SPECIFICATION

X802 LDS Antenna Assembly

Product approval sheet

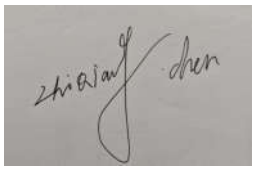
Customer		Band	5G
Project	X802	Colour	Black

Customer check：

Reach requirement of customer：☑OK □NG

R F design	ZhiQiang.Chen	structure design	RuiBin.Zhou
Quality Manager	ZiYin.Hu	R & D director	Lei.Zhang

Tester Signature：



Manufacturer：Shenzhen Daxian Technology Co., Ltd.
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1 General Description

1.1 Antenna Information

Antenna	Type	Size(mm)	Form
Ant 10(BT/WLAN)	PIFA	20.6 x 5.17	LDS
Ant 11(BT/WLAN)	PIFA	16.5 x 6.86	Metal Bezel
NFC	Loop	65 x 53	FPC+Nano
WPC	Coil	65 x 53	FPC+Nano
Test Software Name	Radstatiom v1.4.2		

Antenna Location	Support Function	Top Side(mm)	Bottom Side(mm)	Left Side(mm)	Right Side(mm)
ANT10	WiFi2.4 ch1+5GWIFI ch0+L5	31.16	119.8	5.1	69.73
ANT11	WiFi2.4 ch1+5GWIFI ch1	14	138	1.2	74.2
NFC	13.56MHZ	59.37	38.9	12.8	12.8
WPC	100KHZ-148.5KHZ	59.37	38.9	12.8	12.8

1.2 NFC/WPC Antenna Electrical Specifications

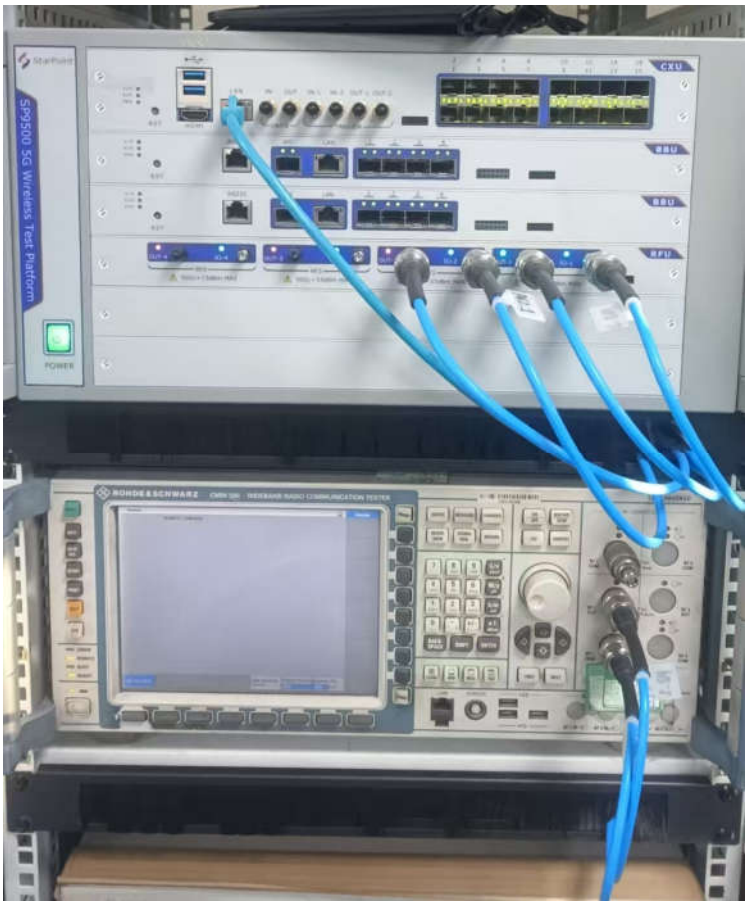
Test item	**Test environment**	**X802-NFC specification**				
		Min	**Typ**	**Max**	**Units**	**Notes**
Chip type	–	–	ST	–	–	ST21
Antenna inductance	1 MHz	0.95	0.98	1.00	μH	+/-3%
Antenna impedance	1 MHz	0.17	0.47	0.77	Ω	+/-0.3 Ω

Scope of LCR control: Inductance at 1MHz: ±3%

Inductance at 1MHz: ±0.3 Ω

Test item	**Test environment**	**X802-WPC specification**				
		Min	**Typ**	**Max**	**Units**	**Notes**
Antenna inductance	100KHz	7.56	8.4	9.24	uH	8.4uH±10%
Antenna ac impedance	100KHz	/	220	240	mΩ	<240mΩ
Antenna dc impedance	100KHz	/	152	165	mΩ	<165 mΩ

1.4 Test Instruments and Calibration Date

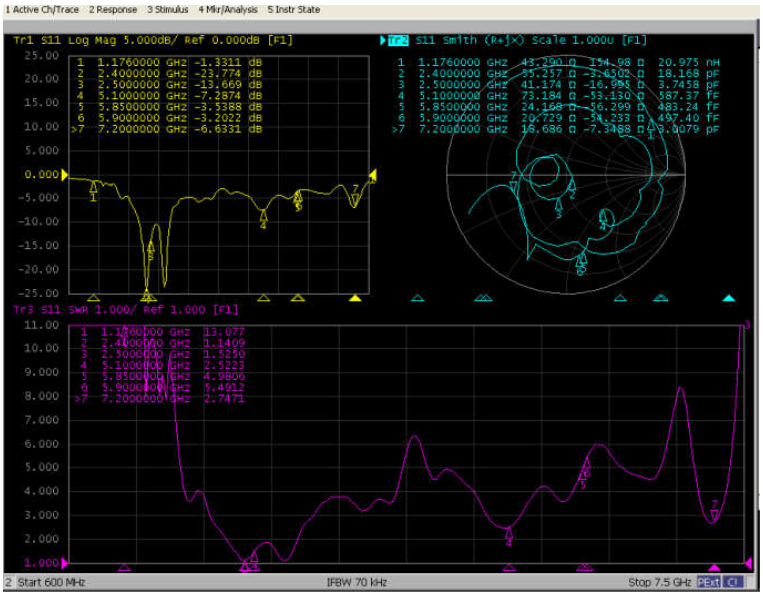


Equipment list	Number #1	Number #2
Equipment name	SP9500 5G Wireless Test Platform	CMW 500
Equipment number	DXS99500	DC13412D
Calibration date	2024/8/25	2024/8/16
Valid date	2025/8/24	2025/8/15

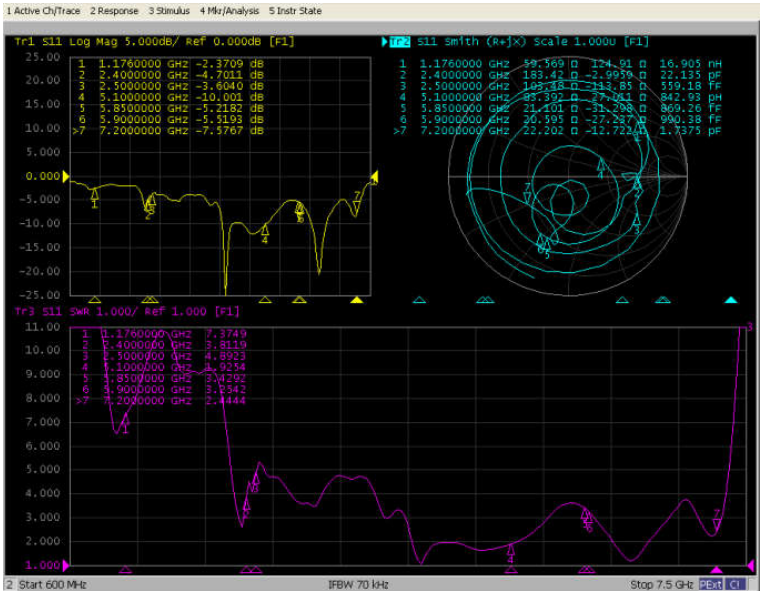
2 Electrical performance

2.1 VSWR

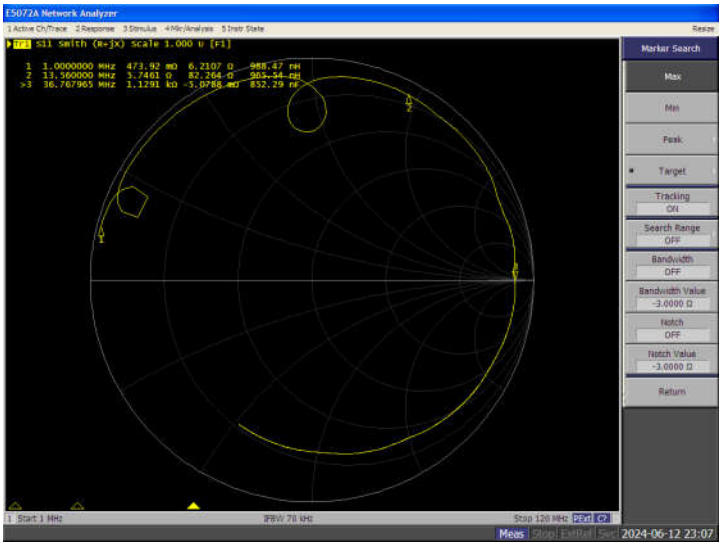
ANT10 (WiFi CH1)



ANT11 (WiFi CH0)



2.2 NFC/WPC S Parameter



Rs（Ω）@1M	0.47
La（μH)@1M	0.98
Rp(kΩ)	1.12
Fra(MHz)	36.76
Rs（Ω)@13.56M	5.74
La（μH)@13.56M	0.96

2.3 Matching Circuit

Components and components		Debug value（8.30）
L0	L7401/L7402	75nH
C0	C7418/C7419	560pF
Cs	C7403/C7413	220pF
	C7402/C7414	NC
Ccdmp	C7415/C7416	10pF
	C7405/C7406	100pF
Cp	C7404	NC
Rp	R7405	NC
R_rx	R7403/R7404	100Ω

2.4 NFC Read and write performance

R/W mode distance vs. Tag 1/2/3/4		
	Tag 1 （Topaz）	41 mm
	Tag 2 （Ultralight）	43 mm
	Tag 3 （Sony-Felica）	34 mm
	Tag 4 （Desfire）	23 mm

Card mode distance vs. POS Vivo 4800	110 mm

Tag1(Topaz-512)

Tag 2 (Ultralight)

Tag3(Sony-Felica)

Tag 4 (Desfire)

2.5 Efficiency &Gain

ANT10 (WiFi CH1)

Freqency(MHz)	Gain(dBi)	Efficiency(dB)	Efficiency(%)	Freqency(MHz)	Gain(dBi)	Efficiency(dB)	Efficiency(%)
2400	-14.02	-18.65	1.36	1160	-18.51	-22.9	0.51
2410	-13.95	-18.39	1.45	1162	-18.75	-23.24	0.47
2420	-14.26	-18.05	1.57	1164	-18.99	-23.54	0.44
2430	-14.37	-17.52	1.77	1166	-19.21	-23.83	0.41
2440	-13.34	-17.06	1.97	1168	-19.38	-24.1	0.39
2450	-12.14	-16.8	2.09	1170	-19.57	-24.34	0.37
2460	-11.38	-16.55	2.21	1172	-19.91	-24.58	0.35
2470	-10.66	-16.08	2.47	1174	-19.96	-24.82	0.33
2480	-10.05	-15.74	2.67	1176	-20.31	-25.07	0.31
2490	-9.57	-15.57	2.77	1178	-20.7	-25.32	0.29
2500	-9.15	-14.78	3.33	1180	-21.12	-25.56	0.28

Freqency(MHz)	Gain(dBi)	Efficiency(dB)	Efficiency(%)	Freqency(MHz)	Gain(dBi)	Efficiency(dB)	Efficiency(%)
5000	-2.49	-7.78	16.66	5500	2.64	-4.39	36.37
5020	-2.37	-7.64	17.21	5520	2.97	-4.58	34.86
5040	-1.63	-7.15	19.29	5540	2.92	-4.63	34.46
5060	-1.2	-6.75	21.14	5560	3.47	-4.45	35.86
5080	-0.98	-6.49	22.44	5580	3.52	-4.64	34.39
5100	-0.59	-5.9	25.71	5600	3.45	-4.86	32.68
5120	-0.04	-5.64	27.28	5620	3.63	-4.77	33.31
5140	-0.3	-5.63	27.36	5640	3.78	-4.72	33.7
5160	-0.31	-5.56	27.81	5660	3.74	-4.8	33.08
5180	-0.3	-5.4	28.86	5680	3.35	-4.9	32.34

5200	-0.15	-5.32	29.35	5700	2.64	-5.03	31.39
5220	0.1	-5.13	30.68	5720	2.4	-5.26	29.81
5240	0.53	-5.08	31.07	5740	2.15	-5.27	29.71
5260	0.71	-4.96	31.92	5760	2.12	-5.47	28.39
5280	1	-4.71	33.83	5780	1.9	-5.72	26.81
5300	1.19	-4.65	34.25	5800	1.66	-5.86	25.93
5320	1.45	-4.44	35.94	5820	1.86	-5.79	26.36
5340	1.9	-4.29	37.26	5840	2.01	-5.83	26.11
5360	2.3	-4.28	37.28	5860	2.16	-6.06	24.79
5380	2.54	-4.35	36.75	5880	2.09	-6.49	22.42
5400	2.54	-4.19	38.07	5900	1.82	-6.74	21.2
5420	2.08	-4.39	36.39	5920	1.77	-6.95	20.18
5440	1.62	-4.47	35.75	5940	1.59	-7.13	19.35
5460	1.88	-4.37	36.55	5960	1.47	-7.22	18.98
5480	2.24	-4.33	36.86	5980	1.19	-7.36	18.36
				6000	0.83	-7.55	17.58

Freqency(MHz)	Gain(dBi)	Efficiency(dB)	Efficiency(%)	Freqency(MHz)	Gain(dBi)	Efficiency(dB)	Efficiency(%)
6020	-0.24	-7.17	19.17	6580	-0.91	-9.41	11.46
6040	-0.46	-7.22	18.97	6600	-0.96	-9.45	11.35
6060	-0.55	-7.23	18.91	6620	-1.07	-9.58	11.02
6080	-0.68	-7.36	18.35	6640	-1.14	-9.59	10.99
6100	-0.72	-7.49	17.84	6660	-1.38	-9.73	10.64
6120	-0.74	-7.6	17.36	6680	-1.55	-9.83	10.4
6140	-0.83	-7.71	16.96	6700	-1.62	-9.71	10.69
6160	-0.85	-7.76	16.77	6720	-1.73	-9.69	10.73
6180	-0.82	-7.86	16.36	6740	-1.76	-9.57	11.05
6200	-0.63	-7.93	16.11	6760	-1.89	-9.38	11.53
6220	-0.46	-8	15.84	6780	-1.84	-9.17	12.09
6240	-0.56	-8.29	14.81	6800	-1.78	-9.01	12.55
6260	-0.67	-8.56	13.93	6820	-1.91	-8.92	12.82
6280	-0.72	-8.74	13.36	6840	-2	-8.79	13.21
6300	-0.81	-8.98	12.65	6860	-2.11	-8.58	13.86
6320	-0.93	-9.07	12.39	6880	-2.43	-8.46	14.26
6340	-0.9	-9.05	12.44	6900	-2.51	-8.33	14.68
6360	-0.92	-9.06	12.43	6920	-2.59	-8.38	14.51
6380	-0.9	-9	12.58	6940	-2.55	-8.31	14.76
6400	-0.93	-9.08	12.35	6960	-2.5	-8.11	15.46
6420	-0.79	-9.01	12.57	6980	-2.73	-8.14	15.33
6440	-0.66	-8.91	12.84	7000	-2.52	-8.01	15.8
6460	-0.59	-8.99	12.62	7020	-2.56	-7.92	16.13
6480	-0.41	-8.85	13.03	7040	-2.62	-7.93	16.11
6500	-0.28	-8.84	13.05	7060	-2.38	-7.71	16.94
6520	-0.44	-9.04	12.48	7080	-2.23	-7.62	17.28
6540	-0.53	-9.11	12.29	7100	-2.18	-7.56	17.56
6560	-0.78	-9.3	11.74	7120	-2.36	-7.47	17.89
				7140	-2.33	-7.38	18.29

ANT11 (WiFi CH0)

Freqency(MHz)	Gain(dBi)	Efficiency(dB)	Efficiency(%)
2400	-0.96	-5.61	27.48
2410	-0.88	-5.54	27.96
2420	-0.95	-5.48	28.34
2430	-1.1	-5.54	27.91
2440	-1.04	-5.64	27.28
2450	-0.9	-5.66	27.16
2460	-0.98	-5.69	26.96
2470	-1.09	-5.75	26.62
2480	-1.17	-5.72	26.78
2490	-1.12	-5.59	27.62
2500	-0.97	-5.49	28.22

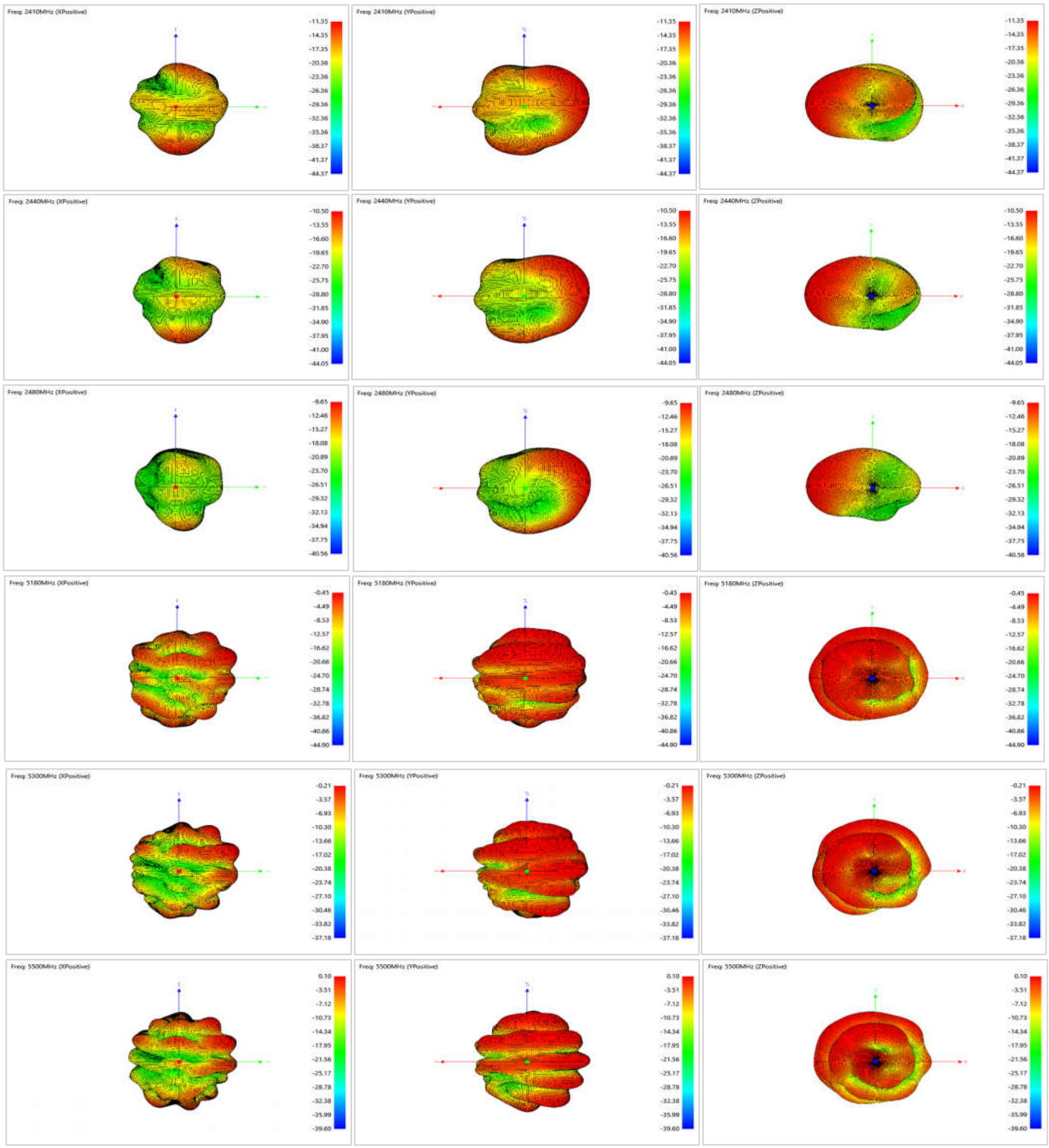
Freqency (MHz)	Gain (dBi)	Efficiency (dB)	Efficiency (%)	Freqency (MHz)	Gain (dBi)	Efficiency (dB)	Efficiency (%)
5140	-5.26	-11.24	7.52	5580	-7.64	-14.58	3.48
5160	-5.48	-11.37	7.3	5600	-8.06	-14.83	3.29
5180	-5.92	-11.47	7.13	5620	-8.04	-14.89	3.25
5200	-5.88	-11.48	7.12	5640	-7.85	-15.04	3.13
5220	-5.42	-11.43	7.2	5660	-8.29	-15.37	2.9
5240	-4.42	-11.29	7.43	5680	-8.47	-15.69	2.7
5260	-4.31	-11.3	7.41	5700	-9.06	-15.98	2.52
5280	-5.13	-11.65	6.83	5720	-8.98	-15.93	2.56
5300	-4.85	-11.42	7.22	5740	-9.16	-15.87	2.59
5320	-5.3	-11.58	6.96	5760	-9.04	-15.9	2.57
5340	-5.99	-11.95	6.39	5780	-9.26	-16	2.51
5360	-6.12	-12.21	6.02	5800	-9.68	-16.1	2.46
5380	-6.1	-12.46	5.68	5820	-9.53	-15.97	2.53
5400	-6.09	-12.42	5.73	5840	-9	-15.87	2.59
5420	-6.8	-12.73	5.33	5860	-8.28	-15.71	2.69
5440	-7.61	-13.09	4.91	5880	-8.3	-15.68	2.7
5460	-7.66	-13.17	4.82	5900	-8.44	-15.49	2.82
5480	-7.74	-13.18	4.81	5920	-8.39	-15.43	2.86
5500	-7.43	-13.61	4.36	5940	-8.32	-15.36	2.91
5520	-7.22	-13.92	4.06	5960	-8.03	-14.89	3.24
5540	-8.15	-14.24	3.77	5980	-8.49	-14.97	3.19
5560	-7.74	-14.54	3.51	6000	-8.41	-14.79	3.32

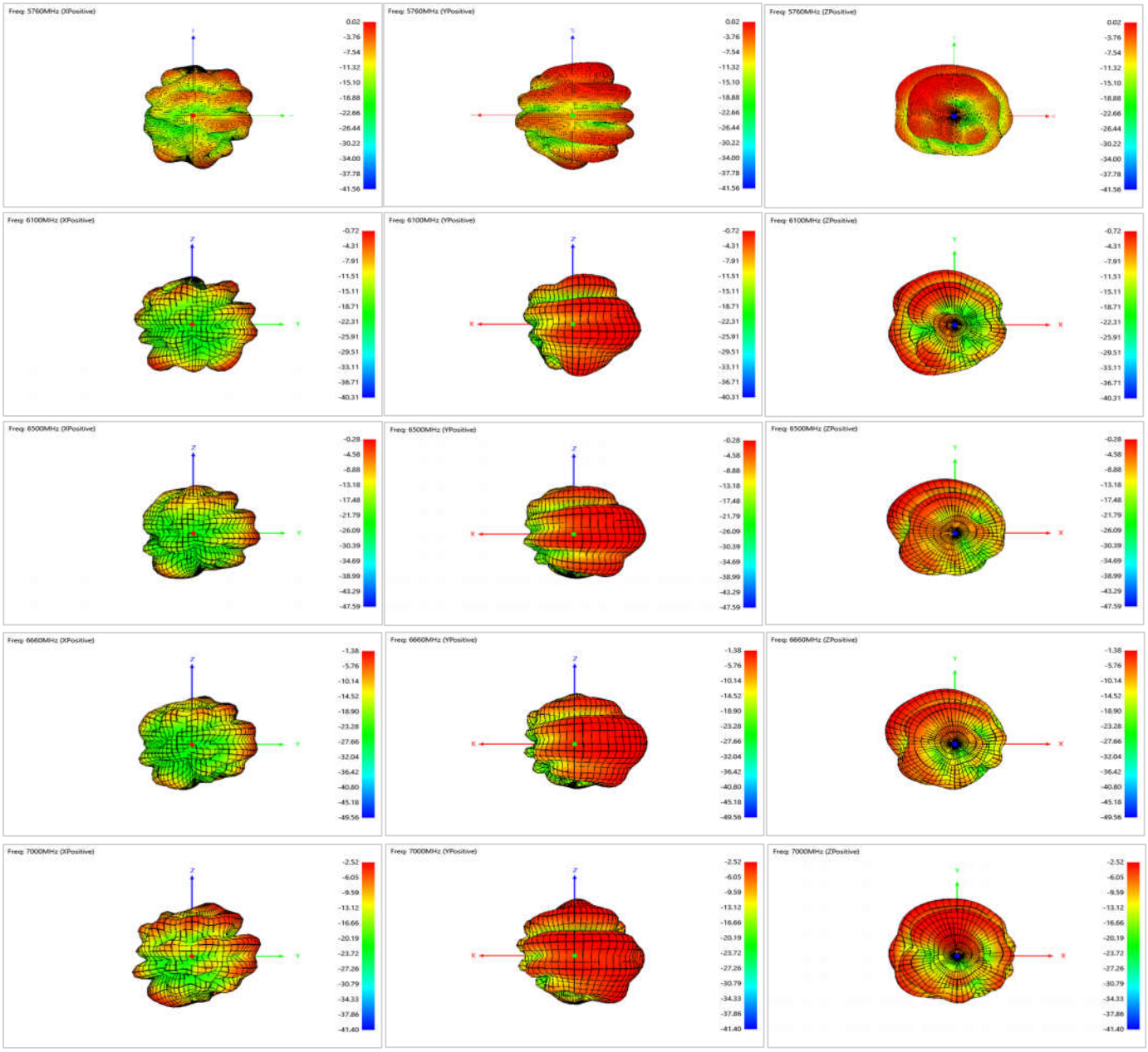
Freqency (MHz)	Gain (dBi)	Efficiency (dB)	Efficiency (%)	Freqency (MHz)	Gain (dBi)	Efficiency (dB)	Efficiency (%)
6020	-8.06	-13.73	4.23	6580	-7.81	-14.85	3.27

6040	-8.48	-13.8	4.17	6600	-7.84	-14.89	3.25
6060	-8.24	-13.69	4.28	6620	-8.07	-15.04	3.13
6080	-8.2	-13.79	4.18	6640	-8.21	-15.14	3.06
6100	-8.21	-13.79	4.18	6660	-8.56	-15.4	2.89
6120	-8.12	-13.8	4.16	6680	-8.86	-15.58	2.77
6140	-8.02	-13.8	4.16	6700	-8.9	-15.63	2.74
6160	-7.73	-13.66	4.3	6720	-8.96	-15.83	2.61
6180	-7.75	-13.61	4.36	6740	-8.81	-15.84	2.6
6200	-7.81	-13.51	4.45	6760	-8.85	-15.85	2.6
6220	-7.58	-13.28	4.69	6780	-8.92	-15.98	2.53
6240	-7.77	-13.42	4.55	6800	-8.85	-16.03	2.49
6260	-7.92	-13.5	4.47	6820	-8.95	-16.08	2.46
6280	-7.73	-13.53	4.44	6840	-9.03	-16.05	2.48
6300	-7.56	-13.66	4.3	6860	-8.96	-15.81	2.63
6320	-7.27	-13.65	4.32	6880	-9.11	-15.56	2.78
6340	-7.03	-13.59	4.38	6900	-9	-15.34	2.92
6360	-6.83	-13.61	4.36	6920	-9.01	-15.53	2.8
6380	-6.81	-13.62	4.35	6940	-8.93	-15.44	2.86
6400	-6.96	-13.8	4.17	6960	-8.58	-15.11	3.09
6420	-7.04	-13.91	4.06	6980	-8.7	-15.21	3.01
6440	-7.13	-13.94	4.04	7000	-8.46	-15	3.16
6460	-7.15	-14.04	3.95	7020	-8.28	-14.81	3.3
6480	-6.94	-13.93	4.04	7040	-8.48	-14.8	3.31
6500	-6.82	-13.95	4.02	7060	-8.19	-14.44	3.6
6520	-7.08	-14.24	3.77	7080	-7.93	-14.23	3.78
6540	-7.3	-14.43	3.61	7100	-7.67	-14.02	3.96
6560	-7.65	-14.73	3.37	7120	-7.34	-13.71	4.26
				7140	-7.29	-13.56	4.4

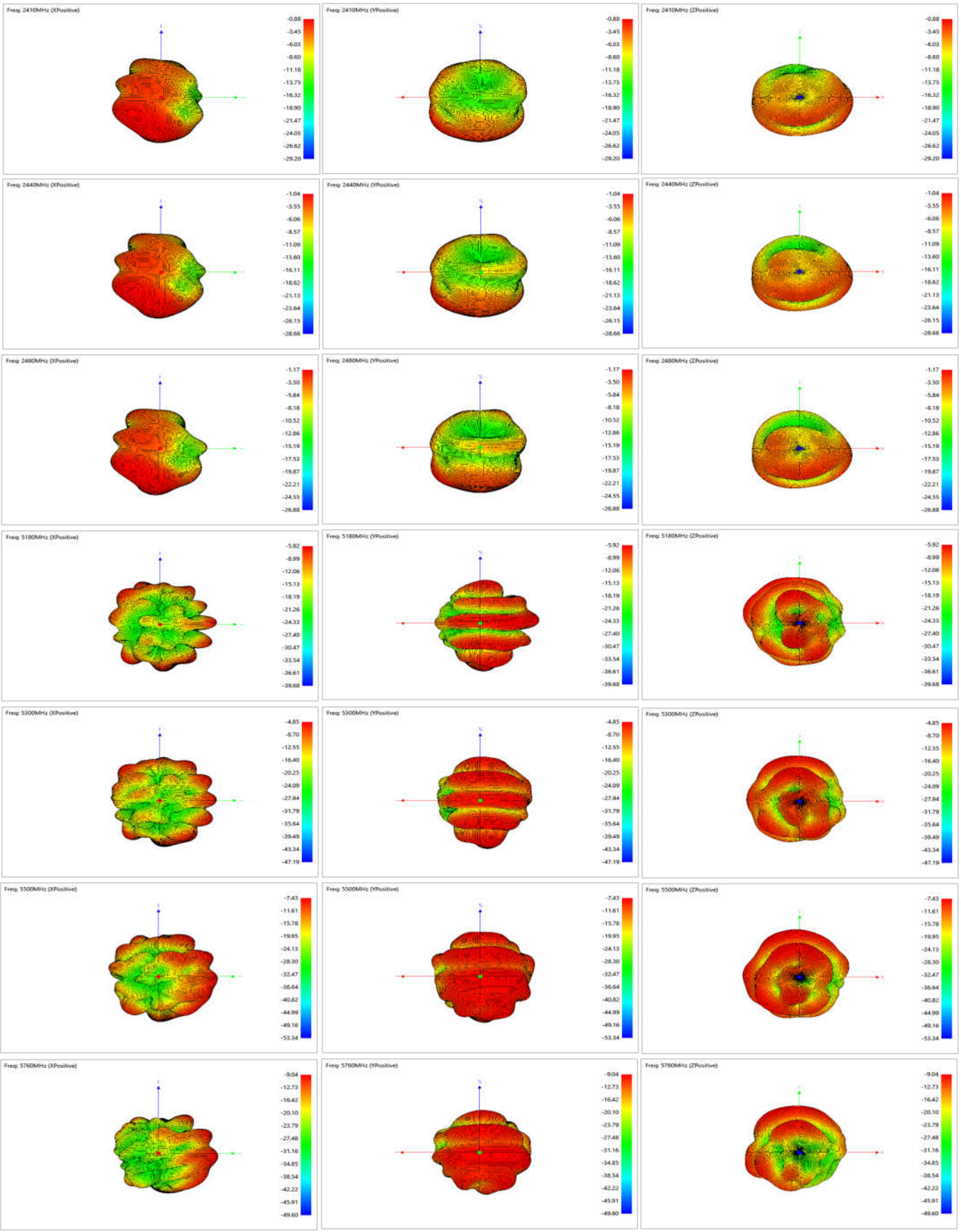
2.6 3D Pattern

ANT10




Freq: 5760MHz (XPositive)
0.02 -3.76 -7.54 -11.32 -15.10 -18.88 -22.66 -26.44 -30.22 -34.00 -37.78 -41.56
Freq: 5760MHz (YPositive)
0.02 -3.76 -7.54 -11.32 -15.10 -18.88 -22.66 -26.44 -30.22 -34.00 -37.78 -41.56
Freq: 5760MHz (ZPositive)
0.02 -3.76 -7.54 -11.32 -15.10 -18.88 -22.66 -26.44 -30.22 -34.00 -37.78 -41.56
Freq: 6100MHz (XPositive)
-0.72 -4.31 -7.91 -11.51 -15.11 -18.71 -22.31 -25.91 -29.51 -33.11 -36.71 -40.31
Freq: 6100MHz (YPositive)
-0.72 -4.31 -7.91 -11.51 -15.11 -18.71 -22.31 -25.91 -29.51 -33.11 -36.71 -40.31
Freq: 6100MHz (ZPositive)
-0.72 -4.31 -7.91 -11.51 -15.11 -18.71 -22.31 -25.91 -29.51 -33.11 -36.71 -40.31
Freq: 6500MHz (XPositive)
-0.28 -4.58 -8.88 -13.18 -17.48 -21.79 -26.09 -30.39 -34.69 -38.99 -43.29 -47.59
Freq: 6500MHz (YPositive)
-0.28 -4.58 -8.88 -13.18 -17.48 -21.79 -26.09 -30.39 -34.69 -38.99 -43.29 -47.59
Freq: 6500MHz (ZPositive)
-0.28 -4.58 -8.88 -13.18 -17.48 -21.79 -26.09 -30.39 -34.69 -38.99 -43.29 -47.59
Freq: 6660MHz (XPositive)
-1.38 -5.76 -10.14 -14.52 -18.90 -23.28 -27.66 -32.04 -36.42 -40.80 -45.18 -49.56
Freq: 6660MHz (YPositive)
-1.38 -5.76 -10.14 -14.52 -18.90 -23.28 -27.66 -32.04 -36.42 -40.80 -45.18 -49.56
Freq: 6660MHz (ZPositive)
-1.38 -5.76 -10.14 -14.52 -18.90 -23.28 -27.66 -32.04 -36.42 -40.80 -45.18 -49.56
Freq: 7000MHz (XPositive)
-2.52 -6.05 -9.59 -13.12 -16.66 -20.19 -23.72 -27.26 -30.79 -34.33 -37.86 -41.40
Freq: 7000MHz (YPositive)
-2.52 -6.05 -9.59 -13.12 -16.66 -20.19 -23.72 -27.26 -30.79 -34.33 -37.86 -41.40
Freq: 7000MHz (ZPositive)
-2.52 -6.05 -9.59 -13.12 -16.66 -20.19 -23.72 -27.26 -30.79 -34.33 -37.86 -41.40

ANT11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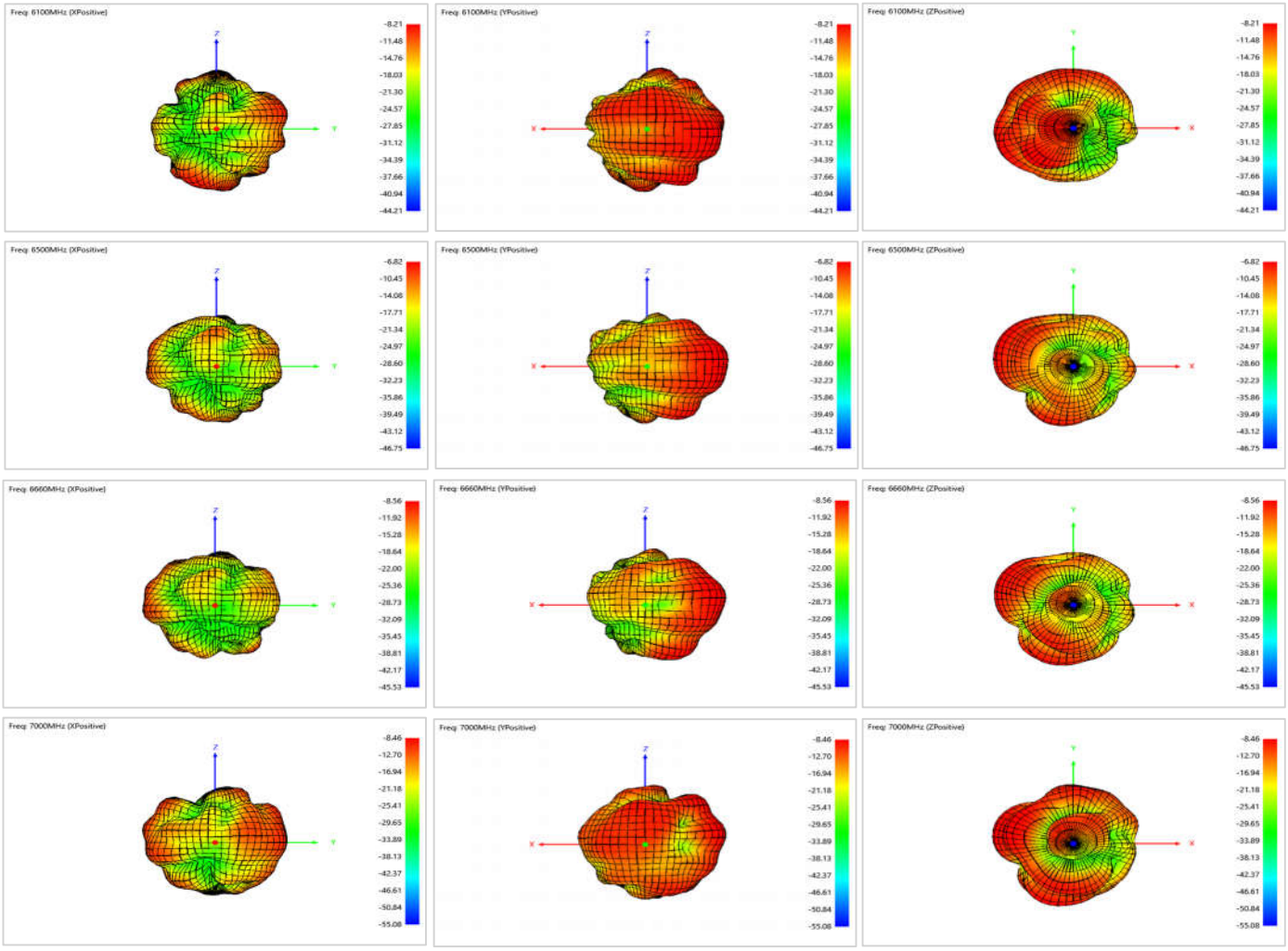
Freq: 2410MHz (YPositive)
-0.88 -3.45 -6.03 -8.60 -11.18 -13.75 -16.32 -18.90 -21.47 -24.05 -26.62 -29.20
Freq: 2410MHz (ZPositive)
-0.88 -3.45 -6.03 -8.60 -11.18 -13.75 -16.32 -18.90 -21.47 -24.05 -26.62 -29.20
Freq: 2440MHz (XPositive)
-1.04 -3.55 -6.06 -8.57 -11.09 -13.60 -16.11 -18.62 -21.13 -23.64 -26.15 -28.66
Freq: 2440MHz (YPositive)
-1.04 -3.55 -6.06 -8.57 -11.09 -13.60 -16.11 -18.62 -21.13 -23.64 -26.15 -28.66
Freq: 2440MHz (ZPositive)
-1.04 -3.55 -6.06 -8.57 -11.09 -13.60 -16.11 -18.62 -21.13 -23.64 -26.15 -28.66
Freq: 2480MHz (XPositive)
-1.17 -3.50 -5.84 -8.18 -10.52 -12.86 -15.19 -17.53 -19.87 -22.21 -24.55 -26.88
Freq: 2480MHz (YPositive)
-1.17 -3.50 -5.84 -8.18 -10.52 -12.86 -15.19 -17.53 -19.87 -22.21 -24.55 -26.88
Freq: 2480MHz (ZPositive)
-1.17 -3.50 -5.84 -8.18 -10.52 -12.86 -15.19 -17.53 -19.87 -22.21 -24.55 -26.88
Freq: 5180MHz (XPositive)
-5.92 -8.99 -12.06 -15.13 -18.19 -21.26 -24.33 -27.40 -30.47 -33.54 -36.61 -39.68
Freq: 5180MHz (YPositive)
-5.92 -8.99 -12.06 -15.13 -18.19 -21.26 -24.33 -27.40 -30.47 -33.54 -36.61 -39.68
Freq: 5180MHz (ZPositive)
-5.92 -8.99 -12.06 -15.13 -18.19 -21.26 -24.33 -27.40 -30.47 -33.54 -36.61 -39.68
Freq: 5300MHz (XPositive)
-4.85 -8.70 -12.55 -16.40 -20.25 -24.09 -27.94 -31.79 -35.64 -39.49 -43.34 -47.19
Freq: 5300MHz (YPositive)
-4.85 -8.70 -12.55 -16.40 -20.25 -24.09 -27.94 -31.79 -35.64 -39.49 -43.34 -47.19
Freq: 5300MHz (ZPositive)
-4.85 -8.70 -12.55 -16.40 -20.25 -24.09 -27.94 -31.79 -35.64 -39.49 -43.34 -47.19
Freq: 5500MHz (XPositive)
-7.43 -11.61 -15.78 -19.95 -24.13 -28.30 -32.47 -36.64 -40.82 -44.99 -49.16 -53.34
Freq: 5500MHz (YPositive)
-7.43 -11.61 -15.78 -19.95 -24.13 -28.30 -32.47 -36.64 -40.82 -44.99 -49.16 -53.34
Freq: 5500MHz (ZPositive)
-7.43 -11.61 -15.78 -19.95 -24.13 -28.30 -32.47 -36.64 -40.82 -44.99 -49.16 -53.34
Freq: 5760MHz (XPositive)
-9.04 -12.73 -16.42 -20.10 -23.79 -27.48 -31.16 -34.85 -38.54 -42.22 -45.91 -49.60
Freq: 5760MHz (YPositive)
-9.04 -12.73 -16.42 -20.10 -23.79 -27.48 -31.16 -34.85 -38.54 -42.22 -45.91 -49.60
Freq: 5760MHz (ZPositive)
-9.04 -12.73 -16.42 -20.10 -23.79 -27.48 -31.16 -34.85 -38.54 -42.22 -45.91 -49.60


Freq: 6100MHz (XPositive)
-8.21
-11.48
-14.76
-18.03
-21.30
-24.57
-27.85
-31.12
-34.39
-37.66
-40.94
-44.21
Freq: 6100MHz (YPositive)
-8.21
-11.48
-14.76
-18.03
-21.30
-24.57
-27.85
-31.12
-34.39
-37.66
-40.94
-44.21
Freq: 6100MHz (ZPositive)
-8.21
-11.48
-14.76
-18.03
-21.30
-24.57
-27.85
-31.12
-34.39
-37.66
-40.94
-44.21
Freq: 6500MHz (XPositive)
-6.82
-10.45
-14.08
-17.71
-21.34
-24.97
-28.60
-32.23
-35.86
-39.49
-43.12
-46.75
Freq: 6500MHz (YPositive)
-6.82
-10.45
-14.08
-17.71
-21.34
-24.97
-28.60
-32.23
-35.86
-39.49
-43.12
-46.75
Freq: 6500MHz (ZPositive)
-6.82
-10.45
-14.08
-17.71
-21.34
-24.97
-28.60
-32.23
-35.86
-39.49
-43.12
-46.75
Freq: 6660MHz (XPositive)
-8.56
-11.92
-15.28
-18.64
-22.00
-25.36
-28.73
-32.09
-35.45
-38.81
-42.17
-45.53
Freq: 6660MHz (YPositive)
-8.56
-11.92
-15.28
-18.64
-22.00
-25.36
-28.73
-32.09
-35.45
-38.81
-42.17
-45.53
Freq: 6660MHz (ZPositive)
-8.56
-11.92
-15.28
-18.64
-22.00
-25.36
-28.73
-32.09
-35.45
-38.81
-42.17
-45.53
Freq: 7000MHz (XPositive)
-8.46
-12.70
-16.94
-21.18
-25.41
-29.65
-33.89
-38.13
-42.37
-46.61
-50.84
-55.08
Freq: 7000MHz (YPositive)
-8.46
-12.70
-16.94
-21.18
-25.41
-29.65
-33.89
-38.13
-42.37
-46.61
-50.84
-55.08
Freq: 7000MHz (ZPositive)
-8.46
-12.70
-16.94
-21.18
-25.41
-29.65
-33.89
-38.13
-42.37
-46.61
-50.84
-55.08