



Certificate of Calibration

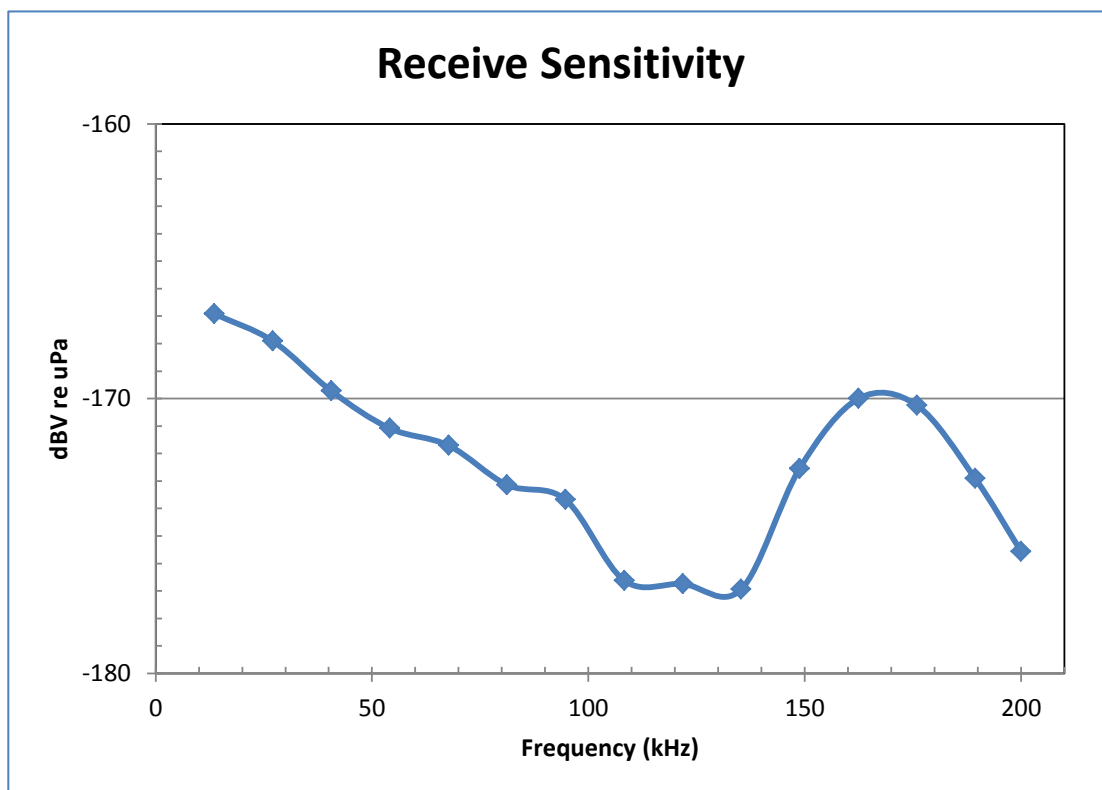
Ocean Sonics, Ltd.

Calibration Certificate Number

C3029

Test Result: 10 kHz to 100 kHz: -170.3 ± 3.4
 10 kHz to 200 kHz: -171.9 ± 5.0

Model Number	SB2-ETH	Projector Manufacturer	Ocean Sonics
Serial Number	1266	Projector Model	TH2-SER-4F
Manufacture Date	17-Oct-2013	Projector Serial	2206
Measurement Date	4-Nov-2013	Measurement Distance	0.5 m
Certificate Date	7-Nov-2013	Projector Mode	Wideband
Sensitivity @ 26 Hz	-168.3 dBV re μPa	Output Level	131.5 dB re μPa @ 1.0 m
Case Type	Plastic	Reference Manufacturer	Reson
Element Manufacturer	GeoSpectrum	Reference Model	TC4034-1
Element Model	M24HF	Reference Serial	4211050
Element Serial	639	Preamp Manufacturer	Ocean Sonics
Software Release	21	Preamp Model	300415-01-X1
Calibrated By	J. Abel	Preamp Serial	78
Work Order Number	W1045	Preamp Gain	30 dB
Test Type	RX Sensitivity	ADC Manufacturer	Ocean Sonics
Test Procedure	Gated FFT	ADC Model Number	04-300422-01
Test Location	Tank #1, 0.5 m	ADC Serial Number	93



Frequency kHz	Sensitivity dBV re μ Pa
13.5	-166.91
27.1	-167.91
40.6	-169.72
54.1	-171.08
67.7	-171.71
81.2	-173.14
94.7	-173.68
108.3	-176.62
121.8	-176.74
135.3	-176.94
148.8	-172.55
162.4	-170.00
175.9	-170.25
189.4	-172.91
200.0	-175.56