

UNCLASSIFIED

LL-9162 Serial No. 102212 w/ 75 ft. Cable
 Drive Level: 50 Vrms
 Test Depth: 28 ft.
 Test Distance: 9.8 ft.
 Water Temp: 6.9 deg. C.
 Orientation: 0 deg Horizontal

NUWC-Dodge Pond

Niantic, CT
 6 Dodge Court
 Tuesday, October 30, 2001 6:19:14 AM
 Se 100 Hz to 50 kHz at

Frequency kHz	Transmit Voltage volts	Transmit Current amps	Phase (Z) deg	Z Magnitude ohms	Conduct G uSiemens	Suscept B uSiemens	TVR dB// uPa/volt	SPL dB//uPa
Se 100 Hz to 50 kHz at 50 Volt drive.dat								
0.10	49.12	2.69	42.61	18.27	40290.63	-37057.01	101.15	134.98
0.15	49.75	0.80	52.69	62.48	9700.90	-12730.16	110.82	144.76
0.20	49.99	0.34	-47.71	146.84	4582.09	5038.22	117.88	151.85
0.25	49.57	0.51	-66.22	96.99	4157.68	9434.53	120.71	154.61
0.30	49.42	0.74	-69.18	66.58	5337.80	14038.41	123.55	157.43
0.35	49.49	0.92	-68.91	53.89	6675.68	17313.49	128.97	162.86
0.40	49.15	1.10	-70.04	44.80	7620.70	20977.74	130.59	164.42
0.45	49.72	1.26	-67.17	39.32	9868.39	23437.66	133.32	167.25
0.50	49.97	1.45	-67.44	34.44	11136.51	26811.38	136.22	170.20
0.55	50.67	1.66	-64.95	30.61	13831.56	29597.54	137.40	171.49
0.60	50.55	1.84	-63.66	27.49	16141.48	32605.62	140.54	174.62
0.65	50.37	2.03	-60.34	24.79	19963.59	35053.05	143.40	177.44
0.70	50.40	2.22	-55.90	22.70	24695.21	36478.72	145.04	179.09
0.75	50.13	2.36	-49.32	21.20	30747.36	35771.89	147.67	181.67
0.80	50.05	2.40	-43.50	20.85	34794.84	33018.42	149.57	183.56
0.85	50.00	2.35	-38.44	21.28	36800.01	29209.38	150.60	184.58
0.90	49.96	2.21	-34.10	22.61	36623.82	24793.61	151.39	185.36
0.95	50.13	2.03	-33.30	24.72	33818.28	22211.98	151.73	185.74
1.00	49.98	1.85	-35.58	26.98	30150.77	21568.61	151.36	185.34
1.00	49.96	1.86	-35.08	26.93	30389.02	21341.86	151.37	185.34
1.10	50.41	1.78	-46.39	28.28	24388.39	25601.98	149.90	183.95
1.20	50.41	2.05	-53.60	24.59	24133.35	32731.21	148.60	182.65
1.30	50.20	2.38	-53.75	21.12	27998.53	38190.93	147.63	181.64
1.40	50.30	2.61	-52.16	19.25	31862.40	41014.48	146.59	180.62
1.50	50.25	2.80	-50.55	17.94	35406.66	43032.84	146.20	180.22
1.60	50.64	3.01	-49.35	16.84	38672.10	45043.19	145.65	179.74
1.70	50.33	3.22	-47.84	15.62	42965.06	47445.64	145.34	179.38
1.80	50.15	3.42	-45.55	14.67	47737.46	48669.24	145.31	179.31
1.90	49.96	3.58	-43.29	13.97	52112.03	49082.72	144.96	178.93
2.00	50.05	3.71	-41.35	13.49	55644.97	48976.44	144.78	178.77
2.10	50.02	3.85	-39.47	12.98	59464.32	48958.23	144.89	178.87

UNCLASSIFIED

UNCLASSIFIED

LL-9162 Serial No. 102212 w/ 75 ft. Cable
 Drive Level: 50 Vrms
 Test Depth: 28 ft.
 Test Distance: 9.8 ft.
 Water Temp: 6.9 deg. C.
 Orientation: 0 deg Horizontal

NUWC-Dodge Pond

Niantic, CT
 6 Dodge Court
 Tuesday, October 30, 2001 6:19:14 AM
 Se 100 Hz to 50 kHz at

Frequency kHz	Transmit Voltage volts	Transmit Current amps	Phase (Z) deg	Z Magnitude ohms	Conduct G uSiemens	Suscept B uSiemens	TVR dB// uPa/volt	SPL dB//uPa
2.20	49.81	4.00	-37.40	12.46	63781.65	48758.35	144.97	178.91
2.30	49.88	4.13	-35.03	12.07	67866.49	47572.05	145.24	179.20
2.40	49.80	4.24	-33.06	11.74	71378.53	46454.94	145.59	179.53
2.50	49.75	4.33	-30.94	11.48	74706.68	44773.93	145.51	179.44
2.60	49.65	4.42	-29.12	11.23	77787.28	43327.51	145.83	179.75
2.70	49.51	4.50	-27.04	11.00	81007.37	41347.84	145.98	179.88
2.80	49.37	4.57	-25.02	10.81	83798.96	39111.89	146.02	179.89
2.90	49.31	4.63	-23.47	10.65	86100.03	37383.66	145.80	179.66
3.00	49.27	4.69	-21.64	10.51	88478.56	35109.94	145.30	179.15
3.10	49.24	4.75	-20.16	10.37	90512.67	33234.72	144.93	178.78
3.20	49.10	4.80	-18.35	10.23	92791.50	30770.68	144.50	178.33
3.30	49.21	4.87	-16.59	10.11	94757.62	28229.39	144.78	178.62
3.40	49.76	4.97	-14.88	10.02	96476.10	25634.48	144.23	178.17
3.50	49.63	5.00	-13.09	9.93	98101.61	22815.26	144.14	178.05
3.60	49.52	5.03	-11.36	9.85	99539.06	19997.96	143.90	177.79
3.70	49.47	5.05	-9.57	9.79	100673.97	16978.98	143.74	177.62
3.80	49.44	5.06	-7.83	9.76	101480.65	13954.68	143.99	177.88
3.90	49.36	5.07	-6.15	9.74	102079.08	11006.04	144.41	178.27
4.00	49.27	5.06	-4.40	9.73	102464.37	7881.98	144.88	178.73
4.10	49.15	5.05	-2.84	9.73	102688.23	5099.48	145.00	178.83
4.20	49.07	5.03	-1.18	9.75	102567.69	2116.39	145.98	179.79
4.30	49.67	5.07	0.53	9.80	102061.01	-945.62	147.27	181.19
4.40	49.76	5.04	2.21	9.86	101294.29	-3911.43	148.17	182.11
4.50	49.70	4.99	3.77	9.96	100190.61	-6602.52	148.85	182.78
4.60	49.63	4.92	5.30	10.09	98713.82	-9150.76	149.54	183.45
4.70	49.53	4.84	6.56	10.24	97006.64	-11154.95	150.31	184.21
4.80	49.58	4.74	7.53	10.45	94861.80	-12539.70	151.19	185.09
4.90	49.61	4.65	8.20	10.66	92831.24	-13374.75	151.54	185.46
5.00	49.68	4.58	8.47	10.85	91192.61	-13580.76	151.99	185.92
5.10	49.63	4.53	8.52	10.95	90339.94	-13541.13	152.08	185.99
5.20	49.73	4.51	8.60	11.02	89750.31	-13579.54	151.59	185.53
5.30	49.65	4.51	8.91	11.01	89716.72	-14061.97	151.37	185.29
5.40	49.65	4.51	9.40	11.00	89662.79	-14848.81	150.93	184.85

UNCLASSIFIED

UNCLASSIFIED

LL-9162 Serial No. 102212 w/ 75 ft. Cable
 Drive Level: 50 Vrms
 Test Depth: 28 ft.
 Test Distance: 9.8 ft.
 Water Temp: 6.9 deg. C.
 Orientation: 0 deg Horizontal

NUWC-Dodge Pond

Niantic, CT
 6 Dodge Court
 Tuesday, October 30, 2001 6:19:14 AM
 Se 100 Hz to 50 kHz at

Frequency kHz	Transmit Voltage volts	Transmit Current amps	Phase (Z) deg	Z Magnitude ohms	Conduct G uSiemens	Suscept B uSiemens	TVR dB// uPa/volt	SPL dB//uPa
5.50	49.59	4.52	9.97	10.96	89835.18	-15792.52	150.03	183.94
5.60	49.53	4.53	10.96	10.94	89716.52	-17381.28	149.10	183.00
5.70	49.44	4.51	12.37	10.96	89101.74	-19545.88	147.62	181.50
5.80	49.36	4.44	13.93	11.11	87342.66	-21667.68	145.53	179.40
5.90	49.31	4.33	15.04	11.40	84733.15	-22762.98	143.57	177.42
6.00	49.42	4.19	14.95	11.79	81949.53	-21881.82	140.45	174.32
6.10	49.51	4.10	14.06	12.08	80316.40	-20117.42	141.53	175.43
6.20	49.49	4.07	12.42	12.17	80278.40	-17683.49	144.26	178.15
6.30	49.53	4.12	11.04	12.03	81555.14	-15909.52	145.57	179.47
6.40	49.57	4.21	10.17	11.77	83605.04	-14993.68	147.64	181.54
6.50	49.44	4.32	10.15	11.44	86031.76	-15401.10	148.31	182.20
6.60	49.28	4.43	10.84	11.12	88305.62	-16906.59	148.99	182.85
6.70	49.13	4.52	12.20	10.87	89901.53	-19434.69	148.91	182.74
6.80	49.83	4.64	13.81	10.73	90476.05	-22238.49	148.96	182.91
6.90	49.69	4.65	15.32	10.68	90298.16	-24743.35	148.71	182.64
7.00	49.59	4.65	16.67	10.66	89836.01	-26894.99	149.14	183.05
7.10	49.58	4.64	17.66	10.68	89245.09	-28412.35	148.71	182.62
7.20	49.46	4.63	18.62	10.68	88721.99	-29896.37	148.90	182.78
7.30	49.41	4.62	19.87	10.70	87899.91	-31772.50	149.14	183.02
7.40	49.24	4.60	20.90	10.71	87260.31	-33329.41	149.29	183.14
7.50	49.19	4.57	22.02	10.76	86172.48	-34856.92	149.32	183.16
7.60	49.24	4.53	23.05	10.86	84731.98	-36055.60	149.39	183.24
7.70	49.21	4.50	23.80	10.92	83762.38	-36939.40	148.98	182.82
7.80	49.15	4.48	24.81	10.97	82766.14	-38267.19	148.60	182.43
7.90	49.19	4.46	25.68	11.04	81652.82	-39264.72	148.94	182.77
8.00	49.70	4.47	26.61	11.12	80407.15	-40277.52	149.09	183.02
8.10	49.69	4.43	27.42	11.22	79106.70	-41039.74	149.15	183.07
8.20	49.64	4.39	28.29	11.32	77804.52	-41883.28	149.29	183.20
8.30	49.59	4.35	29.12	11.40	76600.66	-42672.20	149.75	183.66
8.40	49.57	4.31	29.95	11.51	75308.23	-43392.17	150.27	184.18
8.50	49.62	4.26	30.50	11.65	73956.30	-43559.38	150.57	184.48
8.60	49.59	4.21	31.25	11.77	72657.91	-44083.10	150.98	184.89
8.70	49.57	4.17	32.00	11.88	71364.14	-44585.92	151.28	185.19

UNCLASSIFIED

UNCLASSIFIED

LL-9162 Serial No. 102212 w/ 75 ft. Cable
 Drive Level: 50 Vrms
 Test Depth: 28 ft.
 Test Distance: 9.8 ft.
 Water Temp: 6.9 deg. C.
 Orientation: 0 deg Horizontal

NUWC-Dodge Pond

Niantic, CT
 6 Dodge Court
 Tuesday, October 30, 2001 6:19:14 AM
 Se 100 Hz to 50 kHz at

Frequency kHz	Transmit Voltage volts	Transmit Current amps	Phase (Z) deg	Z Magnitude ohms	Conduct G uSiemens	Suscept B uSiemens	TVR dB// uPa/volt	SPL dB//uPa
8.80	49.52	4.13	32.61	12.01	70163.45	-44887.03	151.47	185.37
8.90	49.45	4.08	33.28	12.13	68939.86	-45252.08	151.85	185.73
9.00	49.50	4.03	33.97	12.27	67567.63	-45523.59	152.46	186.35
9.10	49.56	3.98	34.51	12.45	66187.82	-45505.99	152.95	186.86
9.20	49.48	3.93	35.07	12.60	64944.87	-45598.21	153.12	187.01
9.30	49.55	3.87	35.63	12.80	63513.20	-45516.82	153.42	187.32
9.40	49.58	3.81	36.06	13.01	62147.89	-45258.30	154.15	188.06
9.50	49.62	3.75	36.30	13.24	60855.98	-44710.84	154.71	188.62
9.60	49.68	3.69	36.61	13.48	59560.70	-44247.73	154.99	188.91
9.70	49.69	3.63	36.55	13.68	58707.84	-43520.98	155.15	189.08
9.80	49.80	3.59	36.33	13.86	58129.77	-42748.74	155.28	189.23
9.90	49.83	3.55	35.91	14.03	57745.69	-41820.57	155.23	189.18
10.00	49.87	3.51	35.54	14.19	57328.80	-40947.14	155.41	189.36
10.10	49.92	3.49	35.13	14.31	57170.81	-40219.46	155.53	189.49
10.20	49.90	3.47	34.78	14.36	57199.88	-39719.80	155.42	189.38
10.30	49.90	3.48	34.34	14.35	57534.19	-39310.53	155.22	189.18
10.40	49.84	3.49	34.00	14.30	57976.89	-39110.46	154.99	188.95
10.50	49.82	3.49	33.84	14.25	58273.78	-39064.78	154.87	188.81
10.60	49.67	3.51	33.91	14.14	58674.24	-39447.89	154.59	188.51
10.70	49.60	3.53	34.02	14.06	58944.55	-39782.18	154.35	188.26
10.80	49.54	3.54	34.16	13.98	59200.50	-40168.66	153.86	187.76
10.90	49.48	3.55	34.65	13.94	58996.71	-40779.29	153.92	187.81
11.00	49.42	3.55	35.12	13.92	58764.91	-41324.89	153.92	187.80
11.10	49.33	3.55	35.59	13.90	58514.92	-41877.83	153.62	187.48
11.20	49.29	3.54	36.31	13.91	57942.36	-42583.65	153.66	187.52
11.30	49.27	3.54	36.82	13.91	57544.93	-43076.53	153.25	187.10
11.40	49.22	3.53	37.29	13.94	57050.26	-43452.77	152.83	186.68
11.50	49.15	3.52	37.85	13.97	56539.61	-43940.19	152.42	186.25
11.60	49.12	3.51	38.27	14.01	56051.00	-44222.11	151.93	185.76
11.70	49.06	3.49	38.69	14.05	55556.79	-44488.55	151.43	185.24
11.80	49.05	3.48	39.30	14.11	54836.63	-44877.60	151.21	185.03
11.90	49.32	3.47	39.69	14.19	54219.60	-44990.51	150.73	184.59
12.00	49.75	3.49	40.07	14.26	53654.15	-45138.10	150.33	184.27

UNCLASSIFIED

UNCLASSIFIED

LL-9162 Serial No. 102212 w/ 75 ft. Cable
 Drive Level: 50 Vrms
 Test Depth: 28 ft.
 Test Distance: 9.8 ft.
 Water Temp: 6.9 deg. C.
 Orientation: 0 deg Horizontal

NUWC-Dodge Pond

Niantic, CT
 6 Dodge Court
 Tuesday, October 30, 2001 6:19:14 AM
 Se 100 Hz to 50 kHz at

Frequency kHz	Transmit Voltage volts	Transmit Current amps	Phase (Z) deg	Z Magnitude ohms	Conduct G uSiemens	Suscept B uSiemens	TVR dB// uPa/volt	SPL dB//uPa
12.10	49.83	3.47	40.51	14.37	52892.59	-45196.66	150.25	184.20
12.20	49.85	3.45	40.94	14.43	52342.76	-45404.52	150.05	184.00
12.30	49.82	3.43	41.53	14.51	51585.41	-45683.73	149.95	183.90
12.40	49.66	3.42	41.81	14.54	51272.89	-45853.79	149.76	183.68
12.50	49.60	3.39	42.38	14.64	50439.04	-46028.12	149.52	183.43
12.60	49.60	3.37	42.43	14.72	50131.22	-45823.72	149.53	183.44
12.70	49.62	3.35	42.96	14.80	49446.53	-46038.10	149.74	183.65
12.80	49.68	3.33	43.28	14.93	48756.57	-45910.47	149.55	183.47
12.90	49.64	3.30	43.57	15.03	48224.12	-45869.81	149.75	183.67
13.00	49.58	3.28	44.05	15.11	47576.13	-46031.85	149.54	183.45
13.10	49.62	3.26	44.41	15.21	46961.53	-46000.86	149.25	183.17
13.20	49.60	3.25	44.60	15.28	46586.97	-45945.27	149.30	183.21
13.30	49.57	3.22	45.09	15.37	45919.21	-46070.74	148.94	182.84
13.40	49.61	3.20	45.31	15.49	45412.00	-45914.00	148.33	182.24
13.50	49.57	3.18	45.77	15.58	44763.32	-45976.04	148.56	182.47
13.60	49.60	3.16	45.97	15.70	44282.00	-45808.36	148.29	182.20
13.70	49.58	3.14	46.40	15.78	43701.90	-45893.64	148.42	182.32
13.80	49.57	3.12	46.87	15.90	42985.34	-45893.26	148.54	182.45
13.90	49.56	3.10	46.94	16.00	42675.07	-45670.36	148.56	182.46
14.00	49.57	3.07	47.22	16.13	42111.60	-45513.84	148.64	182.55
14.10	49.58	3.05	47.54	16.26	41510.53	-45367.59	148.97	182.87
14.20	49.58	3.02	47.65	16.40	41087.53	-45069.69	149.11	183.02
14.30	49.30	3.00	48.11	16.45	40586.59	-45255.06	149.69	183.54
14.40	49.30	2.97	48.32	16.62	40013.47	-44936.55	150.07	183.93
14.50	49.36	2.94	48.43	16.79	39524.78	-44568.49	150.82	184.69
14.60	49.38	2.91	48.32	16.94	39241.47	-44080.12	151.35	185.22
14.70	49.59	2.90	48.30	17.11	38868.73	-43624.51	151.85	185.75
14.80	49.63	2.87	48.45	17.28	38389.42	-43320.80	152.13	186.05
14.90	49.65	2.85	48.29	17.42	38193.87	-42852.19	152.69	186.61
15.00	49.67	2.83	47.94	17.56	38138.79	-42269.48	153.08	187.01
15.00	49.64	2.82	47.95	17.59	38084.54	-42226.59	153.07	186.98
15.20	49.68	2.80	47.32	17.72	38260.08	-41494.08	153.45	187.38
15.40	49.66	2.81	47.04	17.66	38577.91	-41434.84	153.62	187.54

UNCLASSIFIED

UNCLASSIFIED

LL-9162 Serial No. 102212 w/ 75 ft. Cable
 Drive Level: 50 Vrms
 Test Depth: 28 ft.
 Test Distance: 9.8 ft.
 Water Temp: 6.9 deg. C.
 Orientation: 0 deg Horizontal

NUWC-Dodge Pond

Niantic, CT
 6 Dodge Court
 Tuesday, October 30, 2001 6:19:14 AM
 Se 100 Hz to 50 kHz at

Frequency kHz	Transmit Voltage volts	Transmit Current amps	Phase (Z) deg	Z Magnitude ohms	Conduct G uSiemens	Suscept B uSiemens	TVR dB// uPa/volt	SPL dB//uPa
15.60	49.54	2.82	47.23	17.59	38602.89	-41725.41	153.36	187.26
15.80	49.48	2.81	47.72	17.58	38267.10	-42087.43	152.76	186.64
16.00	49.44	2.80	48.52	17.63	37563.56	-42484.23	151.75	185.64
16.20	49.32	2.78	49.28	17.72	36809.69	-42763.24	150.84	184.70
16.40	49.30	2.76	49.65	17.86	36261.19	-42682.18	150.26	184.12
16.60	49.40	2.73	50.31	18.06	35356.59	-42599.91	149.70	183.58
16.80	49.41	2.71	50.70	18.24	34735.27	-42435.73	148.84	182.72
17.00	49.33	2.68	51.09	18.38	34184.83	-42344.31	148.17	182.04
17.20	49.32	2.67	51.44	18.50	33687.82	-42254.00	147.61	181.47
17.40	49.30	2.64	52.17	18.71	32785.79	-42220.67	146.95	180.81
17.60	49.28	2.61	52.47	18.88	32271.70	-42013.94	146.29	180.15
17.80	49.27	2.59	52.66	19.00	31917.02	-41842.90	146.23	180.08
18.00	49.17	2.57	53.19	19.15	31279.66	-41802.60	145.52	179.36
18.20	49.18	2.55	53.46	19.32	30820.87	-41587.58	144.57	178.41
18.40	49.17	2.52	53.82	19.55	30190.63	-41286.67	144.01	177.85
18.60	49.15	2.50	54.28	19.70	29639.98	-41220.50	143.24	177.07
18.80	49.17	2.47	54.67	19.89	29069.80	-41010.85	142.34	176.17
19.00	49.14	2.45	54.97	20.06	28617.99	-40824.87	141.52	175.35
19.20	49.19	2.44	55.03	20.19	28391.51	-40596.86	141.46	175.30
19.40	49.18	2.41	55.38	20.38	27879.35	-40389.22	141.21	175.05
19.60	49.16	2.39	55.72	20.54	27420.09	-40224.85	140.60	174.43
19.80	49.10	2.37	56.00	20.72	26992.28	-40022.33	140.28	174.10
20.00	49.17	2.35	56.48	20.94	26371.71	-39806.55	140.39	174.23

UNCLASSIFIED