

MARCH 15, 2016

SUMMARY TEST REPORT #215291
(SEE TEST REPORT #215291 FOR COMPLETE REPORT)

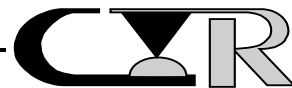
RVPX 6U VPX CONNECTORS

QUALIFICATION

AMPHENOL



APPROVED BY: THOMAS PEEL
PRESIDENT AND
DIRECTOR OF TEST PROGRAM DEVELOPMENT
CONTECH RESEARCH, INC.
RUMFORD, RI

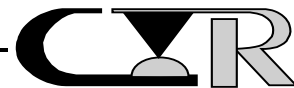


Contech Research

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REVISION HISTORY

DATE	REV. NO.	DESCRIPTION	ENG.
3/15/2016	1.0	Initial Release	TP



CERTIFICATION

This is to certify that the evaluation described herein was designed and executed by personnel of Contech Research, Inc. It was performed with the concurrence of Amphenol who was the test sponsor.

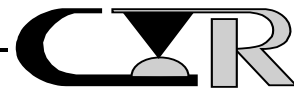
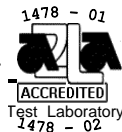
All equipment and measuring instruments used during testing were calibrated and traceable to NIST according to ISO 10012-1 and ANSI/NCSL Z540-1 and MIL-STD-45662 as applicable.

All data, raw and summarized, analysis and conclusions presented herein are the property of the test sponsor. No copy of this report, except in full, shall be forwarded to any agency, customer, etc., without the written approval of the test sponsor and Contech Research.



Approved By: Thomas Peel
President and
Director Of Test Program Development
Contech Research, Inc.
Rumford, RI

TP:cf



SCOPE

To perform Qualification testing on RVPX 6U connectors as manufactured and submitted by the test sponsor Amphenol.

APPLICABLE DOCUMENTS

1. Unless otherwise specified, the following documents of issue in effect at the time of testing performed form a part of this report to the extent as specified herein. The requirements of sub-tier specifications and/or standards apply only when specifically referenced in this report.
2. RVPX 6U Connector/Module Test Plan, Rev. 6 (Jan, 2005)
3. EN-61000-4-2, Electrostatic Discharge Immunity Test
4. Standards:
 - a) MIL-STD-1344
 - b) EIA Publication 364
 - c) ASTM G85

TEST SAMPLES AND PREPARATION

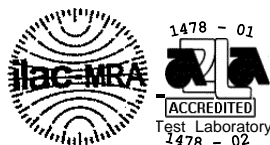
1. The following test samples were submitted by the test sponsor, Amphenol, for the evaluation to be performed by Contech Research, Inc.

<u>Description</u>	<u>Manufacture</u>
a) RVPX, 6U Connector, Backplane	Amphenol
b) RVPX, 6U Connector, Daughter Card	Amphenol
c) RT2R, 6U Connector, Backplane	TE Connectivity
d) RT2R, 6U Connector, Daughter Card	TE Connectivity

2. The following additional materials were submitted by the test sponsor to assist and perform the testing of items listed in #1 above.

<u>Description</u>
a) Vibration Test Fixture (see Figure #1)

-continued on next page.



TEST SAMPLES AND PREPARATION - continued:

3. The test samples as submitted were submitted by the manufacturer as being fabricated and assembled utilizing normal production techniques common for this type of product and inspected in accordance with the quality criteria as established for the product involved.
4. Connectors were supplied assembled and terminated to test boards by the test sponsor.
5. Test boards for mounting test samples were supplied by the test sponsor.
6. All test samples were coded and identified by the Test Sponsor to maintain continuity throughout the test sequences. Upon initiating testing, mated test samples remained with each other throughout the test sequences for which they were designated.
7. Figure #2 illustrates the test sample used for the evaluation.
8. The test samples were tested in their 'as received' condition.
9. All equipment and measuring instruments used during testing were calibrated and traceable to NIST according to ISO 10012-1 and ANSI/NCSL Z540-1, as applicable.
10. Unless otherwise specified in the test procedures used, no further preparation was used.

TEST SELECTION

1. See Test Plan Flow Diagram, Figure #3, for test sequences used.
2. Test set ups and/or procedures which are standard or common are not detailed or documented herein provided they are certified as being performed in accordance with the applicable (industry or military) test methods, standards and/or drawings as specified in the detail specification.



SAMPLE CODING

1. All samples were coded. Mated test samples remained with each other throughout the test group/sequences for which they were designated. Coding was performed in a manner which remained legible for the test duration.
2. The test samples were coded in the following manner:

Each connector (recept and plug) was ID'd by the test sponsor and allocated to each test group as follows:



Group A1 (1 mated pair per combination)

VITA BMA A 1 1 RVPX / VITA DC A 1 1 RVPX
VITA BMA A 2 1 RT2R VITA DC A 2 1 RVPX
VITA BMA A 3 1 RVPX VITA DC A 3 1 RT2R
VITA BMA A 4 1 RT2R VITA DC A 4 1 RT2R

INTERMATEABILITY

Group A2 (1 mated pair per combination)

VITA BMA A 1 2 RVPX / VITA DC A 1 2 RVPX
VITA BMA A 2 2 RT2R VITA DC A 2 2 RVPX
VITA BMA A 3 2 RVPX / VITA DC A 3 2 RT2R
VITA BMA A 4 2 RT2R / VITA DC A 4 2 RT2R

Group B (1 mated pair per combination)

VITA BMA B 1 1 RVPX / VITA DC B 1 1 RVPX
VITA BMA B 2 1 RT2R VITA DC B 2 1 RVPX
VITA BMA B 3 1 RVPX / VITA DC B 3 1 RT2R
VITA BMA B 4 1 RT2R / VITA DC B 4 1 RT2R

INTERMATEABILITY

Group C (1 mated pair)

VITA BMA C 1 1 RVPX VITA DC C 1 1 RVPX

Group D (1 mated pair)

VITA BMA D 1 1 RVPX / VITA DC D 1 1 RVPX

Group E (1 mated pair)

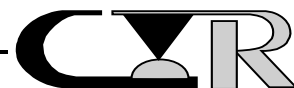
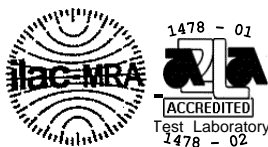
VITA BMA E 1 1 RVPX VITA DC E 1 1 RVPX

Group F (1 mated pair)

VITA BMA F 1 1 RVPX VITA DC F 1 1 RVPX

Group G (1 mated pair)

VITA BMA G 1 1 RVPX VITA DC G 1 1 RVPX



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FIGURE #1

MECHANICAL SHOCK/VIBRATION TEST FIXTURE

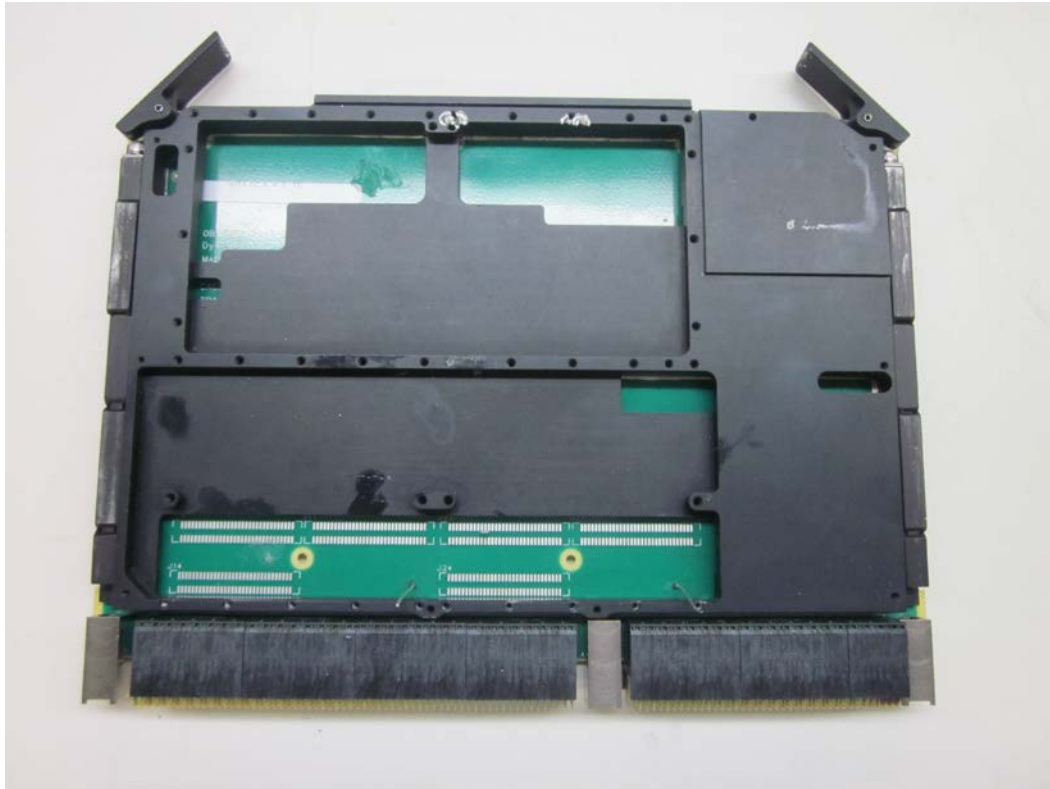
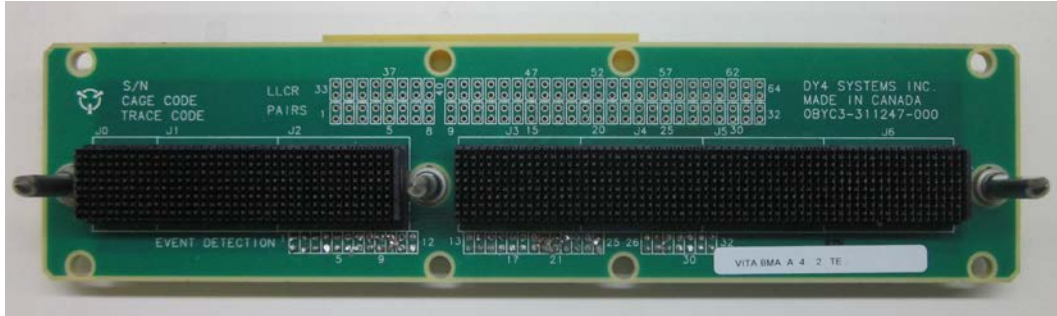


1478 - 01
[ACCREDITED]
Test Laboratory
1478 - 02



FIGURE #2

TYPICAL TEST SAMPLE



1478 - 01
IAC
ACCREDITED
Test Laboratory
1478 - 02

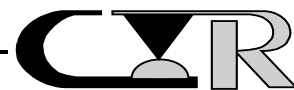
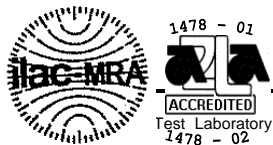
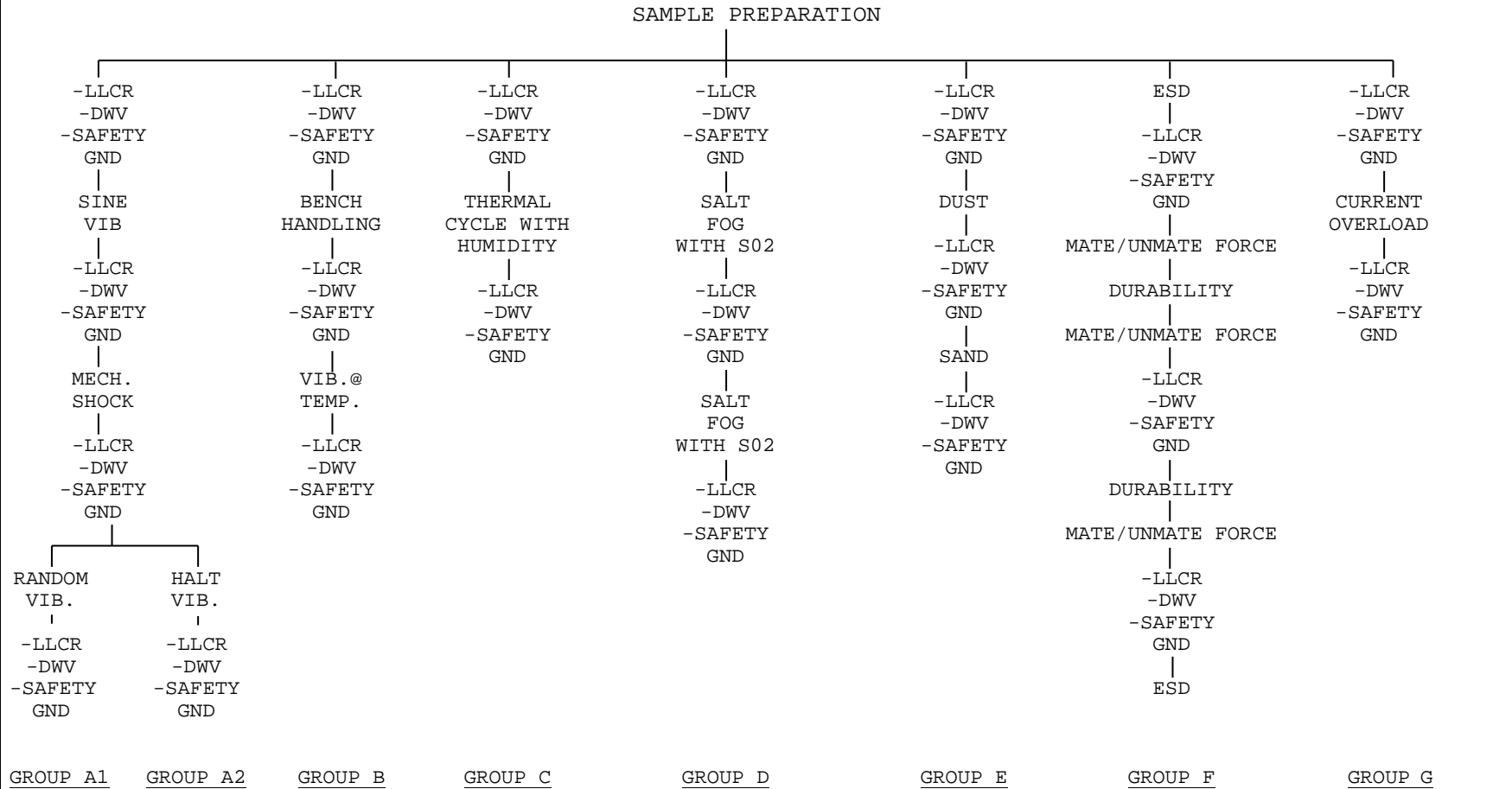


FIGURE #3

TEST PLAN FLOW DIAGRAM



DATA SUMMARY

TEST

REQUIREMENT

RESULTS

GROUP A

LLCR

RVPX/RVPX	RECORD	163.5 mΩ MAX.
RT2R/RVPX	RECORD	170.6 mΩ MAX.
RVPX/RT2R	RECORD	161.9 mΩ MAX.
RT2R/RT2R	RECORD	165.8 mΩ MAX.

DWV

RVPX/RVPX	NO BREAKDOWN, <5.0 mA LEAKAGE	PASSED
RT2R/RVPX	NO BREAKDOWN, <5.0 mA LEAKAGE	PASSED
RVPX/RT2R	NO BREAKDOWN, <5.0 mA LEAKAGE	PASSED
RT2R/RT2R	NO BREAKDOWN, <5.0 mA LEAKAGE	PASSED

SAFETY GND

RVPX/RVPX	100.0 mΩ MAX	23.7 mΩ MAX.
RT2R/RVPX	100.0 mΩ MAX	13.8 mΩ MAX.
RVPX/RT2R	100.0 mΩ MAX	9.8 mΩ MAX.
RT2R/RT2R	100.0 mΩ MAX	6.1 mΩ MAX.

SINE VIBRATION-RESONANCE

RVPX/RVPX	RECORD X-AXIS	11.2G @ 955 Hz
	RECORD Y-AXIS	26.7G @ 461 Hz
	RECORD Z-AXIS	9.2G @ 994 Hz
RT2R/RVPX	RECORD X-AXIS	6.5G @ 1881 Hz
	RECORD Y-AXIS	35.3G @ 446 Hz
	RECORD Z-AXIS	4.6G @ 1814 Hz
RVPX/RT2R	RECORD X-AXIS	5.9G @ 1247 Hz
	RECORD Y-AXIS	29.0G @ 456 Hz
	RECORD Z-AXIS	4.8G @ 1582 Hz
RT2R/RT2R	RECORD X-AXIS	4.9G @ 1943 Hz
	RECORD Y-AXIS	32.4G @ 449 Hz
	RECORD Z-AXIS	4.4G @ 1860 Hz

LLCR

RVPX/RVPX	+10.0 mΩ MAX.CHG.	+3.3 mΩ MAX.CHG.
	+5.0 mΩ MAX.AVG.CHG	+0.4 mΩ MAX.AVG.CHG
RT2R/RVPX	+10.0 mΩ MAX.CHG.	+0.4 mΩ MAX.CHG.
	+5.0 mΩ MAX.AVG.CHG	+2.3 mΩ MAX.AVG.CHG
RVPX/RT2R	+10.0 mΩ MAX.CHG.	+0.5 mΩ MAX.CHG.
	+5.0 mΩ MAX.AVG.CHG	+0.1 mΩ MAX.AVG.CHG
RT2R/RT2R	+10.0 mΩ MAX.CHG.	+0.3 mΩ MAX.CHG.
	+5.0 mΩ MAX.AVG.CHG	-0.1 mΩ MAX.AVG.CHG



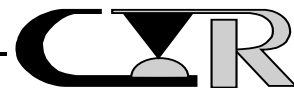
DATA SUMMARY -continued

<u>TEST</u>	<u>REQUIREMENT</u>	<u>RESULTS</u>
<u>GROUP A - CONTINUED:</u>		
DWV		
RVPX/RVPX	NO BREAKDOWN, <5.0 mA LEAKAGE	PASSED
RT2R/RVPX	NO BREAKDOWN, <5.0 mA LEAKAGE	PASSED
RVPX/RT2R	NO BREAKDOWN, <5.0 mA LEAKAGE	PASSED
RT2R/RT2R	NO BREAKDOWN, <5.0 mA LEAKAGE	PASSED
SAFETY GND		
RVPX/RVPX	100.0 mΩ MAX	18.7 mΩ MAX.
RT2R/RVPX	100.0 mΩ MAX	19.0 mΩ MAX.
RVPX/RT2R	100.0 mΩ MAX	13.9 mΩ MAX.
RT2R/RT2R	100.0 mΩ MAX	7.4 mΩ MAX.
MECHANICAL SHOCK		
RVPX/RVPX	NO DAMAGE 10.0 NANOSECOND	PASSED PASSED
RT2R/RVPX	NO DAMAGE 10.0 NANOSECOND	PASSED PASSED
RVPX/RT2R	NO DAMAGE 10.0 NANOSECOND	PASSED PASSED
RT2R/RT2R	NO DAMAGE 10.0 NANOSECOND	PASSED PASSED
LLCR		
RVPX/RVPX	+10.0 mΩ MAX.CHG. +5.0 mΩ MAX.AVG.CHG	+4.8 mΩ MAX.CHG. +1.1 mΩ MAX.AVG.CHG
RT2R/RVPX	+10.0 mΩ MAX.CHG. +5.0 mΩ MAX.AVG.CHG	+4.4 mΩ MAX.CHG. +0.4 mΩ MAX.AVG.CHG
RVPX/RT2R	+10.0 mΩ MAX.CHG. +5.0 mΩ MAX.AVG.CHG	+9.2 mΩ MAX.CHG. +0.2 mΩ MAX.AVG.CHG
RT2R/RT2R	+10.0 mΩ MAX.CHG. +5.0 mΩ MAX.AVG.CHG	+0.3 mΩ MAX.CHG. -0.2 mΩ MAX.AVG.CHG
DWV		
RVPX/RVPX	NO BREAKDOWN, <5.0 mA LEAKAGE	PASSED
RT2R/RVPX	NO BREAKDOWN, <5.0 mA LEAKAGE	PASSED
RVPX/RT2R	NO BREAKDOWN, <5.0 mA LEAKAGE	PASSED
RT2R/RT2R	NO BREAKDOWN, <5.0 mA LEAKAGE	PASSED



DATA SUMMARY -continued

<u>TEST</u>	<u>REQUIREMENT</u>	<u>RESULTS</u>
<u>GROUP A - CONTINUED:</u>		
SAFETY GND		
RVPX/RVPX	100.0 mΩ MAX	19.0 mΩ MAX.
RT2R/RVPX	100.0 mΩ MAX	18.1 mΩ MAX.
RVPX/RT2R	100.0 mΩ MAX	6.4 mΩ MAX.
RT2R/RT2R	100.0 mΩ MAX	7.9 mΩ MAX.
<u>GROUP A1</u>		
RANDOM VIBRATION		
RVPX/RVPX	NO DAMAGE	PASSED
	10.0 NANOSECOND	PASSED
RT2R/RVPX	NO DAMAGE	PASSED
	10.0 NANOSECOND	PASSED
RVPX/RT2R	NO DAMAGE	PASSED
	10.0 NANOSECOND	PASSED
RT2R/RT2R	NO DAMAGE	PASSED
	10.0 NANOSECOND	PASSED
LLCR		
RVPX/RVPX	+10.0 mΩ MAX.CHG. +5.0 mΩ MAX.AVG.CHG	+3.2 mΩ MAX.CHG. +1.0 mΩ MAX.AVG.CHG
RT2R/RVPX	+10.0 mΩ MAX.CHG. +5.0 mΩ MAX.AVG.CHG	+3.3 mΩ MAX.CHG. +0.0 mΩ MAX.AVG.CHG
RVPX/RT2R	+10.0 mΩ MAX.CHG. +5.0 mΩ MAX.AVG.CHG	+0.2 mΩ MAX.CHG. -0.2 mΩ MAX.AVG.CHG
RT2R/RT2R	+10.0 mΩ MAX.CHG. +5.0 mΩ MAX.AVG.CHG	+0.8 mΩ MAX.CHG. -0.7 mΩ MAX.AVG.CHG
DWV		
RVPX/RVPX	NO BREAKDOWN, <5.0 mA LEAKAGE	PASSED
RT2R/RVPX	NO BREAKDOWN, <5.0 mA LEAKAGE	PASSED
RVPX/RT2R	NO BREAKDOWN, <5.0 mA LEAKAGE	PASSED
RT2R/RT2R	NO BREAKDOWN, <5.0 mA LEAKAGE	PASSED
SAFETY GND		
RVPX/RVPX	100.0 mΩ MAX	5.9 mΩ MAX.
RT2R/RVPX	100.0 mΩ MAX	5.1 mΩ MAX.
RVPX/RT2R	100.0 mΩ MAX	9.3 mΩ MAX.
RT2R/RT2R	100.0 mΩ MAX	6.5 mΩ MAX.



DATA SUMMARY -continued

<u>TEST</u>	<u>REQUIREMENT</u>	<u>RESULTS</u>
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GROUP A - CONTINUED:

GROUP A2

HALT VIBRATION, PSD 0.125 G²/HZ

RVPX/RVPX	NO DAMAGE	PASSED
	10.0 NANOSECOND	PASSED
RT2R/RVPX	NO DAMAGE	PASSED
	10.0 NANOSECOND	PASSED
RVPX/RT2R	NO DAMAGE	PASSED
	10.0 NANOSECOND	PASSED
RT2R/RT2R	NO DAMAGE	PASSED
	10.0 NANOSECOND	PASSED

LLCR

RVPX/RVPX	+10.0 mΩ MAX.CHG. +5.0 mΩ MAX.AVG.CHG	+1.8 mΩ MAX.CHG. -0.1 mΩ MAX.AVG.CHG
RT2R/RVPX	+10.0 mΩ MAX.CHG. +5.0 mΩ MAX.AVG.CHG	+1.7 mΩ MAX.CHG. +0.1 mΩ MAX.AVG.CHG
RVPX/RT2R	+10.0 mΩ MAX.CHG. +5.0 mΩ MAX.AVG.CHG	+1.6 mΩ MAX.CHG. +0.4 mΩ MAX.AVG.CHG
RT2R/RT2R	+10.0 mΩ MAX.CHG. +5.0 mΩ MAX.AVG.CHG	+0.1 mΩ MAX.CHG. -0.9 mΩ MAX.AVG.CHG

DWV

RVPX/RVPX	NO BREAKDOWN, <5.0 mA LEAKAGE	PASSED
RT2R/RVPX	NO BREAKDOWN, <5.0 mA LEAKAGE	PASSED
RVPX/RT2R	NO BREAKDOWN, <5.0 mA LEAKAGE	PASSED
RT2R/RT2R	NO BREAKDOWN, <5.0 mA LEAKAGE	PASSED

SAFETY GND

RVPX/RVPX	100.0 mΩ MAX	19.5 mΩ MAX.
RT2R/RVPX	100.0 mΩ MAX	8.4 mΩ MAX.
RVPX/RT2R	100.0 mΩ MAX	5.0 mΩ MAX.
RT2R/RT2R	100.0 mΩ MAX	5.7 mΩ MAX.

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DATA SUMMARY -continued

<u>TEST</u>	<u>REQUIREMENT</u>	<u>RESULTS</u>
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GROUP A - CONTINUED:

GROUP A2

HALT VIBRATION, PSD 0.150 G²/HZ

RVPX/RVPX	NO DAMAGE	PASSED
	10.0 NANOSECOND	PASSED
RT2R/RVPX	NO DAMAGE	PASSED
	10.0 NANOSECOND	PASSED
RVPX/RT2R	NO DAMAGE	PASSED
	10.0 NANOSECOND	PASSED
RT2R/RT2R	NO DAMAGE	PASSED
	10.0 NANOSECOND	PASSED

LLCR

RVPX/RVPX	+10.0 mΩ MAX.CHG. +5.0 mΩ MAX.AVG.CHG	+1.2 mΩ MAX.CHG. -0.7 mΩ MAX.AVG.CHG
RT2R/RVPX	+10.0 mΩ MAX.CHG. +5.0 mΩ MAX.AVG.CHG	+2.3 mΩ MAX.CHG. +0.4 mΩ MAX.AVG.CHG
RVPX/RT2R	+10.0 mΩ MAX.CHG. +5.0 mΩ MAX.AVG.CHG	+2.1 mΩ MAX.CHG. +0.6 mΩ MAX.AVG.CHG
RT2R/RT2R	+10.0 mΩ MAX.CHG. +5.0 mΩ MAX.AVG.CHG	+0.2 mΩ MAX.CHG. -0.9 mΩ MAX.AVG.CHG

DWV

RVPX/RVPX	NO BREAKDOWN, <5.0 mA LEAKAGE	PASSED
RT2R/RVPX	NO BREAKDOWN, <5.0 mA LEAKAGE	PASSED
RVPX/RT2R	NO BREAKDOWN, <5.0 mA LEAKAGE	PASSED
RT2R/RT2R	NO BREAKDOWN, <5.0 mA LEAKAGE	PASSED

SAFETY GND

RVPX/RVPX	100.0 mΩ MAX	3.0 mΩ MAX.
RT2R/RVPX	100.0 mΩ MAX	9.7 mΩ MAX.
RVPX/RT2R	100.0 mΩ MAX	3.6 mΩ MAX.
RT2R/RT2R	100.0 mΩ MAX	5.4 mΩ MAX.

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DATA SUMMARY -continued

<u>TEST</u>	<u>REQUIREMENT</u>	<u>RESULTS</u>
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GROUP A - CONTINUED:

GROUP A2

HALT VIBRATION, PSD 0.175 G²/HZ

RVPX/RVPX	NO DAMAGE	PASSED
	10.0 NANOSECOND	PASSED
RT2R/RVPX	NO DAMAGE	PASSED
	10.0 NANOSECOND	PASSED
RVPX/RT2R	NO DAMAGE	PASSED
	10.0 NANOSECOND	PASSED
RT2R/RT2R	NO DAMAGE	PASSED
	10.0 NANOSECOND	PASSED

LLCR

RVPX/RVPX	+10.0 mΩ MAX.CHG.	+1.4 mΩ MAX.CHG.
	+5.0 mΩ MAX.AVG.CHG	-0.5 mΩ MAX.AVG.CHG
RT2R/RVPX	+10.0 mΩ MAX.CHG.	+0.5 mΩ MAX.CHG.
	+5.0 mΩ MAX.AVG.CHG	-1.3 mΩ MAX.AVG.CHG
RVPX/RT2R	+10.0 mΩ MAX.CHG.	+0.3 mΩ MAX.CHG.
	+5.0 mΩ MAX.AVG.CHG	-0.2 mΩ MAX.AVG.CHG
RT2R/RT2R	+10.0 mΩ MAX.CHG.	+0.0 mΩ MAX.CHG.
	+5.0 mΩ MAX.AVG.CHG	-1.1 mΩ MAX.AVG.CHG

DWV

RVPX/RVPX	NO BREAKDOWN, <5.0 mA LEAKAGE	PASSED
RT2R/RVPX	NO BREAKDOWN, <5.0 mA LEAKAGE	PASSED
RVPX/RT2R	NO BREAKDOWN, <5.0 mA LEAKAGE	PASSED
RT2R/RT2R	NO BREAKDOWN, <5.0 mA LEAKAGE	PASSED

SAFETY GND

RVPX/RVPX	100.0 mΩ MAX	4.3 mΩ MAX.
RT2R/RVPX	100.0 mΩ MAX	12.8 mΩ MAX.
RVPX/RT2R	100.0 mΩ MAX	4.0 mΩ MAX.
RT2R/RT2R	100.0 mΩ MAX	4.8 mΩ MAX.

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DATA SUMMARY -continued

<u>TEST</u>	<u>REQUIREMENT</u>	<u>RESULTS</u>
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GROUP A - CONTINUED:

GROUP A2

HALT VIBRATION, PSD 0.200 G²/HZ

RVPX/RVPX	NO DAMAGE	PASSED
	10.0 NANOSECOND	PASSED
RT2R/RVPX	NO DAMAGE	PASSED
	10.0 NANOSECOND	PASSED
RVPX/RT2R	NO DAMAGE	PASSED
	10.0 NANOSECOND	PASSED
RT2R/RT2R	NO DAMAGE	PASSED
	10.0 NANOSECOND	PASSED

LLCR

RVPX/RVPX	+10.0 mΩ MAX.CHG.	+0.9 mΩ MAX.CHG.
	+5.0 mΩ MAX.AVG.CHG	-1.2 mΩ MAX.AVG.CHG
RT2R/RVPX	+10.0 mΩ MAX.CHG.	+1.8 mΩ MAX.CHG.
	+5.0 mΩ MAX.AVG.CHG	+0.1 mΩ MAX.AVG.CHG
RVPX/RT2R	+10.0 mΩ MAX.CHG.	+1.3 mΩ MAX.CHG.
	+5.0 mΩ MAX.AVG.CHG	+0.1 mΩ MAX.AVG.CHG
RT2R/RT2R	+10.0 mΩ MAX.CHG.	+0.3 mΩ MAX.CHG.
	+5.0 mΩ MAX.AVG.CHG	-0.7 mΩ MAX.AVG.CHG

DWV

RVPX/RVPX	NO BREAKDOWN, <5.0 mA LEAKAGE	PASSED
RT2R/RVPX	NO BREAKDOWN, <5.0 mA LEAKAGE	PASSED
RVPX/RT2R	NO BREAKDOWN, <5.0 mA LEAKAGE	PASSED
RT2R/RT2R	NO BREAKDOWN, <5.0 mA LEAKAGE	PASSED

SAFETY GND

RVPX/RVPX	100.0 mΩ MAX	8.1 mΩ MAX.
RT2R/RVPX	100.0 mΩ MAX	10.3 mΩ MAX.
RVPX/RT2R	100.0 mΩ MAX	3.4 mΩ MAX.
RT2R/RT2R	100.0 mΩ MAX	4.7 mΩ MAX.

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DATA SUMMARY -continued

<u>TEST</u>	<u>REQUIREMENT</u>	<u>RESULTS</u>
<u>GROUP B</u>		
LLCR		
RVPX/RVPX	RECORD	167.2 mΩ MAX.
RT2R/RVPX	RECORD	172.1 mΩ MAX.
RVPX/RT2R	RECORD	157.6 mΩ MAX.
RT2R/RT2R	RECORD	172.7 mΩ MAX.
DWV		
RVPX/RVPX	NO BREAKDOWN, <5.0 mA LEAKAGE	PASSED
RT2R/RVPX	NO BREAKDOWN, <5.0 mA LEAKAGE	PASSED
RVPX/RT2R	NO BREAKDOWN, <5.0 mA LEAKAGE	PASSED
RT2R/RT2R	NO BREAKDOWN, <5.0 mA LEAKAGE	PASSED
SAFETY GND		
RVPX/RVPX	100.0 mΩ MAX	11.7 mΩ MAX.
RT2R/RVPX	100.0 mΩ MAX	9.5 mΩ MAX.
RVPX/RT2R	100.0 mΩ MAX	11.6 mΩ MAX.
RT2R/RT2R	100.0 mΩ MAX	4.0 mΩ MAX.
BENCH HANDLING		
RVPX/RVPX	NO DAMAGE 10.0 NANOSECOND	PASSED PASSED
RT2R/RVPX	NO DAMAGE 10.0 NANOSECOND	PASSED PASSED
RVPX/RT2R	NO DAMAGE 10.0 NANOSECOND	PASSED PASSED
RT2R/RT2R	NO DAMAGE 10.0 NANOSECOND	PASSED PASSED
LLCR		
RVPX/RVPX	+10.0 mΩ MAX.CHG. +5.0 mΩ MAX.AVG.CHG	+4.0 mΩ MAX.CHG. +0.5 mΩ MAX.AVG.CHG
RT2R/RVPX	+10.0 mΩ MAX.CHG. +5.0 mΩ MAX.AVG.CHG	+3.3 mΩ MAX.CHG. +0.3 mΩ MAX.AVG.CHG
RVPX/RT2R	+10.0 mΩ MAX.CHG. +5.0 mΩ MAX.AVG.CHG	+6.5 mΩ MAX.CHG. +0.7 mΩ MAX.AVG.CHG
RT2R/RT2R	+10.0 mΩ MAX.CHG. +5.0 mΩ MAX.AVG.CHG	+0.2 mΩ MAX.CHG. +0.1 mΩ MAX.AVG.CHG

-continued on next page.



DATA SUMMARY -continued

<u>TEST</u>	<u>REQUIREMENT</u>	<u>RESULTS</u>
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GROUP B - CONTINUED:

DWV

RVPX/RVPX	NO BREAKDOWN, <5.0 mA LEAKAGE	PASSED
RT2R/RVPX	NO BREAKDOWN, <5.0 mA LEAKAGE	PASSED
RVPX/RT2R	NO BREAKDOWN, <5.0 mA LEAKAGE	PASSED
RT2R/RT2R	NO BREAKDOWN, <5.0 mA LEAKAGE	PASSED

SAFETY GND

RVPX/RVPX	100.0 mΩ MAX	11.3 mΩ MAX.
RT2R/RVPX	100.0 mΩ MAX	10.2 mΩ MAX.
RVPX/RT2R	100.0 mΩ MAX	10.2 mΩ MAX.
RT2R/RT2R	100.0 mΩ MAX	4.2 mΩ MAX.

VIBRATION @ TEMPERATURE

RVPX/RVPX	NO DAMAGE	PASSED
	10.0 NANOSECOND	PASSED
RT2R/RVPX	NO DAMAGE	PASSED
	10.0 NANOSECOND	PASSED
RVPX/RT2R	NO DAMAGE	PASSED
	10.0 NANOSECOND	PASSED
RT2R/RT2R	NO DAMAGE	PASSED
	10.0 NANOSECOND	PASSED

LLCR

RVPX/RVPX	+10.0 mΩ MAX.CHG. +5.0 mΩ MAX.AVG.CHG	+2.6 mΩ MAX.CHG. -0.9 mΩ MAX.AVG.CHG
RT2R/RVPX	+10.0 mΩ MAX.CHG. +5.0 mΩ MAX.AVG.CHG	+3.7 mΩ MAX.CHG. +0.7 mΩ MAX.AVG.CHG
RVPX/RT2R	+10.0 mΩ MAX.CHG. +5.0 mΩ MAX.AVG.CHG	+7.9 mΩ MAX.CHG. +1.4 mΩ MAX.AVG.CHG
RT2R/RT2R	+10.0 mΩ MAX.CHG. +5.0 mΩ MAX.AVG.CHG	+2.4 mΩ MAX.CHG. +1.1 mΩ MAX.AVG.CHG

DWV

RVPX/RVPX	NO BREAKDOWN, <5.0 mA LEAKAGE	PASSED
RT2R/RVPX	NO BREAKDOWN, <5.0 mA LEAKAGE	PASSED
RVPX/RT2R	NO BREAKDOWN, <5.0 mA LEAKAGE	PASSED
RT2R/RT2R	NO BREAKDOWN, <5.0 mA LEAKAGE	PASSED



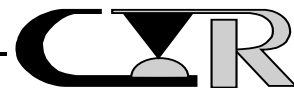
DATA SUMMARY -continued

<u>TEST</u>	<u>REQUIREMENT</u>	<u>RESULTS</u>
<u>GROUP B - CONTINUED:</u>		
SAFETY GND		
RVPX/RVPX	100.0 mΩ MAX	11.5 mΩ MAX.
RT2R/RVPX	100.0 mΩ MAX	7.7 mΩ MAX.
RVPX/RT2R	100.0 mΩ MAX	14.0 mΩ MAX.
RT2R/RT2R	100.0 mΩ MAX	3.9 mΩ MAX.
<u>GROUP C</u>		
LLCR		
RVPX/RVPX	RECORD	159.0 mΩ MAX.
DWV		
RVPX/RVPX	NO BREAKDOWN, <5.0 mA LEAKAGE	PASSED
SAFETY GND		
RVPX/RVPX	100.0 mΩ MAX	6.8 mΩ MAX.
TEMP./HUMIDITY		
	NO DAMAGE	PASSED
LLCR		
RVPX/RVPX	+10.0 mΩ MAX.CHG. +5.0 mΩ MAX.AVG.CHG	+7.2 mΩ MAX.CHG. +1.2 mΩ MAX.AVG.CHG
DWV		
RVPX/RVPX	NO BREAKDOWN, <5.0 mA LEAKAGE	PASSED
SAFETY GND		
RVPX/RVPX	100.0 mΩ MAX	7.9 mΩ MAX.
<u>GROUP D</u>		
LLCR		
RVPX/RVPX	RECORD	165.9 mΩ MAX.
DWV		
RVPX/RVPX	NO BREAKDOWN, <5.0 mA LEAKAGE	PASSED
SAFETY GND		
RVPX/RVPX	100.0 mΩ MAX	14.5 mΩ MAX.
SALT FOG W/SO2, 1st RUN		
	NO DAMAGE	PASSED
LLCR		
RVPX/RVPX	+10.0 mΩ MAX.CHG. +5.0 mΩ MAX.AVG.CHG	+2.8 mΩ MAX.CHG. +1.0 mΩ MAX.AVG.CHG
DWV		
RVPX/RVPX	NO BREAKDOWN, <5.0 mA LEAKAGE	PASSED



DATA SUMMARY -continued

<u>TEST</u>	<u>REQUIREMENT</u>	<u>RESULTS</u>
GROUP D - CONTINUED:		
SAFETY GND		
RVPX/RVPX	100.0 mΩ MAX	18.5 mΩ MAX.
SALT FOG W/SO₂, 2nd RUN	NO DAMAGE	PASSED
LLCR		
RVPX/RVPX	+10.0 mΩ MAX.CHG. +5.0 mΩ MAX.AVG.CHG	+0.5 mΩ MAX.CHG. -0.1 mΩ MAX.AVG.CHG
DWV		
RVPX/RVPX	NO BREAKDOWN, <5.0 mA LEAKAGE	PASSED
SAFETY GND		
RVPX/RVPX	100.0 mΩ MAX	14.2 mΩ MAX.
GROUP E		
LLCR		
RVPX/RVPX	RECORD	162.3 mΩ MAX.
DWV		
RVPX/RVPX	NO BREAKDOWN, <5.0 mA LEAKAGE <5.0 mA LEAKAGE	PASSED
SAFETY GND		
RVPX/RVPX	100.0 mΩ MAX	13.9 mΩ MAX.
DUST TEST	NO DAMAGE	PASSED
LLCR		
RVPX/RVPX	+10.0 mΩ MAX.CHG. +5.0 mΩ MAX.AVG.CHG	+5.0 mΩ MAX.CHG. +0.0 mΩ MAX.AVG.CHG
DWV		
RVPX/RVPX	NO BREAKDOWN, <5.0 mA LEAKAGE	PASSED
SAFETY GND		
RVPX/RVPX	100.0 mΩ MAX	13.0 mΩ MAX.
SAND TEST	NO DAMAGE	PASSED
LLCR		
RVPX/RVPX	+10.0 mΩ MAX.CHG. +5.0 mΩ MAX.AVG.CHG	+0.8 mΩ MAX.CHG. -0.5 mΩ MAX.AVG.CHG
DWV		
RVPX/RVPX	NO BREAKDOWN, <5.0 mA LEAKAGE	PASSED
SAFETY GND		
RVPX/RVPX	100.0 mΩ MAX	13.7 mΩ MAX.



DATA SUMMARY -continued

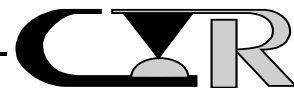
<u>TEST</u>	<u>REQUIREMENT</u>	<u>RESULTS</u>
<u>GROUP F</u>		
ESD	<20.0 V DISCHARGE	PASSED
LLCR		
RVPX/RVPX	RECORD	160.1 mΩ MAX.
DWV		
RVPX/RVPX	NO BREAKDOWN, <5.0 mA LEAKAGE <5.0 mA LEAKAGE	PASSED
SAFETY GND		
RVPX/RVPX	100.0 mΩ MAX	3.0 mΩ MAX.
MATING FORCE		
RVPX/RVPX	RECORD	136.0 LBS.MAX.
UNMATING FORCE		
RVPX/RVPX	RECORD	120.0 LBS.MAX.
DURABILITY (200X)	NO DAMAGE	PASSED
MATING FORCE		
RVPX/RVPX	RECORD	185.0 LBS.MAX.
UNMATING FORCE		
RVPX/RVPX	RECORD	168.0 LBS.MAX.
LLCR		
RVPX/RVPX	+10.0 mΩ MAX.CHG. +5.0 mΩ MAX.AVG.CHG	+0.4 mΩ MAX.CHG. -0.9 mΩ MAX.AVG.CHG
DWV		
RVPX/RVPX	NO BREAKDOWN, <5.0 mA LEAKAGE	PASSED
SAFETY GND		
RVPX/RVPX	100.0 mΩ MAX	9.3 mΩ MAX.
DURABILITY (300X)	NO DAMAGE	PASSED
MATING FORCE		
RVPX/RVPX	RECORD	220.2 LBS.MAX.
UNMATING FORCE		
RVPX/RVPX	RECORD	197.0 LBS.MAX.

Note: Following review of post durability mate/unmate forces, the test sponsor terminated testing. New lubricated samples were supplied for retest.



DATA SUMMARY -continued

<u>TEST</u>	<u>REQUIREMENT</u>	<u>RESULTS</u>
GROUP F -RETEST		
ESD	<20.0 V DISCHARGE	PASSED
LLCR		
RVPX/RVPX	RECORD	167.3 mΩ MAX.
DWV		
RVPX/RVPX	NO BREAKDOWN, <5.0 mA LEAKAGE <5.0 mA LEAKAGE	PASSED
SAFETY GND		
RVPX/RVPX	100.0 mΩ MAX	13.9 mΩ MAX.
MATING FORCE		
RVPX/RVPX	RECORD	89.8 LBS.MAX.
UNMATING FORCE		
RVPX/RVPX	RECORD	69.6 LBS.MAX.
DURABILITY (200X)	NO DAMAGE	PASSED
MATING FORCE		
RVPX/RVPX	RECORD	93.2 LBS.MAX.
UNMATING FORCE		
RVPX/RVPX	RECORD	84.4 LBS.MAX.
LLCR		
RVPX/RVPX	+10.0 mΩ MAX.CHG. +5.0 mΩ MAX.AVG.CHG	+2.0 mΩ MAX.CHG. -0.3 mΩ MAX.AVG.CHG
DWV		
RVPX/RVPX	NO BREAKDOWN, <5.0 mA LEAKAGE	PASSED
SAFETY GND		
RVPX/RVPX	100.0 mΩ MAX	5.2 mΩ MAX.
DURABILITY (300X)	NO DAMAGE	PASSED
MATING FORCE		
RVPX/RVPX	RECORD	95.6 LBS.MAX.
UNMATING FORCE		
RVPX/RVPX	RECORD	81.2 LBS.MAX.
LLCR		
RVPX/RVPX	+10.0 mΩ MAX.CHG. +5.0 mΩ MAX.AVG.CHG	+0.1 mΩ MAX.CHG. -0.6 mΩ MAX.AVG.CHG
DWV		
RVPX/RVPX	NO BREAKDOWN, <5.0 mA LEAKAGE	PASSED
SAFETY GND		
RVPX/RVPX	100.0 mΩ MAX	13.2 mΩ MAX.
ESD	<20.0 V DISCHARGE	PASSED



DATA SUMMARY -continued

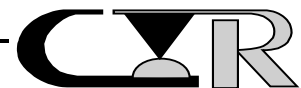
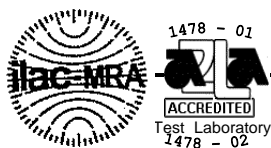
<u>TEST</u>	<u>REQUIREMENT</u>	<u>RESULTS</u>
GROUP G		
LLCR		
RVPX/RVPX SIGNAL CONTACTS	RECORD	170.8 mΩ MAX.
SINGLE/DOUBLE	RECORD	34.9 mΩ MAX.
POWER CONTACTS	RECORD	17.2 mΩ MAX.
DWV		
RVPX/RVPX	NO BREAKDOWN, <5.0 mA LEAKAGE <5.0 mA LEAKAGE	PASSED
SAFETY GND		
RVPX/RVPX	100.0 mΩ MAX	14.4 mΩ MAX.
CURRENT OVERLOAD	NO DAMAGE	PASSED
LLCR		
RVPX/RVPX SIGNAL CONTACTS	+10.0 mΩ MAX.CHG.	+0.3 mΩ MAX.CHG
SINGLE/DOUBLE	+10.0 mΩ MAX.CHG.	+20.3 mΩ MAX.CHG
POWER CONTACTS	+10.0 mΩ MAX.CHG.	-1.8 mΩ MAX.CHG
DWV		
RVPX/RVPX	NO BREAKDOWN, <5.0 mA LEAKAGE <5.0 mA LEAKAGE	PASSED
SAFETY GND		
RVPX/RVPX	100.0 mΩ MAX	13.5 mΩ MAX.

NOTE: FOR THE COMPLETE TEST REPORT, SEE TR#215291, REV.1.0.



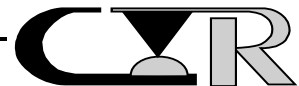
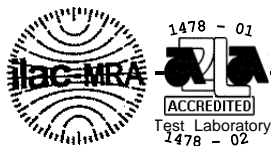
EQUIPMENT LIST

ID#	Next Cal	Last Cal	Equipment Name	Manufacturer	Model #	Serial #	Accuracy	Freq. Cal
26	12/2/2016	12/2/2015	Dial-a-Gram Scale	Ohaus Co.	2610	26	See Cal Cert	12 mon
34	N/A	N/A	Shock Machine	Avco	SM110-3	1047	N/A	Ea Test
200	2/25/2016	2/25/2015	Power Supply	PCB Piezotronics	482A	4210	See Manual	12 mon
244	12/19/2015	11/19/2014	Micro-Ohm Meter	Keithley Instr.	580-1	467496	See Cal Cert	12 mon
321	5/6/2016	5/6/2015	AC-DC Hipot/Megometer	Hipotronics Co.	H300B	DS16-201	See Cal Cert	12 mon
339	N/A	N/A	IBM Dust Chamber	Contech Research	4000	4000 In 3-2	N/A	N/A
403	N/A	N/A	Sand Chamber	Contech Research	4000	4000 i n 3-1	N/A	Ea Test
547	7/13/2016	7/13/2015	Temp Humid Chamber	CSZ	ZH-8-1-H/AC	ZG9442057	See Cal Cert	12 mon
553	N/A	N/A	12 channel Power Unit	PCB Piezotronics	483A	1303	See Cal Cert	OOS
562	12/2/2016	12/2/2015	Programable Test Stand	Chatillon Co.	TCD 1000	25051	N/A	12 mon
572	5/12/2016	5/12/2015	Digital Readout Gage	Chatillon Co.	DFGS-R-ND	25278	See Manual	12 mon
585	11/19/2016	11/19/2015	Digitizing Scope	Hewlett Packard Co.	54200A	2740A-02154	±2%	12 mon
611	10/15/2016	10/15/2015	DC Power Supply 30Amps	Hewlett Packard	6033A	2934-A-04691	See Cal Cert	12 mon
619	2/6/2016	2/6/2015	Accelerometer	PCB Piezotronics	A353B15	34196	See Cal Cert	12 mon
620	6/22/2016	6/22/2015	Accelerometer	PCB Piezotronics	A353B15	34197	See Cal Cert	12 mon
684	6/29/2016	6/29/2015	Accelerometer	PCB Piezotronics	353B04	47648	See Cal Cert.	12 mon
689	7/27/2016	7/27/2015	DC Power Supply 30Amps	Hewlett Packard	6033A	2548A01848	See Cal Cert	12 mon
874	N/A	N/A	Computer	M&P	Vectra	us75203327	N/A	N/A
1013	11/20/2016	11/20/2015	Cal. Kit	Hewlett Packard	85033C	2920A-01599	See Cal Cert	12 mon
1028	X10/20/2015	8/20/2014	Event Detector	Analysis Tech	32 EHD	981019	See Cal Cert	12 mon
1035	6/29/2016	6/29/2015	Accelerometer	PCB Piezotronics	A353B15	52544	See Cal Cert	12 mon



EQUIPMENT LIST -continued

ID#	Next Cal	Last Cal	Equipment Name	Manufacturer	Model #	Serial #	Accuracy	Freq. Cal
1047	1/26/2016	1/26/2015	Micro-Ohm Meter	Keithley Instr.	580	0705731	See Cal Cert	12 mon
1147	6/11/2016	6/11/2015	Digital O-Scope	Tektronix	11801C	B030915	See Cal Cert	12 mon
1166	12/10/2016	12/10/2015	Sine/Rndm Vib Control Digitizer	Hewlett Packard	E1432A	US39342279	See Cal Cert	12 mon
1167	N/A	N/A	Interface	Hewlett Packard	E8491B	US390100753	N/A	N/A
1168	N/A	N/A	Mainframe	Hewlett Packard	E8408A	US39000357	N/A	N/A
1271	N/A	N/A	Amplifier	Unholtz Dickie	SA15	3483	N/A	N/A
1272	N/A	N/A	Shaker Table	Unholtz Dickie	S202PB	263	N/A	N/A
1302	4/22/2016	4/22/2015	Multiplexer Card	Keithley Co.	7708	0816774	See Cal Cert	12 mon
1360	4/20/2016	4/20/2015	Data Aquisition Multimeter	Keithley	2700	0914136	See Cal Cert	12 mon
1361	4/20/2016	4/20/2015	Multiplexer Card	Keithley	7708	0915308	See Cal Cert	12 mon
1366	N/A	N/A	Main Frame	Agilent H.P.	8408A		N/A	N/A
1367	N/A	N/A	Interface	Agilent H.P.	E8491A		N/A	N/A
1368	8/5/2017	8/5/2015	Sine/Rnd Control digitizer	Agilent H.P.	E1432A	US35470169	See Manual	24 mon
1556	2/27/2016	2/27/2015	Accelerometer	PCB Piezotronics	353B04	122769	See Cal Cert	12 mon
1634	12/10/2016	12/10/2015	Vibration Controller	HP Agilent	E1434A	US38090307	See Cal Cert	12 mon
1669	N/A	N/A	Computer	Dell	Vostro 410	BJ63GH1	N/A	N/A
1681	N/A	N/A	Computer	Emachines	T3393	CK855-B00-02829	N/A	N/A
1689	12/2/2016	12/2/2015	Programable Test Stand	Chatillon	TCD 1000-MS	25010	N/A	12 mon
1690	4/1/2016	4/1/2015	Digital Readout Gage	Chatillon	DFGS-R-500	21283	See Manual	12 mon
1691	4/1/2016	4/1/2015	500 LB Load Cell	Chatillon	NC000136-4	00664483	0.3 % F.S.	12 mon
1699	N/A	N/A	Test Sieve	Precision Eforming	10 micron	1104-123	N/A	N/A



EQUIPMENT LIST -continued

ID#	Next Cal	Last Cal	Equipment Name	Manufacturer	Model #	Serial #	Accuracy	Freq. Cal
1727	N/A	N/A	Computer	Dell	GX620	FYF0T91	N/A	N/A
1789	6/11/2016	6/11/2015	TDR/Sampling Head	Tektronix	SD-24	B023547	See Cal Cert	12 mon
1790	N/A	N/A	Power Amplier	Unholtz Dickie	SAI30F	4860	N/A	N/A
1791	N/A	N/A	Vibration Shaker Table	Unholtz Dickie	S452-12	314	N/A	N/A
1834	7/1/2016	7/1/2015	Accelerometer	Piezotronics	353B04	LW193091	See Cal Cert	12 mon

