

INTERMODAL MATERIÉL
AND
NAUTICAL/NUCLEAR ANALYSIS
IMANNA
LABORATORY INC.

CERTIFICATION TEST REPORT

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TEST REPORT
16621-1
OF
ENVIRONMENTAL TESTS
OF
POWER MANAGEMENT ENCLOSURE
FOR
DNA GROUP

CUSTOMER:

DNA Group, Inc.
P.O. BOX 31727
RALEIGH, NC 27622

MANUFACTURER
OF TEST ARTICLE: DNA GROUP, INC.
Raleigh, NC

DATE: Nov. 11, 2004

REPORT NO.: 16621-1
IMANNA JOB NO.: 16621
CUSTOMER P.O. NO.: LETTER (J. CELMER)
CONTRACT: N/A
PAGES IN REPORT: 3

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 11th day of November, 2004

David H. Hudgins



David H. Hudgins
Commission # DD 010632
Expires May 3, 2008
Bonded Third
Atlantic Bonding Co., Inc.

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
Mark Evans
PROJ. ENGINEER

1. TEST ARTICLE

One sample of a DNA Group Pi ÖSeries "Power Management Enclosure" (see photo) was received for test.

2. REQUIREMENTS

The requirements of this effort are to subject the "PME" to the following environmental conditions.

- ASTM B117 Salt Spray test for 400 hours @ 85F
- Vibration Test (3 axes, 8 hours each axis, sweep from 10 to 2000 Hz)
- Mechanical Shock (vertical axis only, 25g impact, half-sine wave form, 6 to 14 msec duration, 5000 shocks)
- Humidity Test (95 +/- 5% RH, at 85C, for 10 days)
- Thermal Shock (-30C to +65C, 8-hour cycles for thermal soak, 5 minute maximum transfer time, 10 cycles)

The components are to be returned to DNA for post exposure operational evaluations.

3. RESULTS

Following the "PME" being exposed to all of the required conditions no visible change could be seen. It was noticed during exposure to high temperatures (humidity test and thermal shock test) that there was swelling of the unit as a result of air sealed within the unit expanding.

4. OBSERVATIONS AND COMMENTS

The results presented herein apply only to the test specimen as prepared and as tested. All equipment used in the performance of these tests was calibrated to standards traceable to the N.I.S.T.

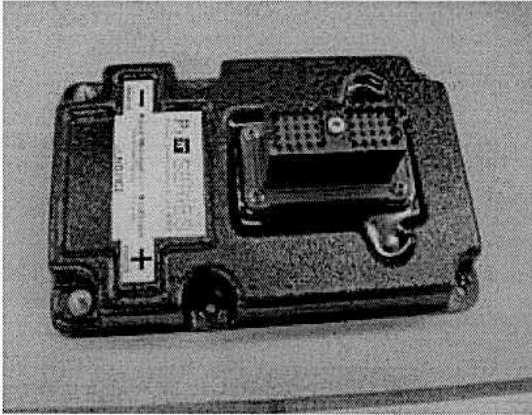


Figure 1: View of "PME"

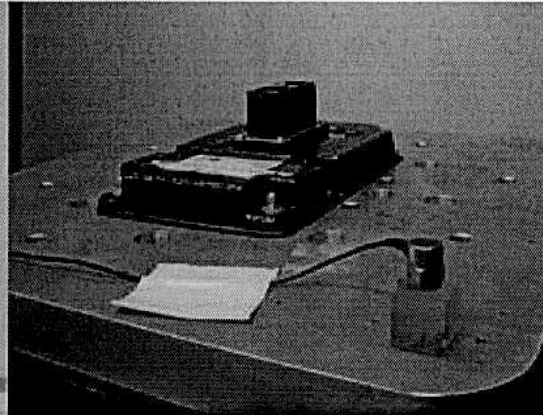


Figure 2: View of "PME" on vibration / shock table

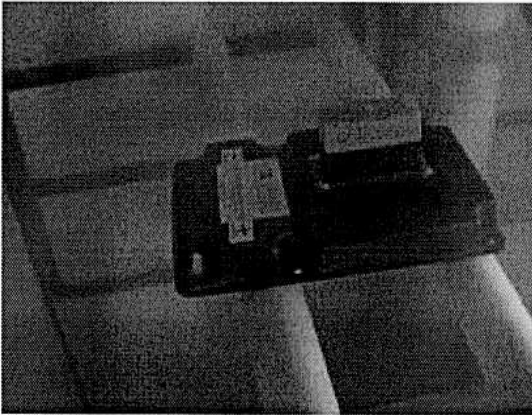


Figure 3: View of "PME" in Salt Spray Chamber

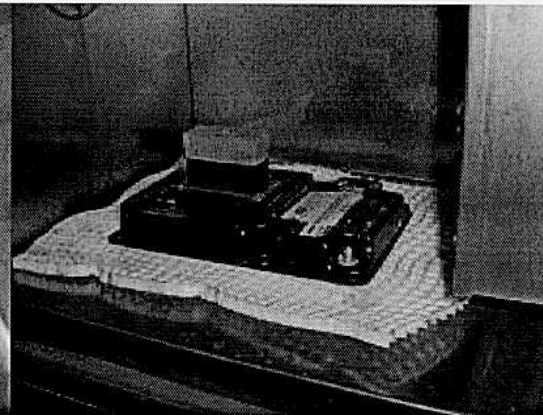


Figure 4: View of "PME" in Humidity Chamber



Figure 5: View of "PME" in Temperature Chamber
-30°C cycle