SINUSOIDAL VIBRATION TEST REPORT

FOR THE

AVIATION LANTERNS A704-5

PART NUMBER A704R-0005

MANUFACTURED BY

CARMANAH TECHNOLOGIES, INC.
BUILDING 4 – 203 HARBOUR ROAD
VICTORIA, B.C., CANADA V9A 3S2

PREPARED BY

ENVIRONMENT ASSOCIATES, INC.
2300 WEST CAPE COD WAY
SANTA ANA, CALIFORNIA 92703

A P P R O V A L S H E E T

Environment Associates hereby certifies that the information presented in this report is, to the best of our knowledge, true and correct in all respects.

_____

ENVIRONMENT ASSOCIATES, INC.
Martin J. Povall Jr., Laboratory Manager

_____

Date

Report Written by Gerald Flippen on March 31, 2006

R E V I S I O N S H E E T

REVISION LETTER	DESCRIPTION OF REVISION	DATE	APPROVAL
None	Original Issue	03/31/06	

A D M I N I S T R A T I V E D A T A

PURPOSE OF TEST:	**To demonstrate compliance to the applicable requirements of the specifications cited below.**
ITEM SUBJECTED TO TEST:	**Aviation Lanterns A704-5 Part Number A704R-0005**
TEST SPECIFICATIONS:	**A704-5 Test Plan**
SUBMITTED BY:	**Carmanah Technologies, Inc. Building 4-203 Harbour Road Victoria, B.C., Canada V9A 3S2**
TESTING AGENCY:	**Environment Associates, Inc. 2300 West Cape Cod Way Santa Ana, California 92703**
DATES TESTING CONDUCTED:	**March 7, 2006**
AUTHORIZATION TO TEST:	**Carmanah Technologies Purchase Order Number 240266**

T A B L E O F C O N T E N T S

S U M M A R Y O F T E S T R E S U L T S

TEST	SAMPLE NO.	SERIAL NO.	PASS/FAIL
2.0 Sinusoidal Vibration	**JC08250002**		**X**
	JC08250012		**X**
	JC08250035		**X**
	JC08250037		**X**

Note:

“Pass” in the column above indicates completion of the test.

G E N E R A L I N F O R M A T I O N

1.0 GENERAL

1.1 TEST ITEM DESCRIPTION

Aviation Lanterns A704-5
Part Number A704R-0005
Serial Number JC08250002, JC082500012, JC08250035& JC08250037

1.2 REFERENCE DOCUMENTS

Military

MIL-STD-831	**Preparation of Test Reports**

Carmanah Technologies

Doc. No. 43912, Rev. A	**A-704 Test Plan for Aviation Lanterns A704-5**

1.3 TOLERANCES

Test Equipment

Test equipment utilized was calibrated to International Organization for Standards (ISO) 10012-1, "Quality Assurance Requirements for Measuring Equipment", Part 1: "Meteorological (sic) Confirmation System for Measuring Equipment"; American National Standards Institute (ANSI)/National conference of Standards Laboratories (NCSL) Z540-1, "General Requirements for Calibration Laboratories and Measuring and Test Equipment, latest revision and traceable to the National Institute for Standards and Technology.

1.3 TOLERANCES (Continued)

Unless otherwise described in this report, the environmental test equipment was capable of controlling the test equipment within the following tolerances:

Vibration Amplitude:	**±10% Hz to 2000 Hz**
Vibration Frequency:	**1% or ±1/2 Hz below 25 Hz**
Time:	**±5%**

Laboratory Ambient Conditions

All laboratory ambient conditions was maintained as follows:

Temperature:	**25 ±10 degrees C**
Pressure:	**30 ±2 inches Hg**
Relative Humidity:	**90% maximum**

2.0 SINUSOIDAL VIBRATION

2.1 REFERENCE

A704-5 Test Plan, Revision A, Paragraph 6.3

2.2 PROCEDURE

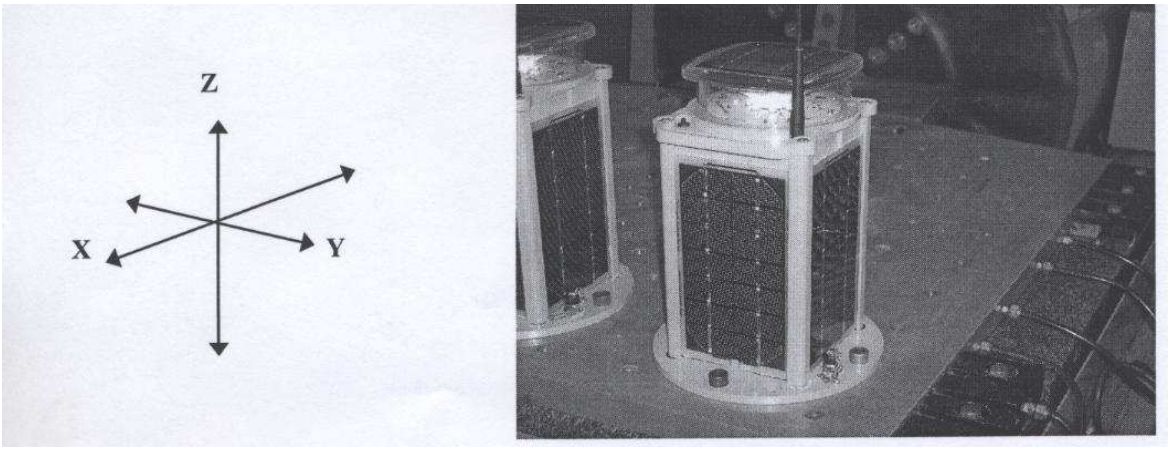
2.2.1 Test Parameters

The vibration control system was programmed for the following random conditions:

Frequency	Level
20 – 40 Hz	0.06 inch double amplitude
40 - 2000 Hz	5.0 g peak

(Logarithmic Sweep, 20 Hz to 2000 Hz, 10 minutes/sweep)

2.2.2 Axis Designation



2.2.3

The Aviation Lanterns A704-5 listed below were placed in a temperature chamber and stabilized at -10°F for a period of one (1) hour.

Sample Number
JC08250002
JC08250012
JC08250035
JC08250037

2.2.4

The Aviation Lanterns A704-5 listed below were removed from the temperature chamber and mounted on the vibration exciter in the X axis. The test fixture was instrumented with one (1) control accelerometer. The test samples were operational and monitored by Environment Associates personnel during the vibration test.

Sample Number
JC08250002
JC08250012
JC08250035
JC08250037

2.2.5

The test samples were subjected to three (3) sweeps of sinusoidal vibration at the levels specified in paragraph 2.2.1. Plot #1 shows the input vibration levels. No functional or physical anomalies were noted.

2.2.6

The test samples were reoriented on the vibration exciter in the Y axis. The test fixture was instrumented with one (1) control accelerometer. The test samples were operational and monitored during the vibration test.

2.2.7

The test samples were subjected to three (3) sweeps of sinusoidal vibration at the levels specified in paragraph 2.2.1. Plot #2 shows the input vibration levels. No functional or physical anomalies were noted.

2.2.8

The test samples were removed from the vibration exciter and placed back in the temperature chamber to be re-stabilized at -10°F.

2.2.9

The Aviation Lanterns A704-5 listed below was removed from the temperature chamber and mounted on the vibration exciter in the Z axis. The test fixture was instrumented with one (1) control accelerometer. The test samples were operational and monitored by Environment Associates personnel during the vibration test.

Sample Number
JC08250002
JC08250012
JC08250035
JC08250037

2.2.10

The test samples were subjected to three (3) sweeps of sinusoidal vibration at the levels specified in paragraph 2.2.1. Plot #3 shows the input vibration levels. No functional or physical anomalies were noted.

2.2.11

The test samples were removed from the vibration exciter and visually examined. There was no visible evidence of physical damage noted.

2.3 RESULTS

2.3.1

The sinusoidal vibration test was performed at the facility of Environment Associates, Inc., Santa Ana, California on March 7, 2006.

2.3.2

All inspection and operation of the test samples were by Environment Associates personnel at the direction of Carmanah Technologies personnel.

2.3.3

The test log may be found in Appendix I. The list of equipment used during the test and test photographs may be found in Appendix II.

A P P E N D I X I

T E S T D A T A

2.0 SINUSOIDAL VIBRATION

The total number of pages in this subsection is 7

APPENDIX II

TEST EQUIPMENT LISTS

AND

TYPICAL TEST SETUP PHOTOS

The total number of pages in this Appendix is 3