



HYDROSTATIC EXTERNAL PRESSURE TEST CERTIFICATE

JOB/REPORT #: ESL-23-057 Rep. 01 Rev. NR

DATE: March 7, 2023

CLIENT: Ocean Sonics Ltd.

PO #: P5281

110 Parkway Drive
Truro Heights, Nova Scotia
B6L 1N8

CONTACT: Terri Penney

TEST ITEM DESCRIPTION

Qty	Name	Serial #
2	3500m Hydrophone, SJ35-ETH	9611, 9612
3	3500m Hydrophone, SB35-ETH	1250, 1362, 1389

EQUIPMENT USED

Inventory #	Description	Calibration Due
1143	High Pressure Vessel	N/A
1316	Keithley Data Logger	November 10, 2023
2956	Temperature & Humidity Logger	August 10, 2023
2986	0-69 MPa Pressure Transducer	December 6, 2023
1082	Digital Balance	August 12, 2023
3005	Digital Thermometer	October 24, 2023

ENVIRONMENTAL CONDITIONS

MIL-STD-810H Environmental Conditions: +15 °C to + 35 °C, 20% RH to 80% RH	
Temperature, °C	Humidity, % RH
17	33

WEIGHTS

Serial #	Pre-Test (g)	Post-Test (g)	Difference (g)
9611	989.2	989.3	0.1
9612	983.7	983.7	0.0
1250	1006.2	1006.4	0.2
1362	989.8	990.1	0.3
1389	926.9	927.1	0.2

Five units were tested per client procedure "Ocean Sonics Hydrophone Pressure Test Procedure, Revision 2021-MAR-16", Table 3, Steps 1-4. The IUTs (items under test) were weighed, then placed in the 103420 kPa (15000 psi) High Pressure Vessel, ESL equipment #1143.

Shipping Address:

ESL Labs
221 Joseph Zatzman Drive
Dartmouth, NS B2B 1M6
902-464-9220

Controlled Goods Registered
QMS Certified to AS9100, Rev. D

Accounting Address:

ESL Labs
Suite 101, 4015 Carling Ave
Kanata, ON K2K 2A3

The pressure was increased to 10149 kPa (1472 psi), held for two minutes, and then released to 1320 kPa (191 psi). The pressure was then increased to 20202 kPa (2930 psi), held for two minutes, then released to 390 kPa (57 psi). The pressure was then increased to 35280 kPa (5117 psi), held for two minutes then released to 390 kPa (57 psi). The pressure was then increased to 38817 kPa (5630 psi), held for five minutes, then released to 0 kPa.

The pressure ramp/release rate did not exceed 69 kPa/s (10 psi/s).

The water temperature was measured to be 15.1 °C.

Upon completion of testing the IUTs were removed from the pressure vessel for inspection, weighed, and then returned to Ocean Sonics Ltd. for final inspection.

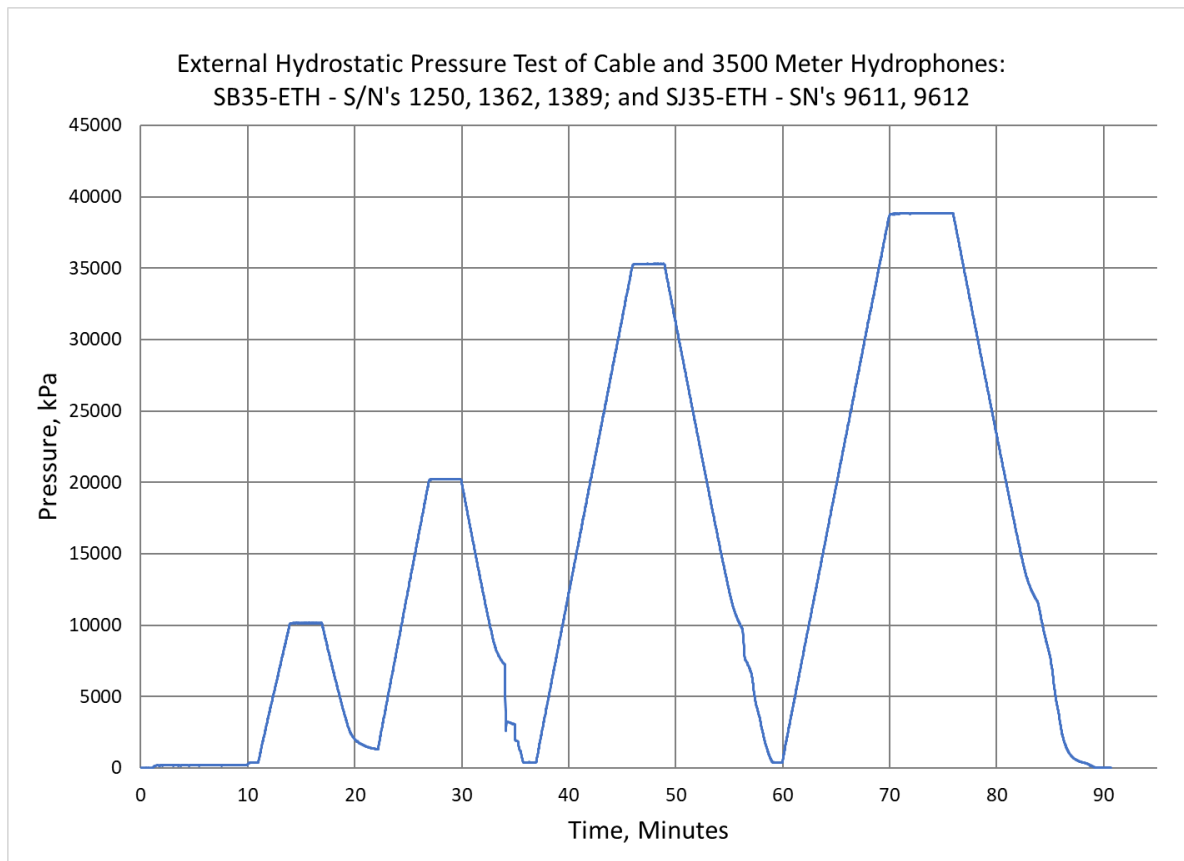
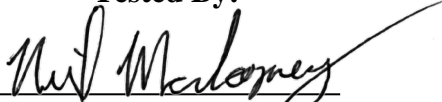


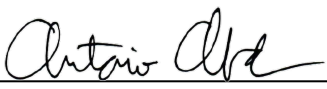
Figure 1: Pressure vs. time

THIS IS TO CERTIFY THAT THE ABOVE TESTING WAS PERFORMED ACCORDING TO REQUIREMENTS SET FORTH IN THE REFERENCED PURCHASE ORDER IN A MANNER CONSISTENT WITH STANDARD PRACTICES AND ANY SPECIFICATIONS REFERENCED HEREIN.

Tested By:


Neil Maloney, B.Eng
Lab Technologist

Approved By:


Antonio Abdo, P.Phys.
Testing Compliance Technologist 2