

INTERMODAL MATERIÉL
AND
NAUTICAL/NUCLEAR ANALYSIS
IMANNA
LABORATORY INC.

CERTIFICATION TEST REPORT

515 Gus Hipp Blvd.
Rockledge, Florida 32955
Telephone (321) 632-2008
http://www.imanna.com

Post Office Box 560933
Rockledge, Florida 32956-0933
FAX (321) 690-3360
E-mail: info@imanna.com

CERTIFICATION TEST REPORT
20524-1
IGNITION PROTECTION TESTS
OF
BUSS BAR ASSEMBLY
FOR
SEALED BUSS BAR

CUSTOMER:

Sealed Buss Bar, LLC
10776 Saddle Oak Road
Myakka City, FL 34251

**MANUFACTURER
OF TEST ARTICLE:** Sealed Buss Bar, LLC

REPORT NO.: 20524-1

IMANNA JOB NO.: 20524

CUSTOMER P.O. NO.: 16-152

CONTRACT: N/A

DATE: July 21, 2016

PAGES IN REPORT: 11

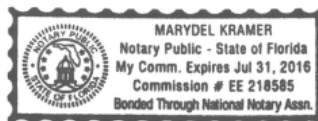
STATE OF FLORIDA

ROBERT L. WHITE, being duly sworn, deposes and says: The information contained in this report is the result of complete and carefully conducted tests and is to the best of his knowledge true and correct in all respects.

Robert L. White

SUBSCRIBED and sworn to before me this 21st day of July, 2016

Marydel Kramer



Imanna shall have no liability for damages of any kind to person or property, including special or consequential damages resulting from Imanna's providing the service covered by the report.

IMANNA LABORATORY, Inc.

TEST BY

Alan Bell
PROJ. MANAGER

1. TEST ARTICLE

A representative sample of Sealed Buss Bar buss bar was received for test. The buss bars are intended for use in a marine environment and could be placed in a compartment where an explosive mixture of gasoline and air could exist. The samples were received complete with one 1/0 AWG 600 V input lead and twelve 14 AWG 600 V output service leads. The tested assembly is representative of a family of products that contain identical electrical components that differ one from another according to the number of input and service leads utilized / available in the assembly. The assembly tested is representative of the entire family.



Figure 1: view of tested buss bar

2. PART NUMBERS

SBB-12 / SBB-24 / SBB-SHD / SBB2-12

3. REQUIREMENTS

The buss bar is to be tested to the ignition protection requirements of the NMMA, the USCG, ISO 8846 and SAE J1171 to determine compliance of the item to the Ignition Protection requirements for electrical components as stated in the ISO Standard ISO 8846 as well as the Electrical System Standard, Title 33 CFR, Part 183, Subpart I, Section 183.410, SAE J1171 and the NMMA Certification Handbook.

4. PROCEDURE

The procedures used to accomplish the Ignition Protection performance tests are ISO 8846, SAE J1171, and the USCG recommended procedures entitled "USCG Electrical System Standard Test Procedure", dated January 1978. These procedures are acceptable to the European

5. RESULTS

The results of the test performed indicate that the buss bar assemblies meet the Ignition Protection Test requirements of ISO 8846, the USCG, stated in Title 33 CFR 183.410 and the SAE J1171 Standard.

The buss bar was operated 50 cycles (on-off-on) while in an explosive atmosphere without igniting the surrounding explosive atmosphere. At no time during the High Temperature Operating Test was a temperature in excess of the limits of the standards (200°C) detected on any exterior surface of the test article. The buss bar was submerged 15" under the surface of a water bath with the temperature of the water at 50°C at the beginning of the test. The sample was rotated so that all possible openings were exposed to the water with no evidence of leakage being observed. No evidence of leakage was observed during the test and weights of the buss bar taken prior to and following the submergence showed no weight gain.

6. OBSERVATIONS AND COMMENTS

The results presented herein apply only to the test article as prepared and as tested on the date reported. All equipment used in the performance of these tests was calibrated to standards traceable to the N.I.S.T and/or verified at the time of the test using internationally recognized methods to validate the accuracy and repeatability of the values recorded or collected during the tests.

INSTRUMENTATION EQUIPMENT SHEET

Date: June 29, 2016 **Job No.:** 20524 **Customer:** Sealed Buss Bar
Technician: Lowe **Test:** Explosion Test Cell
Area:
Test Item Description: busbar

INSTRUMENT	MFG	MODEL	RANGE	ACCURACY	CAL DATE	CAL DUE
Hydrocarbon Analyzer	IR Infrared Industries	IR-208	0 to 10% Propane In Air	±0.1%	Use Each Use	Use Each Use
Temperature Indicator / Controller	Omega Eng'ring	i-Series	Multi	±0.03%	4-15-16	4-15-17
Laser Temperature Indicator	Raytek	RAYMT4U	-18° to +260°C	±0.2%	4-15-16	4-15-17
Digital Multimeter	Fluke	12 S/N: 90960249	Multi	±0.02%	4-15-16	4-15-17

Instrumentation Information Verified by: *R White*

Appendix Supporting Data

DATA FORM NO. 1

TEST PROCEDURE USCG and ISO and SAE

RECEIVING INSPECTION(Page 2 of 3)

12. Name of Component and/or System:

No. 1 : buss bar

No. 2 : _____

No. 3 : _____

No. 4 : _____

No. 5 : _____

13. Explanations of Additional Data:

NONE

14. Receiving Inspection Results:

APPEARS SOUND AND READY TO TEST.

15. Nonconformance Items Noted But Not Tested by this Procedure:

NONE

DATA FORM NO.1
TEST PROCEDURE USCG and ISO and SAE
RECEIVING INSPECTION(Page 3 of 3)

Component or System : buss bar

12(a). Manufacturer: Sealed Buss Bar, LLC

12(b). Date of Manufacture: Unknown

12(c). Part No.: SSB 12

12(d). Serial No.: DNA

12(e). Capacity or Rating: 12 VDC / 150 Amp

12(f). Shipping or Transport damage: NONE

12(g). Quality of Workmanship: GOOD

12(h). Conformity to Manufacturer's Documentation: Unknown

12(i). Dents, Cracks, or Abrasions: NONE

12(j). Loose or Missing Screws, Clamps, Nuts, etc.: NONE

12(k). Other Defects: NONE

PAGE NO. 10
REPORT NO. 20524-1

DATA FORM NO. 3
TEST PROCEDURE USCG and ISO and SAE
TEST DATA

PART A

1. Test Article I.D. No.: 20524-1
2. Is Component certified as ignition proof by an independent testing laboratory? NO

Requirement: A component certified by an approved testing lab as having passed an accepted industry test may be considered as having met the requirements of this procedure.

3. Is component obviously unacceptable? NO

Requirement: Components obviously unacceptable shall be rejected with no test.

PART I - HIGH TEMPERATURE OPERATING TEST

4. Component Specifications:

Voltage:	<u>12 VDC</u>
Amperage:	<u>150 amps</u>
RPM:	<u>N/A</u>
Duty Factor:	<u>continuous</u>
Other:	<u>12 VDC nominal system voltage</u>

Requirement: Component shall be operated for this test at its normal rated condition.

5. Ambient Temperature during test: 60°C

Requirement: Ambient temperature surrounding the test specimen shall be 60°C throughout the test period.

6. Highest temperature indicated on any surface: 87°C

Requirement: If the highest component surface temperature exceeds 200°C, the component shall be required to undergo additional testing.

7. Percentage of Propane in Air surrounding component: 4.8%

Requirement: 4.75% +/- 0.5%

PAGE NO. 11
REPORT NO. 20524-1

DATA FORM NO. 3
TEST PROCEDURE USCG and ISO and SAE
TEST DATA

8. Are all readings within acceptable limits? YES
9. Did the explosive atmosphere ignite during component operation? NO
10. Was the mixture verified to be explosive? YES
11. Is the component acceptable according to the requirements of PART I? YES

PART II - WATER SUBMERGENCE TEST

12. What is the depth of the component beneath the surface of the water? 15 inches
Requirement: 14" minimum
13. What is the temperature of the water at the start of the test period? 50°C
Requirement: 50°C +/- 2°C
14. Are bubbles observed coming from component? NO
15. If component was disassembled after submergence, was water found inside component? **
16. Is the component acceptable according to PART II? YES / **no weight gain noted

PART III - INDUCED IGNITION TEST

17. Test specimen I.D. No.: 20524-1
18. Percent of Propane in air: N/A
Requirement: 4.75% +/- 0.5%
19. Did explosive atmosphere surrounding component ignite during any of the internal atmosphere explosions? N/A
20. Is component acceptable according to PART III? N/A
21. Remarks:
sealed device

PART IV - EXPLOSIVE ATMOSPHERE EXPOSURE TEST

22. Test Specimen ID Number: _____ 20524-1 _____

23. Component Specifications:

Voltage: _____ 12 VDC _____
Amperage: _____ 150 amps _____
RPM: _____ N/A _____
Duty Factor: _____ continuous _____
Other: _____ 12 VDC nominal system voltage _____

Requirement: Component shall be operated for this test at its normal rated conditions and duty cycle.

24. Ambient Temperature during test: _____ 60 °C _____

Requirement: Ambient temperature surrounding the test specimen shall be 60°C throughout the test period.

25. Percentage of Propane in Air surrounding component: _____ 4.8% _____

Requirement: 4.75% +/- 0.5%

26. Did the Explosive atmosphere ignite during 50 component cycles of operation? _____ NO _____

Requirement: The explosive atmosphere surrounding the component shall not ignite when the component is cycled 50 times.

27. Was the atmosphere verified to be explosive? _____ YES _____

28. Is the component acceptable according to the requirements of Part IV? _____ YES _____

29. Remarks: power cycled through buss bar to resistive load for this effort

