

28 to 60 kHz-A (Broadband)

Transformed to 100 ohms minimum (B2)
Ceramics wired in parallel

Power Rating:

- 3 kW @ 1% duty cycle
- CW⁽⁴⁾: 60W in R509
40W in CM599, R599

24 x 35.1 mm (1.4 in) PZT

Active Area: 229.9 cm² (35.63 in²)

Radiating Surface: Epoxy

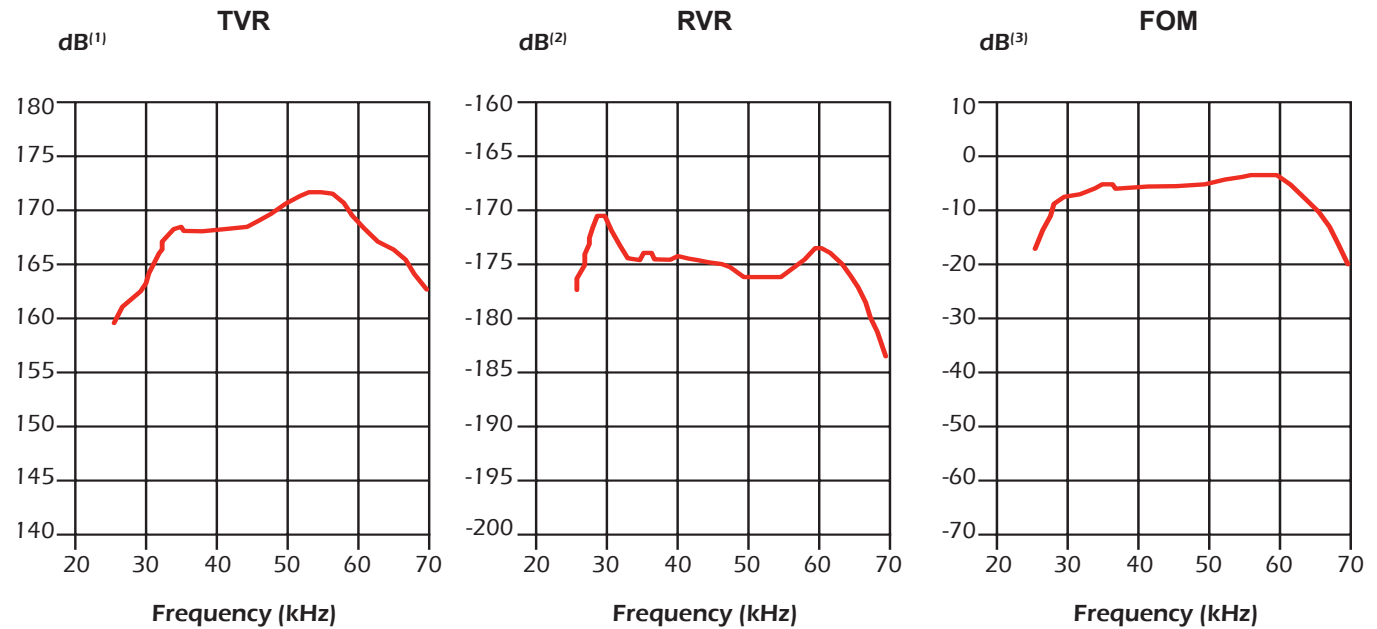
Q ≈ 2

Cable Type: C44

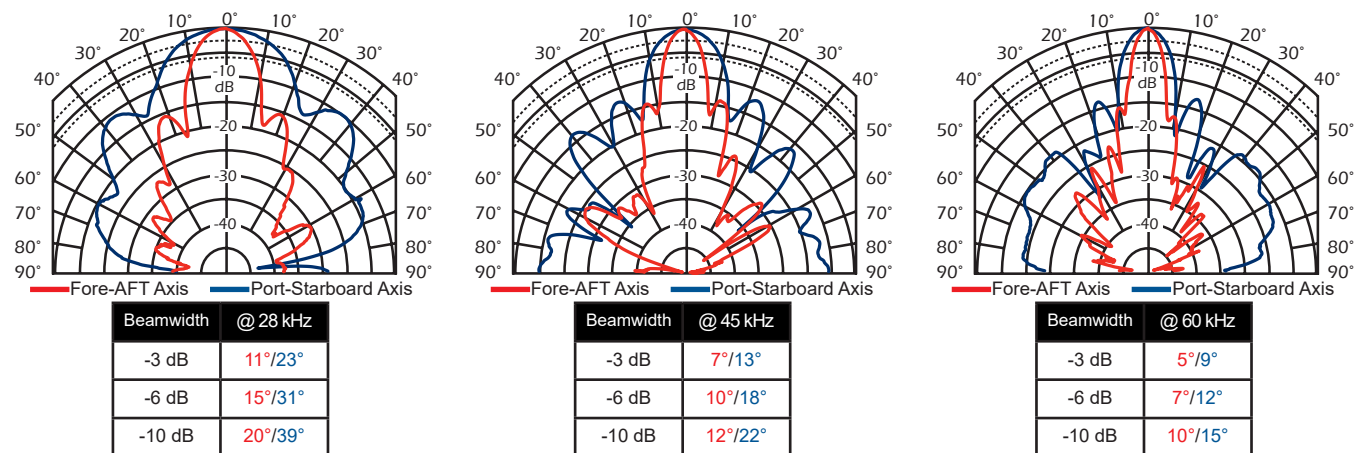
Cable Length: 15 m (50 ft)

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

28 to 60 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 (°)	Series Resistance (Ω)	Series Reactance (Ω)	Parallel Conductance (mS)	Parallel Susceptance (mS)	Parallel Resistance (Ω)	Parallel Capacitance (pF)
28.00	308.55	41.79	230.06	205.61	2.42	-2.16	413.81	-12276.03
29.00	318.78	20.93	297.74	113.90	2.93	-1.12	341.31	-6150.87
30.00	241.28	0.87	241.25	3.68	4.14	-0.06	241.31	-335.76
31.00	193.73	-7.41	192.12	-24.97	5.12	0.67	195.36	3416.12
32.00	145.29	-8.06	143.85	-20.37	6.82	0.96	146.74	4798.72
33.00	128.57	-0.01	128.57	-0.01	7.78	0.00	128.57	3.43
34.00	120.78	8.12	119.58	17.05	8.20	-1.17	122.01	-5471.06
35.00	135.55	12.11	132.54	28.44	7.21	-1.55	138.64	-7037.17
36.00	133.81	6.89	132.85	16.04	7.42	-0.90	134.78	-3960.88
37.00	133.31	7.74	132.09	17.95	7.43	-1.01	134.53	-4345.42
38.00	134.75	7.40	133.63	17.35	7.36	-0.96	135.88	-4001.46
39.00	142.01	9.12	140.22	22.52	6.95	-1.12	143.84	-4557.01
40.00	150.97	3.48	150.69	9.16	6.61	-0.40	151.25	-1599.99
41.00	149.39	2.52	149.25	6.58	6.69	-0.29	149.54	-1143.87
42.00	150.47	-1.08	150.45	-2.85	6.64	0.13	150.50	476.71
43.00	148.40	-2.06	148.31	-5.34	6.73	0.24	148.50	897.42
44.00	150.01	-6.28	149.11	-16.40	6.63	0.73	150.92	2636.57
45.00	144.71	-8.59	143.08	-21.61	6.83	1.03	146.35	3650.59
46.00	144.44	-11.83	141.37	-29.62	6.78	1.42	147.57	4912.27
47.00	142.31	-14.82	137.58	-36.40	6.79	1.80	147.21	6085.48
48.00	132.05	-18.07	125.54	-40.97	7.20	2.35	138.91	7789.92
49.00	119.22	-17.44	113.74	-35.74	8.00	2.51	124.97	8165.83
50.00	112.06	-15.52	107.98	-29.99	8.60	2.39	116.31	7601.44
51.00	109.67	-11.32	107.53	-21.53	8.94	1.79	111.84	5586.70
52.00	108.55	-9.99	106.90	-18.82	9.07	1.60	110.22	4889.39
53.00	109.23	-7.10	108.39	-13.50	9.08	1.13	110.07	3397.43
54.00	108.61	-3.96	108.35	-7.50	9.19	0.64	108.87	1872.96
55.00	113.56	2.37	113.46	4.69	8.80	-0.36	113.66	-1053.14
56.00	125.63	6.09	124.92	13.33	7.92	-0.84	126.34	-2399.70
57.00	136.85	9.33	135.04	22.18	7.21	-1.18	138.68	-3306.52
58.00	162.06	10.90	159.14	30.65	6.06	-1.17	165.04	-3202.70
59.00	190.57	7.57	188.91	25.09	5.20	-0.69	192.24	-1863.70
60.00	220.91	1.96	220.79	7.54	4.52	-0.15	221.04	-409.63

150 to 250 kHz-A (Broadband)

Transformed to 100 ohms minimum (B1)

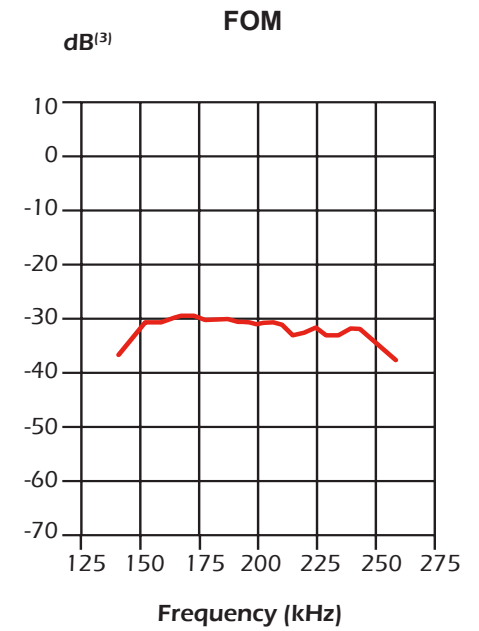
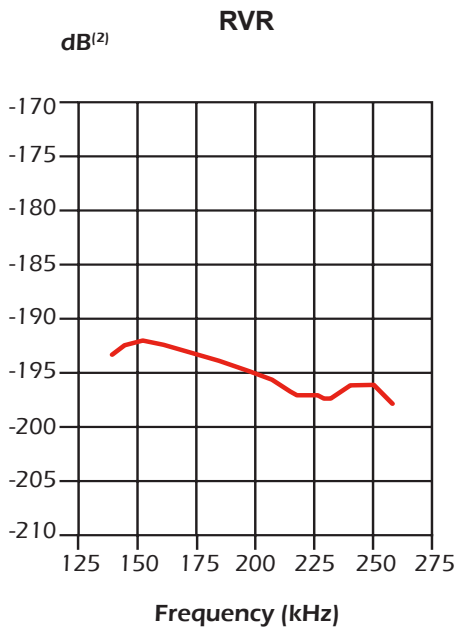
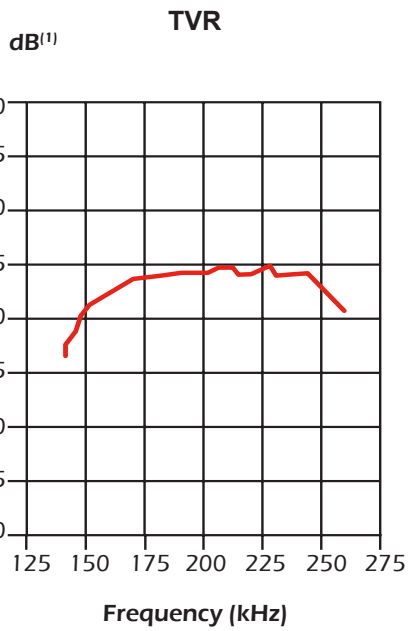
Power Rating:

- 1 kW @ 1% duty cycle
- CW⁽⁴⁾: 18 W in B175, B275, B285, CM599, PM111, PM275, R109, R509
12W in CM275, TM185, TM275

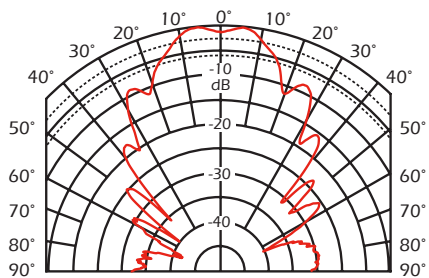
65 mm (2.56 in) PZT
 Active Area: 34.4 cm² (5.3 in²)
 Radiating Surface: HPC/Urethane
 Q ≈ 2.3
 Cable Type: C334
 Cable Length: 12 m (40 ft)

Notes:

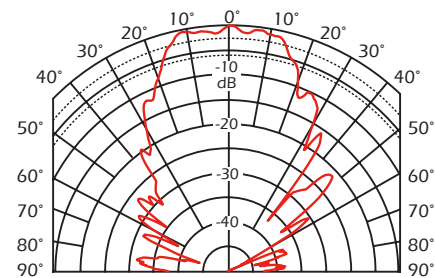
- (1) dB re 1 μPa per volt at 1 meter
- (2) dB re 1 volt per μPa
- (3) Sum of transmitting voltage response and receiving voltage response
- (4) CW Power ratings is for 20°C seawater temperature. Consult Airmar for different housing CW ratings.



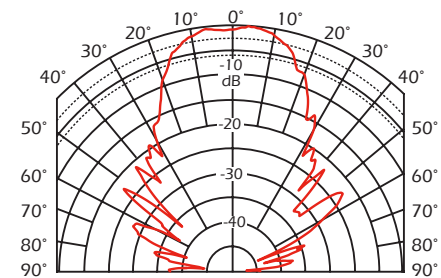
Transmit Radiation Pattern



Beamwidth	@ 160 kHz
-3 dB	24°
-6 dB	32°
-10 dB	39°



Beamwidth	@ 200 kHz
-3 dB	30°
-6 dB	38°
-10 dB	44°



Beamwidth	@ 235 kHz
-3 dB	26°
-6 dB	33°
-10 dB	43°

Technical Data Catalog

150 to 250 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 (°)	Series Resistance (Ω)	Series Reactance (Ω)	Parallel Conductance (mS)	Parallel Susceptance (mS)	Parallel Resistance (Ω)	Parallel Capacitance (pF)
140.00	213.73	23.07	196.63	83.76	4.30	-1.83	232.31	-2084.55
142.00	210.53	18.00	200.22	65.07	4.52	-1.47	221.36	-1645.47
146.00	193.34	9.57	190.65	32.13	5.10	-0.86	196.06	-937.09
148.00	182.66	6.91	181.33	21.98	5.43	-0.66	184.00	-708.56
152.00	168.28	4.38	167.78	12.85	5.93	-0.45	168.77	-475.15
154.00	162.84	3.22	162.58	9.15	6.13	-0.35	163.09	-356.77
158.00	154.21	1.38	154.16	3.71	6.48	-0.16	154.25	-156.98
160.00	150.70	0.74	150.69	1.94	6.64	-0.09	150.72	-85.05
164.00	146.19	-0.85	146.17	-2.16	6.84	0.10	146.20	98.16
166.00	142.90	-2.10	142.80	-5.24	6.99	0.26	142.99	246.27
170.00	134.45	-3.02	134.26	-7.08	7.43	0.39	134.64	366.64
172.00	131.48	-2.92	131.31	-6.70	7.60	0.39	131.65	358.37
176.00	128.39	-2.48	128.27	-5.55	7.78	0.34	128.51	304.44
178.00	127.87	-2.35	127.76	-5.25	7.81	0.32	127.98	287.00
182.00	129.72	-1.93	129.64	-4.38	7.70	0.26	129.79	227.58
184.00	131.65	-3.45	131.41	-7.92	7.58	0.46	131.89	395.40
188.00	126.92	-6.72	126.04	-14.85	7.83	0.92	127.80	780.66
190.00	123.22	-6.96	122.31	-14.94	8.06	0.98	124.14	824.33
194.00	119.44	-5.67	118.86	-11.80	8.33	0.83	120.03	678.49
196.00	120.32	-4.77	119.91	-10.00	8.28	0.69	120.74	560.88
200.00	124.52	-5.54	123.93	-12.02	7.99	0.78	125.10	617.12
202.00	125.98	-7.40	124.93	-16.24	7.87	1.02	127.04	805.97
206.00	119.49	-11.90	116.92	-24.64	8.19	1.73	122.11	1333.10
208.00	113.53	-11.49	111.25	-22.61	8.63	1.75	115.85	1342.41
212.00	110.69	-8.53	109.46	-16.42	8.93	1.34	111.92	1006.20
214.00	111.72	-7.92	110.66	-15.40	8.87	1.23	112.80	917.63
218.00	111.18	-8.27	110.02	-16.00	8.90	1.29	112.35	944.92
220.00	110.57	-8.17	109.44	-15.71	8.95	1.28	111.70	929.56
224.00	106.52	-8.15	105.44	-15.10	9.29	1.33	107.61	945.73
226.00	103.16	-6.65	102.47	-11.94	9.63	1.12	103.86	790.09
230.00	104.24	-0.17	104.24	-0.30	9.59	0.03	104.24	19.23
232.00	109.08	2.09	109.01	3.98	9.16	-0.33	109.16	-229.43
236.00	119.52	2.97	119.36	6.19	8.36	-0.43	119.68	-292.38
238.00	122.98	2.87	122.83	6.15	8.12	-0.41	123.14	-271.84
242.00	129.46	3.52	129.21	7.95	7.71	-0.47	129.70	-312.09
244.00	134.32	4.59	133.89	10.75	7.42	-0.60	134.75	-388.72
248.00	151.36	6.37	150.43	16.79	6.57	-0.73	152.30	-470.39
250.00	165.02	6.14	164.07	17.64	6.03	-0.65	165.97	-412.42
254.00	197.22	1.17	197.18	4.01	5.07	-0.10	197.26	-64.62
256.00	210.94	-3.31	210.59	-12.18	4.73	0.27	211.29	170.16
260.00	228.00	-13.43	221.77	-52.95	4.27	1.02	234.41	623.51