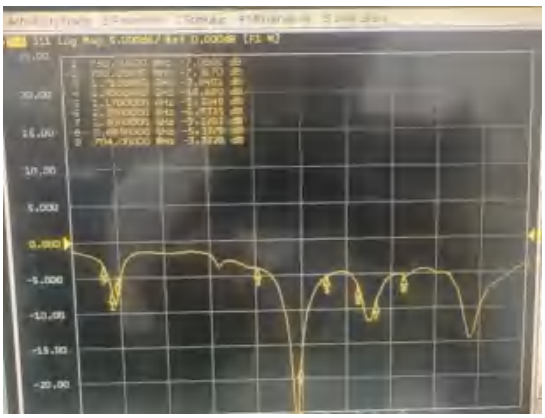
一、 Overview

This report contains the basic parameters and performance of the Kai cheng 3500 project antenna (version v0.1)

二、low frequency antenna Test Data （ANT0）



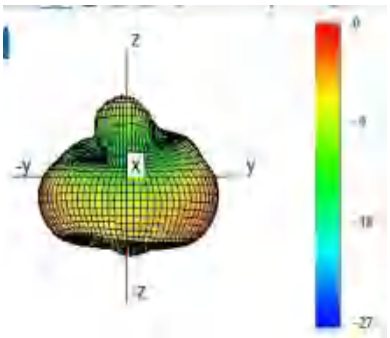
2.1 low frequency **Passive Efficiency Data & Gain** (ANT0)

Freq(MHz)	Gain(dBi)	Efficiency(%)	Efficienc (dB)
700	-3.62	21.1	-6.8
710	-3.36	22.9	-6.4
720	-3.15	23.8	-6.2
730	-3.25	22.8	-6.4
740	-3.53	21.2	-6.7
750	-3.94	19.2	-7.2
760	-2.94	23.5	-6.3
770	-2.96	23.7	-6.3
780	-2.96	23.8	-6.2
790	-3.24	22.5	-6.5
800	-3.8	20.1	-7.0

Freq(MHz)	Gain(dBi)	Efficiency(%)	Efficienc (dB)
770	-5.2	13.7	-8.6
780	-4.6	15.7	-8.1
790	-4.0	17.8	-7.5
800	-3.5	20.4	-6.9
810	-3.4	21.5	-6.7
820	-2.9	24.6	-6.1
830	-2.5	26.2	-5.8
840	-2.4	27.0	-5.7
850	-2.5	26.2	-5.8
860	-2.8	24.1	-6.2

Freq(MHz)	Gain(dBi)	Efficiency(%)	Efficienc (dB)
820	-2.9	24.6	-6.1
830	-2.5	26.2	-5.8
840	-2.4	27.0	-5.7
850	-2.5	26.2	-5.8
860	-2.8	24.1	-6.2
870	-3.3	20.9	-6.8
880	-4.1	17.6	-7.6
890	-4.8	14.4	-8.4
900	-5.6	11.6	-9.3

Freq(MHz)	Gain(dBi)	Efficiency(%)	Efficienc (dB)
870	-6	14.3	-8.4
880	-5.2	17.1	-7.7
890	-4.3	20.6	-6.9
900	-3.2	24.0	-6.2
910	-2.2	30.3	-5.2
920	-1.4	29.2	-5.3
930	-0.9	31.0	-5.1
940	-1.1	29.4	-5.3
950	-1.8	29.0	-5.4
960	-2.6	25.0	-6.0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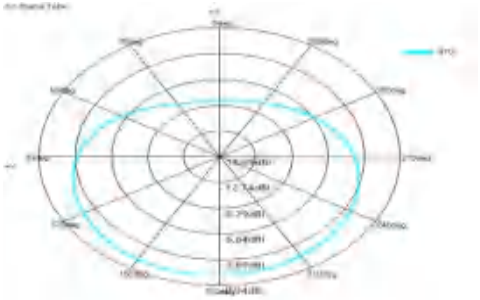
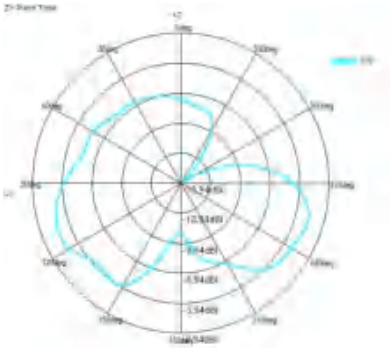
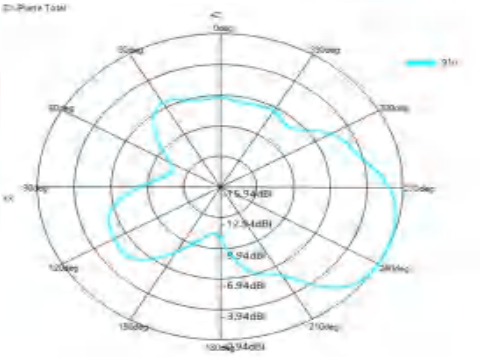
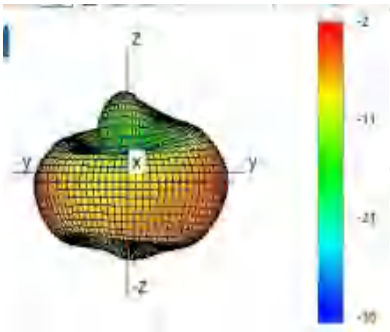
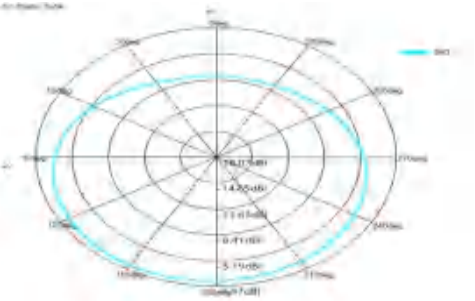
-y
y
x
-z
0
-9
-18
-27

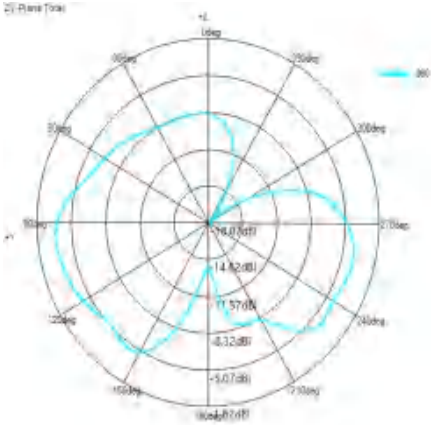


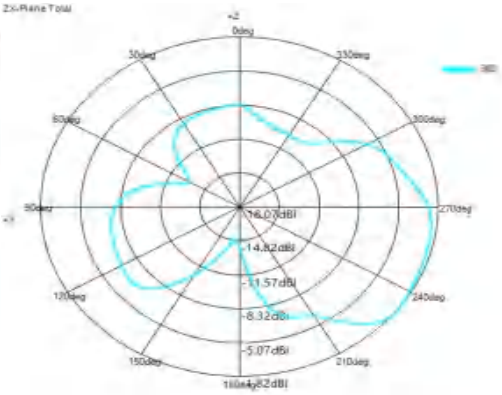


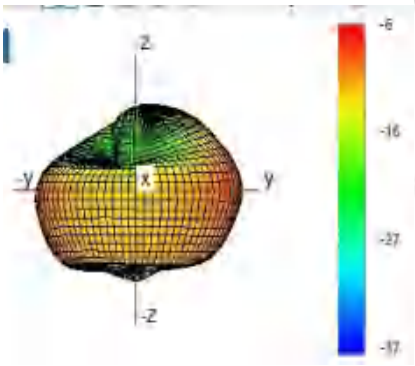


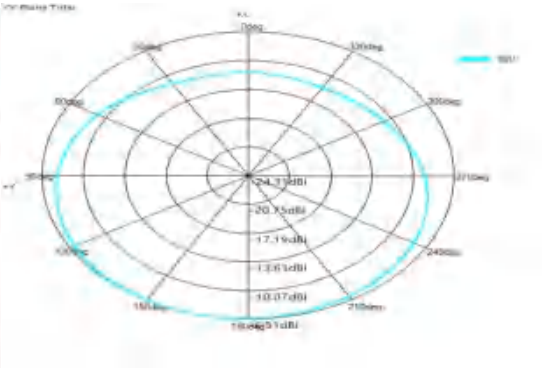

z
y
x
-y
-z
-2
-11
-21
-30

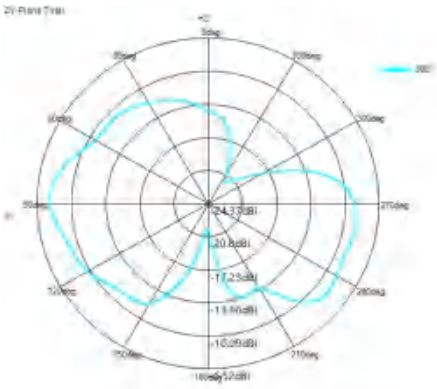


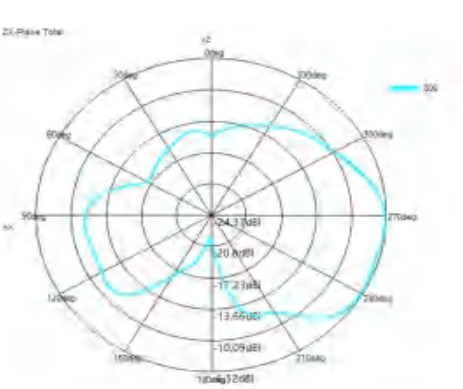


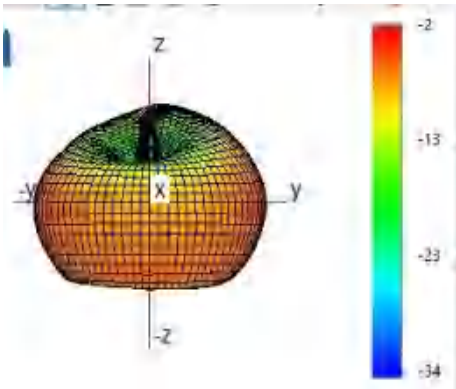

Zx-Plane Total
+z
0deg
30deg
330deg
60deg
300deg
90deg
270deg
120deg
240deg
150deg
210deg
180deg
-6.07dBi
-14.82dBi
-11.57dBi
-8.32dBi
-5.07dBi
-1.82dBi

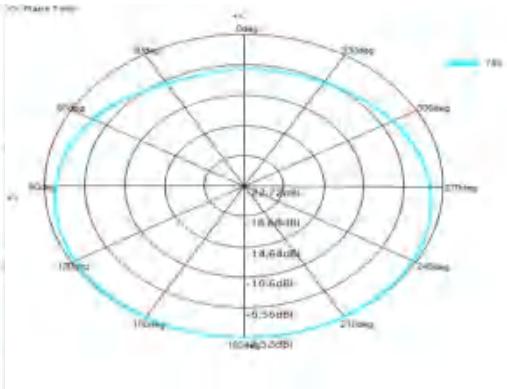

z
-y
y
x
-z
-6
-16
-27
-37

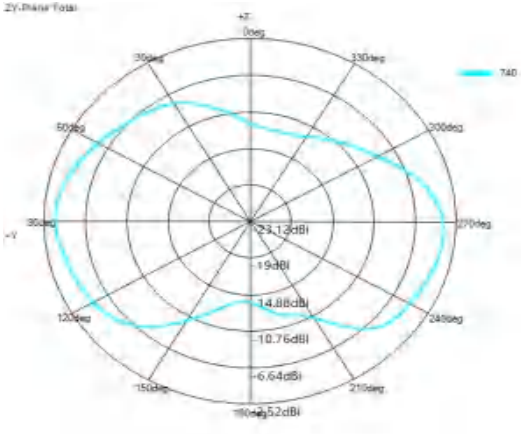

-24.13dBi
-20.55dBi
-17.19dBi
-13.83dBi
-10.47dBi
-7.11dBi

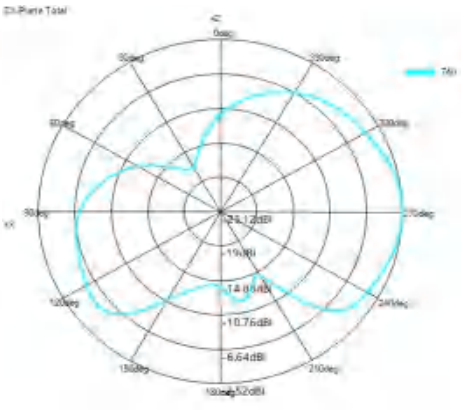

ZY-Plane Total
24.33dBi
20.8dBi
17.25dBi
13.69dBi
10.09dBi
6.52dBi

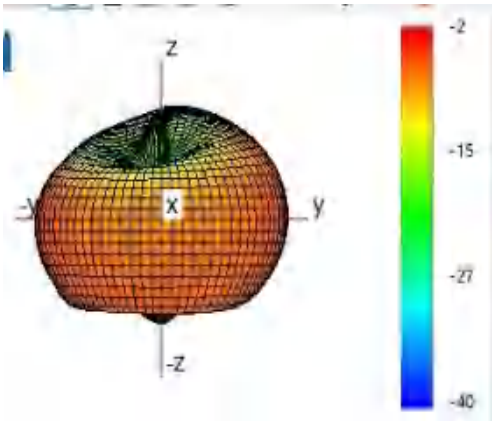

ZX-Plane Total
24.33dBi
20.8dBi
17.23dBi
13.66dBi
10.09dBi
6.52dBi

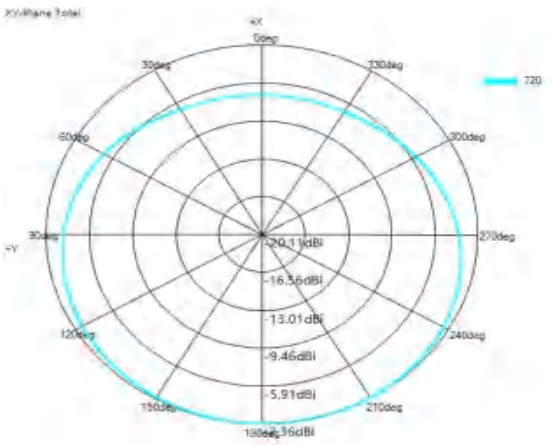

z
-y
y
x
-z
-2
-13
-23
-34

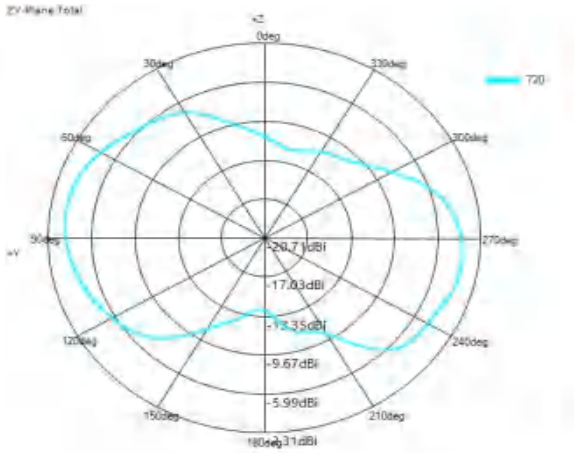

24.72dBi
18.68dBi
14.64dBi
10.6dBi
6.56dBi
3.08dBi

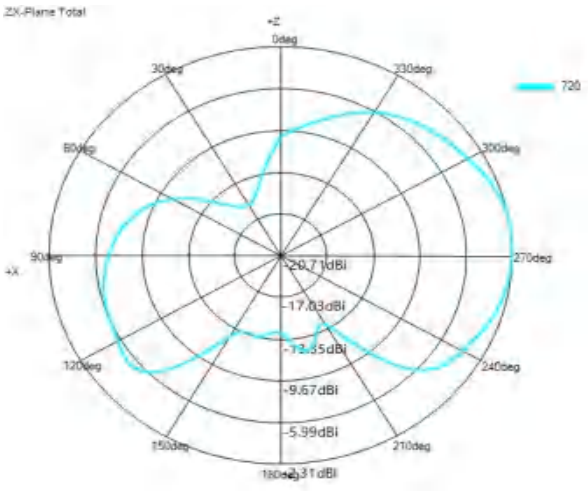

ZY-Plane Total
23.13dBi
19dBi
14.88dBi
10.76dBi
6.64dBi
2.52dBi


ZX-Plane Total
25.12dBi
19dBi
14.88dBi
10.76dBi
6.64dBi
2.52dBi


z
x
y
-z
-2
-15
-27
-40


XY-Plane Total
+X
0deg
30deg
330deg
60deg
300deg
-Y
90deg
270deg
120deg
240deg
150deg
210deg
180deg
-20.71dBi
-16.56dBi
-13.01dBi
-9.46dBi
-5.91dBi
-2.36dBi
720


ZY-Plane Total
+Z
0deg
30deg
330deg
60deg
300deg
+Y
90deg
270deg
120deg
240deg
150deg
210deg
180deg
-20.71dBi
-17.03dBi
-13.35dBi
-9.67dBi
-5.99dBi
-2.31dBi
720

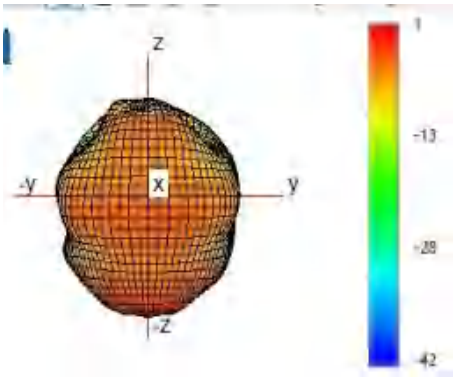

ZX-Plane Total
+Z
0deg
30deg
330deg
60deg
300deg
+X
90deg
270deg
120deg
240deg
150deg
210deg
180deg
-20.71dBi
-17.03dBi
-13.35dBi
-9.67dBi
-5.99dBi
-2.31dBi
720

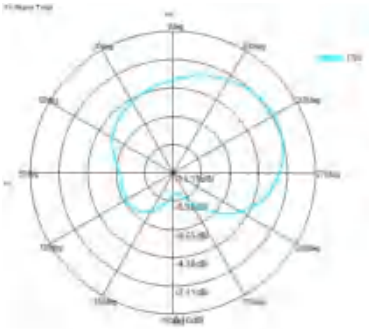
三、 Medium and high frequency antenna Test Data （ANT1）

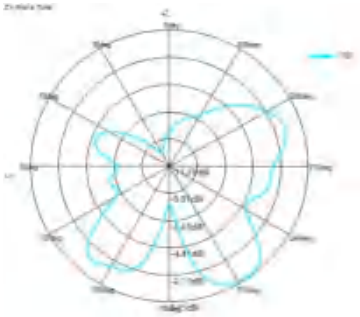
3.1 'Medium and high frequency Passive Efficiency Data & Gain (ANT1)

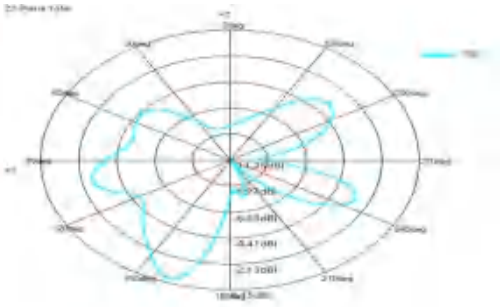
Freq(MHz)	Gain(dBi)	Efficiency(%)	Efficienc (dB)
1700	0.1	36.6	-4.4
1720	0.5	39.0	-4.1
1740	0.9	42.6	-3.7
1760	1.0	44.1	-3.6
1780	0.9	44.9	-3.5
1800	1.2	45.2	-3.5
1820	1.5	45.1	-3.5
1840	1.6	44.2	-3.5
1860	1.7	43.5	-3.6
1880	1.7	40.9	-3.9
1900	1.8	40.1	-4.0
1920	1.6	37.5	-4.3
1940	1.2	34.2	-4.7
1960	1.0	30.8	-5.1
1980	0.6	26.3	-5.2
2000	0.1	28.7	-5.4
2020	-0.5	26.4	-5.8
2040	-1.1	25.4	-6.0
2060	-2.1	25.1	-6.0
2080	-2.2	25.0	-6.0
2100	-1.7	26.1	-5.8
2120	-0.9	29.4	-5.3
2140	-0.3	27.1	-5.7
2160	-0.2	27.7	-5.6
2180	0.2	28.7	-5.4
2200	0.8	32.7	-4.9

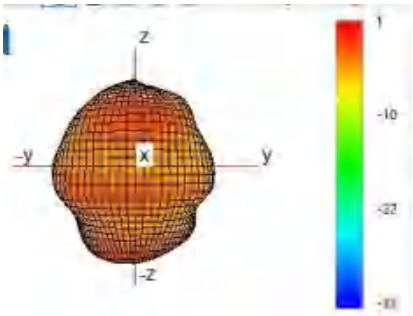
Freq(MHz)	Gain(dBi)	Efficiency(%	Efficienc (dB)
2220	1.0	35.2	-4.5
2240	1.0	36.9	-4.3
2260	0.7	35.8	-4.5
2280	0.5	35.2	-4.5
2300	0.3	33.7	-4.7
2320	-0.1	31.6	-5.0
2340	-0.5	30.5	-5.2
2360	-0.5	30.3	-5.2
2380	-0.5	29.4	-5.3
2400	-0.4	30.5	-5.2
2420	-0.6	30.1	-5.2
2440	-0.8	31.3	-5.0
2460	-1.1	32.1	-4.9
2480	-1.6	28.9	-5.4
2500	-2.0	27.7	-5.6
2520	-2.1	27.0	-5.7
2540	-2.2	26.5	-5.8
2560	-2.2	26.5	-5.8
2580	-2.1	27.2	-5.7
2600	-2.0	28.1	-5.5
2620	-2.0	28.1	-5.5
2640	-2.0	27.4	-5.6
2660	-2.2	26.7	-5.7
2680	-2.2	26.3	-5.8
2700	-2.1	26.7	-5.7


z
-y
x
y
-z
1
-13
-28
-42





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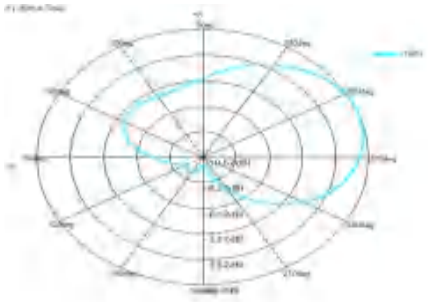
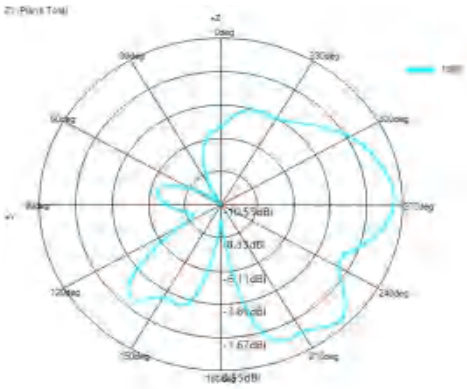
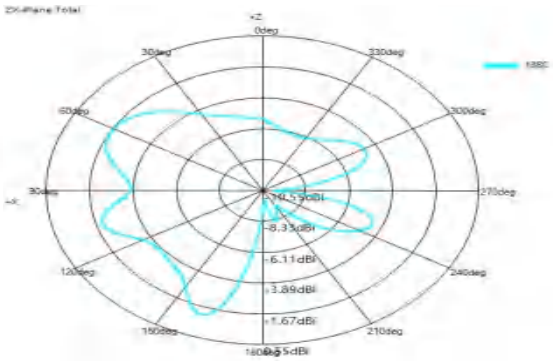
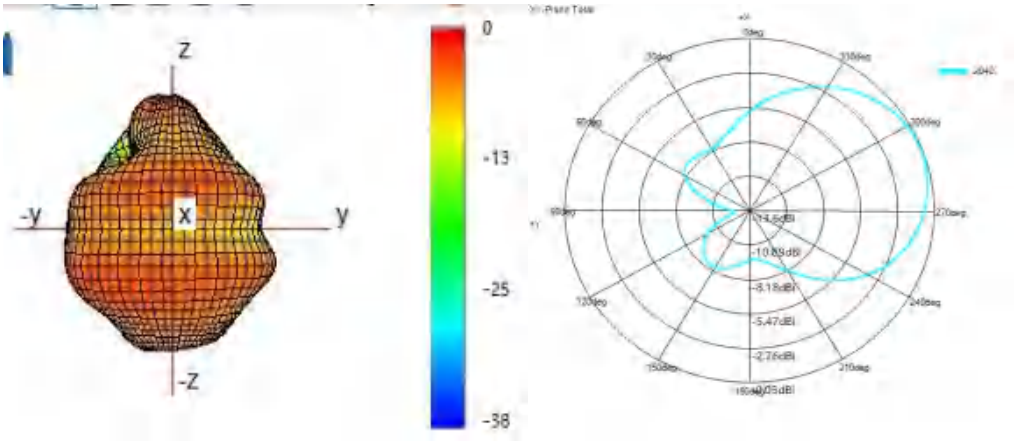
-y
x
y
-z
1
-10
-22
-33





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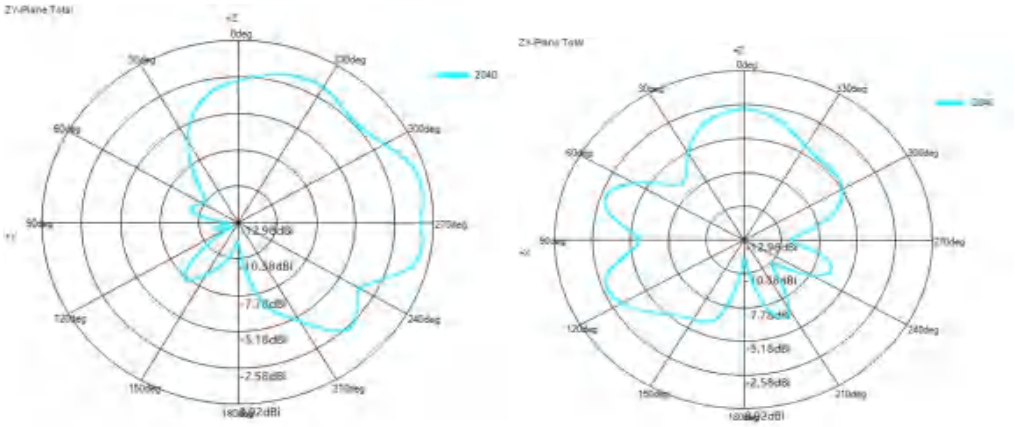
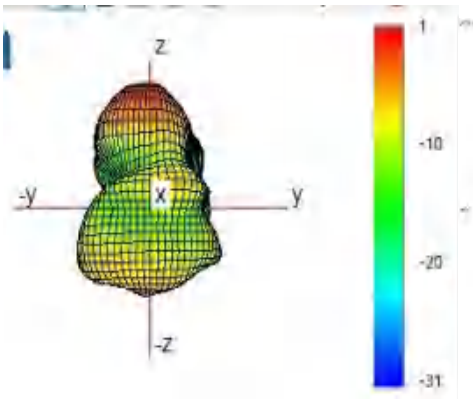
-y
x
y
-z
0
-13
-25
-38

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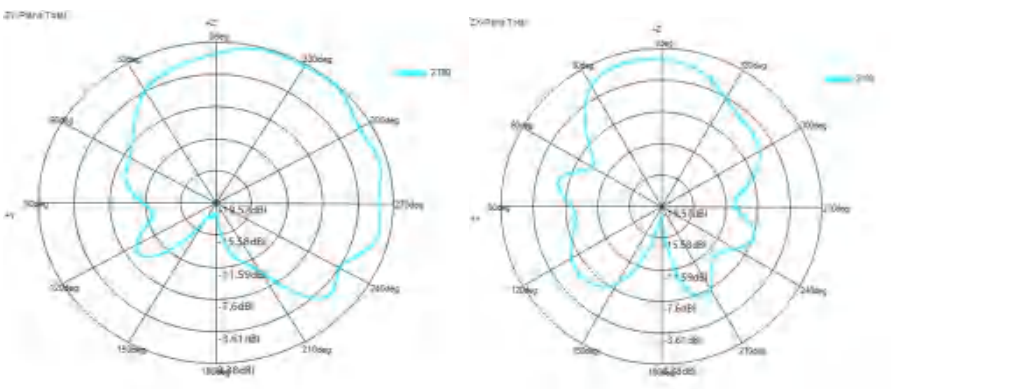
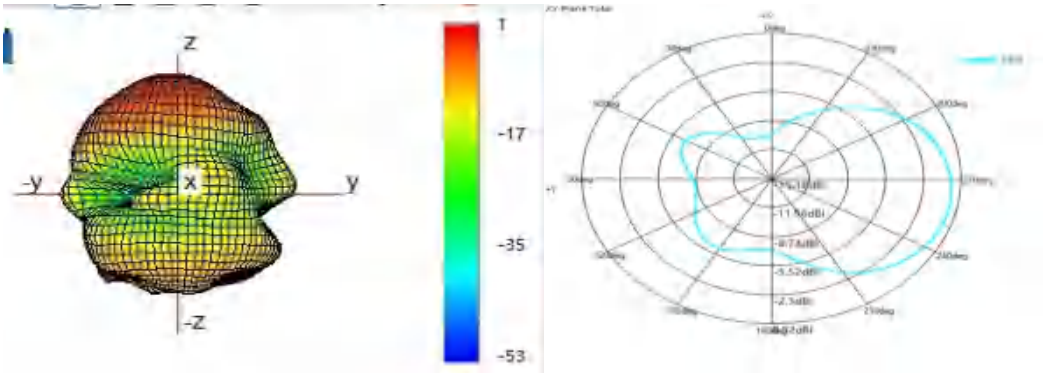
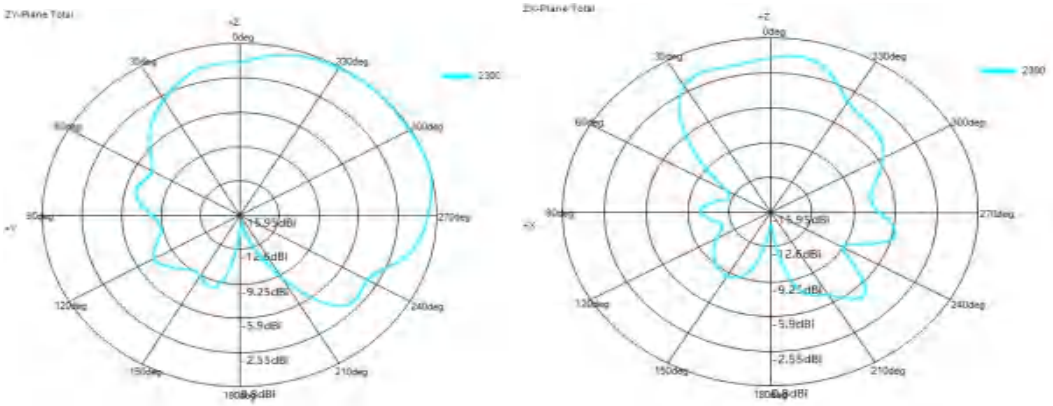
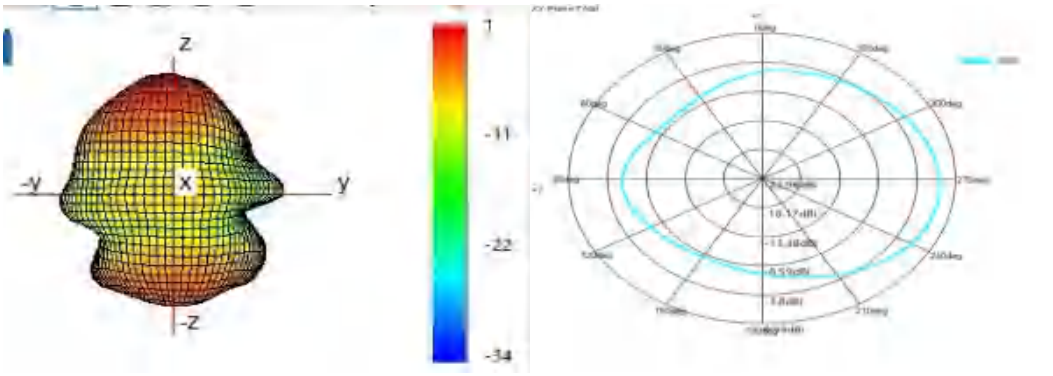
x
y
-z
1
-10
-20
-31




z
-y
x
y
-z
-17
-35
-53


ZY-Plane Total
ZX-Plane Total
0deg
30deg
60deg
90deg
120deg
150deg
180deg
210deg
240deg
270deg
300deg
330deg
-5.95dBi
-12.6dBi
-9.25dBi
-5.9dBi
-2.55dBi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x
y
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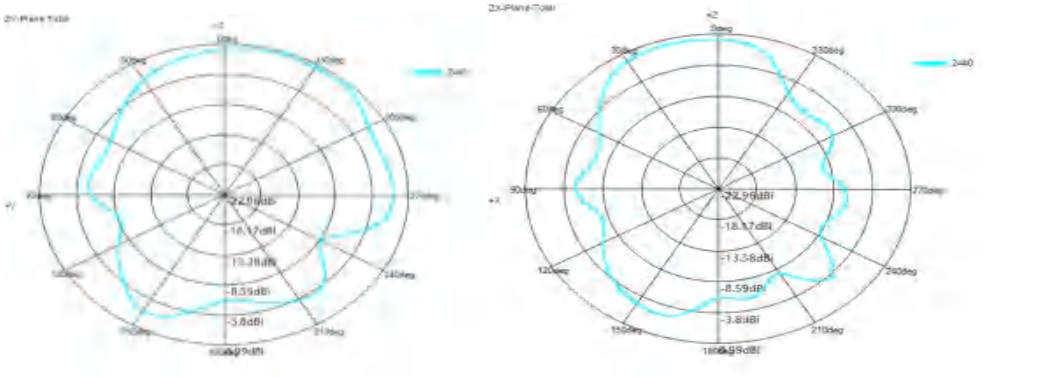
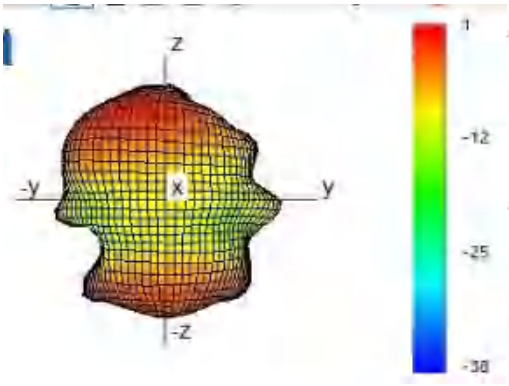
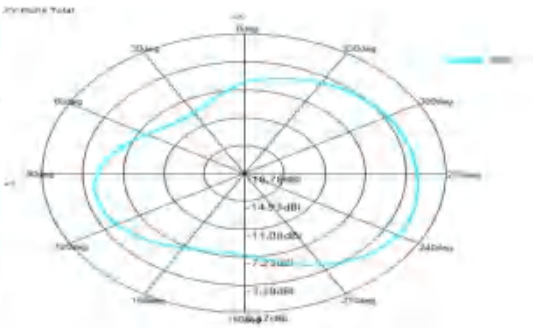
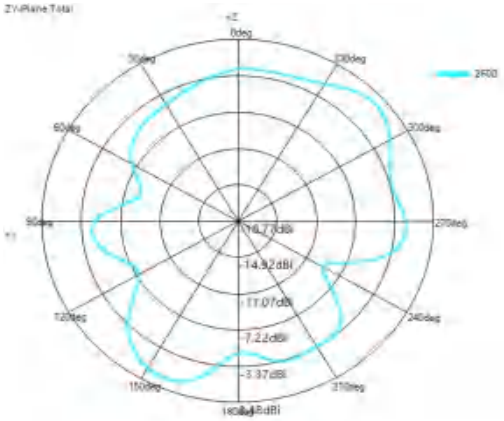
-11
-22
-34


ZY-Plane Total
ZX-Plane Total
-22.99dBi
-18.17dBi
-13.38dBi
-8.59dBi
-3.8dBi


z
-y
x
y
-z
-12
-25
-38




ZY-Plane Total
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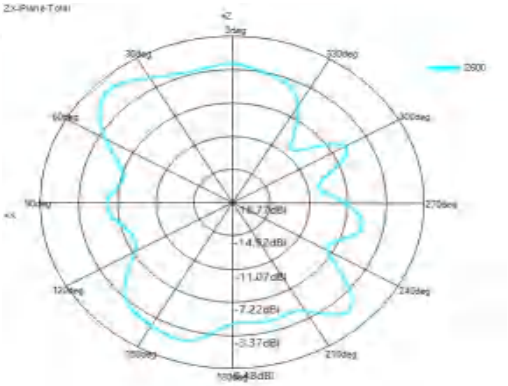
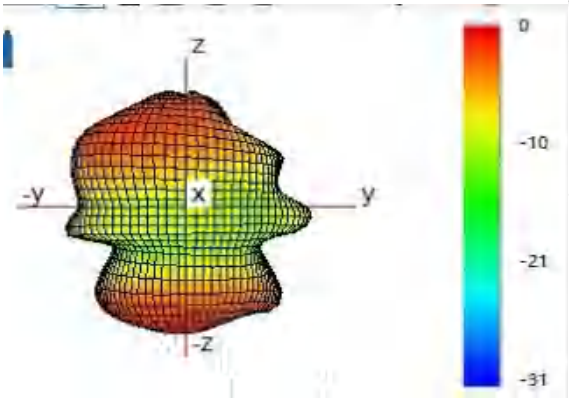
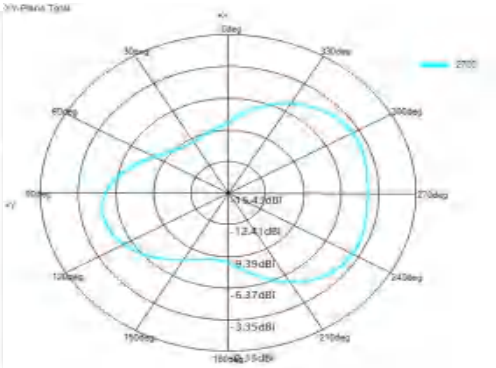
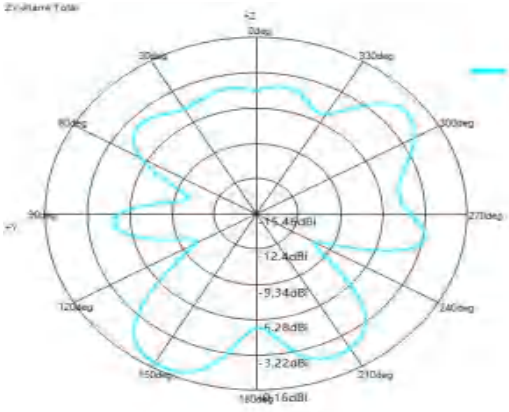
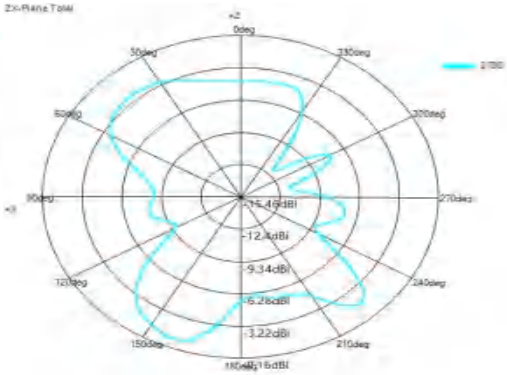
-14.92dBi
-11.07dBi
-7.22dBi
-3.37dBi


ZX-Plane Total
2600
-14.92dBi
-11.07dBi
-7.22dBi
-3.37dBi


z
-y
x
y
-z
0
-10
-21
-31


2700
-12.41dBi
-9.39dBi
-6.37dBi
-3.35dBi


2700
-12.4dBi
-9.34dBi
-6.28dBi
-3.22dBi


2700
-12.4dBi
-9.34dBi
-6.28dBi
-3.22dBi

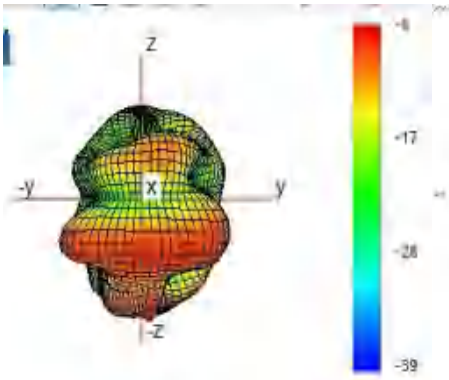
四、 ANT2 antenna Test Data

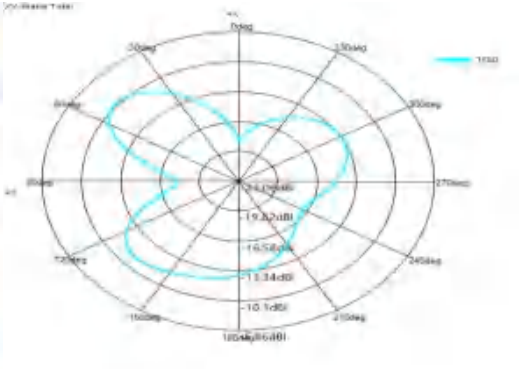
4.1 ANT2Passive Efficiency Data & Gain

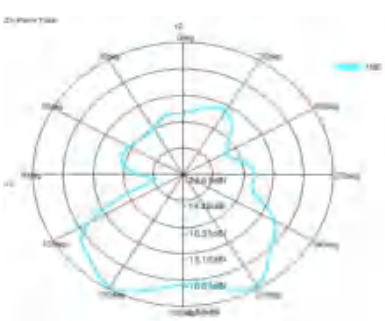
Freq(MHz)	Gain(dBi)	Efficiency(%)	Efficienc (dB)
1800	-10.7	3.6	-14.5
1820	-10.4	3.9	-14.1
1840	-10.1	4.1	-13.9
1860	-9.9	4.3	-13.7
1880	-9.4	4.7	-13.3
1900	-8.8	5.3	-12.8
1920	-8.3	5.7	-12.5
1940	-7.8	6.0	-12.2
1960	-7.0	6.8	-11.7
1980	-6.3	7.7	-11.1
2000	-5.2	8.5	-10.7
2020	-4.1	9.6	-10.2
2040	-3.2	10.7	-9.7
2060	-2.7	11.4	-9.4
2080	-2.5	11.4	-9.4
2100	-2.4	11.6	-9.4
2120	-1.9	13.0	-8.9
2140	-1.6	14.0	-8.6
2160	-1.4	14.1	-8.5
2180	-1.2	14.9	-8.3
2200	-0.7	16.7	-7.8
2220	-0.6	17.7	-7.5
2240	-0.7	18.1	-7.4
2260	-1.1	17.4	-7.6
2280	-1.3	17.5	-7.6
2300	-1.5	17.5	-7.6

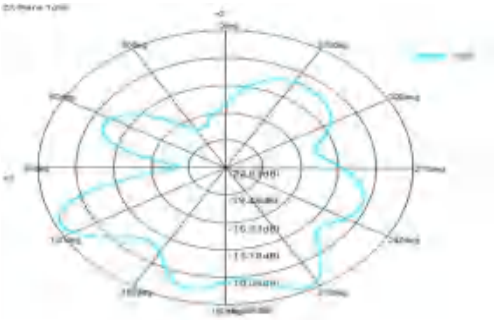
Freq(MHz)	Gain(dBi)	Efficiency(%	Efficienc (dB)
2320	-1.7	17.5	-7.6
2340	-1.6	18.1	-7.4
2360	-1.4	19.7	-7.1
2380	-0.9	21.3	-6.7
2400	-0.3	23.7	-6.3
2420	-0.5	22.7	-6.4
2440	-1.7	20.4	-6.9
2460	-2.1	20.3	-6.9
2480	-2.1	20.7	-6.8
2500	-1.8	22.1	-6.6
2520	-1.6	23.3	-6.3
2540	-1.6	24.1	-6.2
2560	-1.3	24.8	-6.1
2580	-0.8	26.7	-5.7
2600	-0.5	28.2	-5.5
2620	-0.3	28.1	-5.5
2640	-0.2	25.4	-6.0
2660	-1.0	21.2	-6.7
2680	-1.5	20.0	-7.0
2700	-1.4	21.2	-6.7

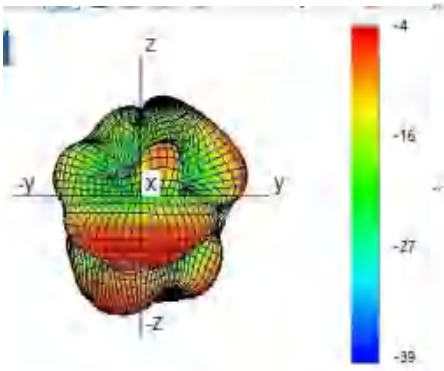
Freq(MHz)	Gain(dBi)	Efficiency(%	Efficienc (dB)
3300	0.6	32.5	-4.9
3350	0.3	30.7	-5.1
3400	-1.7	21.3	-6.7
3450	-2.8	17.5	-7.6
3500	-2.6	17.9	-7.5
3550	-3.1	19.4	-7.1
3600	-4.7	21.0	-6.8
3650	-5.4	18.6	-7.3
3700	-5.1	19.6	-7.1
3750	-5.5	18.6	-7.3
3800	-7.1	13.2	-8.8
3850	-8.6	11.3	-9.5
3900	-9.1	10.9	-9.6
3950	-9.5	10.0	-10.0
4000	-9.7	8.2	-10.9
4050	-9.8	8.2	-10.8
4100	-8.7	9.4	-10.3
4150	-8.8	9.1	-10.4
4200	-8.4	8.5	-10.7


z
-y
x
y
-z
-6
-17
-28
-39





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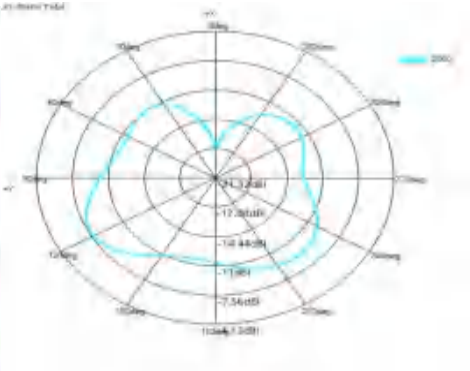
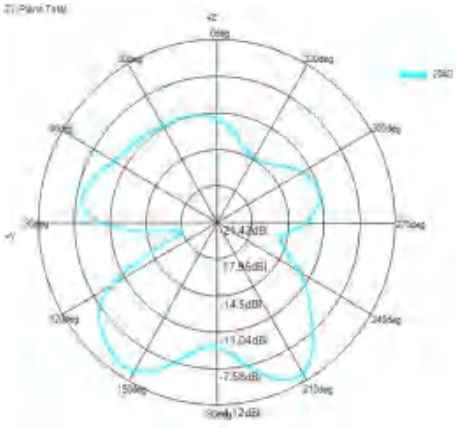
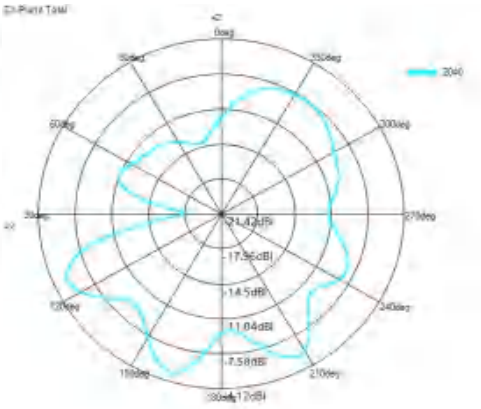
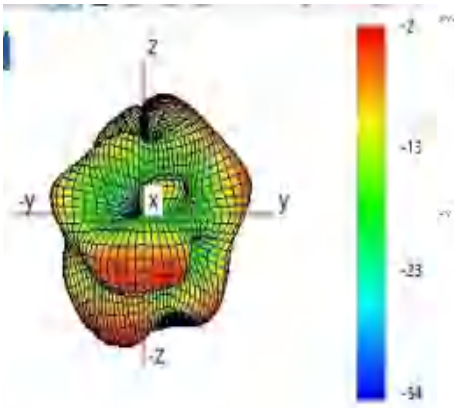
-y
x
y
-z
-4
-16
-27
-39





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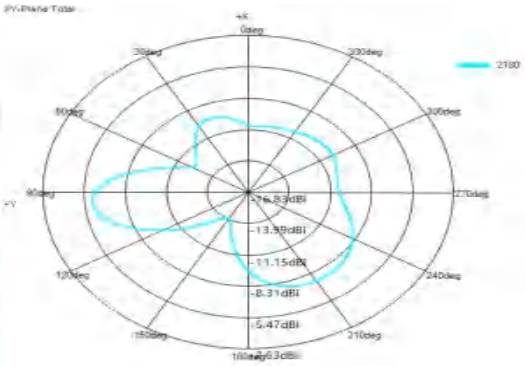
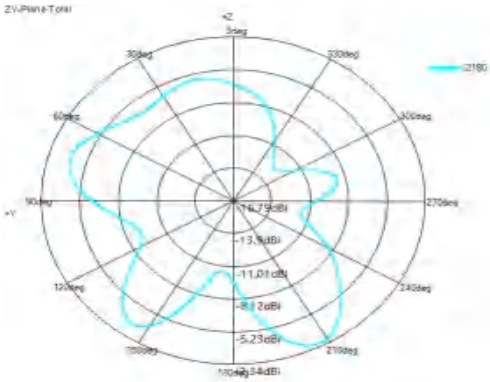
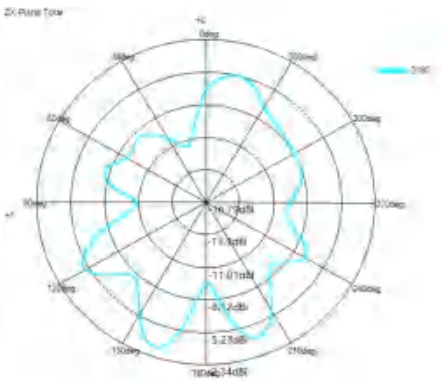
-y
y
x
-z
-2
-13
-23
-34


YZ-Plane Total
+X
0deg
30deg
330deg
60deg
300deg
90deg
270deg
120deg
240deg
150deg
210deg
180deg
2180
-16.83dBi
-13.99dBi
-11.15dBi
-8.31dBi
-5.47dBi
-2.63dBi


ZY-Plane Total
+Z
0deg
30deg
330deg
60deg
300deg
90deg
270deg
120deg
240deg
150deg
210deg
180deg
2180
-16.79dBi
-13.95dBi
-11.01dBi
-8.12dBi
-5.23dBi
-2.34dBi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+Z
0deg
30deg
330deg
60deg
300deg
90deg
270deg
120deg
240deg
150deg
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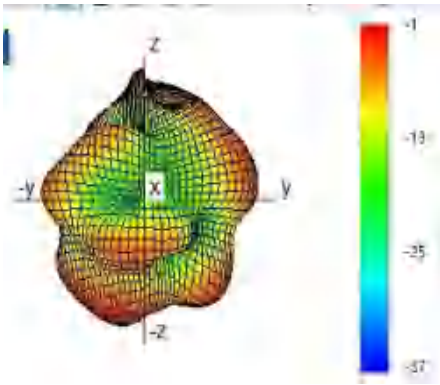
-13.95dBi
-11.01dBi
-8.12dBi
-5.23dBi
-2.34dBi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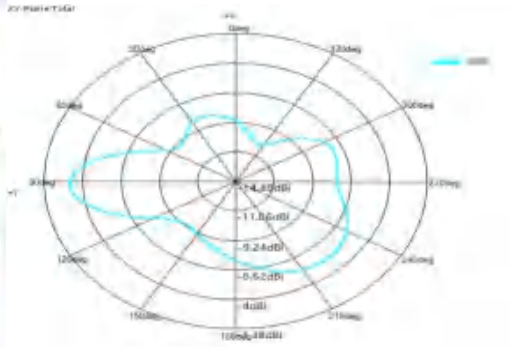
-y
y
x
-z
-1
-13
-35
-57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90deg
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150deg
210deg
180deg
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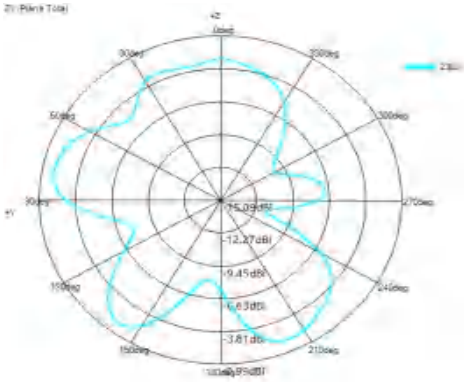
-11.66dBi
-8.84dBi
-6.02dBi
-3.19dBi
-0.37dBi


ZY-Plane Total
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-12.27dBi
-9.45dBi
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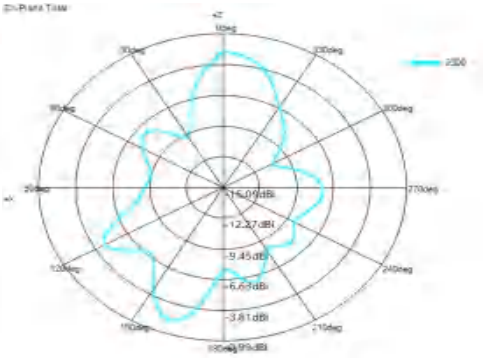
-0.99dBi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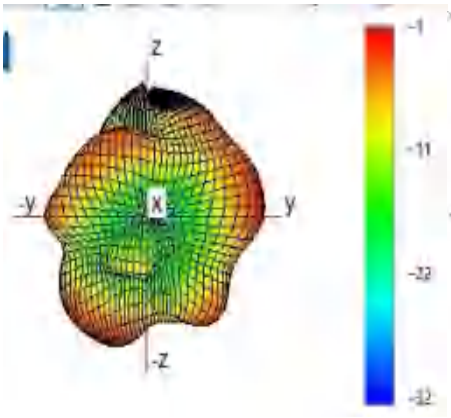
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-z
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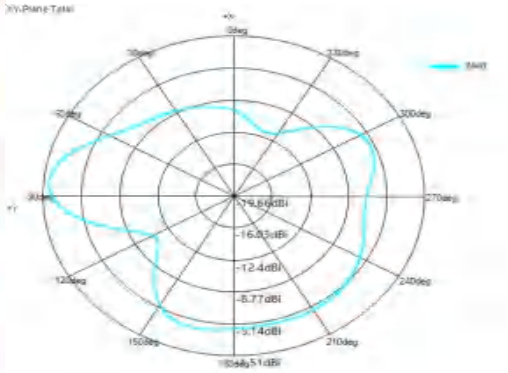
-11
-22
-32


XY-Plane-Total
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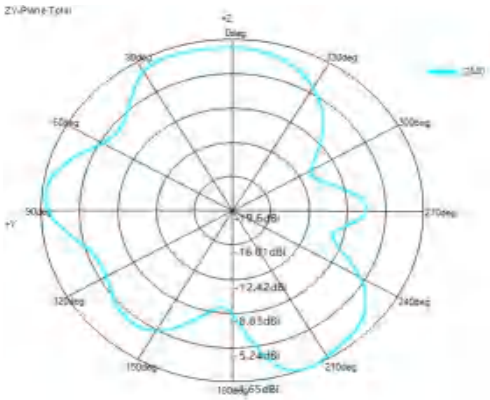
30deg
330deg
60deg
300deg
90deg
270deg
120deg
240deg
150deg
210deg
180deg
-19.6dBi
-16.03dBi
-12.4dBi
-8.77dBi
-5.14dBi
-1.51dBi


ZX-Plane-Total
0deg
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120deg
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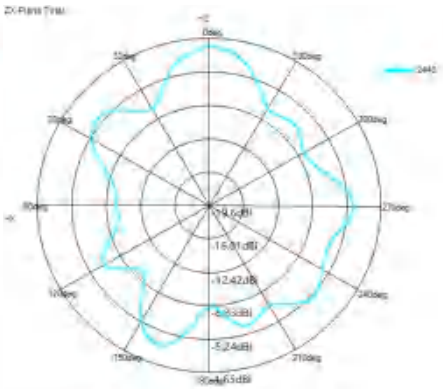
-5.24dBi
-1.65dBi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-8.83dBi
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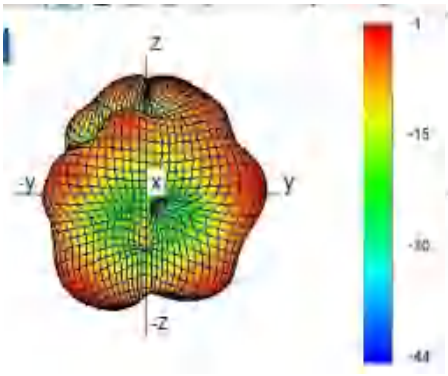
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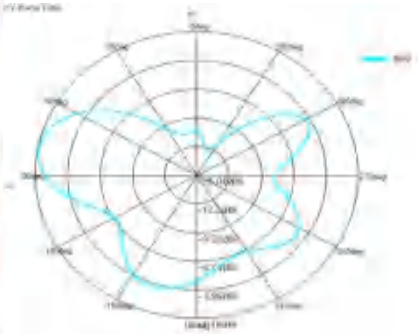
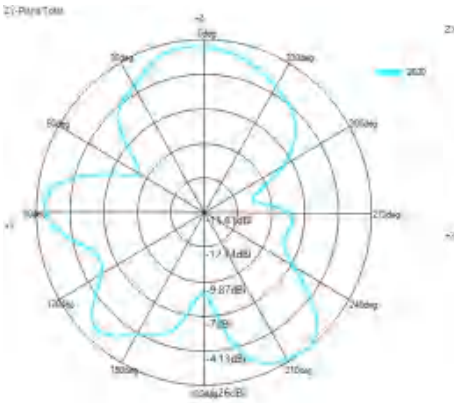
y
x
-z
-1
-15
-30
-44




ZX-Plane-Total
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60deg
300deg
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270deg
120deg
240deg
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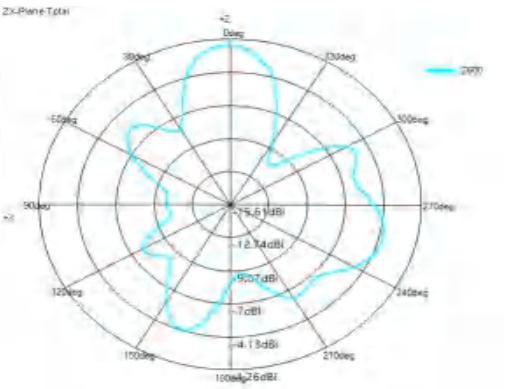
-11.04dBi
-7.48dBi
-3.91dBi
-0.34dBi
3.23dBi


ZX-Plane-Total
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300deg
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270deg
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-5.8dBi
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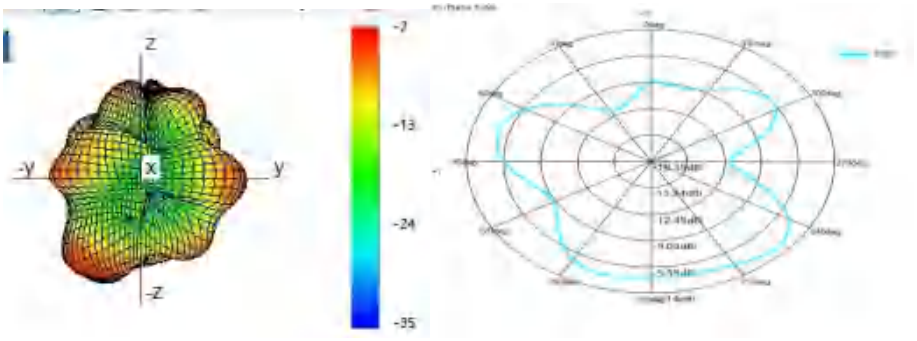
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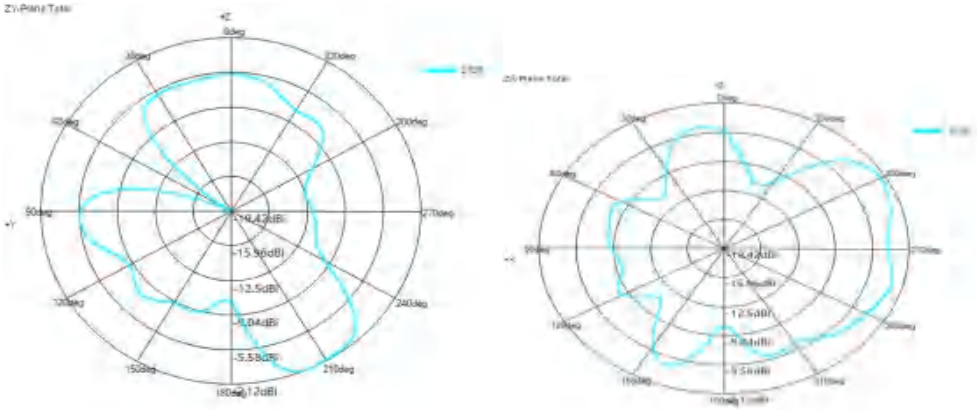
-y
y
x
-z
-7
-13
-24
-35


ZY-Plane Total
+Z
0deg
30deg
330deg
60deg
300deg
90deg
270deg
120deg
240deg
150deg
210deg
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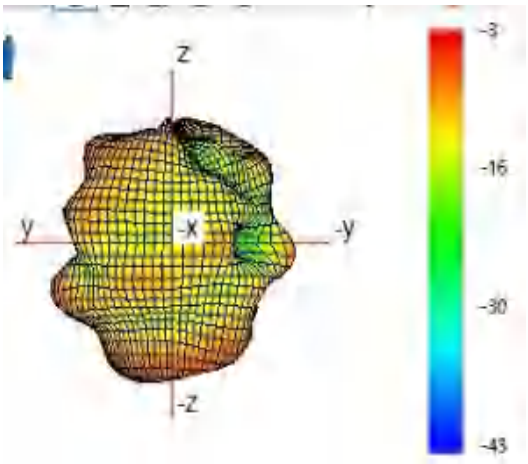
-15.96dBi
-12.5dBi
-5.58dBi
-12dBi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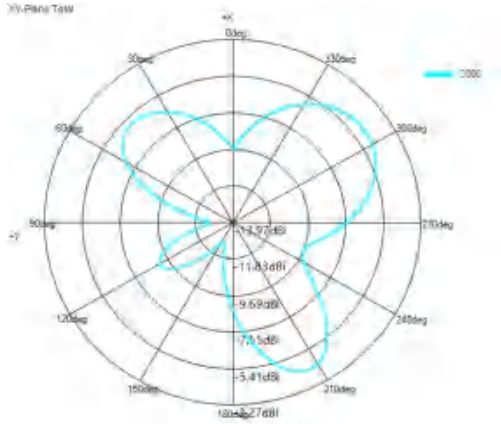
y
-x
-y
-z
-3
-16
-30
-43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-9.69dBi
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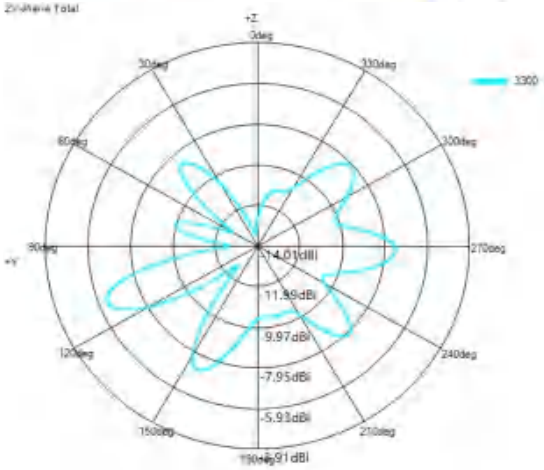
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+Z
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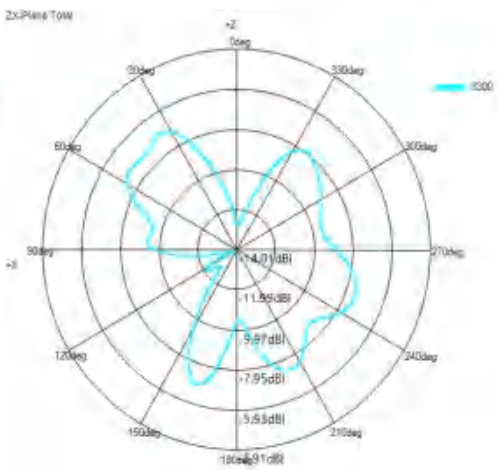
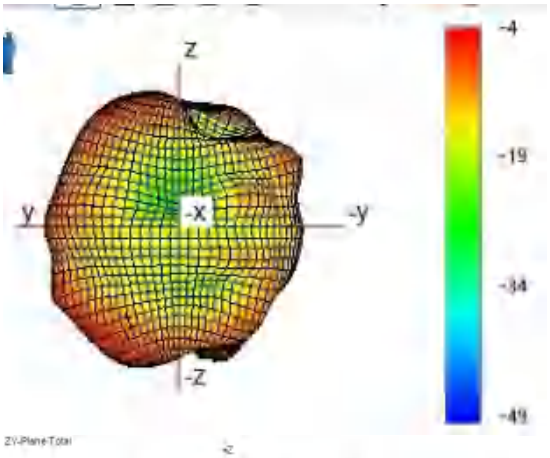
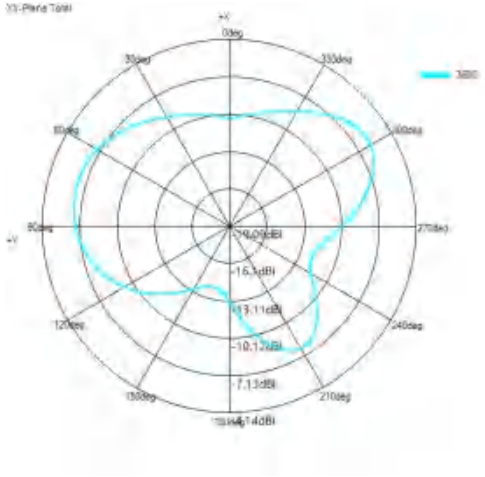
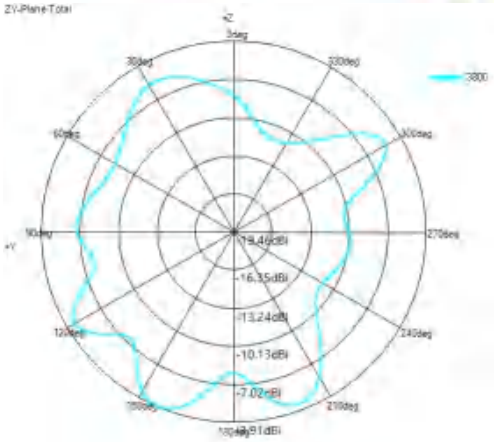
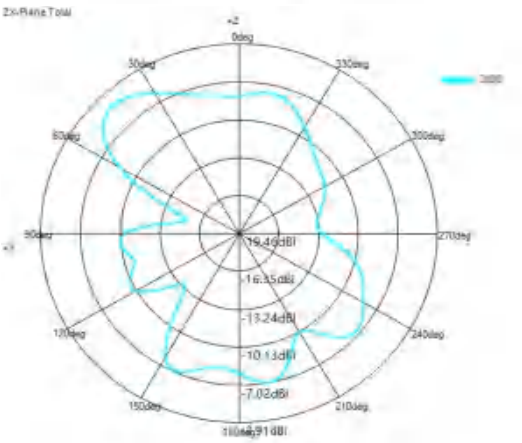
-91dBi

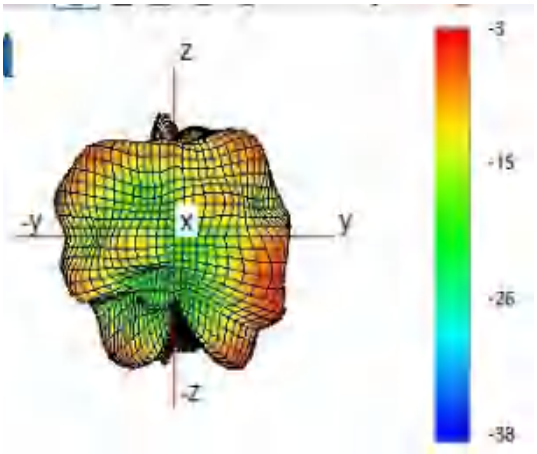

ZX-Plane Total
+Z
0deg
30deg
330deg
60deg
300deg
90deg
270deg
120deg
240deg
150deg
210deg
180deg
-14.01dBi
-11.89dBi
9.97dBi
-7.95dBi
-5.93dBi
-91dBi


z
y
-x
-y
-z
-4
-19
-34
-49


YX-Plane Total
+X
0deg
30deg
330deg
60deg
300deg
+Y
90deg
270deg
120deg
240deg
150deg
210deg
180deg
-16.3dBi
-13.11dBi
-10.12dBi
-7.13dBi
-4.14dBi


ZY-Plane Total
+Z
0deg
30deg
330deg
60deg
300deg
+Y
90deg
270deg
120deg
240deg
150deg
210deg
180deg
-16.35dBi
-13.24dBi
-10.13dBi
-7.02dBi
-3.91dBi


ZX-Plane Total
+Z
0deg
30deg
330deg
60deg
300deg
-X
90deg
270deg
120deg
240deg
150deg
210deg
180deg
-16.35dBi
-13.24dBi
-10.13dBi
-7.02dBi
-3.91dBi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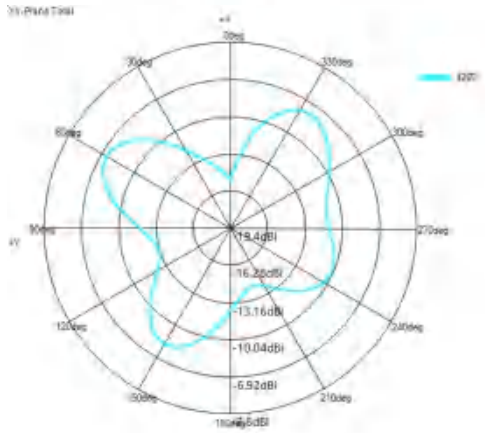
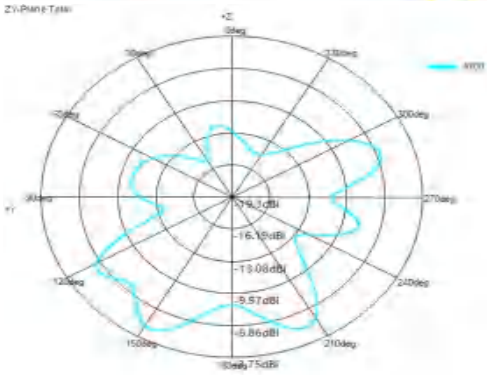
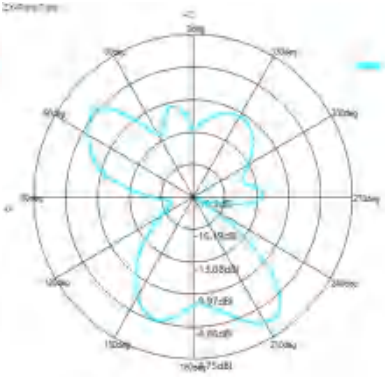
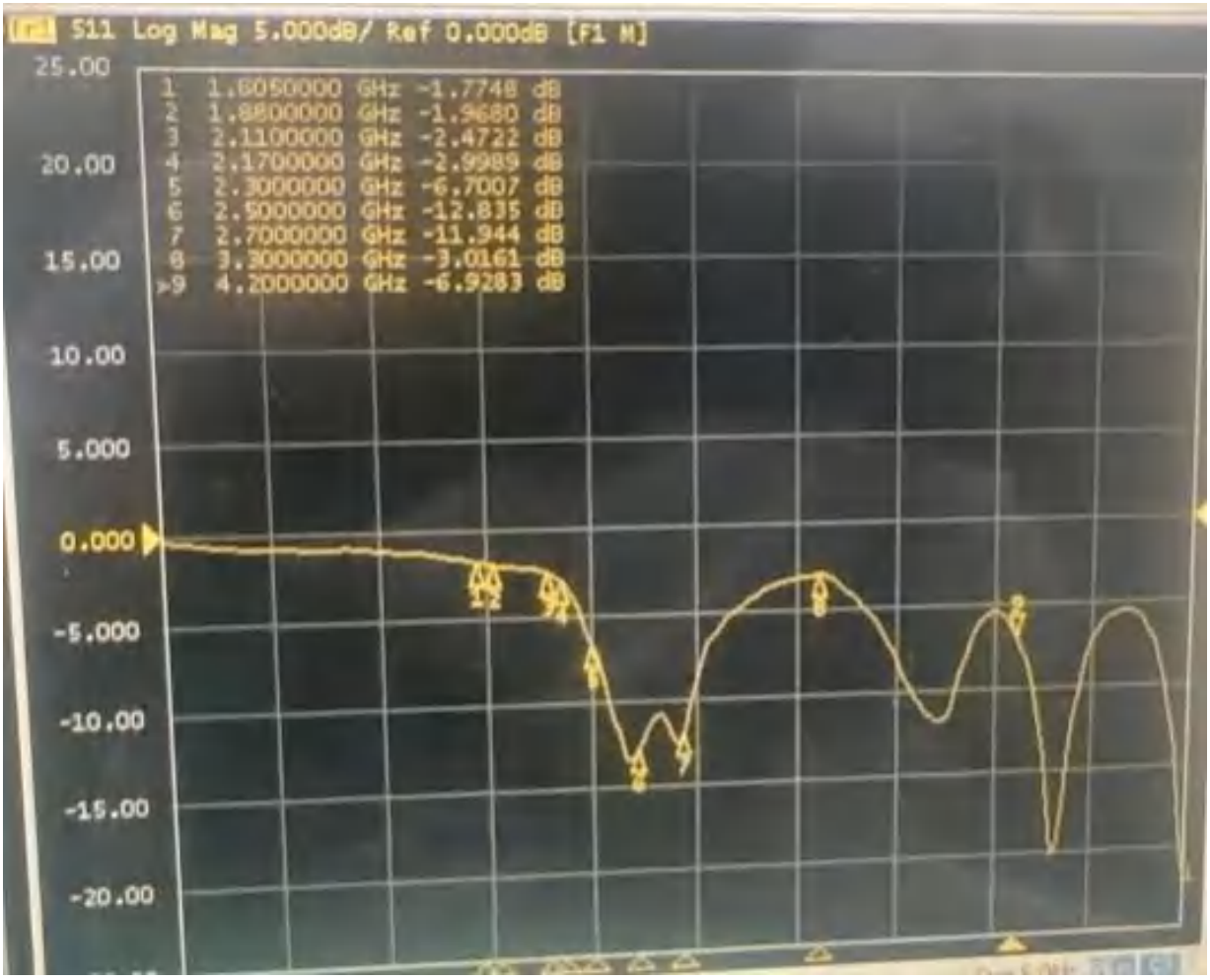
-y
x
y
-z
-3
-15
-26
-38


YX-Plane Total
+X
0deg
30deg
330deg
60deg
300deg
+Y
90deg
270deg
120deg
240deg
150deg
210deg
180deg
-16.28dBi
-13.16dBi
-10.04dBi
-6.92dBi


ZY-Plane Total
+Z
0deg
30deg
330deg
60deg
300deg
+Y
90deg
270deg
120deg
240deg
150deg
210deg
180deg
-16.15dBi
-13.08dBi
-9.97dBi
-6.86dBi


ZX-Plane Total
+Z
0deg
30deg
330deg
60deg
300deg
-X
90deg
270deg
120deg
240deg
150deg
210deg
180deg
-16.15dBi
-13.08dBi
-9.97dBi
-6.86dBi

五、ANT3 antenna Test Data



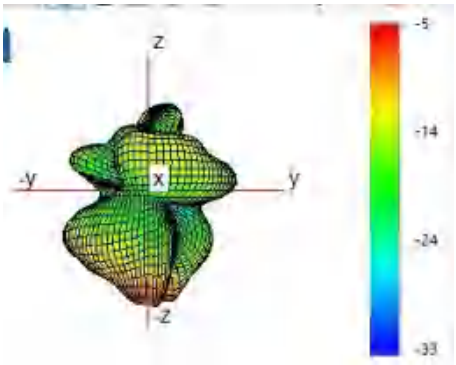
5.1 ANT3 Passive Efficiency Data & Gain

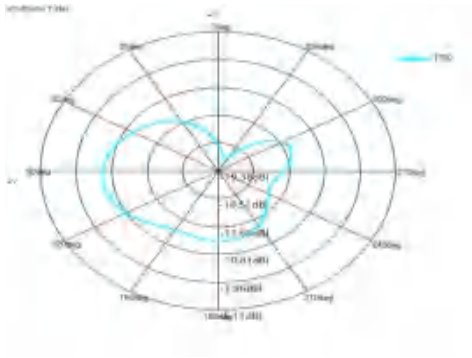
Freq(MHz)	Gain(dBi)	Efficiency(%)	Efficienc (dB)
1700	-10.0	3.7	-14.3
1720	-9.6	3.8	-14.2
1740	-9.1	4.1	-13.9
1760	-8.7	4.3	-13.6
1780	-8.5	4.5	-13.5
1800	-8.2	4.8	-13.2
1820	-7.6	5.5	-12.6
1840	-7.3	6.1	-12.2
1860	-6.9	6.7	-11.7
1880	-6.5	7.6	-11.2
1900	-5.5	9.2	-10.4
1920	-4.6	10.2	-9.9
1940	-4.2	10.7	-9.7
1960	-3.9	11.8	-9.3
1980	-3.8	12.2	-9.1
2000	-3.9	11.8	-9.3
2020	-3.6	11.9	-9.2
2040	-3.0	12.9	-8.9
2060	-2.4	14.0	-8.5
2080	-2.1	14.8	-8.3
2100	-1.8	15.5	-8.1
2120	-1.4	17.4	-7.6
2140	-1.1	18.5	-7.3
2160	-1.0	18.6	-7.3
2180	-0.8	19.6	-7.1
2200	-0.2	22.1	-6.6

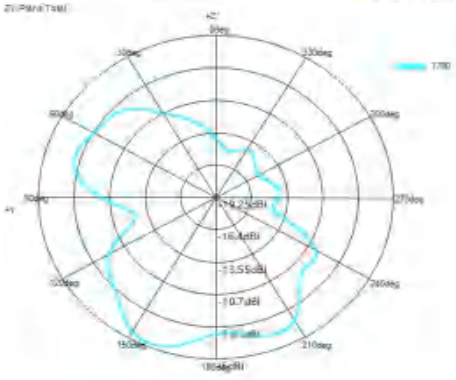
Freq(MHz)	Gain(dBi)	Efficiency(%	Efficienc (dB)
2220	0.2	23.7	-6.3
2240	0.4	25.1	-6.0
2260	0.3	25.4	-6.0
2280	0.2	26.4	-5.8
2300	0.2	26.6	-5.8
2320	0.1	26.5	-5.8
2340	0.0	27.5	-5.6
2360	-0.1	29.6	-5.3
2380	-0.4	30.4	-5.2
2400	-0.1	33.6	-4.7
2420	0.1	35.8	-4.5
2440	0.2	36.4	-4.4
2460	0.1	36.4	-4.4
2480	0.1	35.2	-4.5
2500	0.2	35.8	-4.5
2520	0.3	36.8	-4.3
2540	0.4	37.5	-4.3
2560	0.4	38.0	-4.2
2580	0.5	38.8	-4.1
2600	0.8	38.9	-4.1
2620	0.9	37.8	-4.2
2640	0.8	35.5	-4.5
2660	0.8	33.6	-4.7
2680	0.6	32.8	-4.8
2700	0.7	33.0	-4.8

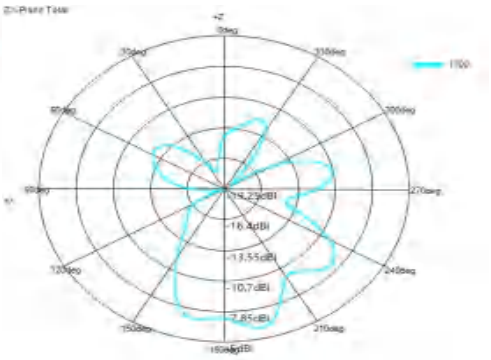
Freq(MHz)	Gain(dBi)	Efficiency(%)	Efficienc (dB)
3300	-3.5	16.0	-8.0
3320	-3.0	17.4	-7.6
3340	-2.6	17.8	-7.5
3360	-1.9	19.3	-7.2
3380	-1.9	19.1	-7.2
3400	-2.0	18.1	-7.4
3420	-1.7	18.2	-7.4
3440	-1.8	17.3	-7.6
3460	-0.9	20.9	-6.8
3480	-0.5	22.8	-6.4
3500	0.0	25.2	-6.0
3520	0.7	29.0	-5.4
3540	0.7	29.3	-5.3
3560	0.9	30.1	-5.2
3580	0.7	29.0	-5.4
3600	0.2	26.1	-5.8
3620	0.5	28.0	-5.5
3640	0.5	28.5	-5.5
3660	1.0	31.6	-5.0
3680	1.5	36.8	-4.3
3700	1.8	39.4	-4.0

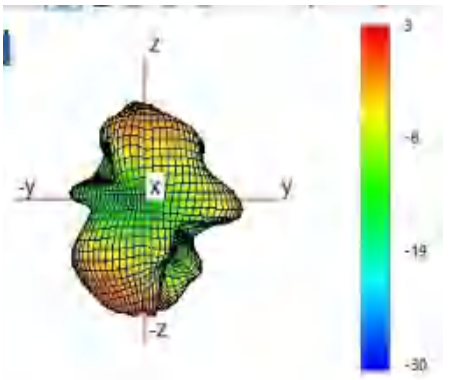
Freq(MHz)	Gain(dBi)	Efficiency(%)	Efficienc (dB)
3720	2.3	44.7	-3.5
3740	2.4	45.2	-3.5
3760	2.0	42.9	-3.7
3780	2.0	44.1	-3.6
3800	1.5	39.7	-4.0
3820	1.3	38.2	-4.2
3840	1.2	38.7	-4.1
3860	0.9	36.8	-4.3
3880	1.1	40.1	-4.0
3900	0.7	37.4	-4.3
3920	0.6	38.4	-4.2
3940	0.3	37.4	-4.3
3960	-0.2	32.9	-4.8
3980	-0.4	30.0	-5.2
4000	-0.8	28.3	-5.5
4020	-1.1	26.5	-5.8
4040	-1.0	28.2	-5.5
4060	-1.3	27.9	-5.5
4080	-1.0	30.2	-5.2
4100	-0.7	33.7	-4.7
4120	-0.9	33.9	-4.7
4140	-0.6	35.9	-4.5
4160	-0.8	34.5	-4.6
4180	-0.8	33.5	-4.8
4200	-0.6	33.8	-4.7

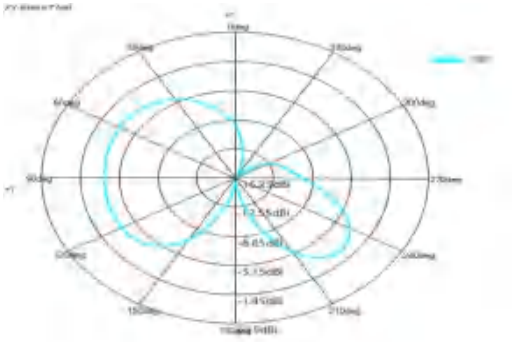

z
-y
x
y
-z
-5
-14
-24
-33

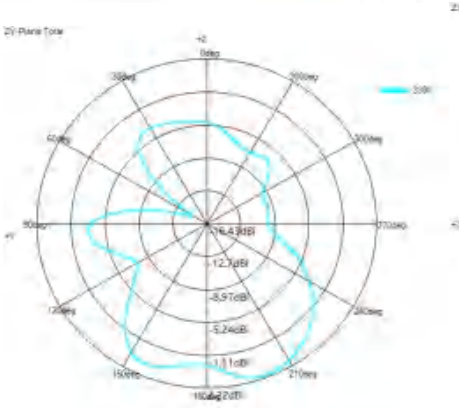


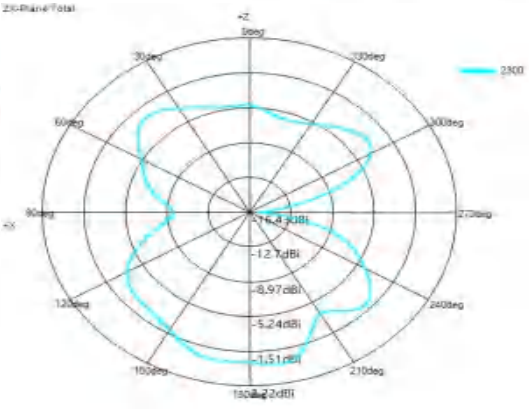


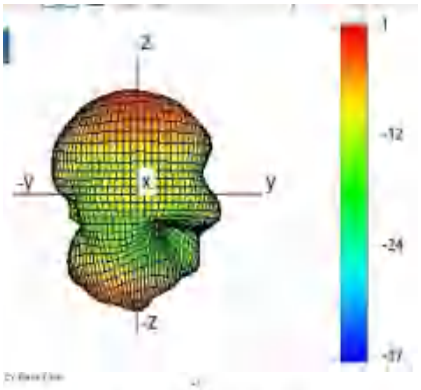


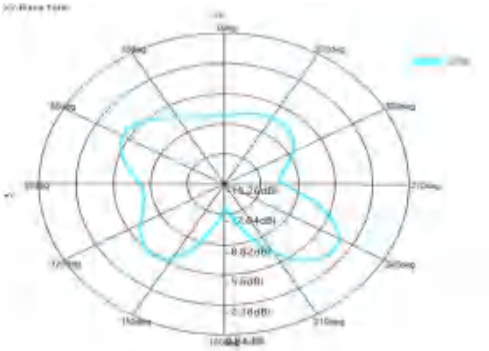

z
-y
x
y
-z
3
-8
-19
-30

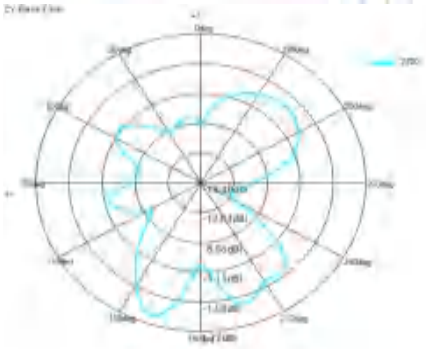


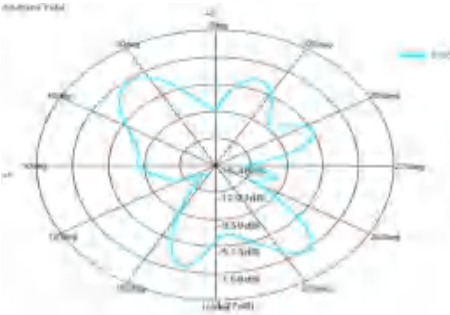


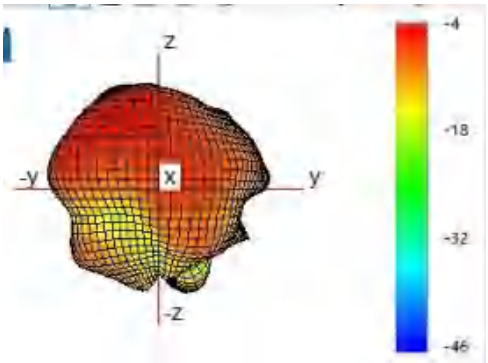



z
-y
y
x
-z
1
-12
-24
-37





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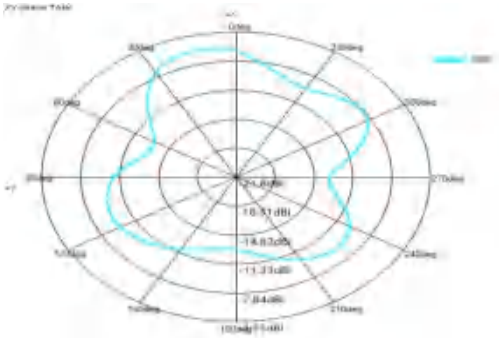
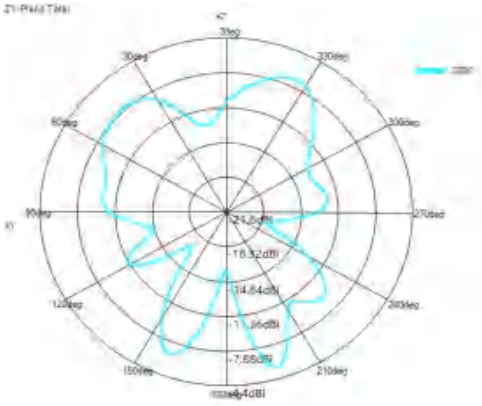
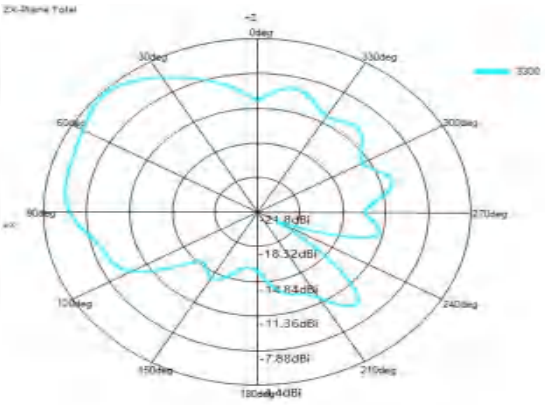
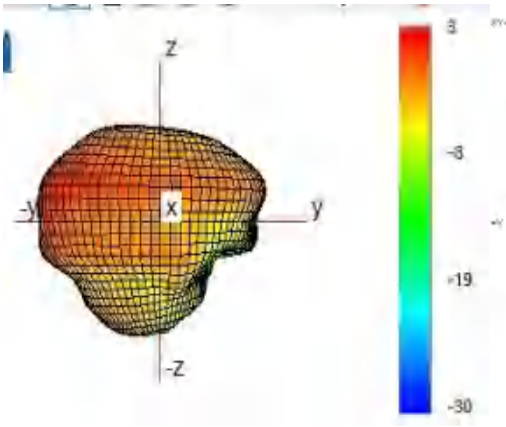
-y
y
x
-z
-4
-18
-32
-46








z
-y
x
y
-z
3
-8
-19
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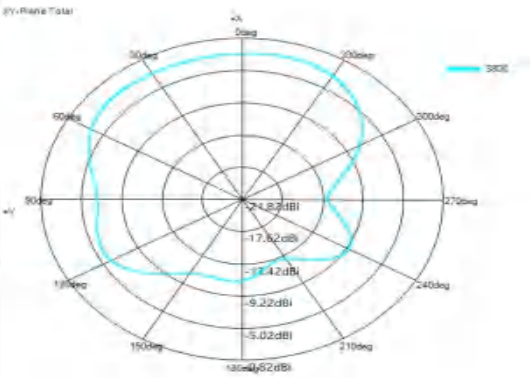
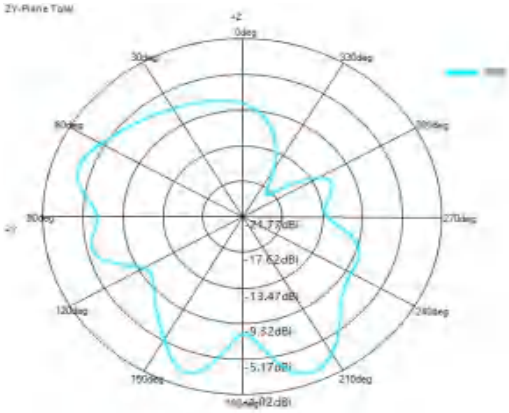

ZY-Plane Total
+A
0deg
30deg
330deg
60deg
300deg
90deg
270deg
120deg
240deg
150deg
210deg
180deg
-24.82dBi
-17.62dBi
-13.42dBi
-9.22dBi
-5.02dBi
-0.82dBi


ZY-Plane Total
+Z
0deg
30deg
330deg
60deg
300deg
90deg
270deg
120deg
240deg
150deg
210deg
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-24.77dBi
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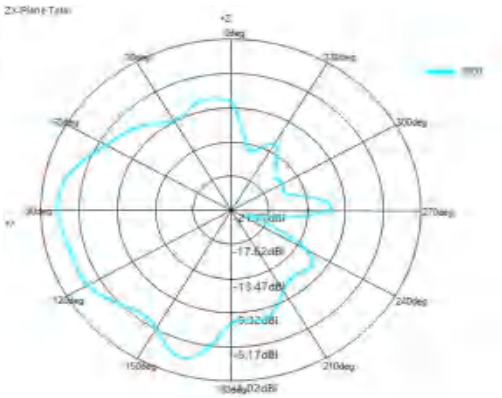
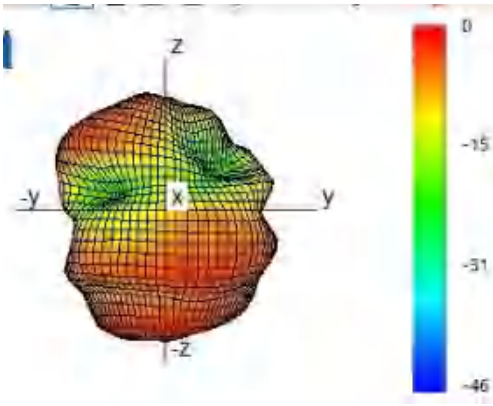
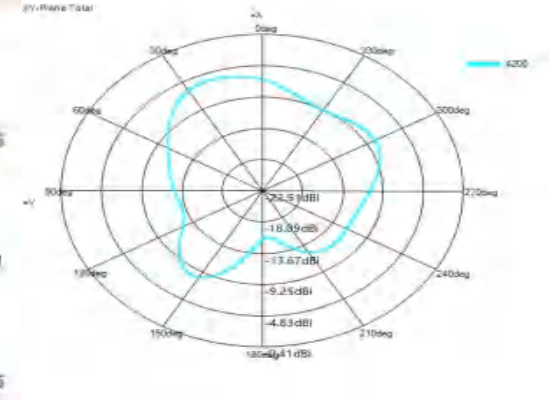
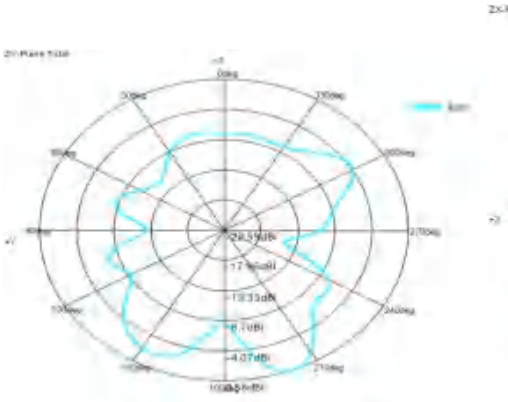
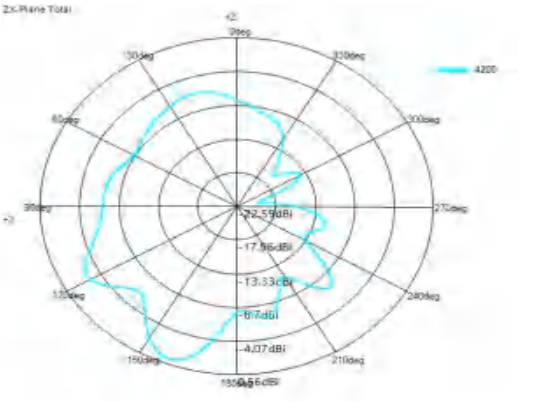
-9.32dBi
-5.17dBi
-1.02dBi


ZX-Plane Total
+Z
0deg
30deg
330deg
60deg
300deg
90deg
270deg
120deg
240deg
150deg
210deg
180deg
-17.62dBi
-13.47dBi
-5.17dBi


z
-y
x
y
-z
0
-15
-31
-46


ZY-Plane Total
+A
0deg
30deg
330deg
60deg
300deg
90deg
270deg
120deg
240deg
150deg
210deg
180deg
-22.51dBi
-18.39dBi
-13.67dBi
-9.25dBi
-4.83dBi
-0.41dBi


ZY-Plane Total
+Z
0deg
30deg
330deg
60deg
300deg
90deg
270deg
120deg
240deg
150deg
210deg
180deg
-24.51dBi
-17.96dBi
-13.33dBi
-8.7dBi
-4.07dBi
0.56dBi


ZX-Plane Total
+Z
0deg
30deg
330deg
60deg
300deg
90deg
270deg
120deg
240deg
150deg
210deg
180deg
-22.59dBi
-17.96dBi
-13.33dBi
-8.7dBi
-4.07dBi
0.56dBi

六、ANT4 antenna Test Data

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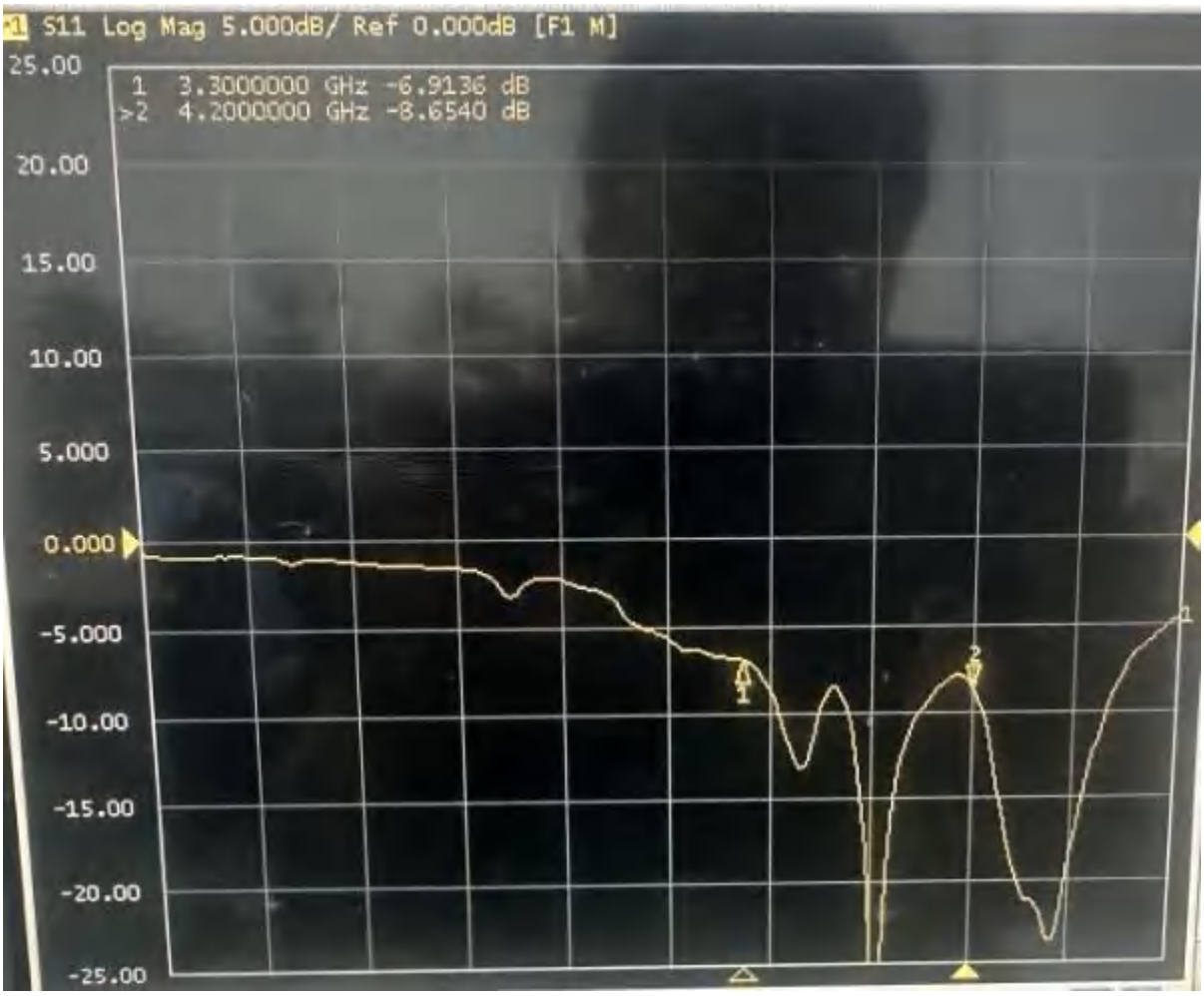
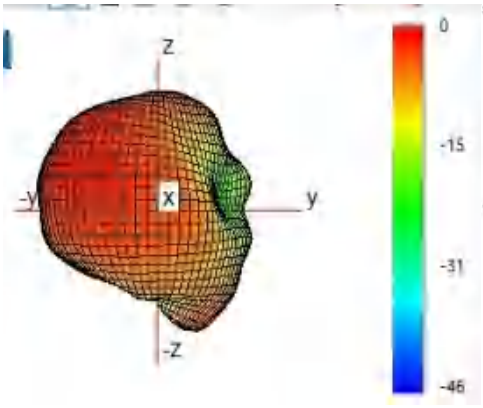
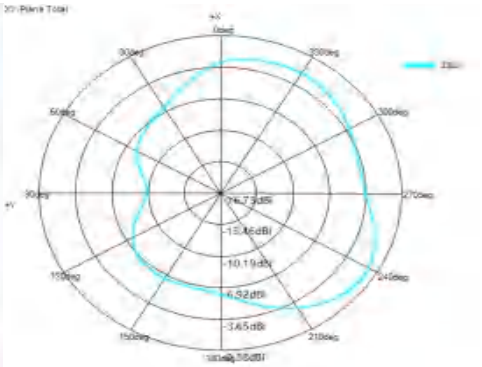


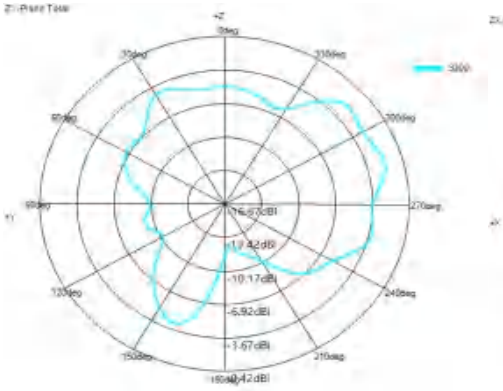
6.1 ANT4Passive Efficiency Data & Gain

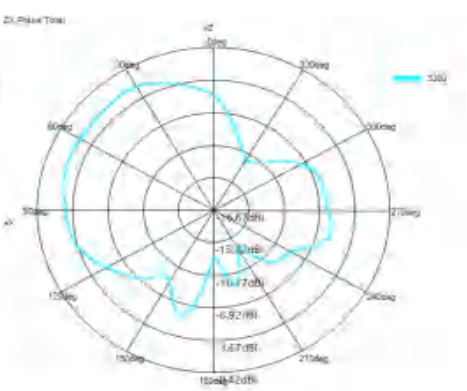
Freq(MHz)	Gain(dBi)	Efficiency(%)	Efficienc (dB)
3300	1.2	39.9	-4.0
3320	1.6	43.2	-3.7
3340	1.6	43.4	-3.6
3360	1.8	46.6	-3.3
3380	1.7	44.4	-3.5
3400	1.2	40.4	-3.9
3420	1.1	39.9	-4.0
3440	0.7	37.0	-4.3
3460	1.6	42.8	-3.7
3480	1.8	43.8	-3.6
3500	2.1	46.1	-3.4
3520	2.5	50.7	-3.0
3540	2.3	47.7	-3.2
3560	2.0	45.5	-3.4
3580	1.6	41.6	-3.8
3600	0.9	35.2	-4.5
3620	0.9	34.6	-4.6
3640	0.7	33.0	-4.8
3660	1.0	35.1	-4.6
3680	1.3	39.0	-4.1
3700	1.4	39.1	-4.1

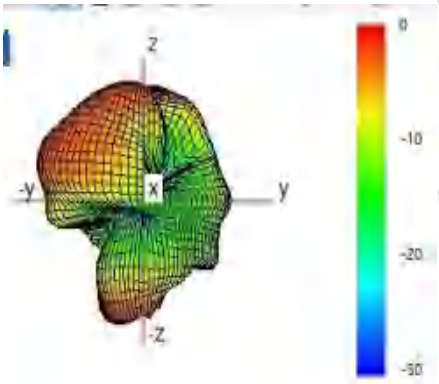
Freq(MHz)	Gain(dBi)	Efficiency(%)	Efficienc (dB)
3720	2.0	42.5	-3.7
3740	2.0	42.3	-3.7
3760	1.8	39.3	-4.1
3780	1.9	39.3	-4.1
3800	1.5	35.6	-4.5
3820	1.6	34.6	-4.6
3840	1.9	36.1	-4.4
3860	2.0	35.5	-4.5
3880	2.8	41.3	-3.8
3900	2.7	41.0	-3.9
3920	3.2	44.2	-3.5
3940	3.0	44.8	-3.5
3960	2.7	41.6	-3.8
3980	2.4	40.1	-4.0
4000	2.1	38.5	-4.1
4020	2.0	36.0	-4.4
4040	2.1	38.2	-4.2
4060	2.0	37.2	-4.3
4080	2.3	38.7	-4.1
4100	2.4	40.6	-3.9
4120	2.3	38.1	-4.2
4140	2.3	37.7	-4.2
4160	2.1	33.9	-4.7
4180	1.7	30.9	-5.1
4200	1.6	29.9	-5.2

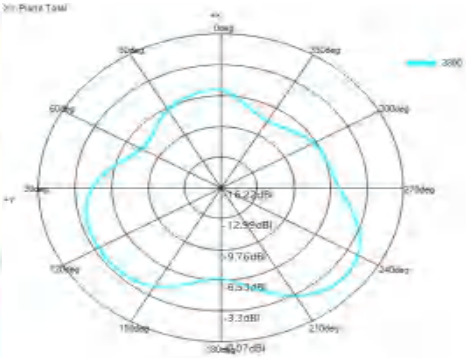

z
-y
x
y
-z
0
-15
-31
-46

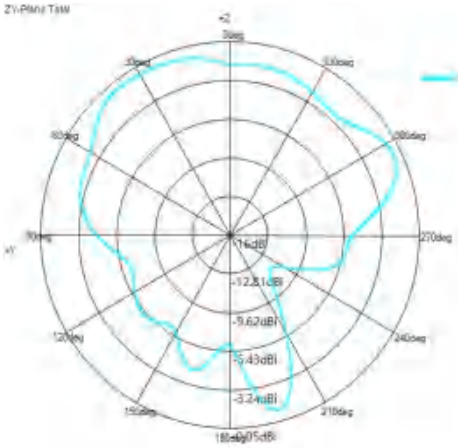


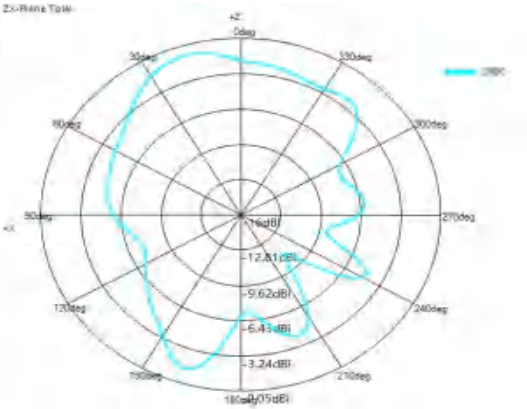


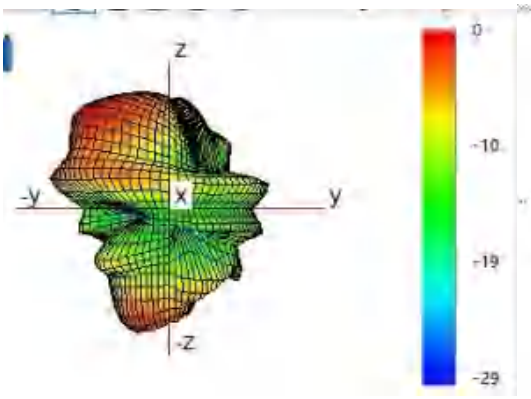


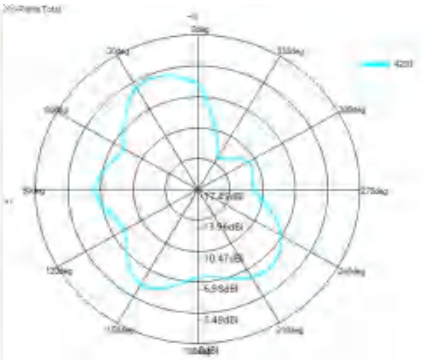

z
-y
x
y
-z
0
-10
-20
-30

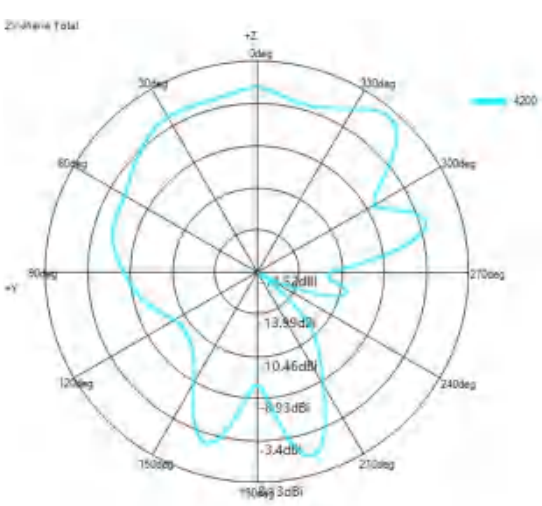


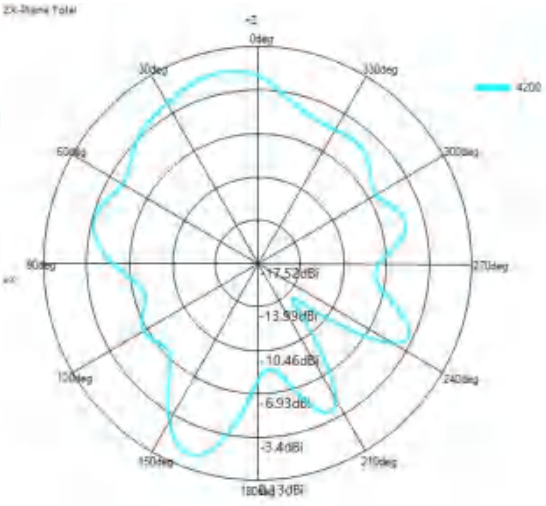




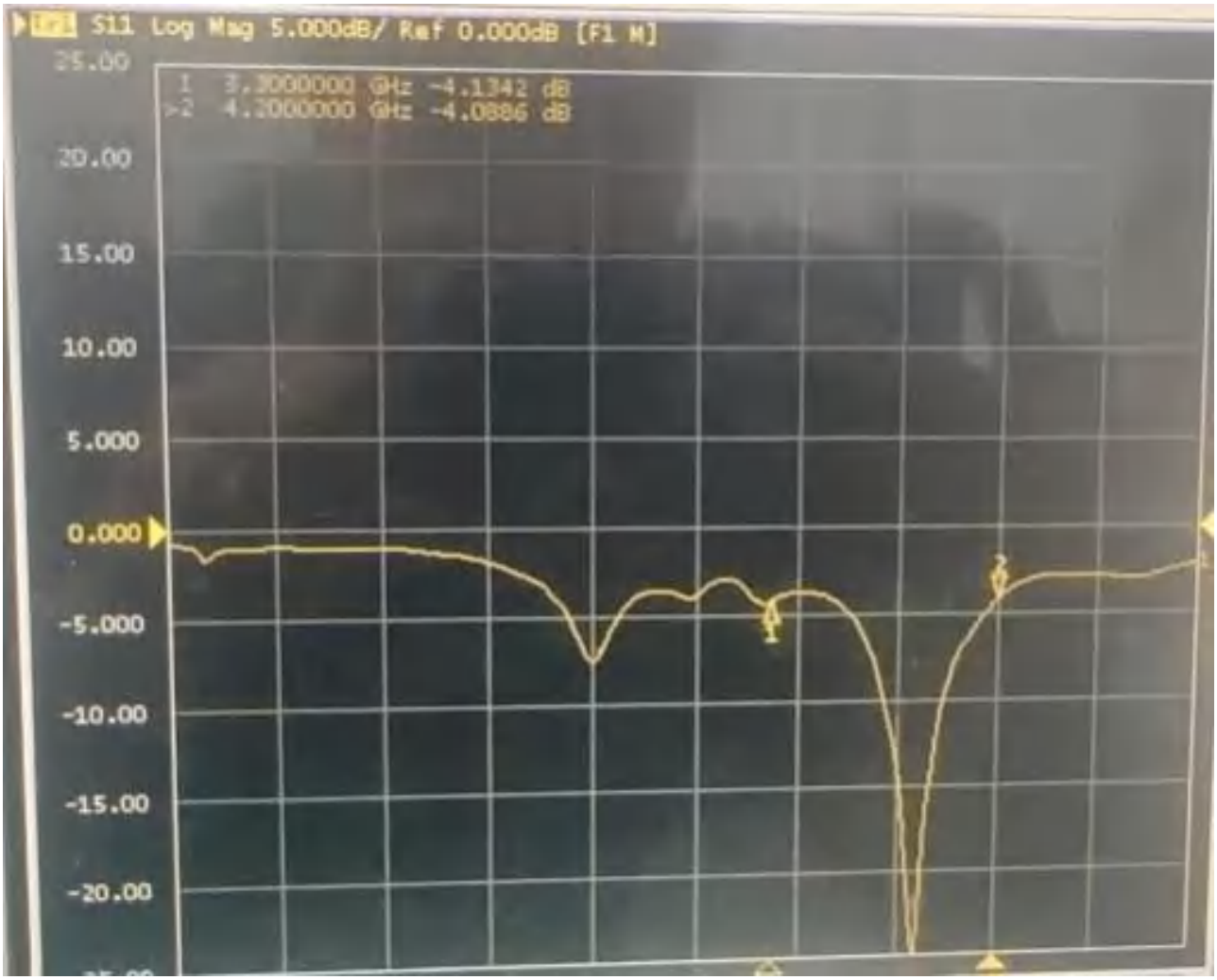

z
-y
x
y
-z
0
-10
-19
-29


4200


+Z
0deg
30deg
330deg
60deg
300deg
90deg
270deg
120deg
240deg
150deg
210deg
180deg
4200
-13.89dBi
-10.46dBi
-6.93dBi
-3.4dBi
3dBi

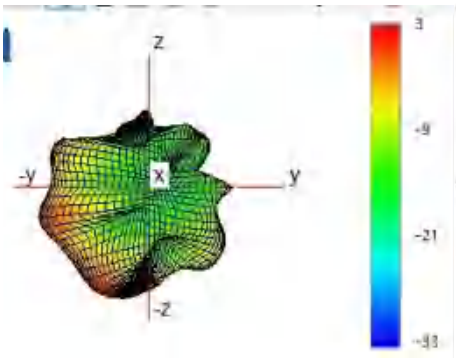

+Z
0deg
30deg
330deg
60deg
300deg
90deg
270deg
120deg
240deg
150deg
210deg
180deg
4200
-7.52dBi
-13.99dBi
-10.46dBi
-6.93dBi
-3.4dBi
3dBi

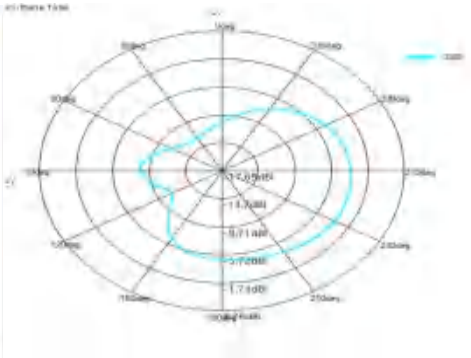
七、ANT5 antenna Test Data

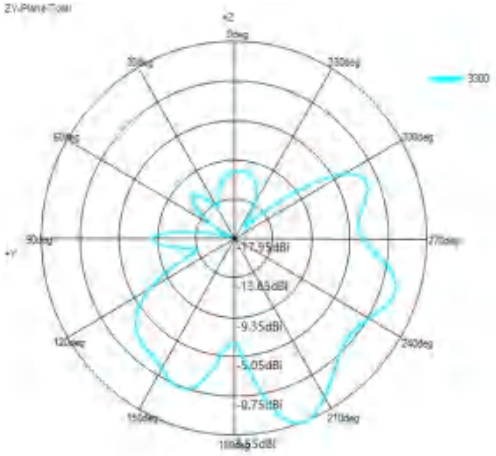


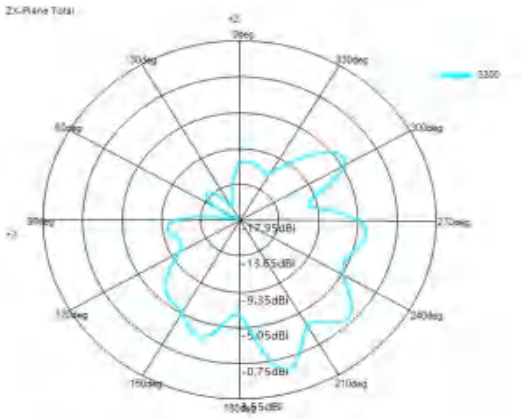
7.1 ANT5 Passive Efficiency Data & Gain

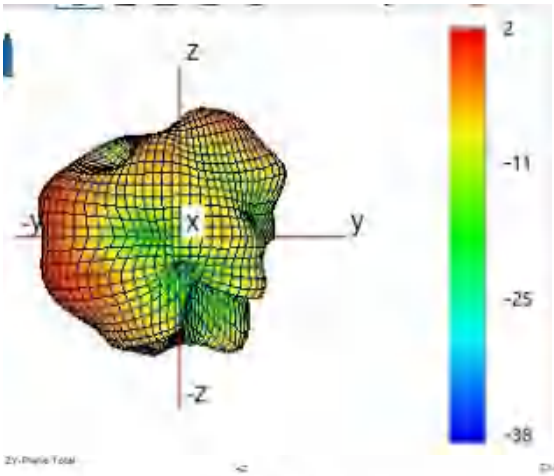
Freq(MHz)	Gain(dBi)	Efficiency(%)	Efficienc (dB)
3300	-4.7	25.4	-6.0
3350	-5.2	26.1	-5.8
3400	-5.7	27.2	-5.7
3450	-5.8	26.5	-5.8
3500	-5.1	28.7	-5.4
3550	-4.0	31.2	-5.1
3600	-4.1	29.3	-5.3
3660	-3.4	28.0	-5.5
3700	-1.0	27.6	-5.6
3750	0.6	27.5	-5.6
3800	0.7	26.1	-5.8
3850	0.8	25.8	-5.9
3900	1.1	27.8	-5.6
3950	0.8	25.9	-5.9
4000	-0.1	26.4	-5.8
4050	-0.7	29.8	-5.3
4100	-1.3	21.8	-6.6
4150	-3.0	20.5	-6.9
4200	-4.8	23.1	-6.4

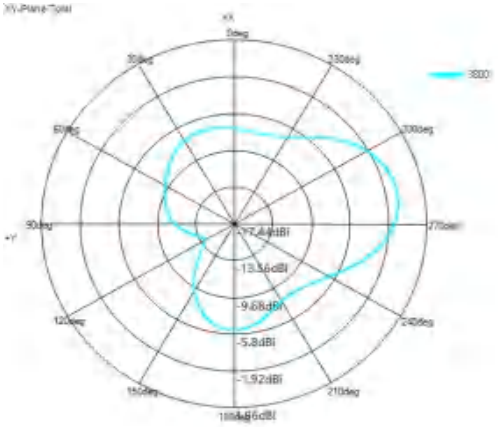

z
-y
x
y
-z
3
-9
-21
-33

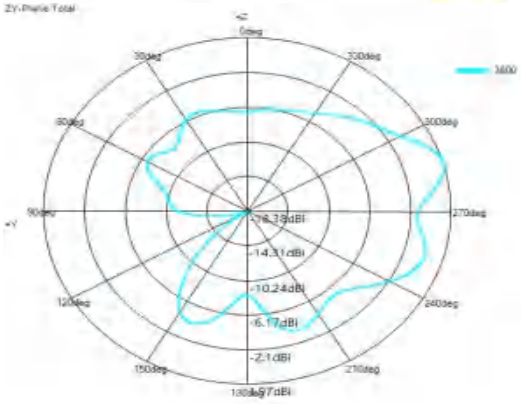


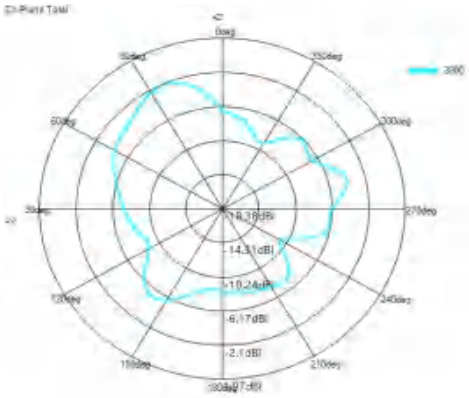

ZY-Plane Total
3300
-17.95dBi
-13.65dBi
-9.35dBi
-5.05dBi
-0.75dBi

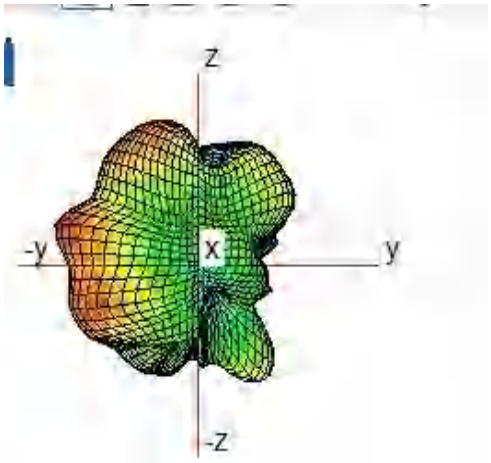

ZX-Plane Total
3300
-17.95dBi
-13.65dBi
-9.35dBi
-5.05dBi
-0.75dBi

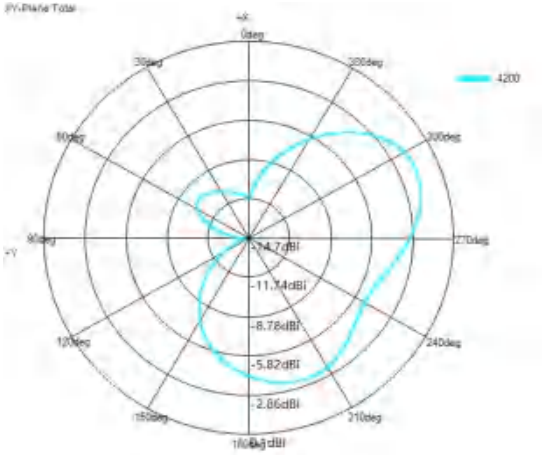

z
-y
x
y
-z
2
-11
-25
-38

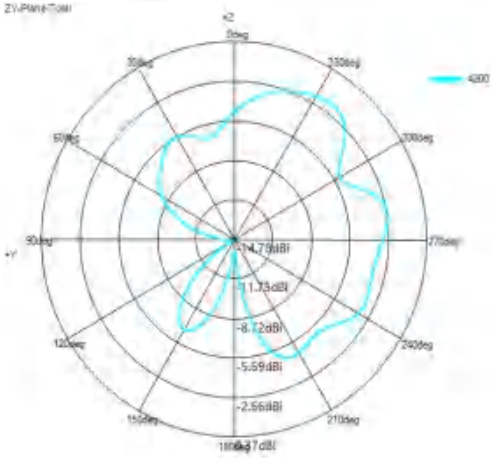

XY-Plane Total
3300
-13.56dBi
-9.68dBi
-5.8dBi
-1.92dBi

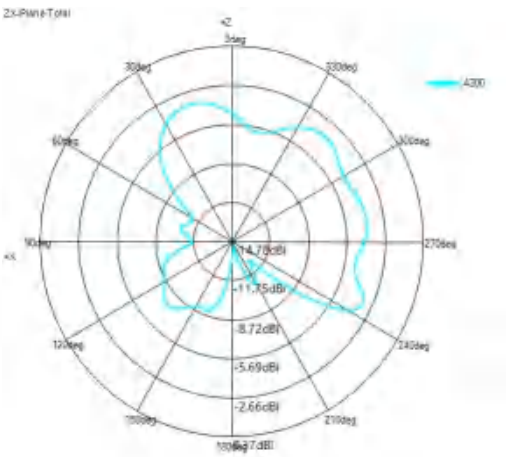

ZY-Plane Total
3600
-14.31dBi
-10.24dBi
-6.17dBi
-2.1dBi


ZX-Plane Total
3600
-14.31dBi
-10.24dBi
-6.17dBi
-2.1dBi

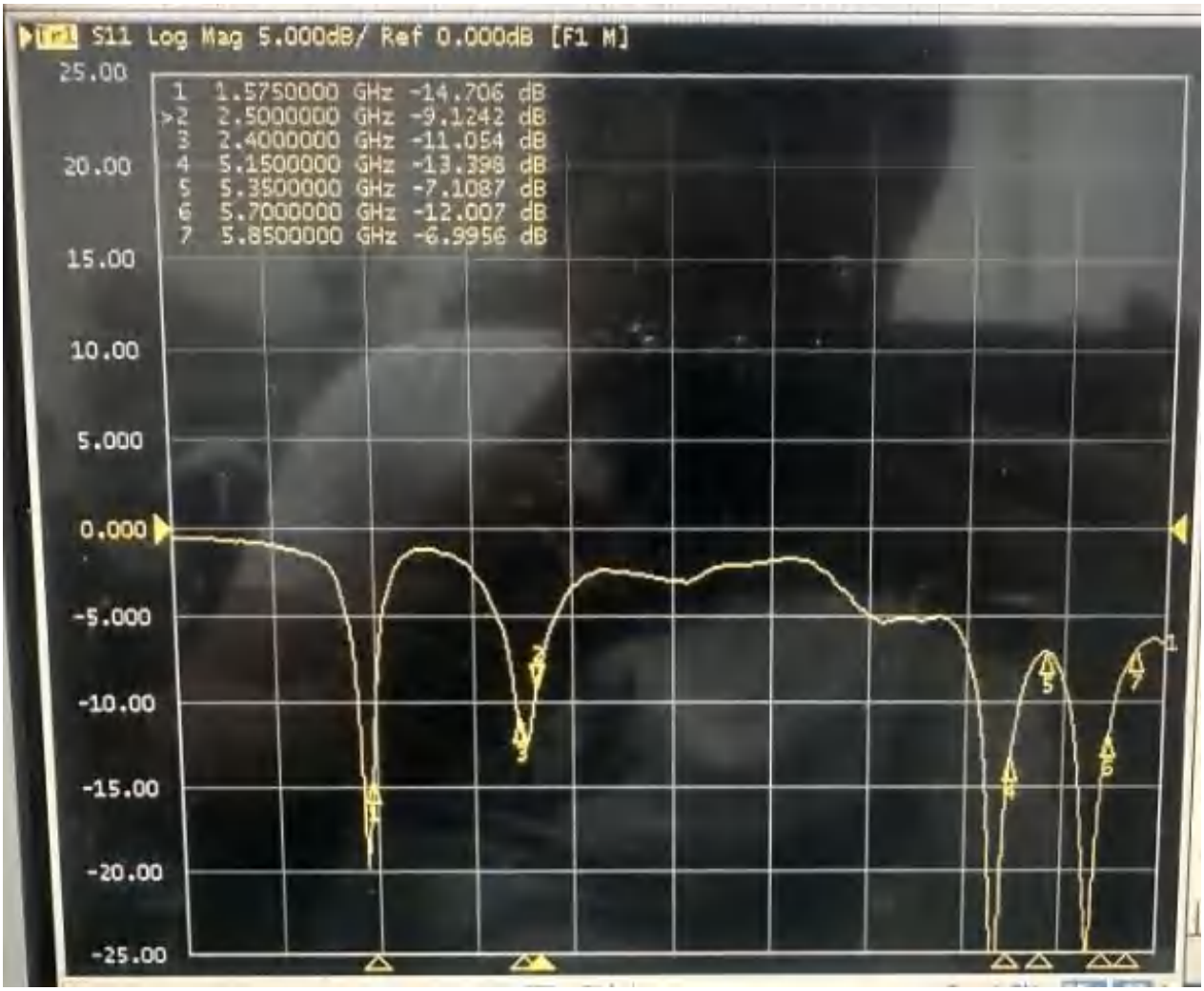

z
-y
x
y
-z


4200
-14.7dBi
-11.74dBi
-8.78dBi
-5.82dBi
-2.86dBi


4200
-14.79dBi
-11.73dBi
-8.72dBi
-5.69dBi
-2.66dBi


4200
-14.78dBi
-11.75dBi
-8.72dBi
-5.69dBi
-2.66dBi

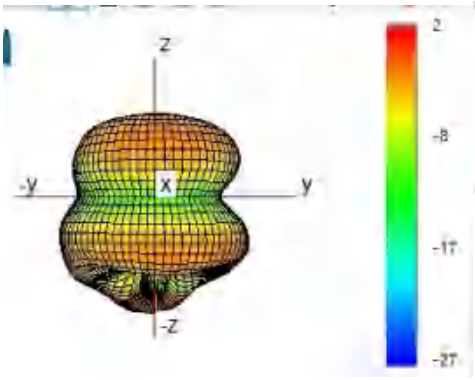
八、 ANT6 antenna Test Data

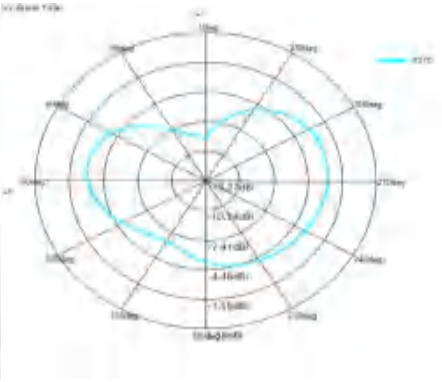


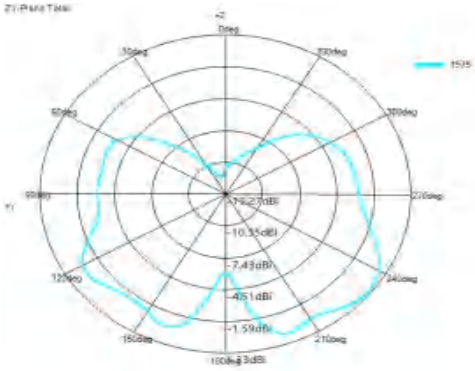
8.1 ANT6 Passive Efficiency Data & Gain

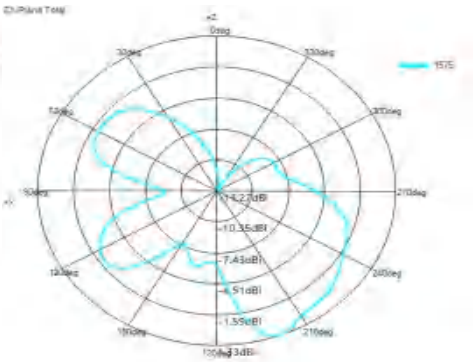
Freq(MHz)	Gain(dBi)	Efficiency(%)	Efficienc (dB)
1500	1.8	42.4	-3.7
1505	2.0	44.1	-3.6
1510	2.1	45.7	-3.4
1515	2.2	47.3	-3.3
1520	2.4	49.2	-3.1
1525	2.5	50.4	-3.0
1530	2.6	51.5	-2.9
1535	2.6	52.1	-2.8
1540	2.6	52.5	-2.8
1545	2.6	51.9	-2.9
1550	2.6	51.1	-2.9
1555	2.6	50.4	-3.0
1560	2.5	49.8	-3.0
1565	2.6	49.5	-3.1
1570	2.6	49.3	-3.1
1575	2.6	48.8	-3.1
1580	2.4	47.3	-3.3
1585	2.2	45.4	-3.4
1590	2.2	43.8	-3.6
1595	2.1	42.3	-3.7
1600	1.9	40.5	-3.9
2400	2.3	41.8	-3.8
2410	2.3	43.6	-3.6
2420	2.4	45.0	-3.5
2430	2.4	44.8	-3.5
2440	2.3	45.3	-3.4
2450	2.3	45.0	-3.5
2460	2.0	43.6	-3.6
2470	1.7	41.7	-3.8
2480	1.4	39.6	-4.0
2490	1.1	38.7	-4.1
2500	1.0	37.6	-4.3

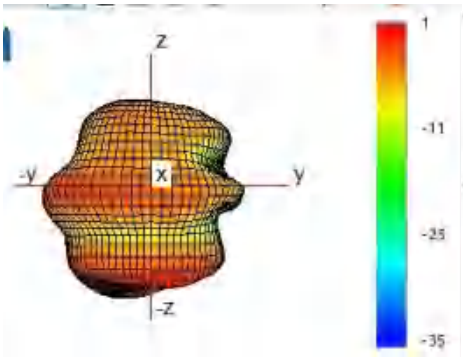
Freq(MHz)	Gain(dBi)	Efficiency(%)	Efficienc (dB)
5150	0.9	34.6	-4.6
5200	1.8	45.6	-3.4
5250	2.0	47.8	-3.2
5300	0.8	35.1	-4.6
5350	0.6	35.4	-4.5
5400	2.0	49.7	-3.0
5450	1.4	42.0	-3.8
5500	0.0	31.3	-5.0
5550	0.1	34.4	-4.6
5600	1.0	42.3	-3.7
5650	0.1	35.5	-4.5
5700	-0.9	27.5	-5.6
5750	0.2	32.7	-4.9
5800	1.1	35.3	-4.5
5850	0.3	27.7	-5.6


z
-y
x
y
-z
2
-8
-17
-27





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x
y
-z
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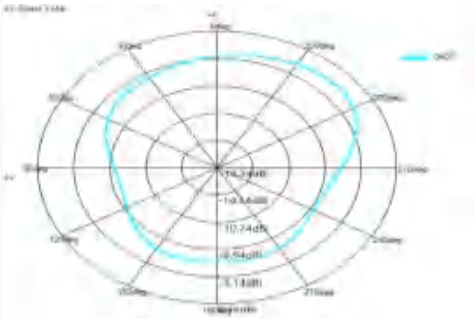
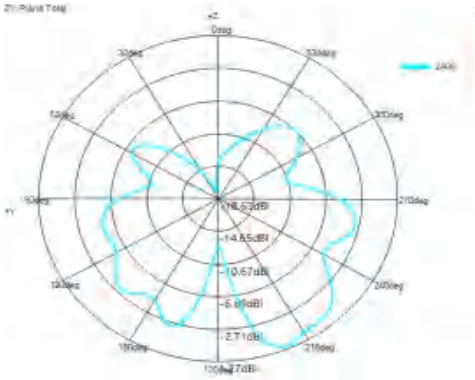
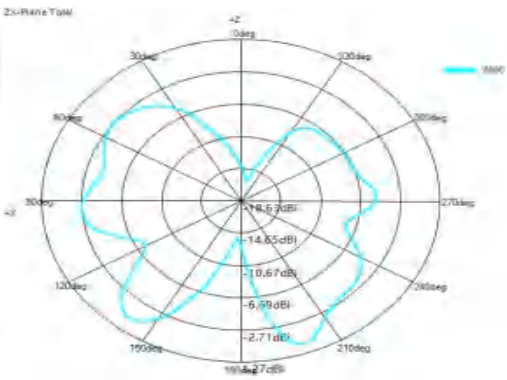
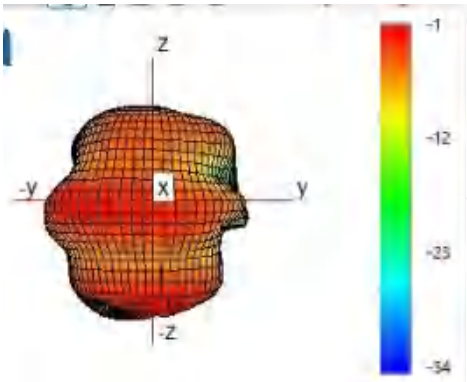
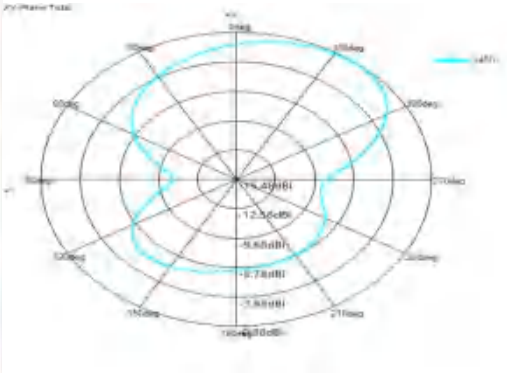
-25
-35

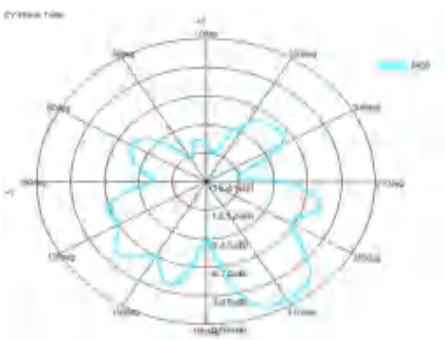


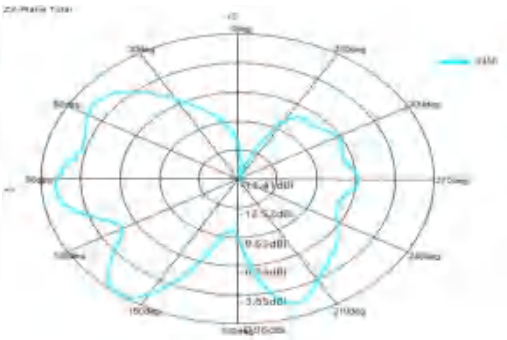


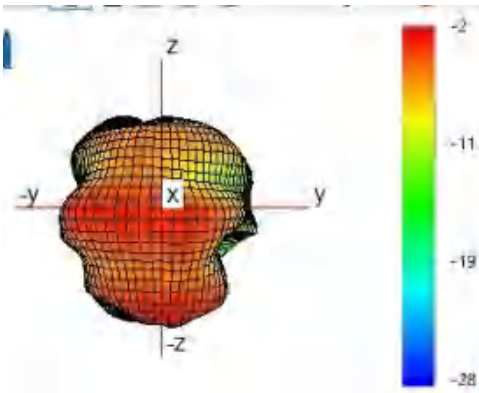


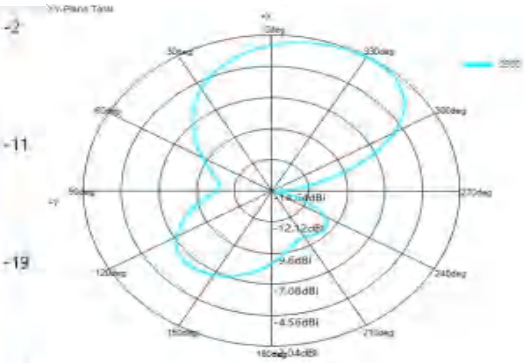

z
-y
x
y
-z
-1
-12
-23
-34

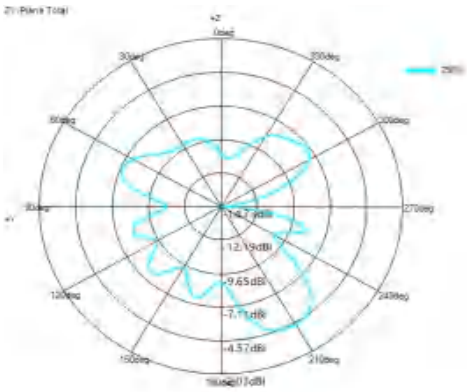


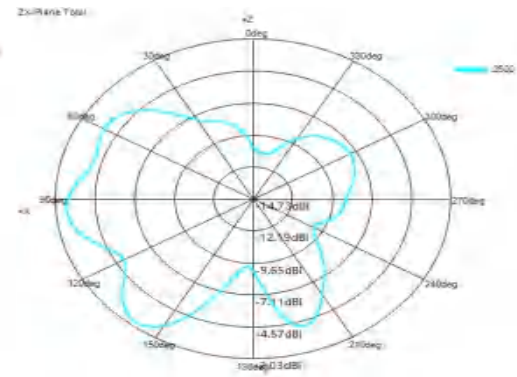


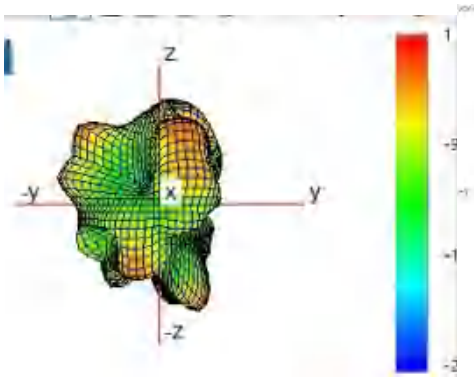


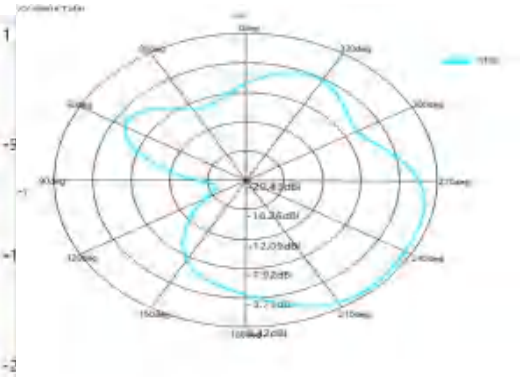

z
-y
x
y
-z
-2
-11
-19
-28

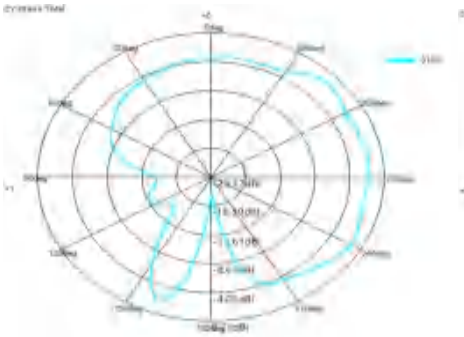


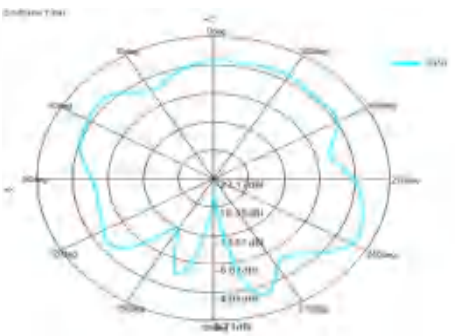


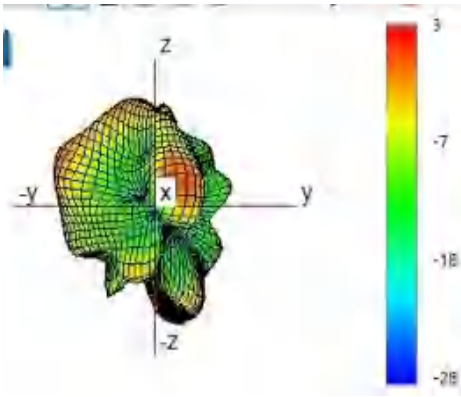


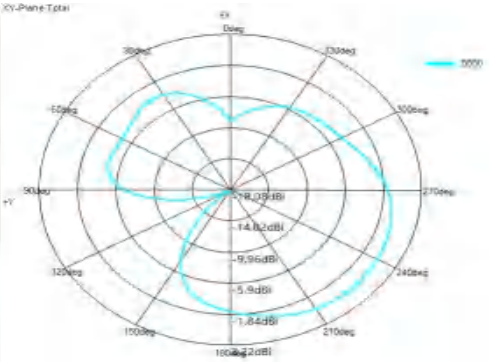

z
-y
x
y
-z

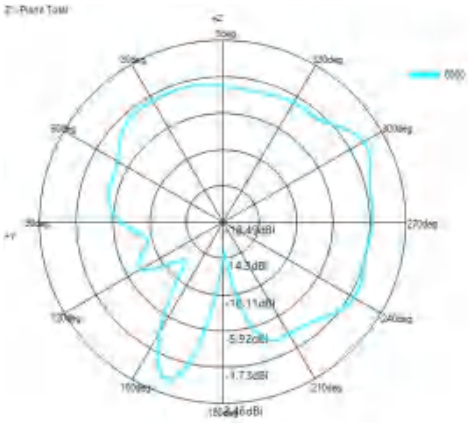


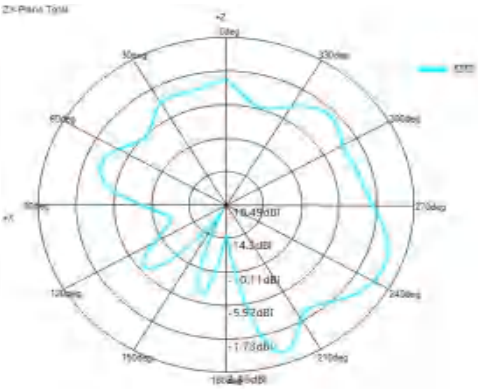


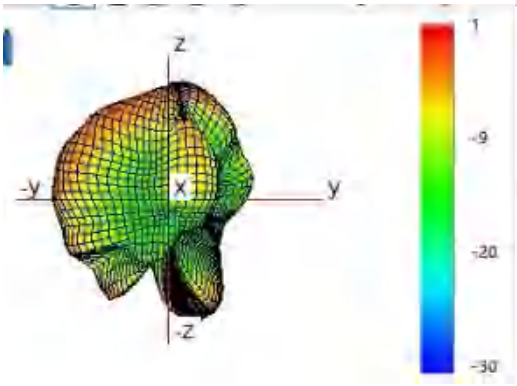


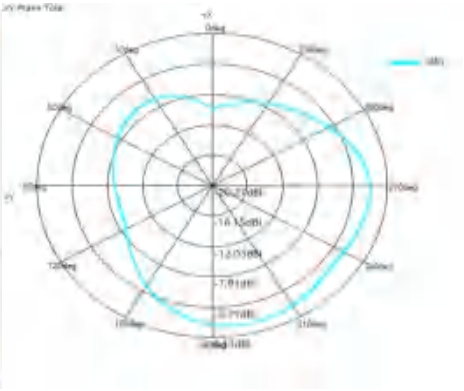

z
-y
x
y
-z

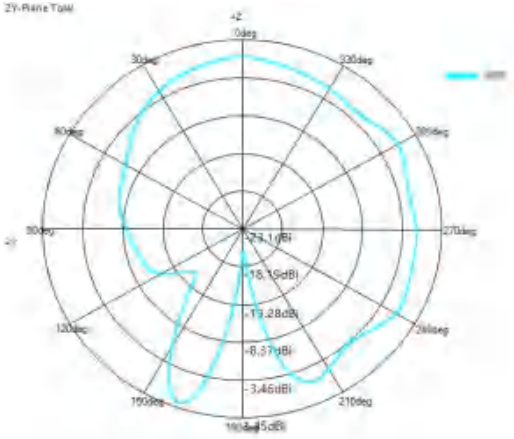


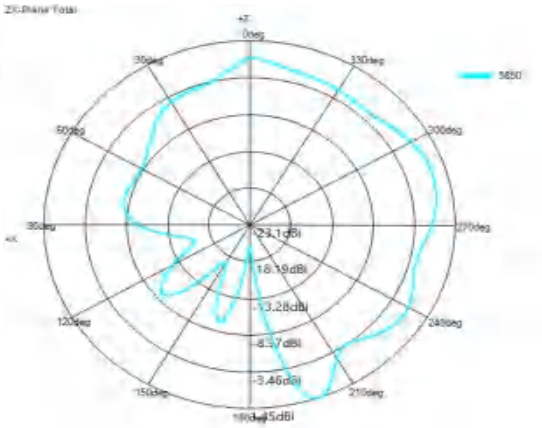





z
-y
x
y
-z
1
-9
-20
-30




ZY-Plane Total
+Z
0deg
30deg
330deg
60deg
300deg
90deg
270deg
-23.1dBi
-18.19dBi
-13.28dBi
-8.37dBi
-3.46dBi
210deg

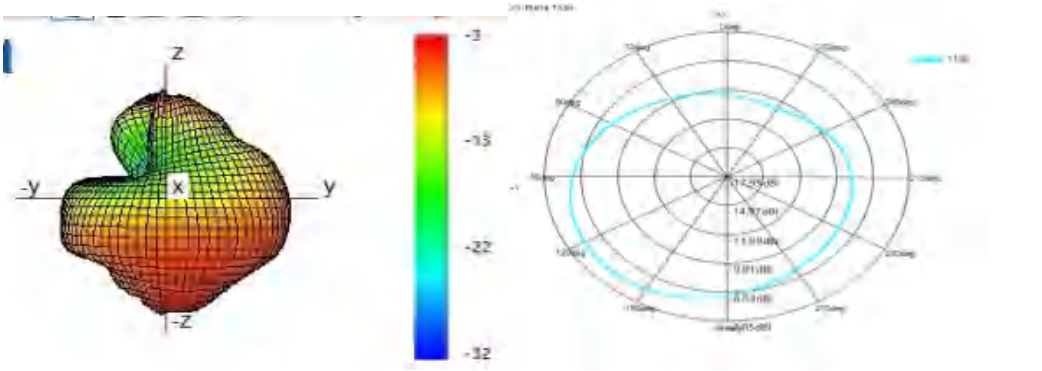

ZX-Plane Total
+Z
0deg
30deg
330deg
60deg
300deg
90deg
270deg
-23.1dBi
-18.19dBi
-13.28dBi
-8.37dBi
-3.46dBi
210deg

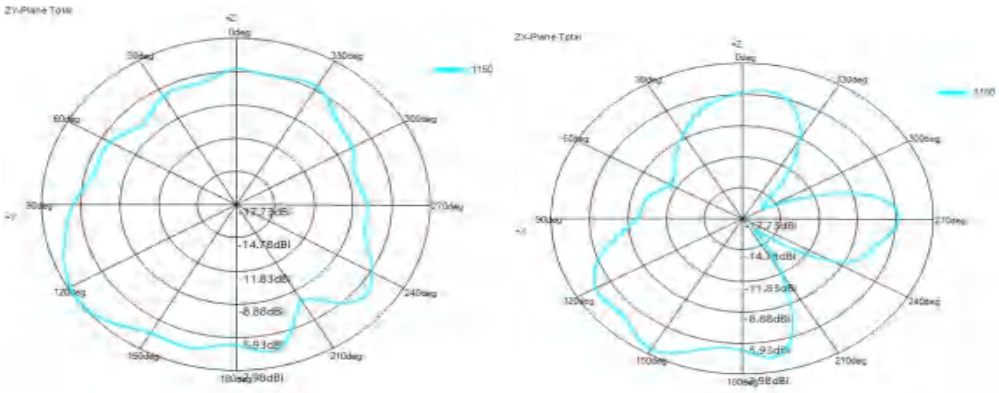
九、 ANT7 antenna Test Data

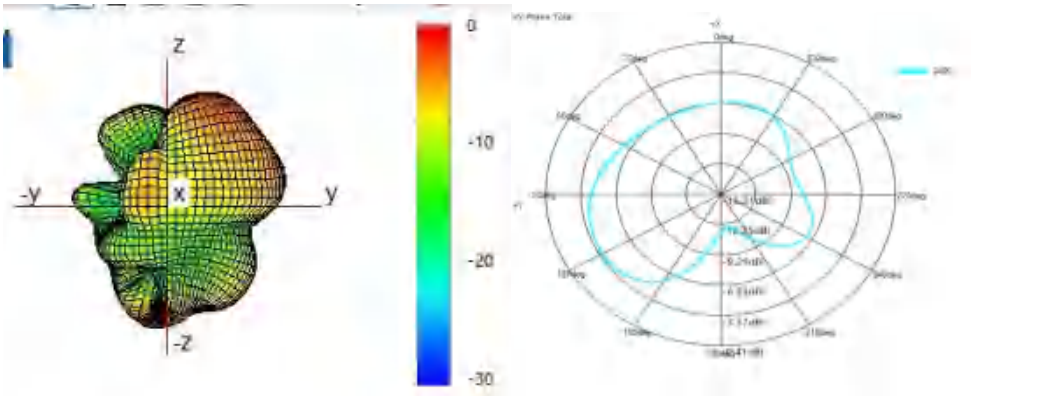
9.1 ANT7 Passive Efficiency Data & Gain

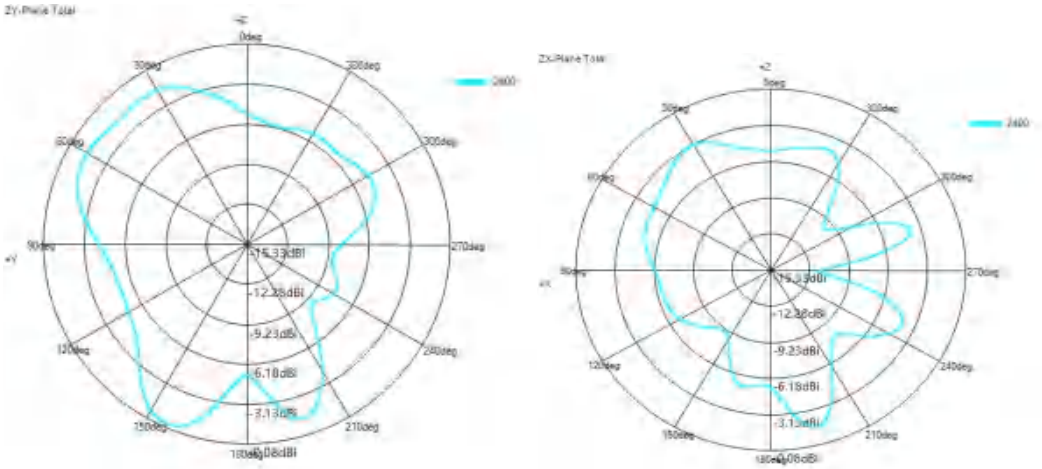
Freq(MHz)	Gain(dBi)	Efficiency(%)	Efficienc (dB)
1150	-2.4	24.2	-6.2
1155	-2.4	24.4	-6.1
1160	-2.5	24.6	-6.1
1165	-2.4	24.7	-6.1
1170	-2.5	24.6	-6.1
1175	-2.6	24.0	-6.2
1180	-2.8	23.1	-6.4
1185	-2.9	22.3	-6.5
1190	-3.0	21.9	-6.6
1195	-3.2	21.2	-6.7
1200	-3.5	19.9	-7.0
2400	-0.6	36.6	-4.4
2410	-0.4	37.8	-4.2
2420	-0.6	37.7	-4.2
2430	-1.0	34.5	-4.6
2440	-0.7	34.4	-4.6
2450	-0.7	35.0	-4.6
2460	-1.1	32.7	-4.9
2470	-1.1	31.0	-5.1
2480	-1.4	29.1	-5.4
2490	-1.5	28.4	-5.5
2500	-1.2	26.2	-5.8

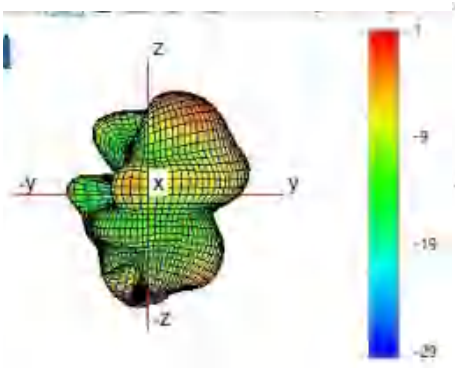
Freq(MHz)	Gain(dBi)	Efficiency(%)	Efficienc (dB)
5150	-1.9	32.7	-4.9
5200	-1.3	39.4	-4.1
5250	-1.0	39.6	-4.0
5300	-2.2	30.0	-5.2
5350	-2.0	30.8	-5.1
5400	-0.9	42.2	-3.8
5450	-2.1	32.2	-4.9
5500	-3.8	22.3	-6.5
5550	-3.1	24.8	-6.1
5600	-1.7	33.7	-4.7
5650	-1.8	33.0	-4.8
5700	-2.1	29.0	-5.4
5750	-1.0	36.2	-4.4
5800	-0.4	40.7	-3.9
5850	-1.1	33.8	-4.8

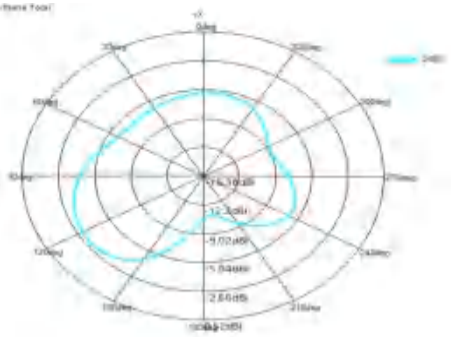

z
-y
x
y
-z
-3
-13
-22
-32

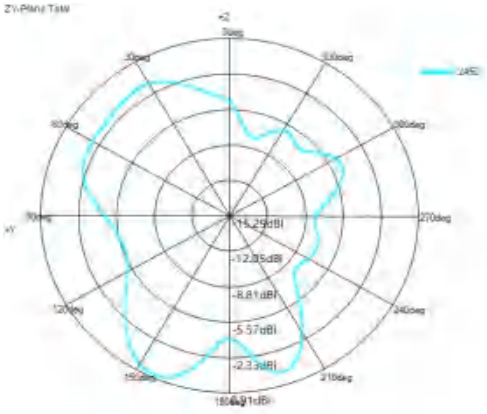

ZY-Plane Total
ZX-Plane Total
0deg
30deg
330deg
60deg
300deg
90deg
270deg
120deg
240deg
150deg
210deg
180deg
-14.78dBi
-11.83dBi
-8.88dBi
-5.93dBi
-2.98dBi

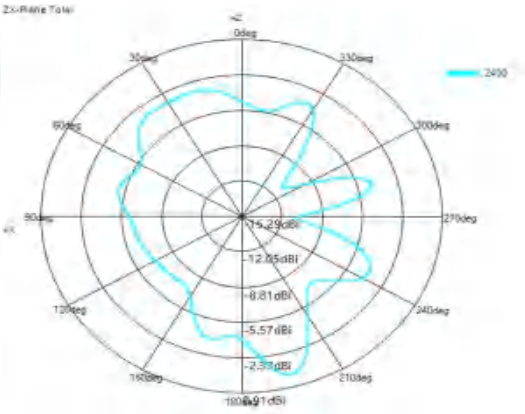

z
-y
x
y
-z
0
-10
-20
-30

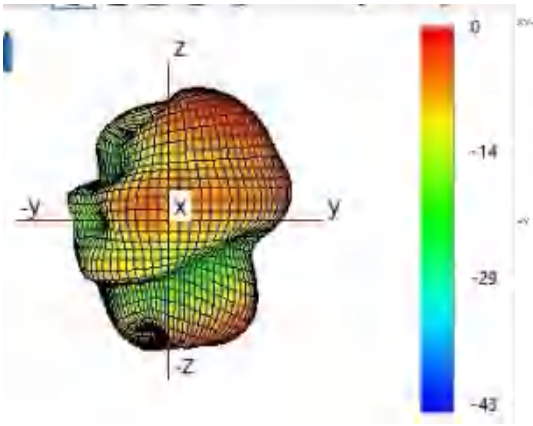

ZY-Plane Total
ZX-Plane Total
0deg
30deg
330deg
60deg
300deg
90deg
270deg
120deg
240deg
150deg
210deg
180deg
-15.33dBi
-12.28dBi
-9.23dBi
-6.18dBi
-3.13dBi

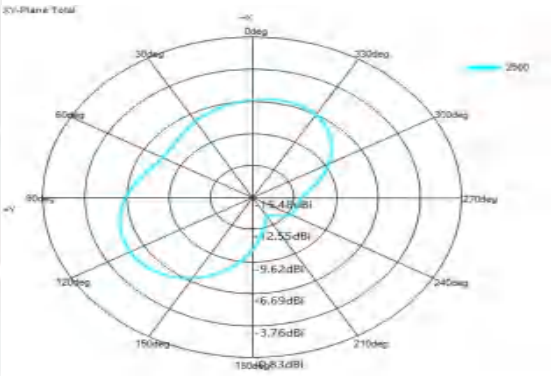

z
-y
x
y
-z
1
-9
-19
-29


0deg
30deg
330deg
60deg
300deg
90deg
270deg
120deg
240deg
150deg
210deg
180deg
2400
-12.33dBi
-9.02dBi
-5.84dBi
-2.66dBi


ZY-Plane Total
+Z
0deg
30deg
330deg
60deg
300deg
90deg
270deg
120deg
240deg
150deg
210deg
180deg
2400
-15.29dBi
-12.05dBi
-8.81dBi
-5.57dBi
-2.33dBi
-0.91dBi


ZX-Plane Total
+Z
0deg
30deg
330deg
60deg
300deg
90deg
270deg
120deg
240deg
150deg
210deg
180deg
2400
-15.29dBi
-12.05dBi
-8.81dBi
-5.57dBi
-2.33dBi
-0.91dBi


z
-y
x
y
-z
0
-14
-29
-43


ZY-Plane Total
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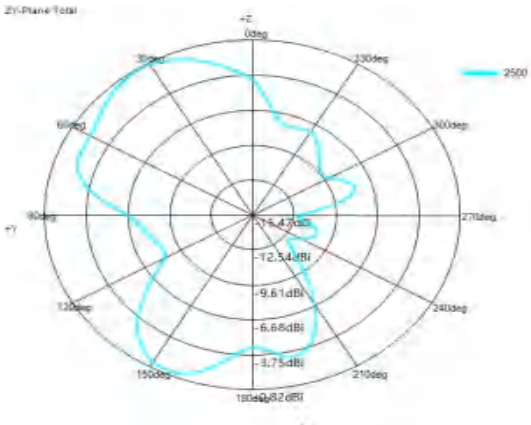
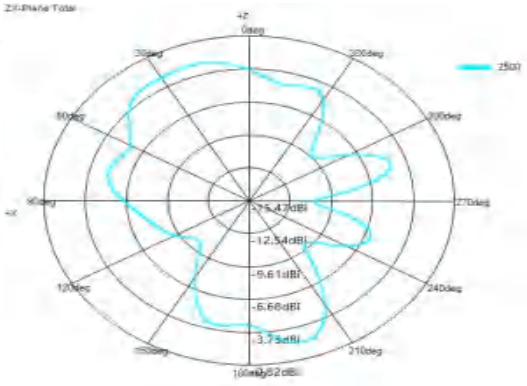
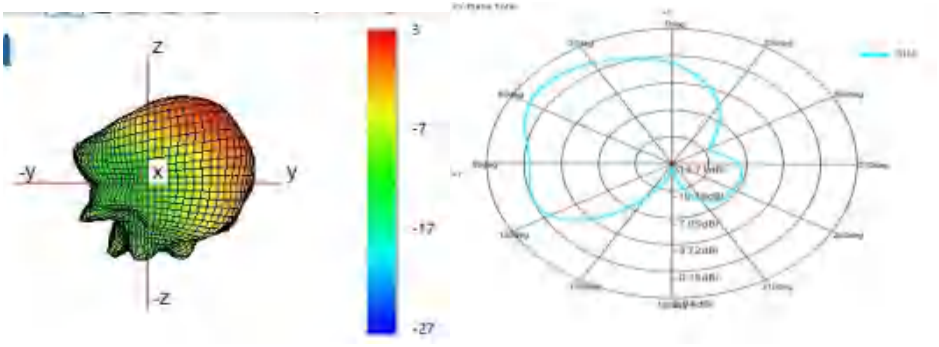
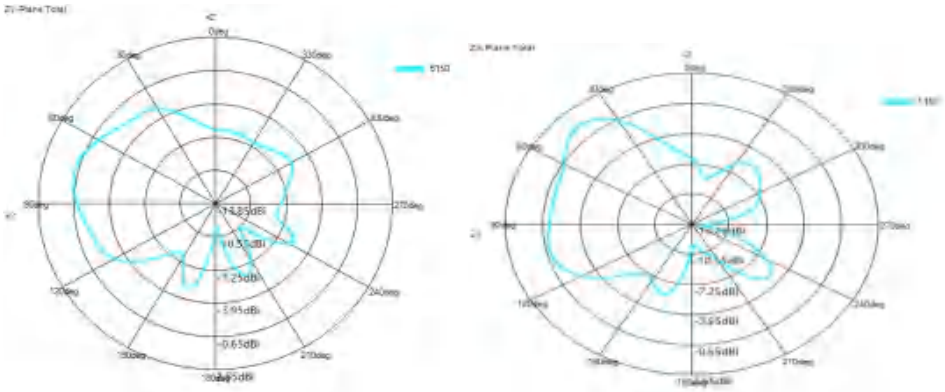
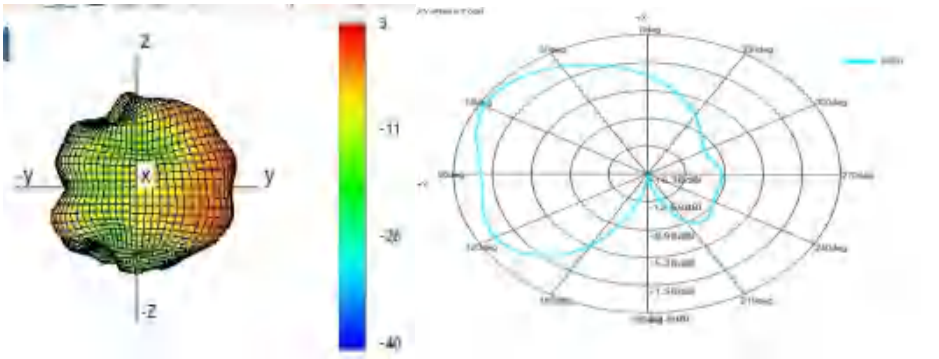
330deg
60deg
300deg
90deg
270deg
120deg
240deg
150deg
210deg
180deg
2560
-15.48dBi
-12.55dBi
-9.62dBi
-6.69dBi
-3.76dBi
-0.83dBi

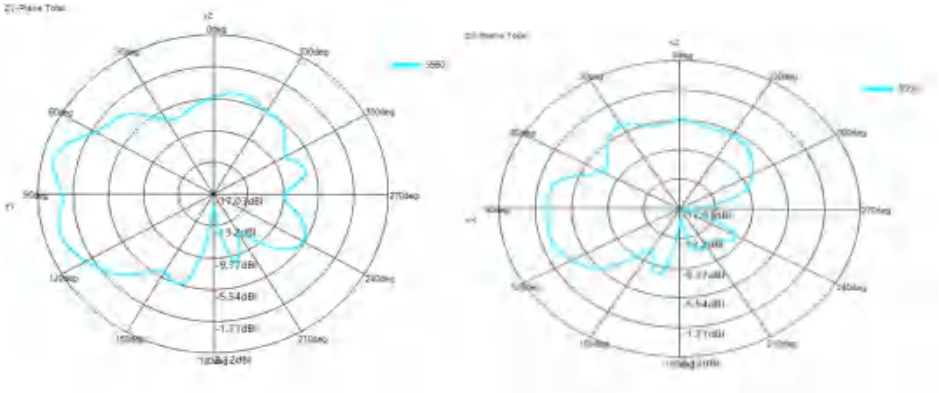

ZY-Plane Total
+Z
0deg
30deg
330deg
60deg
300deg
90deg
270deg
120deg
240deg
150deg
210deg
180deg
2500
-15.47dBi
-12.54dBi
-9.61dBi
-6.68dBi
-3.75dBi
-0.82dBi

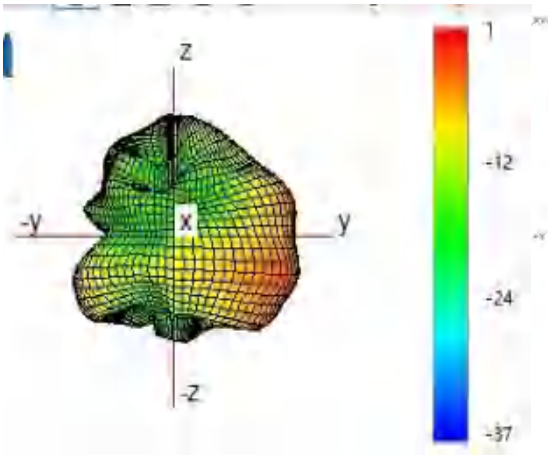

ZX-Plane Total
+Z
0deg
30deg
330deg
60deg
300deg
90deg
270deg
120deg
240deg
150deg
210deg
180deg
2500
-15.47dBi
-12.54dBi
-9.61dBi
-6.68dBi
-3.75dBi
-0.82dBi


z
-y
x
y
-z
3
-7
-17
-27




z
-y
x
y
-z
3
-11
-26
-40

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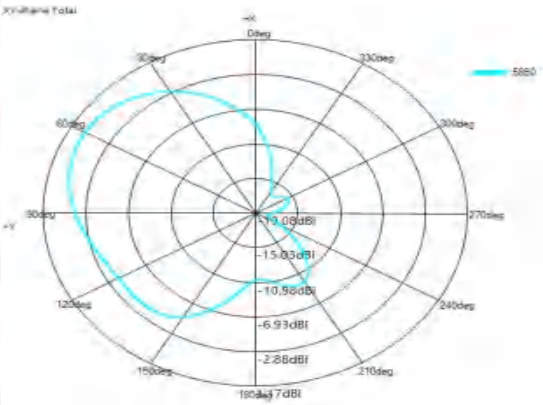
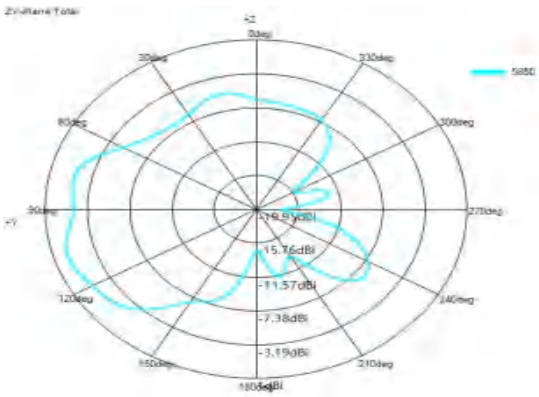
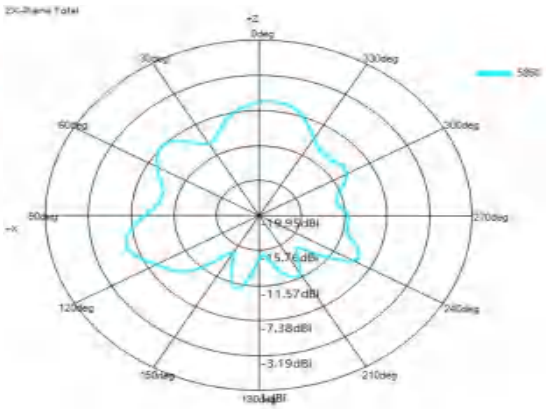
-y
x
y
-z
1
-12
-24
-37


XY-Plane Total
-x
0deg
30deg
330deg
60deg
300deg
90deg
270deg
-y
120deg
240deg
150deg
210deg
180deg
5850
-19.08dBi
-15.03dBi
-10.98dBi
-6.93dBi
-2.88dBi
7dBi


ZY-Plane Total
+z
0deg
30deg
330deg
60deg
300deg
90deg
270deg
-y
120deg
240deg
150deg
210deg
180deg
5850
-19.9dBi
-15.76dBi
-11.57dBi
-7.38dBi
-3.19dBi


ZX-Plane Total
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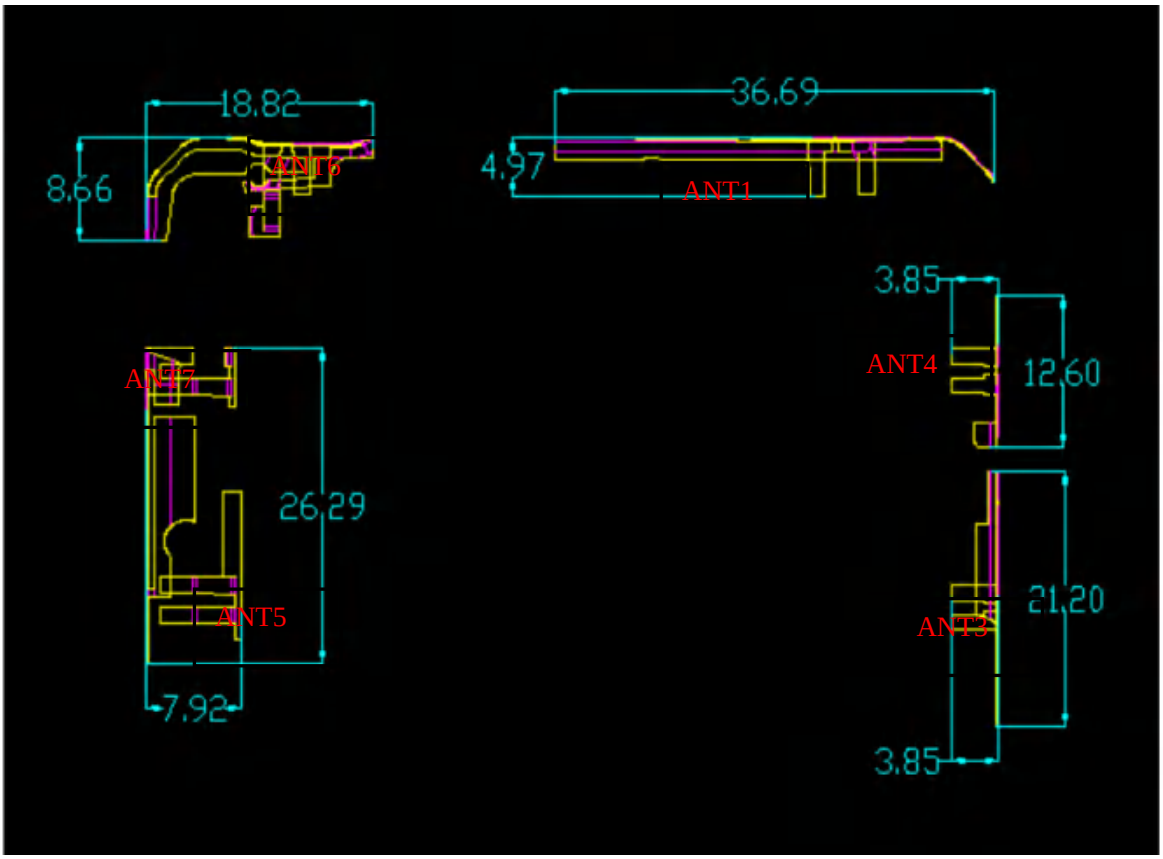
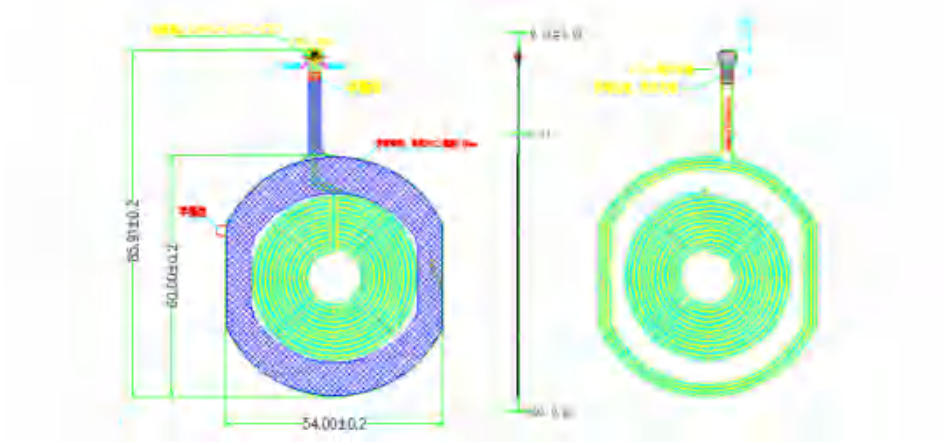
330deg
60deg
300deg
90deg
270deg
-x
120deg
240deg
150deg
210deg
180deg
5850
-19.95dBi
-15.76dBi
-11.57dBi
-7.38dBi
-3.19dBi


70.84
13.17
ANT0
2.45
ANT2
18.50


18.82
8.66
ANT6
36.69
4.97
ANT1
3.85
ANT4
12.60
ANT7
26.29
ANT5
21.20
ANT3
7.92
3.85



unit：mm

5 Antenna distribution map

ANT1:
GSM:B2/B3/B5/B8
WCDMA:B1/B2/B4/B5/B8
CDMA：BC0
TDD:B38/B40/B41
FDD:B1/B2/B3/B4/B5/B7/B8/B12/B13/B17/B18/B19/B20/B25/B26/B28(A+B)/B66

ANT6:2.4G/5GWIFI/BT/L1

ANT7:2.4G/5GWIFI/L5

ANT5:
5G:N77/78MIMO

ANT4:
5G:N77/78TRX

ANT3:
TDD:B38/B41 TRX
FDD:B1/B3/B4/B66/B40
5G:N1/3/66/38/40/41/77/78MIMO

ANT2:
TDD:B38/B40/B41
FDD:B1/B3/B4/B66
5G:N1/3/66/38/40/41/77/78MIMO

ANT0:
GSM:B2/B3/B5/B8
WCDMA:B1/B2/B4/B5/B8
CDMA：BC0
TDD:B38/B40/B41
FDD:B1/B2/B3/B4/B5/B7/B8/B12/B13/B17/B18/B19/B20/B25/B26/B28(A+B)/B66
5G:N1/2/3/5/7/8/20/25/28/66/38/40/41

公司名称：深圳市德仕勤科技有限公司
Shenzhen Dosking Technology Co.,Ltd.

公司地址：深圳市南山区西丽大学城民企科技园 2 栋（港鸿基大厦）西座 403
Room 403, West Wing, Building 2 (Gang Hong Ji Tower), Minqi Technology Park, Xili University Town, Nanshan District, Shenzhen City, Guangdong Province