

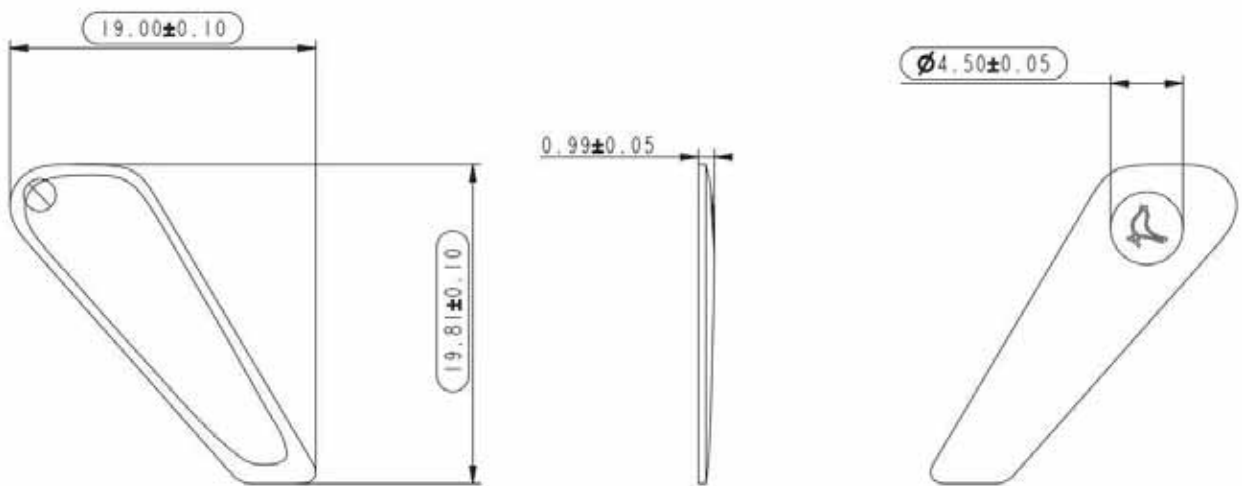
LTW612 Antenna Details

LTW612 is a True-Wireless-Stereo headphone product. The Bluetooth function is achieved by AB1585A/A.

Two mono-pole metal antennas are used for this product.

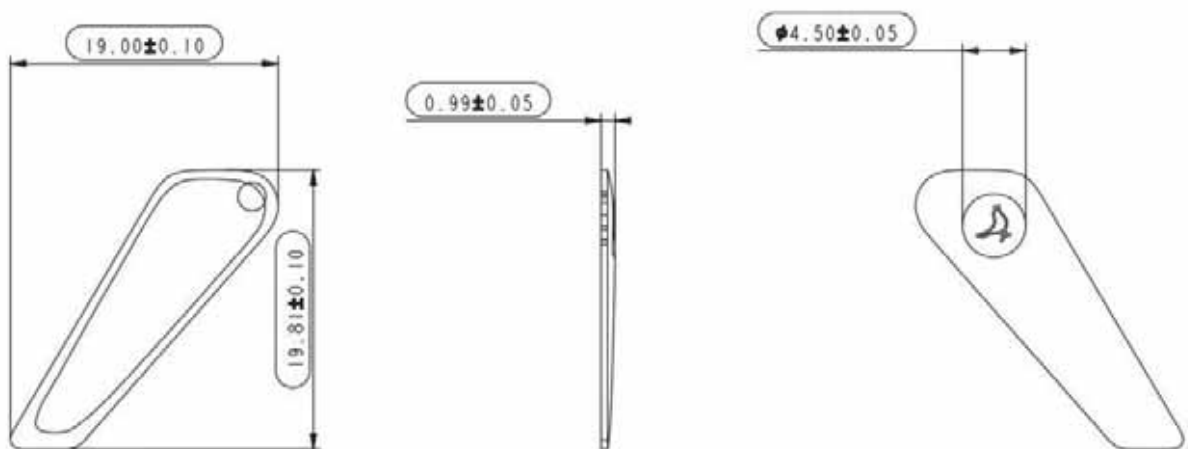
1) Antennas' dimension

Left earbud



Unit:mm

Right earbud



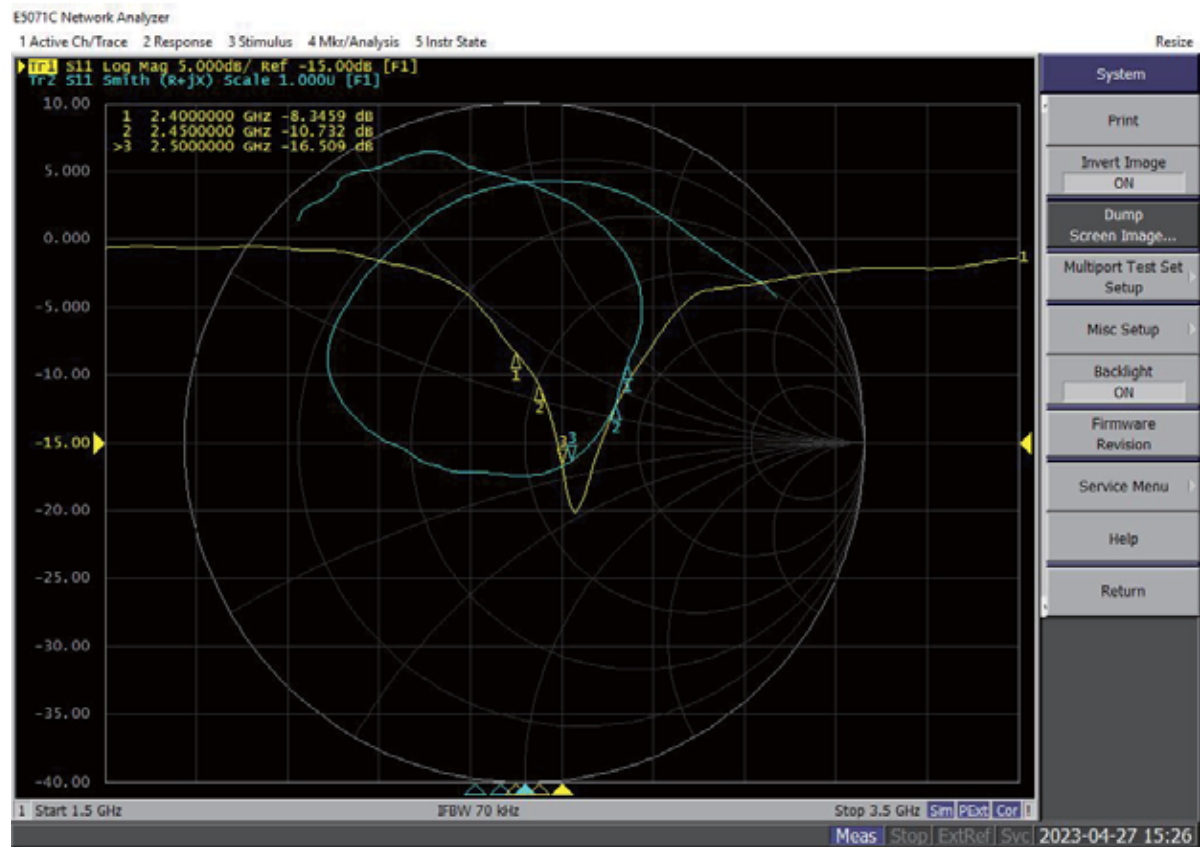
Unit:mm

2) Antenna supplier

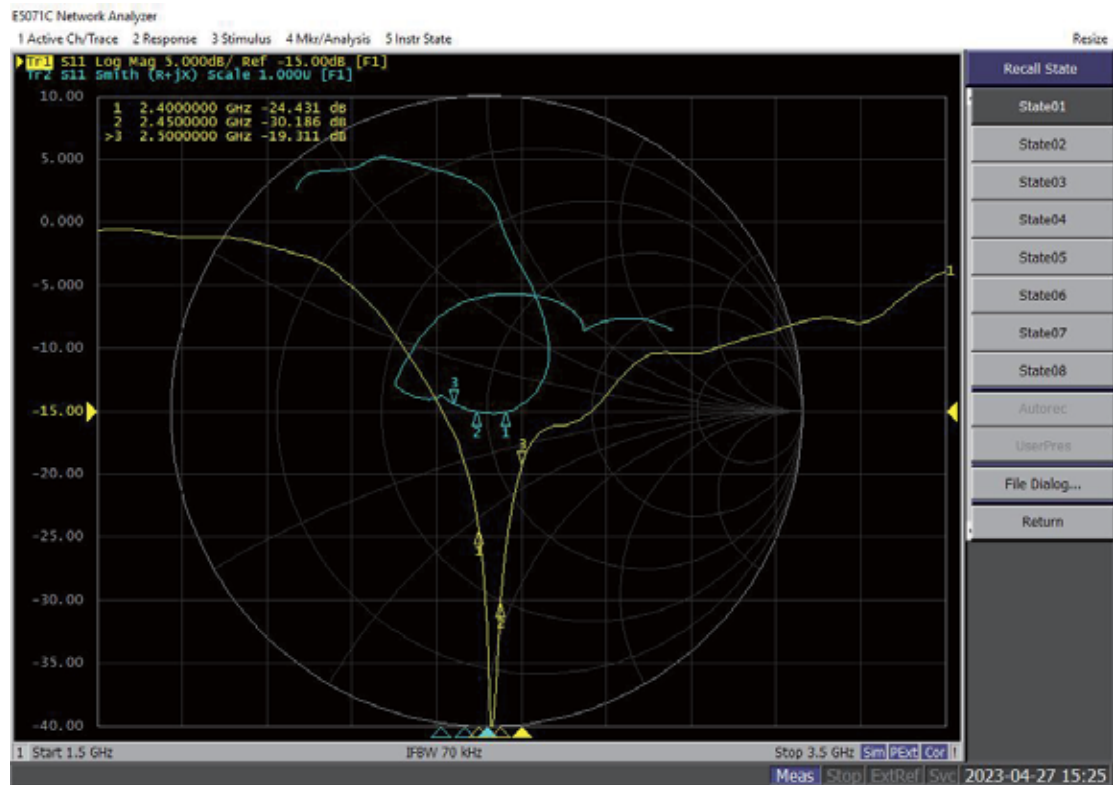
Part name	Part number	Supplier	Supplier Address
Left earbud antenna	304000157307	珠海蓝冠电子科技有限公司	广东省珠海市斗门区新青科技园新青三路南 3 号 Zhuhai LanGuan Electronic Technology Co., Ltd, No.3, Xinqing No.3 Road South, Dou men, Zhuhai, Guang Dong
Right earbud antenna	304000157308		

3) Return Loss of antenna

Left earbud



Right earbud



4) Efficiency and gain

Left earbud



Right earbud

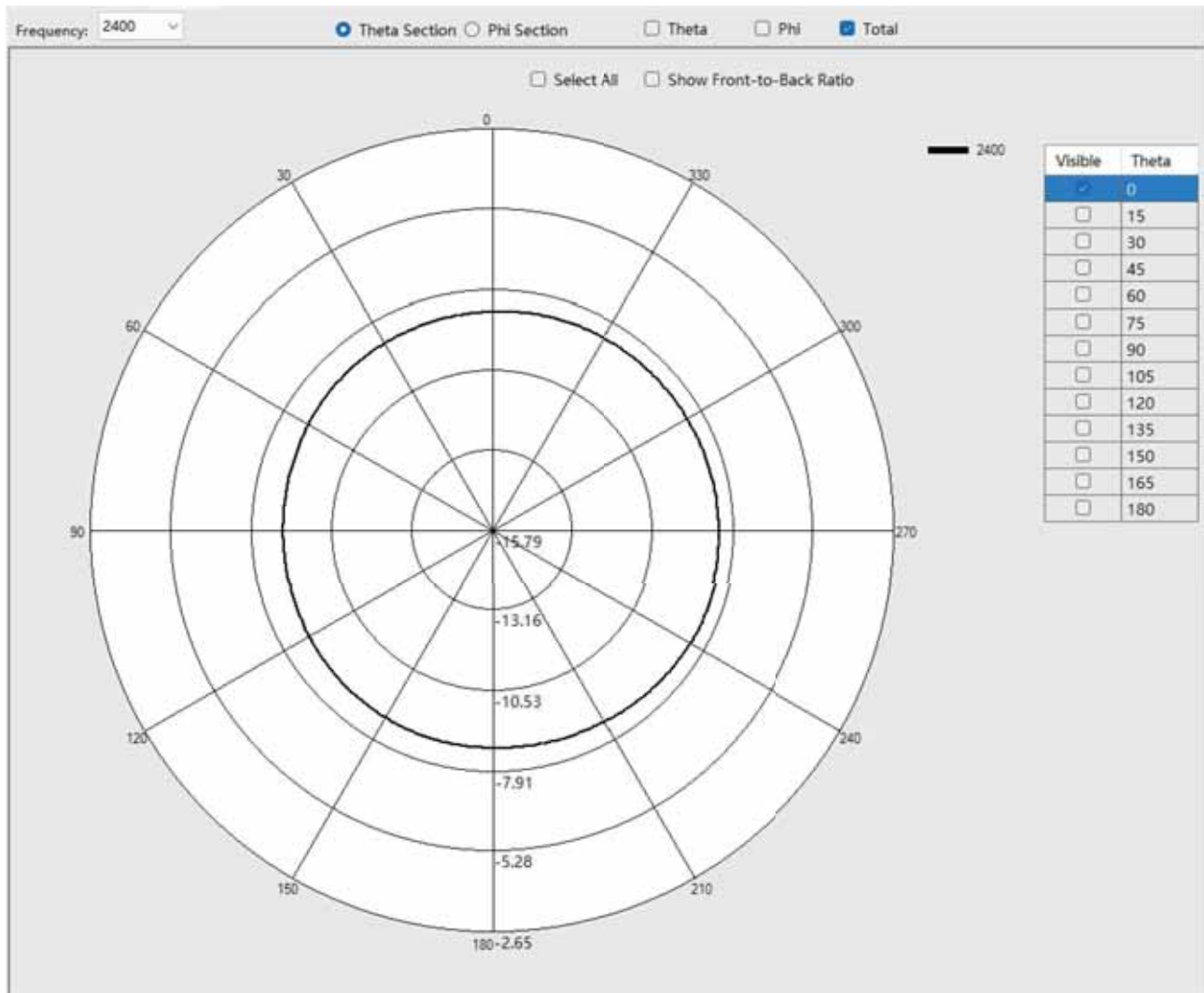


Left earbud

Freq (MHz)	Efficiency (%)	Efficiency (dB)	Gain (dBi)
2400	21.64	-6.68	-2.65
2410	22.71	-6.44	-2.37
2420	22.20	-6.54	-2.55
2430	23.18	-6.35	-2.33
2440	23.57	-6.28	-2.31
2450	24.31	-6.14	-2.15
2460	24.30	-6.14	-2.23
2470	24.90	-6.04	-2.10
2480	25.26	-5.98	-2.05
2490	24.95	-6.03	-2.07
2500	24.49	-6.11	-2.06

The radiated pattern for your reference.

2400MHz





LIBRATONE

Frequency: 2400

☒ Theta Section ☐ Phi Section

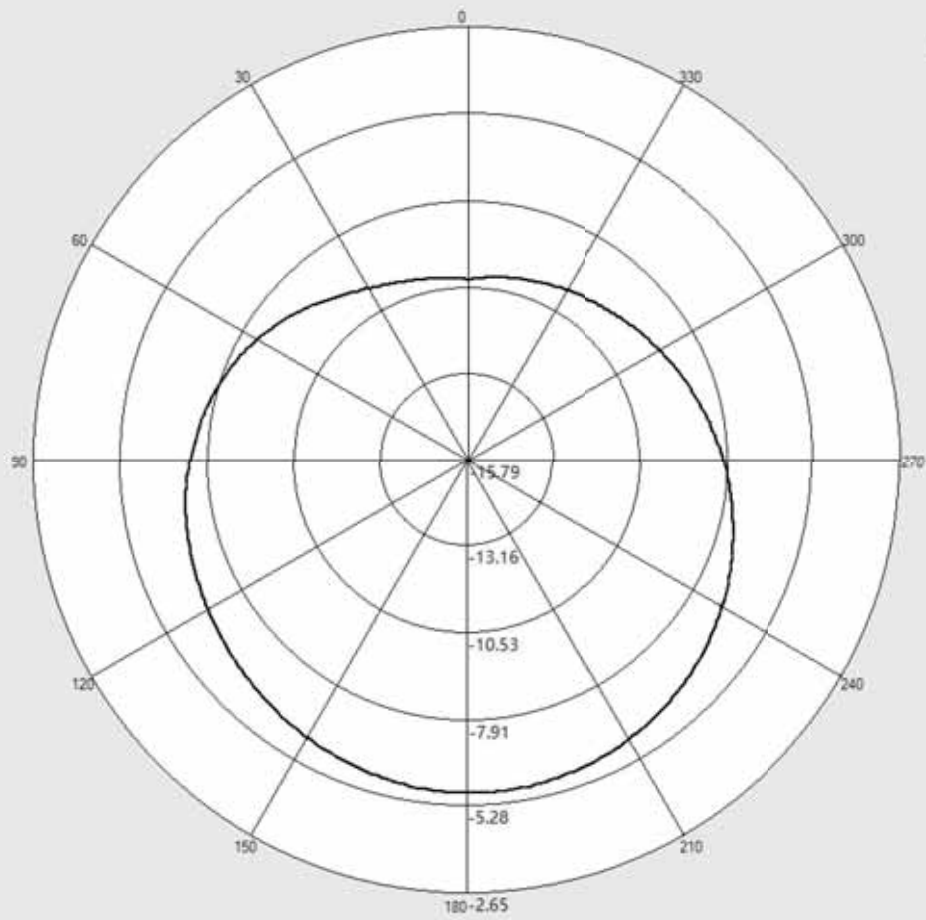
☐ Theta

☐ Phi

☒ Total

☐ Select All

☐ Show Front-to-Back Ratio



Visible	Theta
☐	0
☐	15
☒	30
☐	45
☐	60
☐	75
☐	90
☐	105
☐	120
☐	135
☐	150
☐	165
☐	180



LIBRATONE

Frequency: 2400

☒ Theta Section ☐ Phi Section

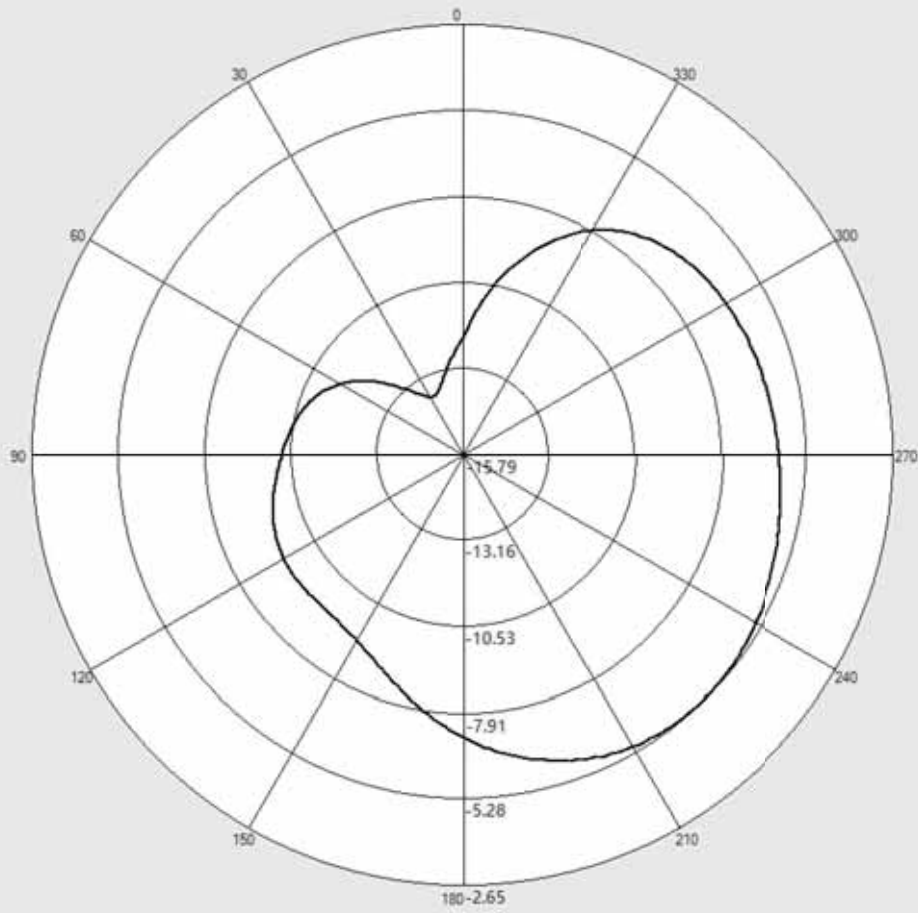
☐ Theta

☐ Phi

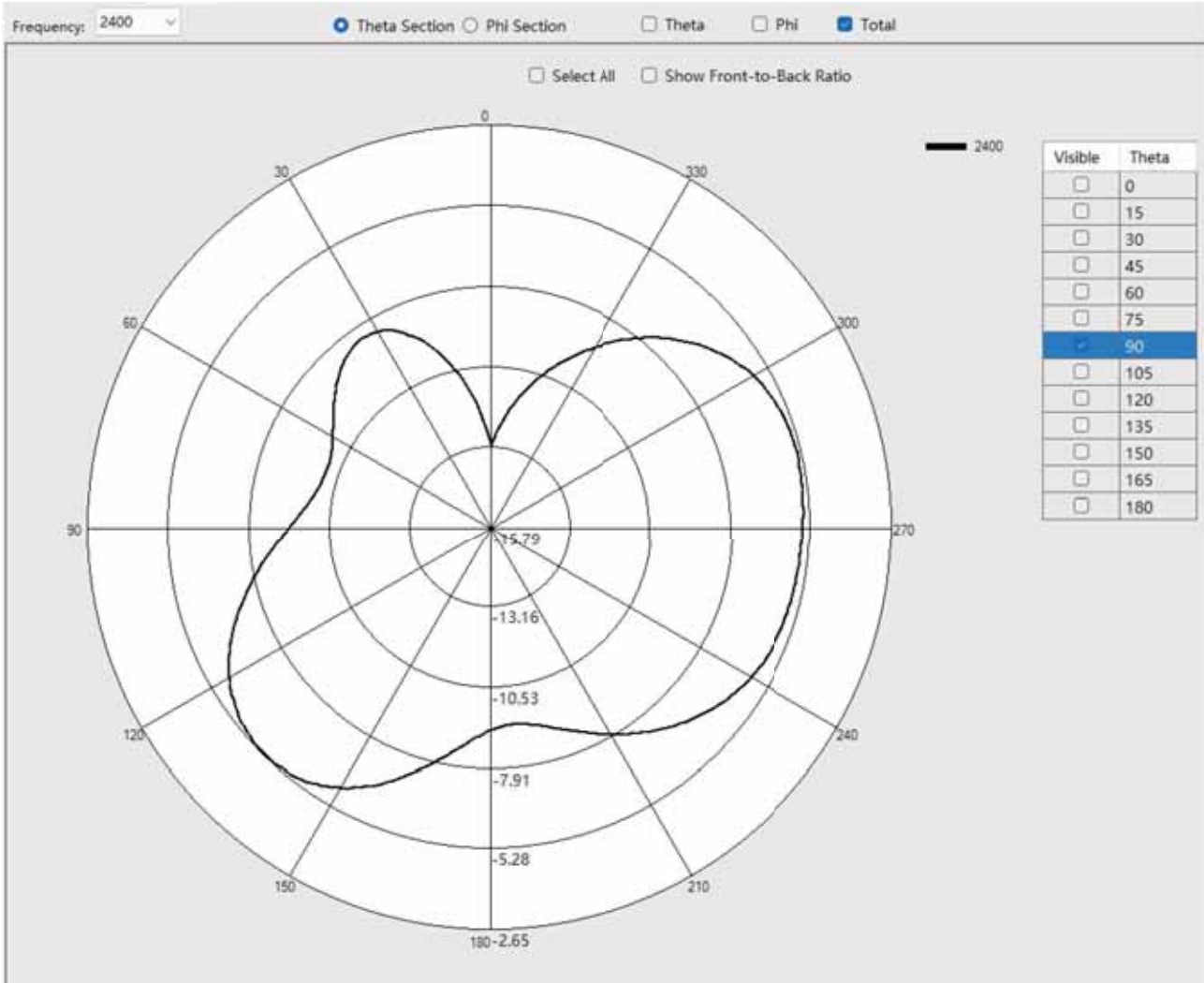
☒ Total

☐ Select All

☐ Show Front-to-Back Ratio



Visible	Theta
☐	0
☐	15
☐	30
☐	45
☒	60
☐	75
☐	90
☐	105
☐	120
☐	135
☐	150
☐	165
☐	180



Frequency: 2400

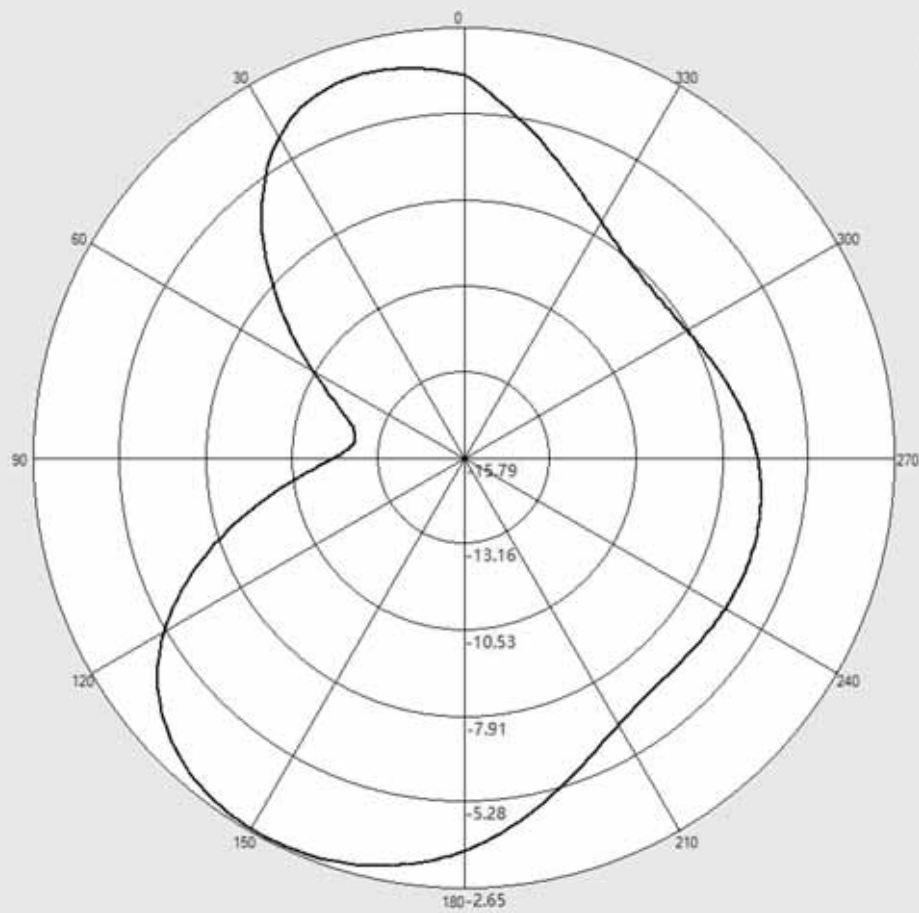
☒ Theta Section ☐ Phi Section

☐ Theta

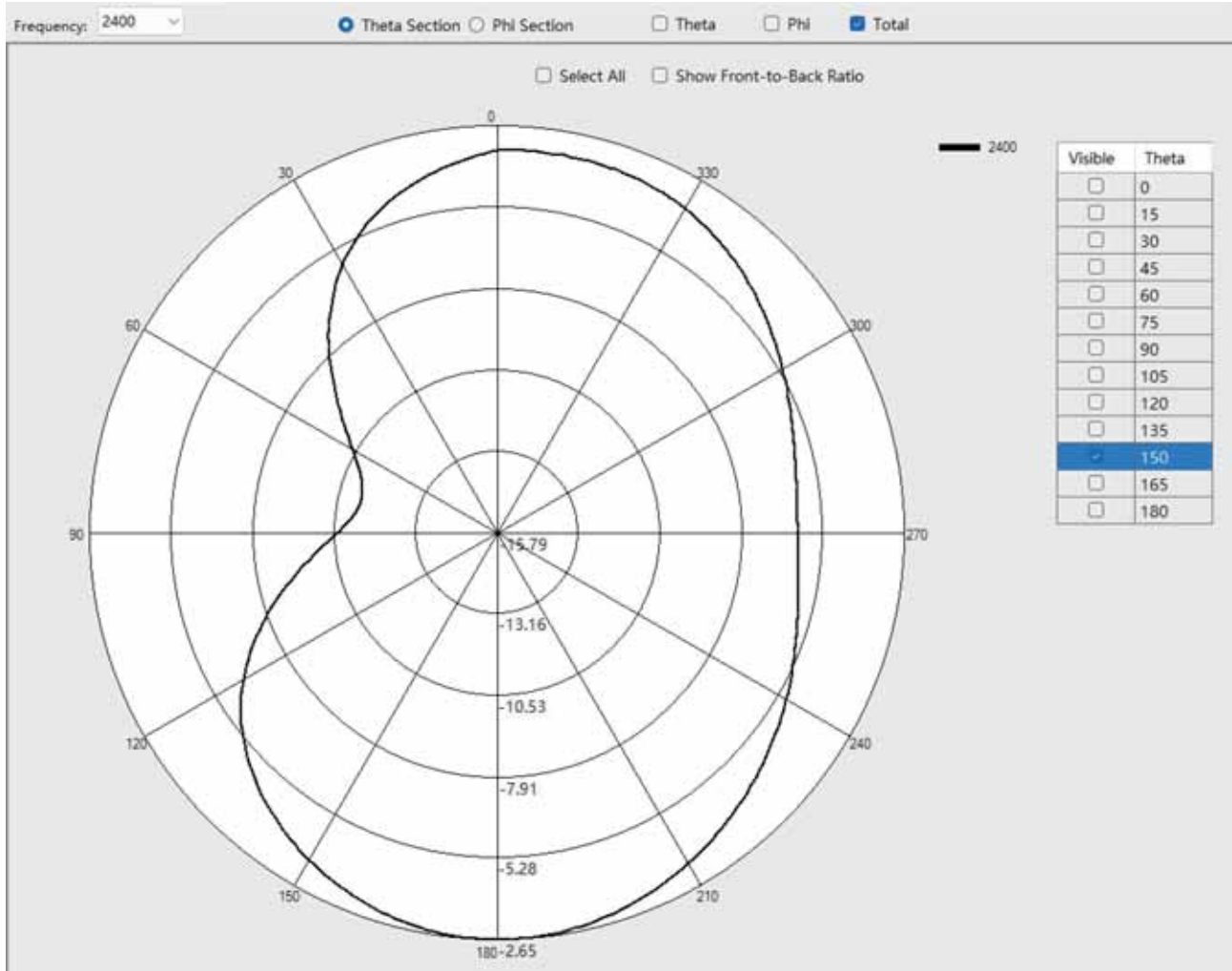
☐ Phi

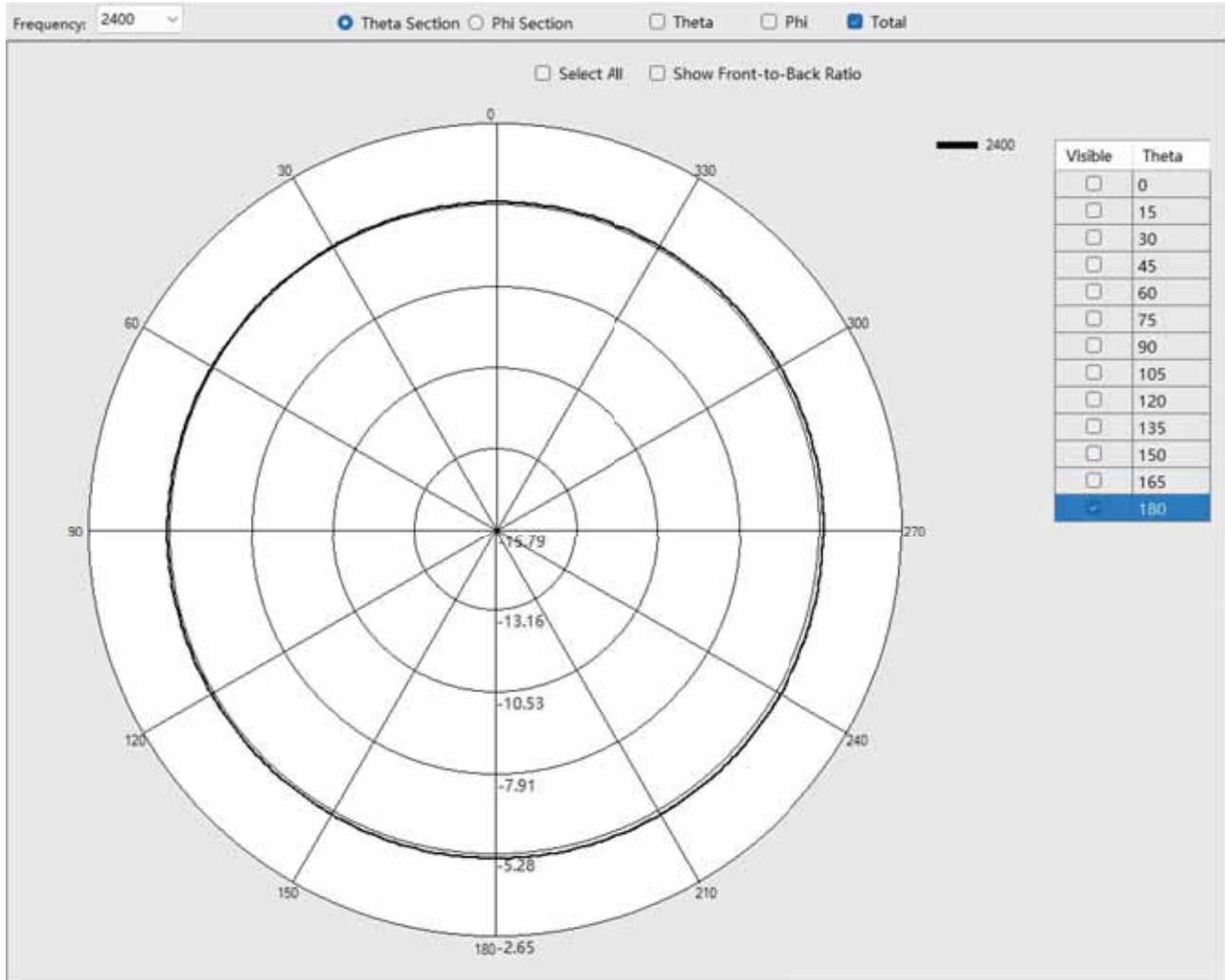
☒ Total

☐ Select All

☐ Show Front-to-Back Ratio


Visible	Theta
☐	0
☐	15
☐	30
☐	45
☐	60
☐	75
☐	90
☐	105
☒	120
☐	135
☐	150
☐	165
☐	180





Frequency: 2400

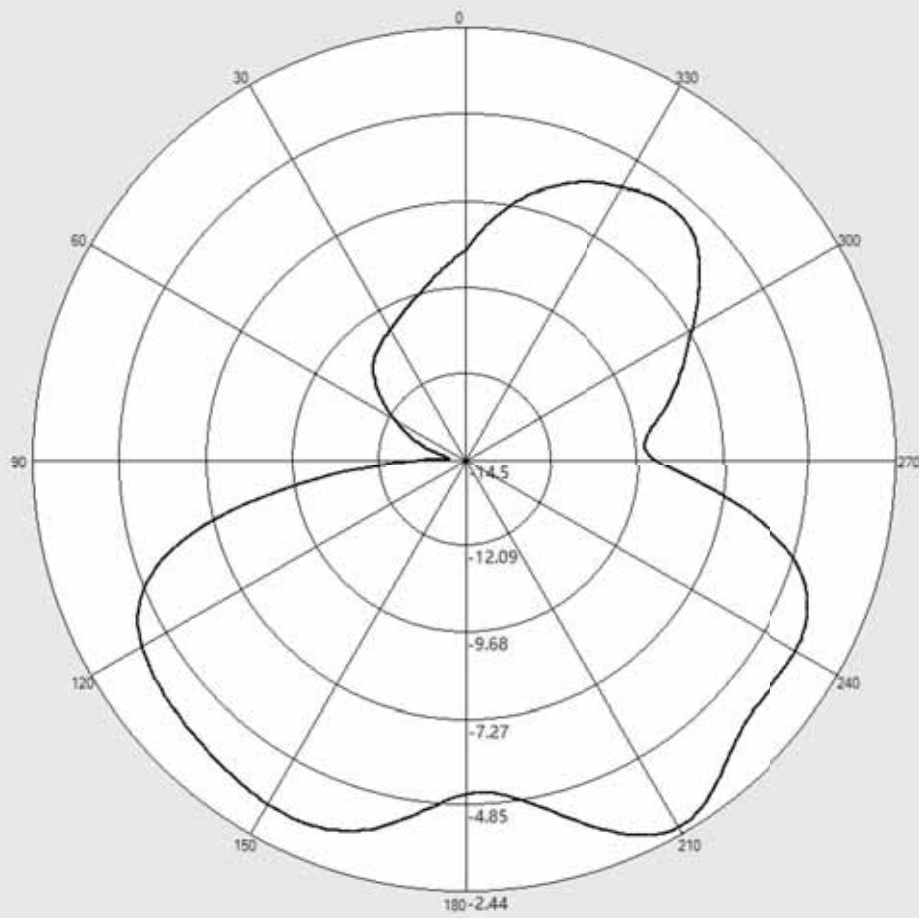
☐ Theta Section ☒ Phi Section

☐ Theta

☐ Phi

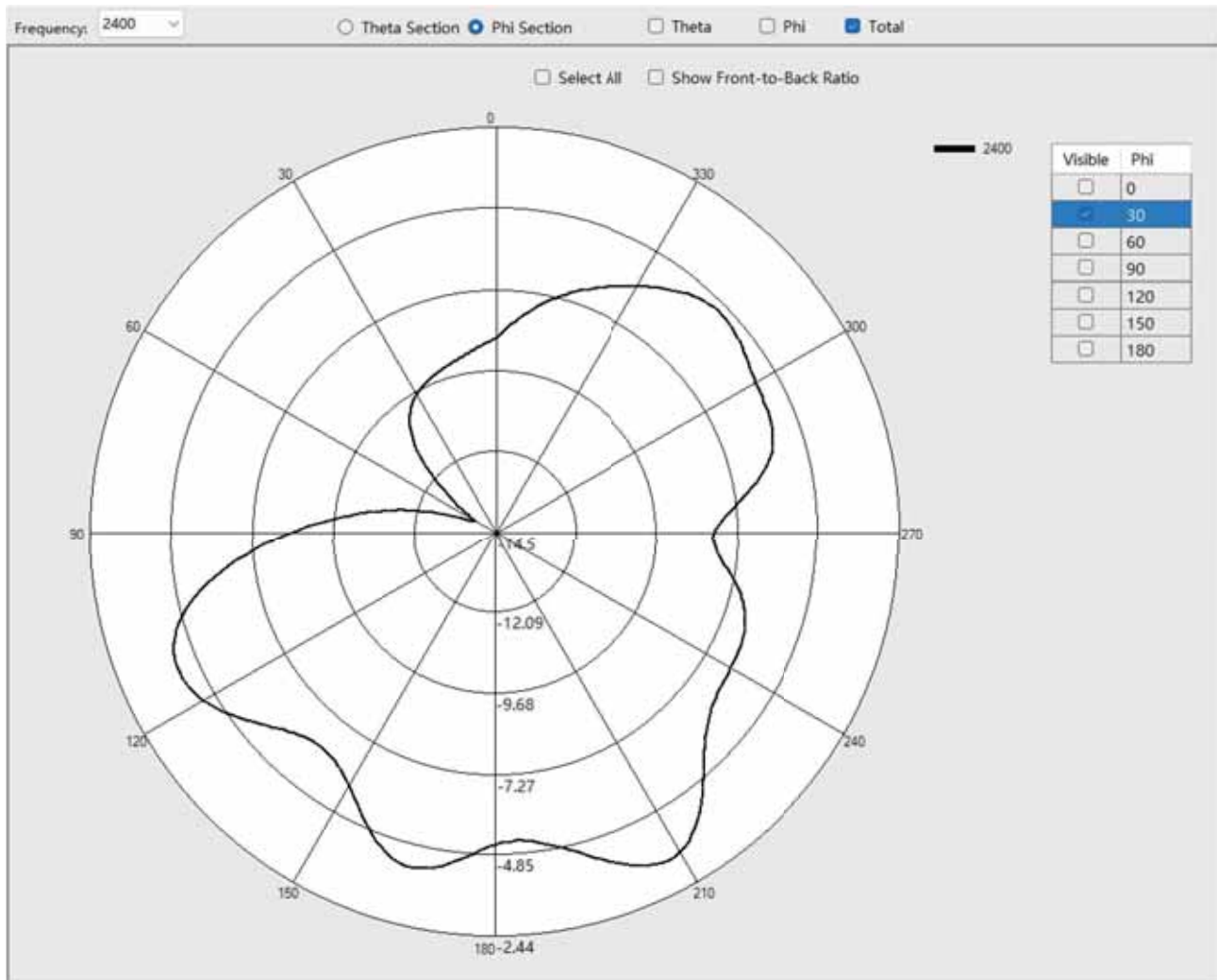
☒ Total

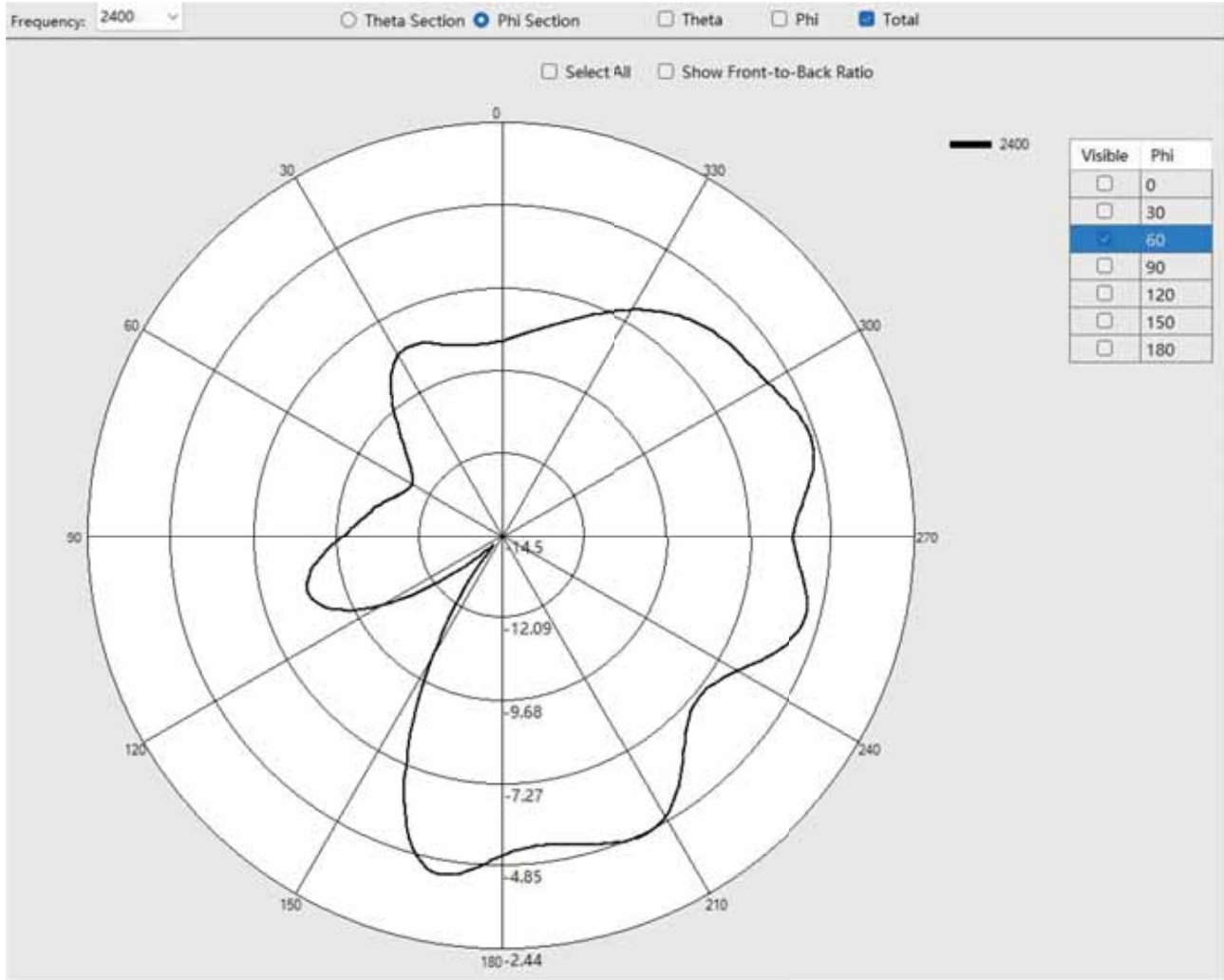
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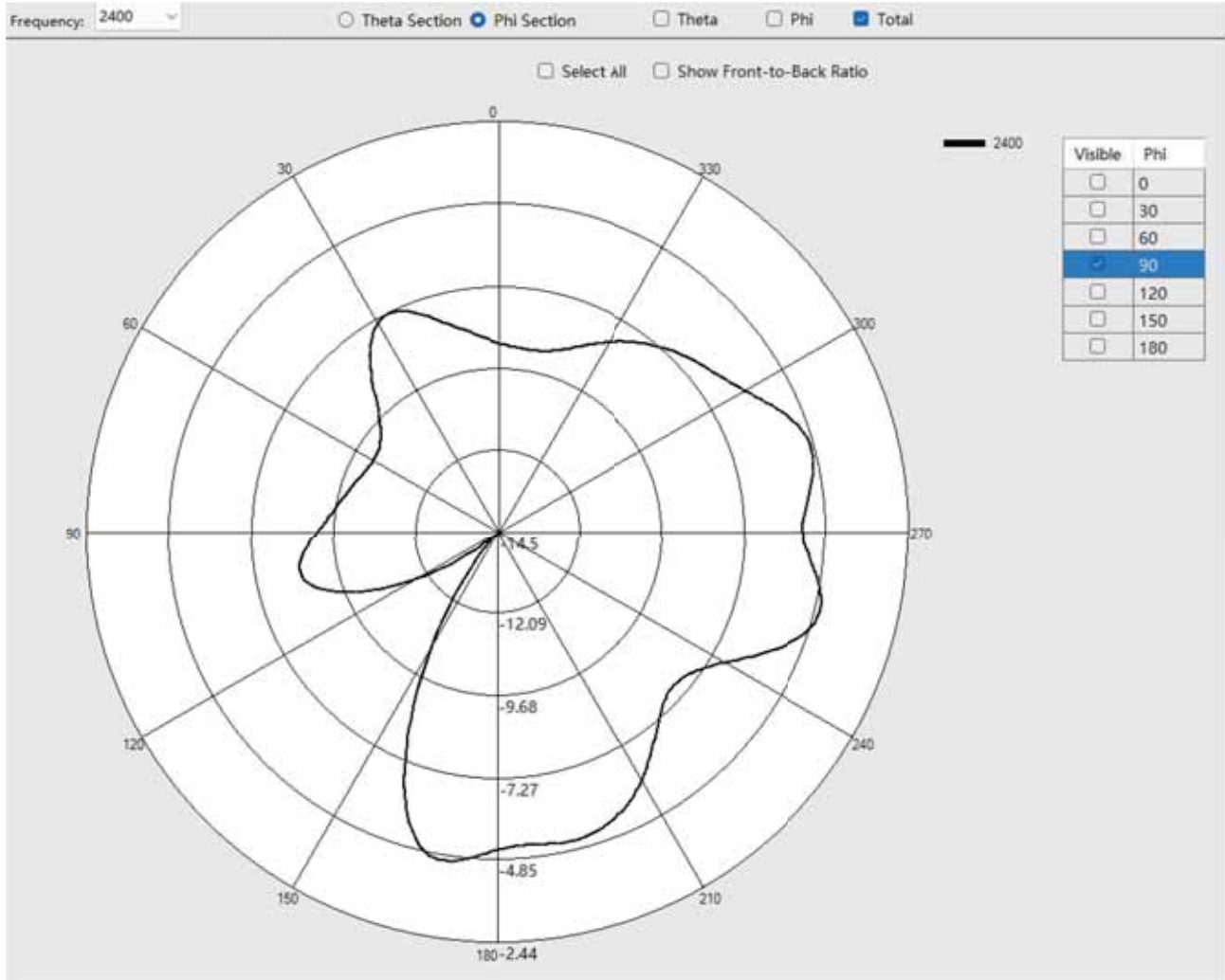
☐ Show Front-to-Back Ratio


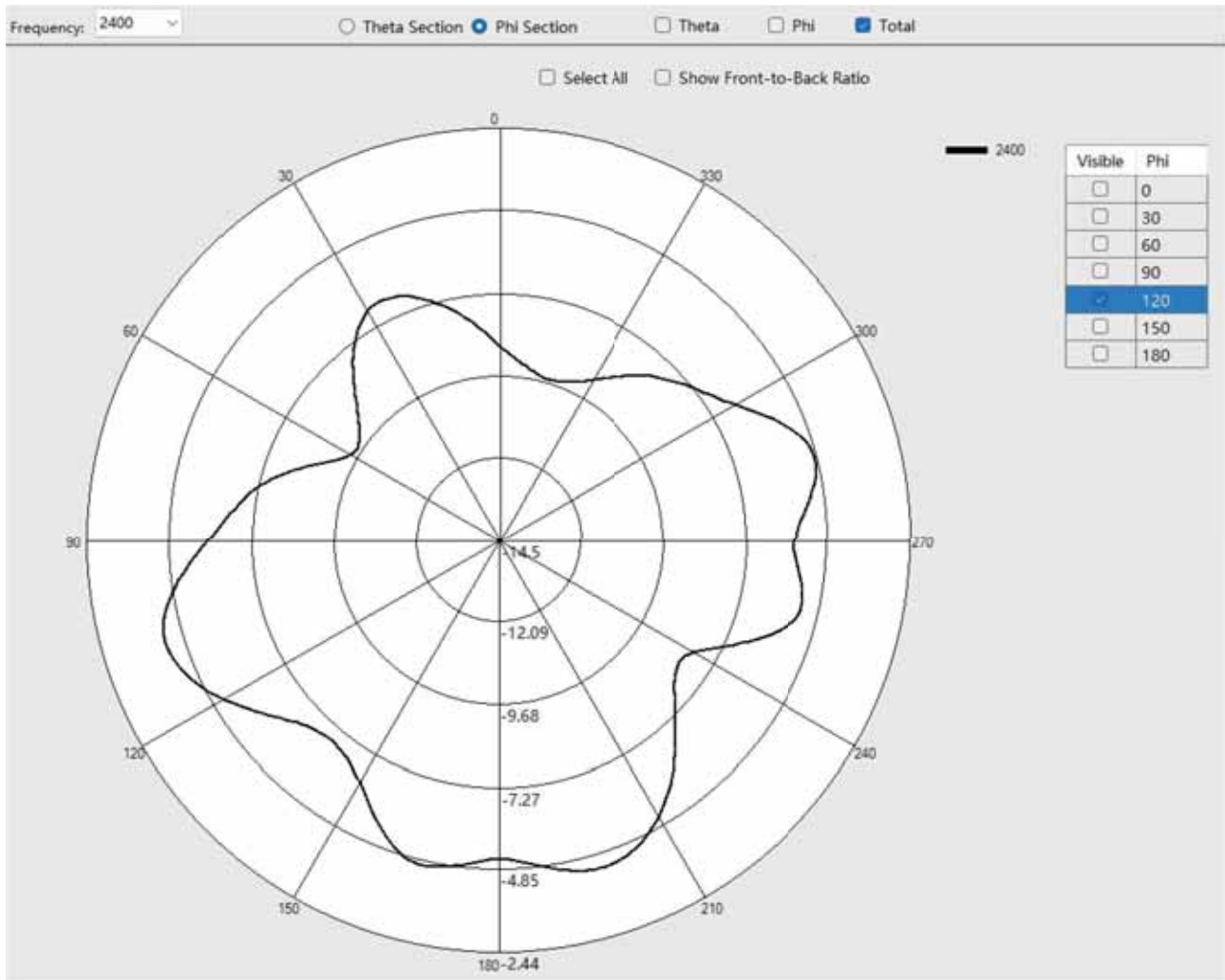
2400

Visible	Phi
☒	0
☐	30
☐	60
☐	90
☐	120
☐	150
☐	180











LIBRATONE

Frequency: 2400

☐ Theta Section ☒ Phi Section

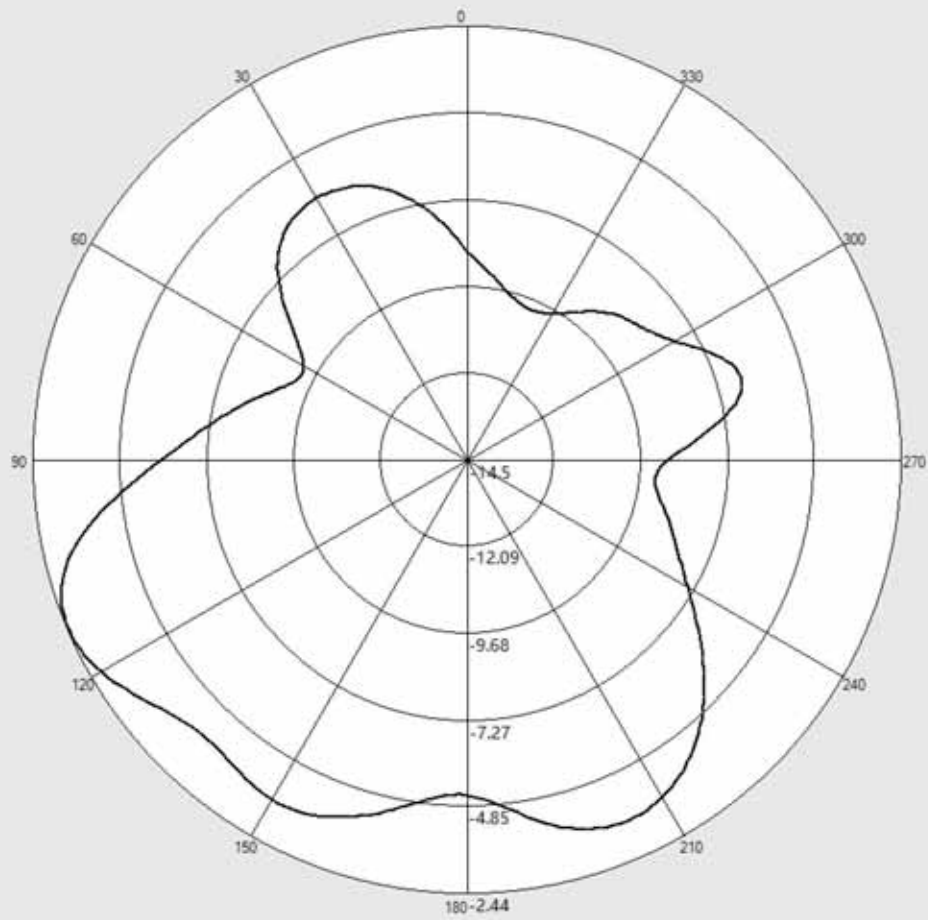
☐ Theta

☐ Phi

☒ Total

☐ Select All

☐ Show Front-to-Back Ratio



Visible	Phi
☐	0
☐	30
☐	60
☐	90
☐	120
☒	150
☐	180

Frequency: 2400

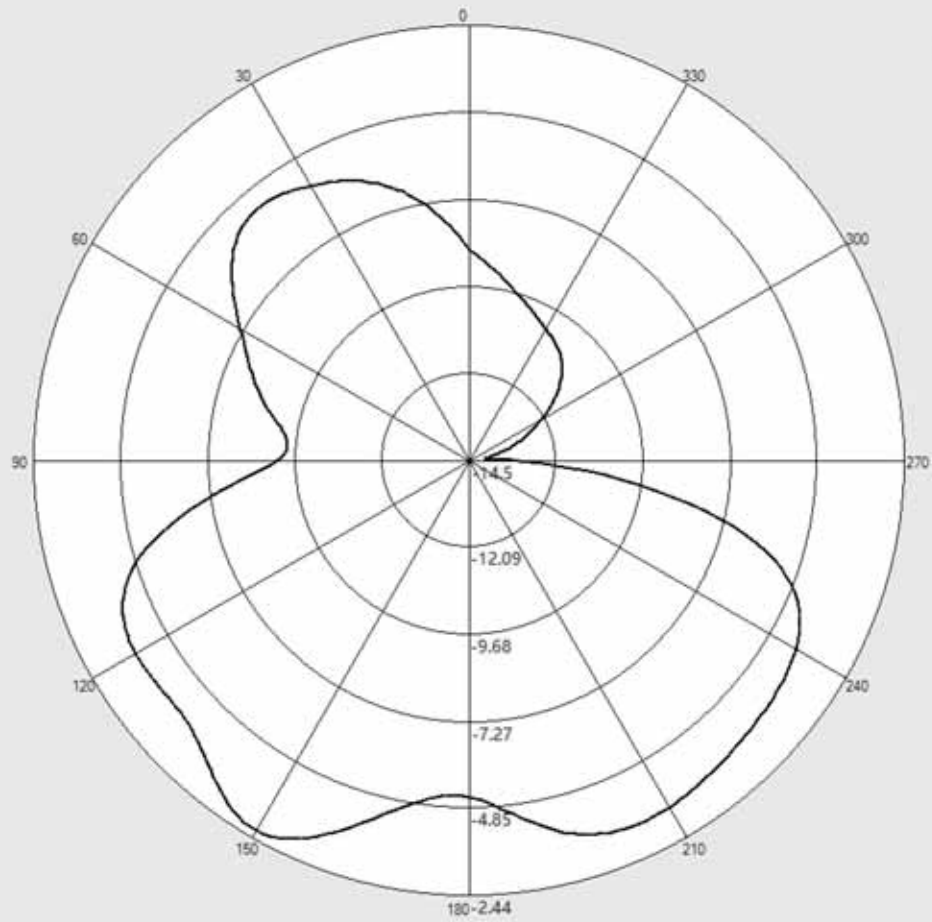
☐ Theta Section ☒ Phi Section

☐ Theta

☐ Phi

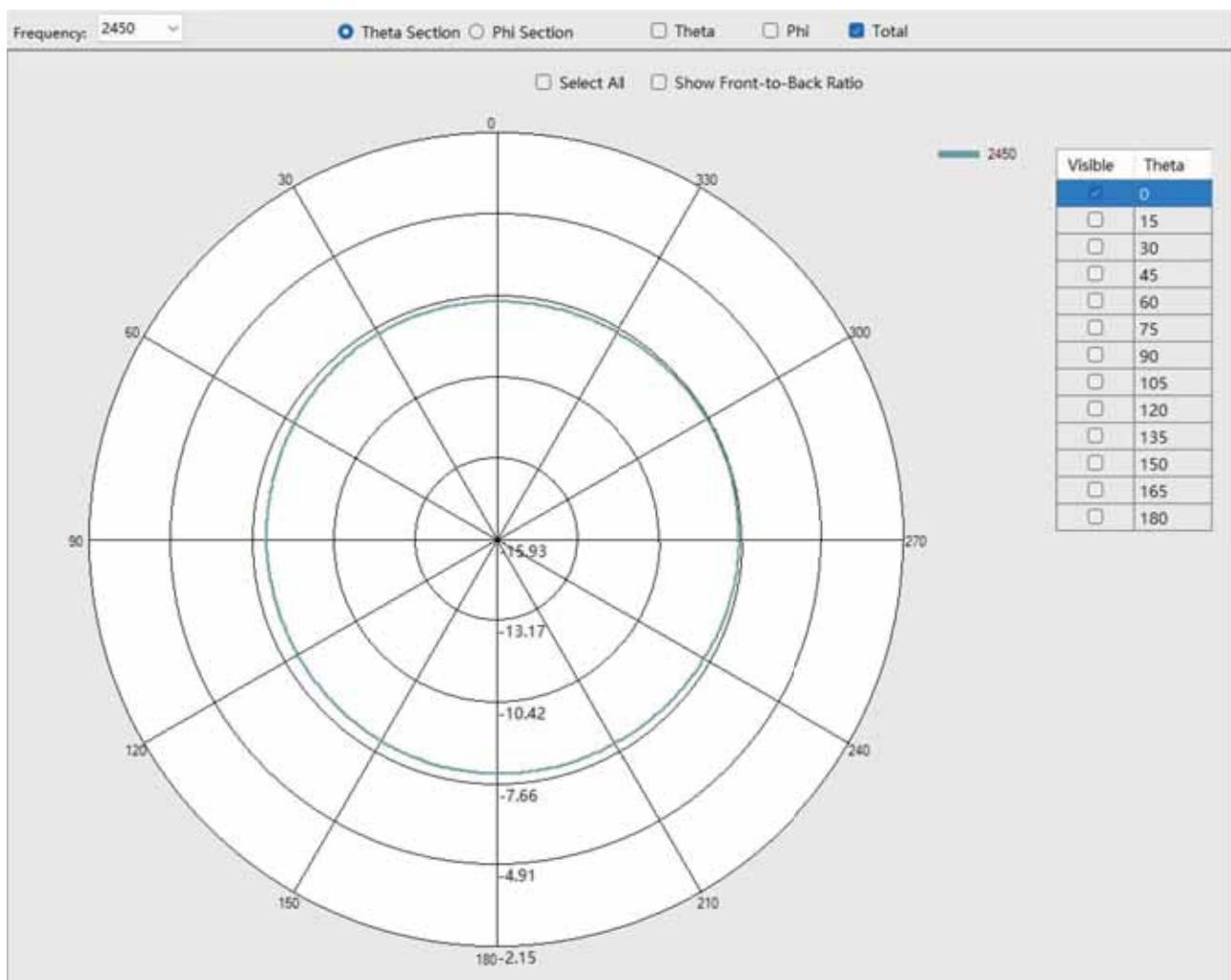
☒ Total

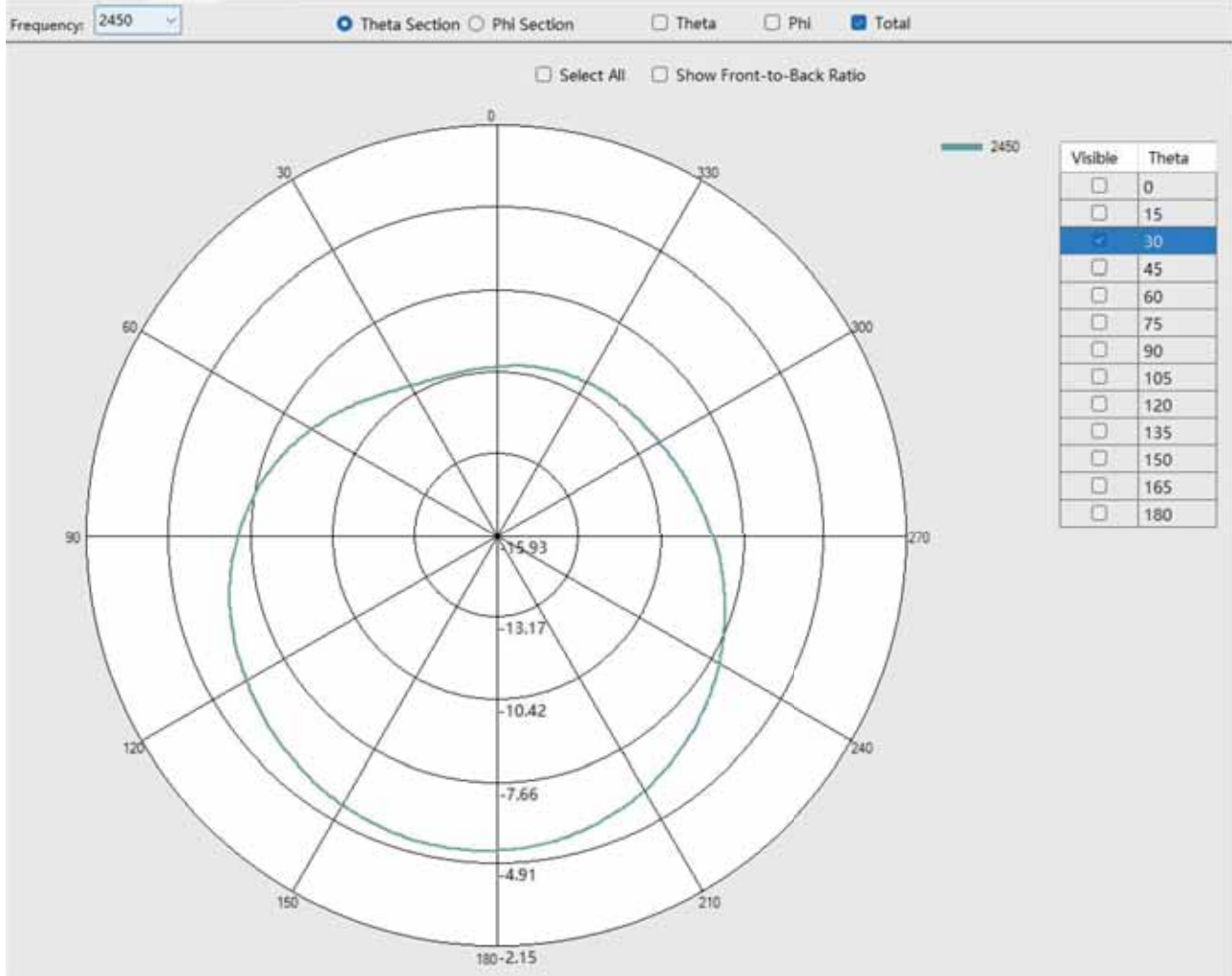
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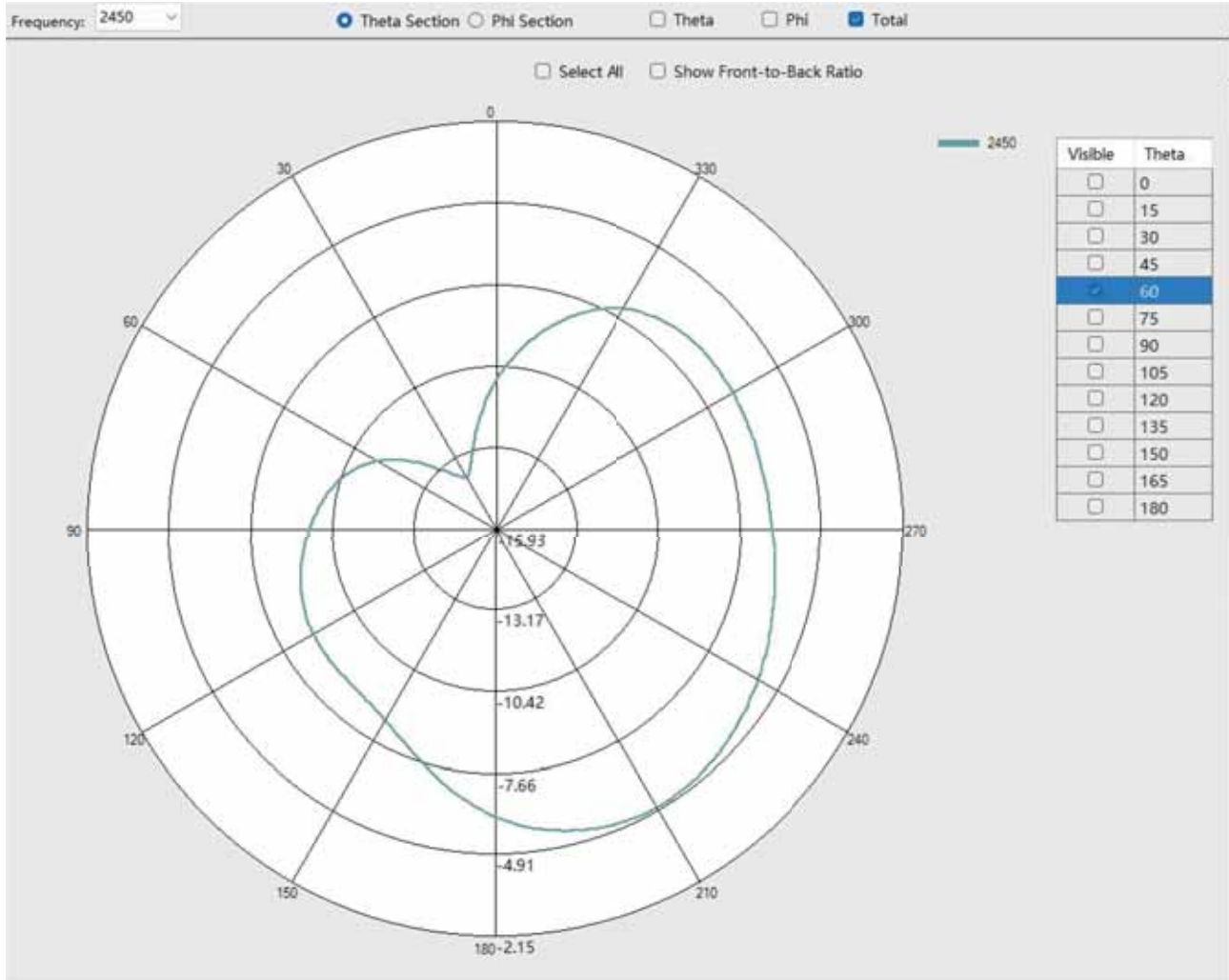
☐ Show Front-to-Back Ratio


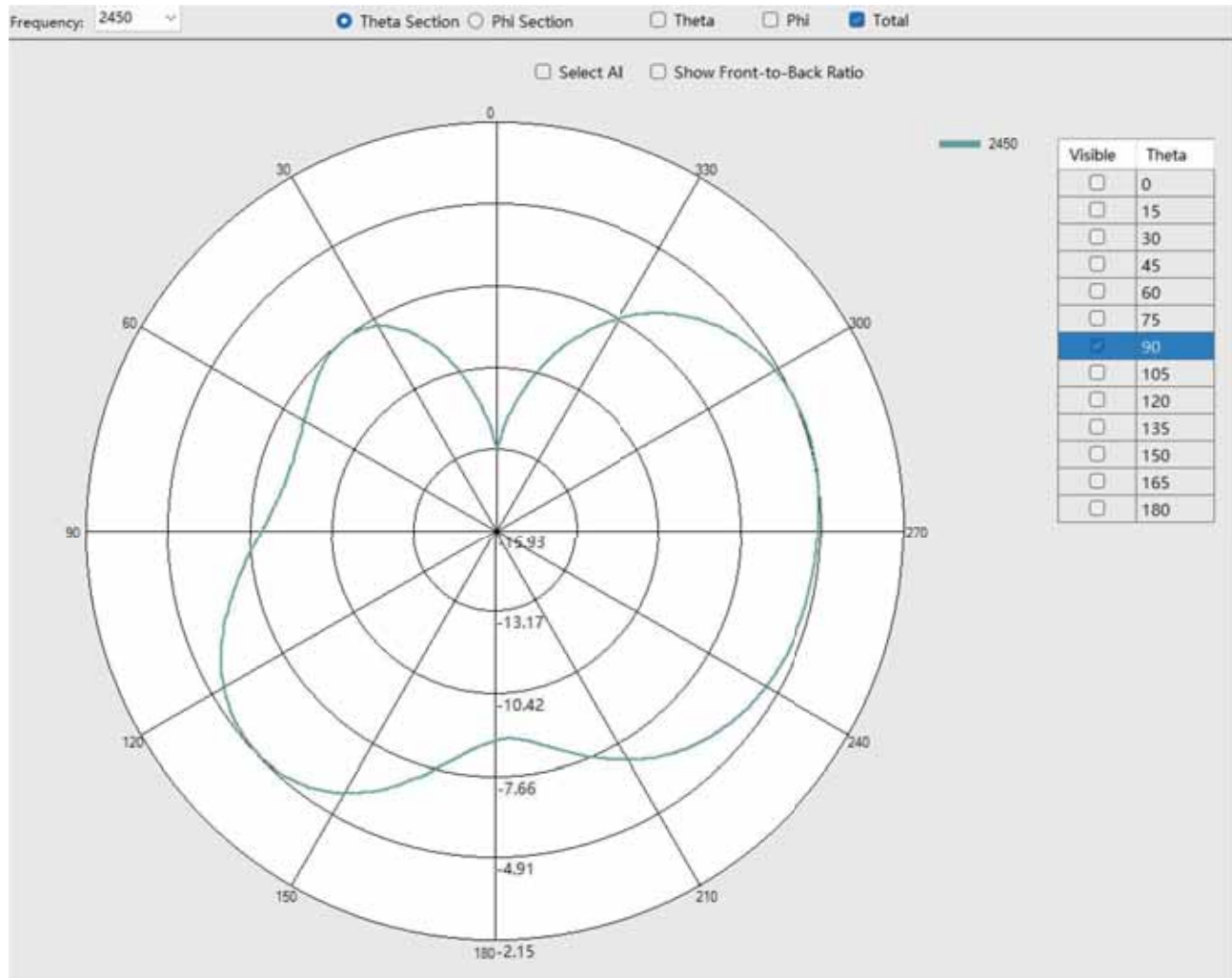
Visible	Phi
☐	0
☐	30
☐	60
☐	90
☐	120
☐	150
☒	180

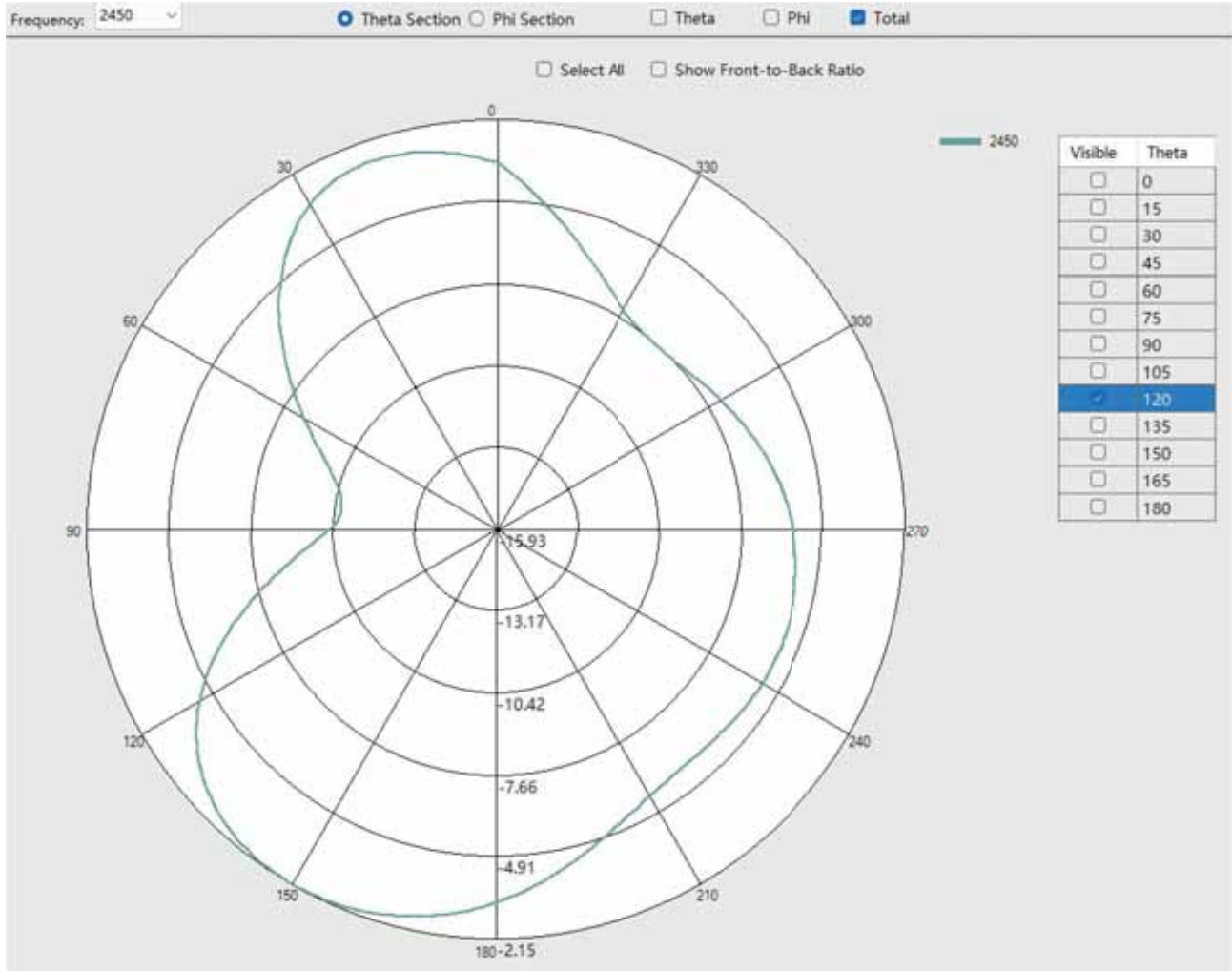
2450MHz

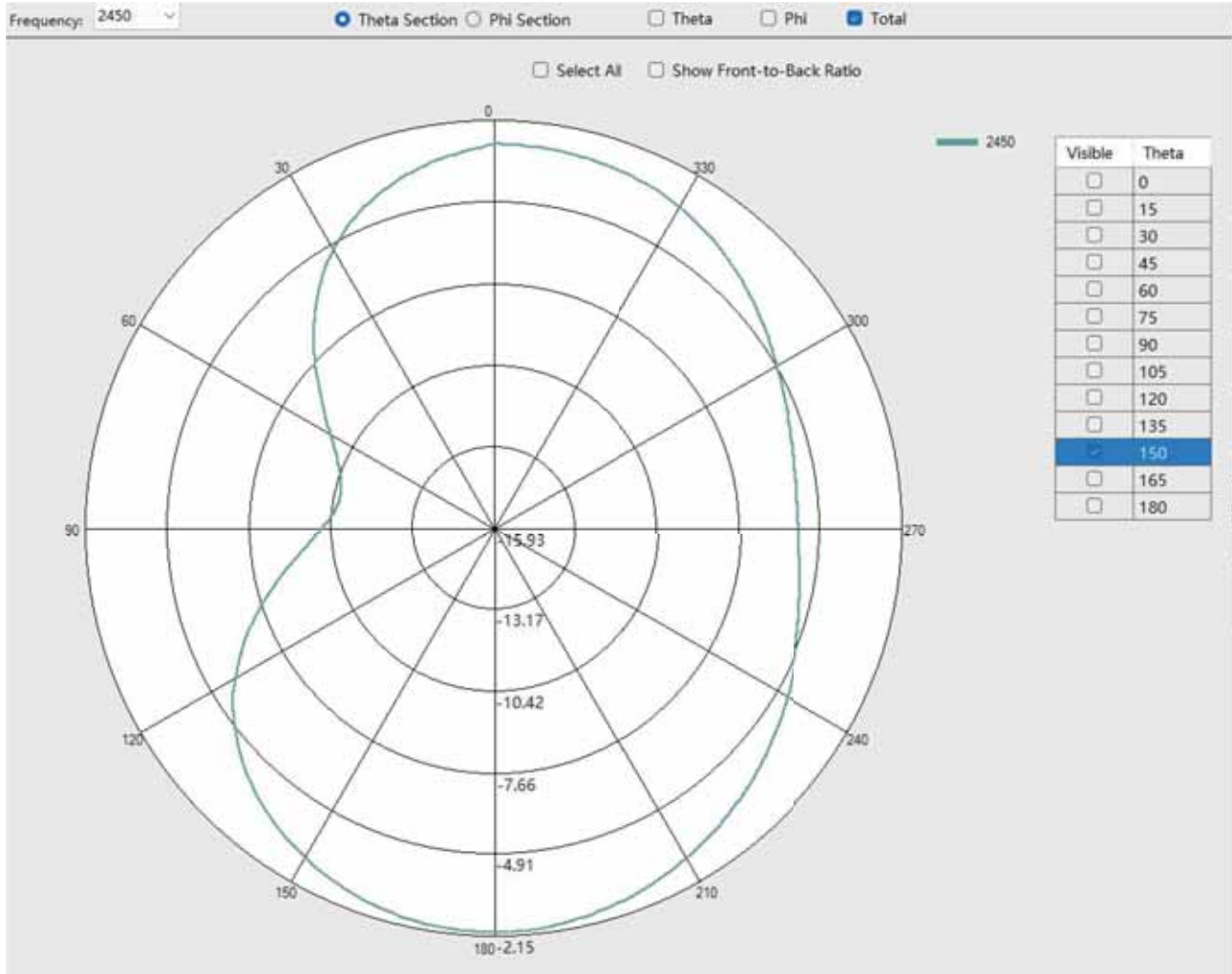












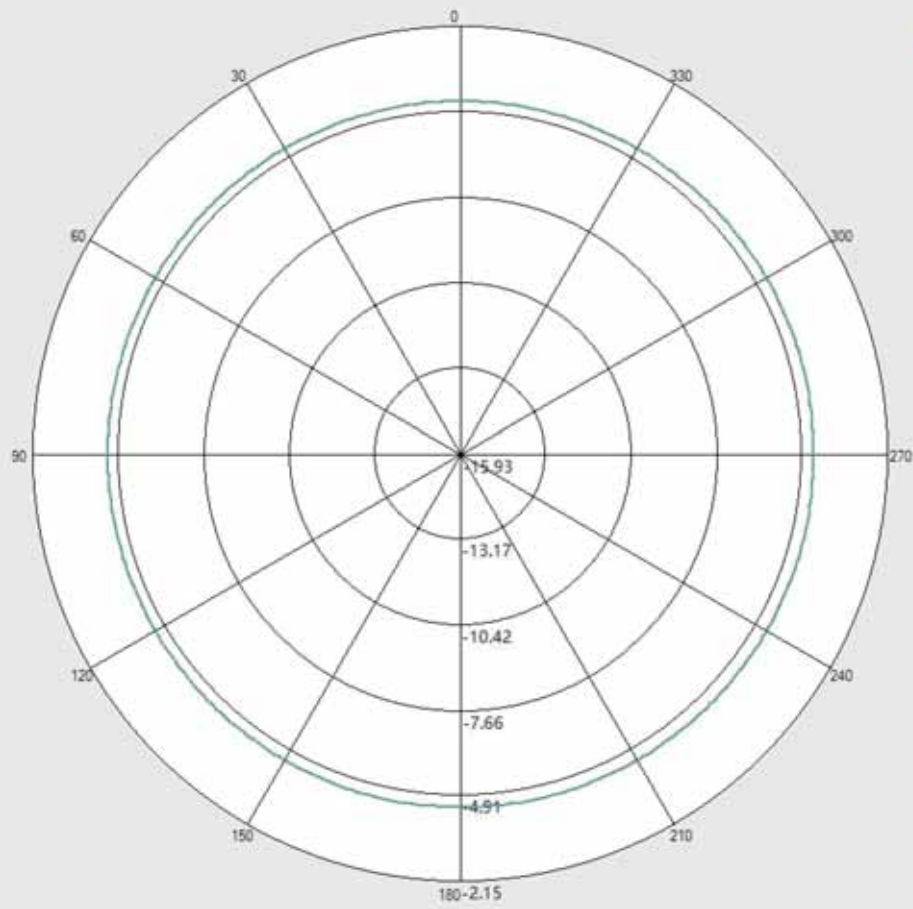
Frequency: 2450

☒ Theta Section ☐ Phi Section

☐ Theta

☐ Phi

☒ Total

☐ Select All ☐ Show Front-to-Back Ratio


Visible	Theta
☐	0
☐	15
☐	30
☐	45
☐	60
☐	75
☐	90
☐	105
☐	120
☐	135
☐	150
☐	165
☒	180



LIBRATONE

Frequency: 2450

☐ Theta Section ☒ Phi Section

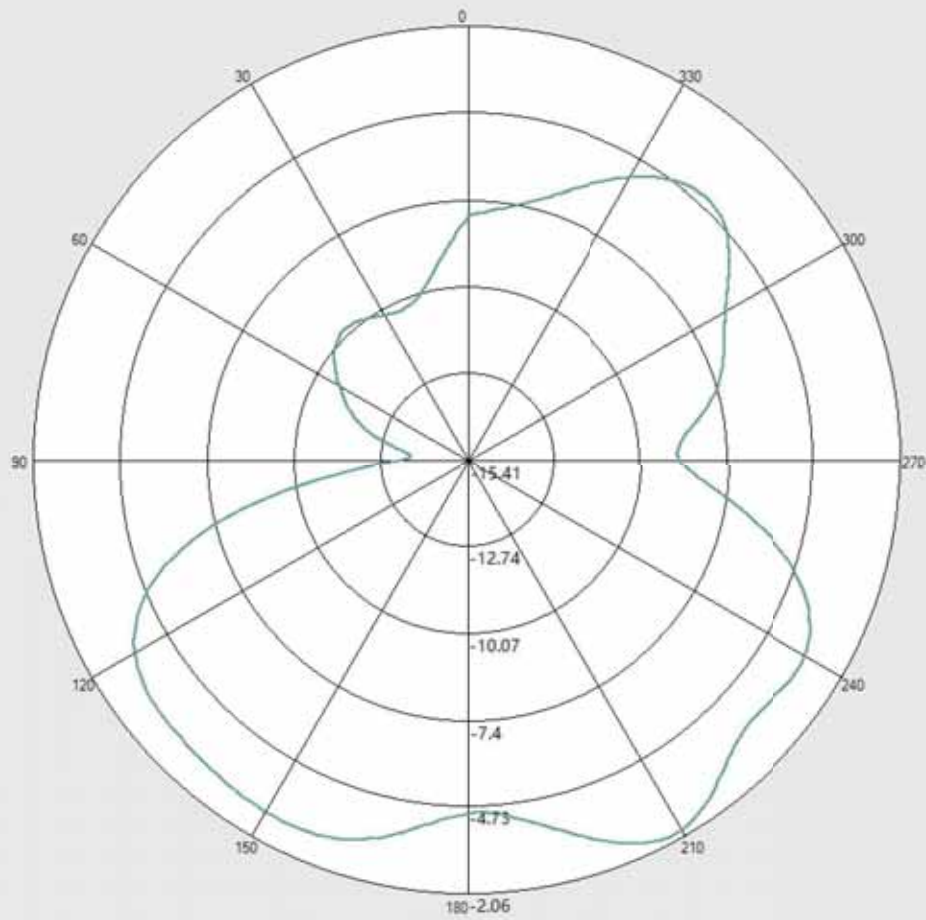
☐ Theta

☐ Phi

☒ Total

☐ Select All

☐ Show Front-to-Back Ratio



2450

Visible	Phi
☒	0
☐	30
☐	60
☐	90
☐	120
☐	150
☐	180



LIBRATONE

Frequency: 2450

☐ Theta Section ☒ Phi Section

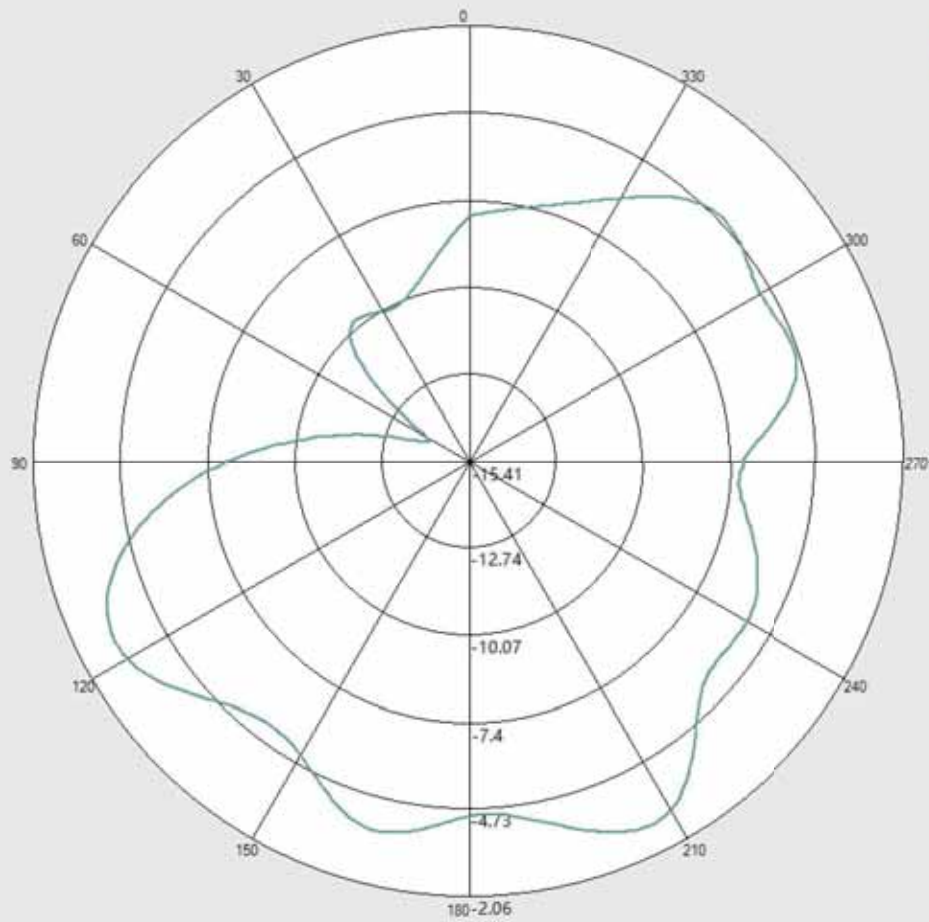
☐ Theta

☐ Phi

☒ Total

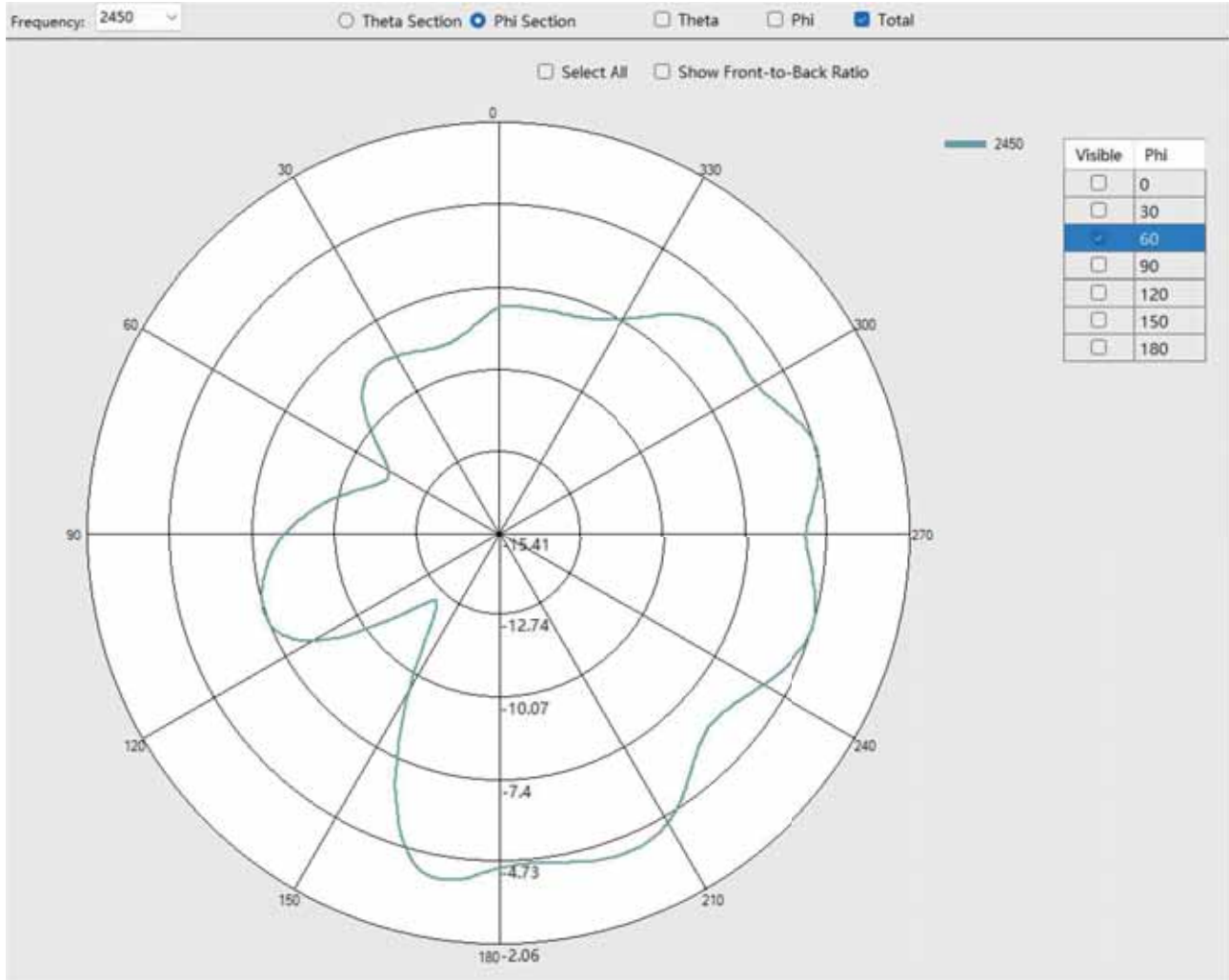
☐ Select All

☐ Show Front-to-Back Ratio



2450

Visible	Phi
☐	0
☒	30
☐	60
☐	90
☐	120
☐	150
☐	180



Frequency: 2450

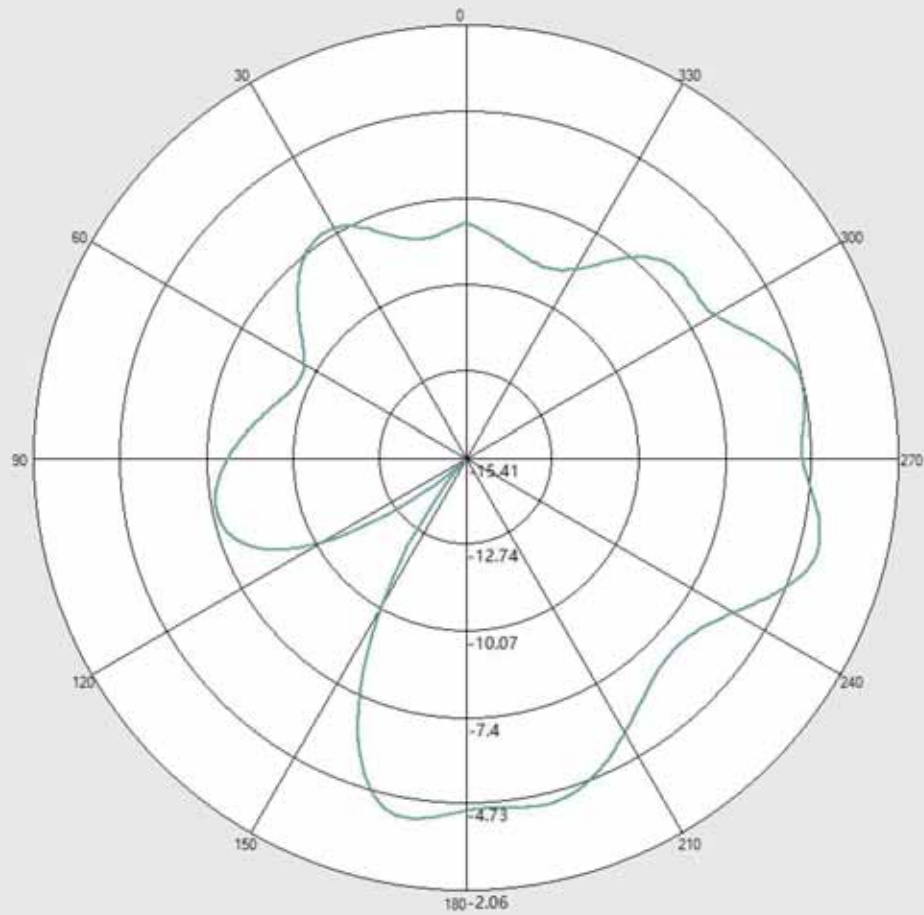
☐ Theta Section ☒ Phi Section

☐ Theta

☐ Phi

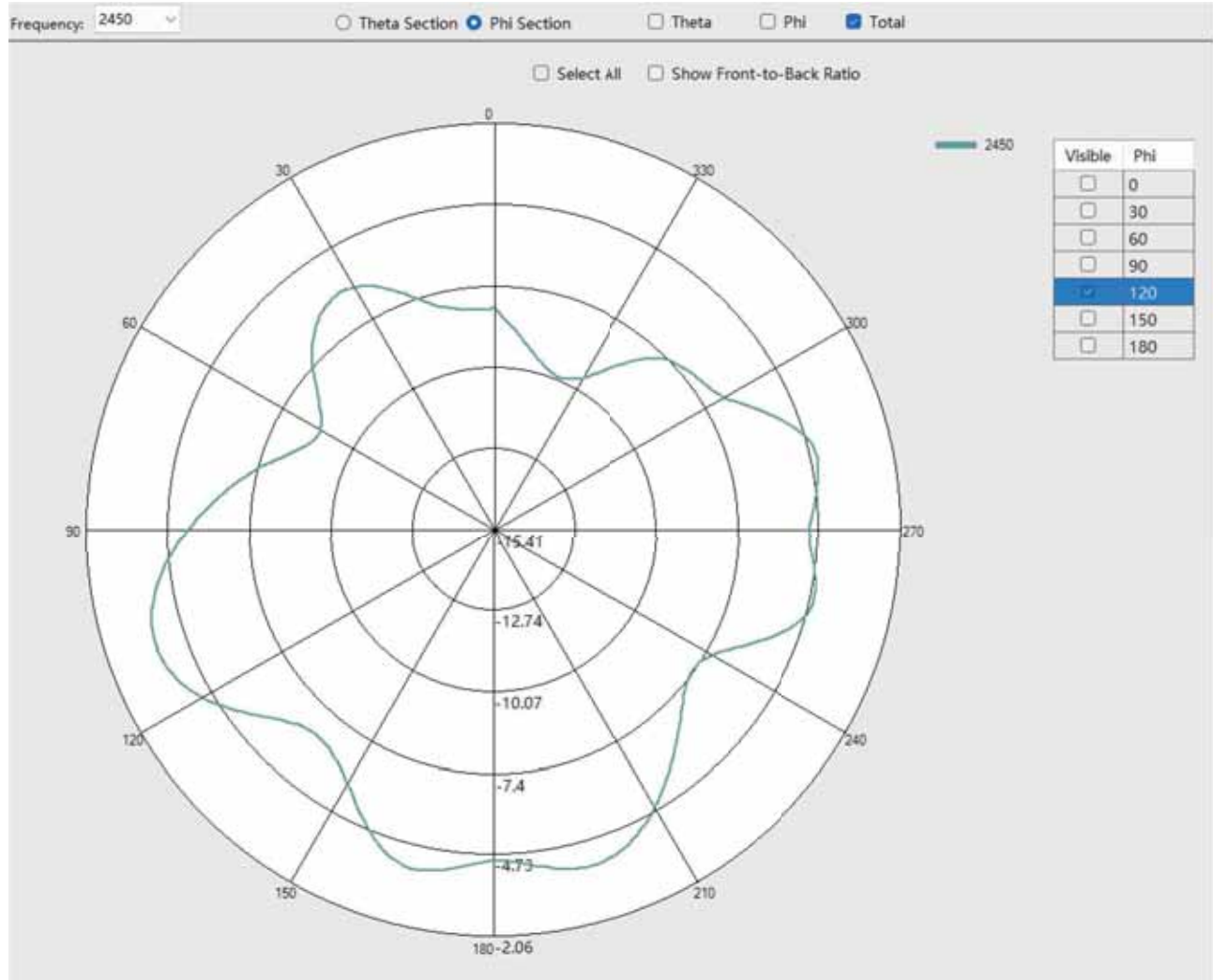
☒ Total

☐ Select All

☐ Show Front-to-Back Ratio


2450

Visible	Phi
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☐	30
☐	60
☒	90
☐	120
☐	150
☐	180



Frequency: 2450

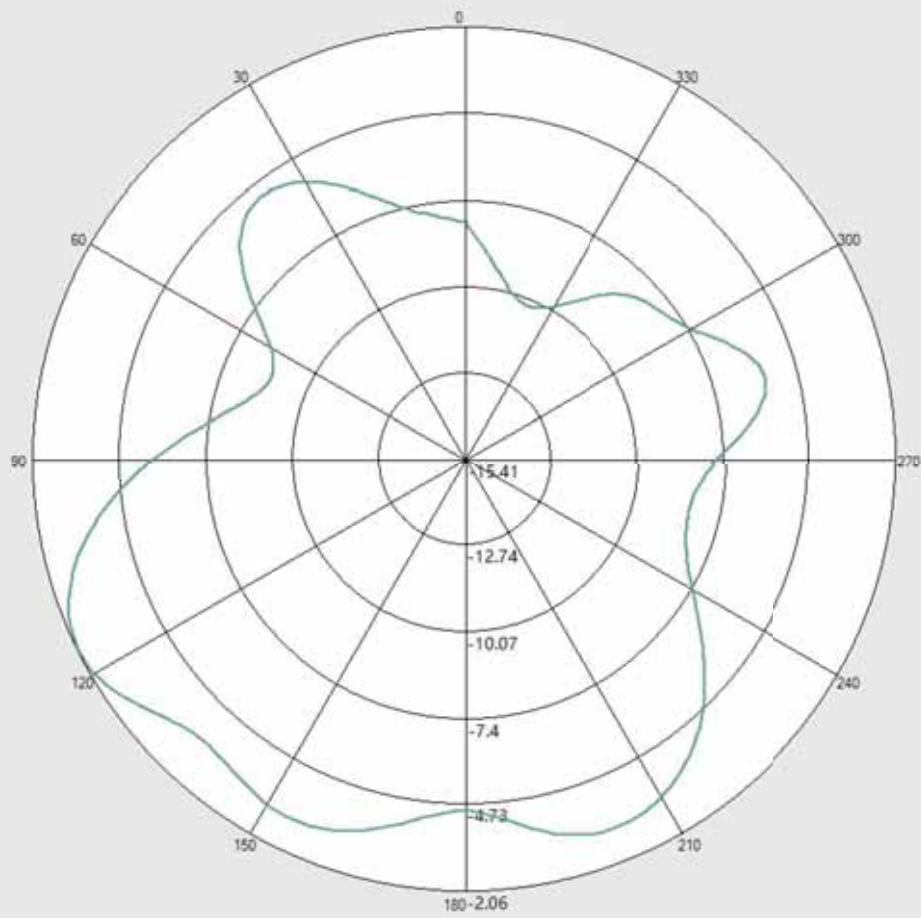
☐ Theta Section ☒ Phi Section

☐ Theta

☐ Phi

☒ Total

☐ Select All

☐ Show Front-to-Back Ratio


2450

Visible	Phi
☐	0
☐	30
☐	60
☐	90
☐	120
☒	150
☐	180

Frequency: 2450

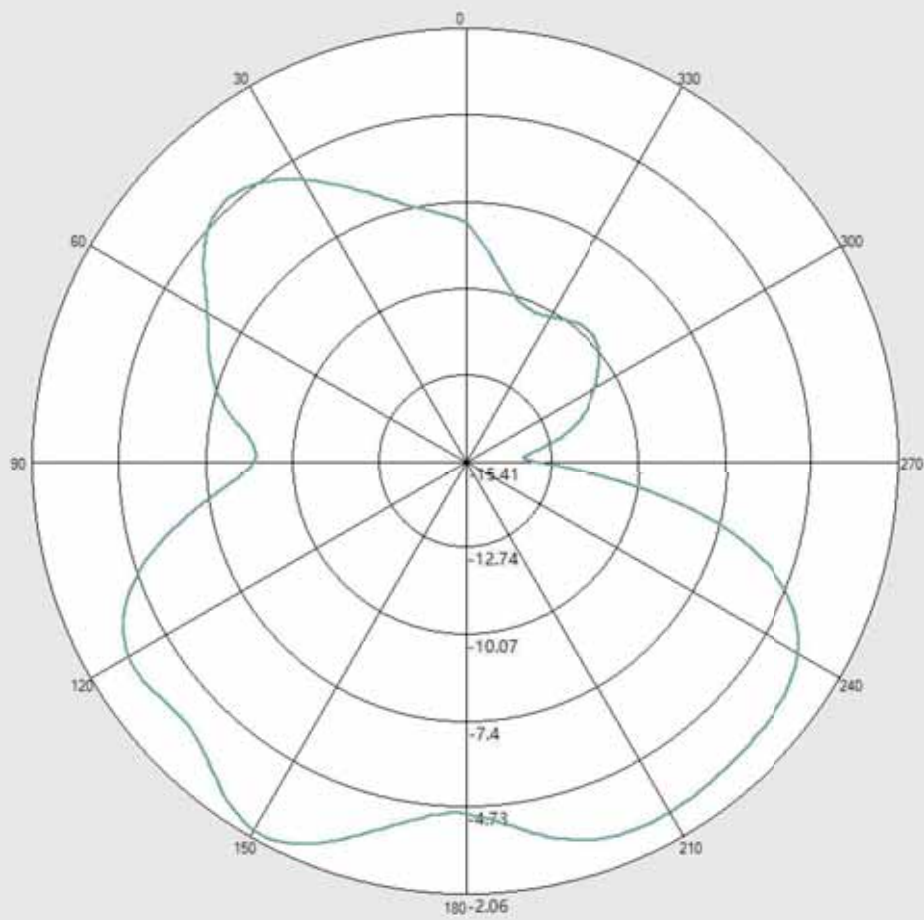
☐ Theta Section ☒ Phi Section

☐ Theta

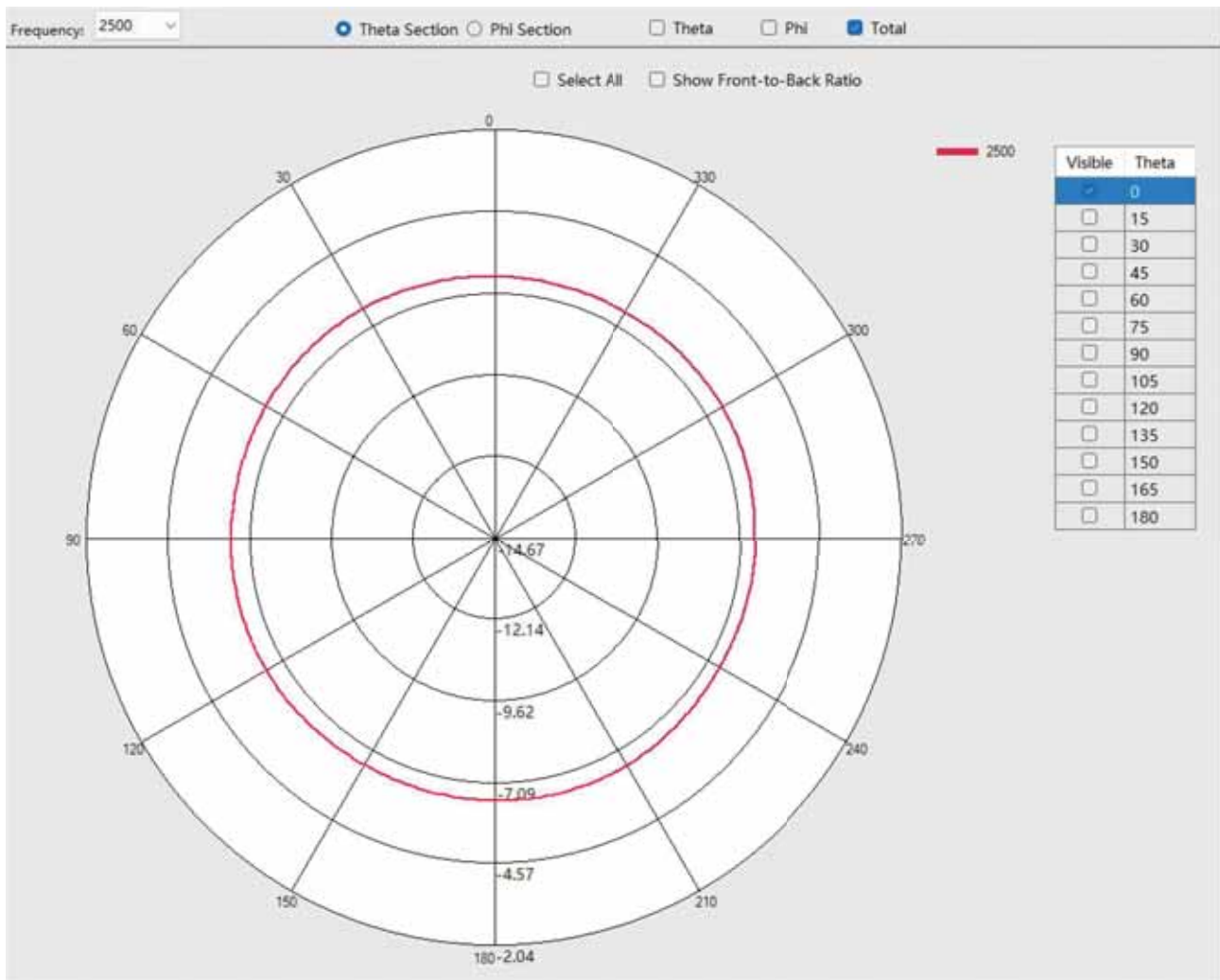
☐ Phi

☒ Total

☐ Select All

☐ Show Front-to-Back Ratio


2500MHz



Frequency: 2500

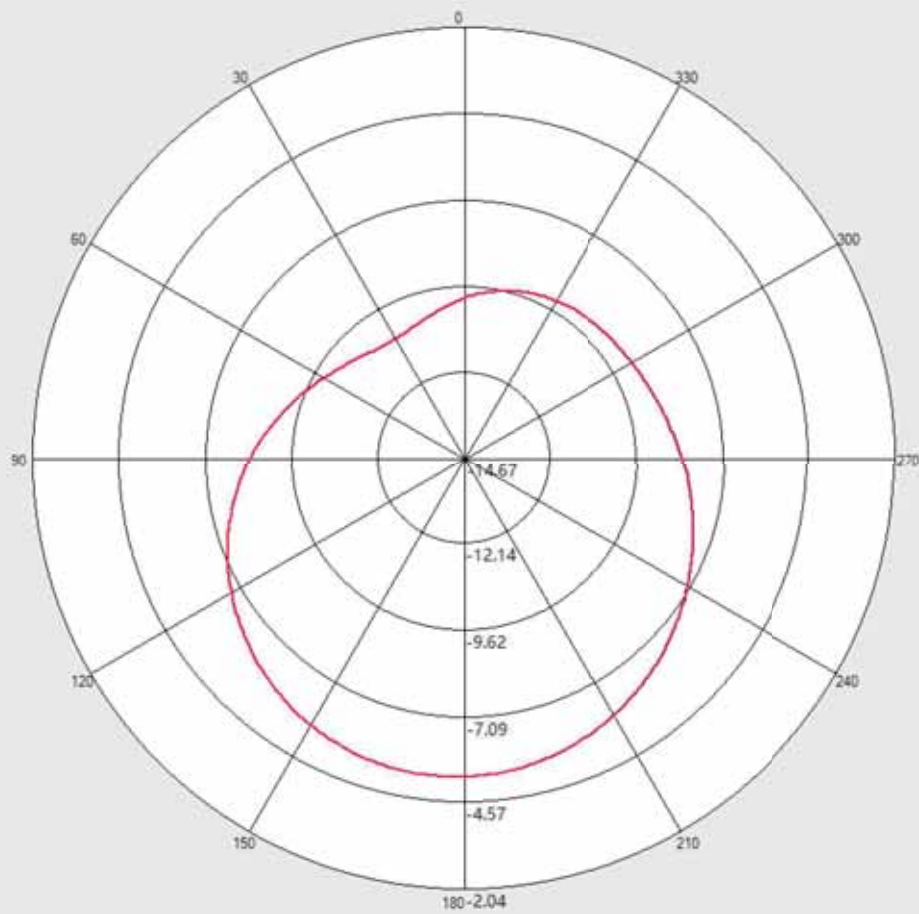
☒ Theta Section ☐ Phi Section

☐ Theta

☐ Phi

☒ Total

☐ Select All

☐ Show Front-to-Back Ratio


2500

Visible	Theta
☐	0
☐	15
☒	30
☐	45
☐	60
☐	75
☐	90
☐	105
☐	120
☐	135
☐	150
☐	165
☐	180



LIBRATONE

Frequency: 2500

☒ Theta Section ☐ Phi Section

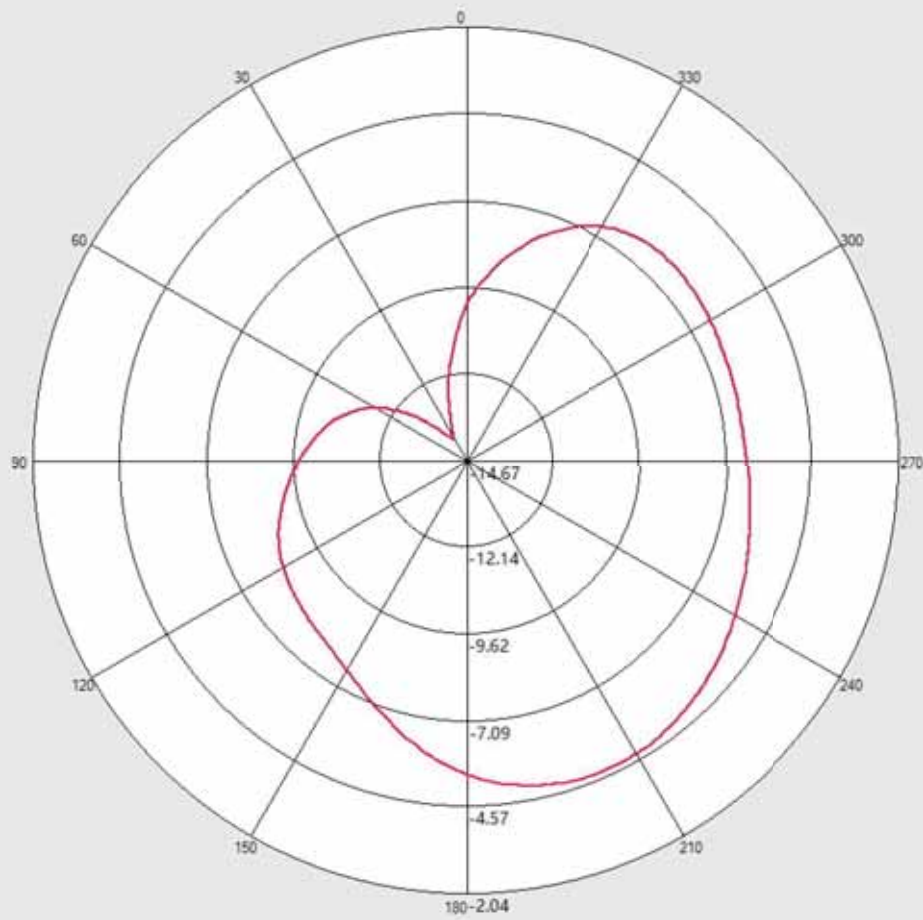
☐ Theta

☐ Phi

☒ Total

☐ Select All

☐ Show Front-to-Back Ratio



2500

Visible	Theta
☐	0
☐	15
☐	30
☐	45
☒	60
☐	75
☐	90
☐	105
☐	120
☐	135
☐	150
☐	165
☐	180

Frequency: 2500

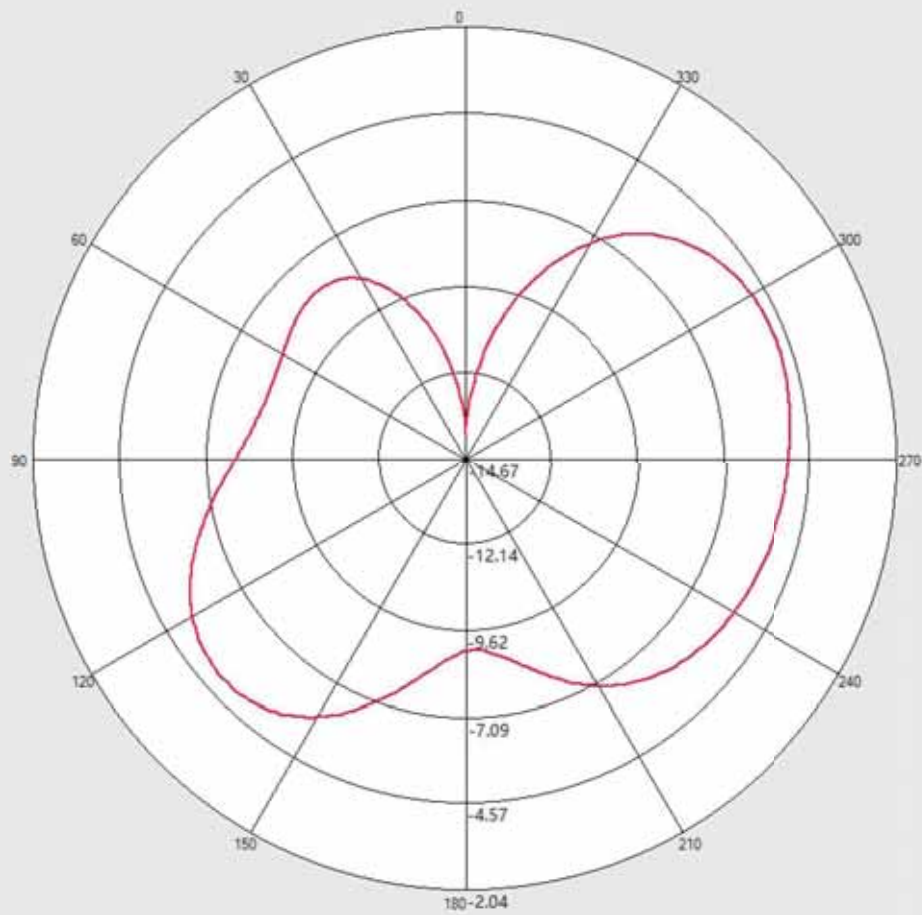
☒ Theta Section
 ☐ Phi Section

☐ Theta

☐ Phi

☒ Total

☐ Select All

☐ Show Front-to-Back Ratio


2500

Visible	Theta
☐	0
☐	15
☐	30
☐	45
☐	60
☐	75
☒	90
☐	105
☐	120
☐	135
☐	150
☐	165
☐	180

Frequency: 2500

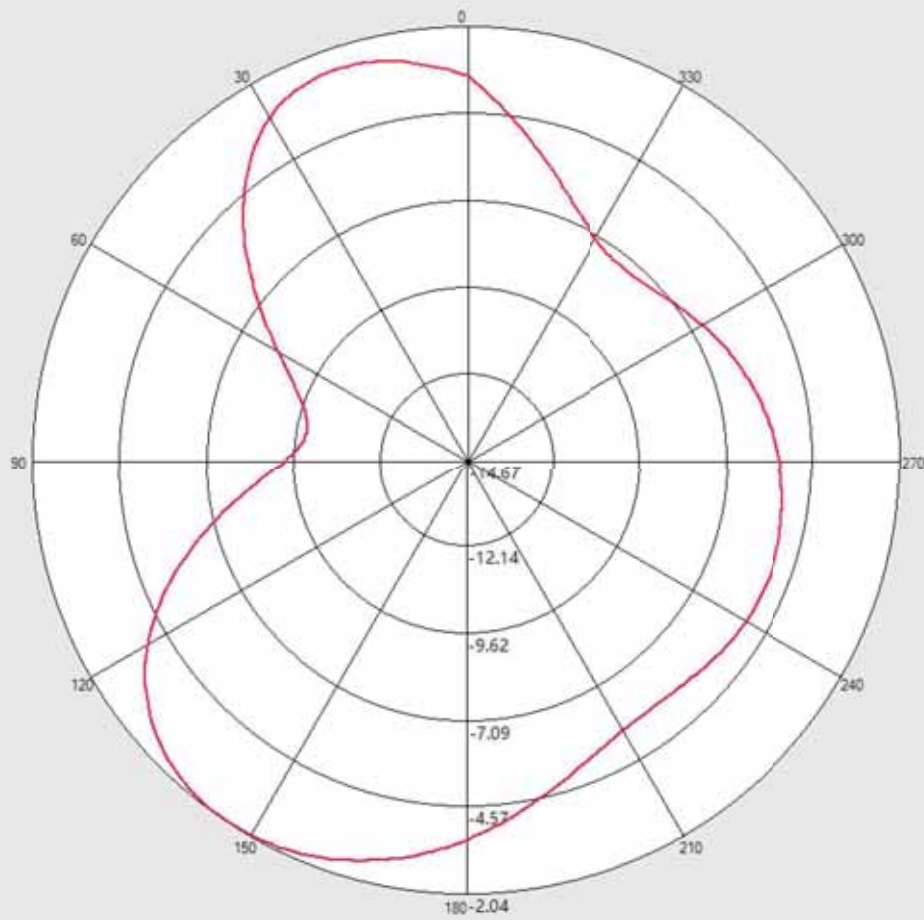
☒ Theta Section ☐ Phi Section

☐ Theta

☐ Phi

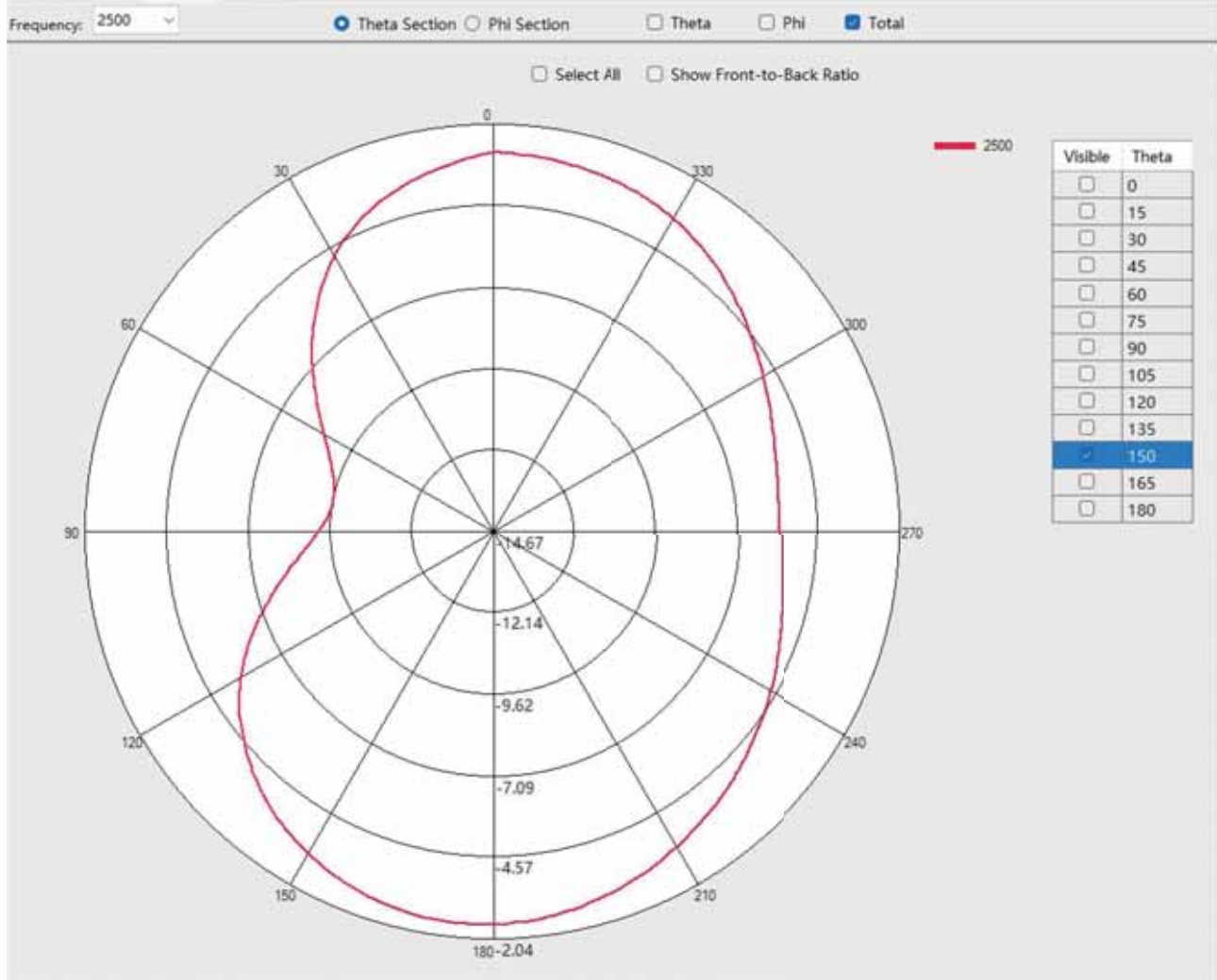
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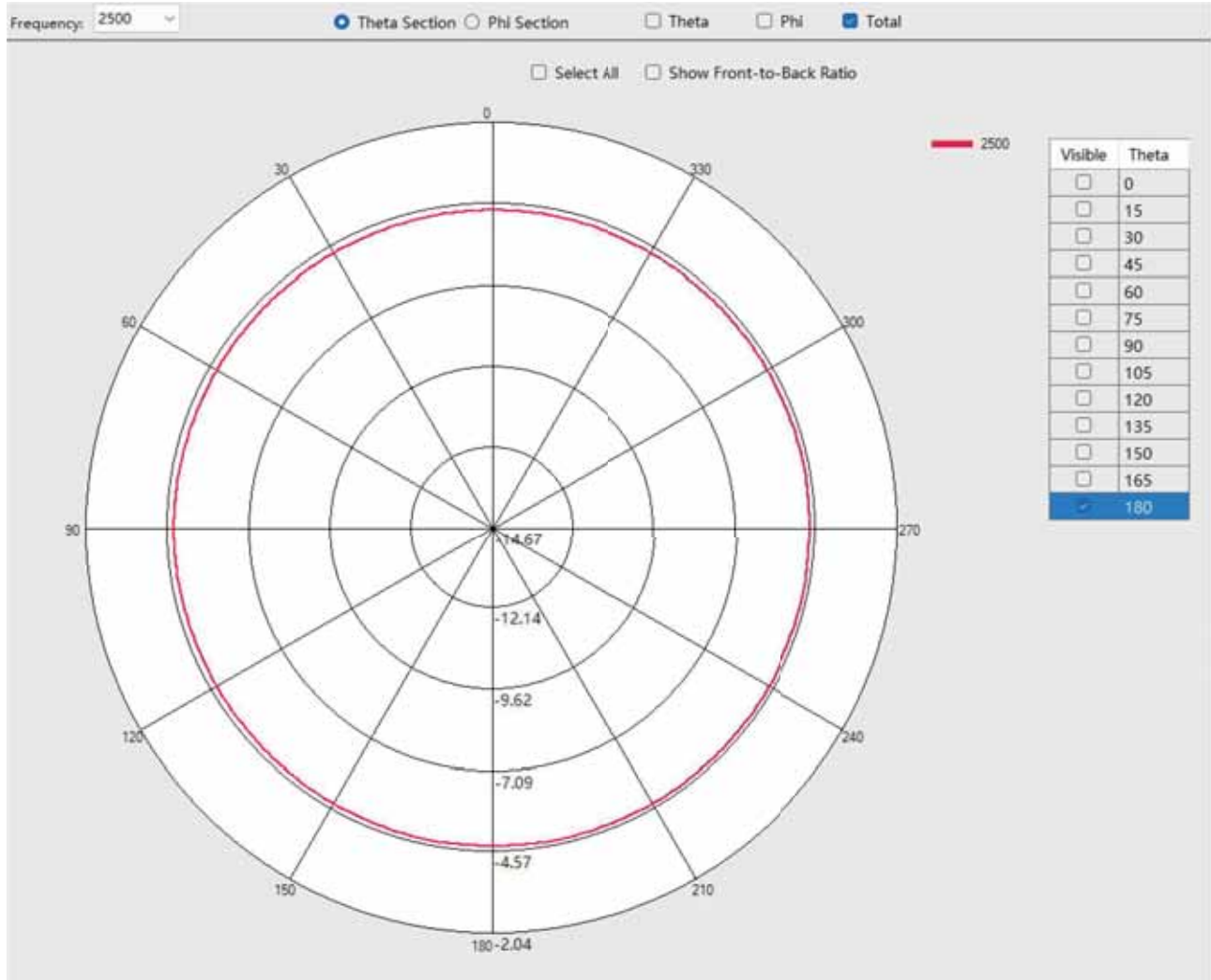
☐ Select All

☐ Show Front-to-Back Ratio


2500

Visible	Theta
☐	0
☐	15
☐	30
☐	45
☐	60
☐	75
☐	90
☐	105
☒	120
☐	135
☐	150
☐	165
☐	180





Frequency: 2500

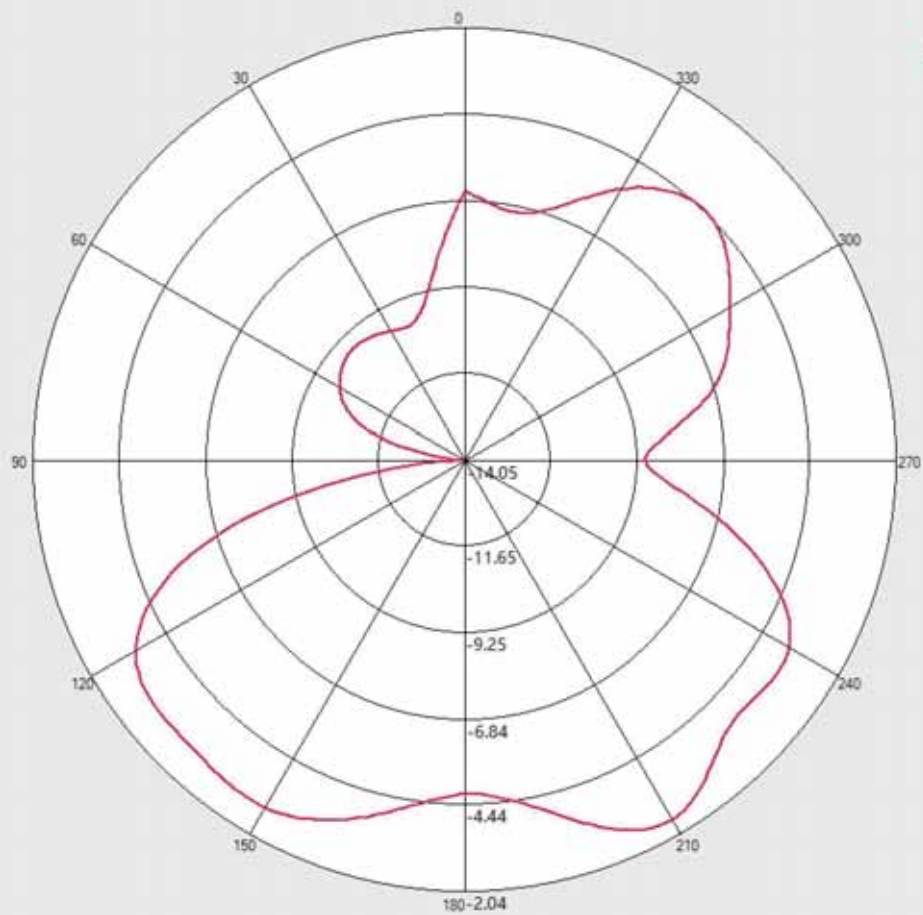
☐ Theta Section ☒ Phi Section

☐ Theta

☐ Phi

☒ Total

☐ Select All ☐ Show Front-to-Back Ratio



2500

Visible	Phi
☒	0
☐	30
☐	60
☐	90
☐	120
☐	150
☐	180

Frequency: 2500

☐ Theta Section ☒ Phi Section

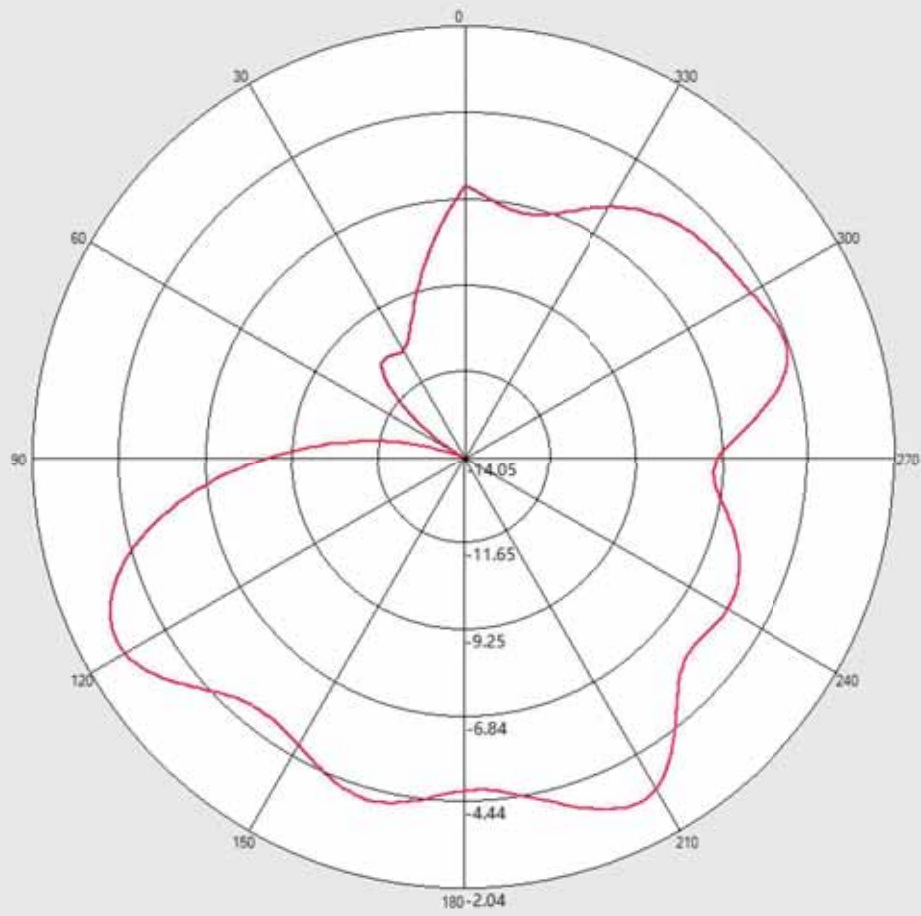
☐ Theta

☐ Phi

☒ Total

☐ Select All

☐ Show Front-to-Back Ratio



2500

Visible	Phi
☐	0
☒	30
☐	60
☐	90
☐	120
☐	150
☐	180

Frequency: 2500

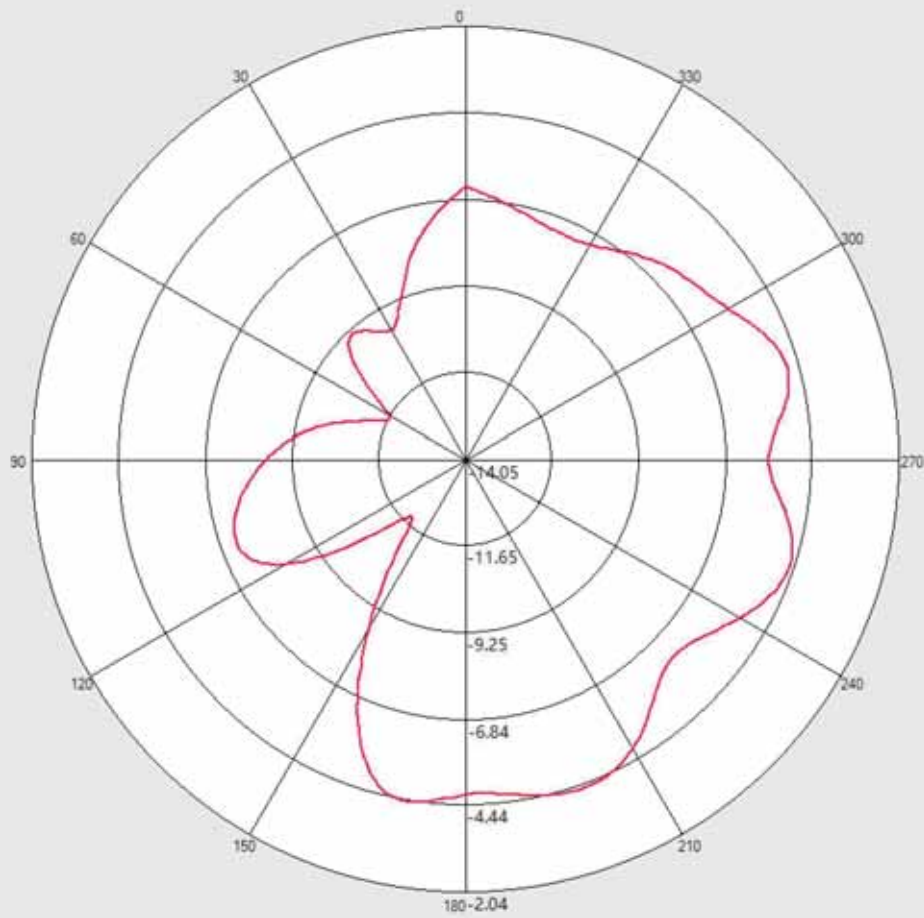
☐ Theta Section ☒ Phi Section

☐ Theta

☐ Phi

☒ Total

☐ Select All

☐ Show Front-to-Back Ratio


2500

Visible	Phi
☐	0
☐	30
☒	60
☐	90
☐	120
☐	150
☐	180

Frequency: 2500

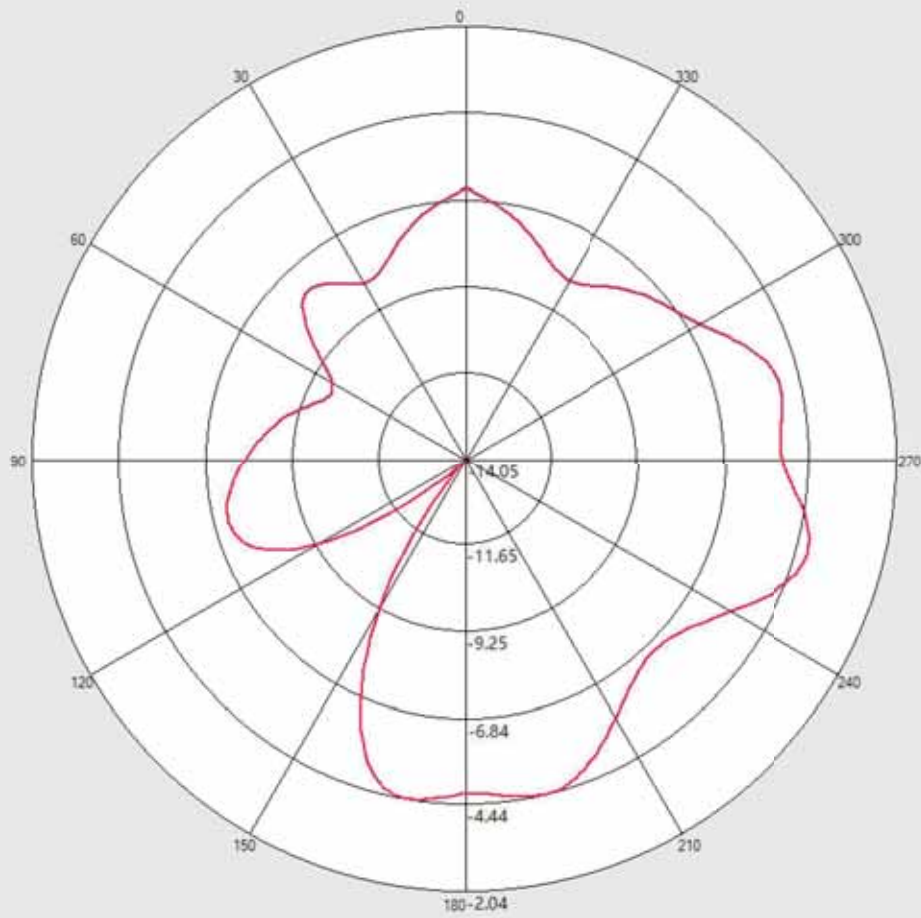
☐ Theta Section ☒ Phi Section

☐ Theta

☐ Phi

☒ Total

☐ Select All

☐ Show Front-to-Back Ratio


2500

Visible	Phi
☐	0
☐	30
☐	60
☒	90
☐	120
☐	150
☐	180

Frequency: 2500

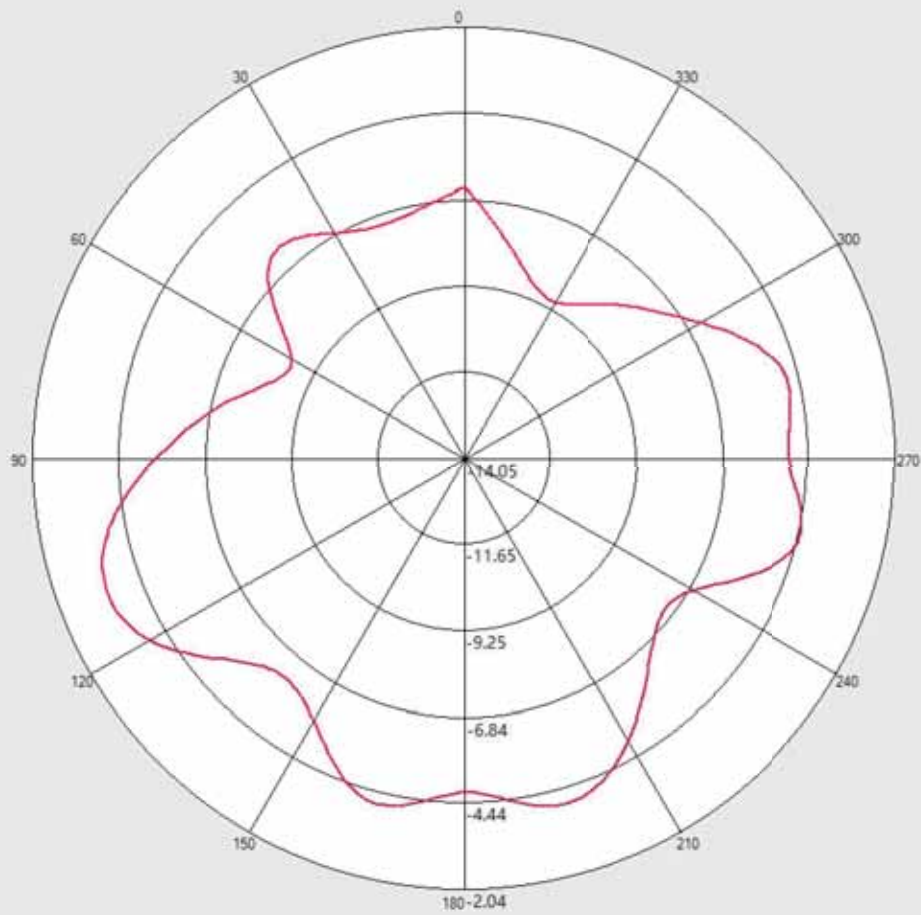
☐ Theta Section ☒ Phi Section

☐ Theta

☐ Phi

☒ Total

☐ Select All

☐ Show Front-to-Back Ratio


2500

Visible	Phi
☐	0
☐	30
☐	60
☐	90
☒	120
☐	150
☐	180

Frequency: 2500

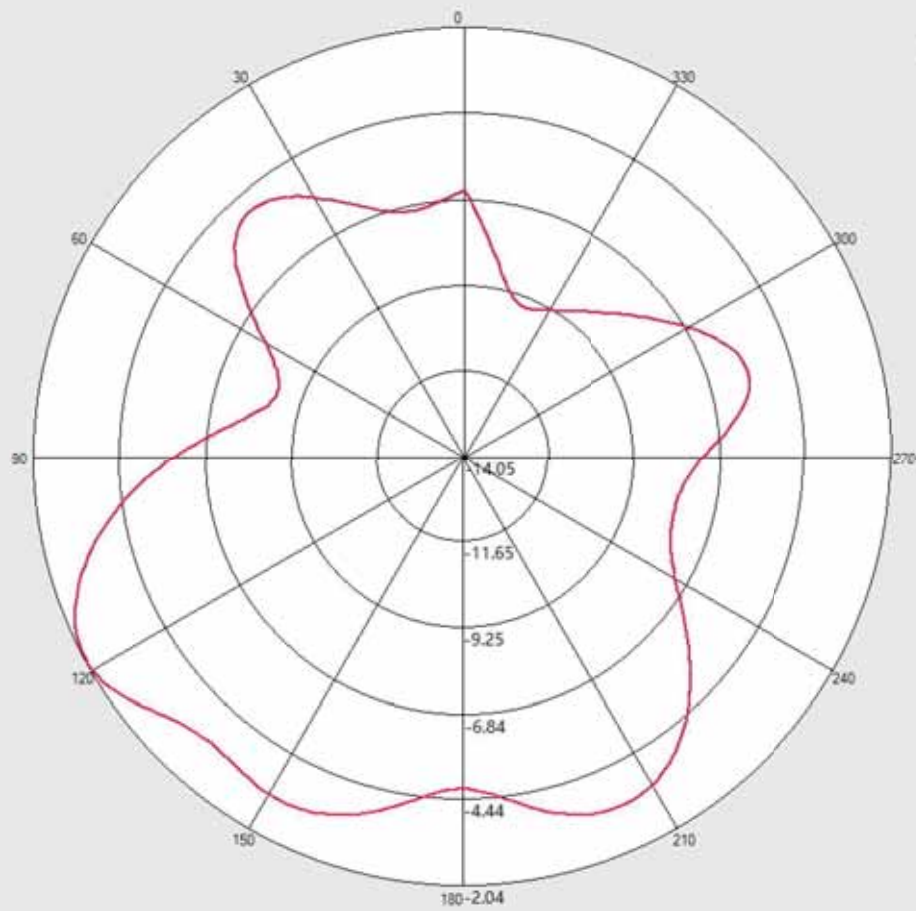
☐ Theta Section ☒ Phi Section

☐ Theta

☐ Phi

☒ Total

☐ Select All

☐ Show Front-to-Back Ratio


2500

Visible	Phi
☐	0
☐	30
☐	60
☐	90
☐	120
☒	150
☐	180



LIBRATONE

Frequency: 2500

☐ Theta Section ☒ Phi Section

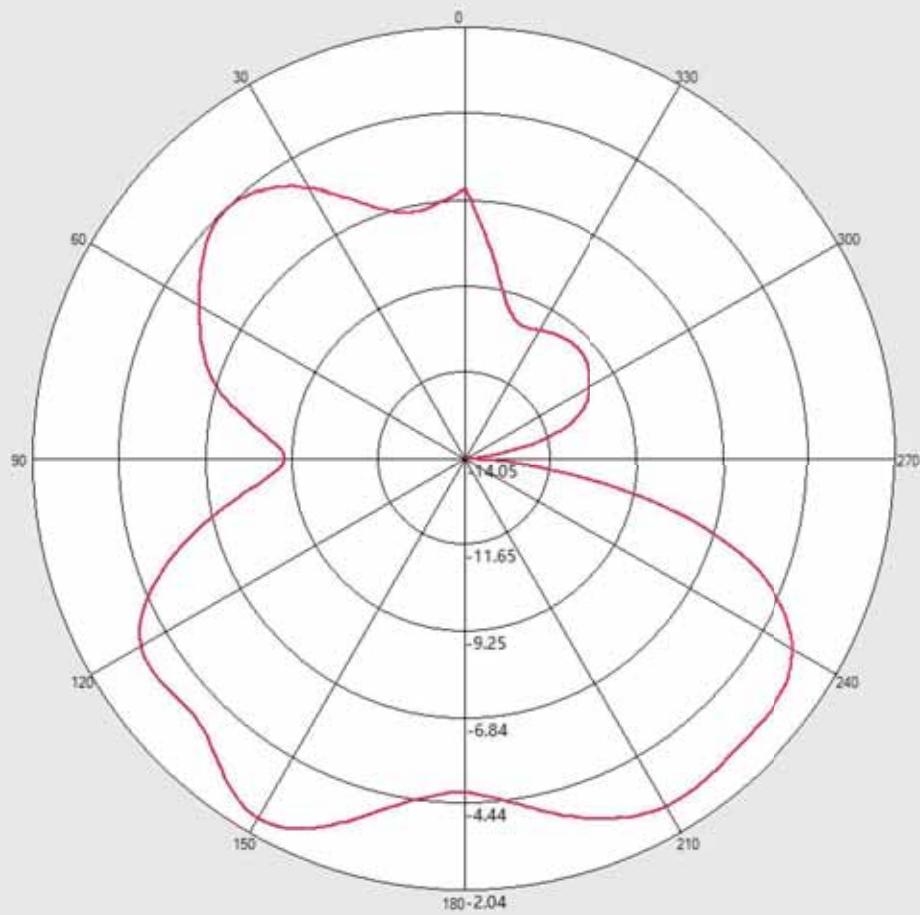
☐ Theta

☐ Phi

☒ Total

☐ Select All

☐ Show Front-to-Back Ratio



2500

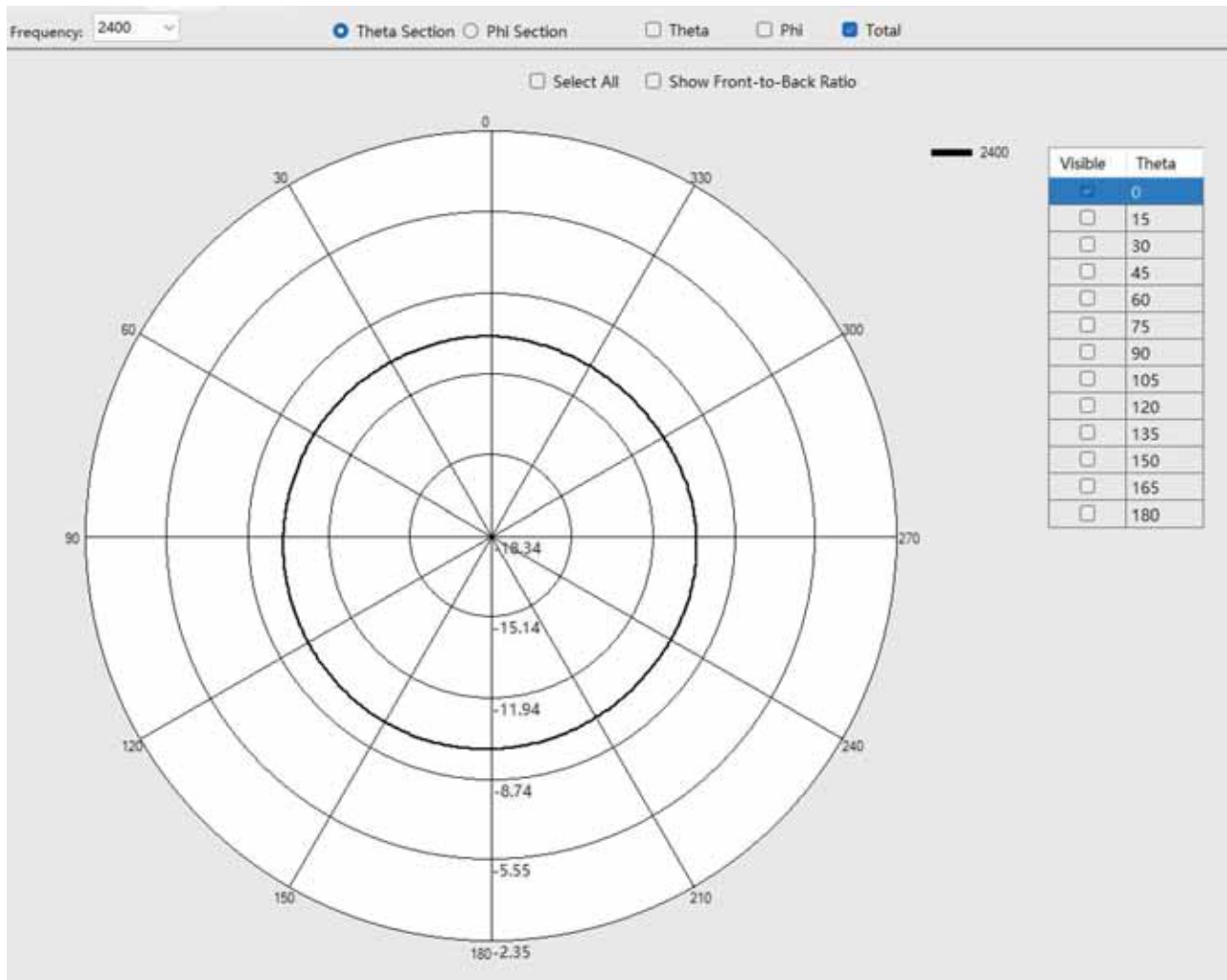
Visible	Phi
☐	0
☐	30
☐	60
☐	90
☐	120
☐	150
☒	180

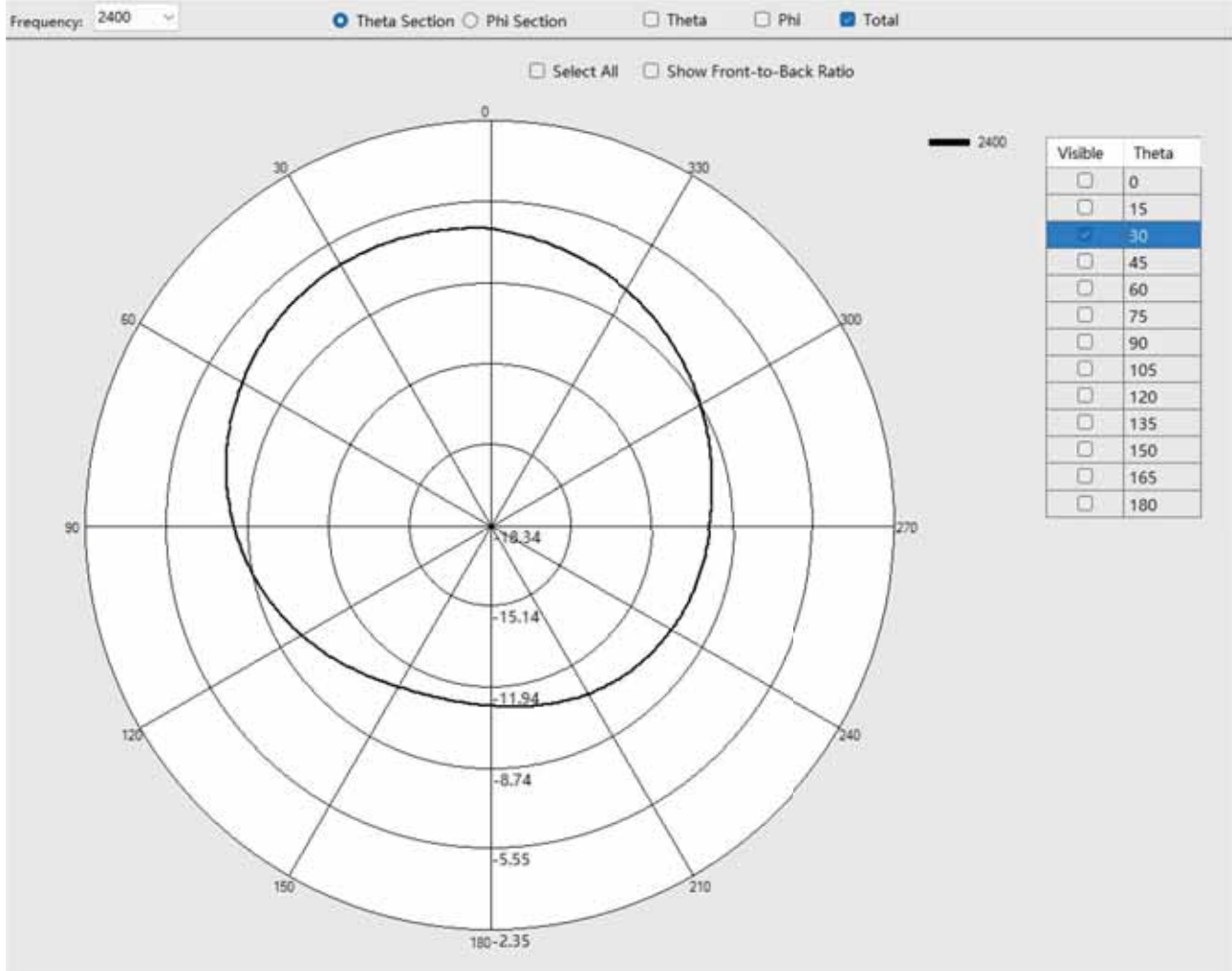
Right earbud

Freq	Efficiency (%)	Efficiency (dB)	Gain (dBi)
2400	20.90	-6.80	-2.42
2410	21.57	-6.66	-2.24
2420	21.34	-6.71	-2.28
2430	21.53	-6.67	-2.19
2440	21.94	-6.59	-2.07
2450	22.16	-6.54	-2.00
2460	21.89	-6.60	-2.05
2470	21.83	-6.61	-2.05
2480	21.42	-6.69	-2.10
2490	20.99	-6.78	-2.17
2500	20.07	-6.97	-2.32

The radiated pattern for your reference.

2400MHz





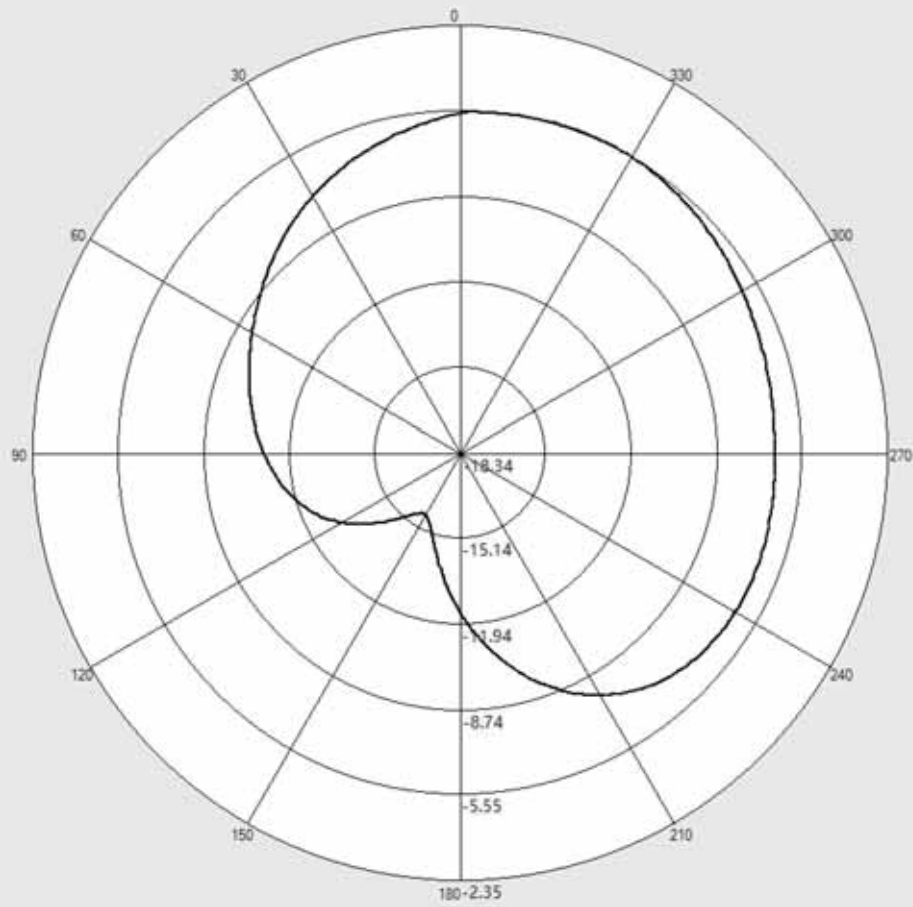
Frequency: 2400

☒ Theta Section ☐ Phi Section

☐ Theta

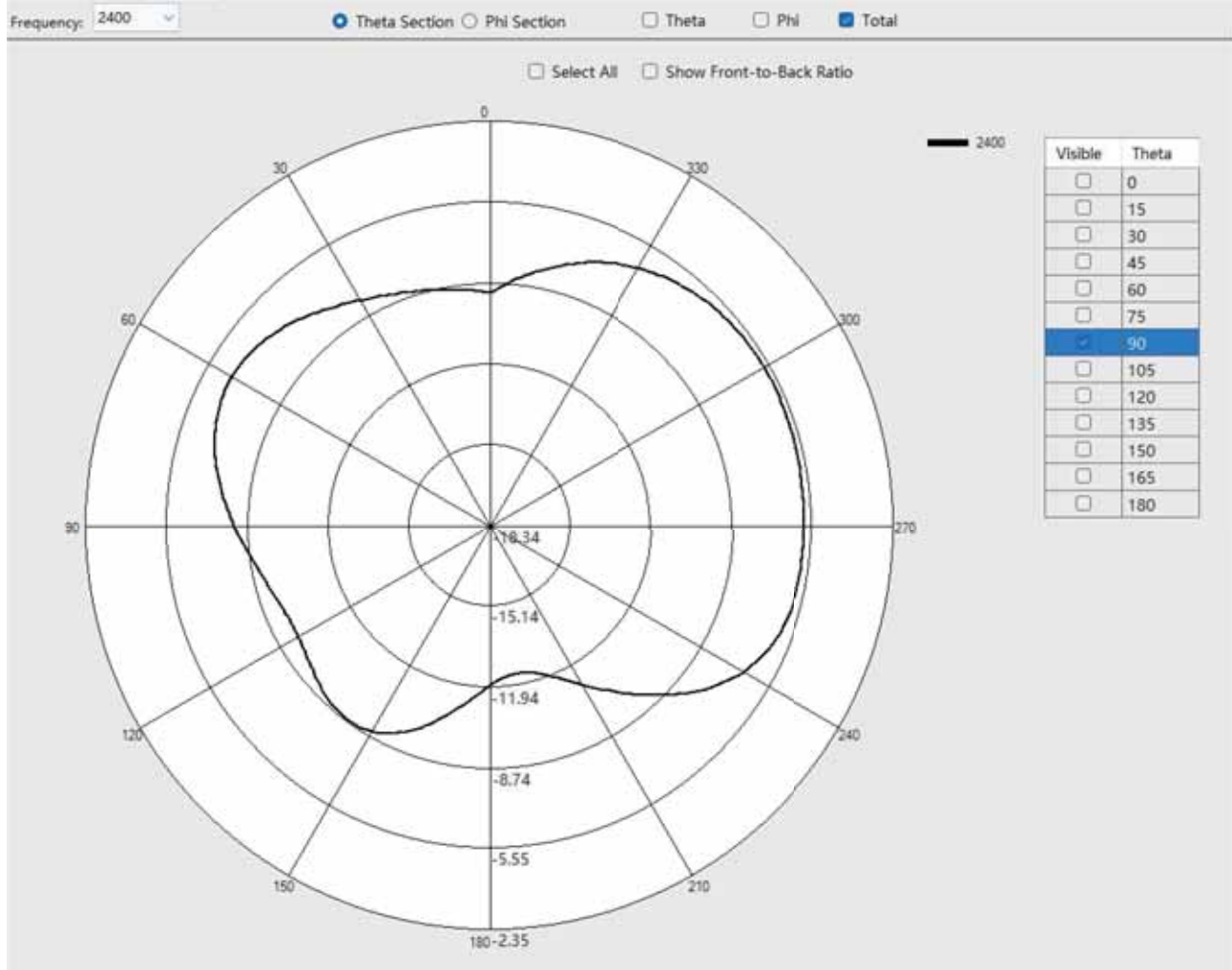
☐ Phi

☒ Total

☐ Select All ☐ Show Front-to-Back Ratio


2400

Visible	Theta
☐	0
☐	15
☐	30
☐	45
☒	60
☐	75
☐	90
☐	105
☐	120
☐	135
☐	150
☐	165
☐	180



Frequency: 2400

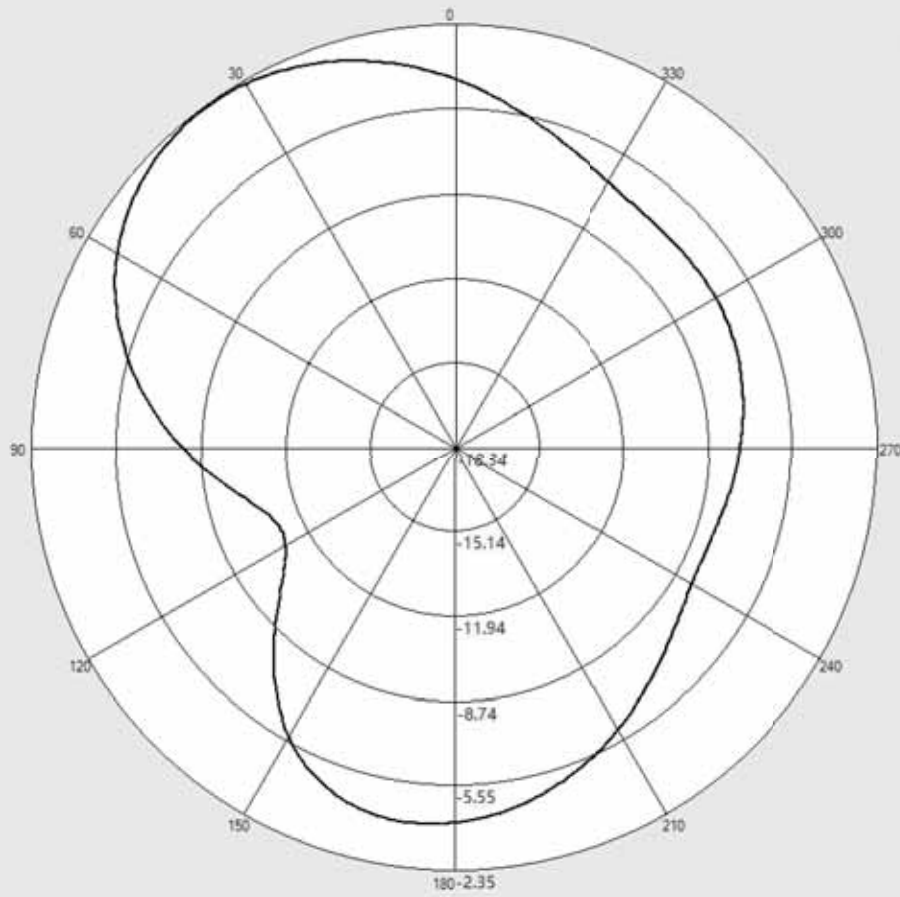
☒ Theta Section ☐ Phi Section

☐ Theta

☐ Phi

☒ Total

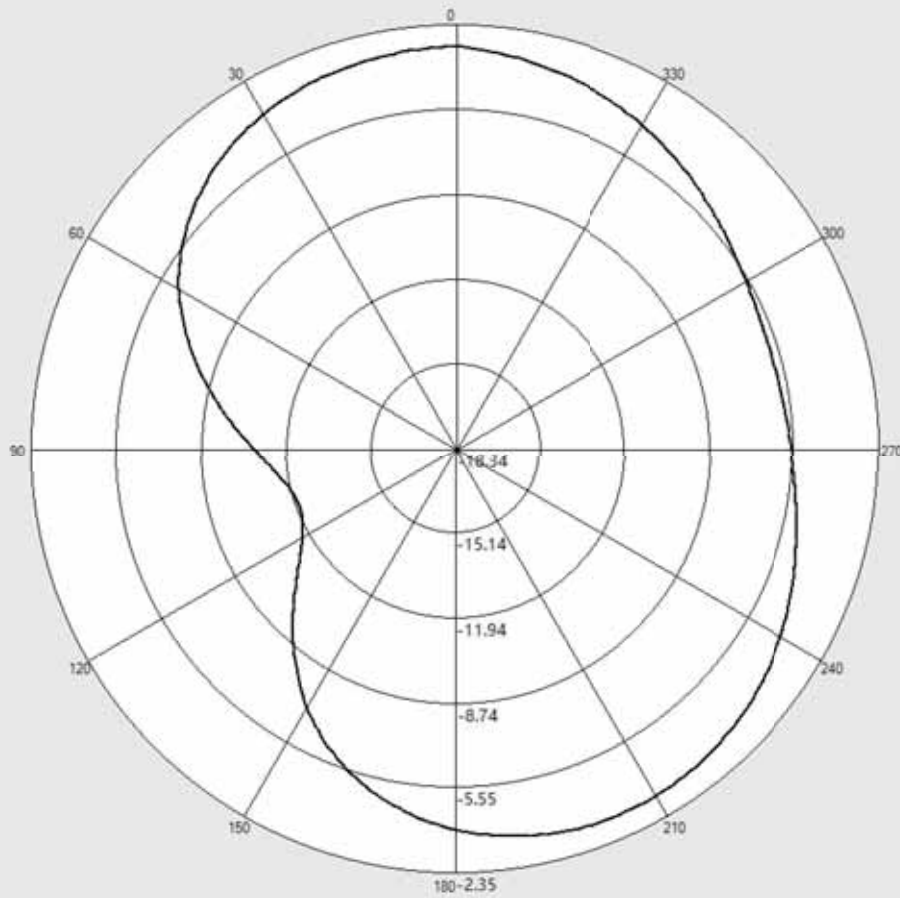
☐ Select All

☐ Show Front-to-Back Ratio


Visible	Theta
☐	0
☐	15
☐	30
☐	45
☐	60
☐	75
☐	90
☐	105
☒	120
☐	135
☐	150
☐	165
☐	180

Frequency: 2400

☒ Theta Section ☐ Phi Section ☐ Theta ☐ Phi ☒ Total

☐ Select All ☐ Show Front-to-Back Ratio


Visible	Theta
☐	0
☐	15
☐	30
☐	45
☐	60
☐	75
☐	90
☐	105
☐	120
☐	135
☒	150
☐	165
☐	180

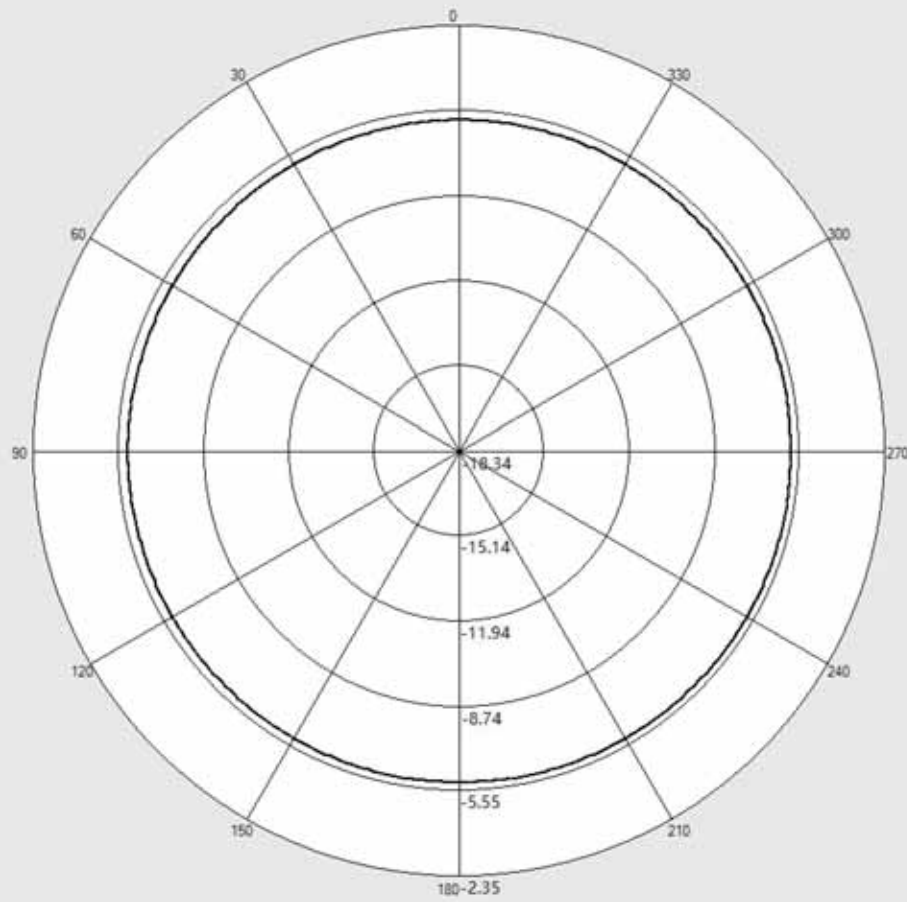
Frequency: 2400

☒ Theta Section ☐ Phi Section

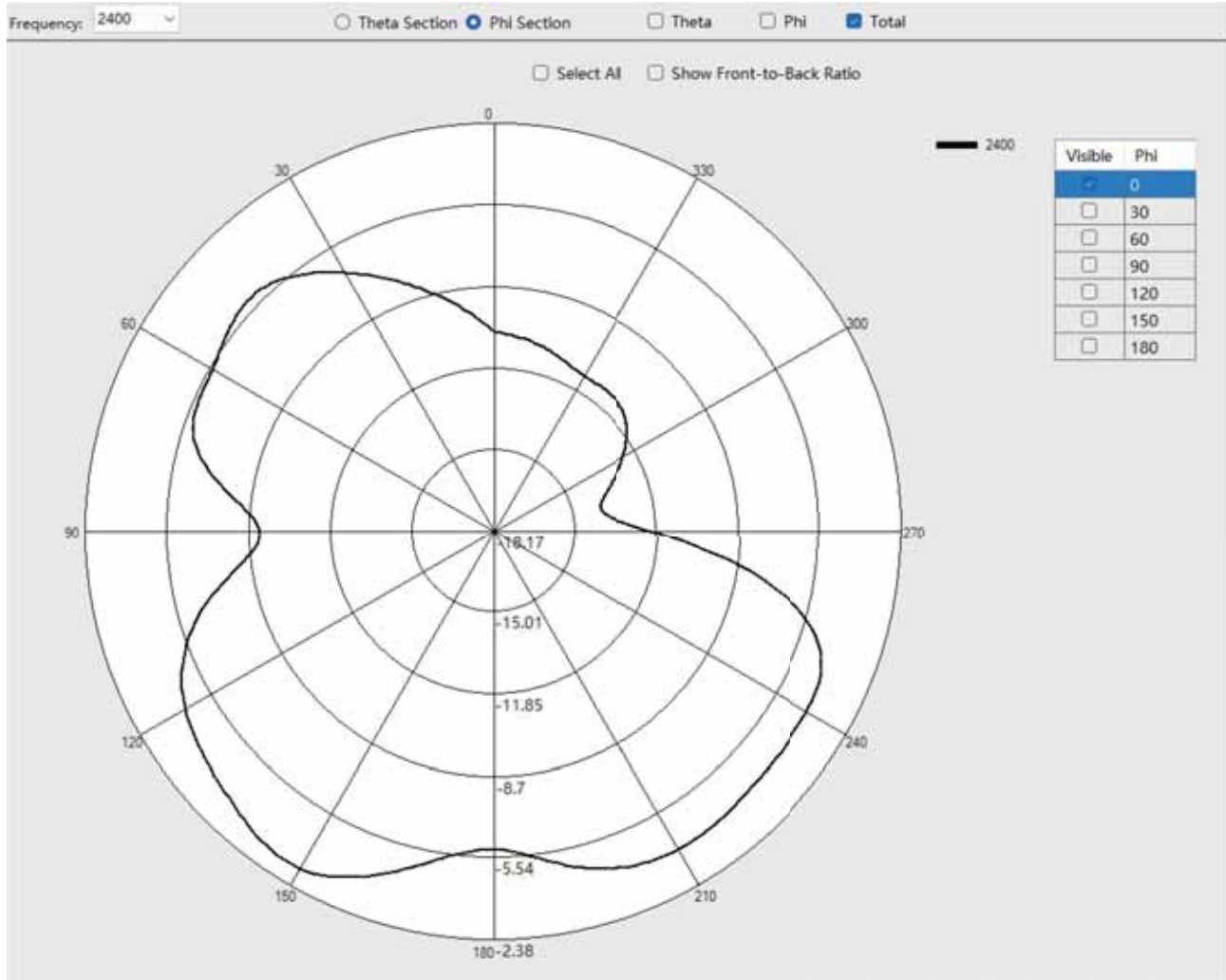
☐ Theta

☐ Phi

☒ Total

☐ Select All ☐ Show Front-to-Back Ratio


Visible	Theta
☐	0
☐	15
☐	30
☐	45
☐	60
☐	75
☐	90
☐	105
☐	120
☐	135
☐	150
☐	165
☒	180



Frequency: 2400

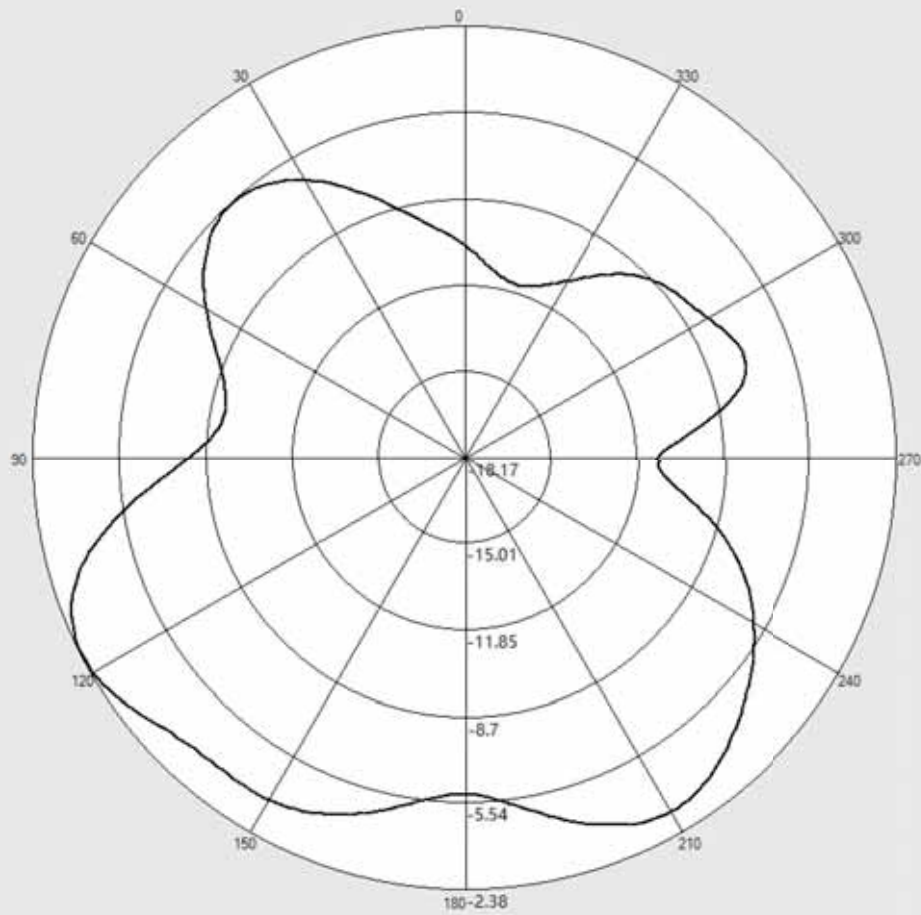
☐ Theta Section ☒ Phi Section

☐ Theta

☐ Phi

☒ Total

☐ Select All

☐ Show Front-to-Back Ratio


Visible	Phi
☐	0
☒	30
☐	60
☐	90
☐	120
☐	150
☐	180

Frequency: 2400

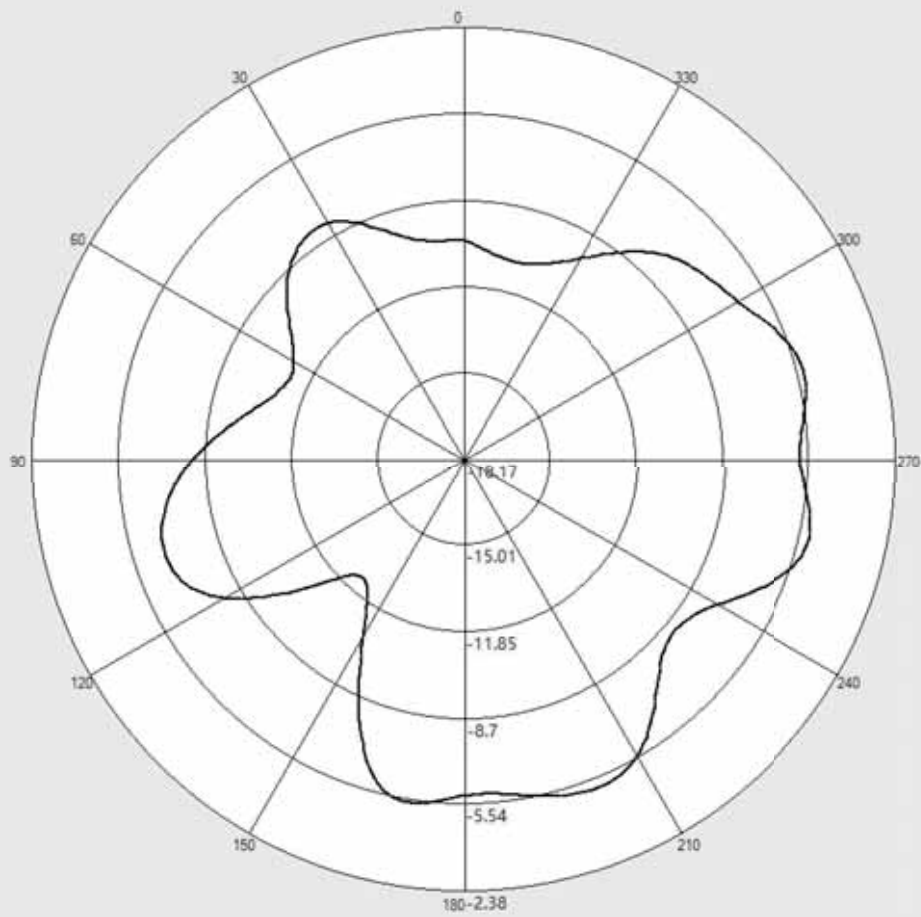
☐ Theta Section ☒ Phi Section

☐ Theta

☐ Phi

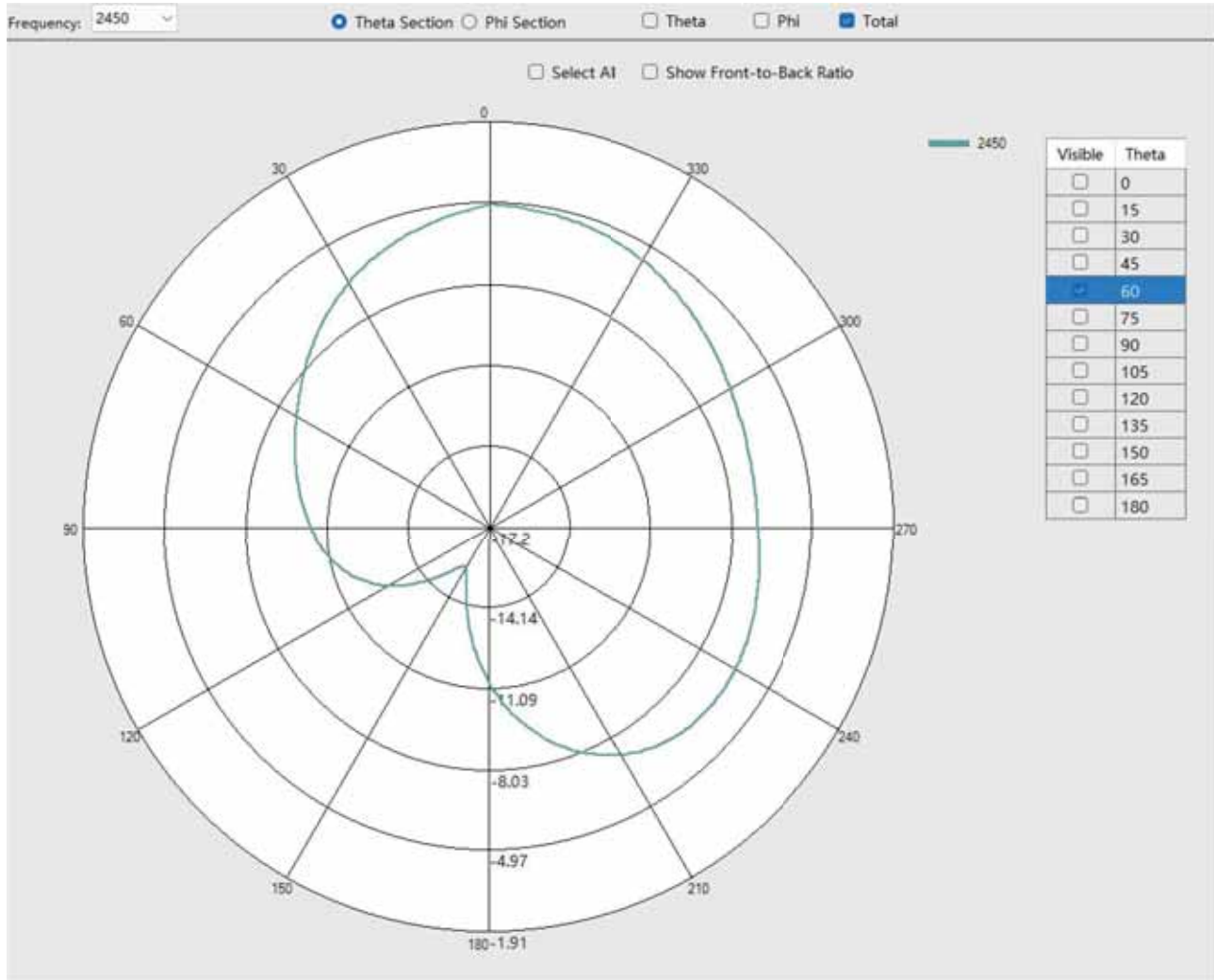
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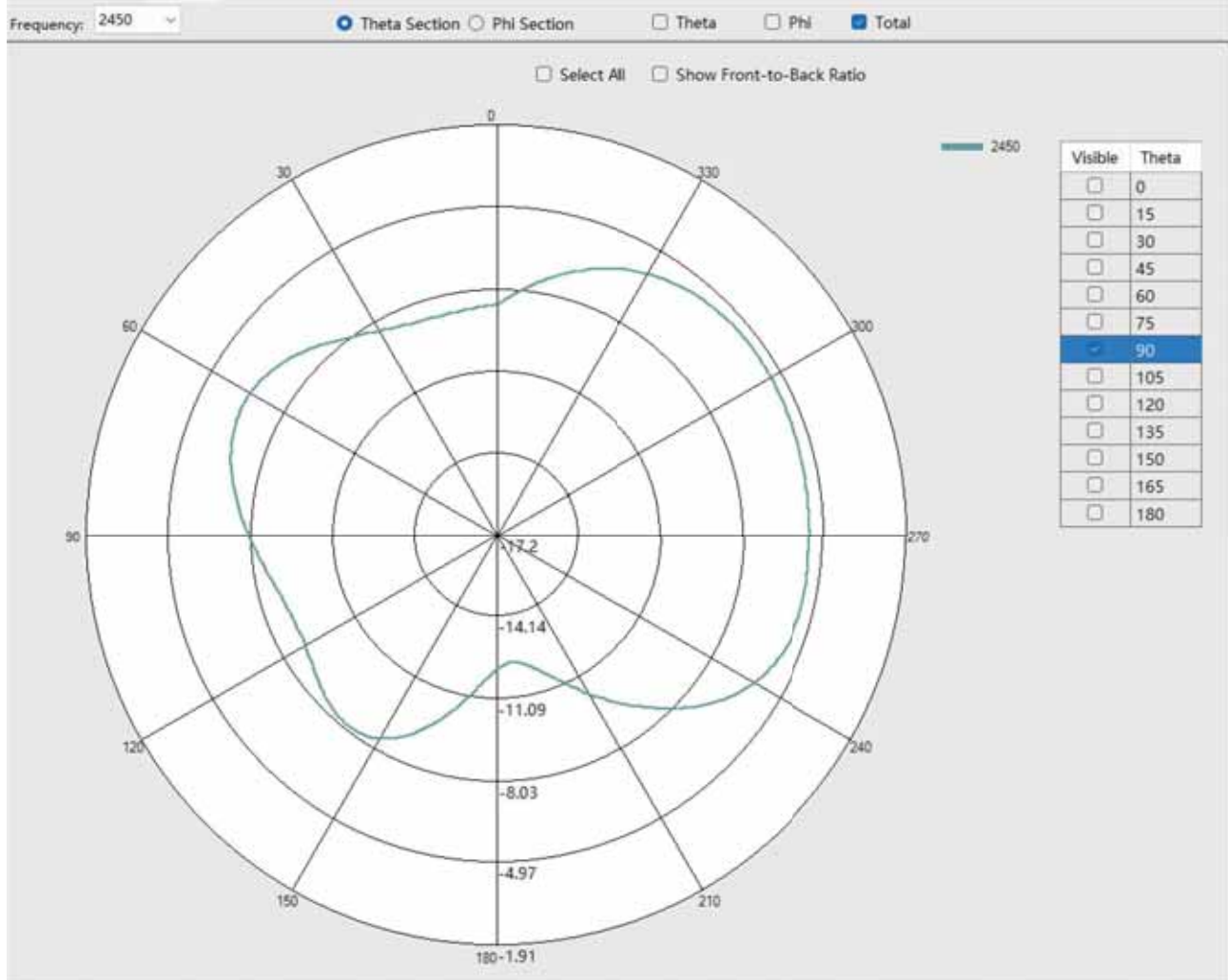
☐ Select All

☐ Show Front-to-Back Ratio


Visible	Phi
☐	0
☐	30
☐	60
☒	90
☐	120
☐	150
☐	180

2450MHz





Frequency: 2450

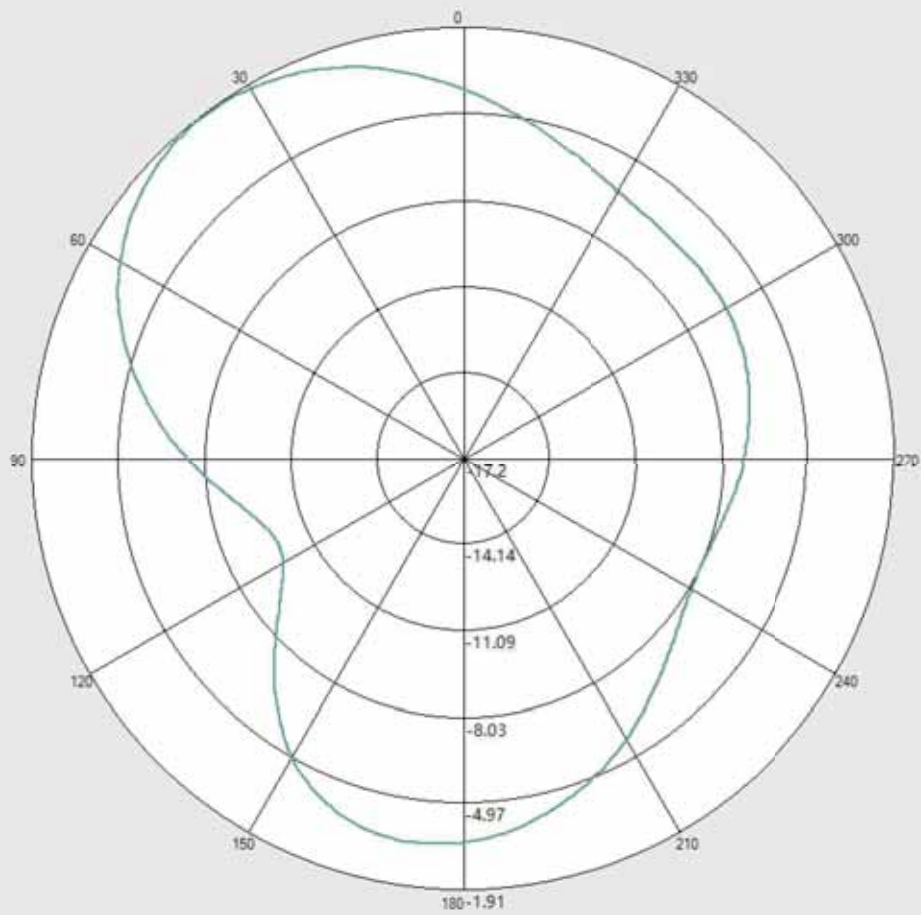
☒ Theta Section ☐ Phi Section

☐ Theta

☐ Phi

☒ Total

☐ Select All

☐ Show Front-to-Back Ratio


Visible	Theta
☐	0
☐	15
☐	30
☐	45
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☒	120
☐	135
☐	150
☐	165
☐	180

Frequency: 2450

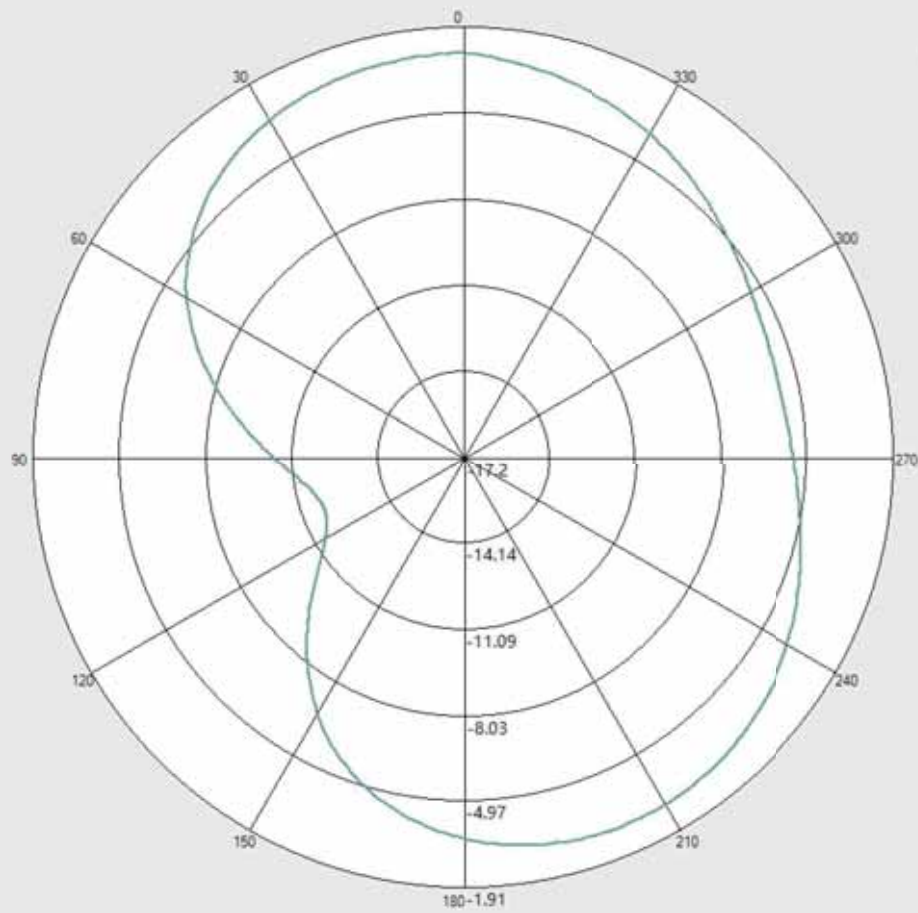
☒ Theta Section ☐ Phi Section

☐ Theta

☐ Phi

☒ Total

☐ Select All

☐ Show Front-to-Back Ratio


2450

Visible	Theta
☐	0
☐	15
☐	30
☐	45
☐	60
☐	75
☐	90
☐	105
☐	120
☐	135
☒	150
☐	165
☐	180

Frequency: 2450

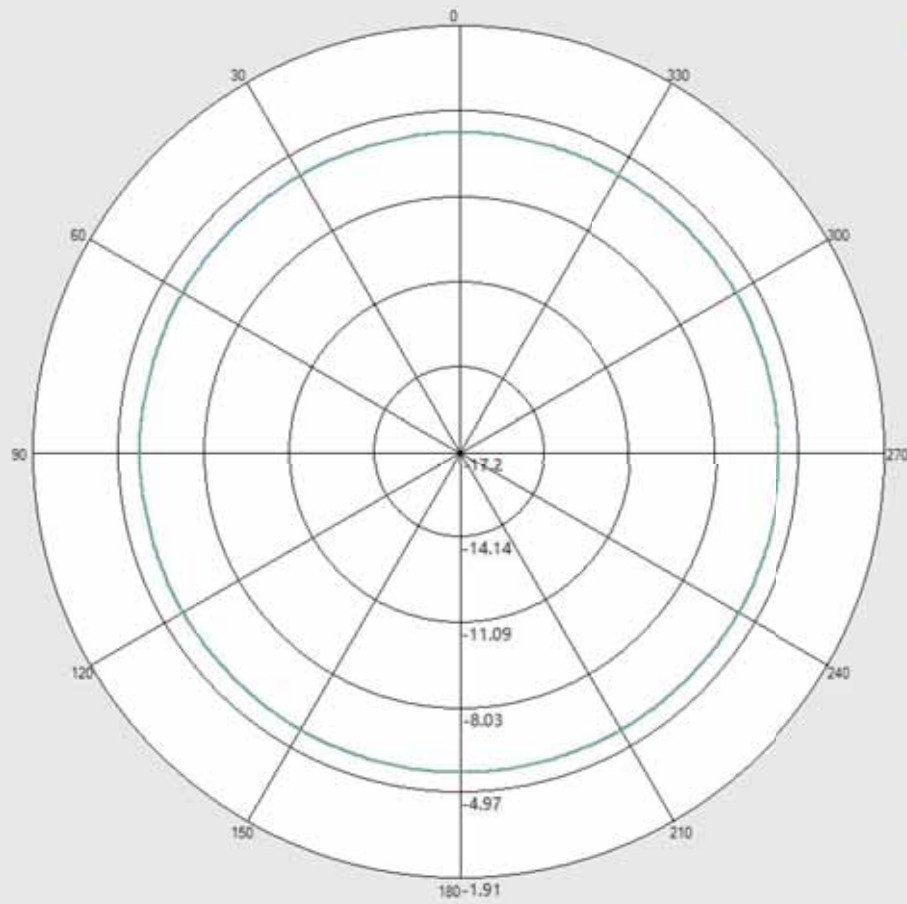
☒ Theta Section ☐ Phi Section

☐ Theta

☐ Phi

☒ Total

☐ Select All

☐ Show Front-to-Back Ratio


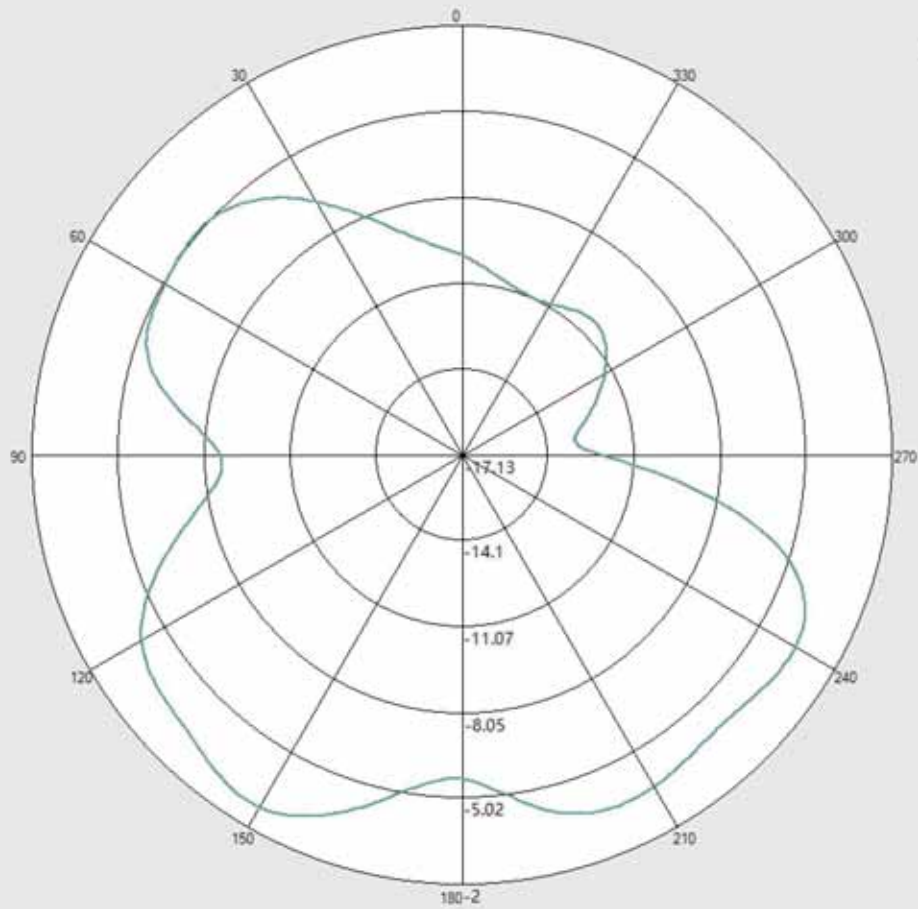
2450

Visible	Theta
☐	0
☐	15
☐	30
☐	45
☐	60
☐	75
☐	90
☐	105
☐	120
☐	135
☐	150
☐	165
☒	180

Frequency: 2450

☐ Theta Section
 ☒ Phi Section
 ☐ Theta
 ☐ Phi
 ☒ Total

☐ Select All
 ☐ Show Front-to-Back Ratio



Visible	Phi
☒	0
☐	30
☐	60
☐	90
☐	120
☐	150
☐	180

Frequency: 2450

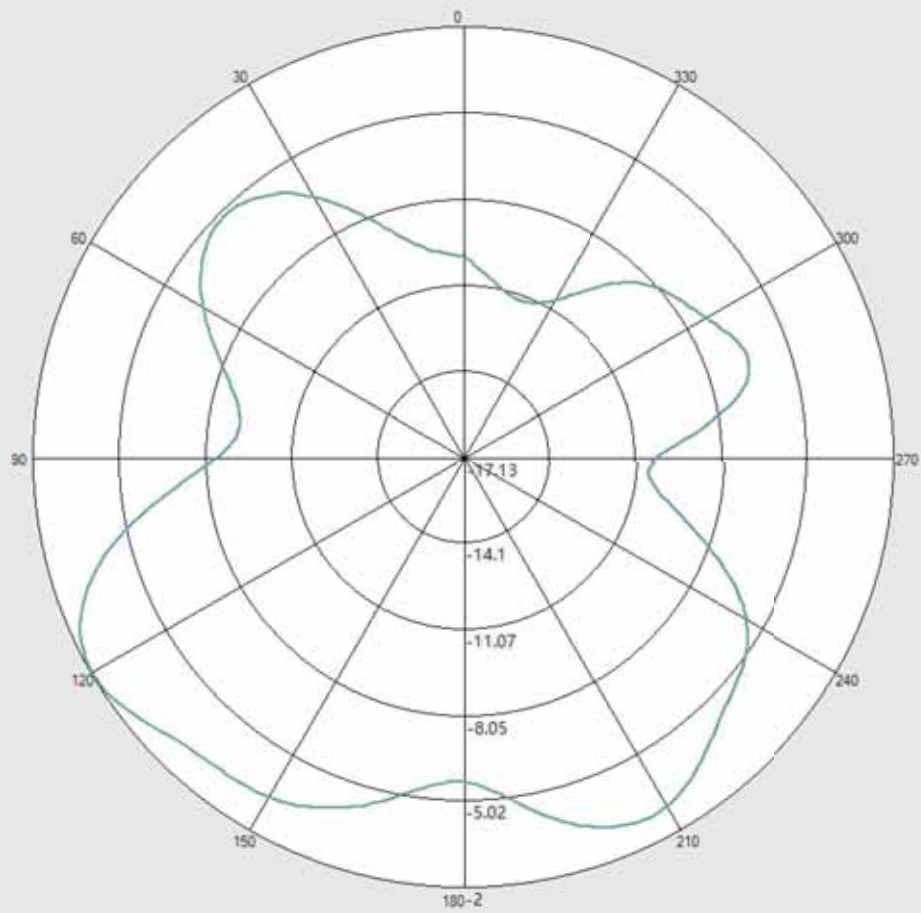
☐ Theta Section ☒ Phi Section

☐ Theta

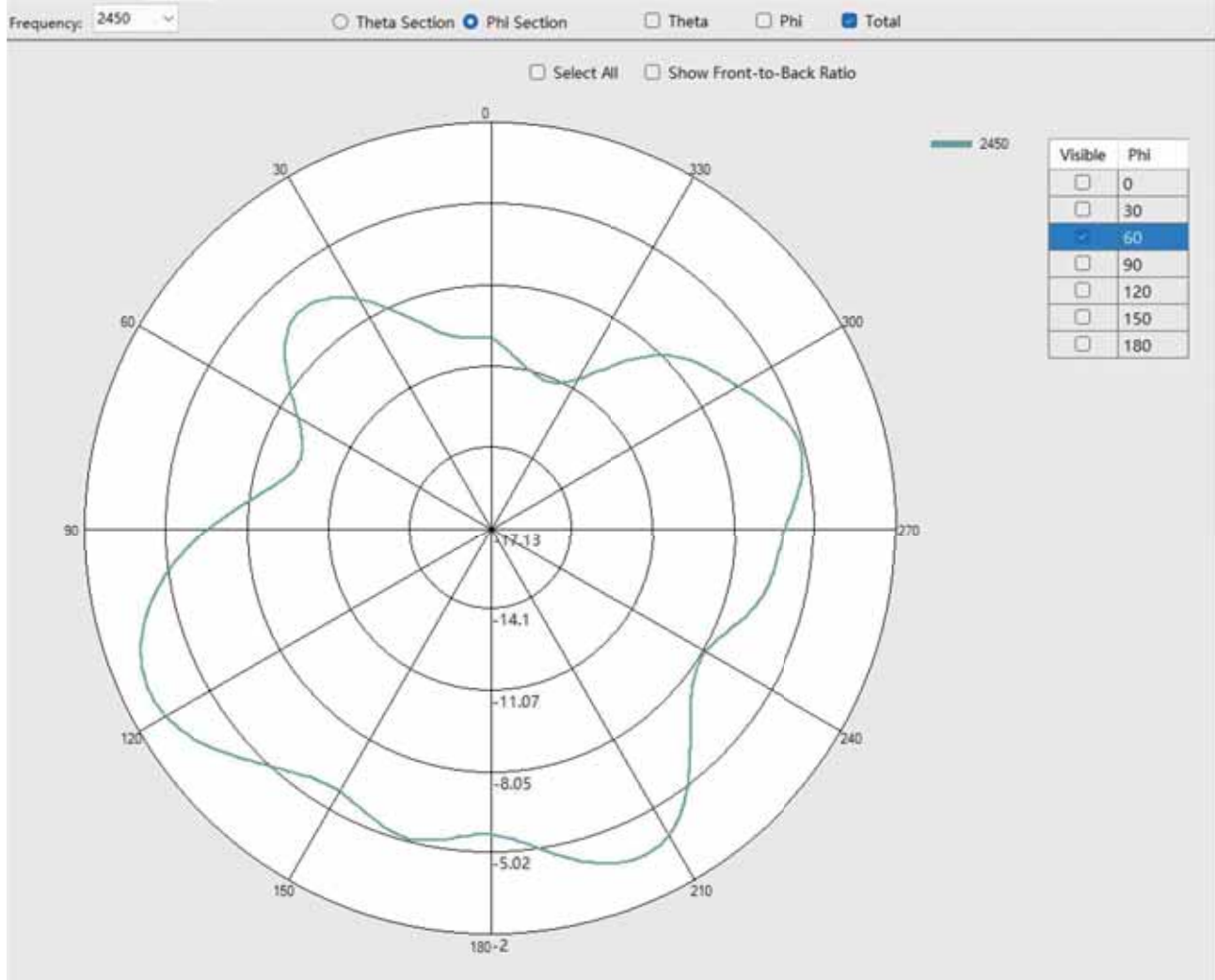
☐ Phi

☒ Total

☐ Select All

☐ Show Front-to-Back Ratio


Visible	Phi
☐	0
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☐	60
☐	90
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☐	150
☐	180



Frequency: 2450

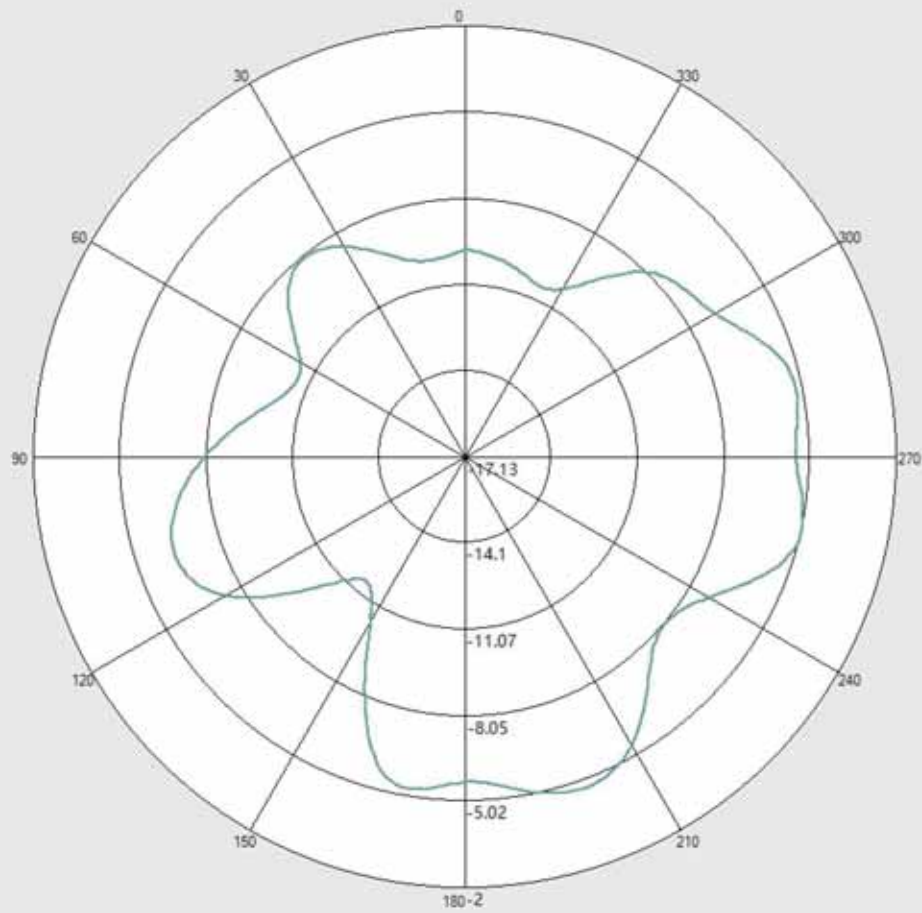
☐ Theta Section ☒ Phi Section

☐ Theta

☐ Phi

☒ Total

☐ Select All

☐ Show Front-to-Back Ratio


Visible	Phi
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☐	60
☒	90
☐	120
☐	150
☐	180

Frequency: 2450

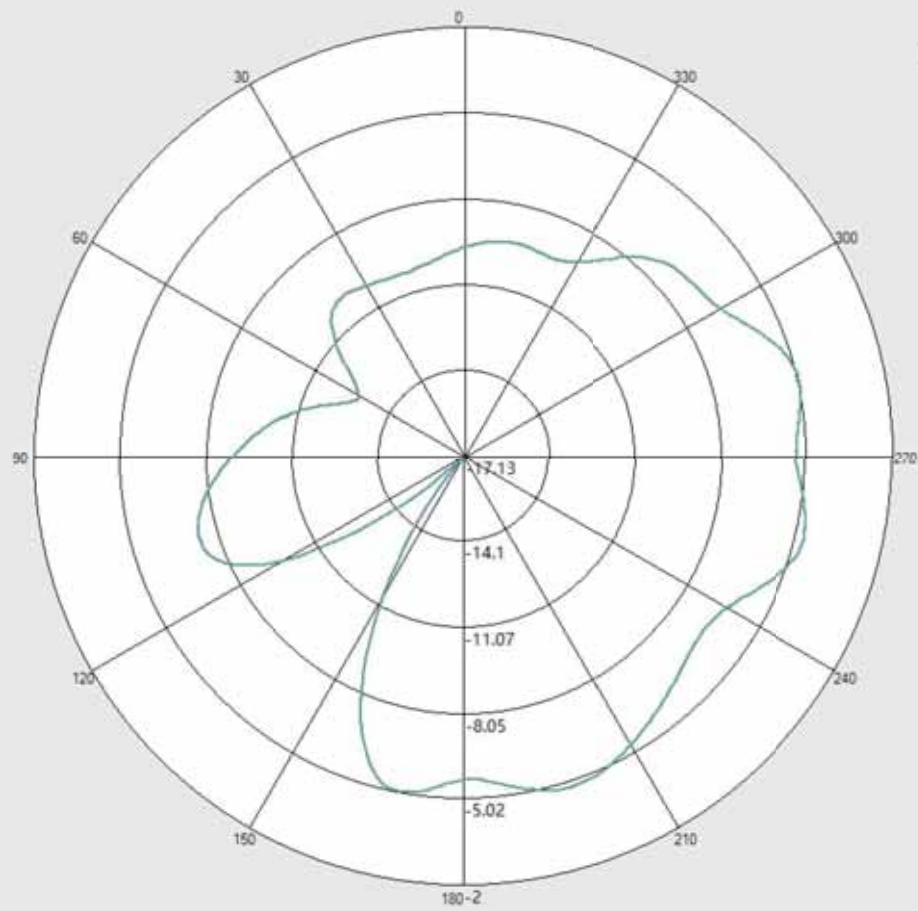
☐ Theta Section ☒ Phi Section

☐ Theta

☐ Phi

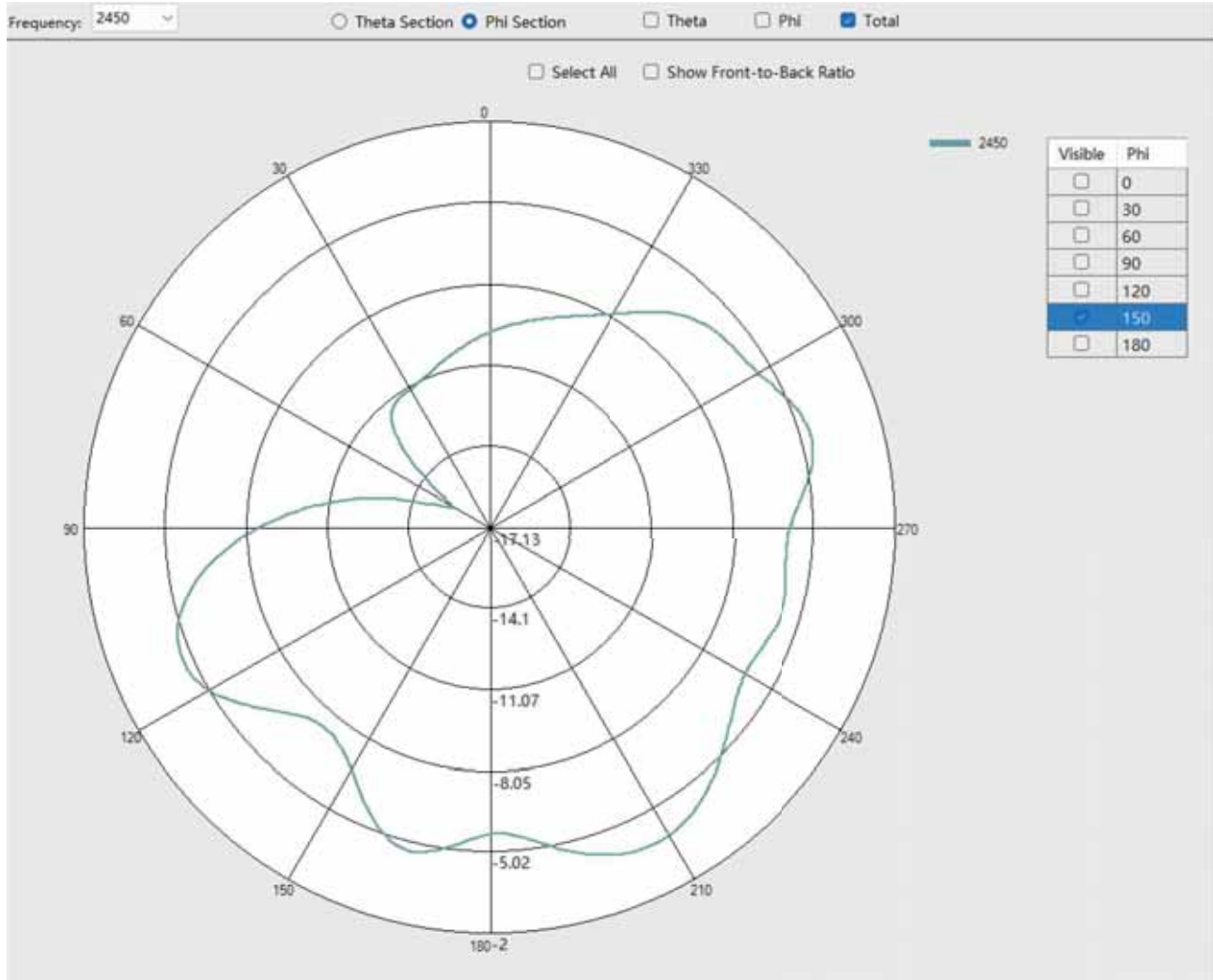
☒ Total

☐ Select All

☐ Show Front-to-Back Ratio


2450

Visible	Phi
☐	0
☐	30
☐	60
☐	90
☒	120
☐	150
☐	180



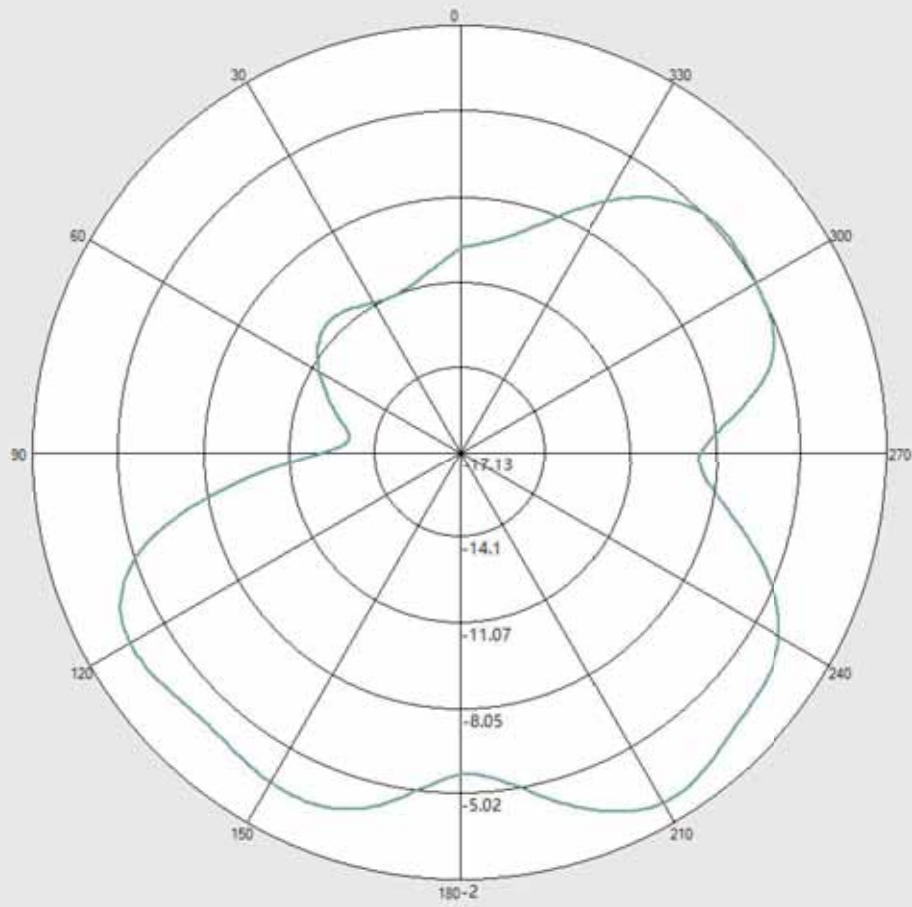
Frequency: 2450

☐ Theta Section ☒ Phi Section

☐ Theta

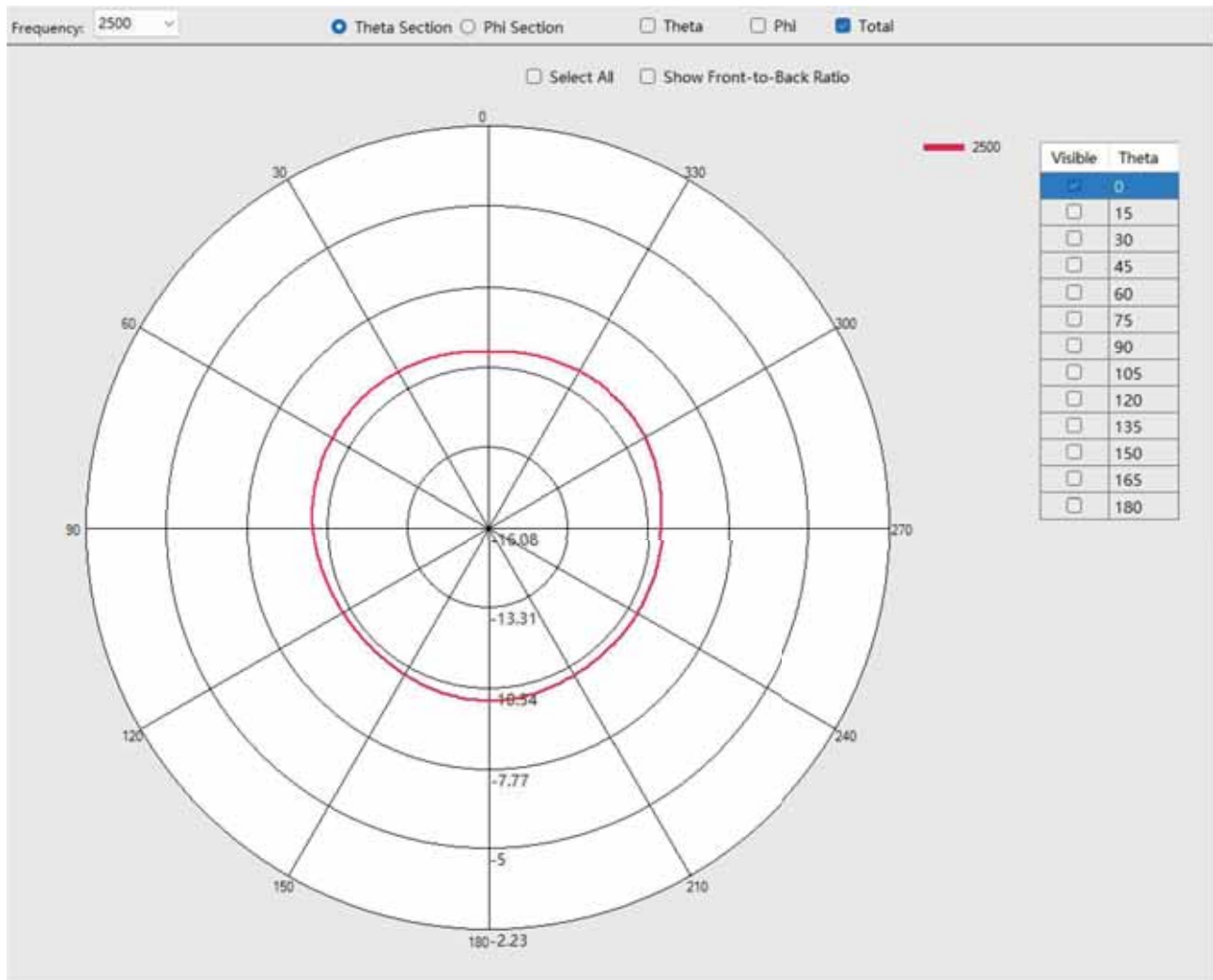
☐ Phi

☒ Total

☐ Select All ☐ Show Front-to-Back Ratio


Visible	Phi
☐	0
☐	30
☐	60
☐	90
☐	120
☐	150
☒	180

2500MHz



Frequency: 2500

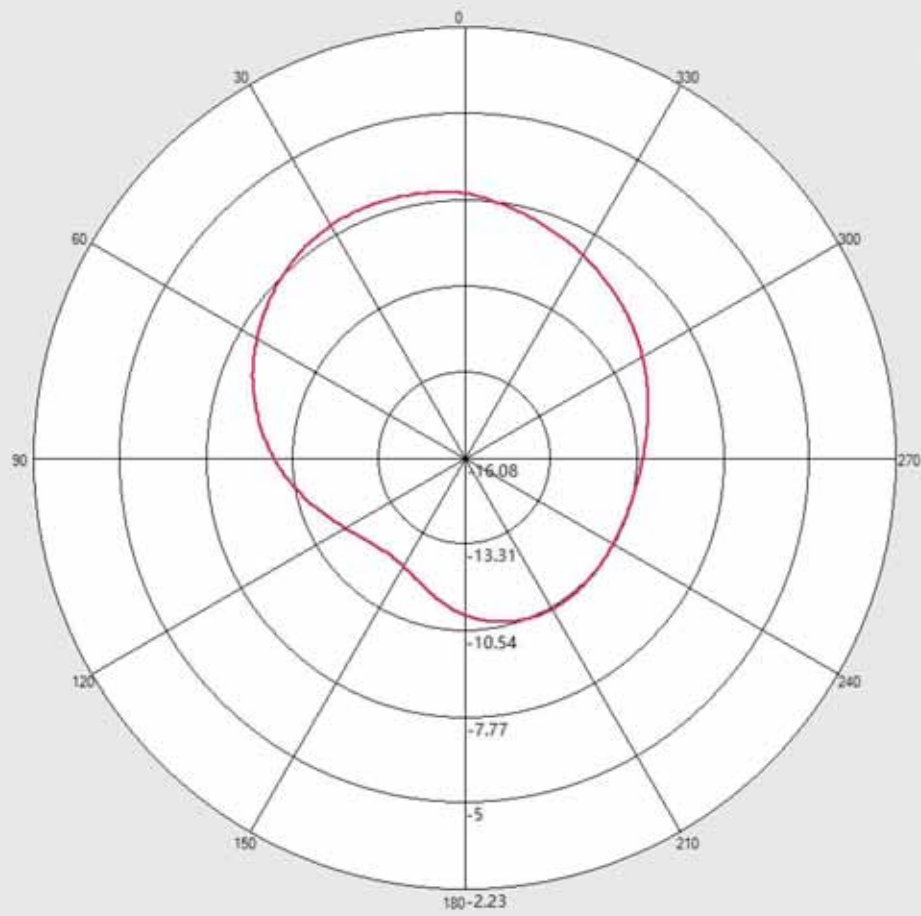
☒ Theta Section
☐ Phi Section

☐ Theta

☐ Phi

☒ Total

☐ Select All

☐ Show Front-to-Back Ratio


Frequency: 2500

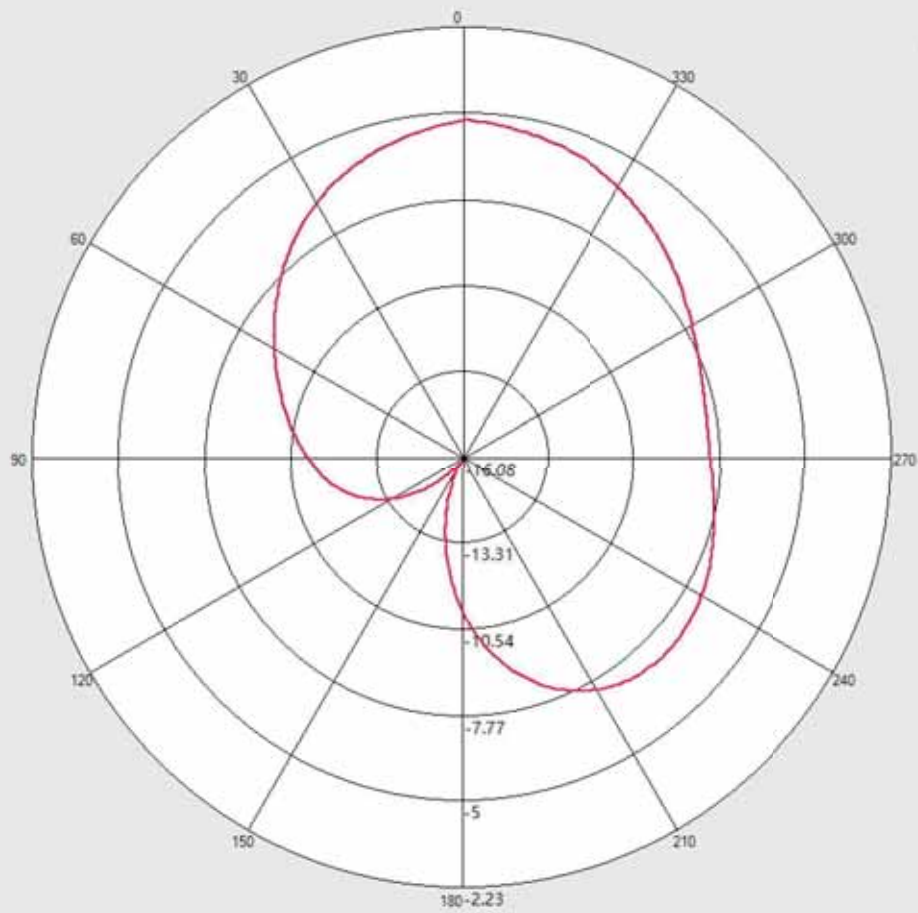
☒ Theta Section ☐ Phi Section

☐ Theta

☐ Phi

☒ Total

☐ Select All

☐ Show Front-to-Back Ratio


2500

Visible	Theta
☐	0
☐	15
☐	30
☐	45
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☐	150
☐	165
☐	180

Frequency: 2500

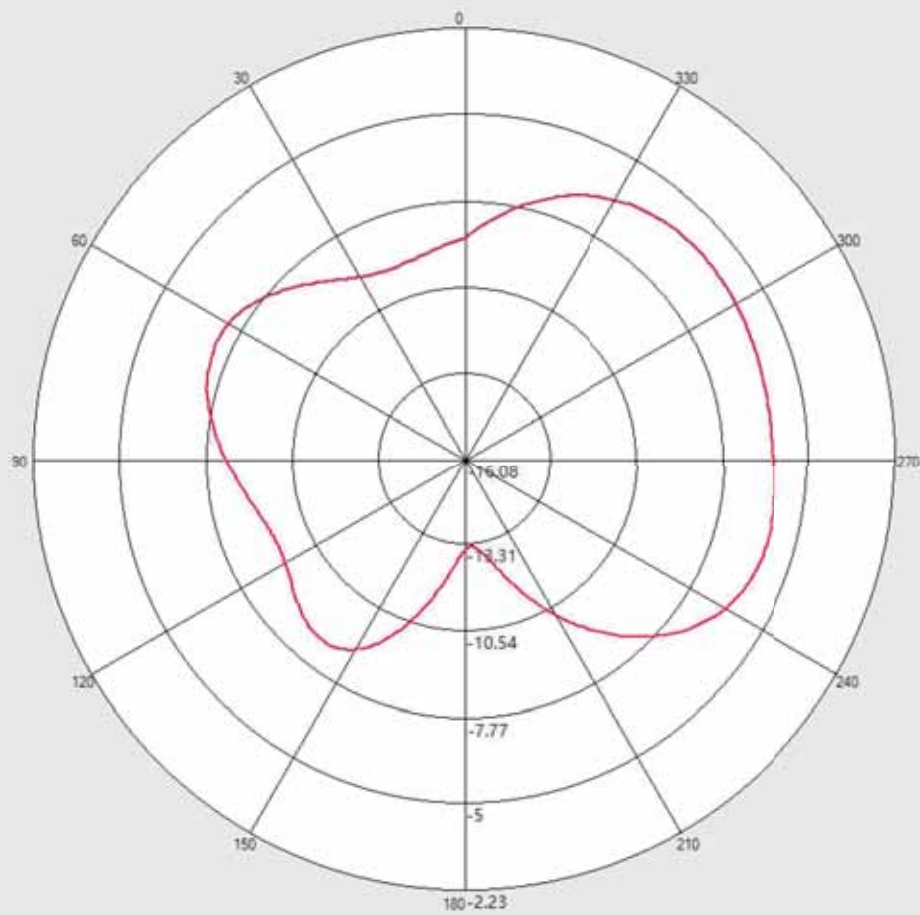
☒ Theta Section ☐ Phi Section

☐ Theta

☐ Phi

☒ Total

☐ Select All

☐ Show Front-to-Back Ratio


2500

Visible	Theta
☐	0
☐	15
☐	30
☐	45
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☐	165
☐	180

Frequency: 2500

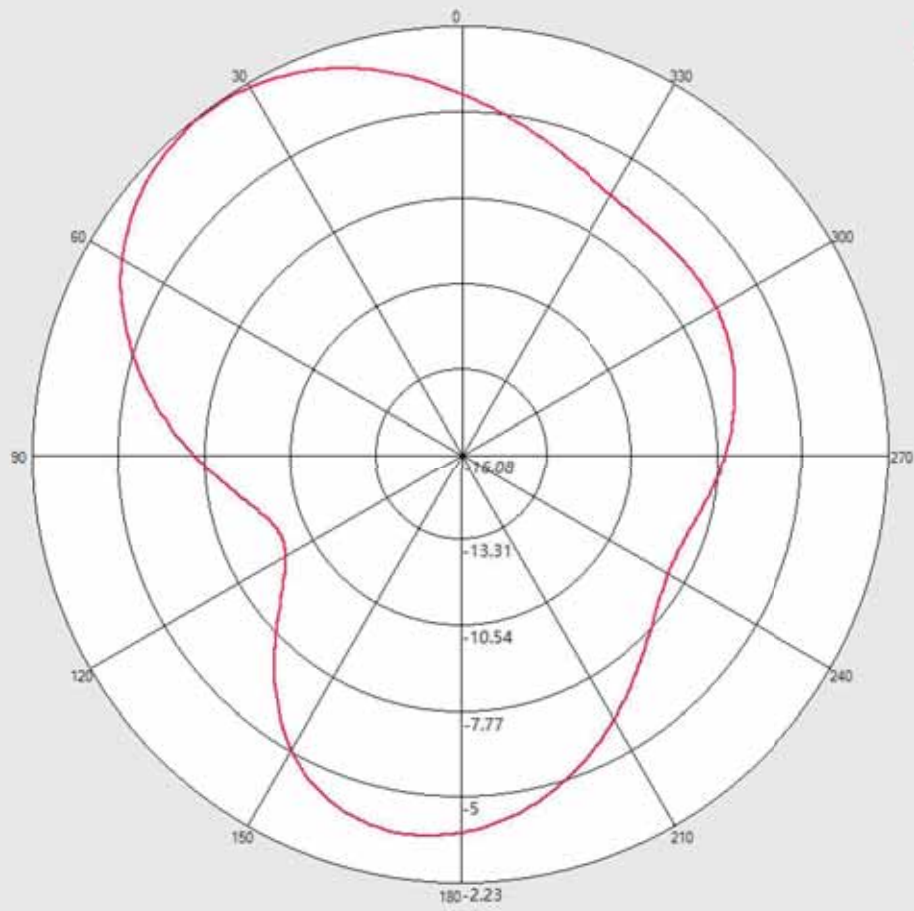
☒ Theta Section ☐ Phi Section

☐ Theta

☐ Phi

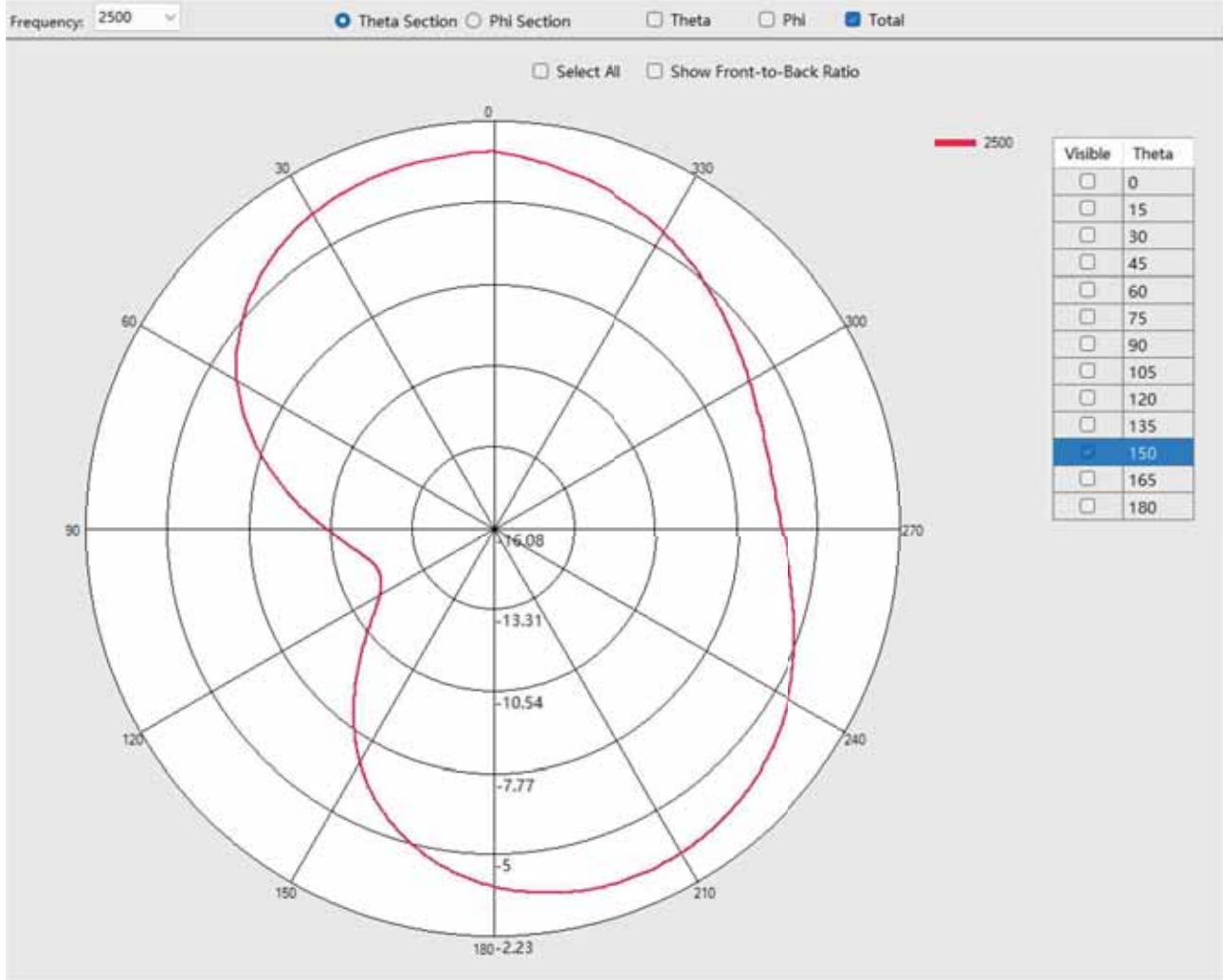
☒ Total

☐ Select All

☐ Show Front-to-Back Ratio


2500

Visible	Theta
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☐	165
☐	180



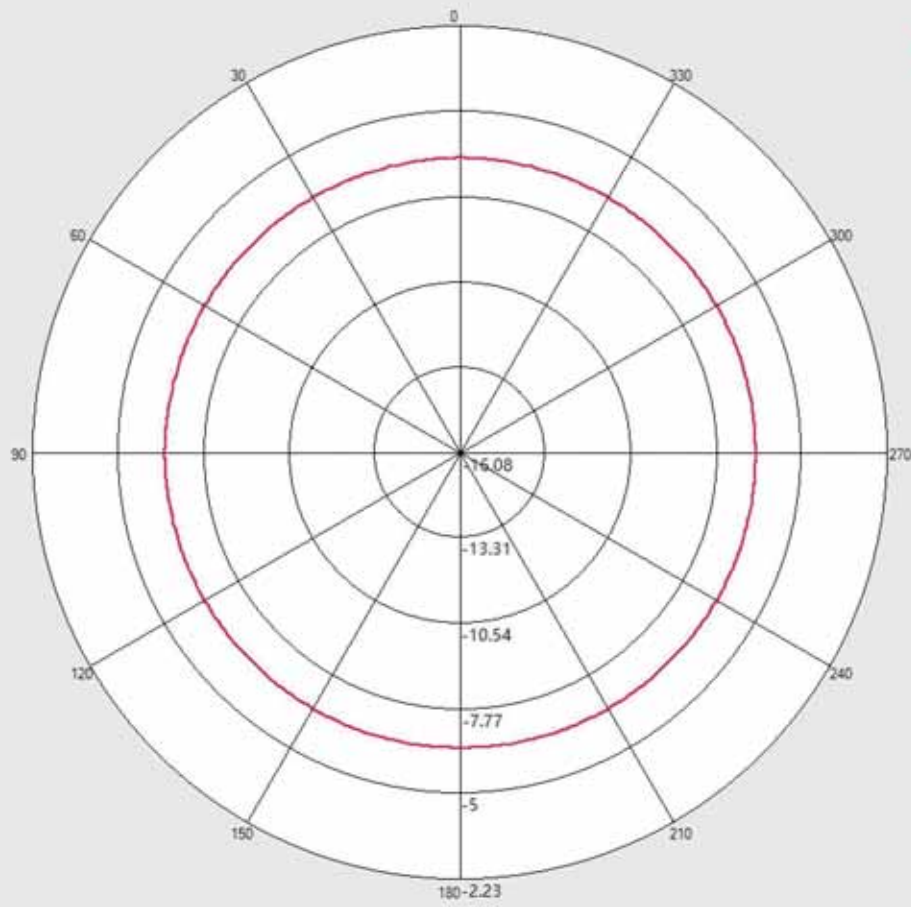
Frequency: 2500

☒ Theta Section ☐ Phi Section

☐ Theta

☐ Phi

☒ Total

☐ Select All ☐ Show Front-to-Back Ratio


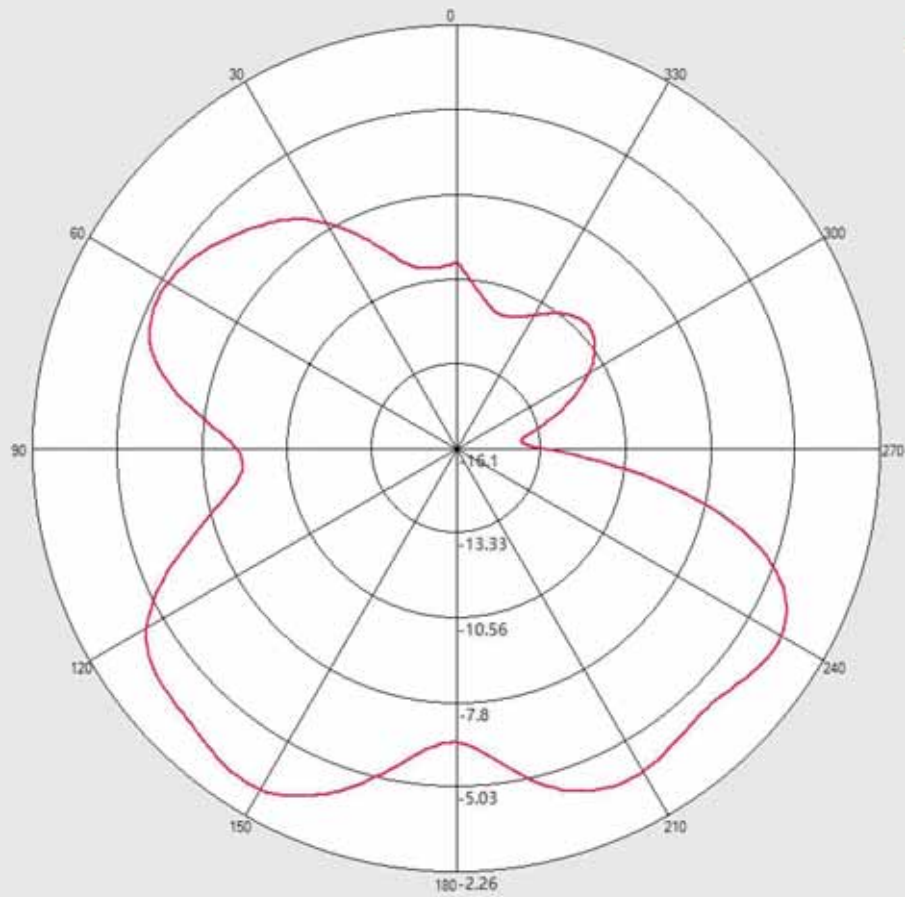
2500

Visible	Theta
☐	0
☐	15
☐	30
☐	45
☐	60
☐	75
☐	90
☐	105
☐	120
☐	135
☐	150
☐	165
☒	180

Frequency: 2500

☐ Theta Section
 ☒ Phi Section
 ☐ Theta
 ☐ Phi
 ☒ Total

☐ Select All
 ☐ Show Front-to-Back Ratio



Frequency: 2500

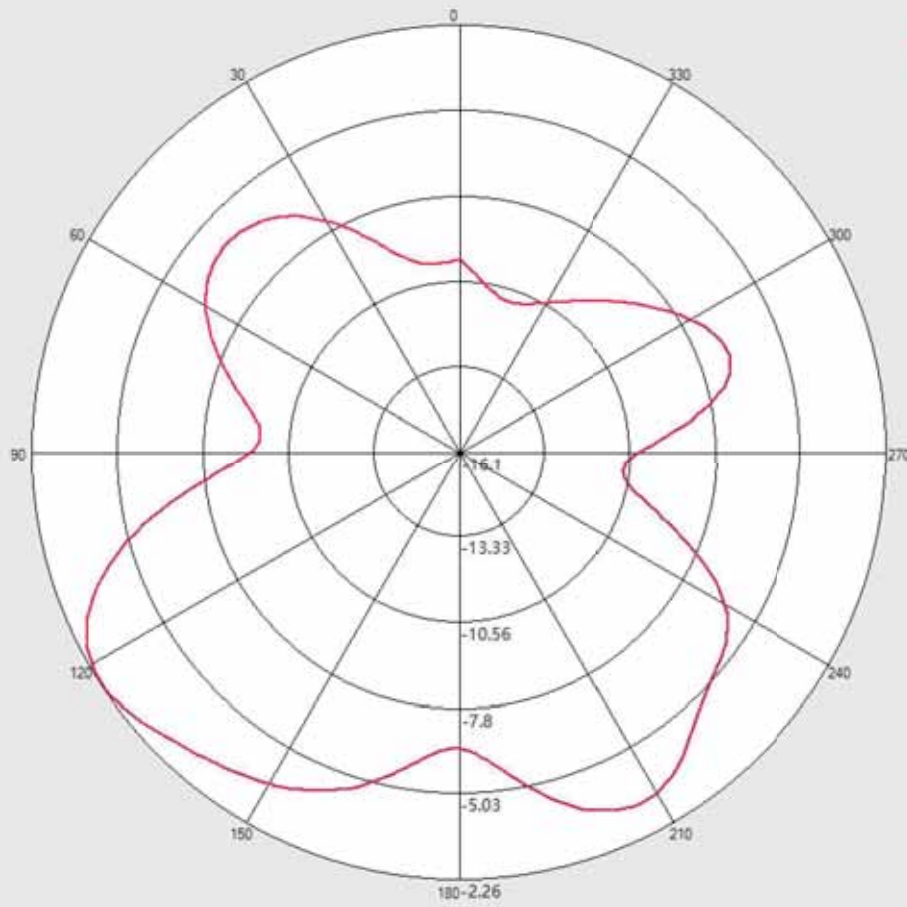
☐ Theta Section ☒ Phi Section

☐ Theta

☐ Phi

☒ Total

☐ Select All

☐ Show Front-to-Back Ratio


Visible	Phi
☐	0
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☐	60
☐	90
☐	120
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☐	180

Frequency: 2500

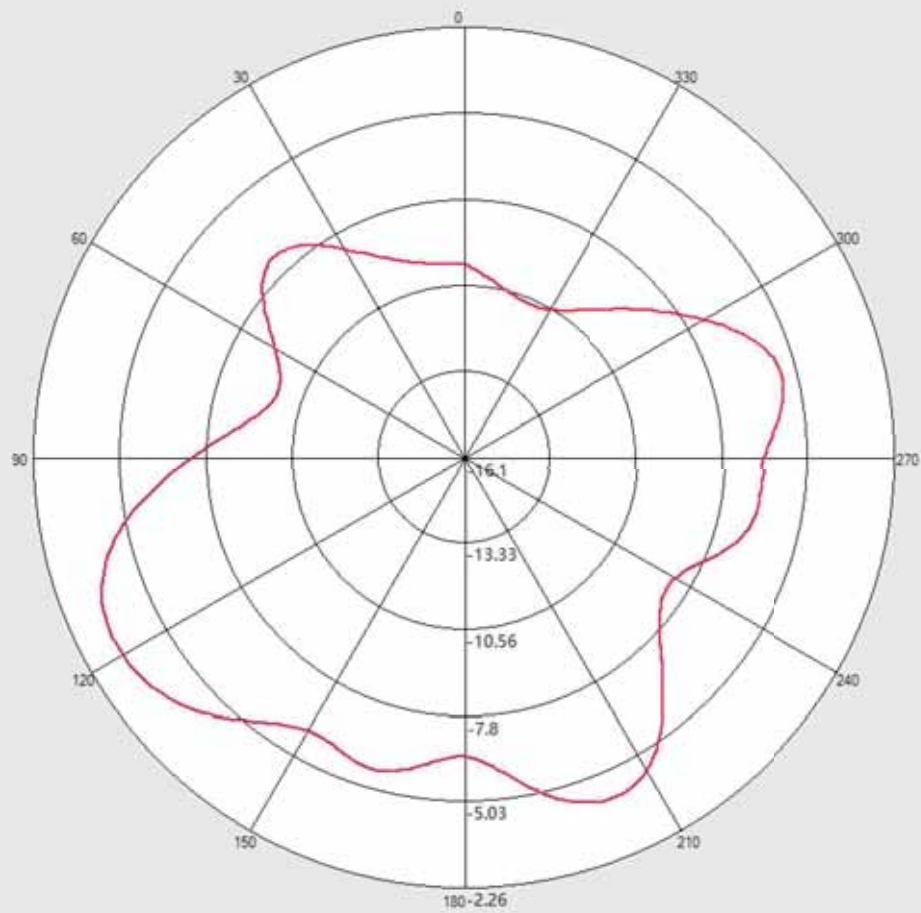
☐ Theta Section ☒ Phi Section

☐ Theta

☐ Phi

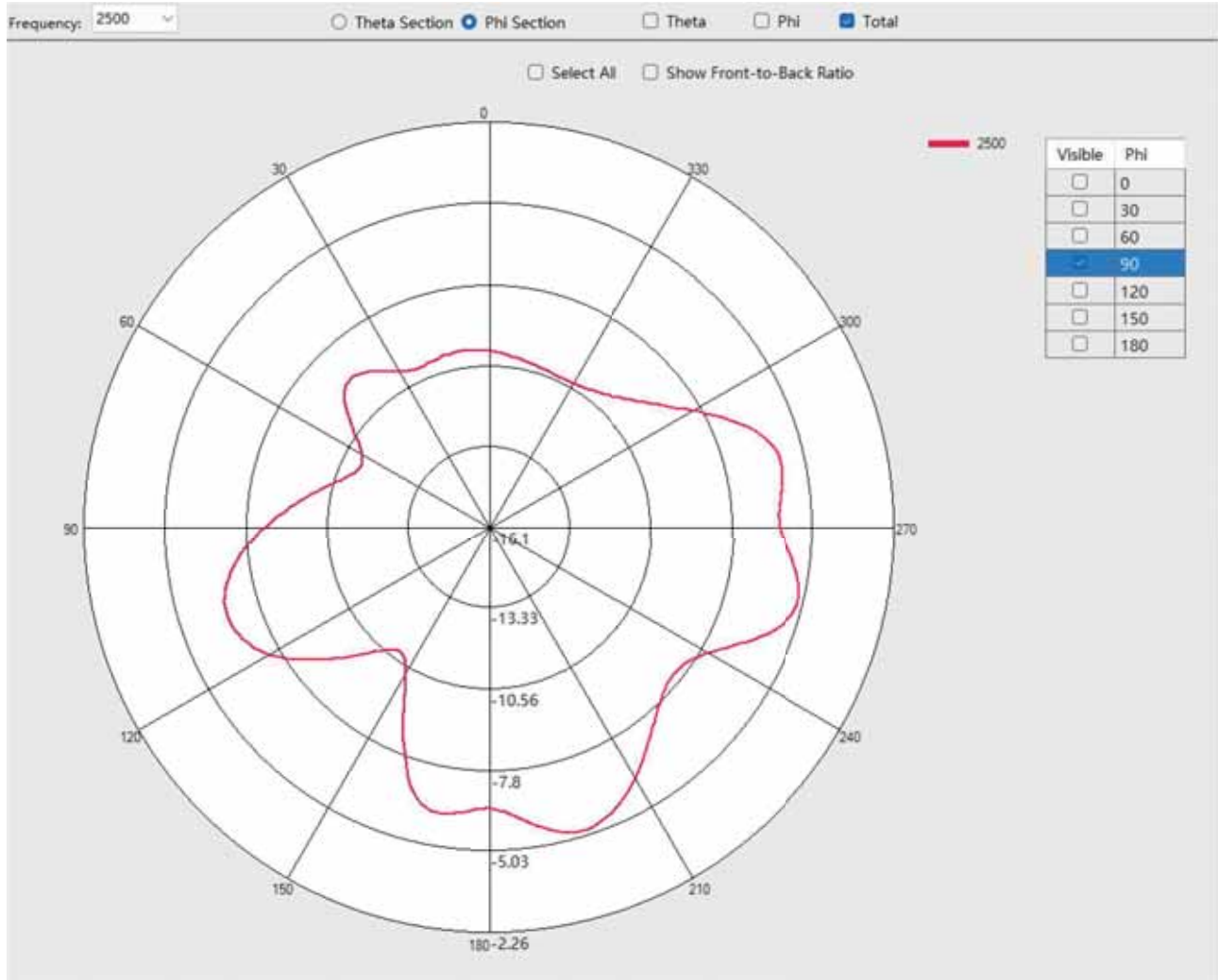
☒ Total

☐ Select All

☐ Show Front-to-Back Ratio


2500

Visible	Phi
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☐	180



Frequency: 2500

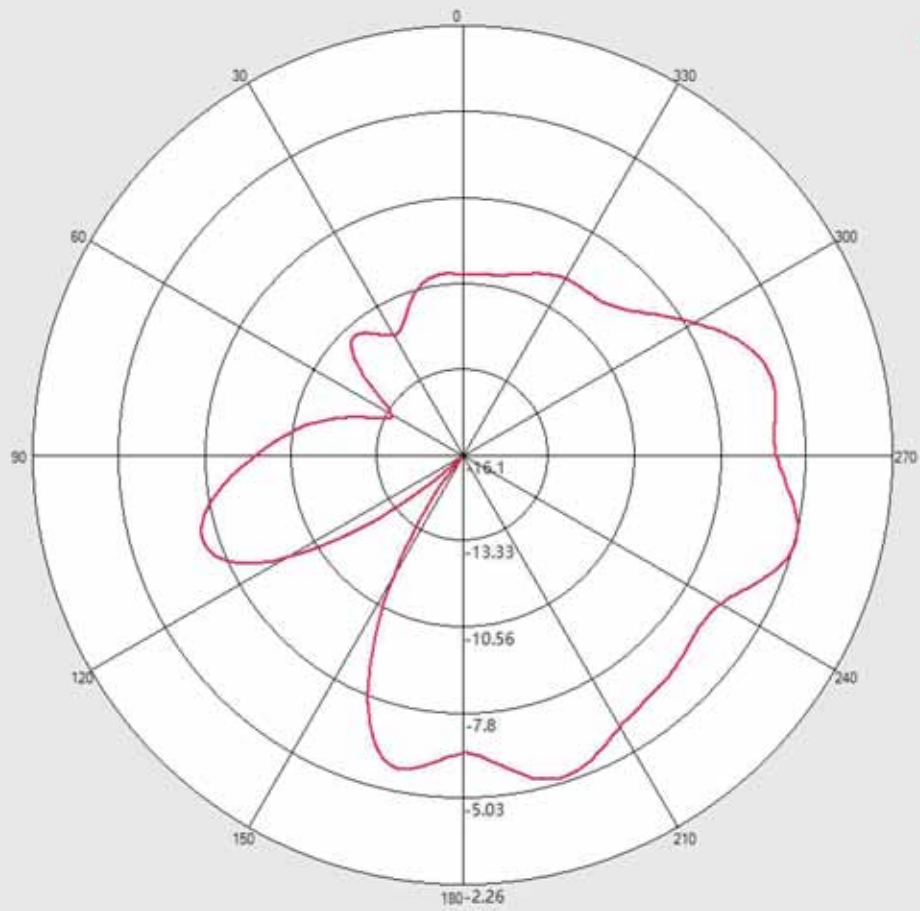
☐ Theta Section ☒ Phi Section

☐ Theta

☐ Phi

☒ Total

☐ Select All

☐ Show Front-to-Back Ratio


2500

Visible	Phi
☐	0
☐	30
☐	60
☐	90
☒	120
☐	150
☐	180

