SPECIFICATION

P200 Antenna

Product approval sheet

Customer		Band	5G
Project	P200	Colour	Black

Customer check：

Reach requirement of customer：☑OK □NG

Antenna manufacturer：Shenzhen 3Good Wireless Communication Co., Ltd

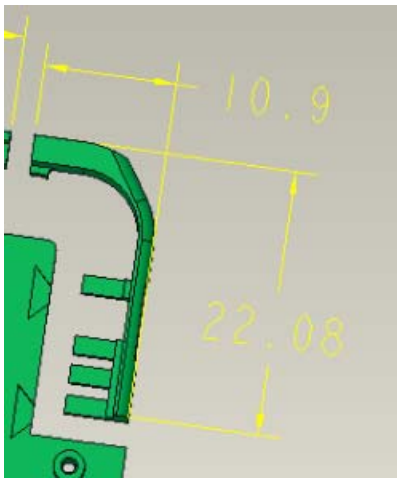
Address：Room501,Jinfulai Building,No.49-1,Dabao Road,Baoan District,Shenzhen

Contents

1 General description

1.1 Antenna appearing diagram

ANT1



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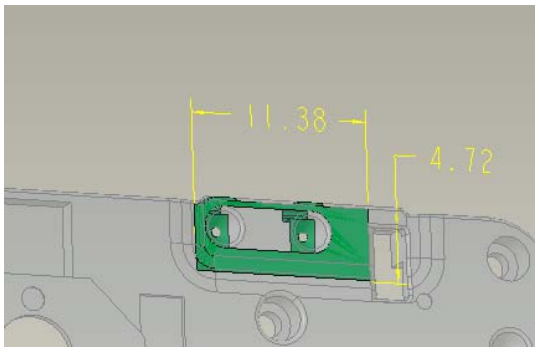

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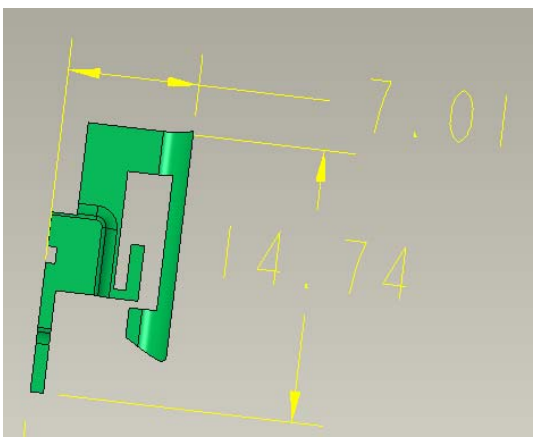

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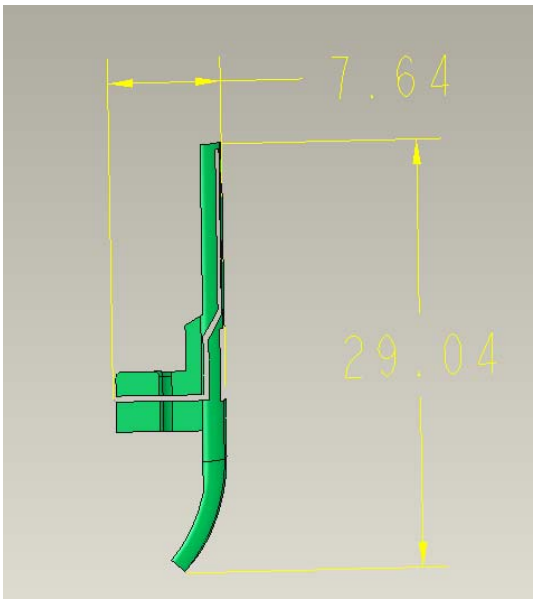

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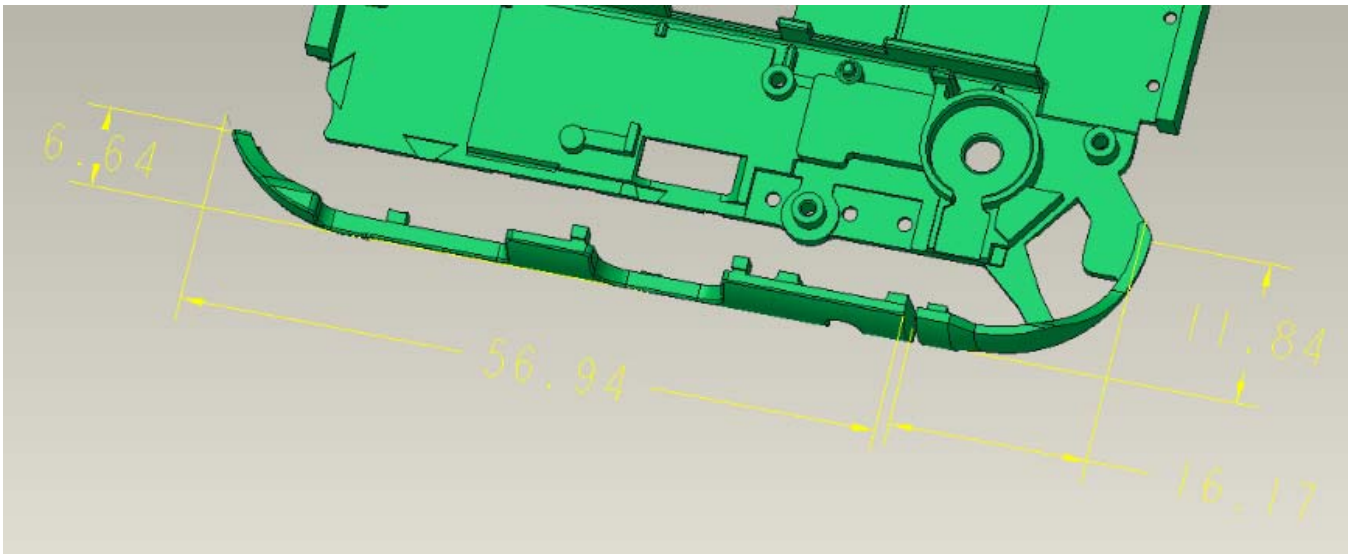

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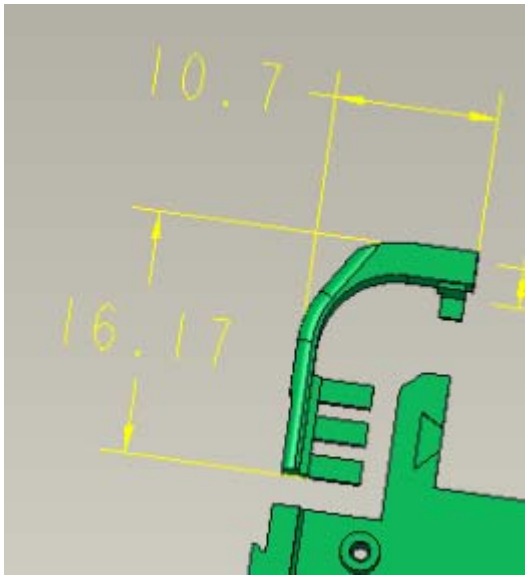

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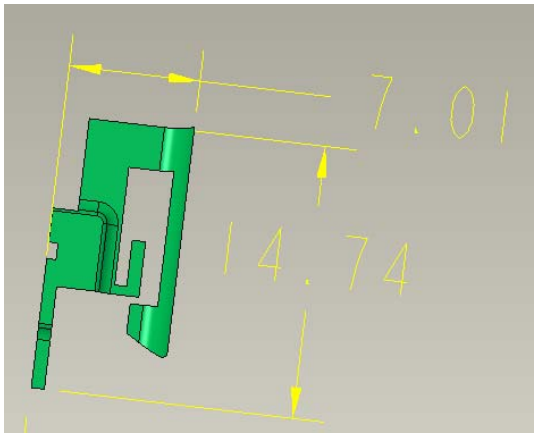

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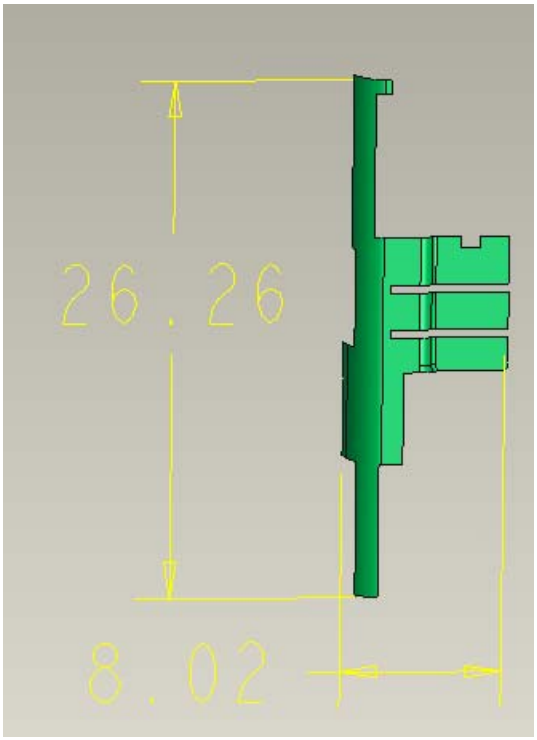

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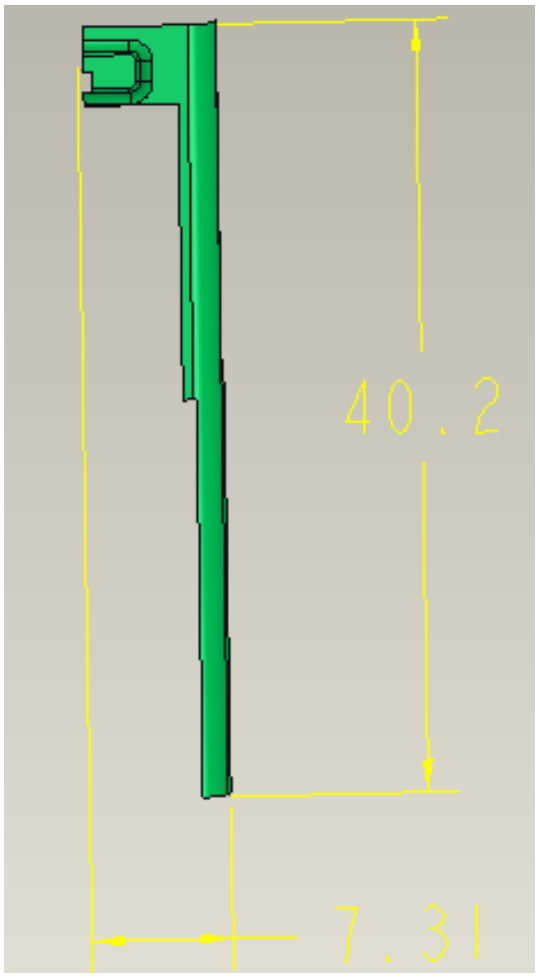

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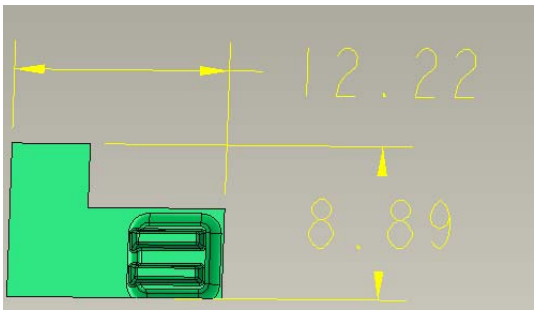


1.2 Antenna Matching circuits

ANT1		ANT2		ANT3		ANT4		ANT5	
Element	Value	Element	Value	Element	Value	Element	Value	Element	Value
E1(0201)	NC	E1(0201)	6.8nH	E1(0201)	0.75pF	E1(0201)	NC	E1(0201)	12nH
E2(0201)	0Ω	E2(0201)	4.7pF	E2(0201)	2.7nH	E2(0201)	0Ω	E2(0201)	4.7pF
E3(0201)	NC	E3(0201)	NC	E3(0201)	NC	E3(0201)	NC	E3(0201)	NC
E4(0201)	0Ω	E4(0201)	0Ω	E4(0201)	0Ω	E4(0201)	0Ω	E4(0201)	0Ω

ANT6		ANT7		ANT8		ANT9		ANT10	
Element	Value	Element	Value	Element	Value	Element	Value	Element	Value
E1(0201)	NC	E1(0201)	NC	E1(0201)	NC	E1(0201)	NC	E1(0201)	0.5pF
E2(0201)	3.3pF	E2(0201)	0Ω	E2(0201)	0Ω	E2(0201)	1pF	E2(0201)	0Ω
E3(0201)	2.7nH	E3(0201)	NC	E3(0201)	NC	E3(0201)	NC	E3(0201)	NC
E4(0201)	0Ω	E4(0201)	0Ω	E4(0201)	0Ω	E4(0201)	0Ω	E4(0201)	0Ω

ANT2开关配置如下：
RF1路：B5 , 2.7nH
RF2路：B13 , 8.2nH
RF3路：B12 , 22nH
RF4路：B71 , 27nH

ANT5开关配置如下：
RF1路：B5 +中高频, 0Ω
RF2路：B13 , 4.3nH
RF3路：B12 , 7.5nH
RF4路：B71 , 12nH

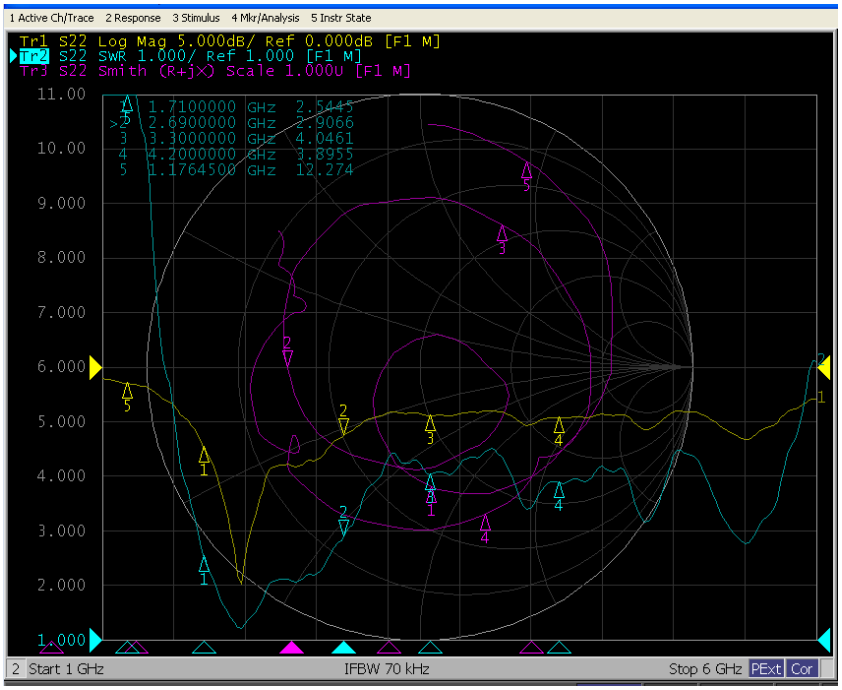
1.3 Antenna PORT

1.4 Antenna location

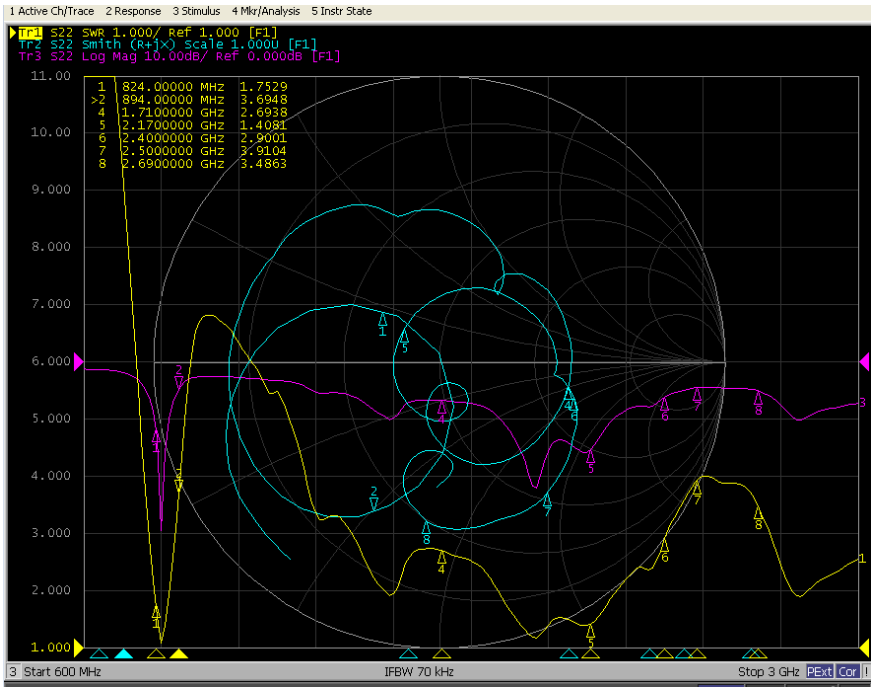
1.5 RF port

2 Electrical performance

2.1 VSWR



ANT1



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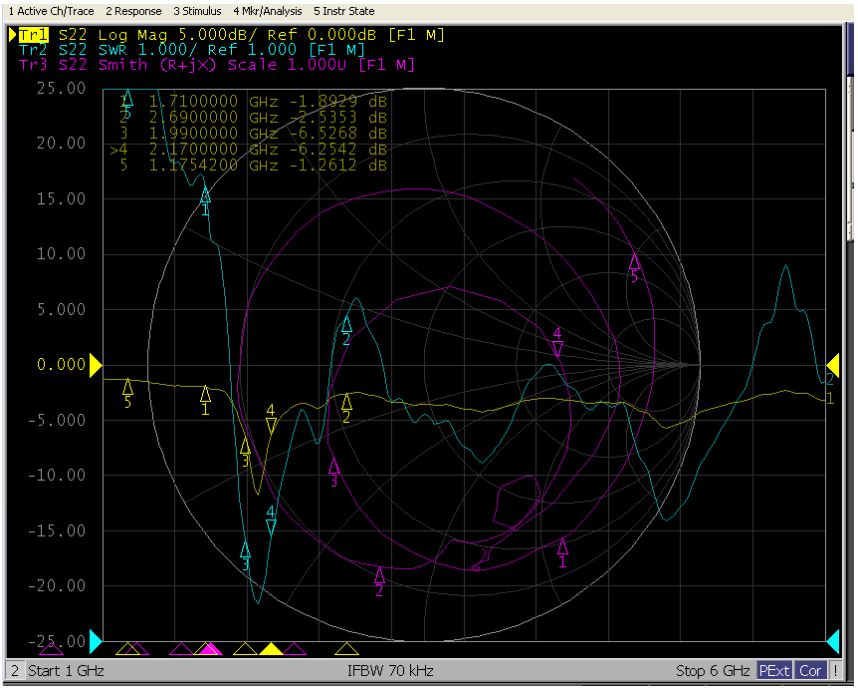
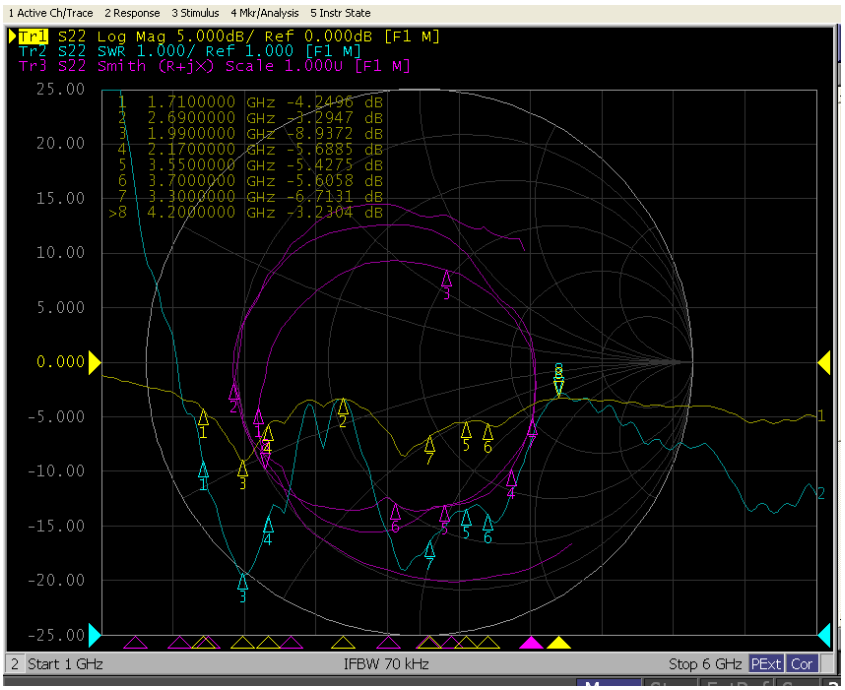
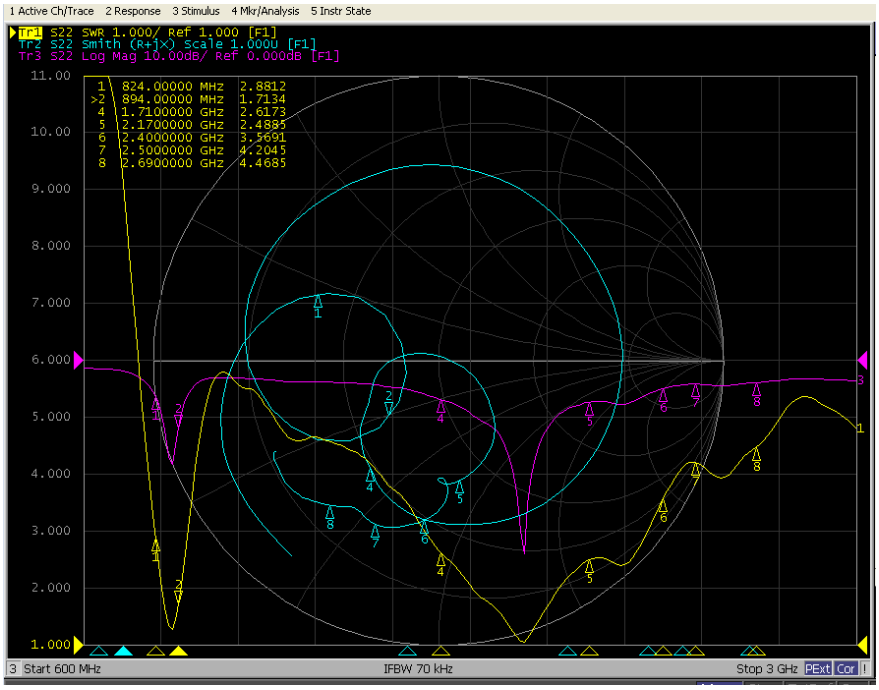

1 Active Ch/Trace 2 Response 3 Stimulus 4 Mkr/Analysis 5 Instr State
Tr1 S22 Log Mag 5.000dB/ Ref 0.000dB [F1 M]
Tr2 S22 SWR 1.000/ Ref 1.000 [F1 M]
Tr3 S22 Smith (R+jX) Scale 1.000U [F1 M]
1 1.7100000 GHz -1.8929 dB
2 2.6900000 GHz -2.5353 dB
3 1.9900000 GHz -6.5268 dB
>4 2.1700000 GHz -6.2542 dB
5 1.1754200 GHz -1.2612 dB
25.00
20.00
15.00
10.00
5.000
0.000
-5.000
-10.00
-15.00
-20.00
-25.00
2 Start 1 GHz
IFBW 70 kHz
Stop 6 GHz
PExt
Cor

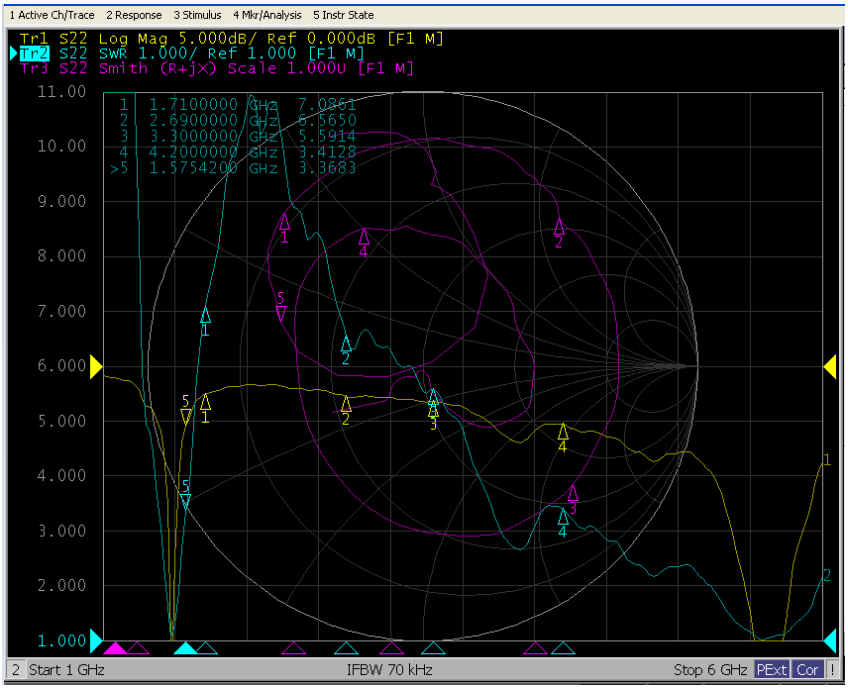
ANT3


1 Active Ch/Trace 2 Response 3 Stimulus 4 Mkr/Analysis 5 Instr State
Tr1 S22 Log Mag 5.000dB/ Ref 0.000dB [F1 M]
Tr2 S22 SWR 1.000/ Ref 1.000 [F1 M]
Tr3 S22 Smith (R+jX) Scale 1.000U [F1 M]
1 1.7100000 GHz -4.2496 dB
2 2.6900000 GHz -3.2947 dB
3 1.9900000 GHz -8.9372 dB
4 2.1700000 GHz -5.6885 dB
5 3.5500000 GHz -5.4275 dB
6 3.7000000 GHz -5.6058 dB
7 3.3000000 GHz -6.7131 dB
>8 4.2000000 GHz -3.2304 dB
25.00
20.00
15.00
10.00
5.000
0.000
-5.000
-10.00
-15.00
-20.00
-25.00
2 Start 1 GHz
IFBW 70 kHz
Stop 6 GHz
PExt
Cor

ANT4


1 Active Ch/Trace 2 Response 3 Stimulus 4 Mkr/Analysis 5 Instr State
Tr1 S22 SWR 1.000/ Ref 1.000 [F1]
Tr2 S22 Smith (R+jX) Scale 1.000U [F1]
Tr3 S22 Log Mag 10.00dB/ Ref 0.000dB [F1]
1 824.00000 MHz 2.8812
>2 894.00000 MHz 1.7134
4 1.7100000 GHz 2.6173
5 2.1700000 GHz 2.4885
6 2.4000000 GHz 3.5691
7 2.5000000 GHz 4.2045
8 2.6900000 GHz 4.4685
11.00
10.00
9.000
8.000
7.000
6.000
5.000
4.000
3.000
2.000
1.000
3 Start 600 MHz
IFBW 70 kHz
Stop 3 GHz
PExt
Cor

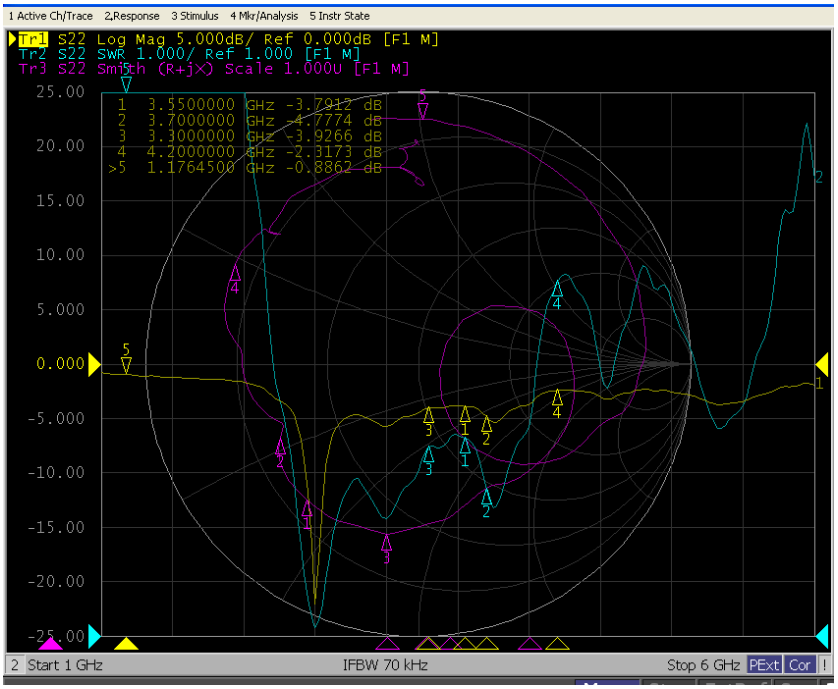
ANT5


1 Active Ch/Trace 2 Response 3 Stimulus 4 Mkr/Analysis 5 Instr State
Tr1 S22 Log Mag 5.000dB/ Ref 0.000dB [F1 M]
Tr2 S22 SWR 1.000/ Ref 1.000 [F1 M]
Tr3 S22 Smith (R+jX) Scale 1.000U [F1 M]
1 1.7100000 GHz 7.0861
2 2.6900000 GHz 6.5650
3 3.3000000 GHz 5.5914
4 4.2000000 GHz 3.4128
>5 1.5754200 GHz 3.3683
11.00
10.00
9.000
8.000
7.000
6.000
5.000
4.000
3.000
2.000
1.000
2 Start 1 GHz
IFBW 70 kHz
Stop 6 GHz
PExt
Cor

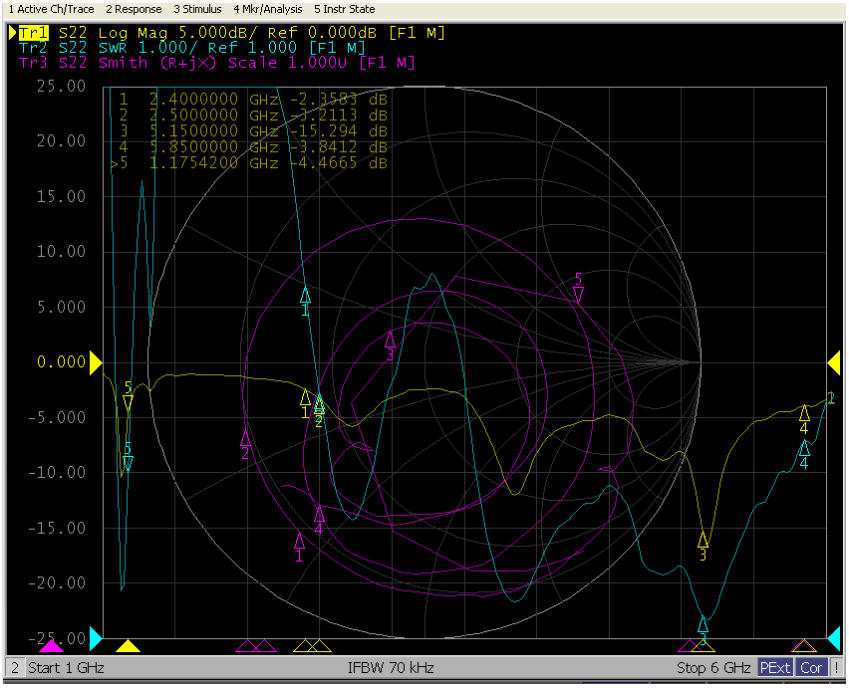
ANT6


1 Active Ch/Trace 2 Response 3 Stimulus 4 Mkr/Analysis 5 Instr State
Tr1 S22 Log Mag 5.000dB/ Ref 0.000dB [F1 D&M]
Tr2 S22 SWR 1.000/ Ref 1.000 [F1 D&M]
Tr3 S22 Smith (R+jX) Scale 1.000U [F1 D&M]
1 2.4000000 GHz 58.640 Ω -60.733 Ω 1.0919 pF
2 2.5000000 GHz 44.309 Ω -15.880 Ω 4.0089 pF
3 5.1500000 GHz 18.128 Ω -8.6293 Ω 3.5813 pF
>4 5.8500000 GHz 25.266 Ω 261.78 mΩ 7.1219 pH
5 1.5754200 GHz 10.806 Ω 66.090 Ω 6.6767 nH
25.00
20.00
15.00
10.00
5.000
0.000
-5.000
-10.00
-15.00
-20.00
-25.00
2 Start 1 GHz
IFBW 70 kHz
Stop 6 GHz
PExt
Cor

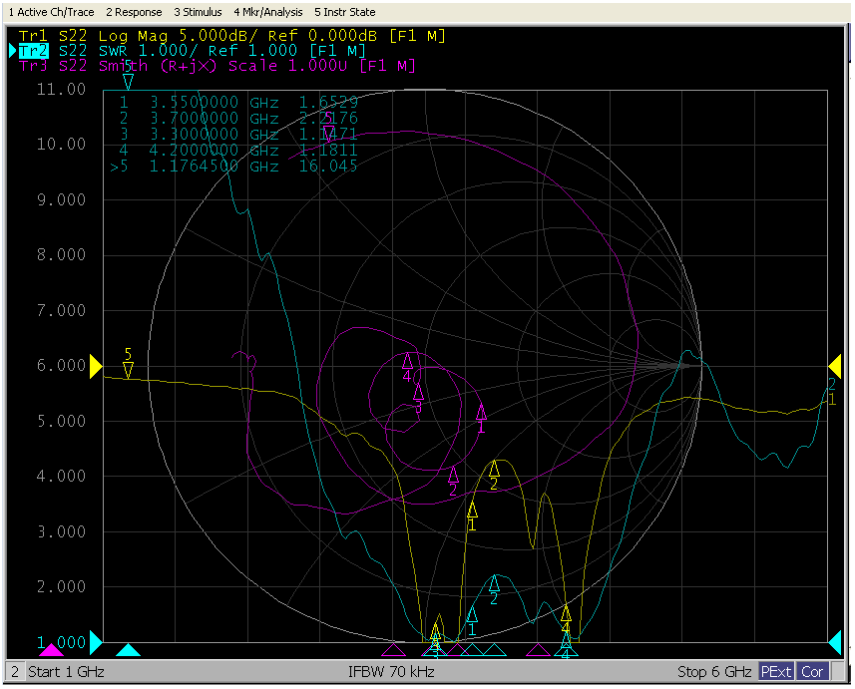
ANT7


1 Active Ch/Trace 2 Response 3 Stimulus 4 Mkr/Analysis 5 Instr State
Tr1 S22 Log Mag 5.000dB/ Ref 0.000dB [F1 M]
Tr2 S22 SWR 1.000/ Ref 1.000 [F1 M]
Tr3 S22 Smith (R+jX) Scale 1.000U [F1 M]
1 3.5500000 GHz -3.7912 dB
2 3.7000000 GHz -4.7774 dB
3 3.3000000 GHz -3.9266 dB
4 4.2000000 GHz -2.3173 dB
>5 1.1764500 GHz -0.8862 dB
25.00
20.00
15.00
10.00
5.000
0.000
-5.000
-10.00
-15.00
-20.00
-25.00
2 Start 1 GHz
IFBW 70 kHz
Stop 6 GHz
PExt
Cor

ANT8


1 Active Ch/Trace 2 Response 3 Stimulus 4 Mkr/Analysis 5 Instr State
Tr1 S22 Log Mag 5.000dB/ Ref 0.000dB [F1 M]
Tr2 S22 SWR 1.000/ Ref 1.000 [F1 M]
Tr3 S22 Smith (R+jX) Scale 1.000U [F1 M]
1 2.4000000 GHz -2.3583 dB
2 2.5000000 GHz -3.2113 dB
3 5.1500000 GHz -15.294 dB
4 5.8500000 GHz -3.8412 dB
>5 1.1754200 GHz -4.4665 dB
25.00
20.00
15.00
10.00
5.000
0.000
-5.000
-10.00
-15.00
-20.00
-25.00
2 Start 1 GHz
IFBW 70 kHz
Stop 6 GHz
PExt
Cor

ANT9


1 Active Ch/Trace 2 Response 3 Stimulus 4 Mkr/Analysis 5 Instr State
Tr1 S22 Log Mag 5.000dB/ Ref 0.000dB [F1 M]
Tr2 S22 SWR 1.000/ Ref 1.000 [F1 M]
Tr3 S22 Smith (R+jX) Scale 1.000U [F1 M]
1 3.5500000 GHz 1.6529
2 3.7000000 GHz 2.5176
3 3.3000000 GHz 1.7471
4 4.2000000 GHz 1.1811
>5 1.1764500 GHz 16.045
11.00
10.00
9.000
8.000
7.000
6.000
5.000
4.000
3.000
2.000
1.000
2 Start 1 GHz
IFBW 70 kHz
Stop 6 GHz
PExt
Cor

ANT10

2.2 Efficiency &Gain

ANT1

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
1710	30.3	-5.19	-0.8
1720	28.96	-5.38	-1.05
1730	27.8	-5.56	-1.42
1740	26.59	-5.75	-1.75
1750	26.7	-5.73	-1.93
1760	27.88	-5.55	-1.92
1770	27.98	-5.53	-1.96
1780	29.72	-5.27	-1.77
1790	29.67	-5.28	-1.94
1800	29.44	-5.31	-1.73
1810	30.41	-5.17	-1.61
1820	30.55	-5.15	-1.48
1830	30.22	-5.2	-1.4
1840	31.93	-4.96	-1.06
1850	33.97	-4.69	-0.74
1860	34.42	-4.63	-0.61
1870	33	-4.82	-0.55
1880	31.68	-4.99	-0.42
1890	31.33	-5.04	-0.19
1900	31.36	-5.04	0.01
1910	28.86	-5.4	-0.27
1920	26.18	-5.82	-0.64
1930	25.3	-5.97	-0.86
1940	23.17	-6.35	-1.29
1950	24.02	-6.19	-1.17
1960	23.26	-6.33	-1.34
1970	22.39	-6.5	-1.59
1980	23.53	-6.28	-1.41
1990	24.54	-6.1	-1.44
2000	25.29	-5.97	-1.42
2010	25.86	-5.87	-1.48
2020	23.62	-6.27	-1.93
2030	23.77	-6.24	-1.86
2040	25.26	-5.98	-1.57
2050	27.8	-5.56	-1.23
2060	31.95	-4.96	-0.82
2070	34.08	-4.68	-0.75
2080	32.67	-4.86	-1.11

2090	33.15	-4.79	-1.14
2100	34.08	-4.67	-1.35
2110	28.47	-5.46	-2.26
2120	27.82	-5.56	-2.68
2130	28.03	-5.52	-2.85
2140	28.58	-5.44	-3.05
2150	27.8	-5.56	-3
2160	27.18	-5.66	-3.03
2170	25.52	-5.93	-3.23
2180	25.37	-5.96	-3.25
2190	24.33	-6.14	-3.6
2200	23.36	-6.31	-4.07
2210	21.97	-6.58	-4.1
2220	21.01	-6.78	-3.79
2230	20.79	-6.82	-3.46
2240	20.45	-6.89	-3.06
2250	20.87	-6.8	-2.49
2260	21.91	-6.59	-2.05
2270	23.5	-6.29	-1.59
2280	24.11	-6.18	-1.5
2290	25.62	-5.91	-1.36
2300	27.39	-5.62	-1.27
2310	28.59	-5.44	-1.24
2320	30.07	-5.22	-1.11
2330	31.99	-4.95	-0.88
2340	32.79	-4.84	-1.03
2350	33.04	-4.81	-1.26
2360	32.4	-4.89	-1.69
2370	30.9	-5.1	-1.5
2380	31.54	-5.01	-1.08
2390	32.3	-4.91	-0.74
2400	31.35	-5.04	-0.76
2410	29.96	-5.23	-0.75
2420	28.41	-5.47	-0.84
2430	26.24	-5.81	-1.07
2440	25.66	-5.91	-1.07
2450	24.07	-6.18	-1.29
2460	20.84	-6.81	-1.9
2470	18.19	-7.4	-2.53
2480	16.21	-7.9	-3.08
2490	14.56	-8.37	-3.72
2500	13.81	-8.6	-4.13
2510	12.25	-9.12	-4.86

2520	10.96	-9.6	-5.73
2530	10.51	-9.78	-5.55
2540	9.3	-10.32	-5.9
2550	9.03	-10.44	-5.85
2560	8.64	-10.64	-6.08
2570	8.31	-10.8	-6.36
2580	8	-10.97	-6.69
2590	7.83	-11.06	-6.86
2600	7.67	-11.15	-7.15
2610	8.17	-10.88	-7.01
2620	8.26	-10.83	-7
2630	9.06	-10.43	-6.62
2640	10.23	-9.9	-6.03
2650	11.02	-9.58	-5.72
2660	11.49	-9.4	-5.38
2670	11.8	-9.28	-4.95
2680	11	-9.59	-5.02
2690	10.56	-9.76	-4.94
2700	10.09	-9.96	-4.97

ANT2

(MHz)	(%)	(dB)	(dBi)
820	9.28	-10.32	-6.68
830	11.83	-9.27	-5.25
840	14.45	-8.4	-4.14
850	17.29	-7.62	-3.19
860	19.16	-7.18	-2.64
870	19.95	-7	-2.38
880	19.62	-7.07	-2.53
890	18.47	-7.33	-3
900	17.4	-7.59	-3.48
910	15.34	-8.14	-4.23
920	13.32	-8.75	-5.2
930	11.35	-9.45	-5.93
940	10.23	-9.9	-6.83

ANT2-B12

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
690	9.41	-10.27	-6.56
700	10.76	-9.68	-5.76
710	14.24	-8.46	-4.25
720	14.02	-8.53	-4.37
730	14.2	-8.48	-4.18
740	15.23	-8.17	-4.13
750	16.69	-7.78	-3.84
760	17.45	-7.58	-3.8
770	13.53	-8.69	-5.03
780	11.89	-9.25	-5.53
790	11.17	-9.52	-5.87
800	11.31	-9.47	-5.8
810	7.93	-11.01	-7.21

ANT2-B14

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
740	15.11	-8.21	-3.86
750	16.29	-7.88	-3.49
760	17.37	-7.6	-3.18
770	20.39	-6.9	-2.65
780	18.34	-7.37	-3.24
790	16.33	-7.87	-3.65

ANT3

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
1900	15.41	-8.12	-3.93
1910	15.69	-8.04	-3.64
1920	15.94	-7.97	-3.34
1930	17.86	-7.48	-2.65
1940	18.98	-7.22	-2.31
1950	21.3	-6.72	-1.71
1960	22.61	-6.46	-1.41
1970	23.76	-6.24	-1.05
1980	24.48	-6.11	-0.83
1990	24.85	-6.05	-0.65
2000	24.9	-6.04	-0.56
2010	24.43	-6.12	-0.52
2020	23.82	-6.23	-0.63
2030	23.66	-6.26	-0.6
2040	22.8	-6.42	-0.69
2050	21.26	-6.72	-0.9
2060	18.87	-7.24	-1.23
2070	16.83	-7.74	-1.64
2080	16.11	-7.93	-1.75
2090	15.14	-8.2	-1.99
2100	14.16	-8.49	-2.28
2110	11.76	-9.29	-3.08
2120	11.09	-9.55	-3.4
2130	11.54	-9.38	-2.98
2140	11.92	-9.24	-2.81
2150	11.49	-9.4	-2.76
2160	11.24	-9.49	-2.83
2170	10.99	-9.59	-2.96
2180	10.73	-9.69	-3.13
2190	11.83	-9.27	-2.79
2200	11.68	-9.32	-2.8

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
3300	8.1	-10.91	-5.44
3320	8.94	-10.49	-4.51
3340	7.67	-11.15	-4.8

3360	8.27	-10.83	-4.3
3380	8.08	-10.93	-4.35
3400	9.06	-10.43	-4.19
3420	8.83	-10.54	-4.78
3440	9.21	-10.36	-4.74
3460	7.99	-10.97	-5.73
3480	8.69	-10.61	-4.76
3500	7.93	-11.01	-4.41
3520	8.82	-10.55	-3.4
3540	8.82	-10.55	-3.02
3560	9.58	-10.19	-2.45
3580	9.82	-10.08	-2.22
3600	10.81	-9.66	-2.14
3620	10.43	-9.82	-2.37
3640	12.03	-9.2	-1.89
3660	11.62	-9.35	-2.14
3680	12.5	-9.03	-2.05
3700	11.32	-9.46	-2.56
3720	11.07	-9.56	-2.95
3740	10.35	-9.85	-3.66
3760	9.48	-10.23	-4.33
3780	8.02	-10.96	-5.13
3800	8.51	-10.7	-4.81
3820	8.1	-10.92	-4.92
3840	9.35	-10.29	-4.34
3860	10.73	-9.69	-3.65
3880	12.78	-8.94	-2.76
3900	15.44	-8.11	-1.91
3920	16.91	-7.72	-1.35
3940	20.54	-6.87	-0.44
3960	21.17	-6.74	-0.18
3980	23.13	-6.36	0.19
4000	21.08	-6.76	-0.33
4020	21.28	-6.72	-0.56
4040	20.01	-6.99	-0.94
4060	20.79	-6.82	-0.95
4080	20.66	-6.85	-0.98
4100	21.37	-6.7	-0.82
4120	20.97	-6.78	-0.99
4140	22.34	-6.51	-0.46
4160	21.97	-6.58	-0.51
4180	22.71	-6.44	-0.12
4200	21.43	-6.69	-0.13

ANT4

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
1710	14.29	-8.45	-3.44
1720	14.46	-8.4	-3.66
1730	14.76	-8.31	-3.61
1740	14.61	-8.35	-3.58
1750	15.28	-8.16	-3.36
1760	16.35	-7.87	-3.07
1770	16.34	-7.87	-2.82
1780	17.08	-7.68	-2.23
1790	17.19	-7.65	-1.89
1800	17.53	-7.56	-1.45
1810	18.84	-7.25	-1.03
1820	19.19	-7.17	-0.92
1830	19.81	-7.03	-0.89
1840	21.67	-6.64	-0.81
1850	24.2	-6.16	-0.74
1860	26.23	-5.81	-0.64
1870	26.31	-5.8	-0.68
1880	26.24	-5.81	-0.64
1890	26.89	-5.7	-0.56
1900	27.81	-5.56	-0.47
1910	26.49	-5.77	-0.68
1920	24.51	-6.11	-0.92
1930	24.04	-6.19	-0.93
1940	21.78	-6.62	-1.08
1950	21.57	-6.66	-0.93
1960	20.19	-6.95	-1.07
1970	19.59	-7.08	-1.25
1980	20.61	-6.86	-1.1
1990	21.87	-6.6	-1.15
2000	22.54	-6.47	-1.28
2010	23.46	-6.3	-1.52
2020	22.77	-6.43	-2.05
2030	23.56	-6.28	-2.08
2040	25.34	-5.96	-1.8
2050	26.57	-5.76	-1.62
2060	26.17	-5.82	-1.74
2070	24.55	-6.1	-1.97
2080	22.55	-6.47	-2.42

2090	20.3	-6.92	-2.9
2100	18.46	-7.34	-3.39
2110	13.3	-8.76	-4.91
2120	11.85	-9.26	-5.52
2130	11.56	-9.37	-5.59
2140	11.28	-9.48	-5.67
2150	9.96	-10.02	-6.29
2160	9.17	-10.38	-6.68
2170	7.57	-11.21	-7.65
2180	7.41	-11.3	-7.58
2190	7.57	-11.21	-7.38
2200	8.07	-10.93	-7.01
2210	8.71	-10.6	-6.71
2220	9.17	-10.38	-6.6
2230	9.23	-10.35	-6.86
2240	9.95	-10.02	-6.33
2250	10.54	-9.77	-5.54
2260	10.45	-9.81	-5.23
2270	10.95	-9.61	-4.75
2280	9.67	-10.14	-5.32
2290	9.33	-10.3	-5.55
2300	8.76	-10.58	-6
2310	8.2	-10.86	-6.4
2320	7.66	-11.16	-6.83
2330	7.58	-11.2	-7.13
2340	6.71	-11.73	-7.97
2350	6.97	-11.57	-7.91
2360	6.36	-11.96	-8.12
2370	6.34	-11.98	-8.05
2380	6.41	-11.93	-7.86
2390	6.78	-11.69	-7.65
2400	6.75	-11.71	-7.63
2410	7.21	-11.42	-7.31
2420	6.95	-11.58	-7.27
2430	7.07	-11.51	-7.13
2440	6.97	-11.57	-7.16
2450	6.59	-11.81	-7.55
2460	6.08	-12.16	-8.16
2470	5.07	-12.95	-8.92
2480	4.49	-13.48	-9.18
2490	4.16	-13.81	-9.34
2500	3.63	-14.4	-9.8
2510	3.26	-14.87	-10.07

2520	3.14	-15.03	-10.32
2530	2.89	-15.39	-10.74
2540	2.82	-15.5	-10.97
2550	2.74	-15.63	-11.4
2560	2.78	-15.56	-11.24
2570	2.81	-15.52	-11.03
2580	2.84	-15.47	-10.62
2590	2.78	-15.55	-10.46
2600	3.18	-14.97	-9.75
2610	3.17	-14.99	-9.54
2620	3.08	-15.11	-9.56
2630	3.23	-14.91	-9.34
2640	3.54	-14.51	-8.85
2650	3.65	-14.37	-8.96
2660	4.11	-13.87	-8.66
2670	4.38	-13.58	-8.54
2680	4.96	-13.05	-8.16
2690	5.06	-12.96	-8.28
2700	5.33	-12.74	-8.24

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
3300	14.56	-8.37	-4.4
3320	16.52	-7.82	-3.67
3340	15.42	-8.12	-3.68
3360	18.06	-7.43	-2.66
3380	18.03	-7.44	-2.32
3400	19.52	-7.1	-1.8
3420	19.39	-7.12	-1.89
3440	22.08	-6.56	-1.33
3460	20.19	-6.95	-1.97
3480	22.61	-6.46	-1.55
3500	20.41	-6.9	-2.19
3520	21.55	-6.67	-1.94
3540	19.19	-7.17	-2.4
3560	19.76	-7.04	-2.58
3580	19.55	-7.09	-2.48
3600	20.01	-6.99	-2.57
3620	20.15	-6.96	-2.71
3640	24.54	-6.1	-1.85
3660	25.25	-5.98	-1.88
3680	28.94	-5.38	-1.18

3700	29.19	-5.35	-1.2
3720	31.52	-5.01	-0.98
3740	28.85	-5.4	-1.44
3760	29.32	-5.33	-1.59
3780	25.82	-5.88	-2.43
3800	25.35	-5.96	-2.39
3820	24.39	-6.13	-2.61
3840	24.6	-6.09	-2.64
3860	23.72	-6.25	-2.36
3880	23.98	-6.2	-1.78
3900	25.92	-5.86	-0.79
3920	27.16	-5.66	-0.38
3940	31.95	-4.96	0.32
3960	32.76	-4.85	0.26
3980	36.48	-4.38	0.64
4000	31.64	-5	0.17
4020	31.06	-5.08	0.19
4040	27.62	-5.59	-0.28
4060	24.22	-6.16	-0.67
4080	19.54	-7.09	-1.61
4100	17.34	-7.61	-1.83
4120	13.63	-8.66	-2.89
4140	12.4	-9.07	-3.25
4160	11.94	-9.23	-3.35
4180	11.75	-9.3	-3.1
4200	11.36	-9.45	-2.93

ANT5

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
800	9.7	-10.13	-6.08
810	9.16	-10.38	-6.11
820	8.93	-10.49	-6.13
830	8.76	-10.57	-6.38
840	8.99	-10.46	-6.63
850	9.63	-10.16	-6.67
860	11.1	-9.55	-6.62
870	12.44	-9.05	-5.9
880	14.2	-8.48	-4.56
890	14.02	-8.53	-4.32
900	13	-8.86	-4.58
910	11.65	-9.34	-5.22

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
1710	23.75	-6.24	-2.48
1720	25.25	-5.98	-2.17
1730	25.48	-5.94	-1.96
1740	25.02	-6.02	-2.2
1750	23.72	-6.25	-2.58
1760	24.74	-6.07	-2.63
1770	26.66	-5.74	-2.42
1780	29.39	-5.32	-2.13
1790	29.8	-5.26	-2.04
1800	29.86	-5.25	-2.04
1810	28.8	-5.41	-2.14
1820	28.95	-5.38	-1.9
1830	29.42	-5.31	-1.71
1840	30.5	-5.16	-1.33
1850	31.96	-4.95	-1.03
1860	31.99	-4.95	-0.95
1870	33.09	-4.8	-0.96
1880	35.27	-4.53	-0.73
1890	36.54	-4.37	-0.63
1900	37.4	-4.27	-0.75
1910	38.88	-4.1	-0.61
1920	39.63	-4.02	-0.68
1930	40.22	-3.96	-0.59
1940	39.47	-4.04	-0.77
1950	39.65	-4.02	-0.8
1960	39.19	-4.07	-0.77
1970	40.39	-3.94	-0.5
1980	41.59	-3.81	-0.33
1990	40.98	-3.87	-0.44
2000	41.91	-3.78	-0.44
2010	39.92	-3.99	-0.71
2020	38.54	-4.14	-0.89
2030	38.8	-4.11	-0.89
2040	37.08	-4.31	-1.18
2050	35.78	-4.46	-1.36
2060	35.01	-4.56	-1.59
2070	33.93	-4.69	-1.65
2080	33.55	-4.74	-1.89

2090	34.47	-4.63	-1.84
2100	34.69	-4.6	-1.78
2110	31.02	-5.08	-2.21
2120	29.15	-5.35	-2.39
2130	29.09	-5.36	-2.4
2140	28.7	-5.42	-2.49
2150	27.35	-5.63	-2.7
2160	25.78	-5.89	-3.14
2170	25.63	-5.91	-3.07
2180	24.43	-6.12	-3.14
2190	24.64	-6.08	-3
2200	23.34	-6.32	-3.08
2210	21.71	-6.63	-3.26
2220	20.93	-6.79	-3.22
2230	20.01	-6.99	-3.38
2240	18.78	-7.26	-3.73
2250	18.21	-7.4	-3.73
2260	17.33	-7.61	-3.66
2270	17.34	-7.61	-3.34
2280	16.49	-7.83	-3.26
2290	15.13	-8.2	-3.39
2300	14.64	-8.34	-3.33
2310	14.13	-8.5	-3.38
2320	13.6	-8.66	-3.51
2330	14.07	-8.52	-3.51
2340	13.76	-8.62	-3.78
2350	13.12	-8.82	-4.36
2360	12.71	-8.96	-4.79
2370	11.82	-9.27	-5.35
2380	12.14	-9.16	-5.2
2390	12.25	-9.12	-5.25
2400	11.88	-9.25	-5.4
2410	11.12	-9.54	-5.88
2420	10.73	-9.69	-6.11
2430	9.88	-10.05	-6.25
2440	10.22	-9.91	-5.97
2450	10.07	-9.97	-5.94
2460	9.28	-10.32	-6.18
2470	8.6	-10.65	-6.51
2480	8.06	-10.93	-6.7
2490	7.69	-11.14	-6.99
2500	7.86	-11.05	-6.81
2510	7.28	-11.38	-7.21

2520	7.28	-11.38	-7.23
2530	6.88	-11.63	-7.65
2540	6.52	-11.86	-7.99
2550	6.44	-11.91	-7.93
2560	6.57	-11.82	-7.79
2570	6.23	-12.05	-7.99
2580	6.33	-11.99	-7.96
2590	5.97	-12.24	-8.34
2600	6.16	-12.11	-8.07
2610	6.09	-12.16	-8.2
2620	5.64	-12.49	-8.6
2630	5.65	-12.48	-8.71
2640	5.81	-12.36	-8.45
2650	5.6	-12.52	-8.53
2660	5.65	-12.48	-8.33
2670	5.56	-12.55	-8.33
2680	5.19	-12.85	-8.57
2690	5.1	-12.93	-8.78
2700	4.92	-13.08	-9.02

ANT6

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
1545	21.68	-6.64	-0.02
1550	21.9	-6.6	-0.16
1555	21.19	-6.74	-0.51
1560	22.55	-6.47	0.89
1565	22.38	-6.5	0.84
1570	23.22	-6.34	1.01
1575	25.47	-5.94	1.24
1580	27.02	-5.68	1.33
1585	24.25	-6.15	1.15
1590	21.5	-6.67	-1.92
1595	21.31	-6.71	-2.15
1600	20.67	-6.85	-2.45
1605	20.64	-6.85	-2.47

ANT7

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
2400	30.5	-5.16	-1.86
2410	29.68	-5.27	-1.74
2420	28.84	-5.4	-1.62
2430	28.11	-5.51	-1.75
2440	29.21	-5.35	-1.74
2450	30.36	-5.18	-1.83
2460	30.1	-5.21	-2.07
2470	29.76	-5.26	-2.21
2480	30.17	-5.2	-2.14
2490	31	-5.09	-1.76
2500	31.56	-5.01	-1.62

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
5150	39.69	-4.01	1.12
5160	39.04	-4.08	1.04
5170	39.28	-4.06	0.91
5180	39.05	-4.08	1
5190	39.62	-4.02	0.92
5200	40.37	-3.94	1.08
5210	41.73	-3.8	1.18
5220	41.07	-3.86	1.15
5230	42.36	-3.73	1.18
5240	40.81	-3.89	1.04
5250	40.59	-3.92	1.19
5260	42.01	-3.77	1.17
5270	41.26	-3.85	1.12
5280	41.99	-3.77	1.18
5290	43.14	-3.65	1.3
5300	40.7	-3.9	1.17
5310	40.61	-3.91	1.09
5320	41.88	-3.78	1.27
5330	40.62	-3.91	1.14
5340	41.55	-3.81	1.32
5350	42.59	-3.71	1.56
5360	40.17	-3.96	1.43
5370	39.51	-4.03	1.44

5380	39.04	-4.09	1.43
5390	36.28	-4.4	1.02
5400	43.03	-3.66	1.94
5410	42.51	-3.72	1.84
5420	41.28	-3.84	1.87
5430	40.32	-3.95	1.68
5440	39.99	-3.98	1.6
5450	40.83	-3.89	1.72
5460	41.1	-3.86	1.85
5470	40.47	-3.93	1.75
5480	39.58	-4.03	1.75
5490	39.19	-4.07	1.8
5500	39.14	-4.07	1.81
5510	38.82	-4.11	1.82
5520	40.45	-3.93	1.95
5530	42.37	-3.73	2.14
5540	42.78	-3.69	2.41
5550	41.61	-3.81	2.2
5560	41.44	-3.83	2.29
5570	42.39	-3.73	2.26
5580	44.25	-3.54	2.65
5590	43.46	-3.62	2.39
5600	42.64	-3.7	2.3
5610	42.84	-3.68	2.36
5620	42.78	-3.69	2.43
5630	42.76	-3.69	2.3
5640	42.38	-3.73	2.48
5650	42.44	-3.72	2.32
5660	43.11	-3.65	2.47
5670	41.95	-3.77	2.35
5680	42.65	-3.7	2.33
5690	42.96	-3.67	2.4
5700	42.66	-3.7	2.36
5710	40.47	-3.93	2.1
5720	40.19	-3.96	1.8
5730	42.19	-3.75	2.01
5740	42.7	-3.7	2.17
5750	42.21	-3.75	1.97
5760	40.23	-3.95	1.71
5770	39.75	-4.01	1.5
5780	39.11	-4.08	1.56
5790	38.85	-4.11	1.71
5800	39.5	-4.03	1.94

5810	39.41	-4.04	2
5820	40.56	-3.92	2.26
5830	39.87	-3.99	2.11
5840	39.19	-4.07	2.15
5850	40.71	-3.9	2.48

ANT8

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
2300	8.76	-10.58	-6
2310	8.2	-10.86	-6.4
2320	7.66	-11.16	-6.83
2330	7.58	-11.2	-7.13
2340	6.71	-11.73	-7.97
2350	6.97	-11.57	-7.91
2360	6.36	-11.96	-8.12
2370	6.34	-11.98	-8.05
2380	6.41	-11.93	-7.86
2390	6.78	-11.69	-7.65
2400	6.75	-11.71	-7.63

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
2490	25.53	-5.93	-2.23
2500	23.86	-6.22	-2.73
2510	23.12	-6.36	-2.76
2520	20.95	-6.79	-3.18
2530	22.31	-6.52	-2.93
2540	24.07	-6.19	-2.63
2550	26.3	-5.8	-2.54
2560	25.83	-5.88	-2.67
2570	26.76	-5.72	-2.39
2580	26.1	-5.83	-2.27
2590	24.13	-6.17	-2.53
2600	21.46	-6.68	-3.08
2610	18.1	-7.42	-3.37
2620	15.95	-7.97	-3.97
2630	16.33	-7.87	-3.99
2640	14.61	-8.35	-4.46

2650	14.3	-8.45	-4.15
2660	15.59	-8.07	-3.48
2670	15.96	-7.97	-3.14
2680	15.94	-7.98	-2.94
2690	16.31	-7.87	-2.78
2700	16.06	-7.94	-2.77

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
3300	14.52	-8.38	-1.67
3320	13.74	-8.62	-1.99
3340	13.4	-8.73	-2.13
3360	13.84	-8.59	-2
3380	13.01	-8.86	-2.13
3400	12.97	-8.87	-2.18
3420	12.04	-9.19	-2.36
3440	13.19	-8.8	-1.95
3460	13.13	-8.82	-1.76
3480	14.15	-8.49	-1.41
3500	14.36	-8.43	-1.25
3520	15.67	-8.05	-0.89
3540	14.53	-8.38	-1.27
3560	14.82	-8.29	-1.16
3580	14.25	-8.46	-1.42
3600	14.27	-8.46	-1.37
3620	12.9	-8.89	-1.9
3640	11.83	-9.27	-2.21
3660	11.41	-9.43	-2.4
3680	11.31	-9.46	-2.33
3700	10.8	-9.66	-2.47
3720	10.83	-9.65	-2.53
3740	11.11	-9.54	-2.4
3760	10.85	-9.64	-2.58
3780	11.09	-9.55	-2.5
3800	8.24	-10.84	-6.34
3820	8.85	-10.53	-6.21
3840	10.22	-9.9	-5.98
3860	10.78	-9.67	-6.09
3880	11.33	-9.46	-6.12
3900	10.58	-9.76	-6.22
3920	9.29	-10.32	-6.6
3940	8.72	-10.6	-6.96

3960	8.61	-10.65	-6.69
3980	8.15	-10.89	-6.68
4000	8.51	-10.7	-6.18
4020	8.34	-10.79	-6.15
4040	8.45	-10.73	-5.91
4060	9.14	-10.39	-5.58
4080	9.54	-10.21	-5.59
4100	10.11	-9.95	-5.65
4120	10.77	-9.68	-5.25
4140	12.13	-9.16	-4.52
4160	9.26	-10.33	-4.49
4180	14.59	-8.36	-3.5
4200	17.79	-7.5	-2.51

ANT9

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
1141	8.27	-10.82	-6.91
1146	9.45	-10.24	-6.22
1151	10.47	-9.8	-5.76
1156	11.5	-9.39	-5.41
1161	12.52	-9.02	-5.09
1166	13.69	-8.64	-4.63
1171	15.36	-8.14	-3.98
1176	14.52	-8.38	-4.5
1181	13.66	-8.65	-4.82
1186	12.72	-8.95	-5.08
1191	11.51	-9.39	-5.38
1196	9.86	-10.06	-5.9
1201	9.46	-10.24	-6.07
1206	8.1	-10.91	-6.77
1211	7.75	-11.1	-6.95

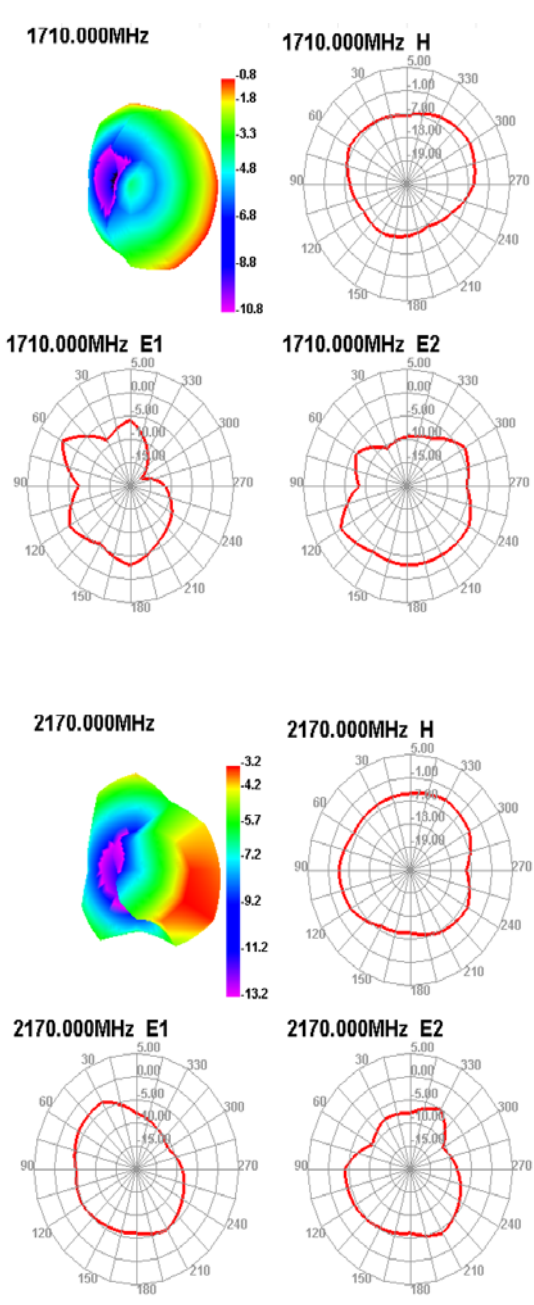
ANT10

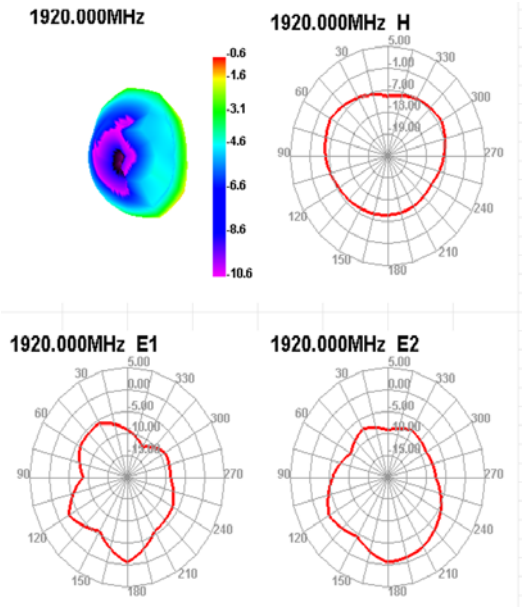
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
3300	29.94	-5.24	-0.62
3320	34.46	-4.63	0.58
3340	33.93	-4.69	1.01
3360	38.08	-4.19	1.84
3380	35.87	-4.45	1.58
3400	39.54	-4.03	1.75
3420	32.76	-4.85	0.85
3440	32.67	-4.86	0.76
3460	27.74	-5.57	0.07
3480	28.78	-5.41	0.25
3500	27.37	-5.63	-0.13
3520	32.62	-4.87	0.58
3540	33.83	-4.71	0.66
3560	39.79	-4	1.17
3580	37.25	-4.29	0.84
3600	41.29	-3.84	1.53
3620	36.73	-4.35	1.1
3640	40.55	-3.92	1.49
3660	38.31	-4.17	1.12
3680	36.67	-4.36	0.81
3700	35.2	-4.54	0.5
3720	36.47	-4.38	0.75
3740	32.03	-4.94	0.35
3760	38.27	-4.17	1.12
3780	35.31	-4.52	0.58
3800	36.23	-4.41	0.41
3820	36	-4.44	0.16
3840	34.86	-4.58	-0.11
3860	32.9	-4.83	-0.53
3880	33.2	-4.79	-0.61
3900	35.01	-4.56	0.01
3920	36.4	-4.39	0.47
3940	41.29	-3.84	1.02
3960	39.38	-4.05	0.61
3980	42.28	-3.74	0.89
4000	33.56	-4.74	-0.18
4020	30.67	-5.13	-0.64
4040	29.42	-5.31	-0.89

4060	29.17	-5.35	-0.12
4080	30.03	-5.22	0.45
4100	34.28	-4.65	1.01
4120	32.88	-4.83	0.78
4140	39.32	-4.05	1.66
4160	42.88	-3.68	2.29
4180	43.65	-3.6	2.31
4200	42.61	-3.7	1.9

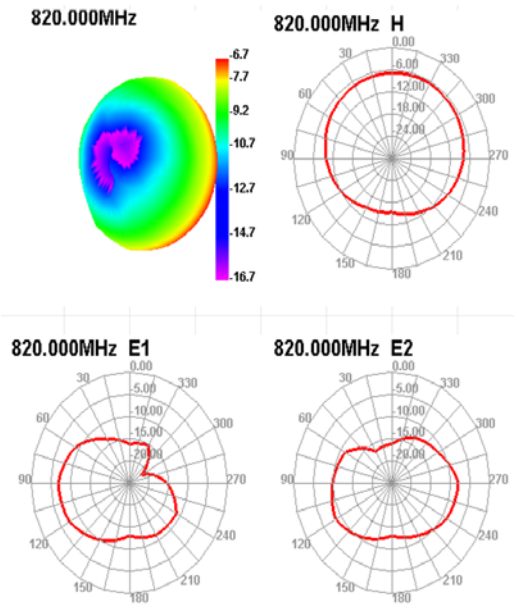
2.3 3D Pattern

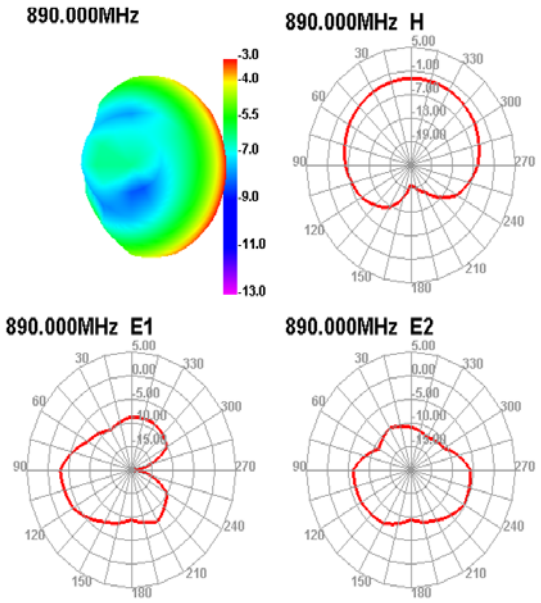
ANT1



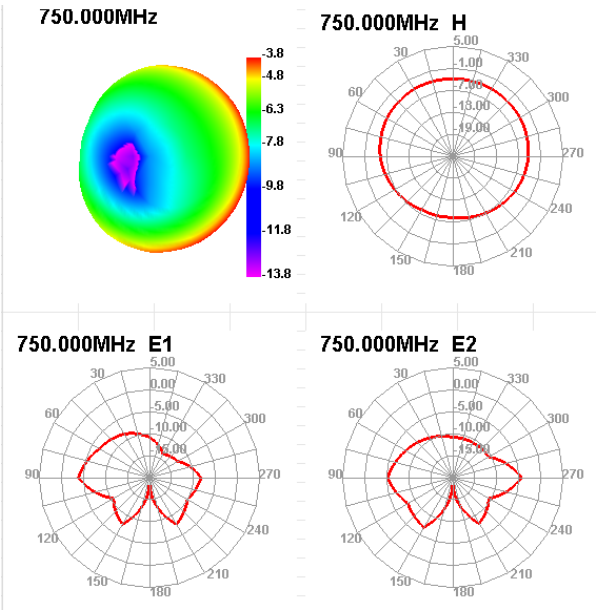


ANT2

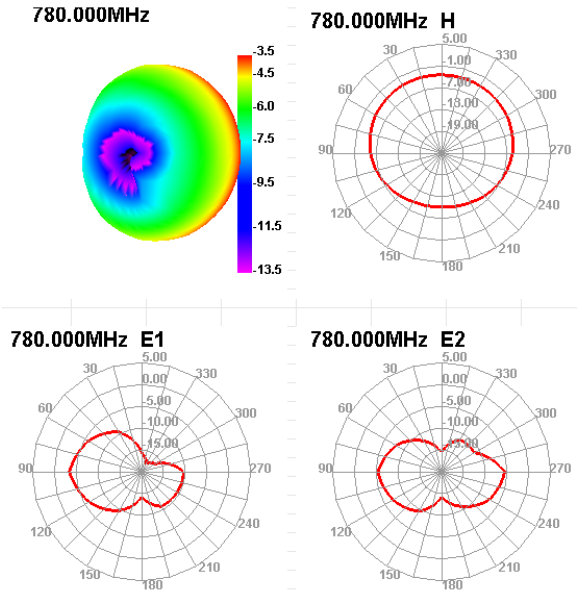




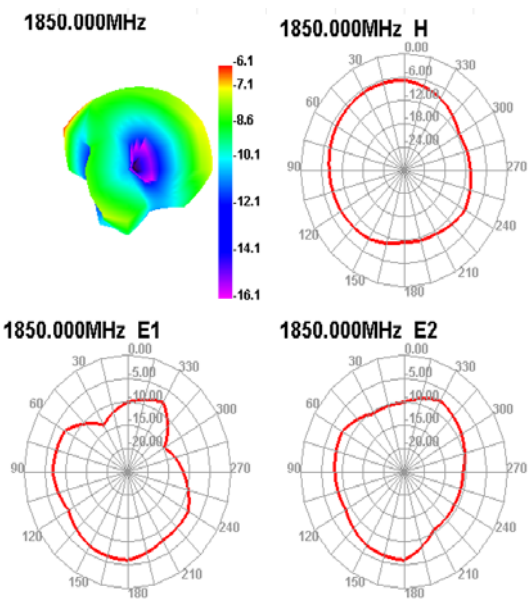
ANT2-B12

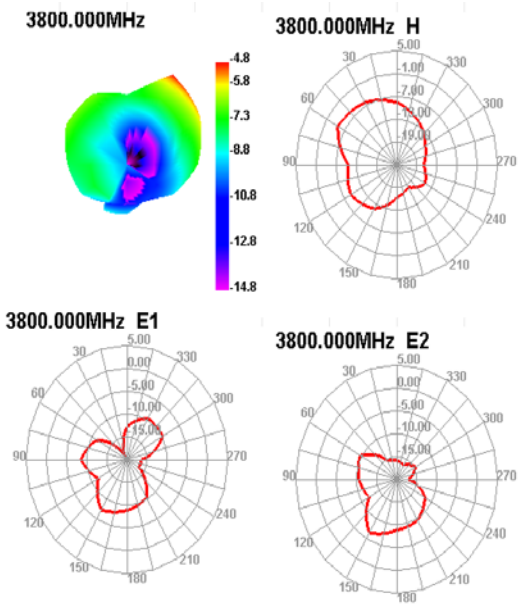


ANT2-B14

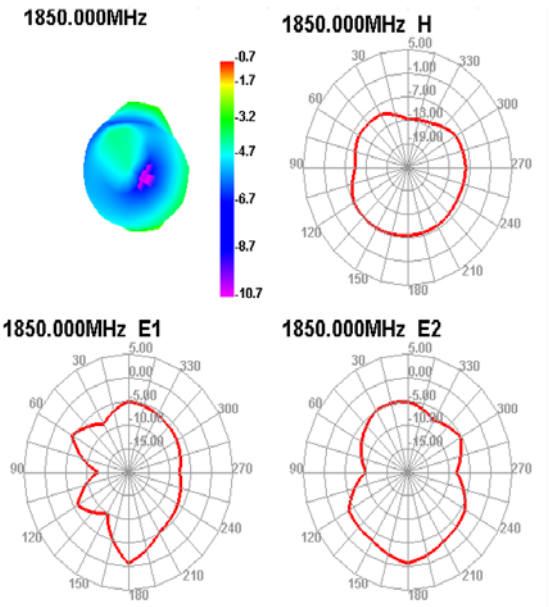


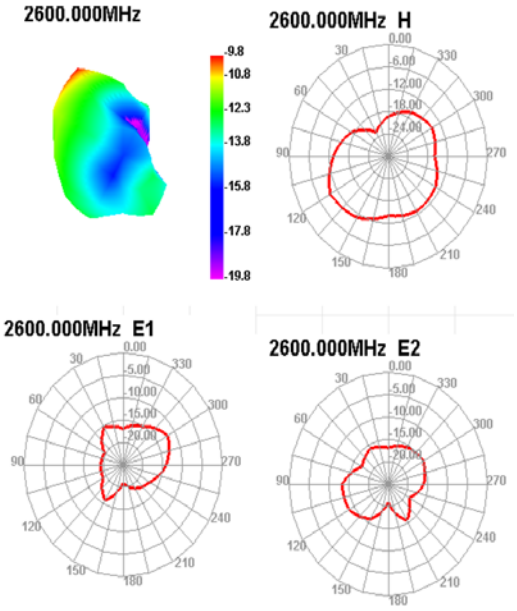
ANT3

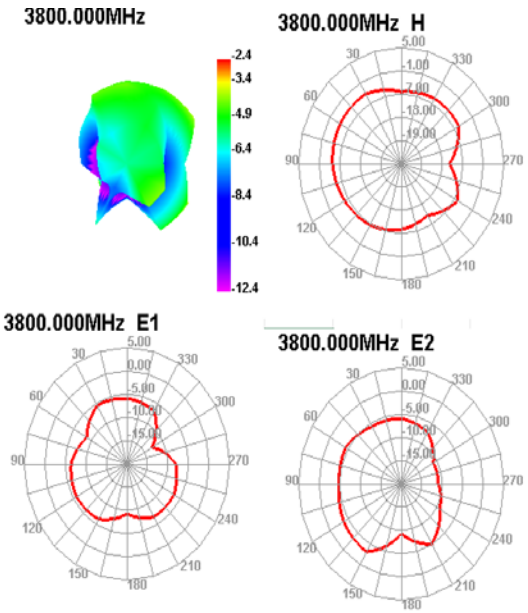

1850.000MHz
-6.1
-7.1
-8.6
-10.1
-12.1
-14.1
-16.1
1850.000MHz H
1850.000MHz E1
1850.000MHz E2


3800.000MHz
-4.8
-5.8
-7.3
-8.8
-10.8
-12.8
-14.8
3800.000MHz H
3800.000MHz E1
3800.000MHz E2

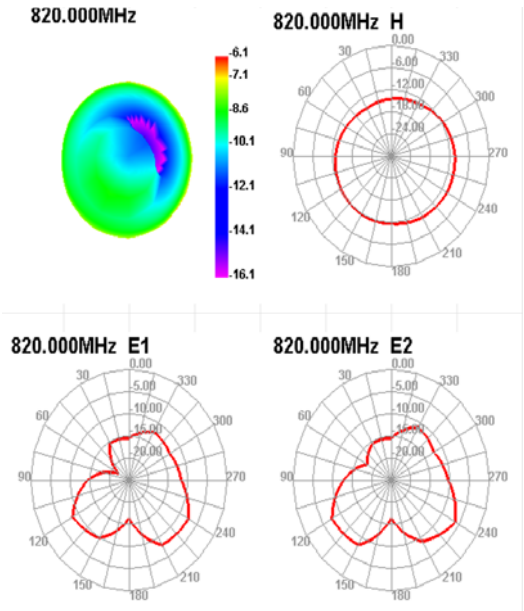
ANT4


1850.000MHz
-0.7
-1.7
-3.2
-4.7
-6.7
-8.7
-10.7
1850.000MHz H
1850.000MHz E1
1850.000MHz E2

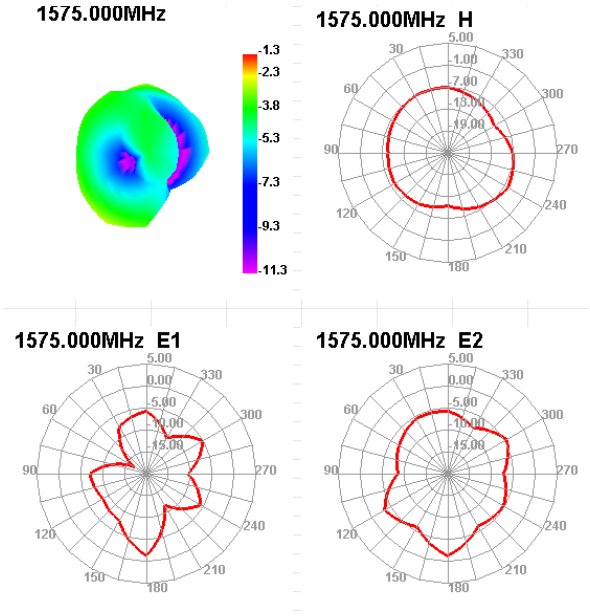

2600.000MHz
-9.8
-10.8
-12.3
-13.8
-15.8
-17.8
-19.8
2600.000MHz H
2600.000MHz E1
2600.000MHz E2


3800.000MHz
-2.4
-3.4
-4.9
-6.4
-8.4
-10.4
-12.4
3800.000MHz H
3800.000MHz E1
3800.000MHz E2

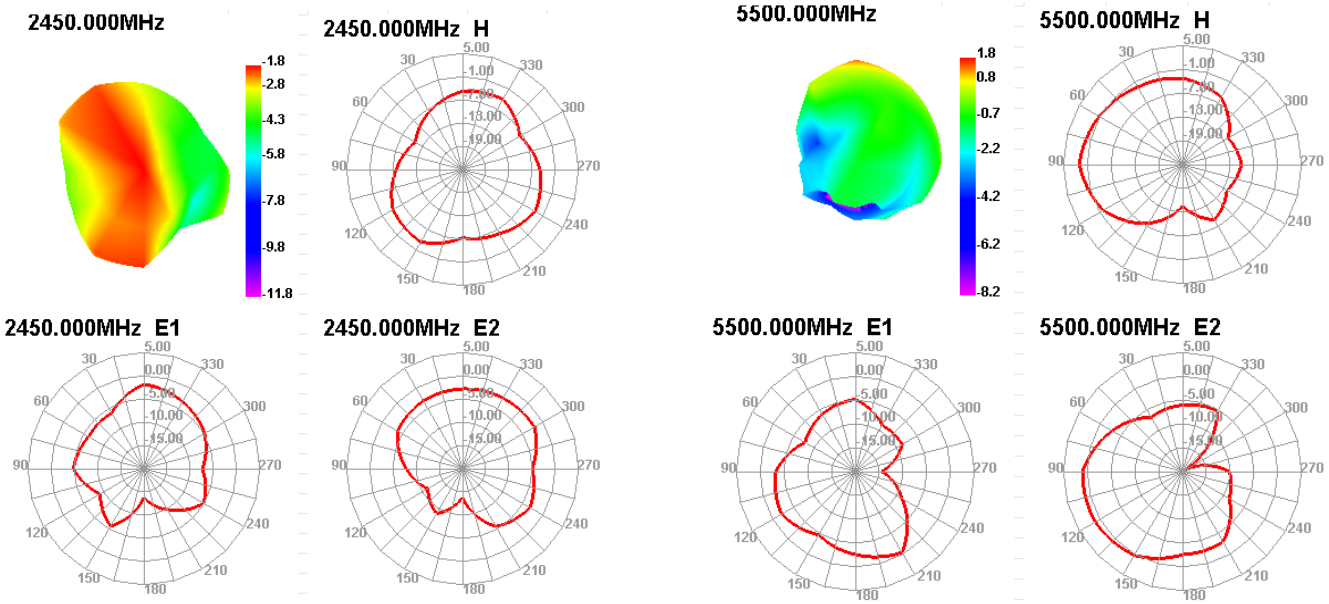
ANT5


820.000MHz
-6.1
-7.1
-8.6
-10.1
-12.1
-14.1
-16.1
820.000MHz H
820.000MHz E1
820.000MHz E2

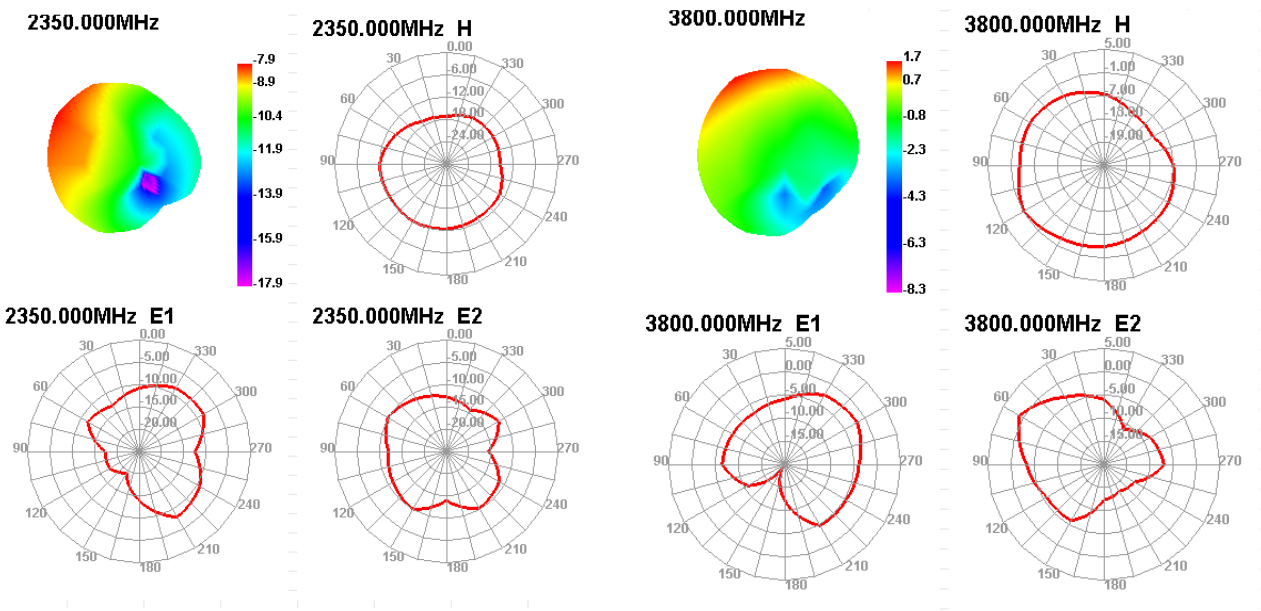
ANT6


1575.000MHz
-1.3
-2.3
-3.8
-5.3
-7.3
-9.3
-11.3
1575.000MHz H
1575.000MHz E1
1575.000MHz E2

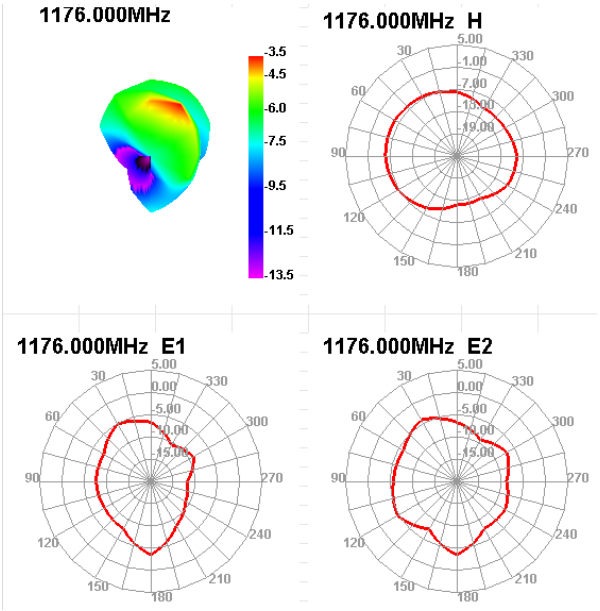
ANT7


2450.000MHz
-1.8
-2.8
-4.3
-5.8
-7.8
-9.8
-11.8
2450.000MHz H
2450.000MHz E1
2450.000MHz E2
5500.000MHz
1.8
0.8
-0.7
-2.2
-4.2
-6.2
-8.2
5500.000MHz H
5500.000MHz E1
5500.000MHz E2

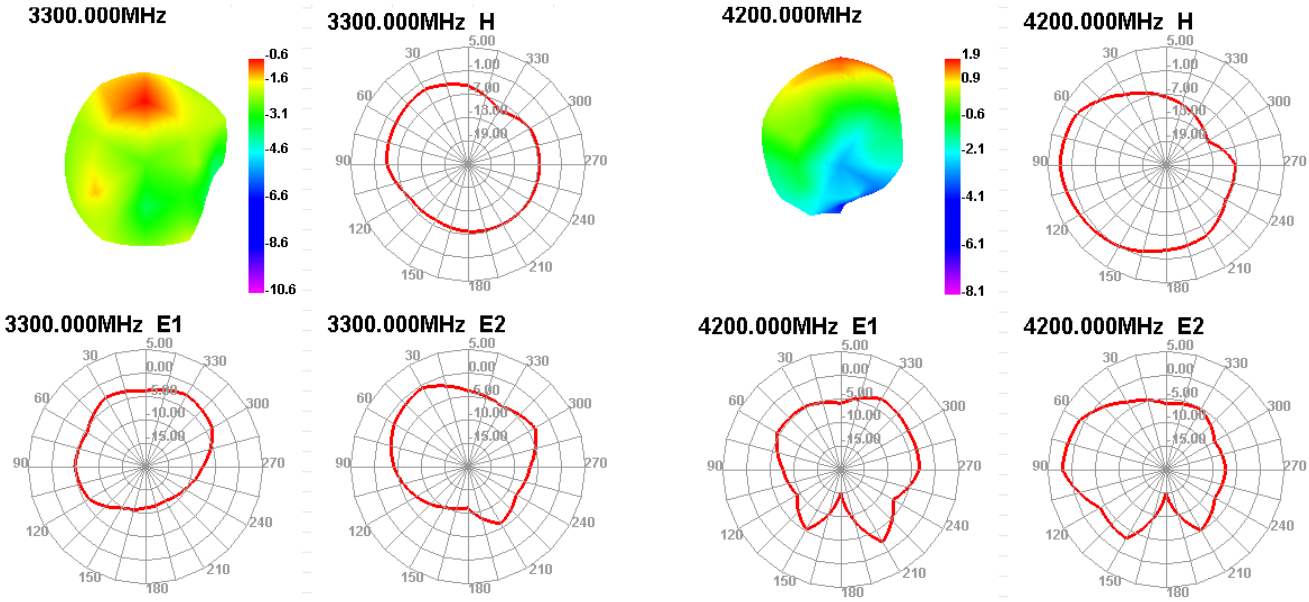
ANT8


2350.000MHz
-7.9
-8.9
-10.4
-11.9
-13.9
-15.9
-17.9
2350.000MHz H
2350.000MHz E1
2350.000MHz E2
3800.000MHz
1.7
0.7
-0.8
-2.3
-4.3
-6.3
-8.3
3800.000MHz H
3800.000MHz E1
3800.000MHz E2

ANT9


1176.000MHz
-3.5
-4.5
-6.0
-7.5
-9.5
-11.5
-13.5
1176.000MHz H
1176.000MHz E1
1176.000MHz E2

ANT10


3300.000MHz
-0.6
-1.6
-3.1
-4.6
-6.6
-8.6
-10.6
3300.000MHz H
3300.000MHz E1
3300.000MHz E2
4200.000MHz
1.9
0.9
-0.6
-2.1
-4.1
-6.1
-8.1
4200.000MHz H
4200.000MHz E1
4200.000MHz E2