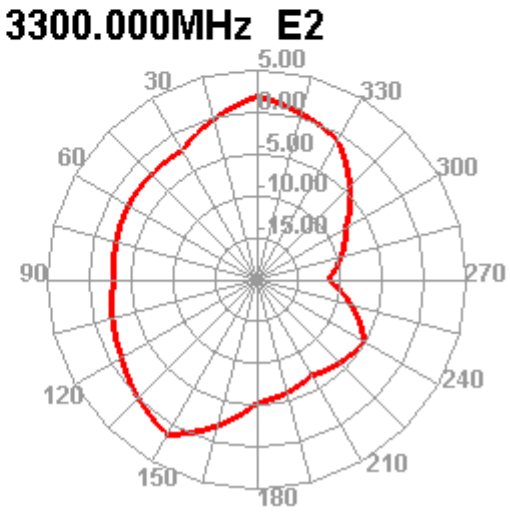

1880.000MHz E1
5.00
0.00
-5.00
-10.00
-15.00
30
330
60
300
90
270
120
240
150
210
180


1880.000MHz E2
5.00
0.00
-5.00
-10.00
-15.00
30
330
60
300
90
270
120
240
150
210
180

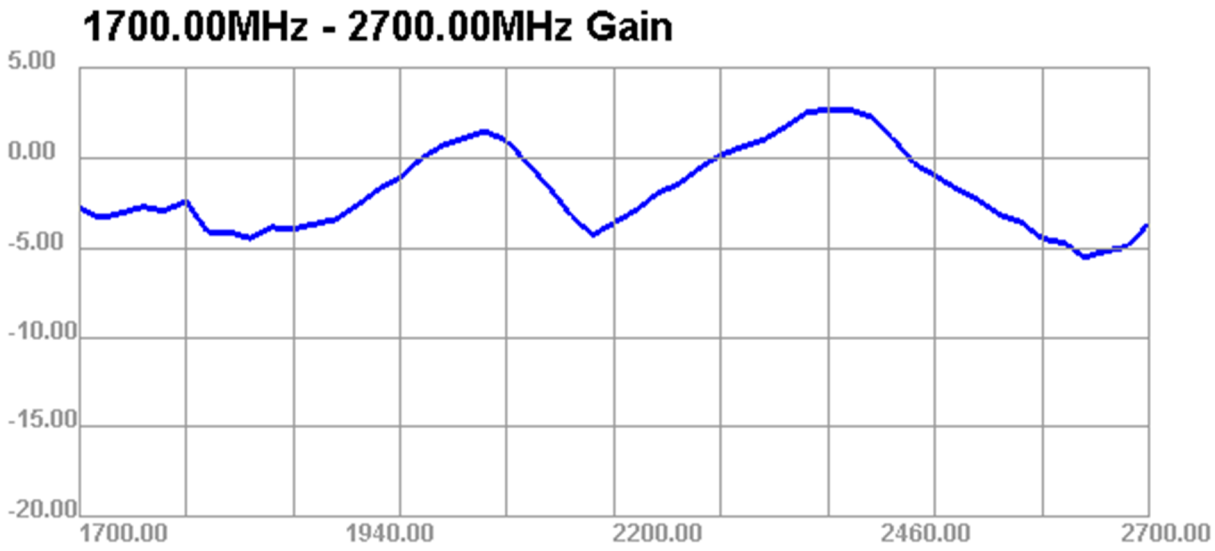

3300.000MHz
4.1
3.1
1.6
0.1
-1.9
-3.9
-5.9

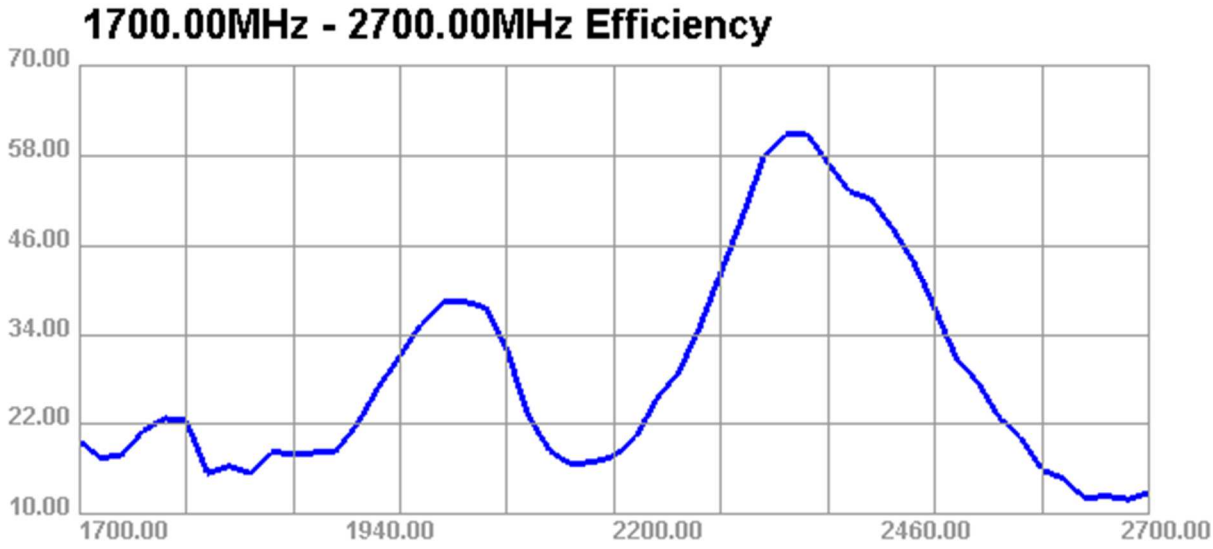

3300.000MHz H
5.00
0.00
-5.00
-10.00
-15.00
30
330
60
300
90
270
120
240
150
210
180

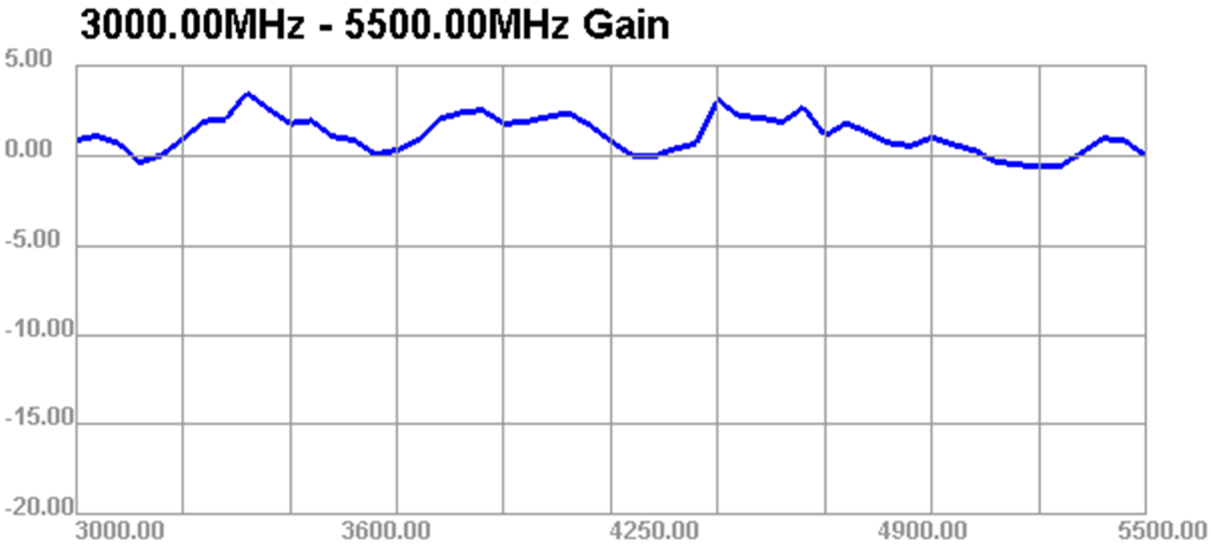

3300.000MHz E1
5.00
0.00
-5.00
-10.00
-15.00
30
330
60
300
90
270
120
240
150
210
180

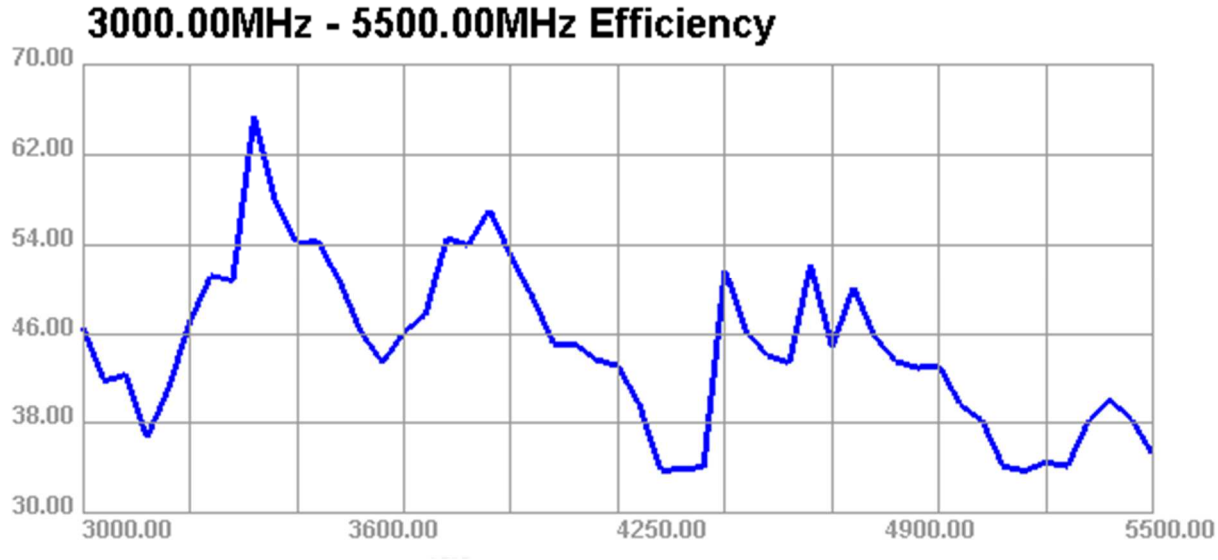

3300.000MHz E2
5.00
0.00
-5.00
-10.00
-15.00
30
330
60
300
90
270
120
240
150
210
180

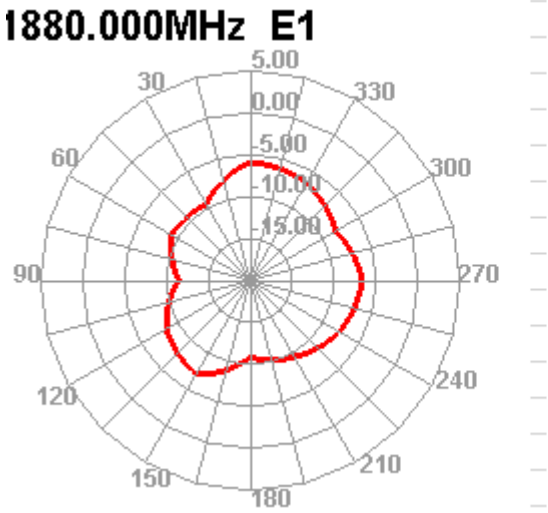
ANT5

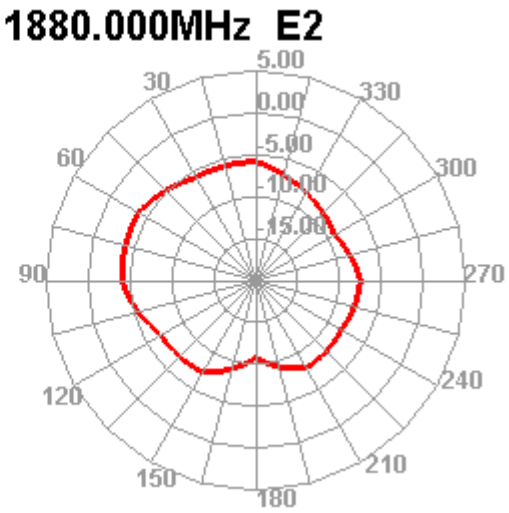

1700.00MHz - 2700.00MHz Gain
5.00
0.00
-5.00
-10.00
-15.00
-20.00
1700.00
1940.00
2200.00
2460.00
2700.00

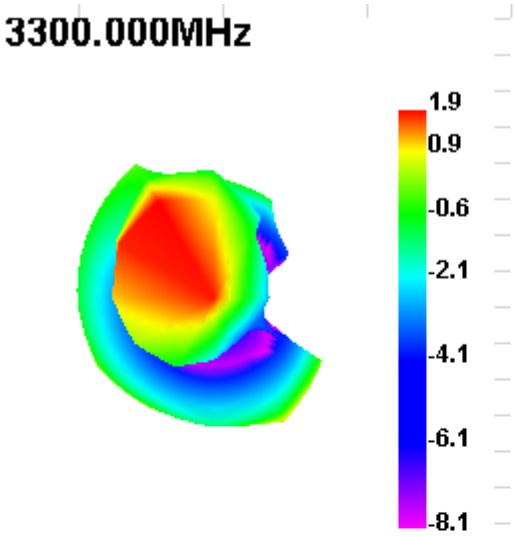

1700.00MHz - 2700.00MHz Efficiency
70.00
58.00
46.00
34.00
22.00
10.00
1700.00
1940.00
2200.00
2460.00
2700.00

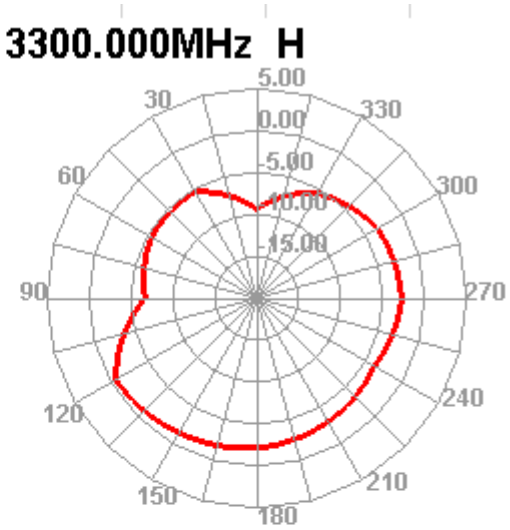

3000.00MHz - 5500.00MHz Gain
5.00
0.00
-5.00
-10.00
-15.00
-20.00
3000.00
3600.00
4250.00
4900.00
5500.00

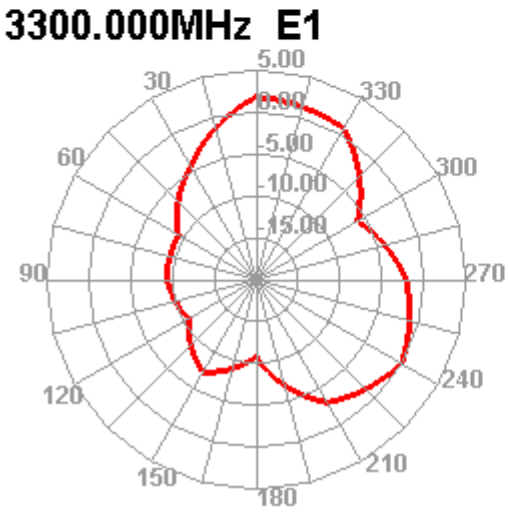

3000.00MHz - 5500.00MHz Efficiency
70.00
62.00
54.00
46.00
38.00
30.00
3000.00
3600.00
4250.00
4900.00
5500.00

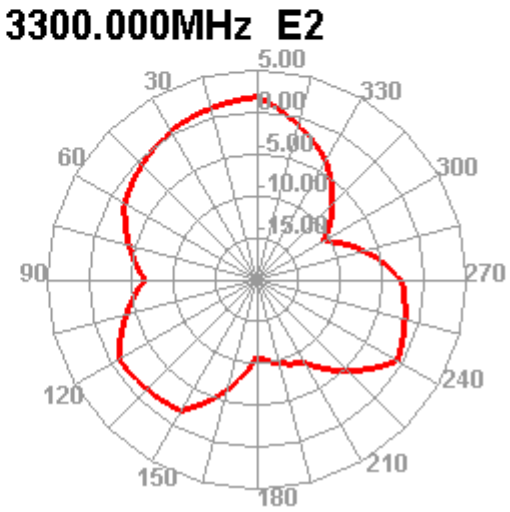

1880.000MHz E1
5.00
0.00
-5.00
-10.00
-15.00
30
330
60
300
90
270
120
240
150
210
180


1880.000MHz E2
5.00
0.00
-5.00
-10.00
-15.00
30
330
60
300
90
270
120
240
150
210
180

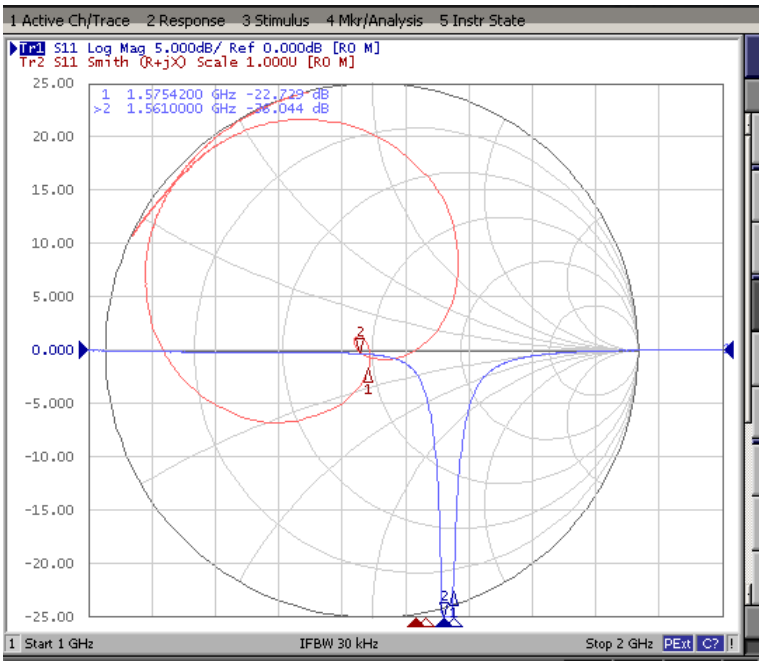

3300.000MHz
1.9
0.9
-0.6
-2.1
-4.1
-6.1
-8.1


3300.000MHz H
5.00
0.00
-5.00
-10.00
-15.00
30
330
60
300
90
270
120
240
150
210
180


3300.000MHz E1
5.00
0.00
-5.00
-10.00
-15.00
30
330
60
300
90
270
120
240
150
210
180


3300.000MHz E2
5.00
0.00
-5.00
-10.00
-15.00
30
330
60
300
90
270
120
240
150
210
180

GPS Smith

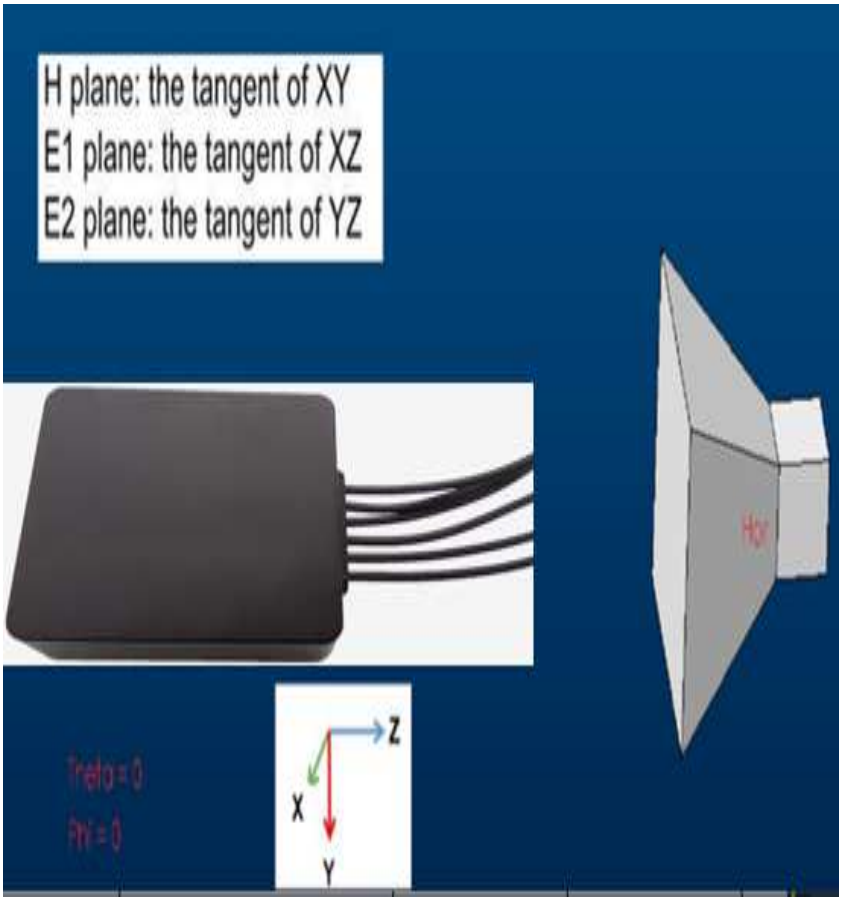


GPS GAIN/EFFi

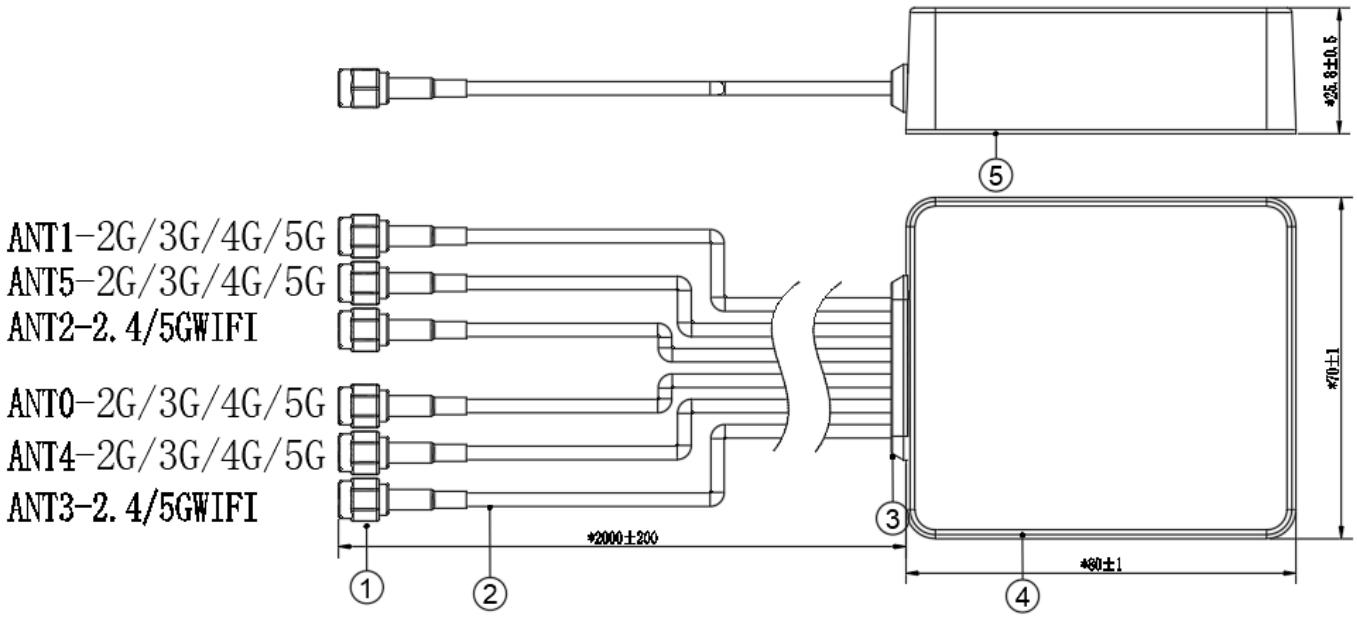
Freq	Effi	Gain
(MHz)	(%)	(dBi)
1555	45.59	1.21
1560	55.65	2.34
1565	47.88	1.3
1570	51.17	1.4
1575	60.62	3.21
1580	55.67	1.78
1585	52.94	1.39
1590	59.39	3.08
1595	51.61	1.97
1600	53.34	1.17

GPS Electrical Specifications	
Frequency Range (MHz)	1560-1600
Impendence (Ω)	50
V.S.W.R	≤2.0
Efficiency	50-60%
Ceramic Patch (dBi)	3.2
LNA (dBi)	28
Azimuth Beam width	Directional
Polarization	Circular polarization
Antenna type	Ceramic
Connection type	cable
supply voltage	1.5-3.6V

3.6 Directional pattern



4. Antenna Drawing



5	Adhesive	Double Sided Adhesive Black Foam	black	1
4	housing	AMS+PC	black	1
3	Plug	silica gel	black	1
2	RF line	RG174	black	6
1	SMA	SMA-J	golden	6
serise	name	Specification	colour	Quantity