AZFP Certificate of Calibration Version : 12.0

12/12/2017	Operator:	Jay Milligan	Unit Serial Number:	59010

Sonar Channel #1:

Frequency:	38.0 kHz	Transducer Part#:	ASL38 Glider	Transducer Serial#:	103
OCV: Voltage on reference:	8.8V	Reference TVR:	145.9	Transducer Voltage:	0.202V
TVR: Voltage on transducer:	230V	Reference OCV:	-213.2	Reference Voltage:	0.35V

System Gain and Linearity:

Voltage on Reference	A/D Counts (N)
*	65000
-10dB	59110
-20dB	53090
-30dB	46960
-40dB	40900

Calibration Values		Units
TVR	156.8	dB
VTX	81.3	V_{RMS}
BP	0.1498	Sr
Echo Level	155.0	dB
Slope	0.023	V/dB

*This voltage is adjusted to bring N between 64950 and 65050 counts
All measurements with 1.0 meter separation in 20°C fresh water unless otherwise noted.

Sonar Channel #2:

Frequency:	67.5KHz	Transducer Part#:	ASL 2 Freq.	Transducer Serial#:	101
OCV: Voltage on reference:	9.8V	Reference TVR:	143.2	Transducer Voltage:	0.168V
TVR: Voltage on transducer:	280V	Reference OCV:	-213.1	Reference Voltage:	0.62V

System Gain and Linearity:

Voltage on Reference	A/D Counts (N)
*	65000
-10dB	58880
-20dB	52960
-30dB	47080

Calibration Values		Units
TVR	160.0	dB
VTX	99.0	V_{RMS}
BP	0.048	Sr
Echo Level	149.6	dB
Slope	0.0228	V/dB

*This voltage is adjusted to bring N between 64950 and 65050 counts
All measurements with 1.0 meter separation in 20°C fresh water unless otherwise noted.

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ASL Environmental Sciences

Sonar Channel #3:

Frequency:	125KHz	Transducer Part#:	ASL 2 freq.	Transducer Serial#:	101
OCV: Voltage on reference:	9.5V	Reference TVR:	139.7	Transducer Voltage:	0.08V
TVR: Voltage on transducer:	270V	Reference OCV:	-214	Reference Voltage:	1.88V

System Gain and Linearity:

Voltage on Reference	A/D Counts (N)
*	65000
-10dB	58770
-20dB	52910
-30dB	47500

Calibration Values		Units
TVR	170.9	dB
VTX	95.5	V_{RMS}
BP	0.009	Sr
Echo Level	137.3	dB
Slope	0.022	V/dB

*This voltage is adjusted to bring N between 64950 and 65050 counts

All measurements with 1.0 meter separation in 20°C fresh water unless otherwise noted.

Calibration Details

Sonar Calibration:

The sonar system is calibrated using a reference hydrophone and a reference source transducer in our fresh-water laboratory test tank. All measurements are at 20°C and 1.0 meters distance. The AZFP does not use a TVG system, so all system gain measurements are valid from 0 meters to full range.

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