PioneerX 100 Antenna Report

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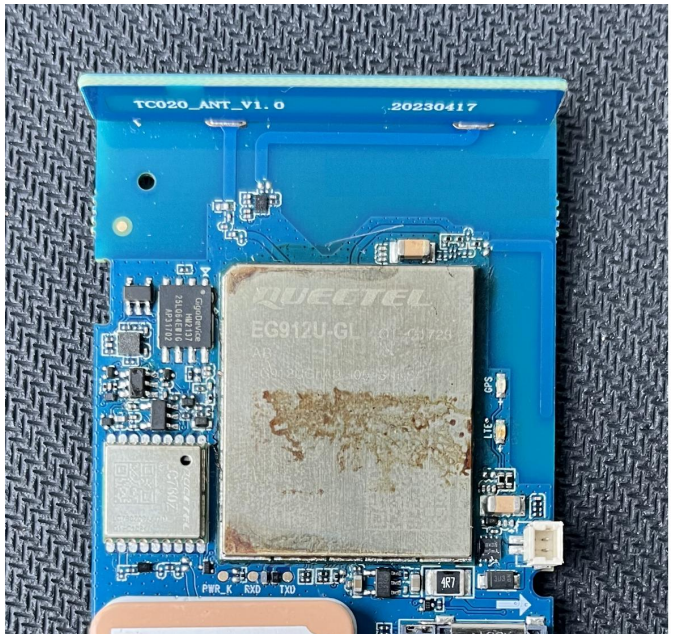
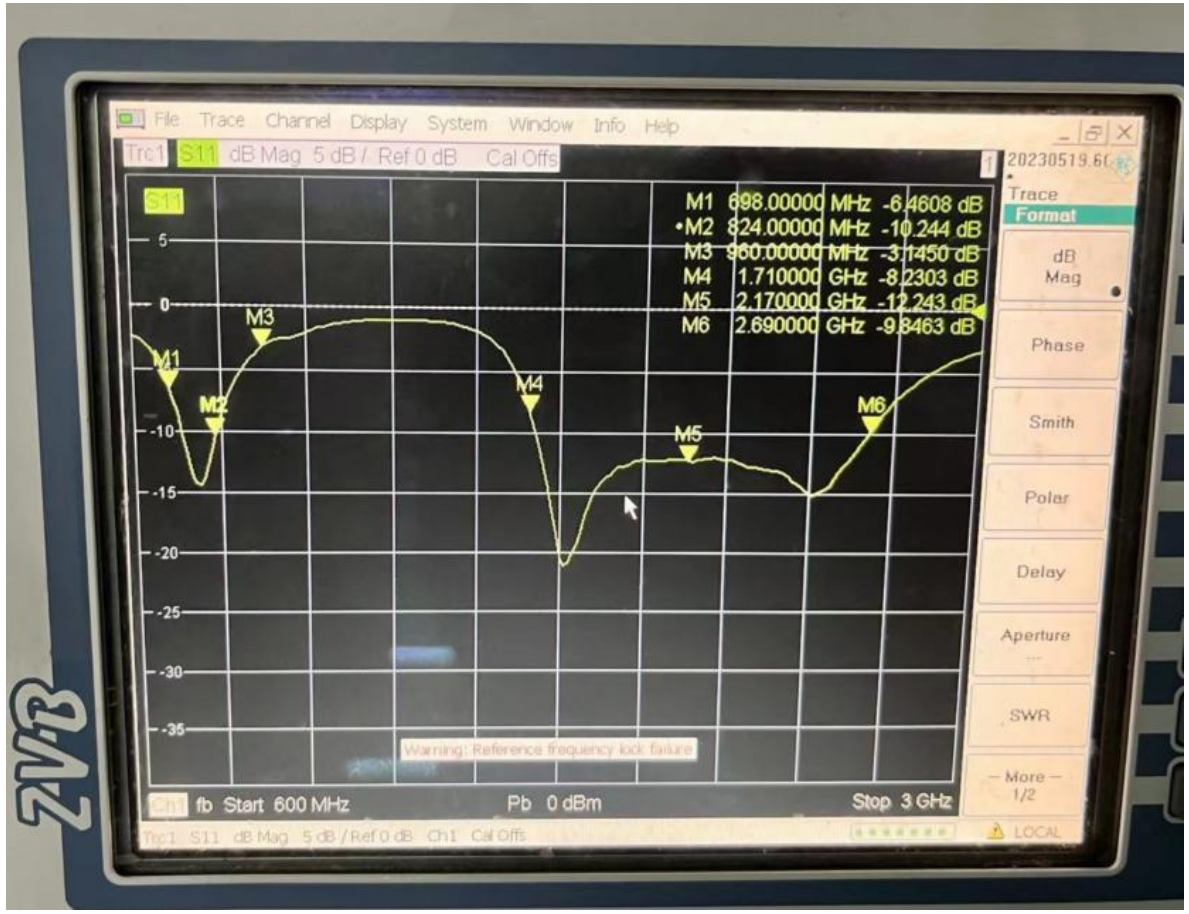
Device Model:	PioneerX 100

Antenna Detail	Antenna Type	Bands & Frequency
Primary Antenna	PCB Printed Antenna	LTE-FDD:B1/B2/B3/B4/B5/B7/B8/B12/B13/B17/B18/B19/B20/B25/B26/B28/B66 LTE-TDD:B34/B38/B39/B40/B41 GSM:850/900/1800/1900 MHz Frequency: 699~960MHz / 1710~2690MHz
GPS Antenna	Passive Ceramic Antenna	GPS: 1574.4~1576.44 MHz GLONASS: 1598~1606 MHz BeiDou: 1559~1563 MHz
WiFi-Scan & Bluetooth Antenna	Internal LDS Antenna	Frequency: 2400~2480MHz

Primary Antenna Performance —— S11





Primary Antenna Performance —— Efficiency and Gain

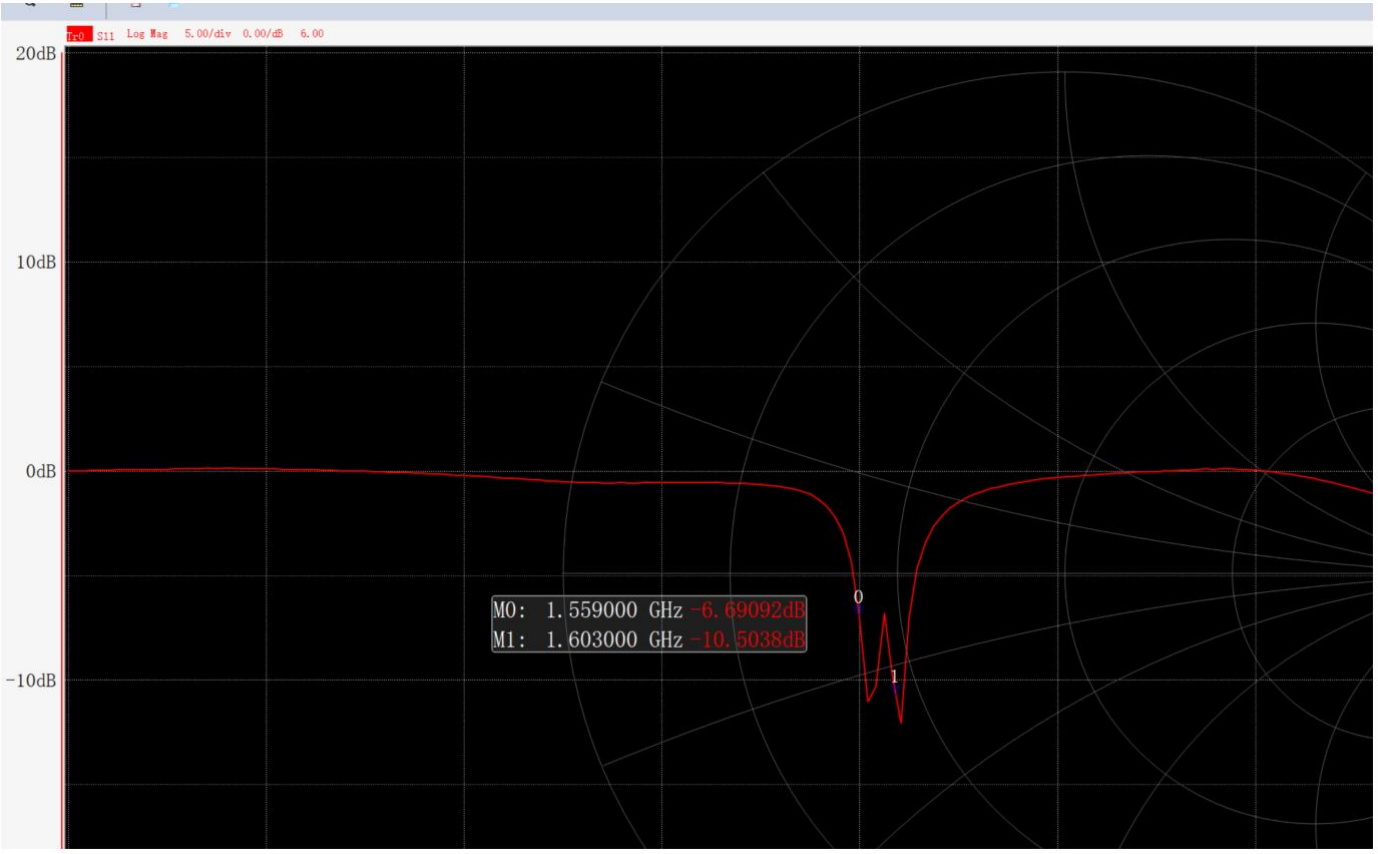
频率（MHz)	效率（%）	效率（dB）	增益（dBi)
680	16.7%	-7.76	-5.51
700	23.2%	-6.34	-3.76
720	26.2%	-5.82	-2.98
740	25.9%	-5.86	-3.48
760	28.4%	-5.46	-2.7
780	31.0%	-5.08	-2.16

频率（MHz)	效率（%）	效率（dB）	增益（dBi)
800	37.4%	-4.27	-0.76
820	39.5%	-4.03	-0.93
840	42.7%	-3.7	-0.56
860	44.6%	-3.51	-0.34
880	46.9%	-3.29	-0.22
900	51.3%	-2.9	-0.17
920	50.0%	-3.01	-0.14
940	50.6%	-2.96	-0.35
960	54.7%	-2.62	0.06

频率（MHz)	效率（%）	效率（dB）	增益（dBi)
1700	38.5%	-4.15	-0.64
1720	43.2%	-3.65	0.01
1740	42.2%	-3.75	0.1
1760	41.8%	-3.79	-0.17
1780	43.8%	-3.59	-0.13
1800	45.2%	-3.45	0.29
1820	47.1%	-3.27	0.55
1840	46.8%	-3.3	0.44
1860	44.8%	-3.49	0.25
1880	45.2%	-3.45	0.48
1900	46.5%	-3.33	0.29
1920	45.2%	-3.45	-0.3
1940	45.0%	-3.47	-0.01
1960	44.8%	-3.49	0.68
1980	41.8%	-3.79	0.4
2000	48.6%	-3.13	0.6
2020	42.5%	-3.72	-1
2040	42.6%	-3.71	0.41
2060	40.0%	-3.98	0.54
2080	37.9%	-4.21	-0.33
2100	35.4%	-4.51	-1.04
2120	34.6%	-4.61	-0.96
2140	34.6%	-4.61	-0.47
2160	35.1%	-4.55	-0.5
2180	34.1%	-4.67	-0.38
2200	34.4%	-4.64	-0.99

频率（MHz)	效率（%）	效率（dB）	增益（dBi)
2200	34.4%	-4.64	-0.99
2220	36.1%	-4.42	-0.33
2240	40.4%	-3.94	1.39
2260	39.4%	-4.05	0.88
2280	37.5%	-4.26	-0.51
2300	38.9%	-4.1	-0.43
2320	40.6%	-3.92	-0.01
2340	38.6%	-4.13	-0.94
2360	43.3%	-3.64	0.07
2380	42.9%	-3.68	0.44
2400	44.3%	-3.54	0.94
2420	45.8%	-3.39	0.98
2440	45.1%	-3.46	0.41
2460	44.3%	-3.54	0.19
2480	43.5%	-3.62	0.66
2500	43.4%	-3.63	1.04
2520	42.8%	-3.69	0.55
2540	43.8%	-3.59	0.19
2560	42.3%	-3.74	-0.31
2580	45.3%	-3.44	-0.14
2600	41.3%	-3.84	-0.12
2620	40.4%	-3.94	-0.56
2640	38.4%	-4.16	-1.32
2660	41.8%	-3.79	-0.09
2680	41.3%	-3.84	-0.09
2700	37.3%	-4.28	-1.27

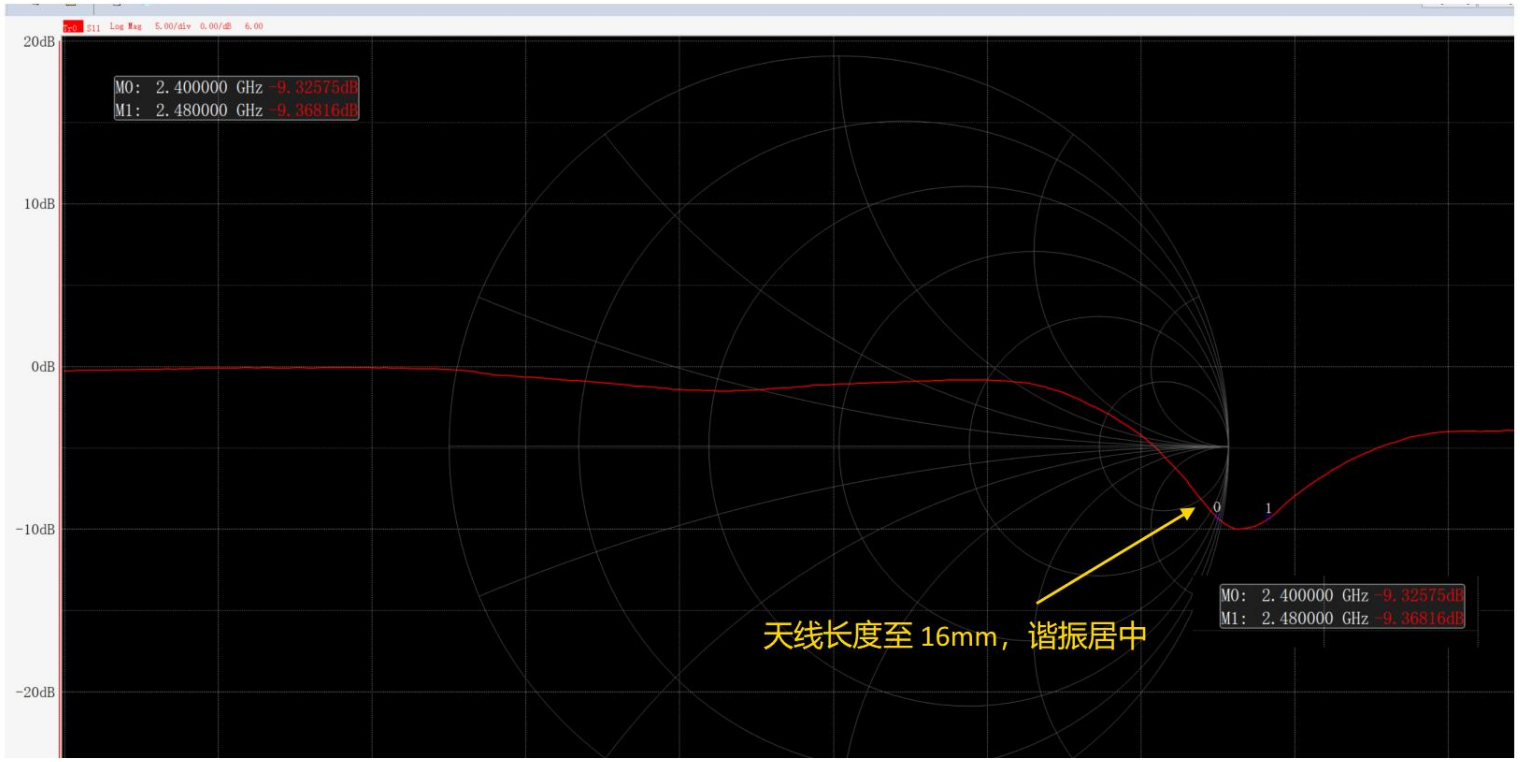
GPS Antenna Performance —— S11



GPS Antenna Performance —— Efficiency and Gain

Frequency（Mhz）	Efficiency（dB）	Efficiency（%）	Peak Gain（dBi）
1550	-4.64	34.38%	2.22
1552	-4.52	35.34%	2.42
1554	-4.27	37.42%	2.69
1556	-3.96	40.22%	3.01
1558	-3.70	42.67%	3.28
1560	-3.50	44.71%	3.46
1562	-3.28	47.04%	3.60
1564	-3.07	49.29%	3.73
1566	-2.83	52.08%	3.88
1568	-2.61	54.79%	4.02
1570	-2.50	56.20%	4.08
1572	-2.44	57.04%	4.03
1574	-2.35	58.26%	3.90
1576	-2.26	59.39%	3.77
1578	-2.22	60.02%	3.83
1580	-2.22	60.02%	3.86
1582	-2.29	59.01%	3.78
1584	-2.40	57.53%	3.58
1586	-2.47	56.68%	3.70
1588	-2.47	56.56%	3.83
1590	-2.51	56.08%	3.96
1592	-2.52	55.97%	3.95
1594	-2.46	56.80%	3.92
1596	-2.40	57.53%	3.99
1598	-2.37	57.89%	4.21
1600	-2.33	58.51%	4.37
1602	-2.34	58.39%	4.39
1604	-2.36	58.02%	4.41
1606	-2.34	58.39%	4.49
1608	-2.31	58.76%	4.58
1610	-2.38	57.77%	4.56

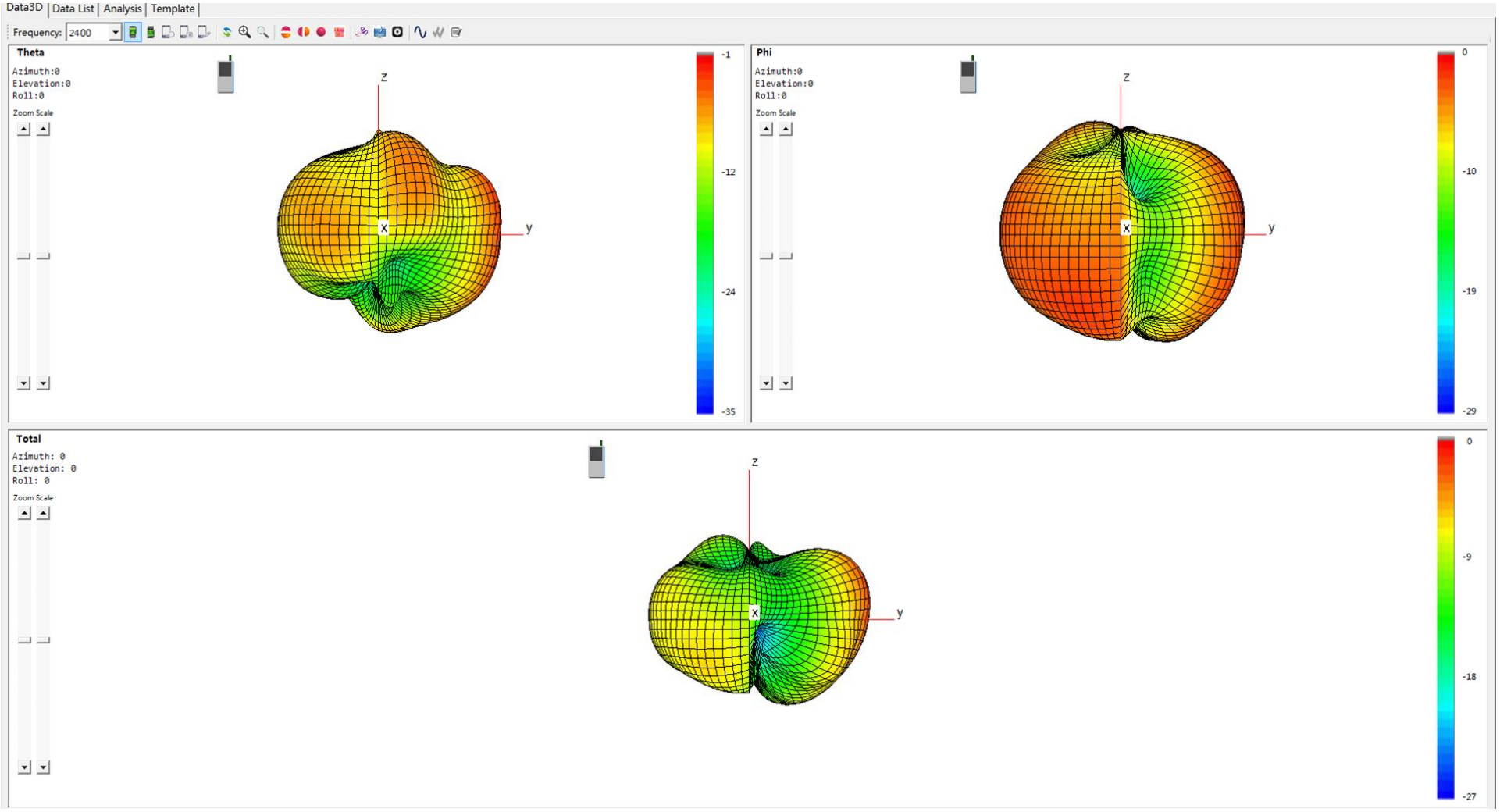
Bluetooth Antenna Performance —— S11



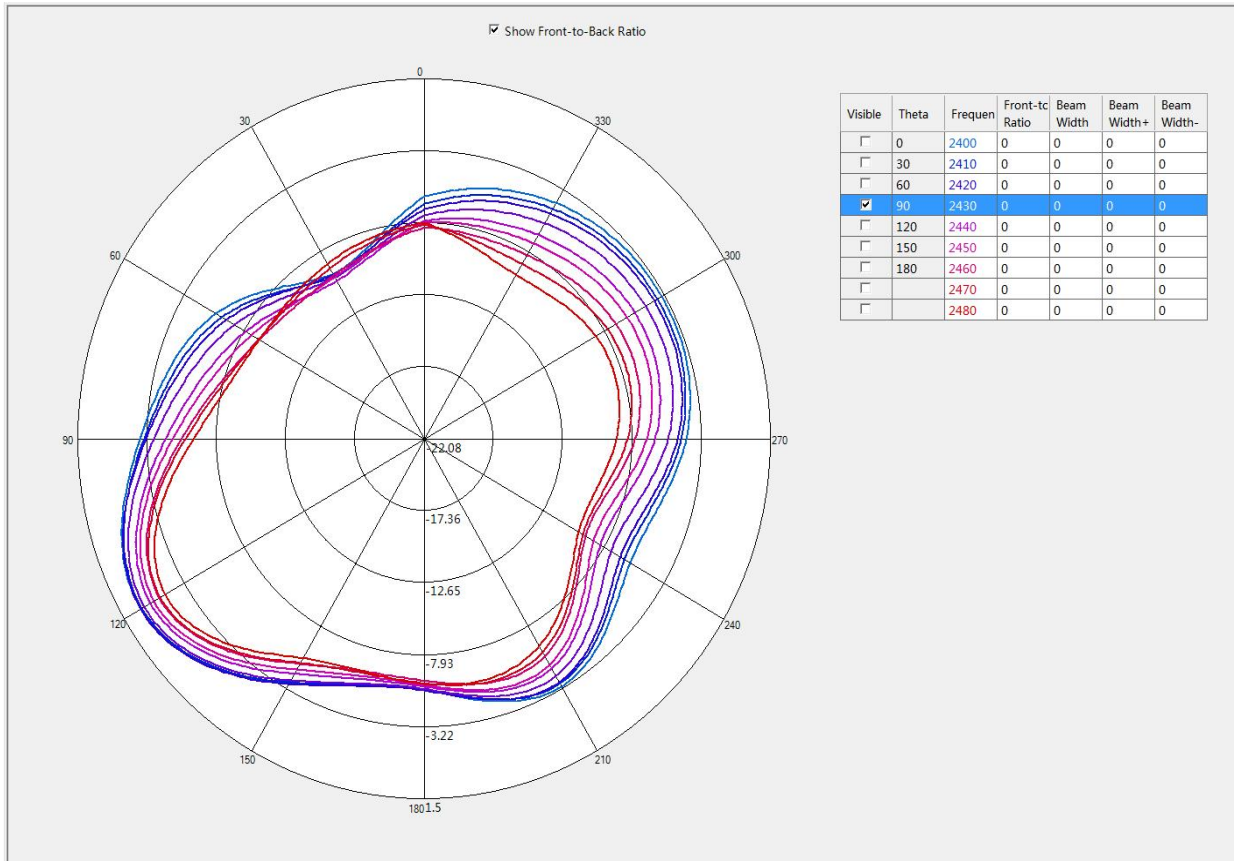
Bluetooth Antenna Performance —— Efficiency and Gain

Freq.(MHz)	Efficiency（%）	Efficiency (dB)	Gain(dBi)
2400	44.87%	-3.48	0.92
2410	45.39%	-3.43	1.02
2420	47.64%	-3.22	1.27
2430	52.72%	-2.78	1.63
2440	54.33%	-2.65	1.7
2450	52.72%	-2.78	1.65
2460	48.42%	-3.15	1.3
2470	45.60%	-3.41	1.05
2480	43.95%	-3.57	0.88

Bluetooth Antenna Performance —— Antenna Pattern 1

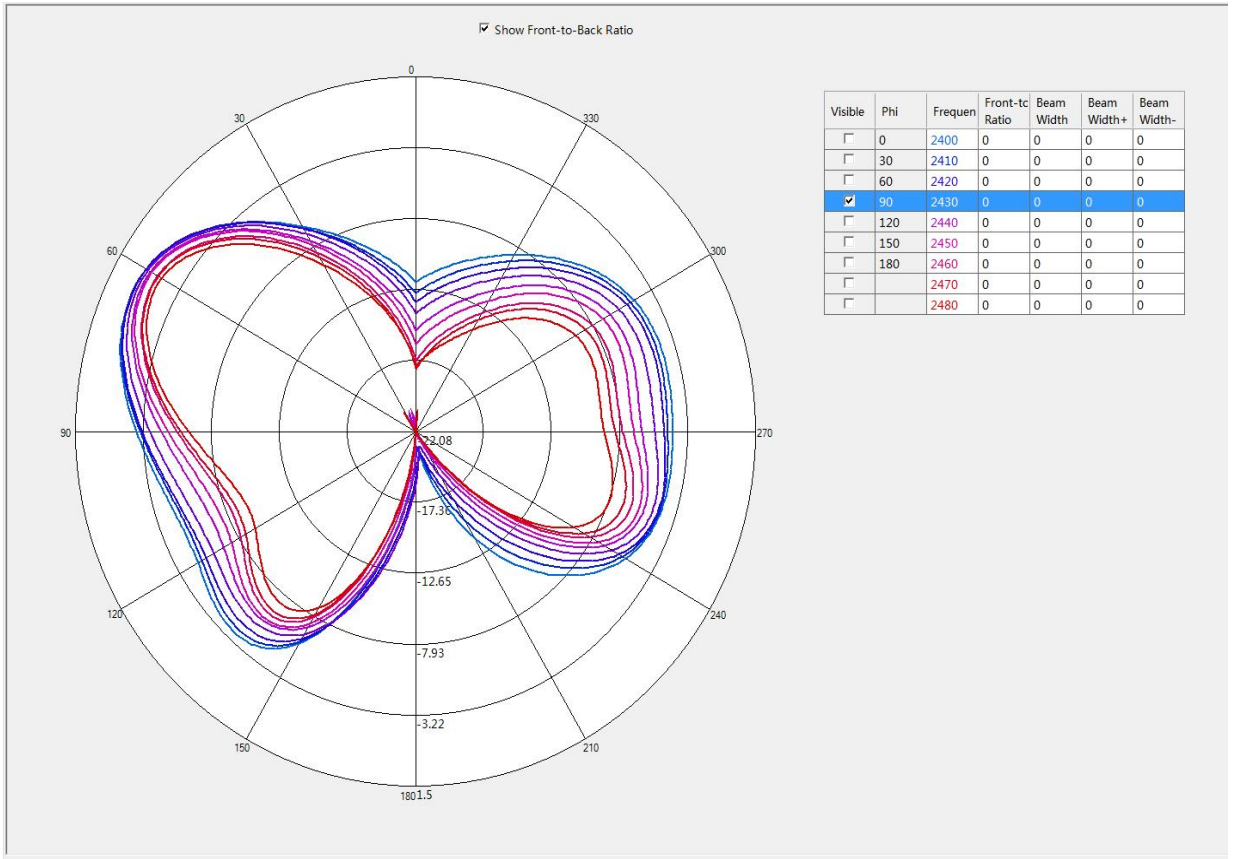


Bluetooth Antenna Performance —— Antenna Pattern 2



Visible	Theta	Frequen	Front-to Ratio	Beam Width	Beam Width+	Beam Width-
☐	0	2400	0	0	0	0
☐	30	2410	0	0	0	0
☐	60	2420	0	0	0	0
☑	90	2430	0	0	0	0
☐	120	2440	0	0	0	0
☐	150	2450	0	0	0	0
☐	180	2460	0	0	0	0
☐		2470	0	0	0	0
☐		2480	0	0	0	0

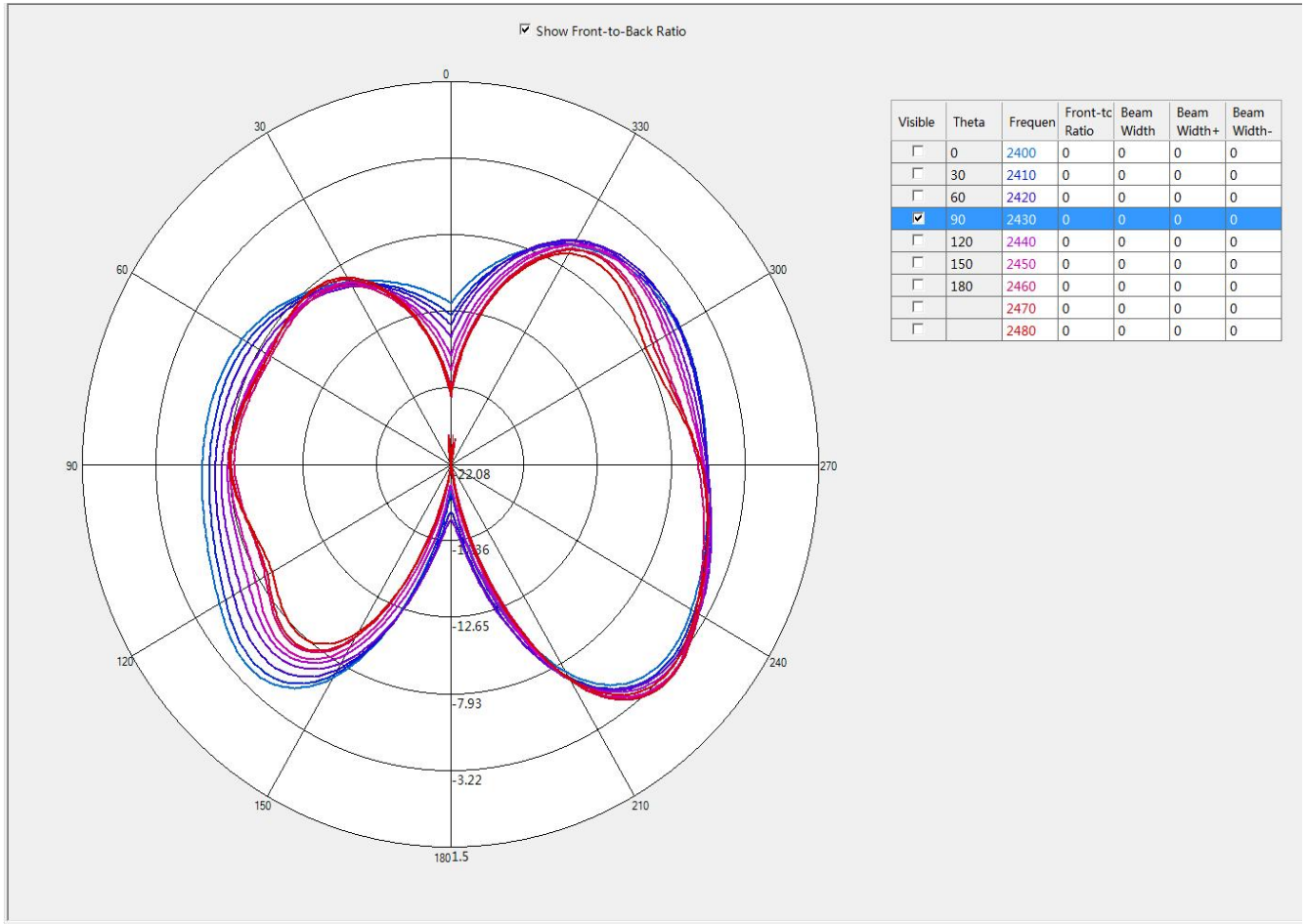
Theta=90°



Visible	Phi	Frequen	Front-to Ratio	Beam Width	Beam Width+	Beam Width-
☐	0	2400	0	0	0	0
☐	30	2410	0	0	0	0
☐	60	2420	0	0	0	0
☑	90	2430	0	0	0	0
☐	120	2440	0	0	0	0
☐	150	2450	0	0	0	0
☐	180	2460	0	0	0	0
☐		2470	0	0	0	0
☐		2480	0	0	0	0

Phi=90°

Bluetooth Antenna Performance —— Antenna Pattern 3



Visible	Theta	Frequen	Front-to Ratio	Beam Width	Beam Width+	Beam Width-
☐	0	2400	0	0	0	0
☐	30	2410	0	0	0	0
☐	60	2420	0	0	0	0
☑	90	2430	0	0	0	0
☐	120	2440	0	0	0	0
☐	150	2450	0	0	0	0
☐	180	2460	0	0	0	0
☐		2470	0	0	0	0
☐		2480	0	0	0	0

Phi=0°

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