

**50092-2 Immersion**

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

<b>Manufacturer</b>	SEAHORSE		
<b>Device</b>	Two (2) Protective Cases		
<b>Model/part number</b>	SE430	SE1530	
<b>Serial number</b>	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.*

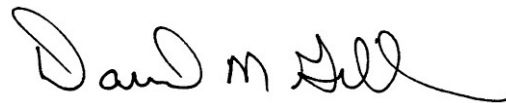
Environ Laboratories LLC certifies that two Protective Cases were subjected to an Immersion Test as specified in MIL-STD-810F, dated May 5, 2003, Method 512.4, Procedure I—Immersion and IEC 60529, Edition 2.1, dated 2001-02, Paragraph 14.2.7, IPX7, as requested in SEAHORSE purchase order 17295, dated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

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## 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