



Certificate of Calibration

Ocean Sonics, Ltd.

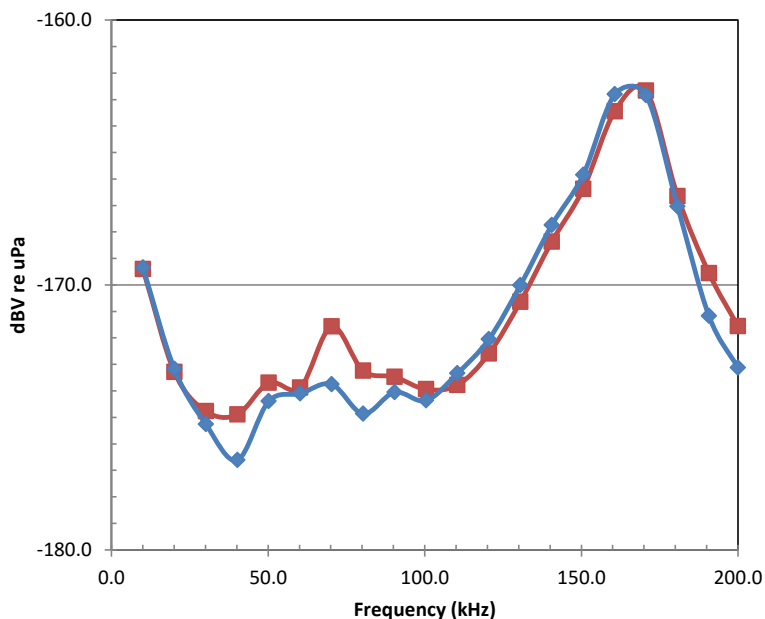
Calibration Certificate Number: **C4280**

Test Result: 10 kHz to 100 kHz: -173.0 ± 3.6
10 kHz to 200 kHz: -169.6 ± 7.0

Model Number SB35-ETH
Serial Number 1231
Manufacture Date 7-Nov-2017
Measurement Date 14-Nov-2017
Certificate Date 14-Nov-2017
Sensitivity @ 26 Hz $-170.4 \text{ dB re V / uPa}$
Case Type Titanium
Element Manufacturer GeoSpectrum
Element Model M24HF
Element Serial 603
Preamp Model 04-300435-01
Calibrated By S.MacLean
Work Order Number W1591
Test Type RX Sensitivity
Test Procedure Complex RMS
Test Location Tank #2, 1 m
Water Temperature 17 °C

Projector Manufacturer Ocean Sonics
Projector Model TH2-SER-4F
Projector Serial 2210
Measurement Distance 1 m
Output Level 125.7 dB re uPa @ 1 m
Tone Burst 100.0 us / 300 ms
Reference Manufacturer Ocean Sonics
Reference Model RB9-ETH
Reference Serial 1492
Primary Calibration 22-Dec-2015
Preamp Manufacturer Ocean Sonics
Preamp Model 04-300434-01
Preamp Serial 473
Preamp Gain 36 dB
ADC Manufacturer Ocean Sonics
ADC Model Number 04-300423-01
ADC Serial Number 473

Receive Sensitivity



Frequency kHz	Sensitivity [dBV re uPa]	
	0 deg	90 deg
10.0	-169.4	-169.3
20.1	-173.3	-173.2
30.1	-174.8	-175.3
40.2	-174.9	-176.6
50.2	-173.7	-174.4
60.2	-173.9	-174.1
70.3	-171.6	-173.8
80.3	-173.2	-174.9
90.4	-173.5	-174.1
100.4	-173.9	-174.4
110.4	-173.8	-173.3
120.5	-172.6	-172.1
130.5	-170.6	-170.0
140.5	-168.4	-167.7
150.6	-166.4	-165.8
160.6	-163.5	-162.8
170.7	-162.7	-162.8
180.7	-166.6	-167.0
190.7	-169.6	-171.2
200.0	-171.6	-173.1