

**40 to 60 kHz-B (Broadband)**  
Transformed to 120 ohms minimum (B2)

Power Rating:

- 2 kW @ 1% duty cycle
- CW<sup>(4)</sup>: 20W in PM411

14 x 20 mm (0.80") PZT

Active Area: 45.4 cm<sup>2</sup> (7.04 in<sup>2</sup>)

Radiating Surface: Epoxy/Urethane

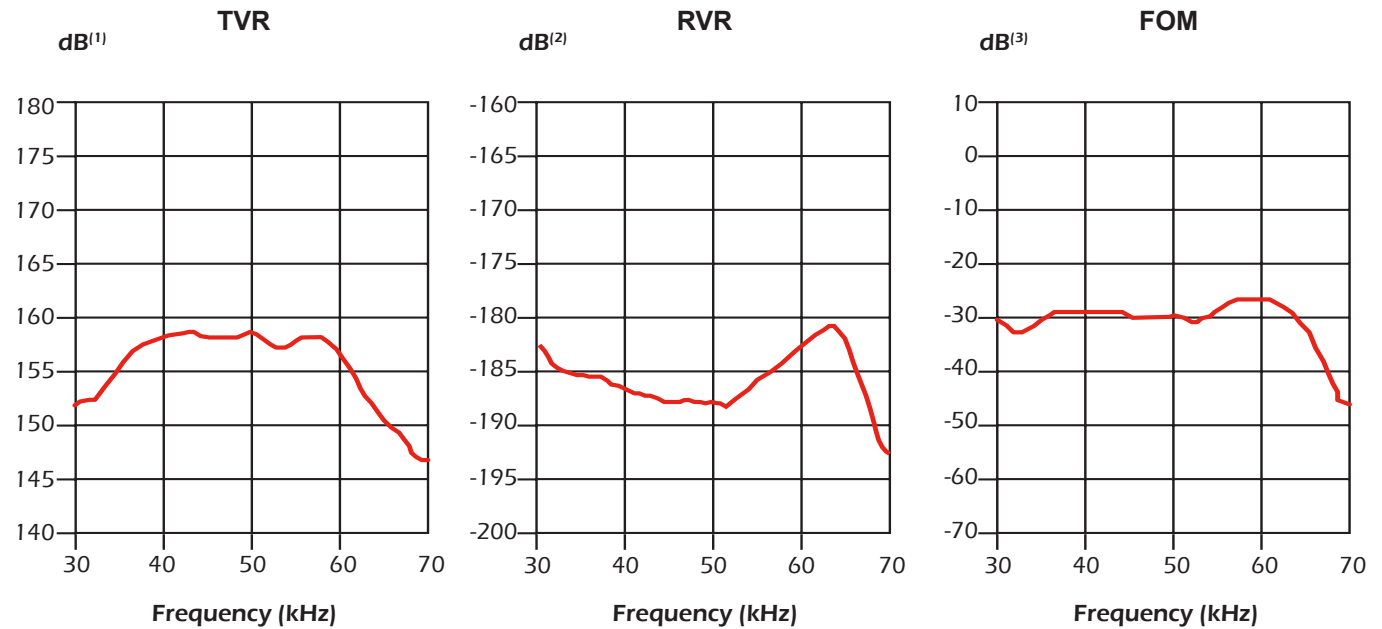
Q ≈ 2.0

Cable Type: C44-02

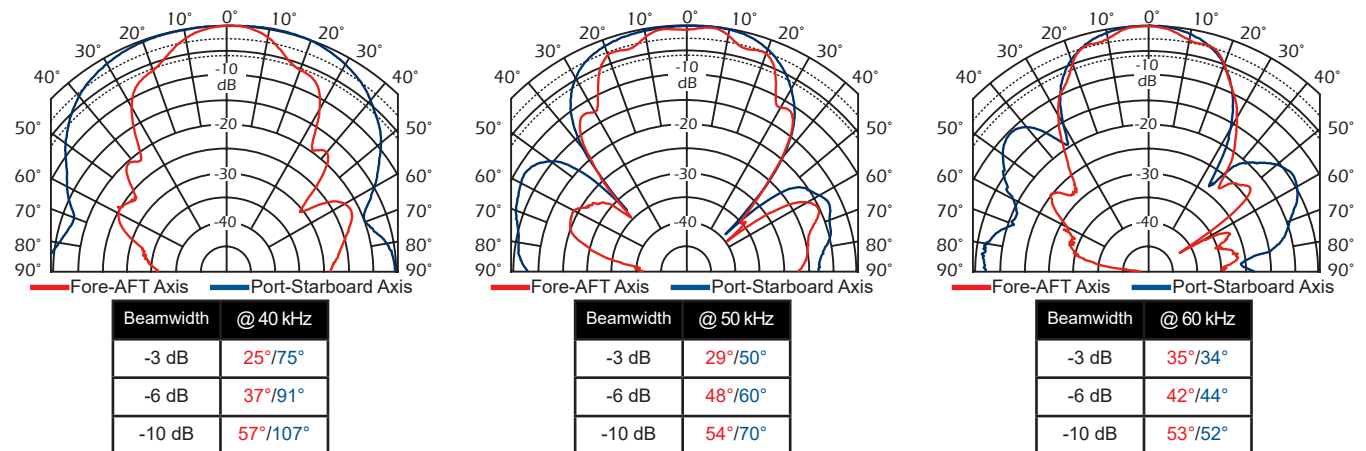
Cable Length: 15 m (50')

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

## 40 to 60 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)
30.00	280.74	-63.35	125.91	-250.92	1.60	3.18	625.94	16890.12
31.00	249.26	-62.50	115.08	-221.10	1.85	3.56	539.85	18270.53
32.00	223.17	-60.64	109.41	-194.51	2.20	3.91	455.24	19424.23
33.00	199.48	-58.84	103.23	-170.69	2.59	4.29	385.47	20687.73
34.00	179.03	-57.84	95.29	-151.57	2.97	4.73	336.39	22135.21
35.00	159.38	-55.83	89.52	-131.87	3.52	5.19	283.77	23605.08
36.00	144.70	-52.68	87.72	-115.08	4.19	5.50	238.70	24298.75
37.00	132.41	-47.87	88.83	-98.19	5.07	5.60	197.37	24091.34
39.00	115.61	-37.91	91.22	-71.03	6.82	5.31	146.53	21687.24
40.00	111.25	-32.62	93.70	-59.97	7.57	4.85	132.08	19280.78
41.00	109.09	-26.92	97.27	-49.39	8.17	4.15	122.35	16108.30
42.00	107.85	-20.99	100.69	-38.64	8.66	3.32	115.52	12587.73
43.00	109.46	-15.16	105.65	-28.63	8.82	2.39	113.41	8844.48
44.00	114.00	-10.81	111.98	-21.38	8.62	1.64	116.06	5949.53
45.00	118.90	-7.31	117.94	-15.13	8.34	1.07	119.88	3785.32
46.00	123.43	-5.32	122.90	-11.44	8.07	0.75	123.96	2598.37
47.00	125.31	-3.40	125.09	-7.42	7.97	0.47	125.53	1600.84
48.00	125.58	-0.62	125.57	-1.36	7.96	0.09	125.59	285.85
49.00	125.53	3.67	125.27	8.04	7.95	-0.51	125.79	-1657.83
50.00	130.69	10.18	128.64	23.09	7.53	-1.35	132.78	-4303.12
51.00	144.99	15.35	139.82	38.38	6.65	-1.83	150.35	-5697.03
52.00	162.91	17.24	155.59	48.30	5.86	-1.82	170.58	-5569.35
54.00	189.84	16.45	182.07	53.76	5.05	-1.49	197.94	-4396.39
55.00	198.09	17.58	188.84	59.83	4.81	-1.52	207.80	-4412.23
56.00	207.59	20.23	194.79	71.77	4.52	-1.67	221.23	-4733.32
57.00	225.98	23.67	206.97	90.71	4.05	-1.78	246.72	-4959.63
58.00	254.92	26.71	227.73	114.57	3.50	-1.76	285.37	-4837.61
59.00	295.21	29.32	257.38	144.57	2.95	-1.66	338.59	-4475.12
60.00	356.07	29.89	308.72	177.42	2.44	-1.40	410.68	-3711.96
61.00	437.21	28.53	384.11	208.85	2.01	-1.09	497.66	-2850.54
62.00	552.41	23.96	504.81	224.33	1.65	-0.74	604.50	-1887.10
63.00	712.56	15.22	687.55	187.11	1.35	-0.37	738.47	-930.95
64.00	888.50	-0.04	888.50	-0.64	1.13	0.00	888.50	2.03
65.00	994.66	-21.35	926.43	-362.04	0.94	0.37	1067.92	896.02
66.00	929.16	-42.10	689.45	-622.89	0.80	0.72	1252.21	1739.83
67.00	795.98	-56.95	434.05	-667.23	0.69	1.05	1459.72	2501.56
68.00	668.42	-66.52	266.32	-613.08	0.60	1.37	1677.63	3211.60
69.00	570.40	-72.64	170.15	-544.43	0.52	1.67	1912.23	3859.72
70.00	495.75	-76.68	114.19	-482.42	0.46	1.96	2152.30	4462.91

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

**Power Rating:**

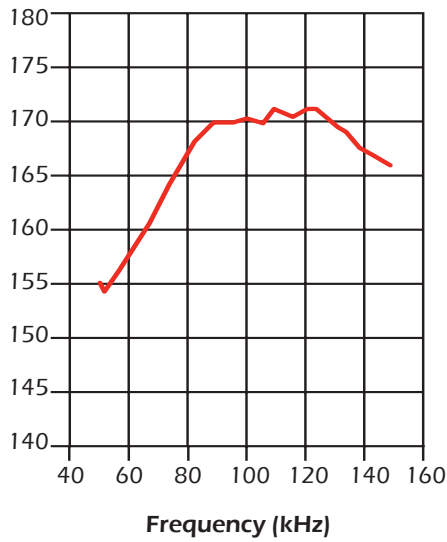
- 2 kW @ 1% duty cycle
- CW<sup>(4)</sup>: 30W in R509, R609  
 25W in CM199, CM599,  
 PM111, R109,  
 R111, R599

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)

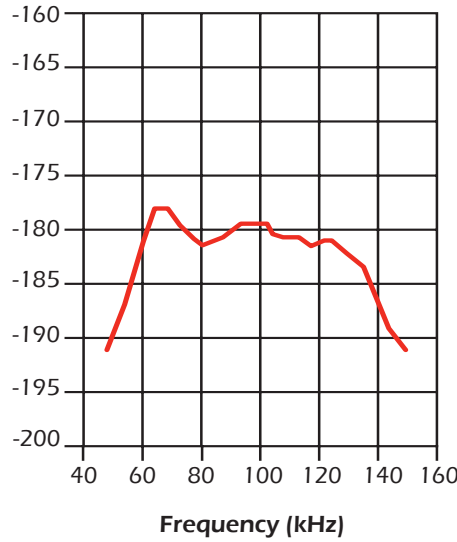
**Notes:**

- (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.

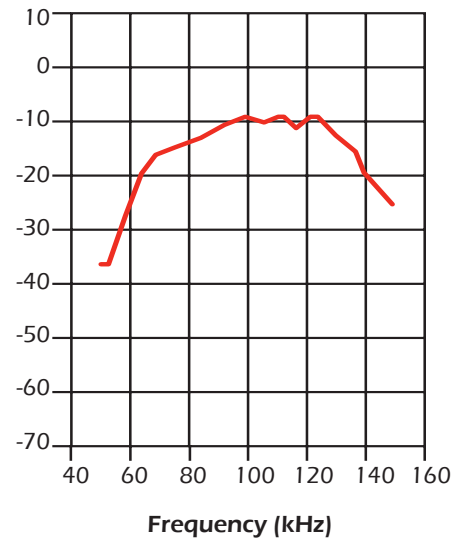
**TVR**  
dB<sup>(1)</sup>



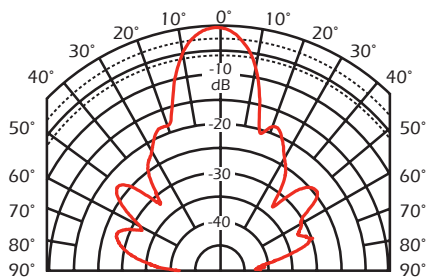
**RVR**  
dB<sup>(2)</sup>



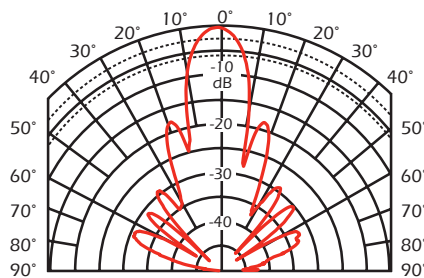
**FOM**  
dB<sup>(3)</sup>



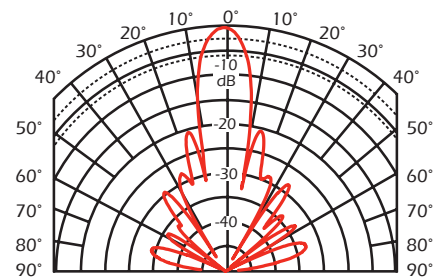
**Transmit Radiation Pattern**



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