

50092-2 Immersion

Certification prepared for	SEAHORSE		
Attention	Mr. Flavio Valencia		
Test start	3/27/2014	Test completion	4/14/2014
Purchase order number	17295	Purchase date	4/23/2014

Manufacturer	SEAHORSE		
Device	Two (2) Protective Cases		
Model/part number	SE430	SE1530	
Serial number	N/A	N/A	

The results of this test apply only to the units identified in this Engineering Report by device identifier and model / part number, or serial number.

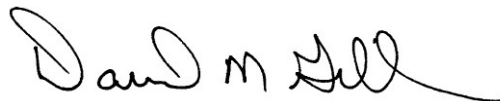
Environ Laboratories LLC certifies that two Protective Cases were subjected to an Immersion Test as specified in **MIL-STD-810F**, dated May 5, 2003, Method 512.4, Procedure I—Immersion and **IEC 60529**, Edition 2.1, dated 2001-02, Paragraph 14.2.7, **IPX7**, as requested in SEAHORSE purchase order 17295, dated 4/23/2014.

Test unit SE430 was first subjected to testing. The water temperature (18.1°C) was verified to not differ from that of the equipment temperature (17.7°C) by more than 5 K. The test unit was immersed such that the highest point of the enclosure was 1 meter below the surface of the water. The immersion was maintained for 30 minutes. At the end of the 30 minute period, the test unit was removed from the water, and the exterior was dried. The unit was then examined for evidence of water intrusion.

Test unit SE1530 was next subjected to testing. The water temperature (16.6°C) was verified to not differ from that of the equipment temperature (17.9°C) by more than 5 K. The test unit was placed inside a pressure vessel, which was filled to a depth of 8 inches above the top surface of the unit. The pressure vessel was sealed and pressurized to 1.13 psi. The test unit remained immersed in the pressure vessel for 30 minutes. The test unit was then removed from the pressure vessel and inspected for water ingress. Visual examination of the test units upon completion of testing revealed no evidence of damage or water ingress. The test units were returned to SEAHORSE.



Peder J. Palm, Test Engineer



David M. Gillen, Vice President

This document shall not be reproduced, except in full, without the written authorization of Environ Laboratories LLC. In the event this document is provided to the customer in any format that may be modified or copied in any part, no modifications, changes, or additions to this report, nor any summary hereof, shall be permitted in any manner. All original content of this document shall be considered one entire report Environ Laboratories LLC shall not be liable to the customer or to any third party for unauthorized modification or misuse of this document.

Transmittal of technical data (as applicable):

ITAR/EAR related content; this document may contain technical data within the definition of the International Traffic in Arms Regulations (ITAR) or Export Administration Regulations (EAR) and is subject to the export controls law of the U.S. Government. Transfer of this data by any means to a foreign person or foreign entity, whether in the United States or abroad, without an export license, ITAR exemption, or other approval from the U.S. Department of State or Bureau of Industry and Security is prohibited.

Instrumentation

All instrumentation is calibrated regularly by instruments directly traceable to the National Institute of Standards and Technology, and in accordance with *MIL-I-45208A*, *ANSI/NCSL Z540.3-2006*, and *ISO/IEC 17025: 2005*.

Equipment Number	Description	Manufacturer	Model Number	Last Calibration	Due Calibration	Range
200-307	Digital Thermometer	Fluke	52 II	11/4/2013	11/4/2014	-250°C to +400°C
210-044	Digital Multimeter	Fluke	87 III	2/13/2013	5/13/2014	0 to 4.000 V
400-046	Stopwatch	Extech Instruments	365510	2/14/2014	2/14/2015	0 to 23 hrs 59 mins 59 sec
715-081	Pressure Transducer	WIKA	S-10	1/14/2014	1/14/2015	0 to 10 psig