

APPROVAL SHEET

(RoHS)

CUSTOMER : _____
CUSTOMER'S : _____
PART NO. : _____
DESCRIPTION : **RF ANTENNA ASSEMBLY**
PART NO. : **BTEA0020106G0R2A22**
DATE : _____
AUTHORIZED BY : *Alain Chen*

	FULLY APPROVED	PARTIALLY APPROVED	REJECTED
SIGN			
SUGGESTION			

美磊科技股份有限公司

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Revisions

[illegible]

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Antenna Specification

ELECTRICAL PROPERTIES

- 1.1 Frequency Range.....617-960MHz/1100-1612MHz
1710-2170MHz/2170-2300MHz
2300-2700MHz/3300-3800MHz
3800-4200MHz/4400-5000MHz
5150-5950MHz
- 1.2 Impedance.....50 Ohm Nominal
- 1.3 VSWR.....7(Max)
- 1.4 Radiation.....Omni-directional
- 1.5 Peak Gain617-960MHz/2.55dBi
1100-1612MHz/2.15dBi
1710-2170MHz/2.72dBi
2170-2300MHz/2.43dBi
2300-2700MHz/4.75dBi
3300-3800MHz/4.17dBi
3800-4200MHz/4.67dBi
4400-5000MHz/4.50dBi
5150-5950MHz/6.43dBi
- 1.6 Polarization.....Linear Vertical
- 1.7 Admitted Power.....1W

PHYSICAL PROPERTIES

- 2.1 Cable.....RG-178
- 2.2 Antenna Cover.....ABS
- 2.3 Antenna Base.....PC+PBT
- 2.4 Operating Temp.....-20°C ~ +65°C
- 2.5 Storage Temp.....-30°C ~ +70°C
- 2.6 Color.....Black



Mechanical Specification

RoHS COMPLIANT

MECHANICAL

Antenna Cover : ABS

Antenna Base : PC+PBT

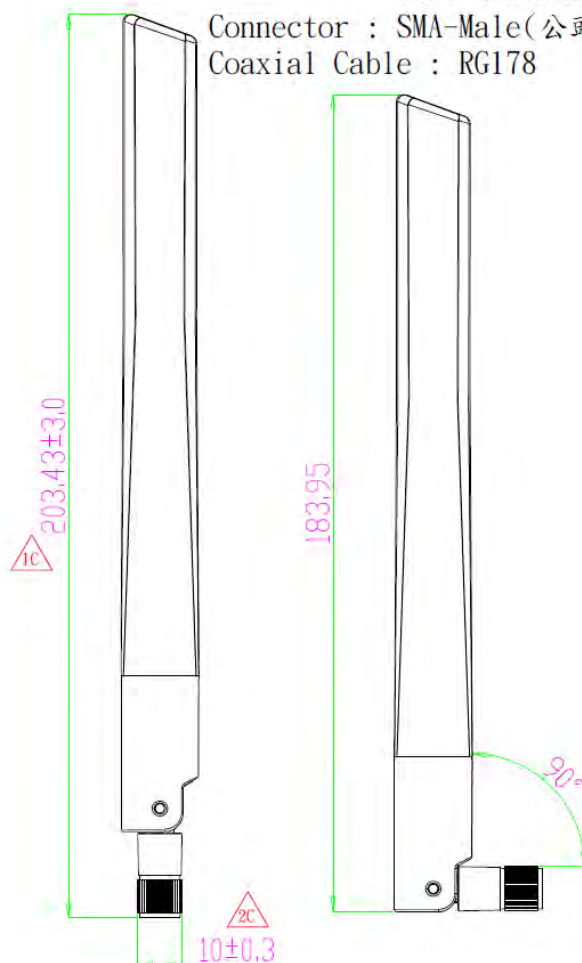
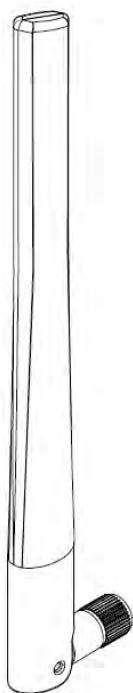
Color : Black

ELECTRICAL

Frequency : 617-960MHz/1100-1612MHz/
1710-2170MHz/2170-2300MHz/
2300-2700MHz/3300-3800MHz/
3800-4200MHz/4400-5000MHz/
5150-5950MHz

Connector : SMA-Male(公頭公針)

Coaxial Cable : RG178

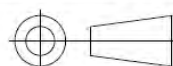


NEW Release	10/20/21*	Maggie	
LTR DESCRIPTION	DATE	REQ. BY	
設計 DR. Maggie	核准 APPD. Alvin	2021/10/20	2021/10/20
版本說明	REVISION NOTE		
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※凡標記△記號者, 為品管檢驗之尺寸

容許公差	TOLERANCE
.XXX	±0.20
.XX	±0.35
.X	±0.50
X	±1.00
ANG	±5

品名
ARTICLE
BTEA0020106G0R2A22

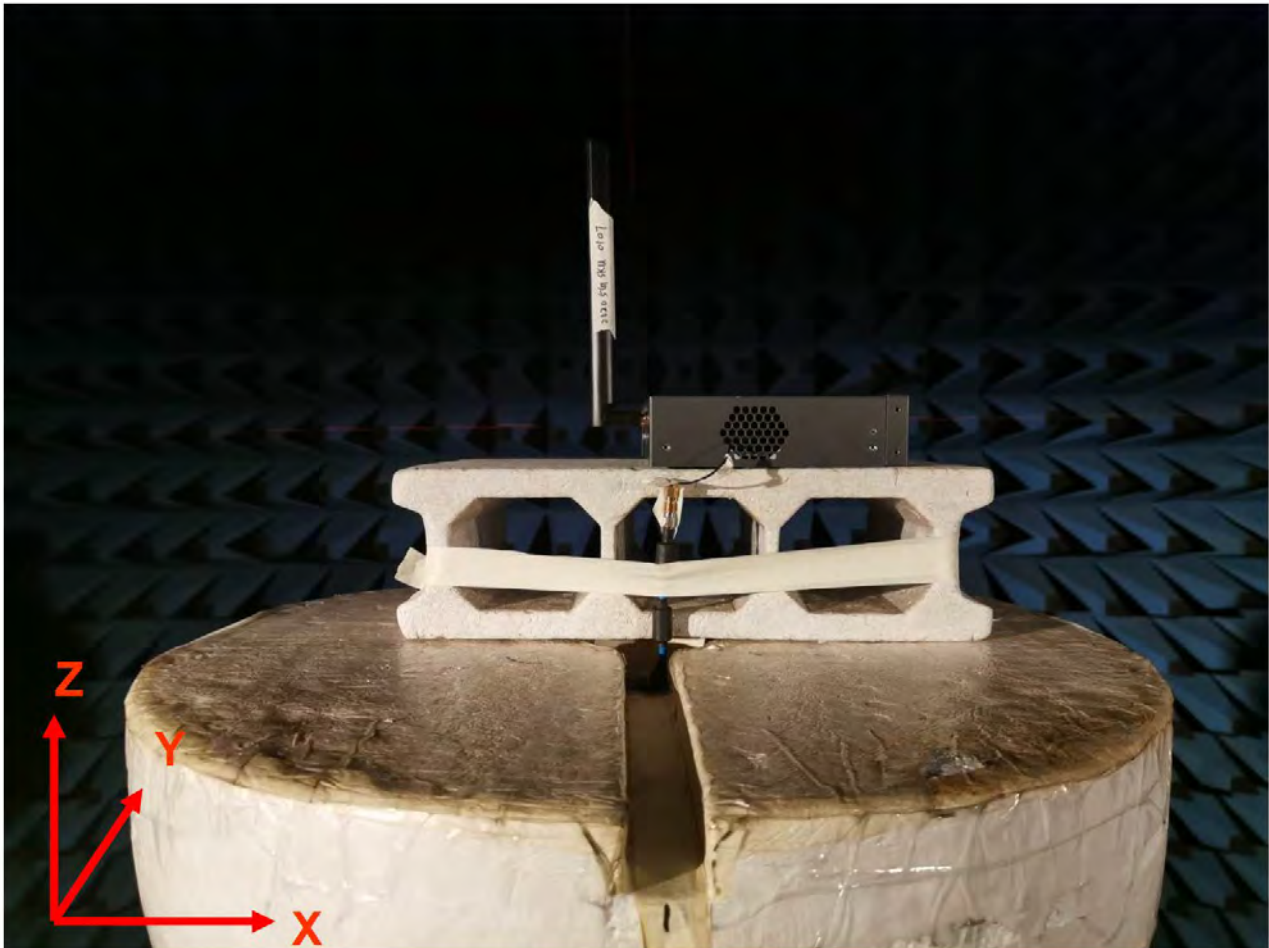


單位 UNIT	比例 SCALE	張數 SHEET	版本 REV.
mm	****	1	A



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Experimental Setup



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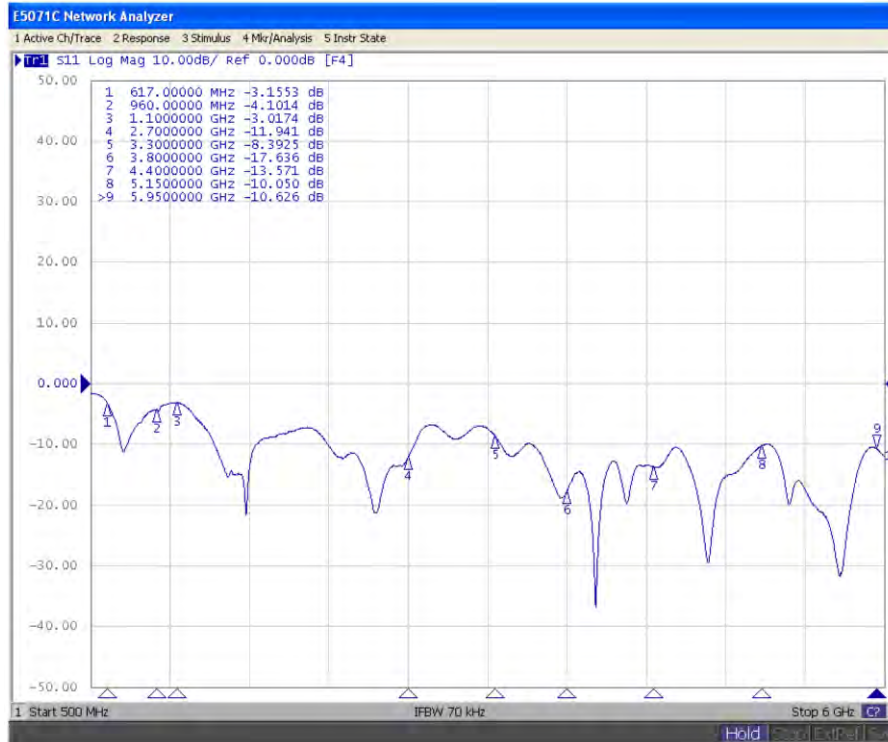
RF Antenna Assembly

ELECTRICAL CHARACTERISTICS

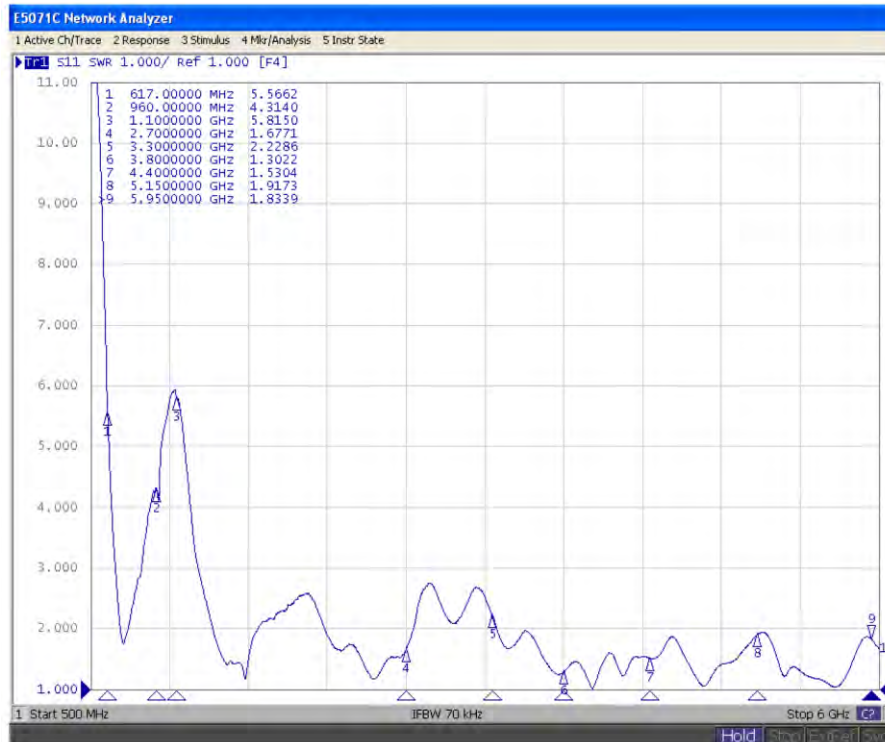
P/NO: BTEA0020106G0R2A22

Spec: 617-960MHz/1100-1612MHz/1710-2170MHz/2170-2300MHz
2300-2700MHz/3300-3800MHz/3800-4200MHz/4400-5000MHz
5150-5950MHz

Return Loss

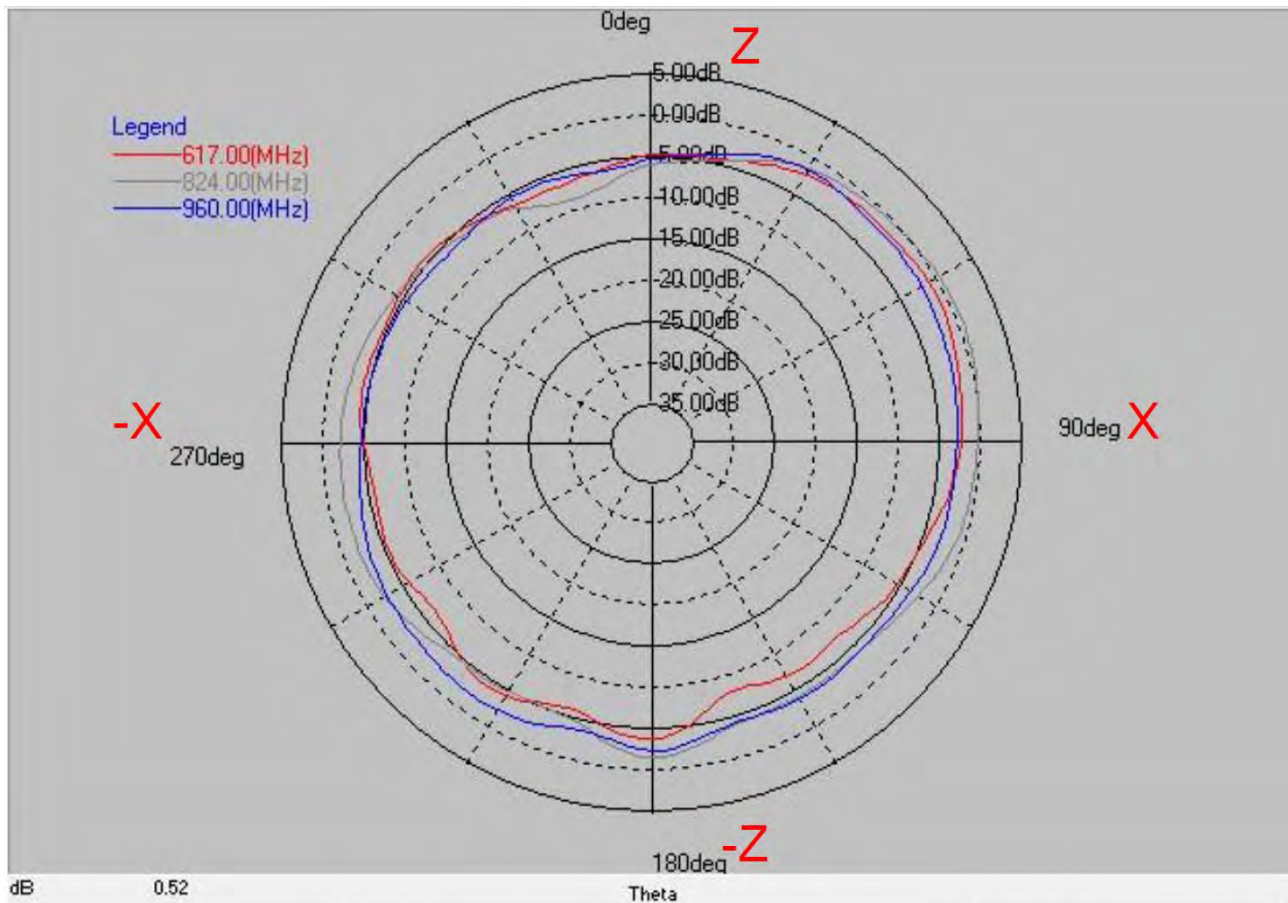


VSWR



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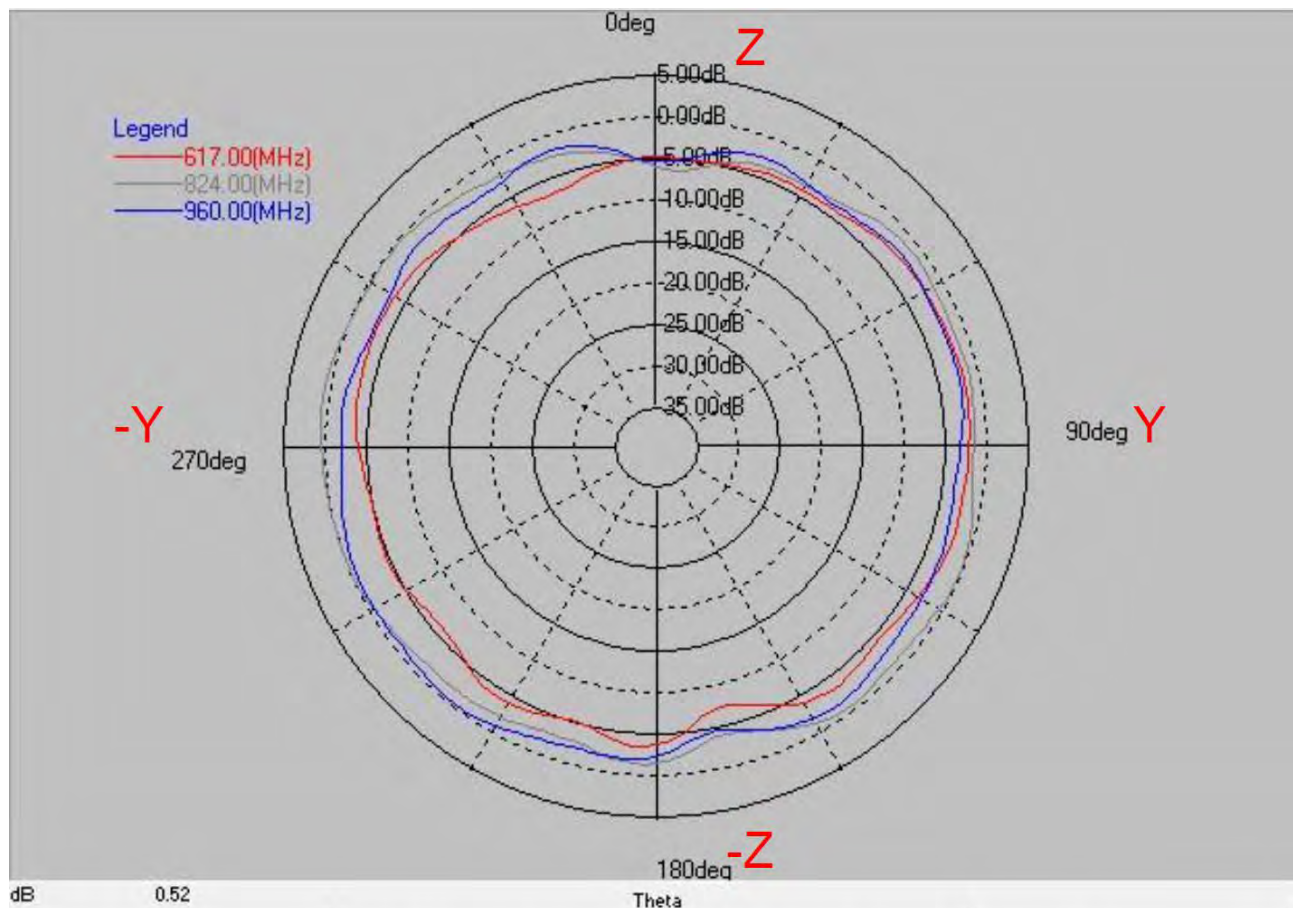
2D Gain Pattern_Antenna_ZX Cut(Phi=0)



Layer	Max value	Min value	Average
617(MHz)	-0.90 dB	-8.19 dB	-4.31 dB
824(MHz)	0.63 dB	-9.04 dB	-2.67 dB
960(MHz)	-1.75 dB	-6.44 dB	-3.56 dB



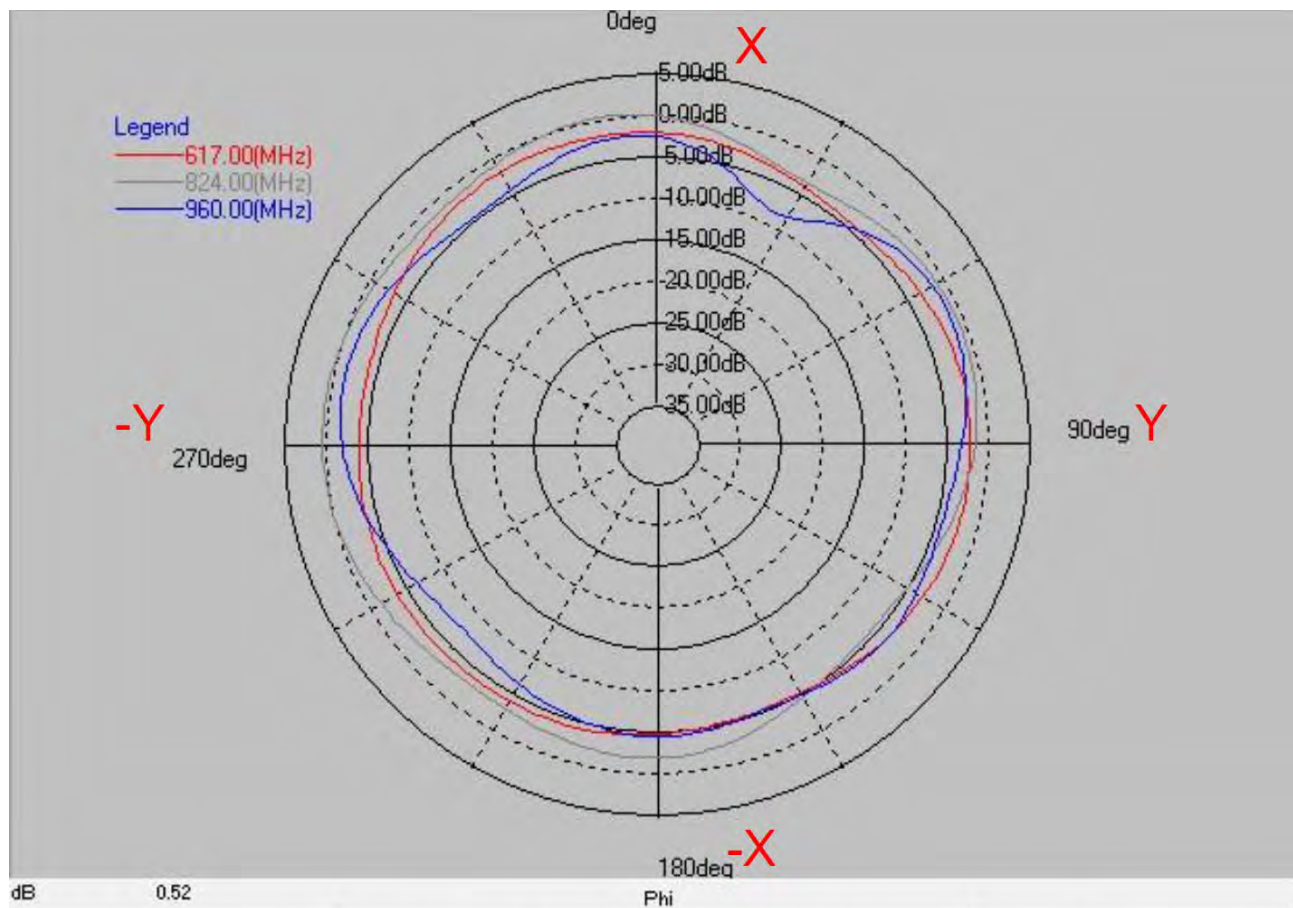
2D Gain Pattern_Antenna_ZY Cut(Phi=90)



Layer	Max value	Min value	Average
617(MHz)	-1.83 dB	-7.60 dB	-4.10 dB
824(MHz)	0.68 dB	-6.55 dB	-1.51 dB
960(MHz)	-0.44 dB	-5.56 dB	-2.42 dB



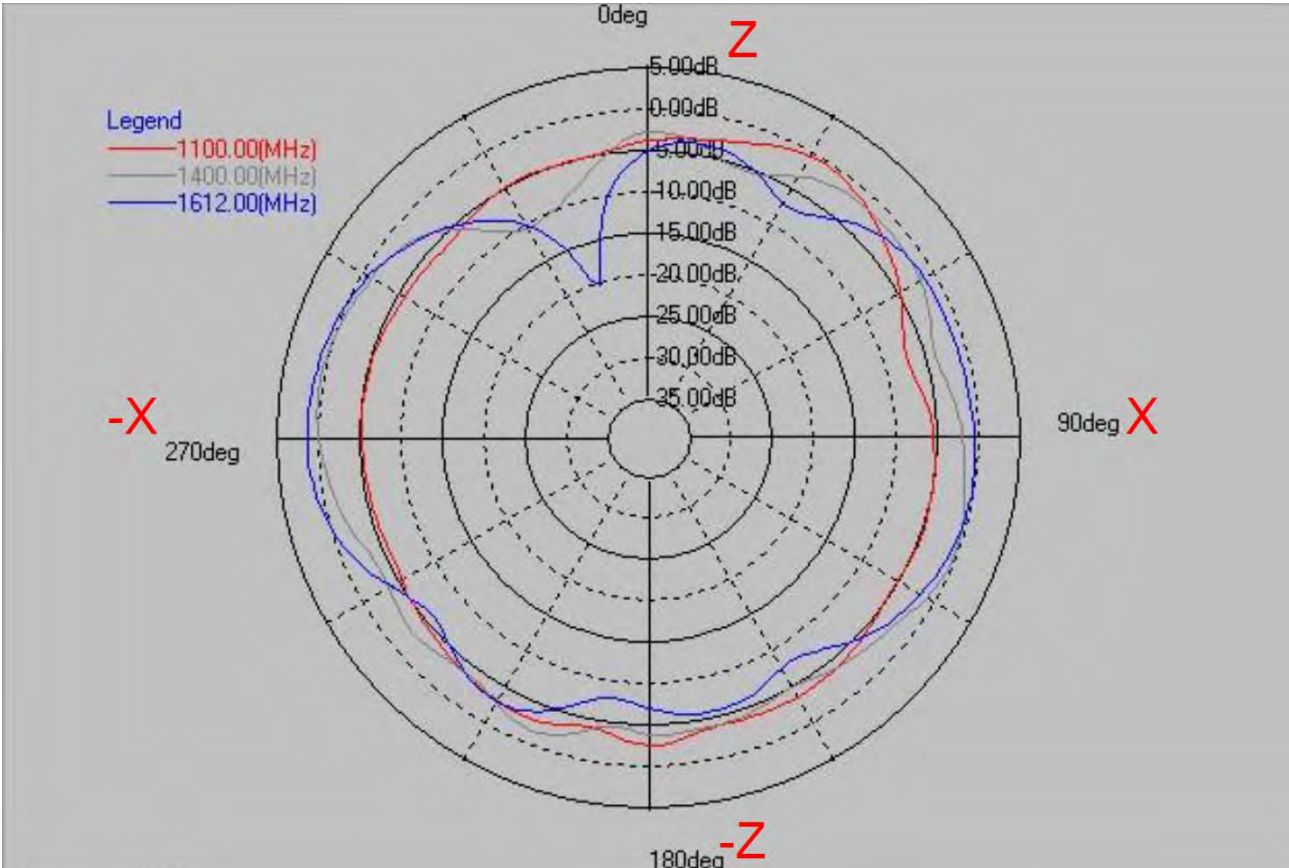
2D Gain Pattern_Antenna_XY Cut(Theta=90)



Layer	Max value	Min value	Average
617(MHz)	-1.97 dB	-5.48 dB	-3.40 dB
824(MHz)	0.51 dB	-5.78 dB	-1.70 dB
960(MHz)	-1.33 dB	-8.62 dB	-3.88 dB

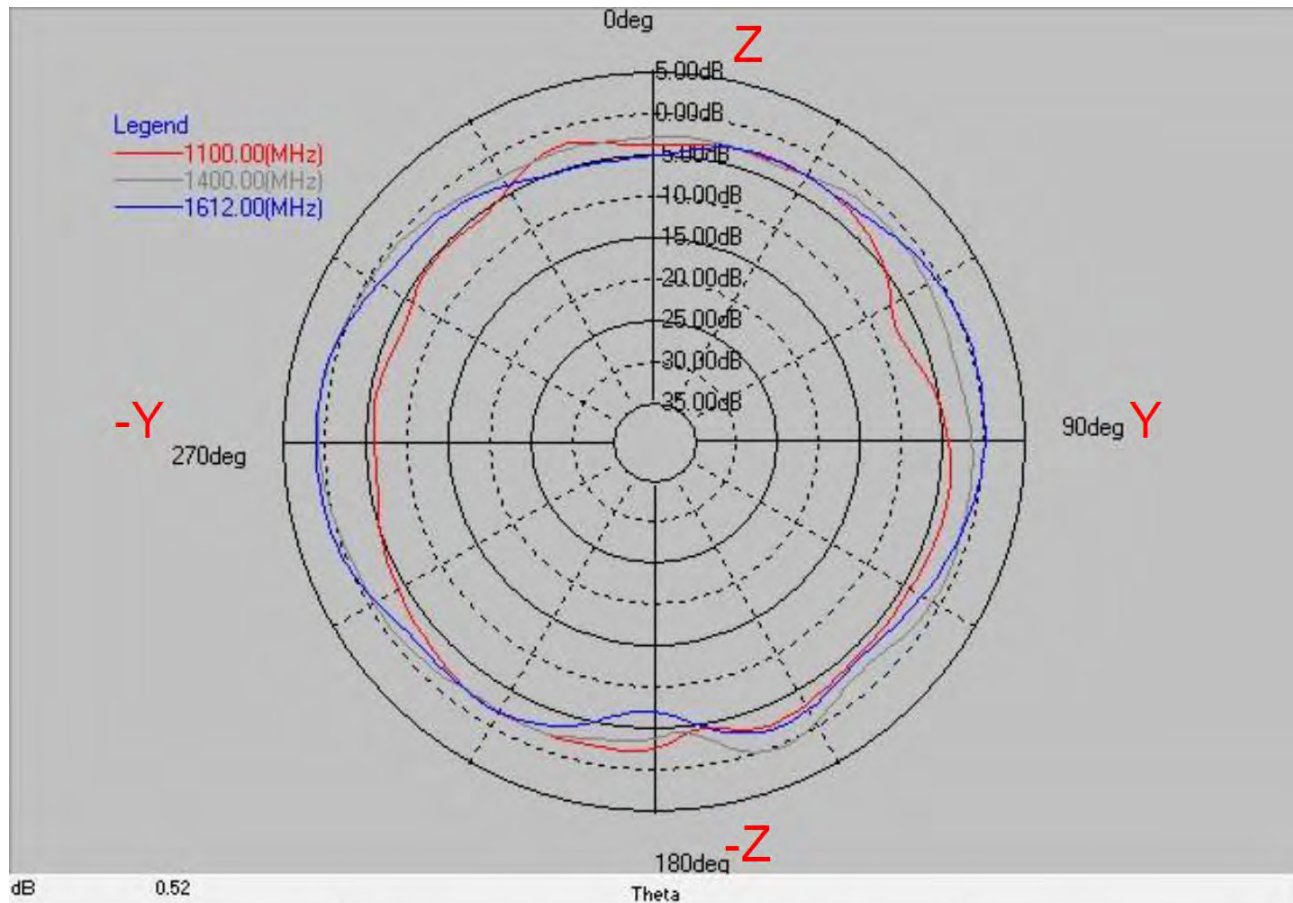


2D Gain Pattern_Antenna_ZX Cut(Phi=0)



Layer	Max value	Min value	Average
1100(MHz)	-0.59 dB	-7.16 dB	-4.21 dB
1400(MHz)	0.46 dB	-10.78 dB	-2.74 dB
1612(MHz)	1.38 dB	-20.63 dB	-2.82 dB

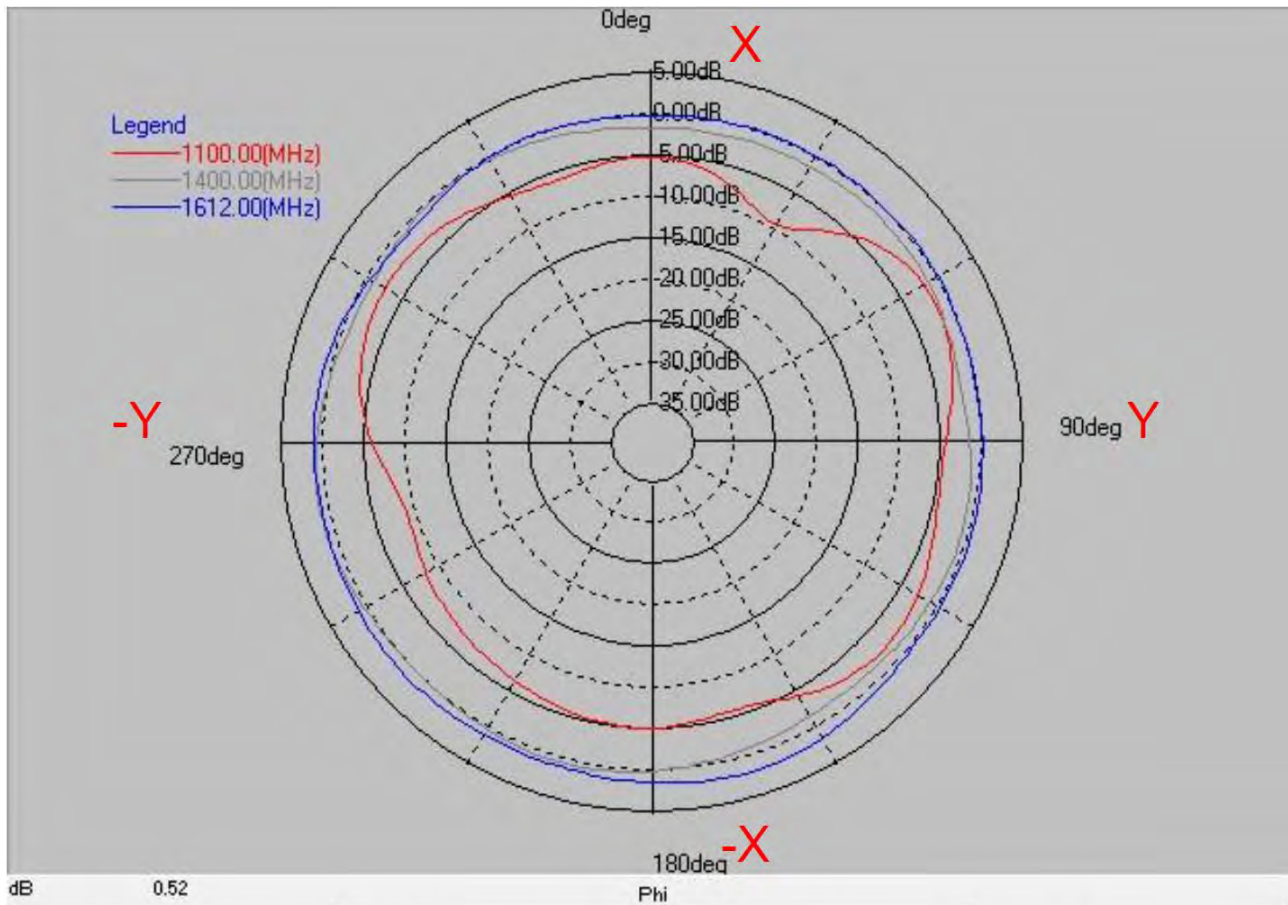
2D Gain Pattern_Antenna_ZY Cut(Phi=90)



Layer	Max value	Min value	Average
1100(MHz)	-2.05 dB	-7.45 dB	-3.95 dB
1400(MHz)	0.93 dB	-4.55 dB	-1.48 dB
1612(MHz)	1.12 dB	-7.25 dB	-1.80 dB



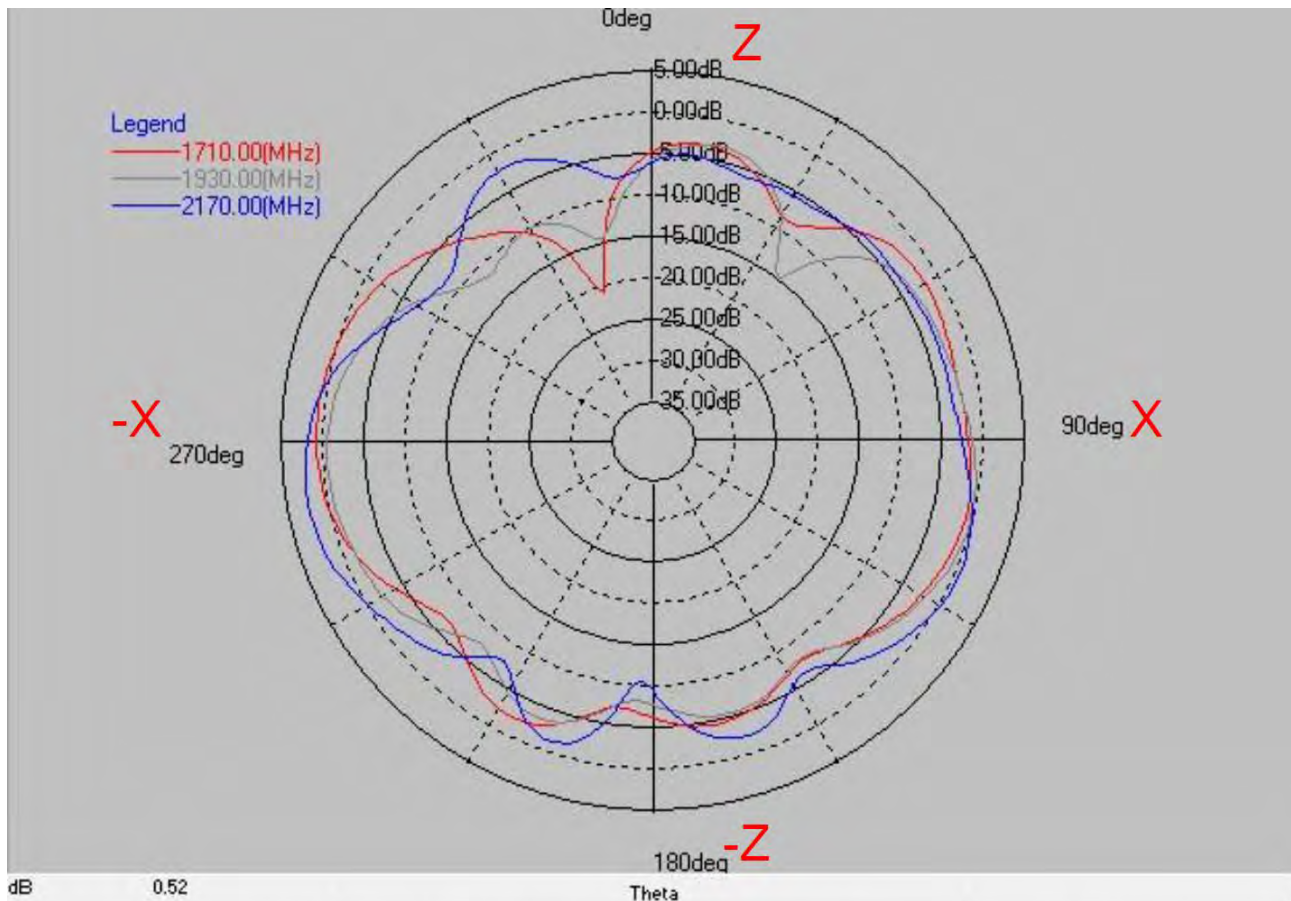
2D Gain Pattern Antenna XY Cut(Theta=90)



Layer	Max value	Min value	Average
1100(MHz)	-1.66 dB	-9.65 dB	-4.69 dB
1400(MHz)	1.14 dB	-1.86 dB	-0.63 dB
1612(MHz)	1.84 dB	-1.08 dB	0.52 dB



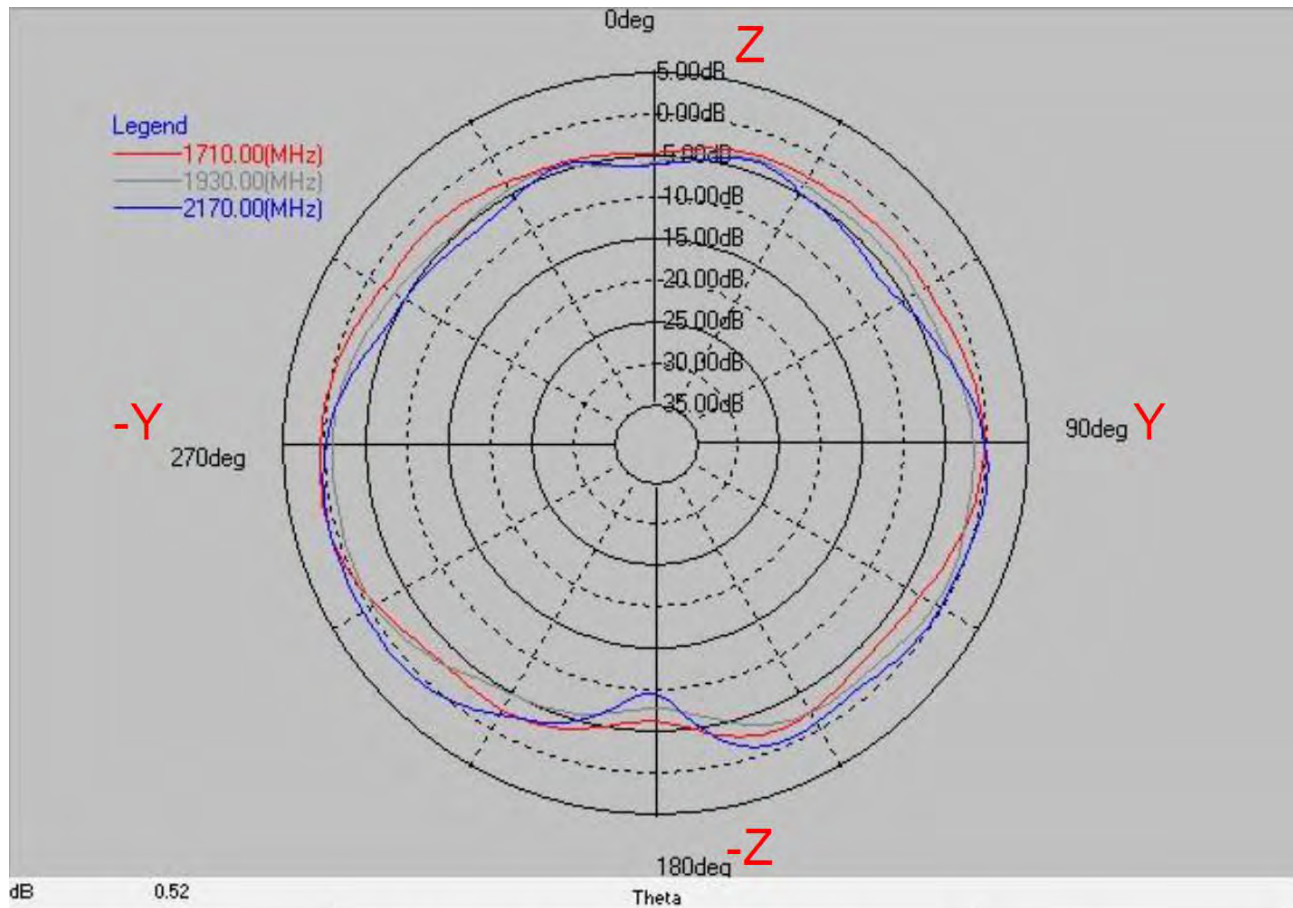
2D Gain Pattern_Antenna_ZX Cut(Phi=0)



Layer	Max value	Min value	Average
1710(MHz)	0.82 dB	-21.17 dB	-3.31 dB
1930(MHz)	-0.25 dB	-14.92 dB	-4.10 dB
2170(MHz)	2.46 dB	-10.70 dB	-2.50 dB



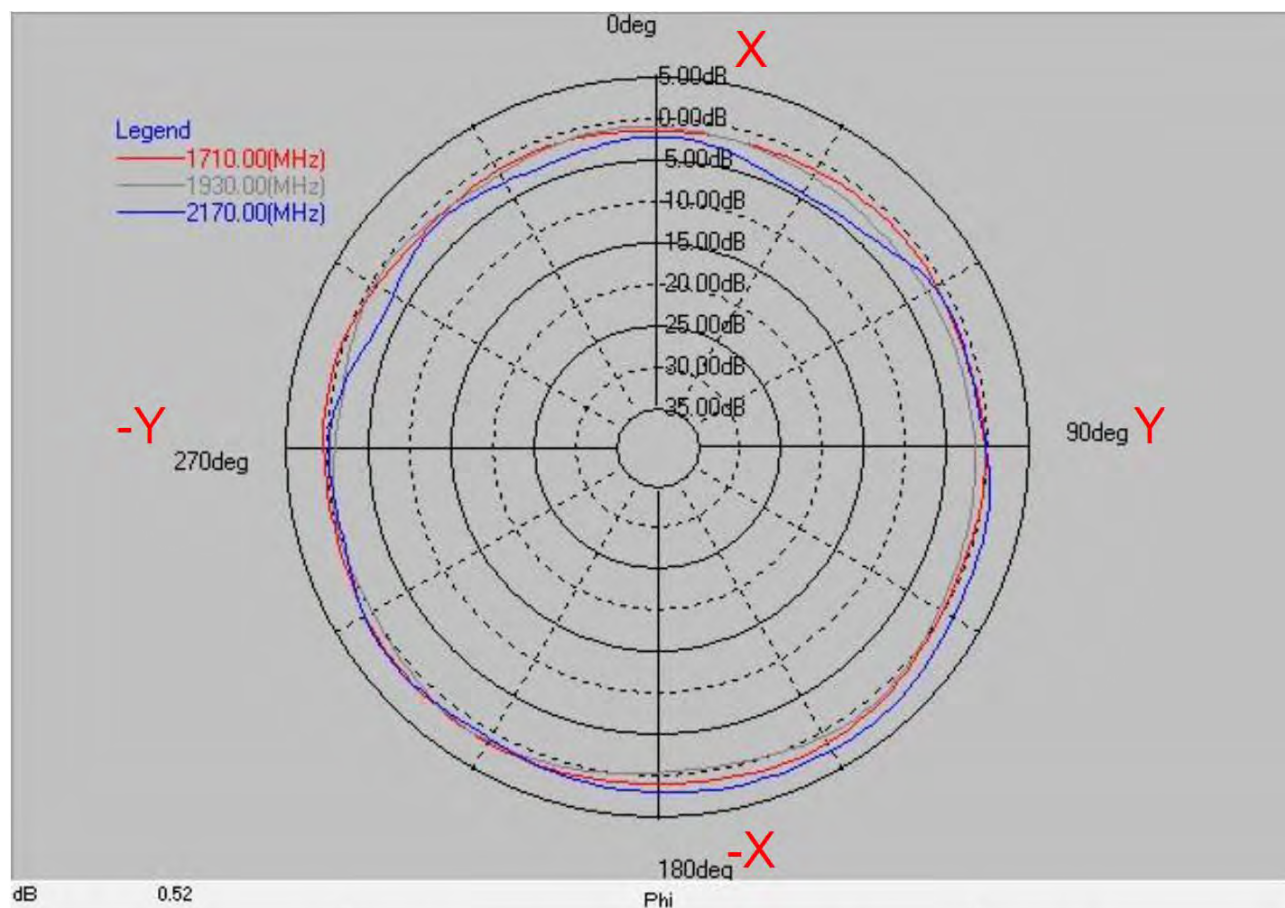
2D Gain Pattern Antenna ZY Cut($\Phi=90^\circ$)



Layer	Max value	Min value	Average
1710(MHz)	0.84 dB	-6.39 dB	-2.18 dB
1930(MHz)	-0.57 dB	-7.96 dB	-3.01 dB
2170(MHz)	0.86 dB	-9.73 dB	-2.27 dB



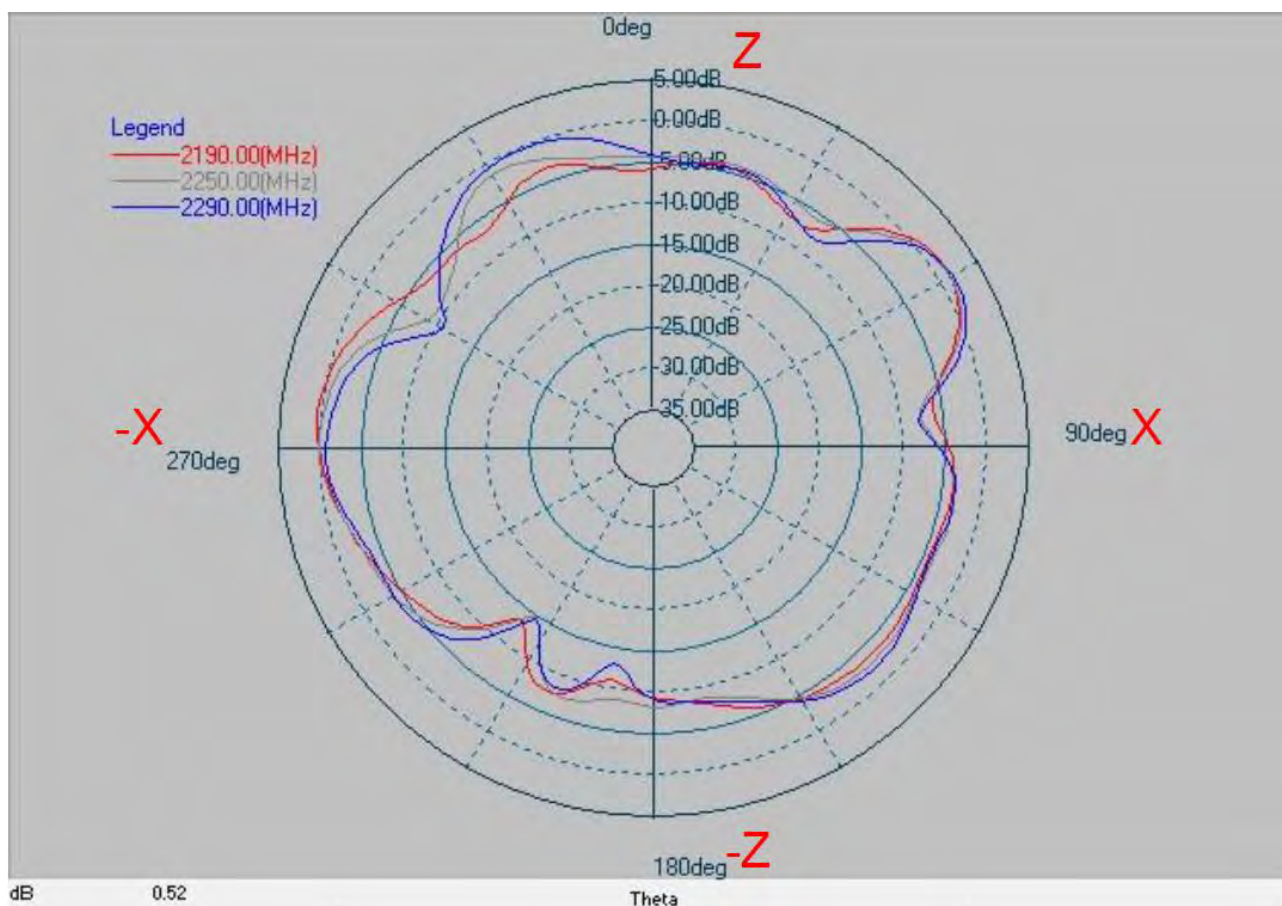
2D Gain Pattern_Antenna_XY Cut(Theta=90)



Layer	Max value	Min value	Average
1710(MHz)	1.41 dB	-1.71 dB	0.01 dB
1930(MHz)	1.21 dB	-2.44 dB	-0.70 dB
2170(MHz)	2.49 dB	-4.54 dB	-0.09 dB



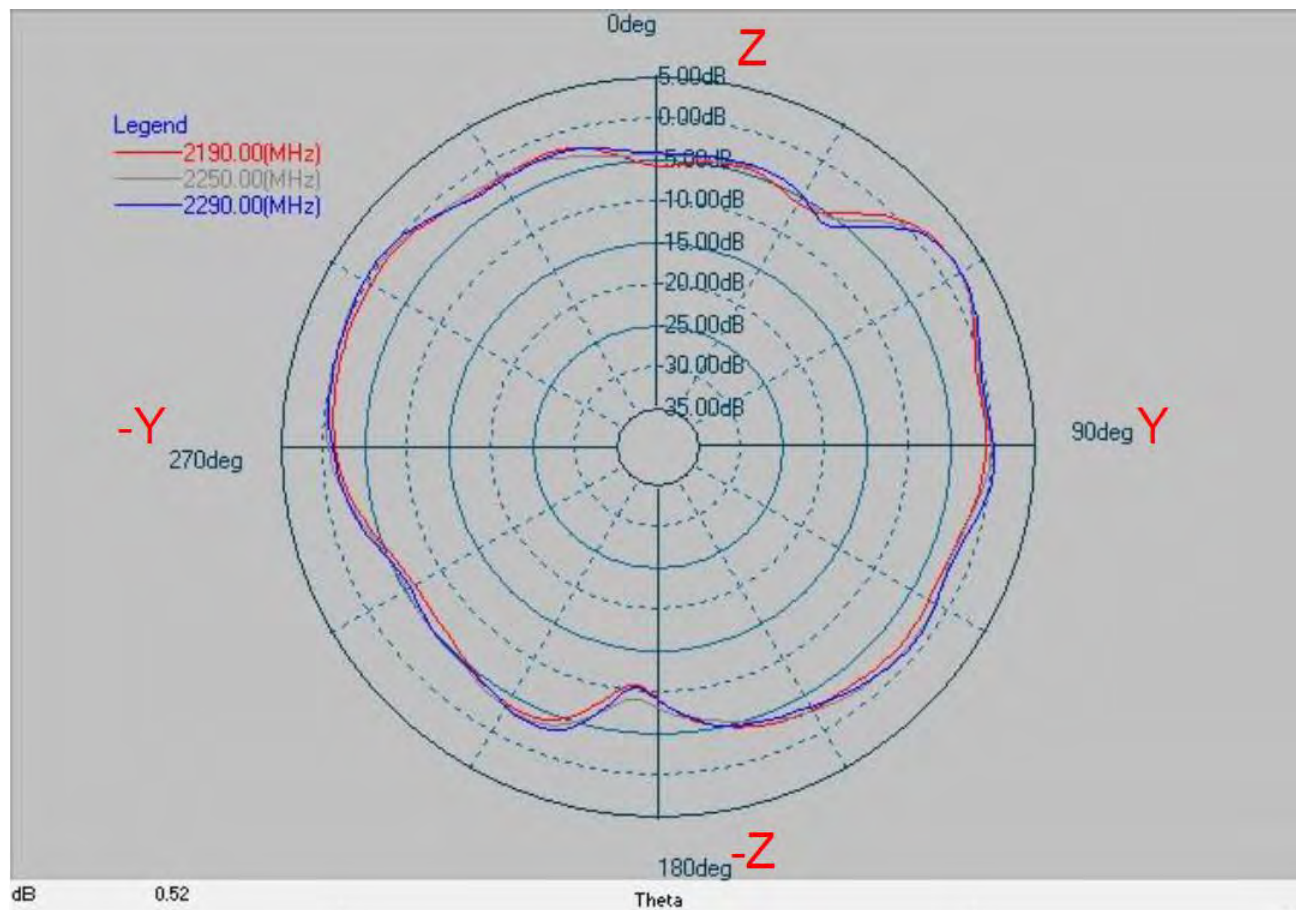
2D Gain Pattern_Antenna_ZX Cut(Phi=0)



Layer	Max value	Min value	Average
2190(MHz)	1.40 dB	-13.68 dB	-3.93 dB
2250(MHz)	1.34 dB	-14.91 dB	-3.75 dB
2290(MHz)	1.64 dB	-14.81 dB	-3.67 dB



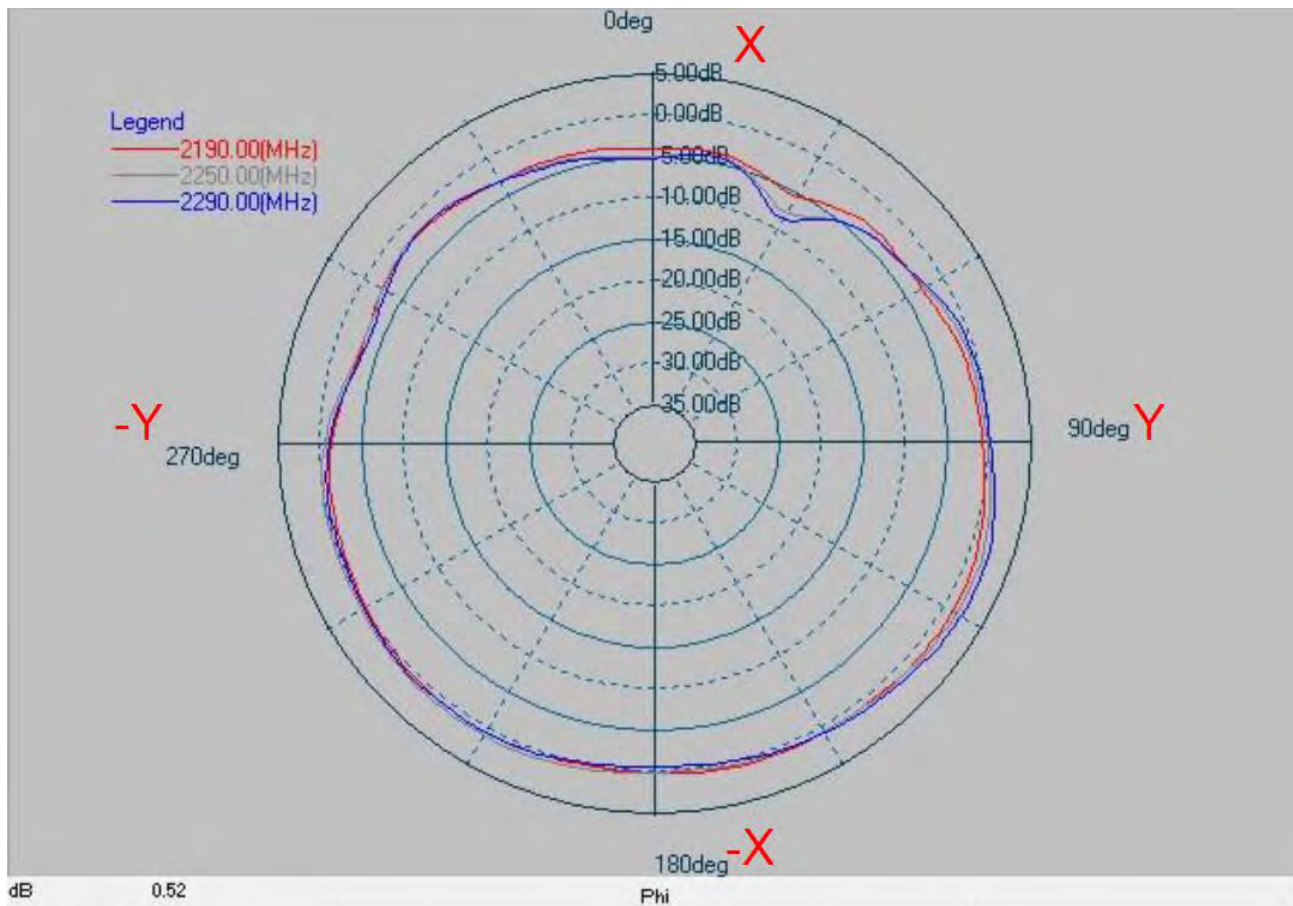
2D Gain Pattern_Antenna_ZY Cut(Phi=90)



Layer	Max value	Min value	Average
2190(MHz)	1.95 dB	-10.94 dB	-2.54 dB
2250(MHz)	1.84 dB	-9.12 dB	-2.20 dB
2290(MHz)	2.05 dB	-10.61 dB	-2.14 dB



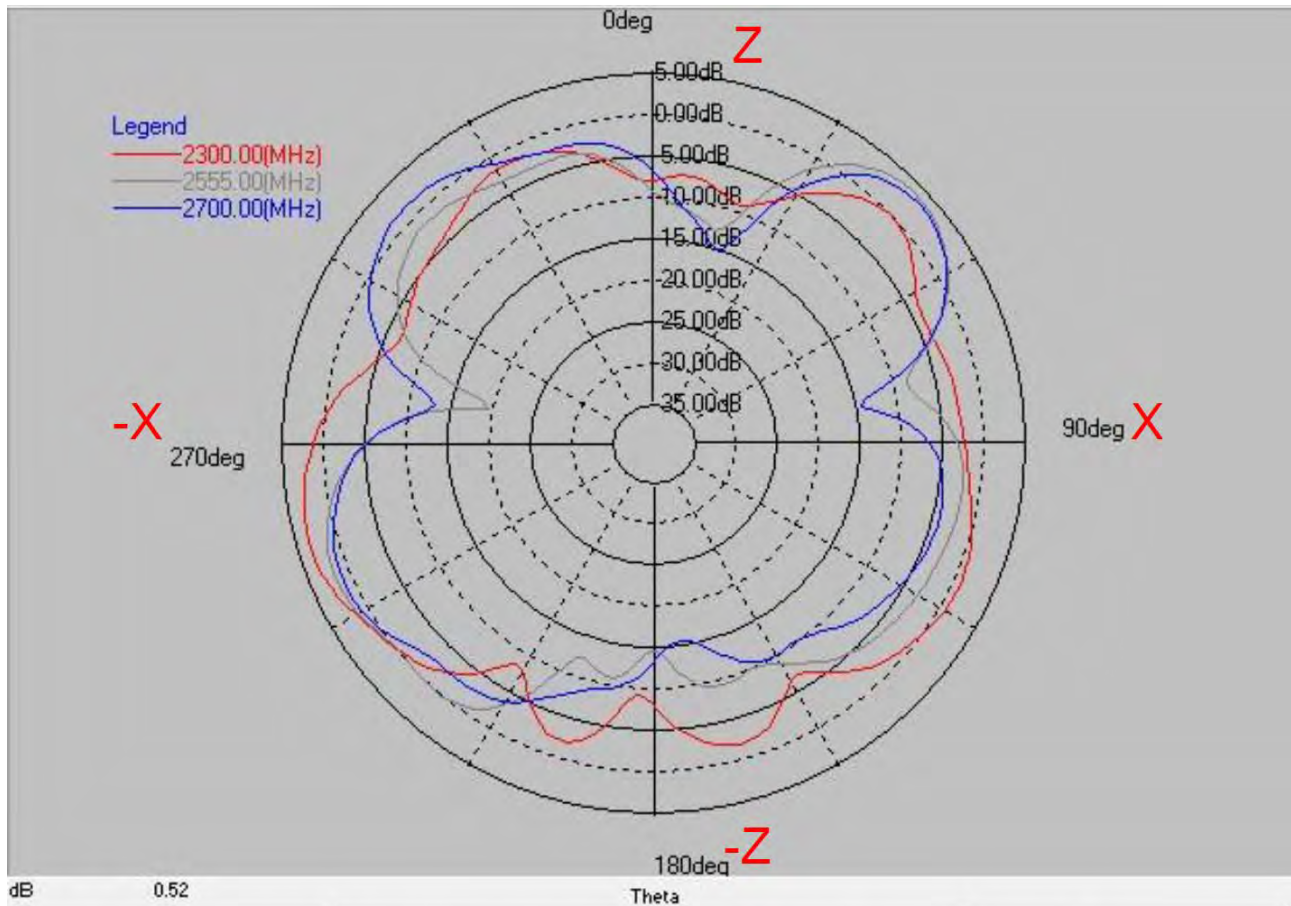
2D Gain Pattern_Antenna_XY Cut(Theta=90)



Layer	Max value	Min value	Average
2190(MHz)	1.18 dB	-5.65 dB	-1.07 dB
2250(MHz)	1.75 dB	-7.87 dB	-0.81 dB
2290(MHz)	2.43 dB	-8.84 dB	-0.86 dB



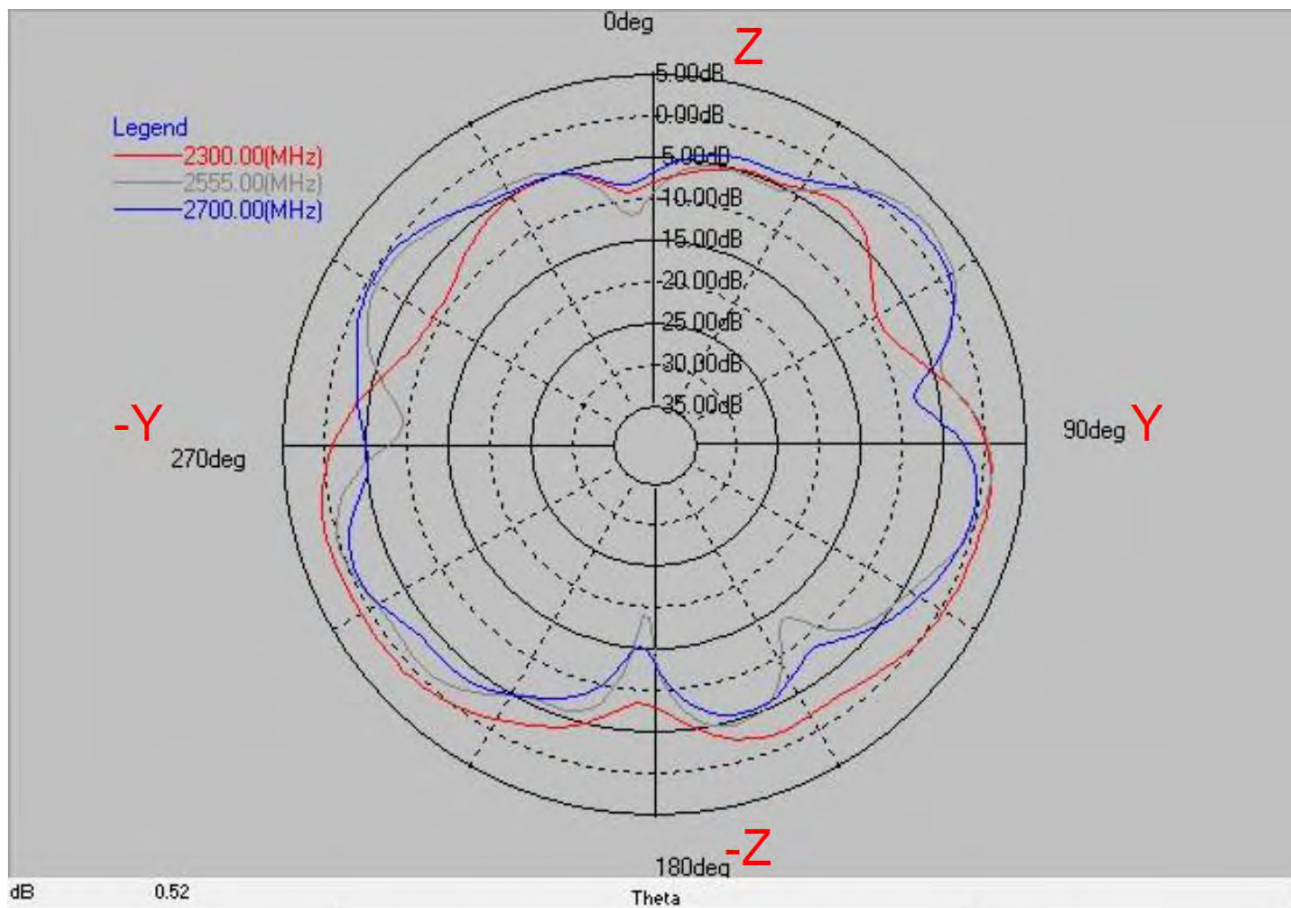
2D Gain Pattern_Antenna_ZX Cut(Phi=0)



Layer	Max value	Min value	Average
2300(MHz)	3.46 dB	-9.45 dB	-1.96 dB
2555(MHz)	3.82 dB	-19.62 dB	-2.58 dB
2700(MHz)	3.33 dB	-15.85 dB	-2.77 dB



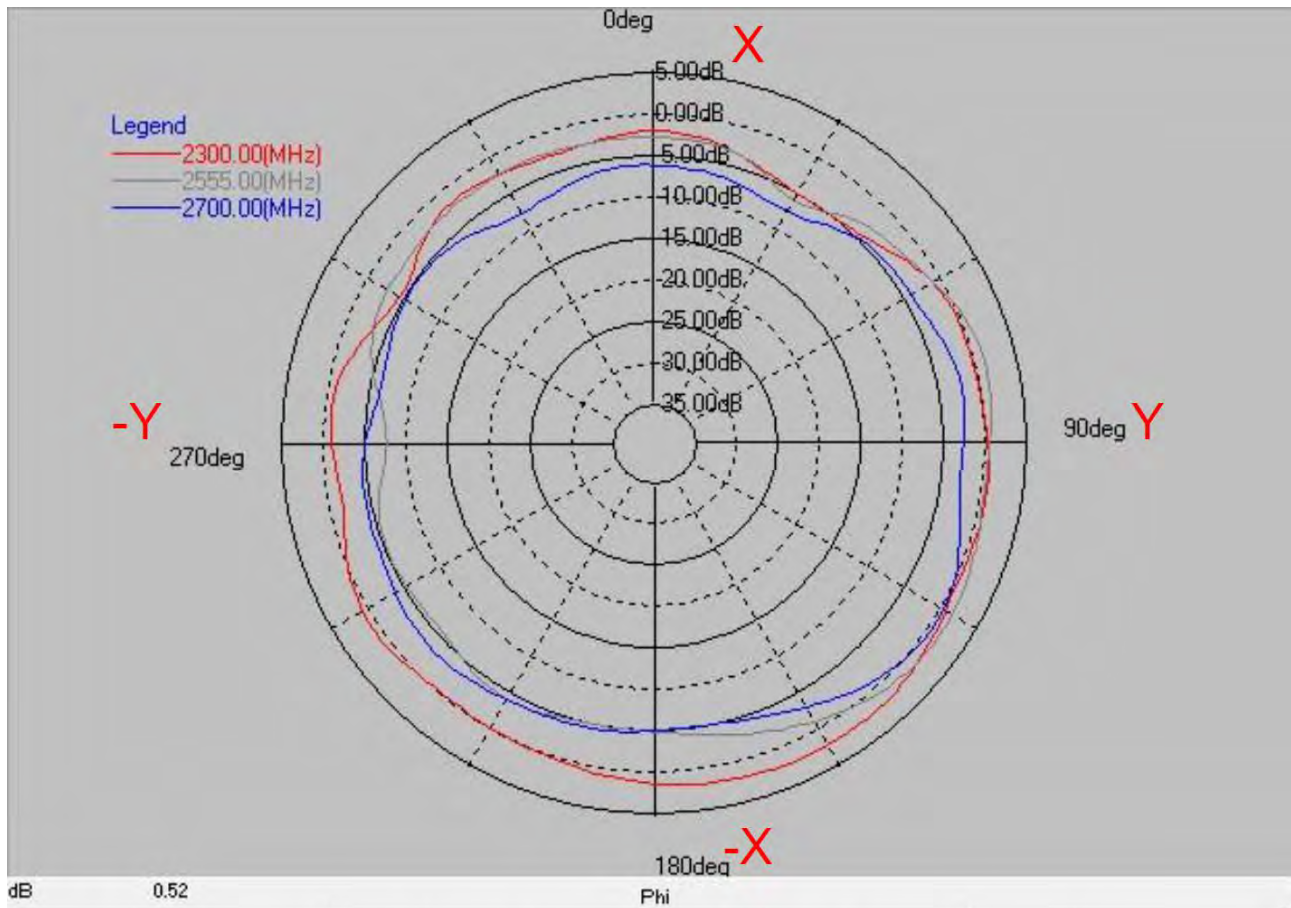
2D Gain Pattern_Antenna_ZY Cut(Phi=90)



Layer	Max value	Min value	Average
2300(MHz)	1.35 dB	-9.24 dB	-2.42 dB
2555(MHz)	2.52 dB	-19.18 dB	-2.78 dB
2700(MHz)	1.57 dB	-15.53 dB	-3.10 dB



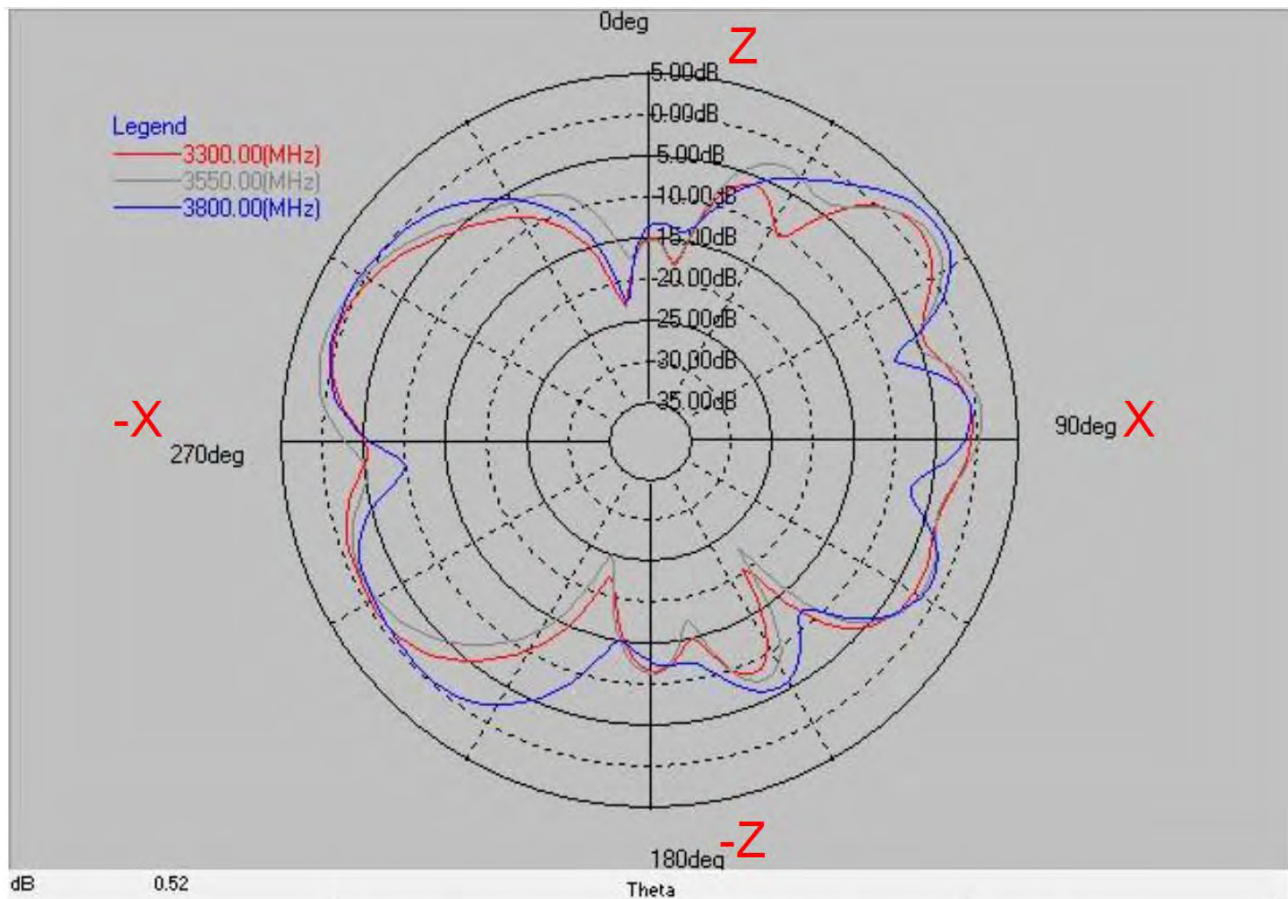
2D Gain Pattern_Antenna_XY Cut(Theta=90)



Layer	Max value	Min value	Average
2300(MHz)	2.14 dB	-5.33 dB	-0.51 dB
2555(MHz)	1.73 dB	-7.64 dB	-2.15 dB
2700(MHz)	0.52 dB	-7.98 dB	-3.95 dB



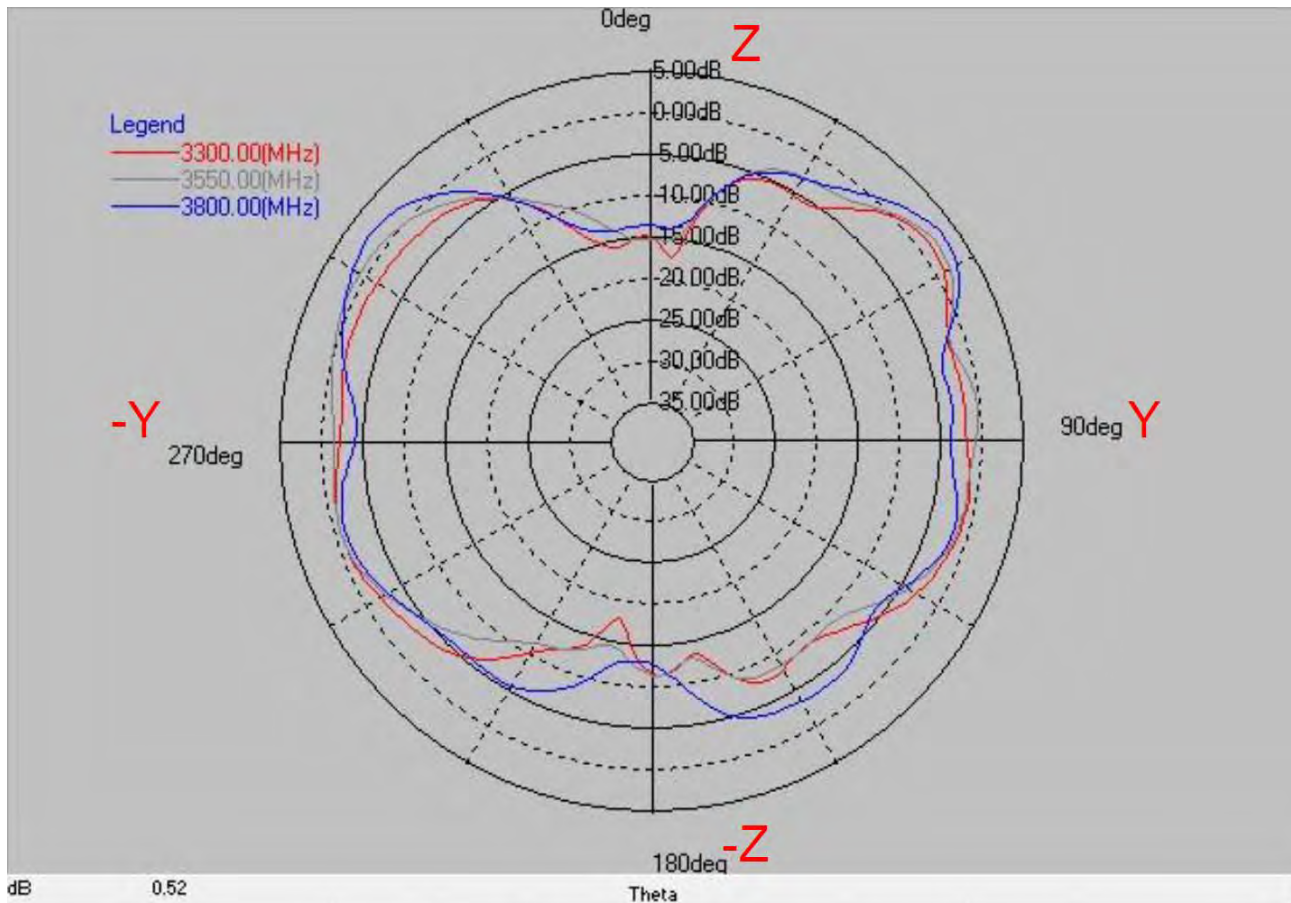
2D Gain Pattern_Antenna_ZX Cut(Phi=0)



Layer	Max value	Min value	Average
3300(MHz)	1.85 dB	-23.31 dB	-3.84 dB
3550(MHz)	2.62 dB	-25.25 dB	-3.22 dB
3800(MHz)	3.96 dB	-22.87 dB	-2.76 dB



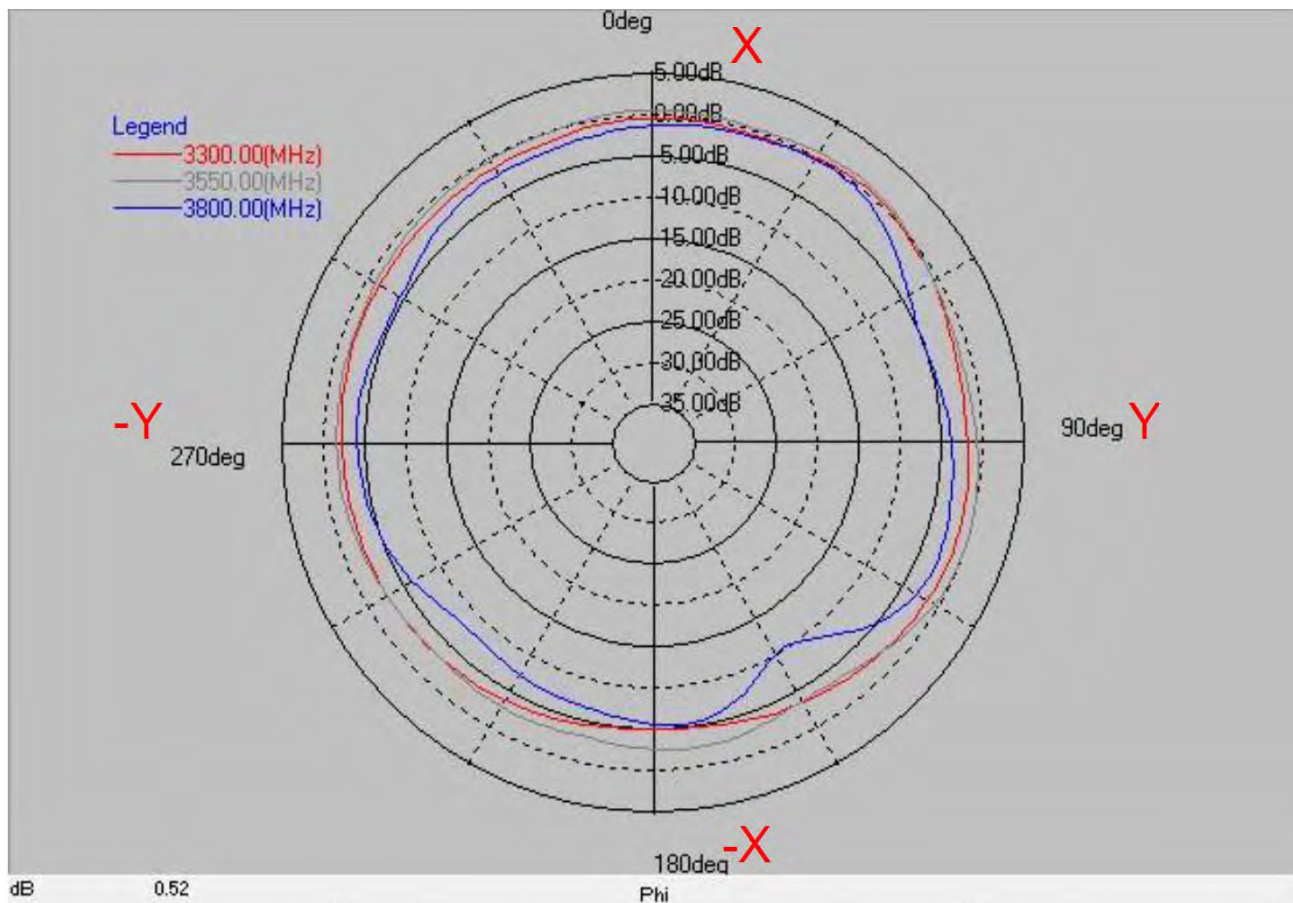
2D Gain Pattern_Antenna_ZY Cut(Phi=90)



Layer	Max value	Min value	Average
3300(MHz)	1.34 dB	-18.19 dB	-3.68 dB
3550(MHz)	2.11 dB	-15.65 dB	-3.06 dB
3800(MHz)	3.26 dB	-14.15 dB	-2.72 dB



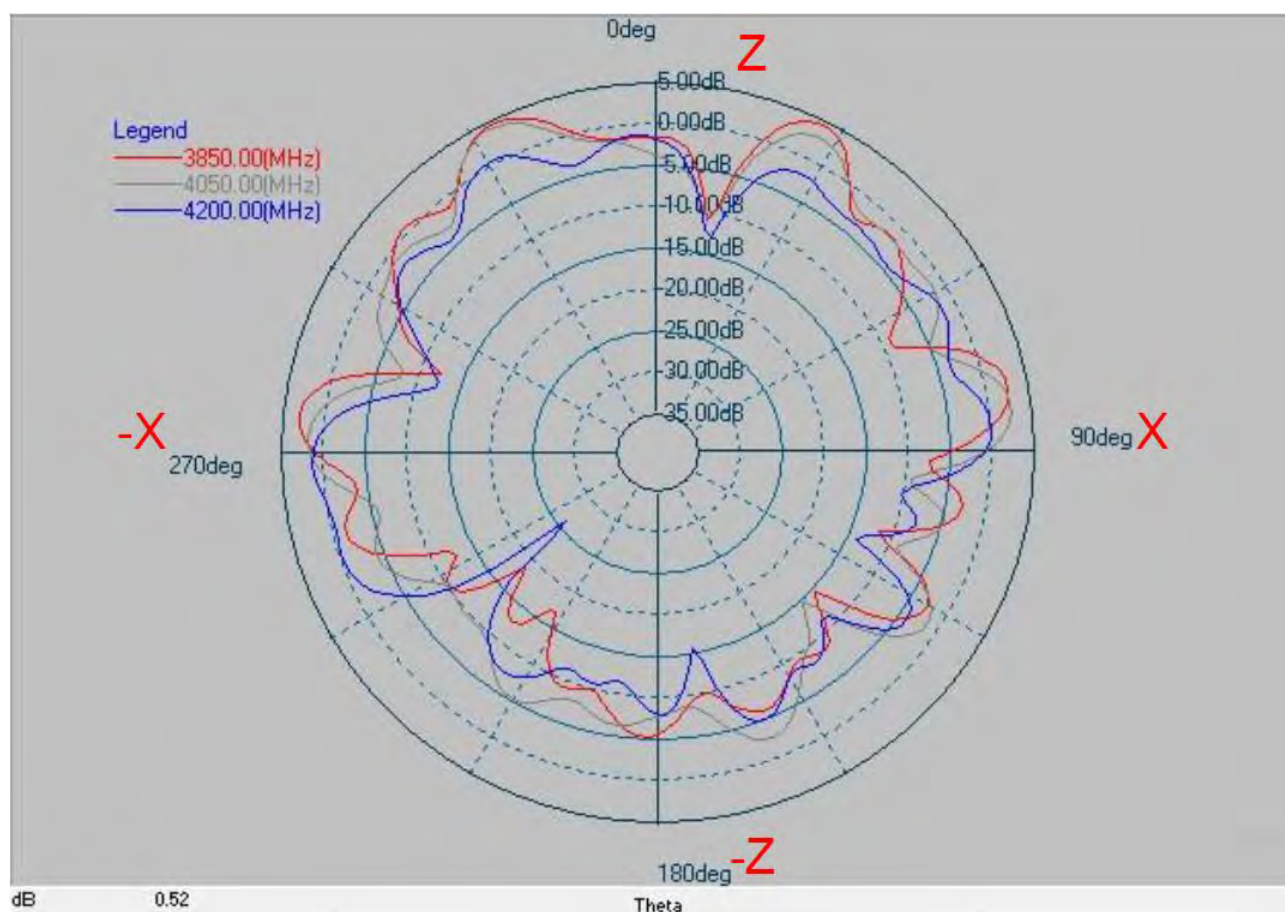
2D Gain Pattern_Antenna_XY Cut(Theta=90)



Layer	Max value	Min value	Average
3300(MHz)	0.32 dB	-5.20 dB	-1.91 dB
3550(MHz)	0.84 dB	-3.76 dB	-1.17 dB
3800(MHz)	-0.29 dB	-10.46 dB	-3.80 dB



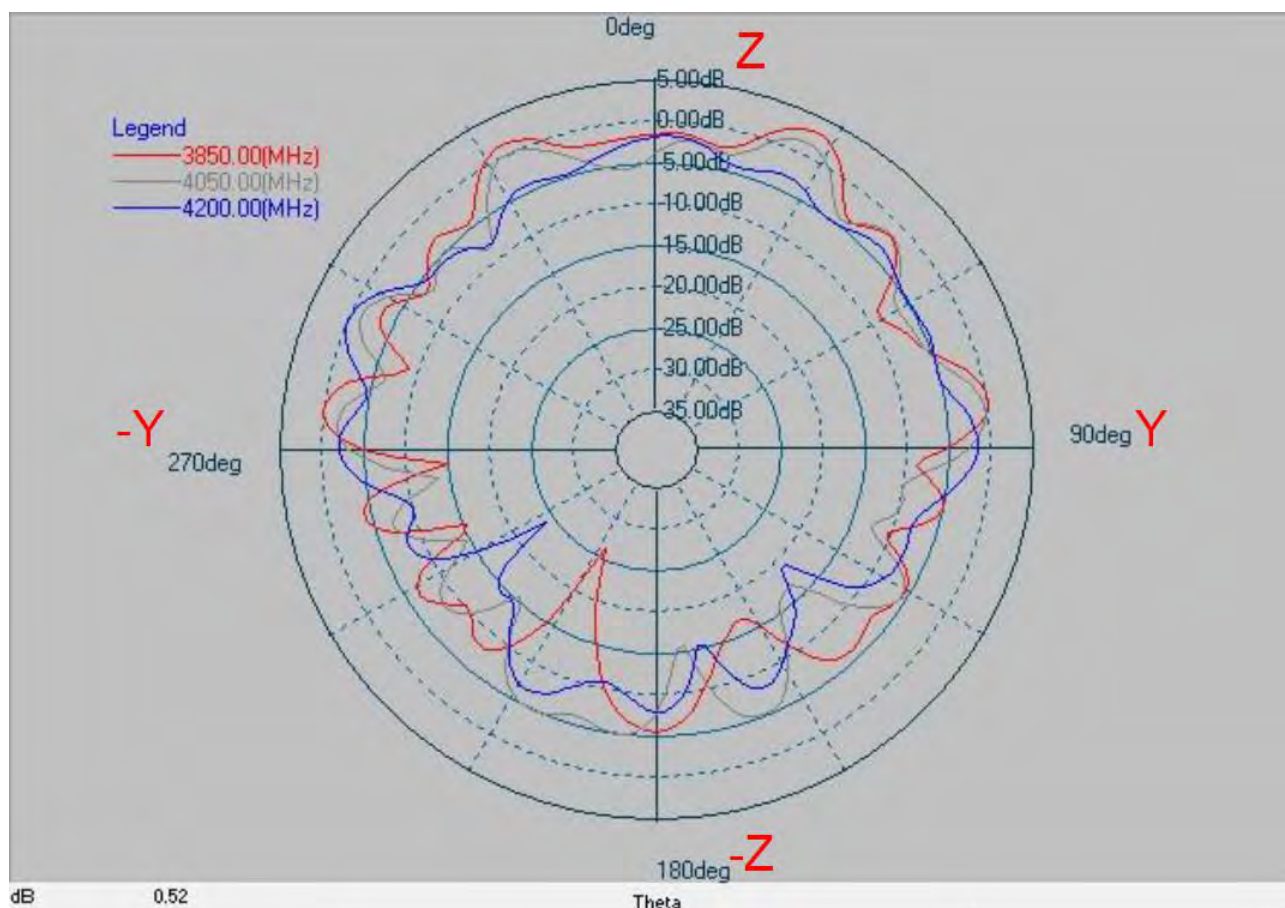
2D Gain Pattern_Antenna_ZX Cut(Phi=0)



Layer	Max value	Min value	Average
3850(MHz)	4.27 dB	-18.75 dB	-2.21 dB
4050(MHz)	3.81 dB	-14.67 dB	-2.40 dB
4200(MHz)	1.22 dB	-26.16 dB	-4.01 dB



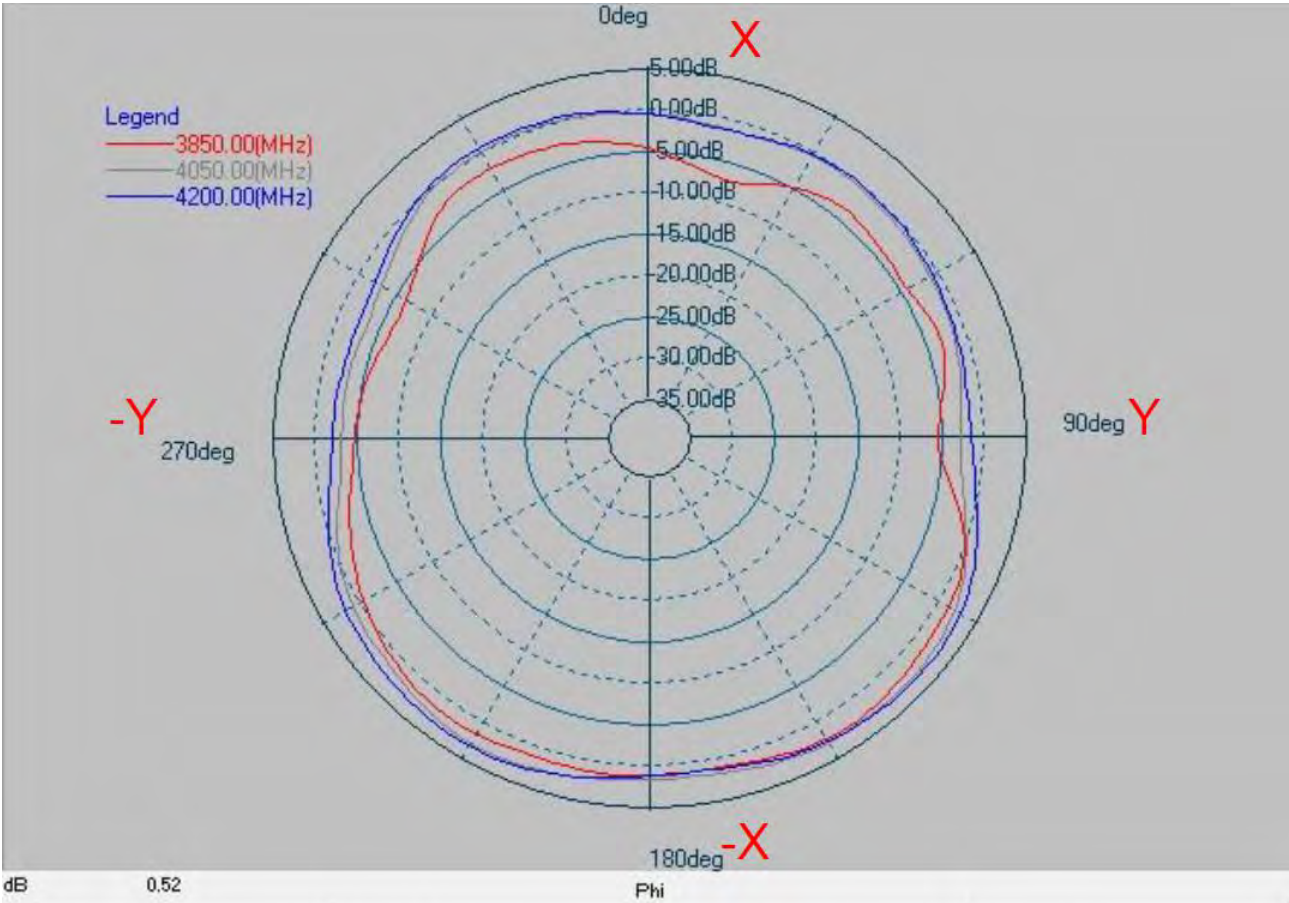
2D Gain Pattern_Antenna_ZY Cut(Phi=90)



Layer	Max value	Min value	Average
3850(MHz)	2.89 dB	-26.38 dB	-3.98 dB
4050(MHz)	1.30 dB	-16.95 dB	-4.69 dB
4200(MHz)	-0.12 dB	-24.05 dB	-5.48 dB

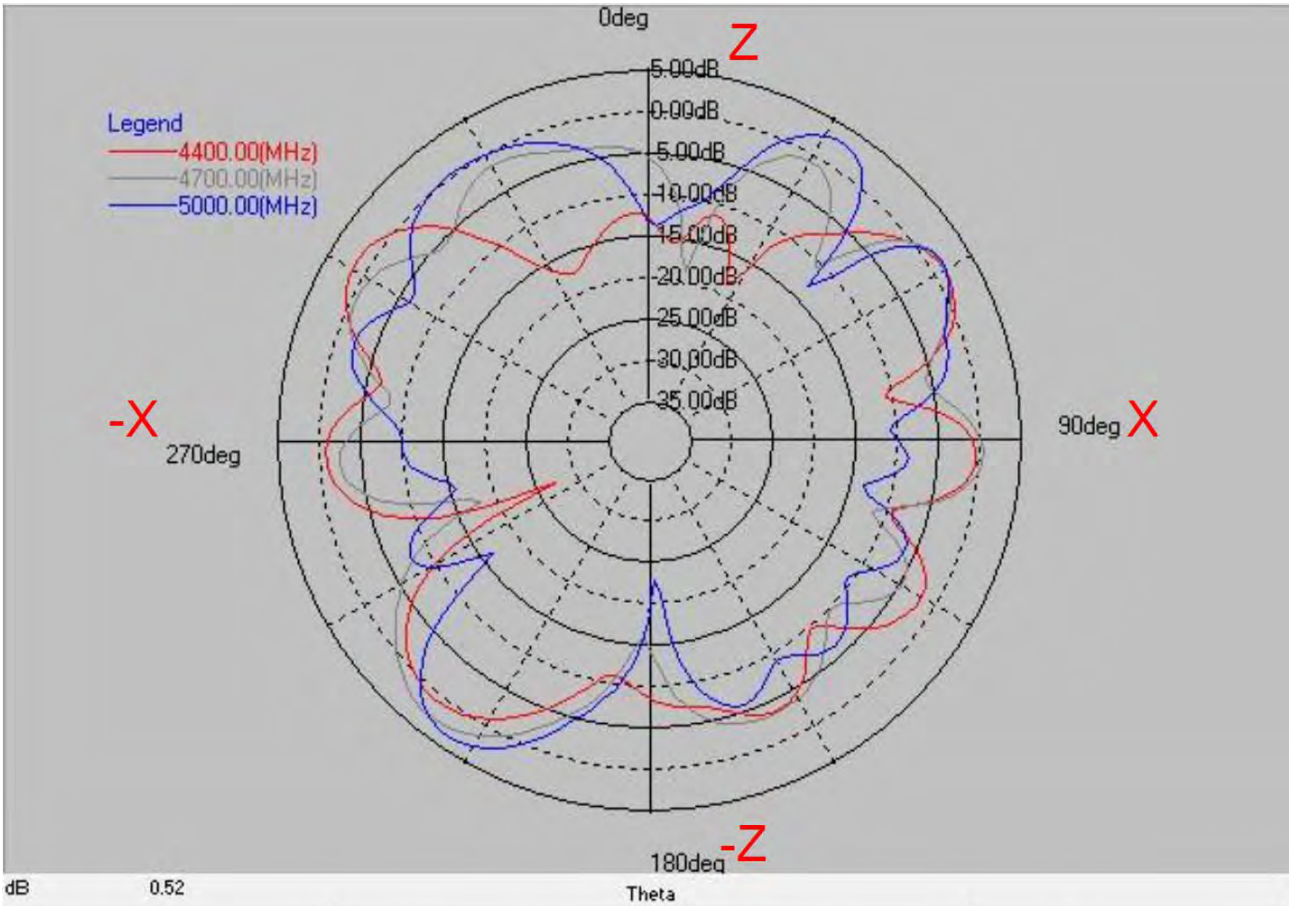


2D Gain Pattern_Antenna_XY Cut(Theta=90)



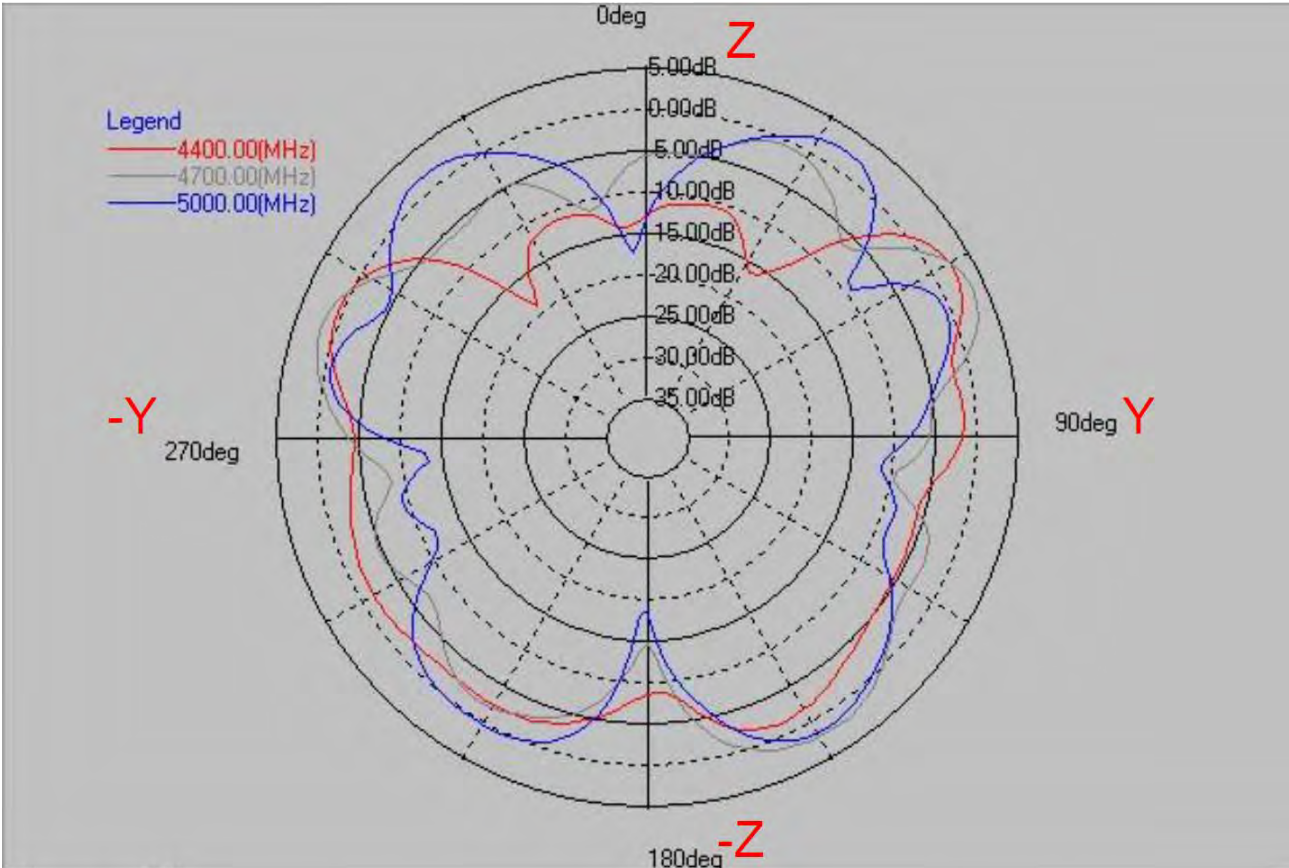
Layer	Max value	Min value	Average
3850(MHz)	2.46 dB	-7.50 dB	-1.25 dB
4050(MHz)	2.90 dB	-3.61 dB	0.30 dB
4200(MHz)	3.32 dB	-2.69 dB	0.72 dB

2D Gain Pattern_Antenna_ZX Cut(Phi=0)



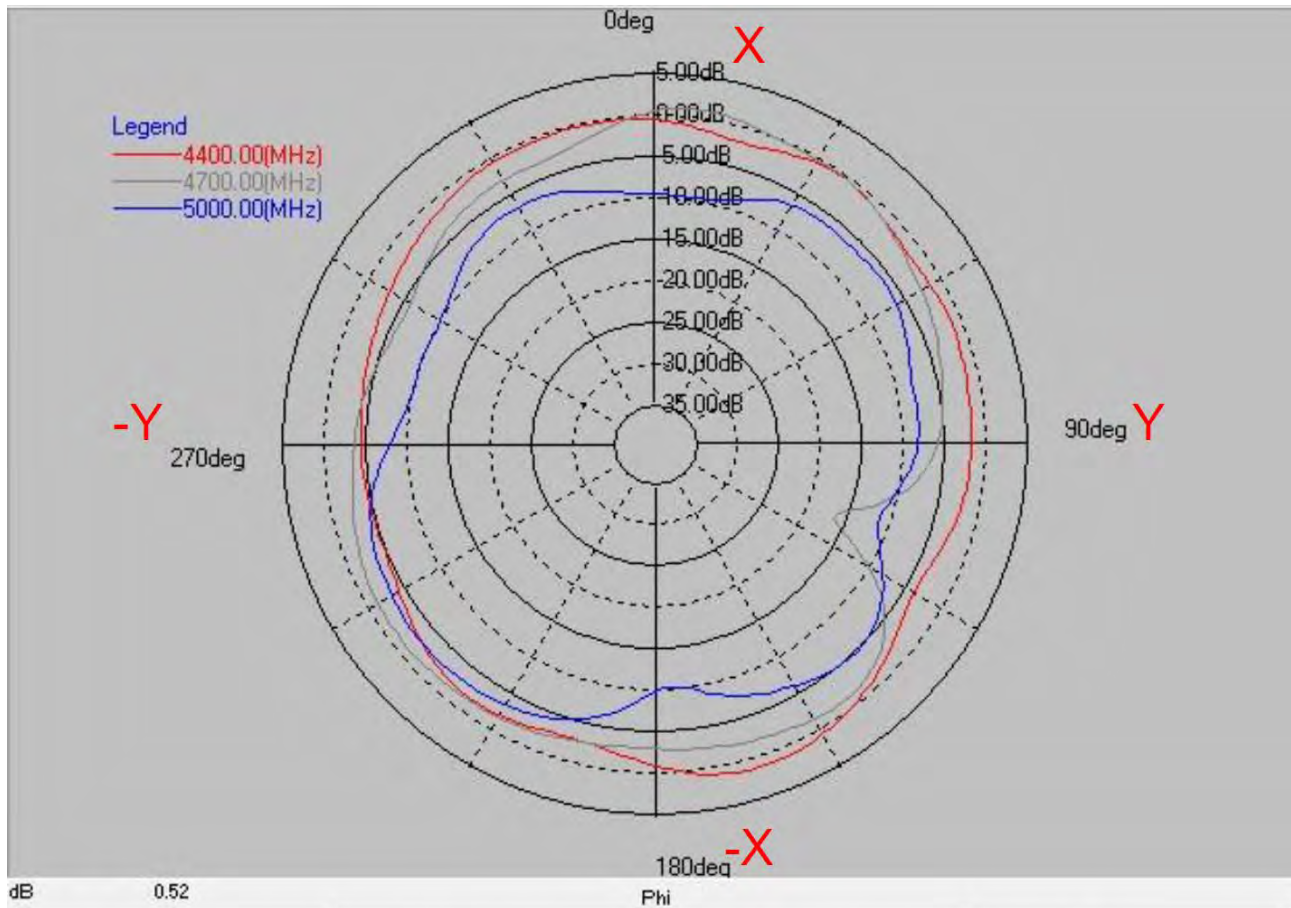
Layer	Max value	Min value	Average
4400(MHz)	1.61 dB	-27.46 dB	-3.82 dB
4700(MHz)	2.66 dB	-19.22 dB	-3.08 dB
5000(MHz)	3.33 dB	-22.98 dB	-3.23 dB

2D Gain Pattern_Antenna_ZY Cut(Phi=90)



Layer	Max value	Min value	Average
4400(MHz)	2.43 dB	-19.21 dB	-3.51 dB
4700(MHz)	3.44 dB	-15.02 dB	-2.41 dB
5000(MHz)	2.29 dB	-18.92 dB	-2.47 dB

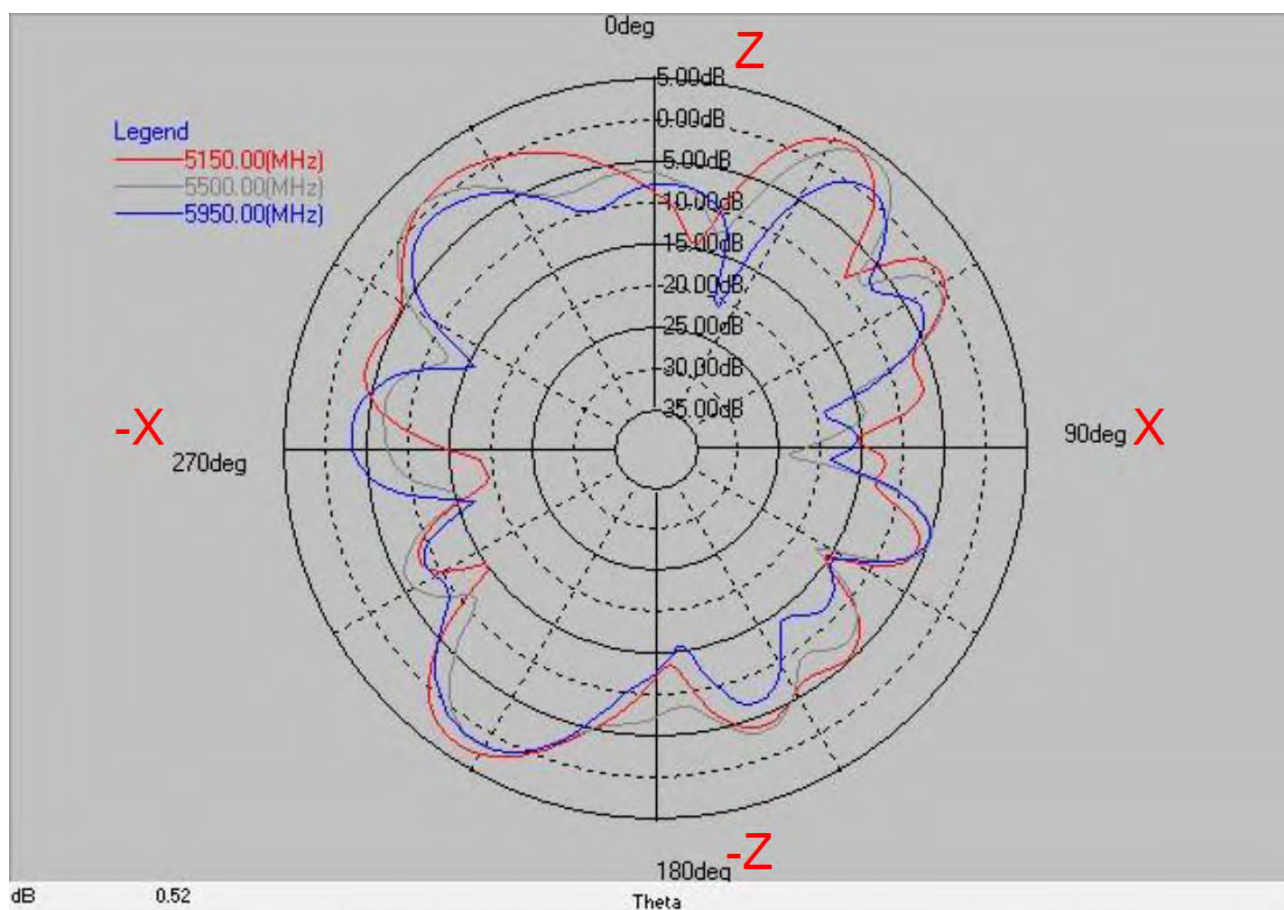
2D Gain Pattern_Antenna_XY Cut(Theta=90)



Layer	Max value	Min value	Average
4400(MHz)	1.12 dB	-4.85 dB	-1.73 dB
4700(MHz)	0.73 dB	-16.52 dB	-2.60 dB
5000(MHz)	-2.92 dB	-11.27 dB	-6.64 dB



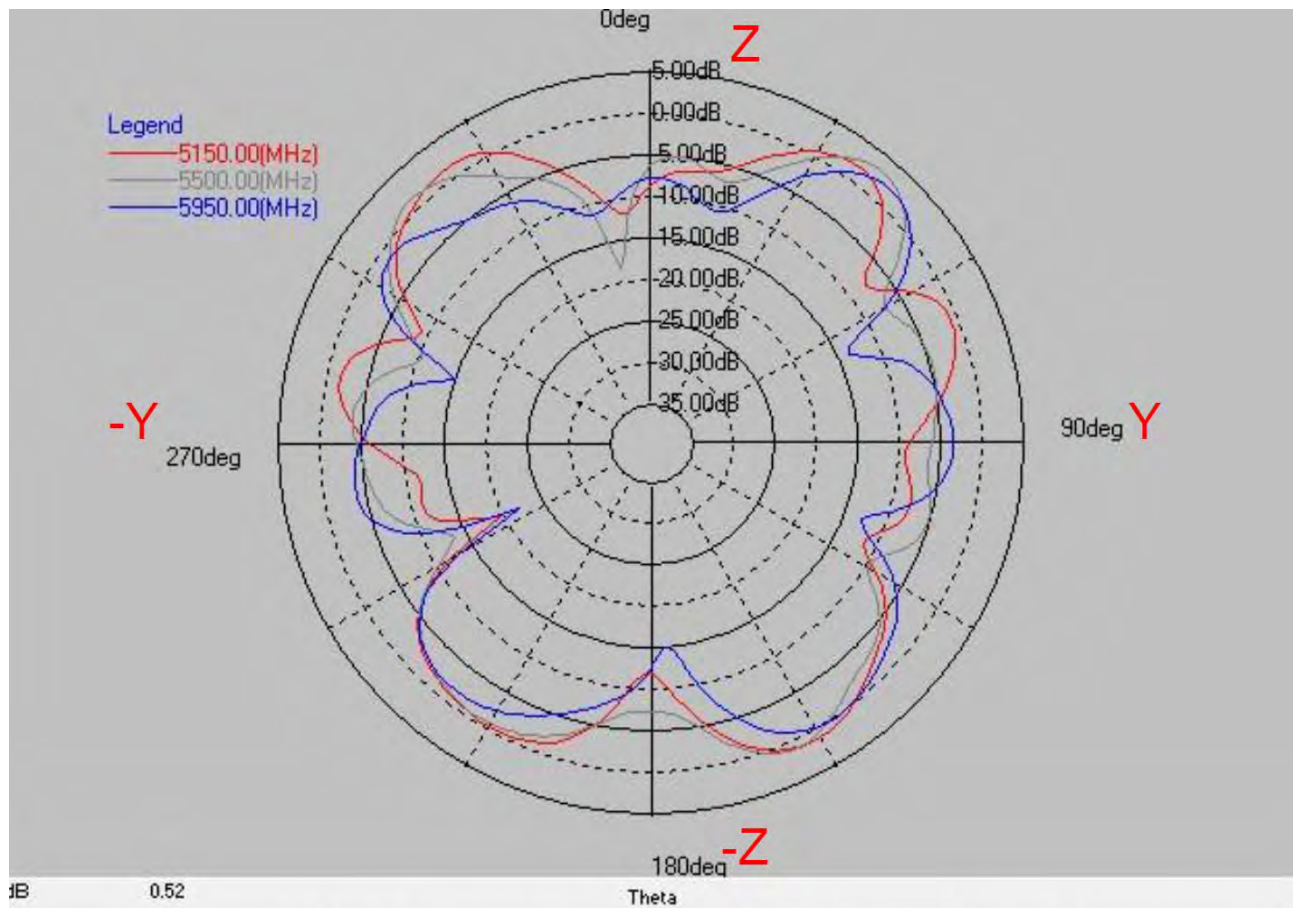
2D Gain Pattern_Antenna_ZX Cut(Phi=0)



Layer	Max value	Min value	Average
5150(MHz)	3.67 dB	-19.42 dB	-3.12 dB
5500(MHz)	3.93 dB	-23.76 dB	-3.94 dB
5950(MHz)	1.63 dB	-21.10 dB	-5.30 dB



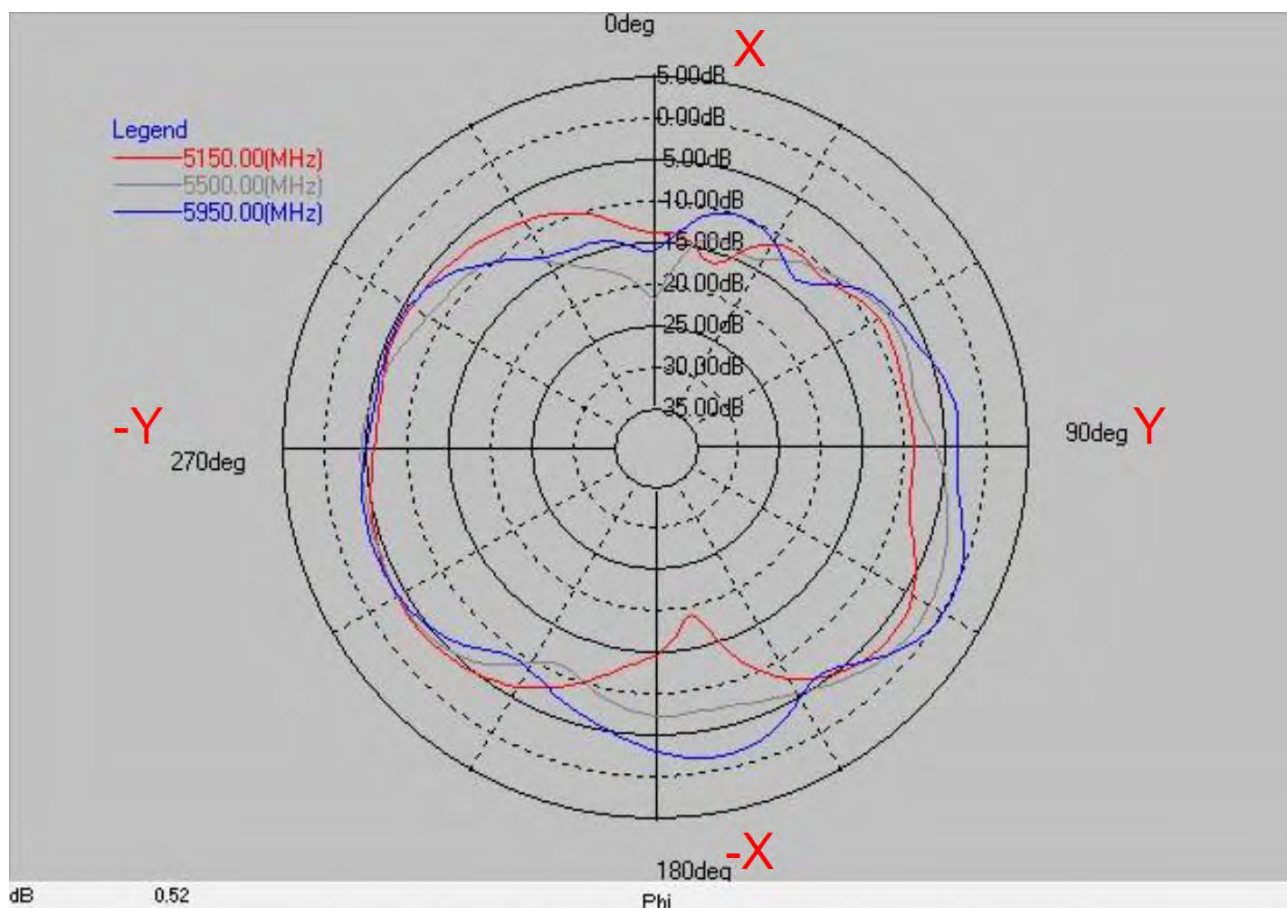
2D Gain Pattern_Antenna_ZY Cut(Phi=90)



Layer	Max value	Min value	Average
5150(MHz)	1.76 dB	-19.74 dB	-2.98 dB
5500(MHz)	3.08 dB	-18.72 dB	-3.12 dB
5950(MHz)	2.14 dB	-22.25 dB	-4.29 dB



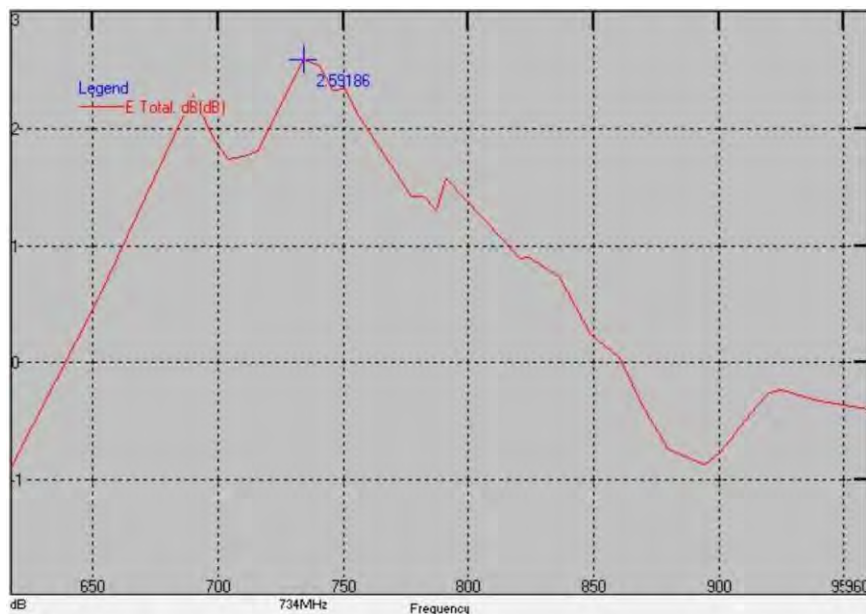
2D Gain Pattern_Antenna_XY Cut(Theta=90)



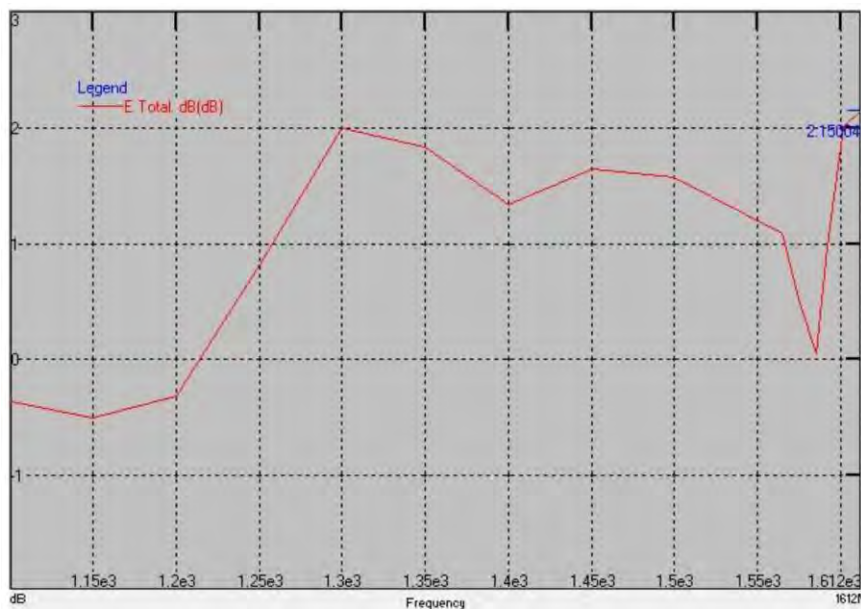
Layer	Max value	Min value	Average
5150(MHz)	-3.39 dB	-19.23 dB	-7.40 dB
5500(MHz)	-1.73 dB	-22.02 dB	-6.61 dB
5950(MHz)	0.23 dB	-16.33 dB	-5.15 dB



3D Peak Gain_Antenna



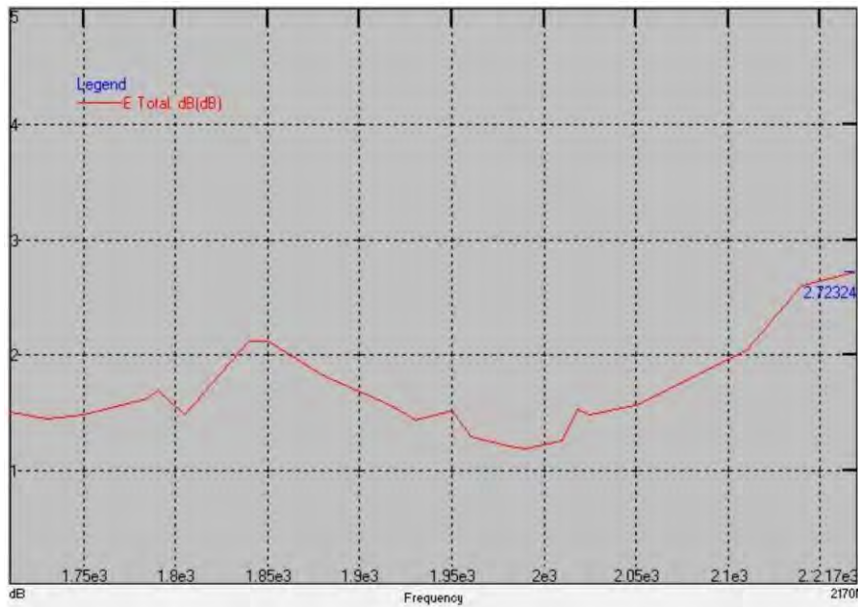
Frequency(MHz)	Peak Gain(dBi)
617	-0.89
690	2.30
710	1.76
716	1.81
740	2.55
756	2.11
791	1.58
824	0.90
836	0.73
869	-0.33
880	-0.75
894	-0.87
915	-0.38
920	-0.26
925	-0.24
940	-0.32
960	-0.39



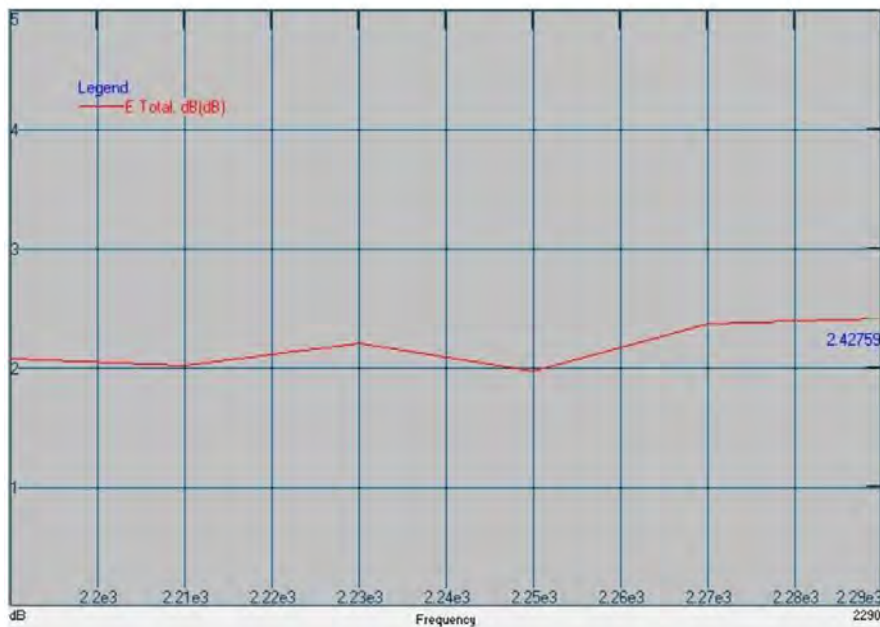
Frequency(MHz)	Peak Gain(dBi)
1100	-0.37
1150	-0.50
1200	-0.31
1250	0.81
1300	2.00
1350	1.84
1400	1.34
1450	1.65
1500	1.57
1565	1.09
1575	0.48
1585	0.05
1592	0.97
1602	2.01
1612	2.15



3D Peak Gain_Antenna



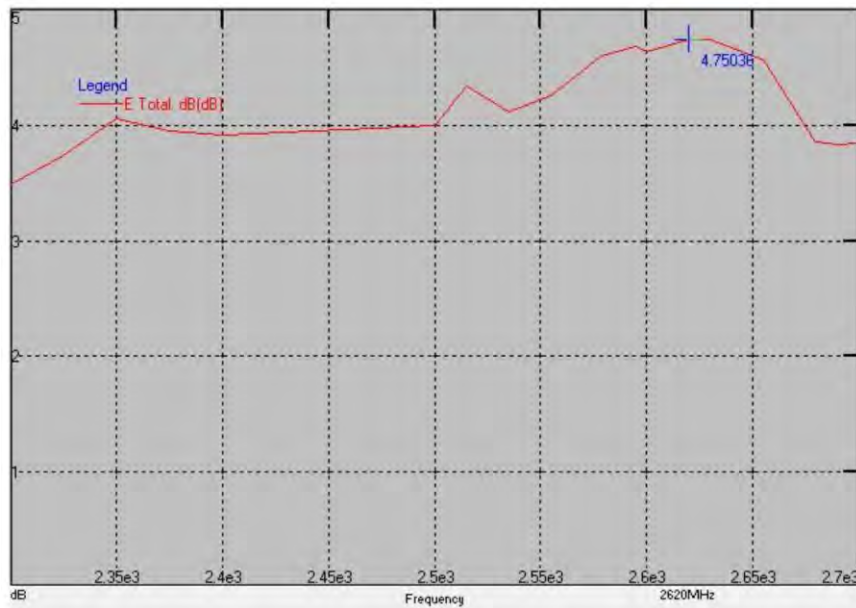
Frequency(MHz)	Peak Gain(dBi)
1710	1.51
1750	1.49
1785	1.63
1805	1.49
1840	2.12
1880	1.82
1910	1.62
1930	1.44
1950	1.52
1980	1.22
1990	1.19
2010	1.26
2025	1.48
2050	1.57
2110	2.04
2140	2.61
2170	2.72



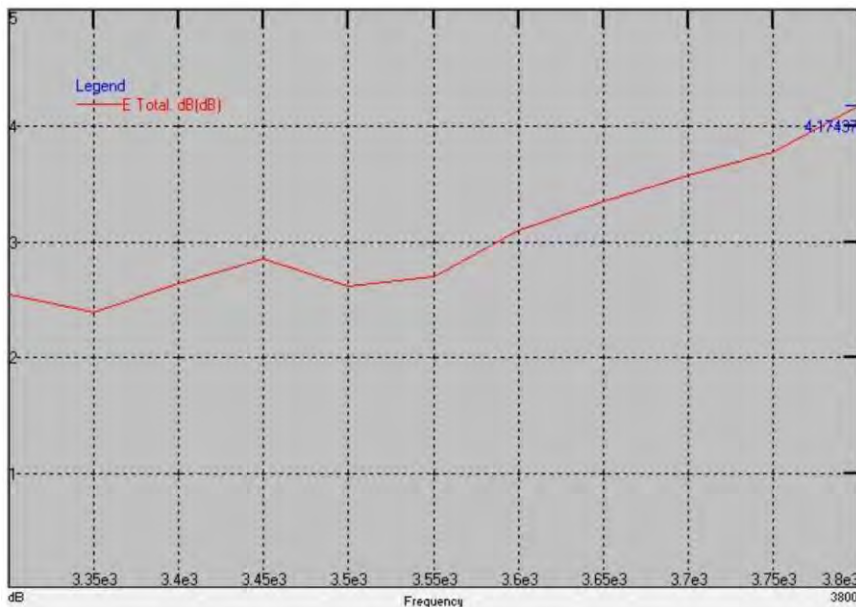
Frequency(MHz)	Peak Gain(dBi)
2190	2.08
2210	2.03
2230	2.22
2250	1.98
2270	2.38
2290	2.43



3D Peak Gain_Antenna



Frequency(MHz)	Peak Gain(dBi)
2300	3.49
2325	3.74
2350	4.07
2375	3.95
2400	3.92
2500	4.01
2515	4.34
2535	4.12
2555	4.26
2579	4.60
2595	4.68
2620	4.64
2630	4.75
2655	4.74
2680	4.57
2690	3.86
2700	3.84



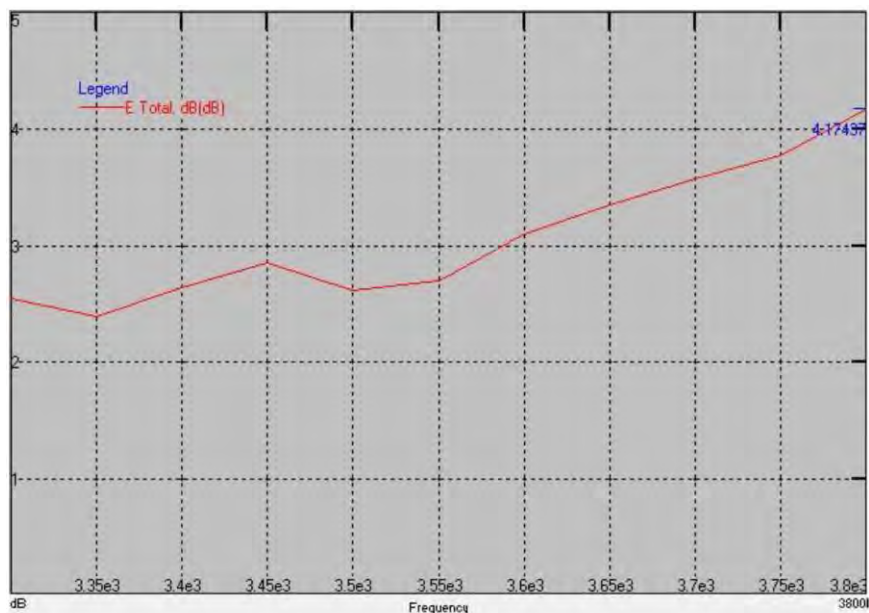
Frequency(MHz)	Peak Gain(dBi)
3300	2.55
3350	2.40
3400	2.64
3450	2.85
3500	2.62
3550	2.70
3600	3.10
3650	3.35
3700	3.58
3750	3.77
3800	4.17



3D Peak Gain_Antenna



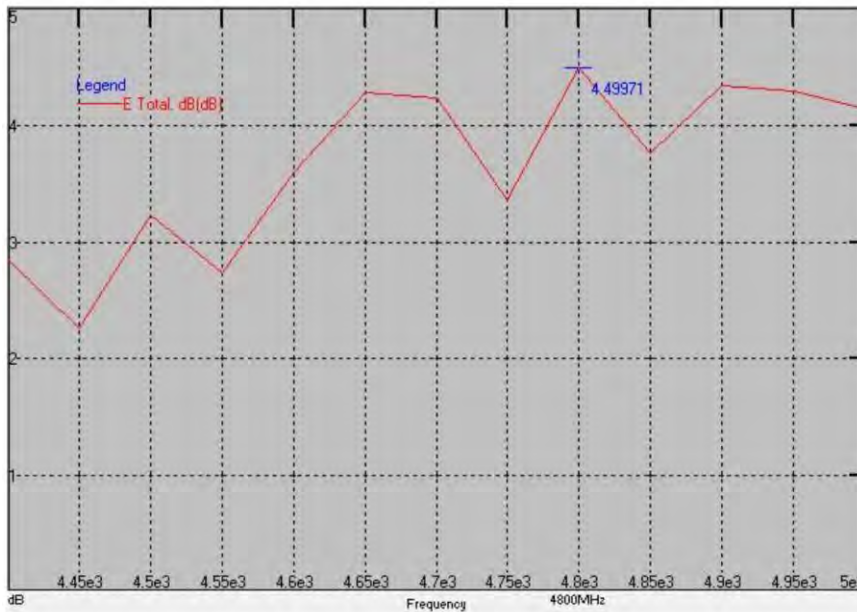
Frequency(MHz)	Peak Gain(dBi)
3850	4.54
3900	4.65
3950	4.29
4000	4.67
4050	3.83
4100	3.71
4150	3.45
4200	3.47



Frequency(MHz)	Peak Gain(dBi)
4400	2.85
4450	2.26
4500	3.23
4550	2.74
4600	3.60
4650	4.29
4700	4.24
4750	3.36
4800	4.50
4850	3.76
4900	4.35
4950	4.29
5000	4.14

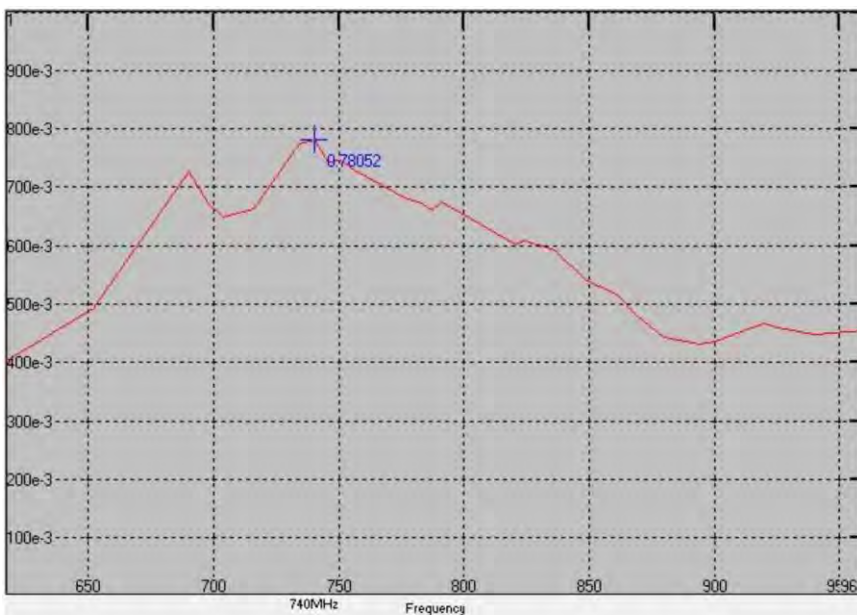


3D Peak Gain_Antenna



Frequency(MHz)	Peak Gain(dBi)
5150	3.67
5200	3.78
5250	3.90
5300	3.74
5350	2.74
5400	4.39
5450	5.45
5500	5.65
5550	5.74
5600	5.83
5650	6.32
5700	6.10
5750	6.43
5800	6.34
5850	5.76
5900	4.96
5950	5.73

3D Efficiency_Antenna

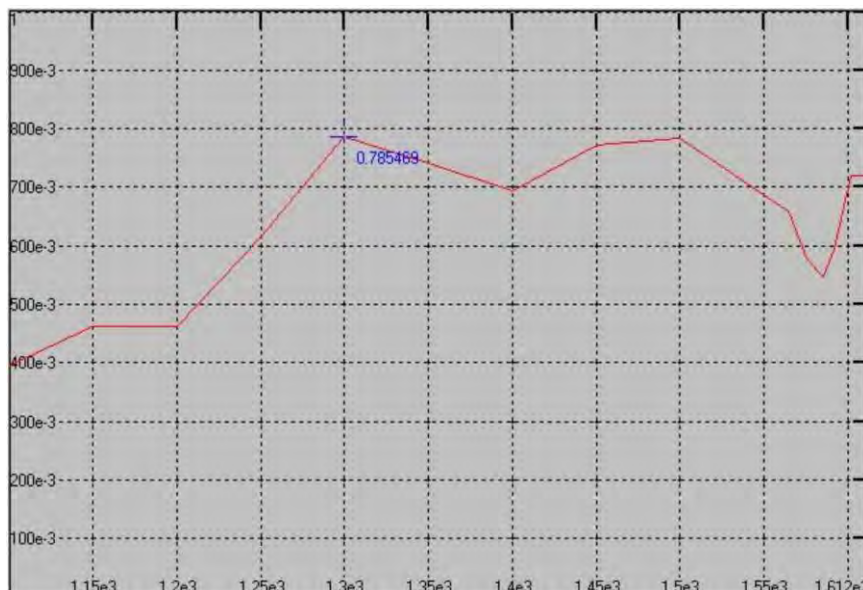


Frequency(MHz)	Efficiency
617	40%
690	73%
710	66%
716	66%
740	78%
756	73%
791	67%
824	61%
836	59%
869	48%
880	44%
894	43%
915	46%
920	47%
925	46%
940	45%
960	45%

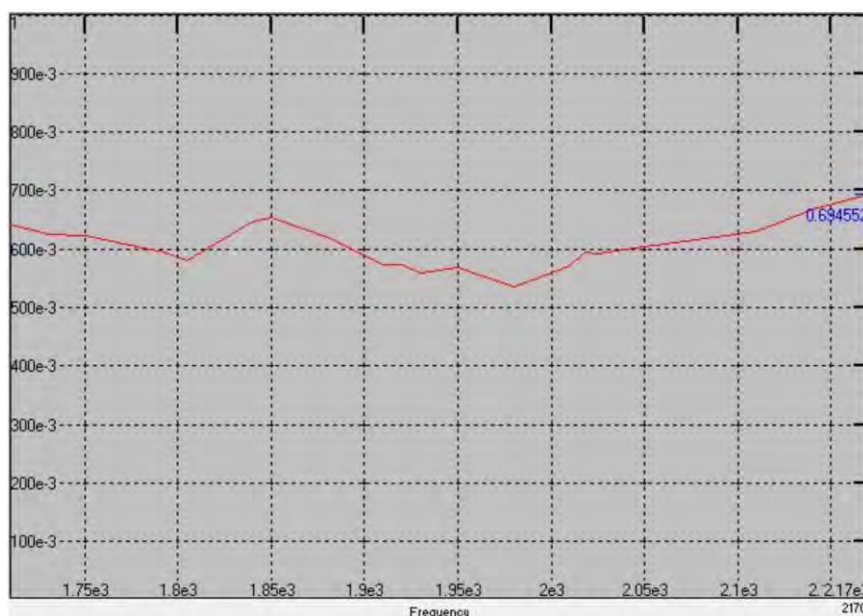


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3D Efficiency_Antenna



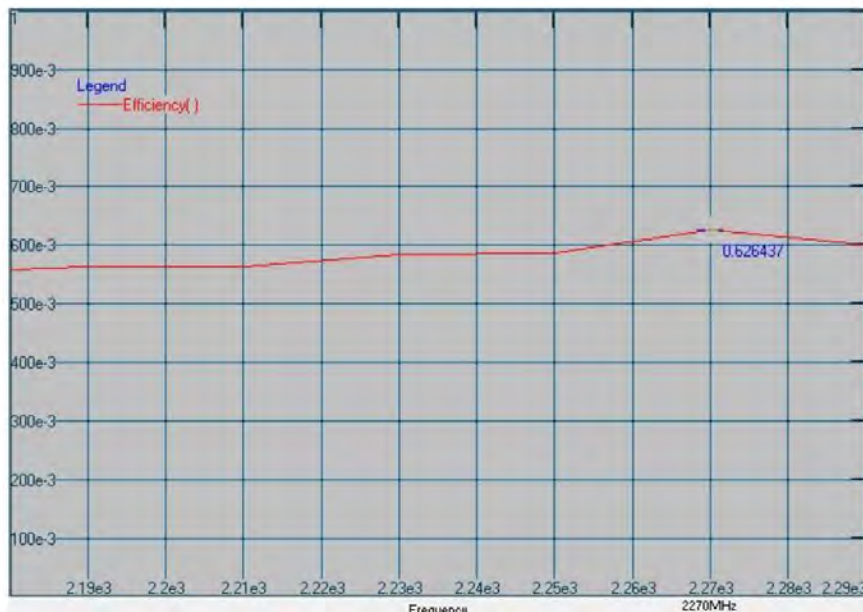
Frequency(MHz)	Efficiency
1100	40%
1150	46%
1200	46%
1250	62%
1300	79%
1350	74%
1400	69%
1450	77%
1500	78%
1565	66%
1575	58%
1585	55%
1592	59%
1602	72%
1612	72%



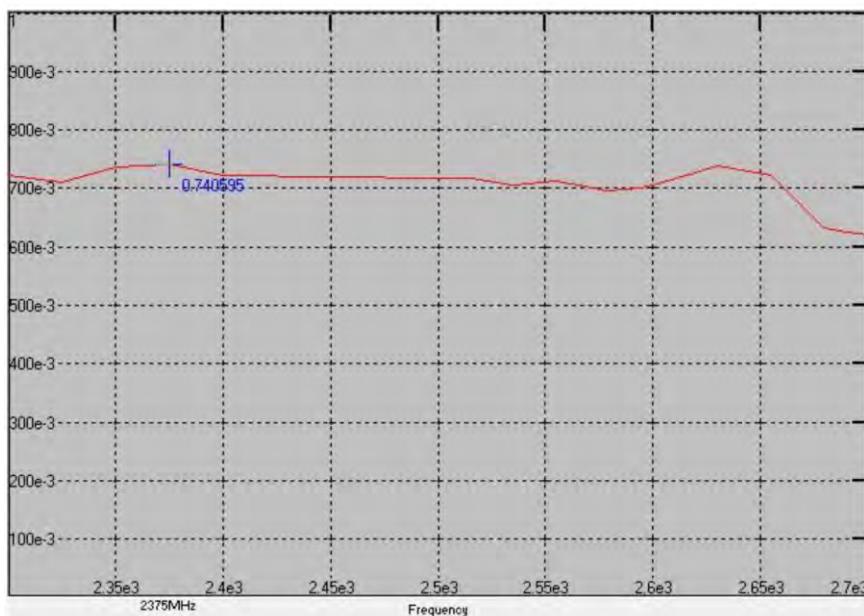
Frequency(MHz)	Efficiency
1710	64%
1750	62%
1785	60%
1805	58%
1840	65%
1880	62%
1910	57%
1930	56%
1950	57%
1980	54%
1990	55%
2010	57%
2025	59%
2050	60%
2110	63%
2140	67%
2170	69%



3D Efficiency_Antenna



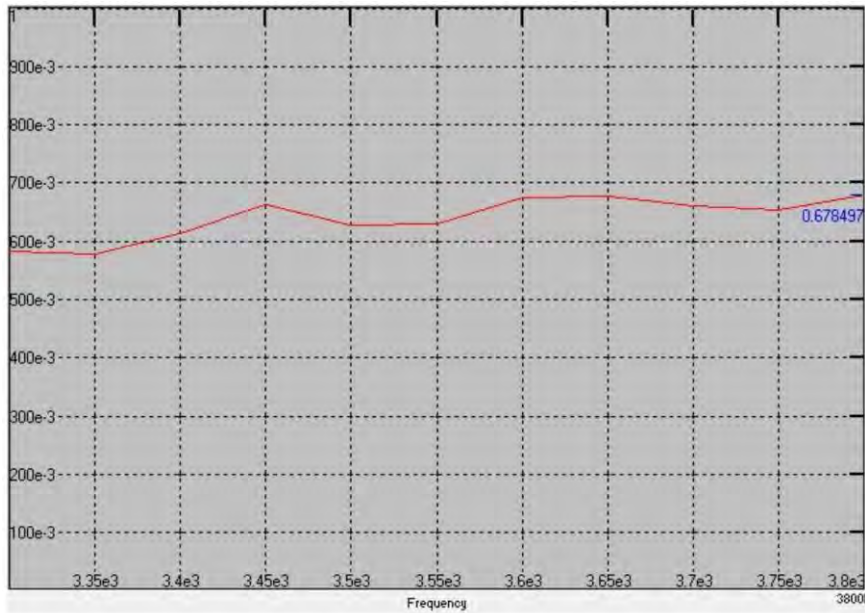
Frequency(MHz)	Efficiency
2190	56%
2210	56%
2230	59%
2250	59%
2270	63%
2290	60%



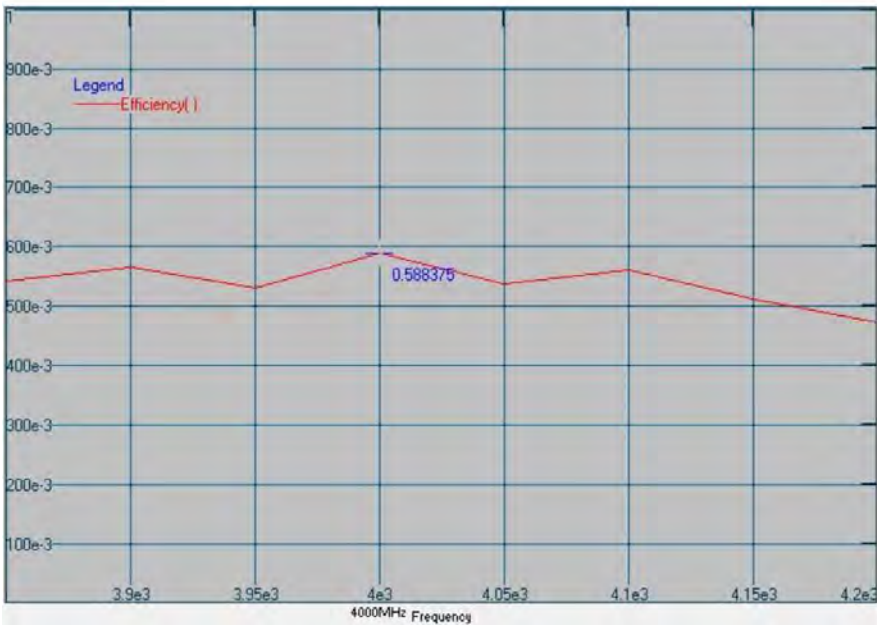
Frequency(MHz)	Efficiency
2300	72%
2325	71%
2350	74%
2375	74%
2400	72%
2500	72%
2515	72%
2535	71%
2555	71%
2579	70%
2595	70%
2620	73%
2630	74%
2655	72%
2680	63%
2690	62%
2700	62%



3D Efficiency_Antenna



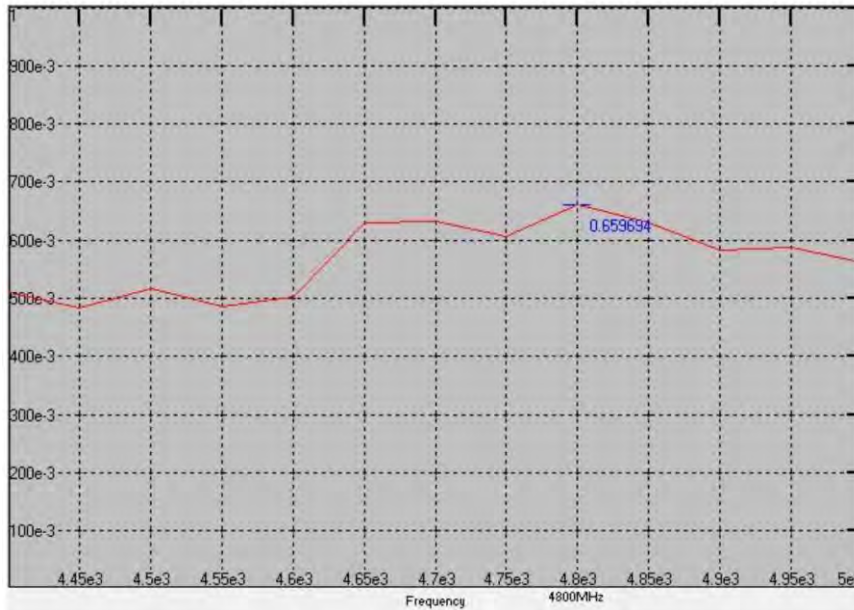
Frequency(MHz)	Efficiency
3300	58%
3350	58%
3400	61%
3450	66%
3500	63%
3550	63%
3600	68%
3650	68%
3700	66%
3750	65%
3800	68%



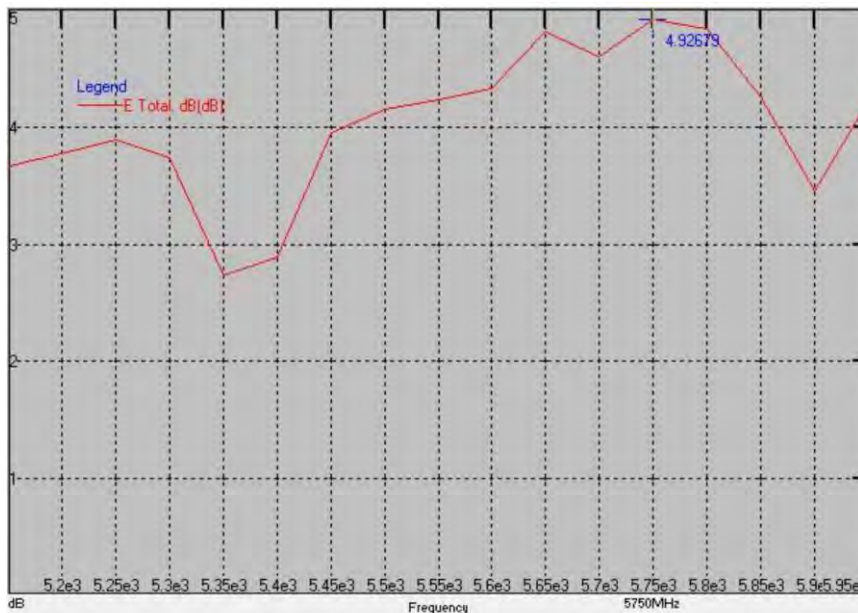
Frequency(MHz)	Efficiency
3850	54%
3900	57%
3950	53%
4000	59%
4050	54%
4100	56%
4150	51%
4200	47%



3D Efficiency_Antenna



Frequency(MHz)	Efficiency
4400	51%
4450	48%
4500	52%
4550	49%
4600	50%
4650	63%
4700	63%
4750	61%
4800	66%
4850	63%
4900	58%
4950	59%
5000	56%



Frequency(MHz)	Efficiency
5150	51%
5200	54%
5250	49%
5300	51%
5350	40%
5400	51%
5450	67%
5500	65%
5550	69%
5600	71%
5650	66%
5700	63%
5750	71%
5800	64%
5850	60%
5900	51%
5950	52%



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