

38 to 75 kHz-A (Broadband)
 Transformed to 100 ohms minimum (B1)

Power Rating:

- 2 kW @ 1% duty cycle
- CW⁽⁴⁾: 30W in CM199, PM111, R109
 25W in R111

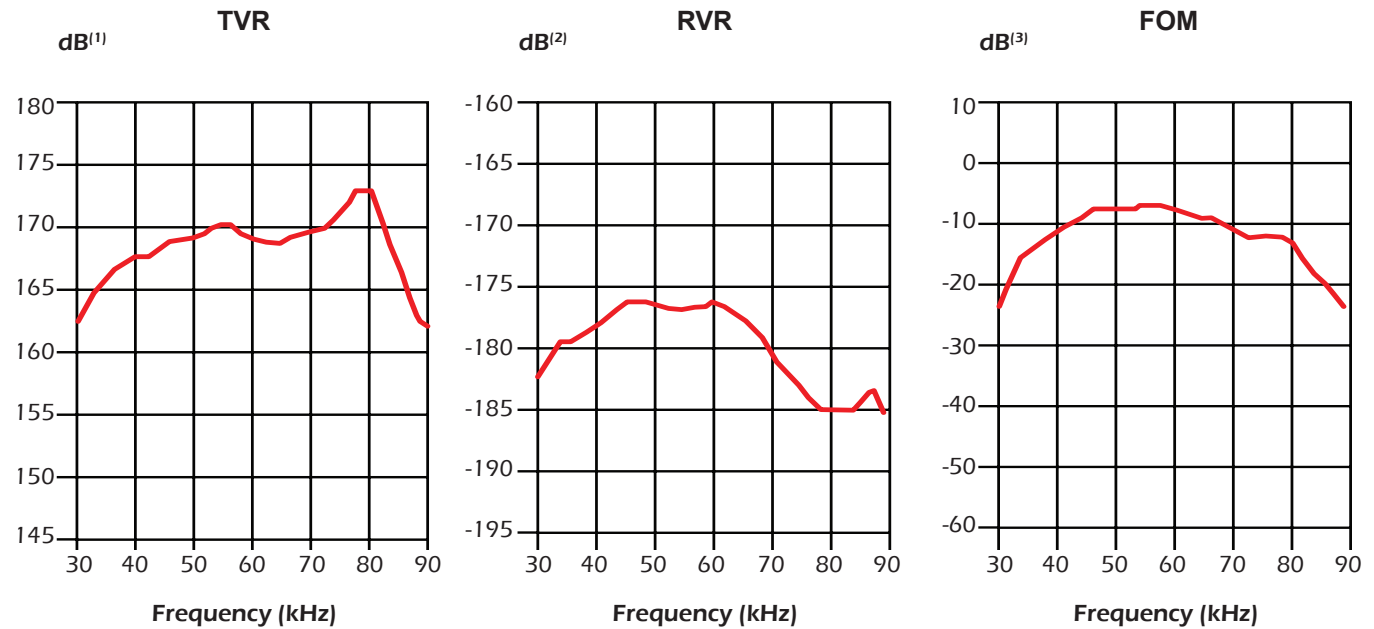
15 x 35 mm (1.38 in) PZT
 Active Area: 144.6 cm² (22.4 in²)
 Radiating Surface: Urethane

Q ≈ 2.5

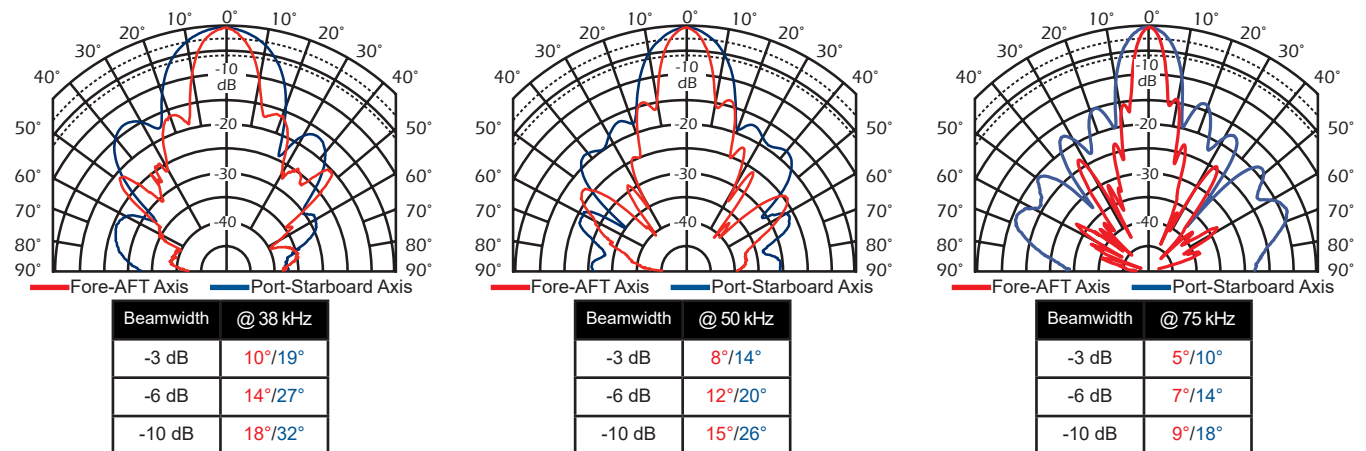
Cable Type: C44
 Cable Length: 10 m (33 ft)

Notes:

- (1) dB re 1 μPa per volt at 1 meter
- (2) dB re 1 volt per μPa
- (3) Sum of transmitting voltage response and receiving voltage response
- (4) CW Power ratings is for 20°C seawater temperature. Consult Airmar for different housing CW ratings.



Transmit Radiation Pattern



Technical Data Catalog

38 to 75 kHz-A (Broadband)

Note: Impedance data includes cable

Balanced Impedance Table (Nominal Value) in 20°C Water

Test Frequency (kHz)	Impedance Magnitude (Ω)	Phase Angle ($^\circ$)	Series Resistance (Ω)	Series Reactance (Ω)	Parallel Conductance (mS)	Parallel Susceptance (mS)	Parallel Resistance (Ω)	Parallel Capacitance (pF)
30.00	73.63	79.09	13.94	72.30	2.57	-13.34	388.89	-70751.87
32.00	83.84	71.66	26.38	79.59	3.75	-11.32	266.51	-56308.40
33.00	86.52	66.26	34.83	79.20	4.65	-10.58	214.93	-51027.89
34.00	87.92	64.05	38.48	79.06	4.98	-10.23	200.91	-47870.63
35.00	87.72	60.49	43.21	76.34	5.62	-9.92	178.09	-45112.33
37.00	91.45	56.84	50.02	76.56	5.98	-9.15	167.20	-39379.39
38.00	93.70	56.32	51.96	77.97	5.92	-8.88	168.96	-37195.20
39.00	95.09	55.19	54.27	78.07	6.00	-8.64	166.59	-35239.96
40.00	100.06	55.99	55.97	82.95	5.59	-8.28	178.90	-32961.94
42.00	111.74	52.29	68.34	88.40	5.47	-7.08	182.69	-26829.75
43.00	115.80	48.05	77.41	86.13	5.77	-6.42	173.24	-23771.53
44.00	120.86	45.22	85.13	85.78	5.83	-5.87	171.57	-21244.19
45.00	121.59	40.54	92.40	79.04	6.25	-5.35	160.01	-18906.98
47.00	125.64	34.58	103.45	71.30	6.55	-4.52	152.59	-15295.70
48.00	127.75	32.83	107.34	69.26	6.58	-4.24	152.03	-14071.62
49.00	126.59	29.64	110.03	62.60	6.87	-3.91	145.65	-12689.05
50.00	129.39	27.71	114.55	60.18	6.84	-3.59	146.16	-11440.62
52.00	125.13	22.81	115.35	48.51	7.37	-3.10	135.75	-9481.56
53.00	121.69	20.84	113.74	43.29	7.68	-2.92	130.21	-8777.16
54.00	120.95	21.36	112.64	44.05	7.70	-3.01	129.87	-8875.86
55.00	119.93	21.17	111.84	43.30	7.78	-3.01	128.61	-8711.94
57.00	131.50	21.90	122.01	49.04	7.06	-2.84	141.72	-7919.07
58.00	140.42	20.79	131.28	49.84	6.66	-2.53	150.20	-6935.86
59.00	147.88	17.71	140.87	44.98	6.44	-2.06	155.23	-5548.44
60.00	156.98	14.36	152.07	38.94	6.17	-1.58	162.04	-4191.94
62.00	168.17	4.78	167.59	14.03	5.93	-0.50	168.76	-1273.03
63.00	168.00	-1.26	167.96	-3.69	5.95	0.13	168.04	330.64
64.00	166.64	-6.26	165.65	-18.18	5.97	0.65	167.64	1627.73
65.00	163.04	-11.77	159.61	-33.26	6.00	1.25	166.55	3063.86
67.00	153.01	-21.93	141.93	-57.16	6.06	2.44	164.95	5799.39
68.00	145.19	-26.24	130.23	-64.21	6.18	3.05	161.88	7128.34
69.00	135.53	-30.73	116.50	-69.25	6.34	3.77	157.66	8696.56
70.00	125.37	-34.40	103.44	-70.83	6.58	4.51	151.95	10246.24
72.00	104.21	-39.11	80.87	-65.73	7.45	6.05	134.30	13379.47
73.00	94.65	-40.41	72.07	-61.36	8.04	6.85	124.32	14932.33
74.00	85.81	-40.46	65.29	-55.68	8.87	7.56	112.77	16263.93
75.00	77.42	-39.96	59.34	-49.72	9.90	8.30	101.00	17602.69
77.00	62.05	-35.05	50.80	-35.64	13.19	9.26	75.80	19130.99
78.00	56.05	-29.11	48.97	-27.27	15.59	8.68	64.15	17709.11
79.00	52.08	-20.92	48.64	-18.59	17.94	6.86	55.75	13812.91
80.00	51.11	-10.83	50.20	-9.60	19.22	3.68	52.03	7312.83

130 to 210 kHz-B (Broadband)

Transformed to 60 ohms minimum (B3)

Power Rating:

- 1 kW @ 1% duty cycle
- CW⁽⁴⁾: 12W in M563

88 mm (3.46 in) PZT

Active Area: 61 cm² (9.4 in²)

Radiating Surface:

Cast Resin/Urethane

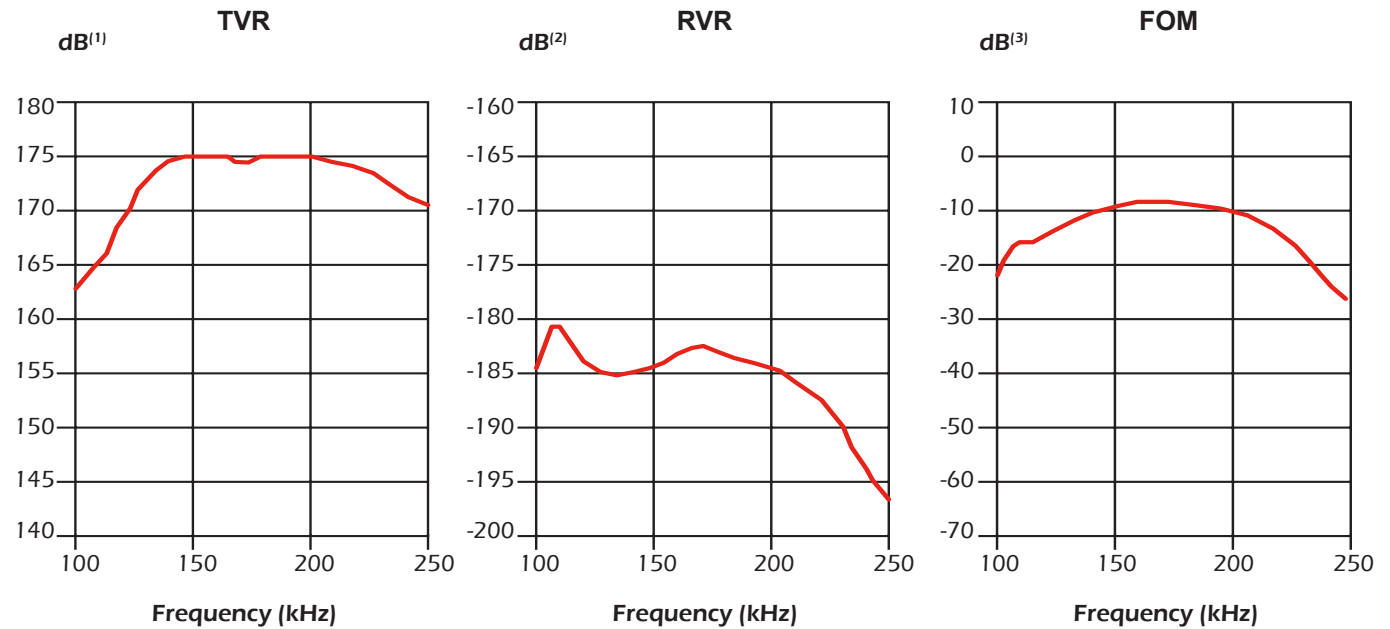
Q ≈ 2

Cable Type: C44-02

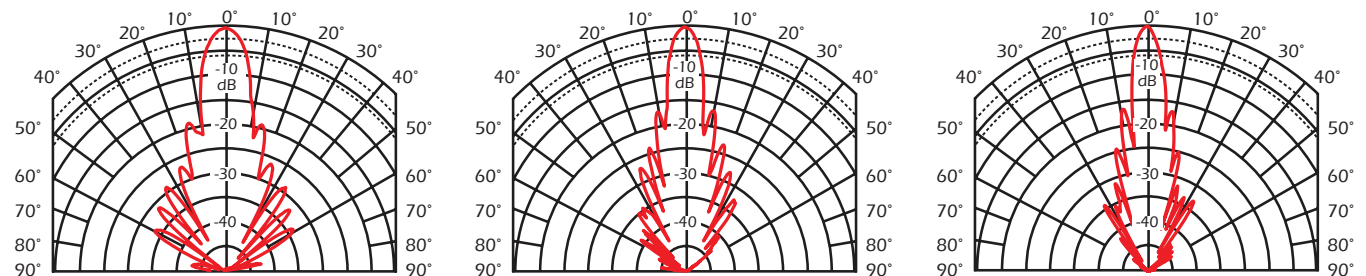
Cable Length: 10 m (33 ft)

Notes:

- (1) dB re 1 μPa per volt at 1 meter
- (2) dB re 1 volt per μPa
- (3) Sum of transmitting voltage response and receiving voltage response
- (4) CW Power ratings is for 20°C seawater temperature. Consult Airmar for different housing CW ratings.



Transmit Radiation Pattern



Beamwidth	@ 130 kHz
-3 dB	8°
-6 dB	11°
-10 dB	13°

Beamwidth	@ 170 kHz
-3 dB	5°
-6 dB	7°
-10 dB	10°

Beamwidth	@ 210 kHz
-3 dB	4°
-6 dB	6°
-10 dB	8°

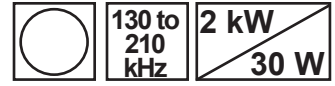
Technical Data Catalog

130 to 210 kHz-B (Broadband)

Note: Impedance data includes cable

Balanced Impedance Table (Nominal Value) in 20°C Water

Test Frequency (kHz)	Impedance Magnitude (Ω)	Phase Angle (°)	Series Resistance (Ω)	Series Reactance (Ω)	Parallel Conductance (mS)	Parallel Susceptance (mS)	Parallel Resistance (Ω)	Parallel Capacitance (pF)
100.00	220.47	53.26	131.89	176.67	2.71	-3.63	368.55	-5784.85
104.00	281.46	32.21	238.15	150.01	3.01	-1.89	332.64	-2897.86
108.00	269.04	2.00	268.88	9.40	3.71	-0.13	269.21	-191.34
112.00	205.58	-15.71	197.90	-55.68	4.68	1.32	213.57	1871.96
116.00	158.45	-25.23	143.33	-67.55	5.71	2.69	175.17	3691.53
120.00	124.84	-28.56	109.65	-59.69	7.04	3.83	142.14	5079.26
124.00	105.15	-28.78	92.16	-50.62	8.34	4.58	119.96	5876.99
125.00	101.53	-28.85	88.93	-48.98	8.63	4.75	115.91	6050.44
129.00	87.41	-29.03	76.43	-42.42	10.00	5.55	99.97	6849.70
130.00	84.11	-28.68	73.79	-40.36	10.43	5.70	95.87	6984.37
134.00	72.78	-26.05	65.39	-31.96	12.34	6.03	81.01	7166.26
138.00	65.13	-20.82	60.88	-23.15	14.35	5.46	69.68	6293.52
142.00	61.40	-13.57	59.69	-14.40	15.83	3.82	63.16	4281.84
146.00	61.79	-6.64	61.37	-7.14	16.08	1.87	62.21	2040.09
150.00	65.20	-1.05	65.19	-1.20	15.34	0.28	65.21	298.40
154.00	72.93	1.80	72.89	2.29	13.71	-0.43	72.96	-444.21
158.00	80.79	-0.64	80.79	-0.90	12.38	0.14	80.80	138.50
162.00	82.93	-4.26	82.70	-6.15	12.03	0.89	83.16	879.13
166.00	84.39	-6.46	83.86	-9.50	11.77	1.33	84.93	1278.85
170.00	84.51	-9.62	83.32	-14.13	11.67	1.98	85.72	1852.18
174.00	80.51	-10.18	79.25	-14.23	12.22	2.20	81.80	2007.81
178.00	81.72	-7.19	81.08	-10.22	12.14	1.53	82.36	1368.63
182.00	86.70	-6.73	86.10	-10.16	11.45	1.35	87.30	1181.50
186.00	92.43	-6.38	91.86	-10.27	10.75	1.20	93.01	1028.71
190.00	103.88	-8.52	102.74	-15.40	9.52	1.43	105.04	1194.99
194.00	112.01	-14.97	108.20	-28.94	8.63	2.31	115.94	1892.20
198.00	114.96	-19.80	108.16	-38.94	8.18	2.95	122.18	2368.63
202.00	120.70	-25.52	108.92	-52.00	7.48	3.57	133.75	2812.27
206.00	122.04	-33.29	102.02	-66.99	6.85	4.50	146.00	3474.63
210.00	120.11	-39.54	92.63	-76.46	6.42	5.30	155.75	4016.89
214.00	119.09	-46.43	82.08	-86.29	5.79	6.08	172.80	4524.73
218.00	114.08	-54.55	66.17	-92.93	5.08	7.14	196.70	5213.17
222.00	104.38	-61.42	49.94	-91.66	4.58	8.41	218.20	6031.16
226.00	94.34	-66.66	37.37	-86.62	4.20	9.73	238.14	6853.89
230.00	84.93	-70.63	28.17	-80.13	3.90	11.11	256.11	7686.08



130 to 210 kHz-B (Broadband)
 Transformed to 100 ohms minimum (B1)

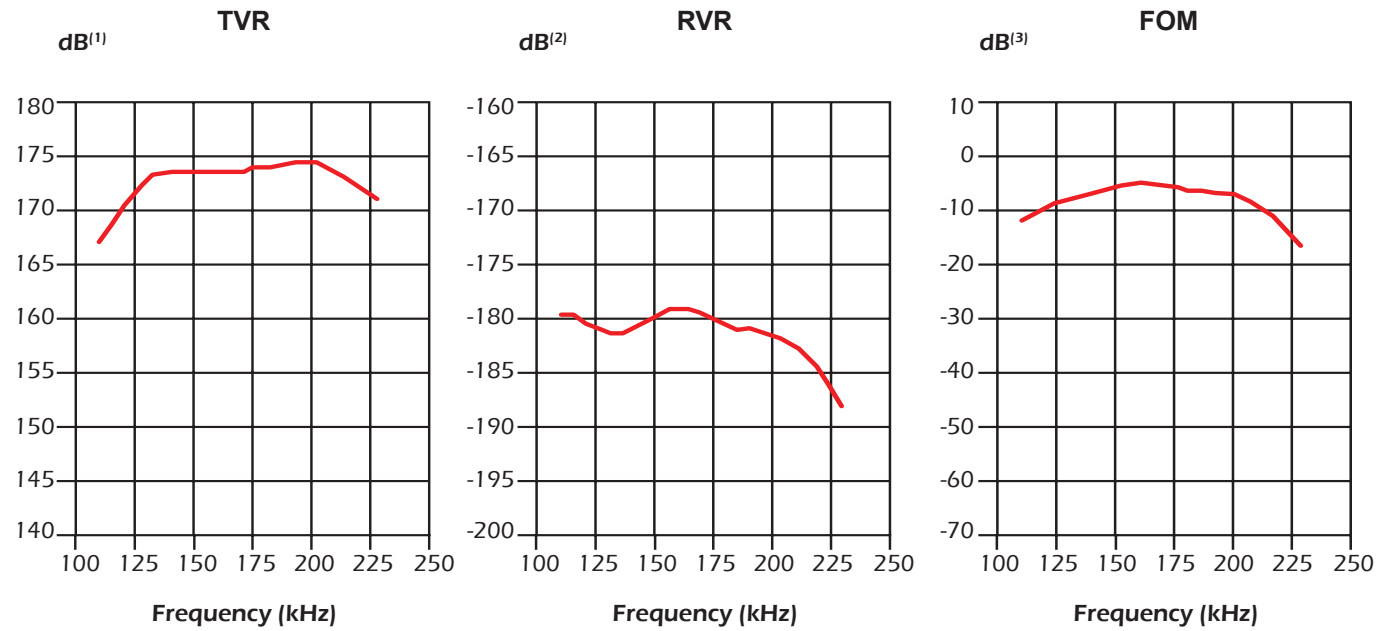
Power Rating:

- 2 kW @ 1% duty cycle
- CW⁽⁴⁾: 30W in R509, R609
 25W in CM199, CM599,
 PM111, R109,
 R111, R599

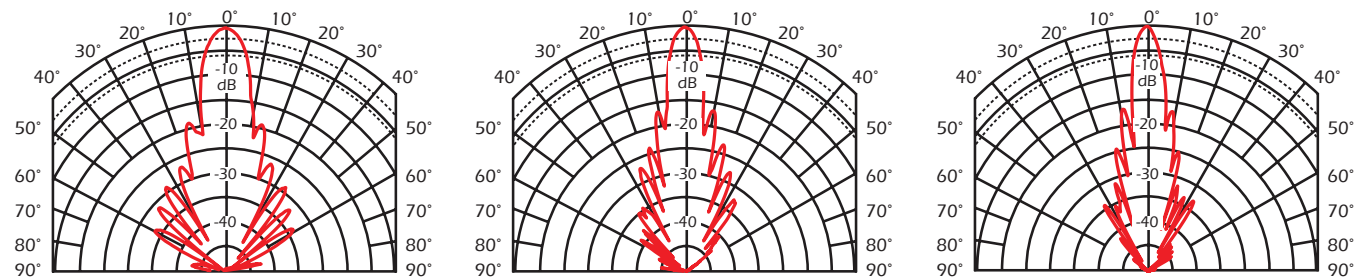
88 mm (3.46 in) PZT
 Active Area: 61 cm² (9.4 in²)
 Radiating Surface:
 Cast Resin/Urethane
 Q ≈ 2
 Cable Type: C44-02
 Cable Length: 10 m (33 ft)

Notes:

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Transmit Radiation Pattern



Beamwidth	@ 130 kHz
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-6 dB	11°
-10 dB	13°

Beamwidth	@ 170 kHz
-3 dB	5°
-6 dB	7°
-10 dB	10°

Beamwidth	@ 210 kHz
-3 dB	4°
-6 dB	6°
-10 dB	8°

Technical Data Catalog

130 to 210 kHz-B (Broadband)

Note: Impedance data includes cable

Balanced Impedance Table (Nominal Value) in 20°C Water

Test Frequency (kHz)	Impedance Magnitude (Ω)	Phase Angle (°)	Series Resistance (Ω)	Series Reactance (Ω)	Parallel Conductance (mS)	Parallel Susceptance (mS)	Parallel Resistance (Ω)	Parallel Capacitance (pF)
130.00	127.94	8.78	126.44	19.53	7.72	-1.19	129.46	-1460.93
132.00	123.02	10.90	120.80	23.26	7.98	-1.54	125.28	-1853.13
134.00	121.05	13.32	117.79	27.89	8.04	-1.90	124.39	-2260.49
136.00	120.96	15.92	116.32	33.18	7.95	-2.27	125.79	-2653.65
138.00	123.25	17.77	117.37	37.60	7.73	-2.48	129.42	-2855.27
140.00	126.15	19.31	119.05	41.71	7.48	-2.62	133.67	-2979.87
142.00	130.22	20.36	122.08	45.31	7.20	-2.67	138.90	-2994.68
144.00	134.62	20.96	125.71	48.16	6.94	-2.66	144.16	-2937.23
146.00	140.58	21.15	131.11	50.73	6.63	-2.57	150.73	-2798.26
148.00	146.38	20.82	136.82	52.04	6.39	-2.43	156.61	-2611.53
150.00	151.99	20.04	142.78	52.09	6.18	-2.26	161.79	-2392.65
152.00	158.03	19.08	149.35	51.66	5.98	-2.07	167.22	-2165.81
154.00	164.22	17.90	156.28	50.47	5.79	-1.87	172.57	-1933.80
156.00	171.29	16.51	164.23	48.67	5.60	-1.66	178.65	-1692.44
158.00	178.40	14.26	172.90	43.94	5.43	-1.38	184.07	-1390.72
160.00	184.28	11.31	180.71	36.14	5.32	-1.06	187.93	-1058.56
162.00	188.06	8.40	186.04	27.46	5.26	-0.78	190.09	-762.74
164.00	189.88	6.01	188.84	19.89	5.24	-0.55	190.93	-535.42
166.00	192.52	3.49	192.16	11.73	5.18	-0.32	192.88	-303.52
168.00	195.06	1.24	195.02	4.22	5.13	-0.11	195.11	-105.03
170.00	197.94	-1.87	197.84	-6.45	5.05	0.16	198.05	154.07
172.00	198.12	-5.23	197.30	-18.05	5.03	0.46	198.95	425.59
174.00	194.54	-8.52	192.39	-28.82	5.08	0.76	196.71	696.49
176.00	190.16	-10.57	186.94	-34.87	5.17	0.96	193.44	872.03
178.00	186.73	-11.85	182.76	-38.33	5.24	1.10	190.80	982.98
180.00	184.49	-12.89	179.83	-41.17	5.28	1.21	189.26	1069.46
182.00	185.09	-14.50	179.20	-46.33	5.23	1.35	191.18	1182.68
184.00	183.65	-16.45	176.13	-52.01	5.22	1.54	191.49	1333.73
186.00	180.37	-18.38	171.17	-56.88	5.26	1.75	190.07	1496.00
188.00	176.24	-19.05	166.59	-57.53	5.36	1.85	186.45	1567.92
190.00	174.66	-19.31	164.83	-57.77	5.40	1.89	185.08	1586.24
192.00	176.38	-19.83	165.92	-59.85	5.33	1.92	187.50	1594.63
194.00	178.00	-20.95	166.23	-63.65	5.25	2.01	190.60	1648.06
196.00	178.44	-22.22	165.18	-67.48	5.19	2.12	192.75	1721.01
198.00	178.66	-23.43	163.93	-71.03	5.14	2.23	194.71	1788.71
200.00	179.18	-24.11	163.55	-73.19	5.09	2.28	196.30	1814.16
202.00	182.61	-24.65	165.96	-76.18	4.98	2.28	200.93	1799.86
204.00	188.44	-25.97	169.42	-82.51	4.77	2.32	209.60	1812.81
206.00	195.13	-28.35	171.73	-92.67	4.51	2.43	221.73	1880.22
208.00	198.99	-31.52	169.64	-104.03	4.28	2.63	233.43	2010.11
210.00	200.43	-34.90	164.38	-114.68	4.09	2.85	244.39	2163.56