

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

Power Rating:

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

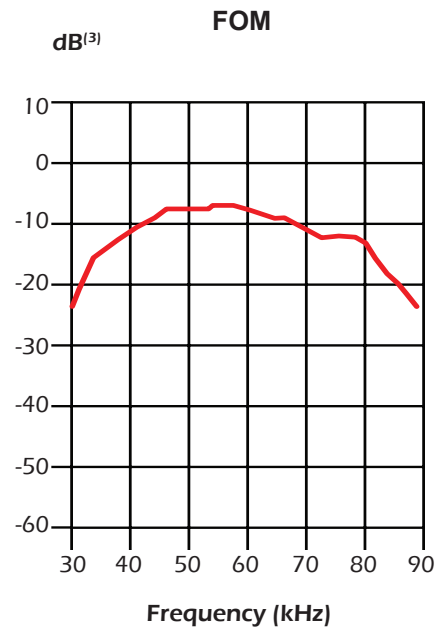
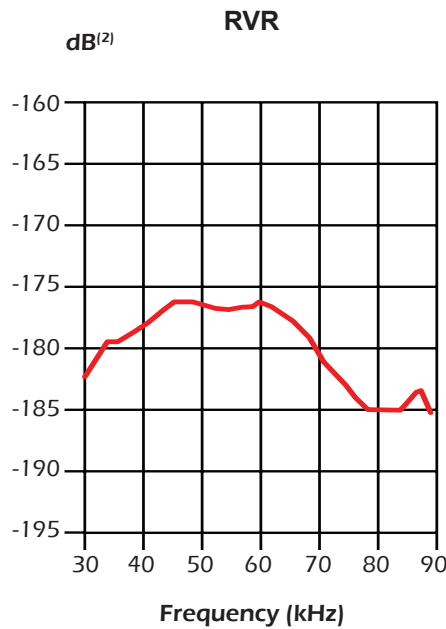
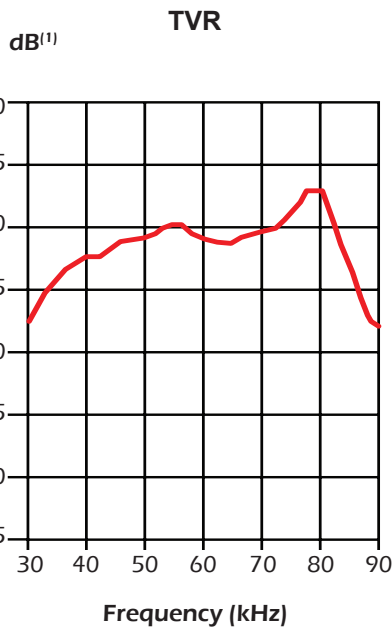
15 x 35 mm (1.38 in) PZT  
 Active Area: 144.6 cm<sup>2</sup> (22.4 in<sup>2</sup>)  
 Radiating Surface: Urethane

Q ≈ 2.5

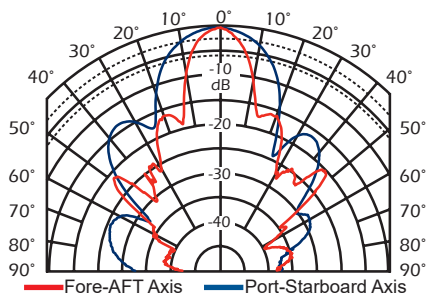
Cable Type: C44  
 Cable Length: 10 m (33 ft)

Notes:

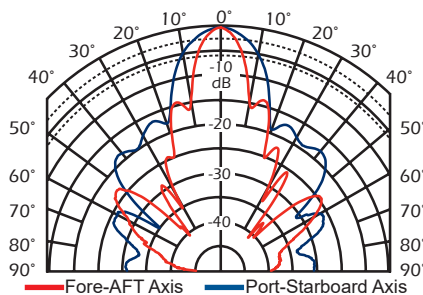
- (1) dB re 1 μPa per volt at 1 meter
- (2) dB re 1 volt per μPa
- (3) Sum of transmitting voltage response and receiving voltage response
- (4) CW Power ratings is for 20°C seawater temperature. Consult Airmar for different housing CW ratings.



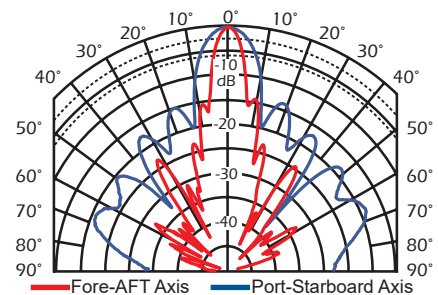
**Transmit Radiation Pattern**



Beamwidth @ 38 kHz	
-3 dB	10°/19°
-6 dB	14°/27°
-10 dB	18°/32°



Beamwidth @ 50 kHz	
-3 dB	8°/14°
-6 dB	12°/20°
-10 dB	15°/26°



Beamwidth @ 75 kHz	
-3 dB	5°/10°
-6 dB	7°/14°
-10 dB	9°/18°

# 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 (°)	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

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

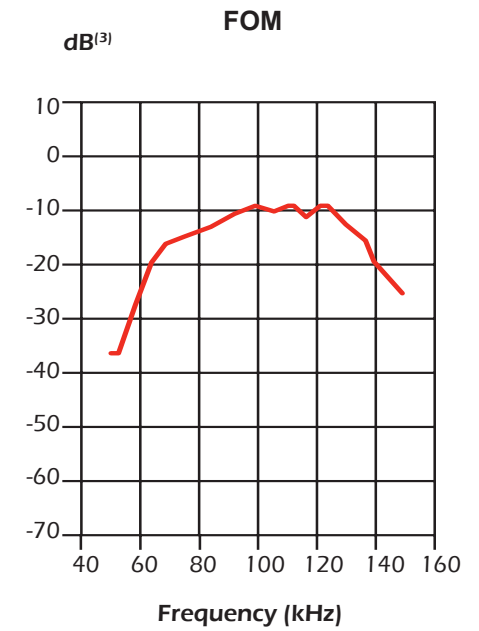
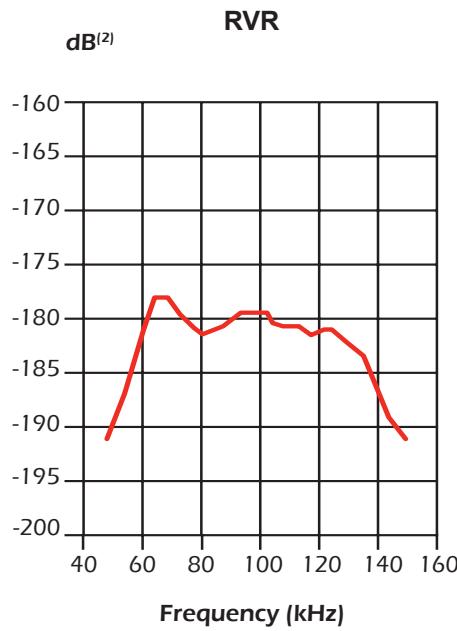
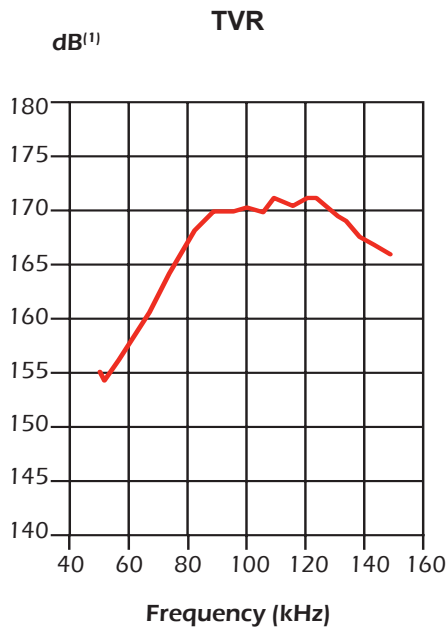
Power Rating:

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

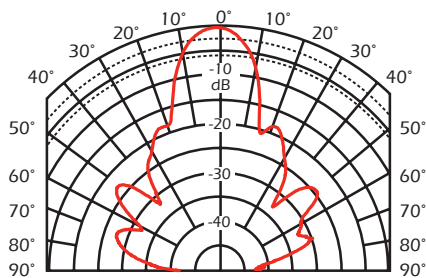
88 mm (3.46 in) PZT  
Active Area: 61 cm<sup>2</sup> (9.4 in<sup>2</sup>)  
Radiating Surface:  
Cast Resin/Urethane  
Q ≈ 2  
Cable Type: C44-02  
Cable Length: 10 m (33 ft)

Notes:

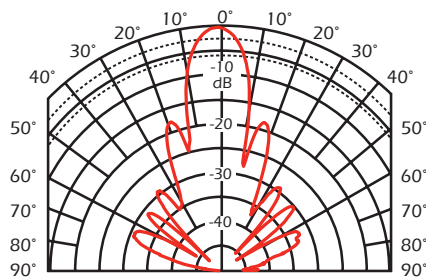
- (1) dB re 1 μPa per volt at 1 meter
- (2) dB re 1 volt per μPa
- (3) Sum of transmitting voltage response and receiving voltage response
- (4) CW Power ratings is for 20°C seawater temperature. Consult Airmar for different housing CW ratings.



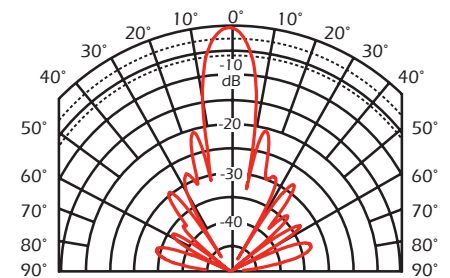
**Transmit Radiation Pattern**



Beamwidth	@ 80 kHz
-3 dB	13°
-6 dB	18°
-10 dB	23°



Beamwidth	@ 100 kHz
-3 dB	10°
-6 dB	13°
-10 dB	17°



Beamwidth	@ 130 kHz
-3 dB	8°
-6 dB	11°
-10 dB	14°

# Technical Data Catalog

## 80 to 130 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)
70.00	352.49	9.16	348.00	56.10	2.80	-0.45	357.04	-1026.46
72.00	300.17	-7.39	297.68	-38.61	3.30	0.43	302.69	947.26
74.00	238.95	-15.07	230.73	-62.12	4.04	1.09	247.46	2339.85
76.00	193.20	-16.98	184.78	-56.41	4.95	1.51	202.00	3164.75
78.00	166.77	-14.88	161.18	-42.84	5.80	1.54	172.56	3142.75
80.00	152.62	-12.33	149.10	-32.60	6.40	1.40	156.22	2784.39
82.00	142.34	-10.22	140.08	-25.24	6.91	1.25	144.63	2418.34
84.00	136.54	-7.89	135.24	-18.75	7.25	1.01	137.84	1905.72
86.00	131.32	-5.61	130.69	-12.84	7.58	0.74	131.95	1377.97
88.00	128.21	-1.96	128.13	-4.39	7.80	0.27	128.28	483.53
90.00	131.64	1.95	131.56	4.48	7.59	-0.26	131.72	-456.88
92.00	141.65	3.79	141.34	9.37	7.04	-0.47	141.96	-807.72
94.00	150.64	2.53	150.50	6.66	6.63	-0.29	150.79	-497.04
96.00	156.64	-0.07	156.64	-0.19	6.38	0.01	156.64	12.52
98.00	159.32	-2.17	159.21	-6.05	6.27	0.24	159.44	386.78
100.00	162.35	-3.34	162.07	-9.46	6.15	0.36	162.62	571.22
102.00	169.56	-5.60	168.75	-16.56	5.87	0.58	170.38	898.66
104.00	174.55	-10.39	171.69	-31.47	5.64	1.03	177.45	1580.69
106.00	167.56	-15.14	161.74	-43.75	5.76	1.56	173.58	2339.90
108.00	157.16	-16.91	150.36	-45.72	6.09	1.85	164.27	2728.03
110.00	150.50	-15.71	144.88	-40.76	6.40	1.80	156.35	2603.83
112.00	153.63	-14.00	149.07	-37.18	6.32	1.58	158.34	2238.26
114.00	161.95	-15.32	156.20	-42.78	5.96	1.63	167.92	2277.07
116.00	163.62	-19.19	154.53	-53.78	5.77	2.01	173.25	2756.23
118.00	155.05	-21.19	144.57	-56.04	6.01	2.33	166.29	3144.16
120.00	152.02	-18.69	144.00	-48.73	6.23	2.11	160.49	2796.22
122.00	162.34	-17.10	155.16	-47.74	5.89	1.81	169.85	2363.38
124.00	175.29	-18.48	166.25	-55.57	5.41	1.81	184.83	2321.15
126.00	188.46	-22.04	174.69	-70.72	4.92	1.99	203.32	2515.12
128.00	197.94	-27.87	174.99	-92.52	4.47	2.36	223.91	2936.16
130.00	199.27	-34.00	165.20	-111.43	4.16	2.81	240.36	3435.51
132.00	197.51	-38.56	154.43	-123.13	3.96	3.16	252.60	3805.58
134.00	200.38	-43.53	145.29	-138.00	3.62	3.44	276.36	4082.07
136.00	199.95	-50.19	128.01	-153.60	3.20	3.84	312.32	4496.08
138.00	190.44	-57.56	102.16	-160.71	2.82	4.43	354.99	5110.90
140.00	174.34	-63.38	78.12	-155.86	2.57	5.13	389.06	5829.30