


LCU500

ENVIRONMENTAL TEST REPORT

75-99-5371

JUNE 2003

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1. GENERAL

- 1.1. This document describes the vibration and shock tests performed by the Environmental Testing Laboratories (ETL) of the I.M.I. Munitions and Weapons Test Center, on LCU500 unit .
- 1.2. The test specifications were received from the customer, Starcom systems.

2. APPLICABLE DOCUMENTS

- 2.1. Starcom test application, dated March 30th 2003.
- 2.2. International standards, IEC 68-2-6 & IEC 68-2-27 .
- 2.3. Working order No: 75-99-5371 .

3. DEFINITION OF PRODUCT

- 3.1. LCU500 unit.
- 3.2. Total quantity of tested items: 1 (one)

4. TYPE OF TESTS

- 4.1. Sinusoidal Vibration test.
- 4.2. Mechanical Shock test.



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5. DESCRIPTION OF TESTS

5.1. Sinusoidal Vibration Test

5.1.1. Test Specifications

- a. Standard: IEC 68-2-6
- b. Test amplitudes and crossover frequencies:

Frequency	Amplitude
Hz	
5 ÷ 6.6	1 inch
6.6 ÷ 200	2 g
200 ÷ 500	5 g

c. Test Conditions:

1. Vibration Type: Sinusoidal.
2. Vibration axes: Three (3) orthogonal axes, longitudinal, transverse and vertical.
3. Number of sweeps per axis: 10 .
4. Sweep speed: 1 ^{oct}/min .
5. Sweep time: 6 min, 38 sec.
6. Total axis time: 1 hour, 6 min and 20 sec.

5.1.2. Test Facility

- a. Unholtz & Dickie Vibration system 3,000 lbs capacity.
- b. UDVwin Vibration Control system, calibrated until June 25th 2003.
- c. Signal Conditioning: Brül & Kjaer NEXUS, model: 2693, calibrated until July 2nd 2003 .
- d. Endevco accelerometers: Model: 752M1 s/n: 11089 calibrated until August 27th 2003 .



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5.1.3. Test Performance

- a. The test was conducted on June 12th 2003 .
- b. The test was performed in accordance with paragraph 5.1.1. above.
- c. The LCU500 unit was inspected between each axis for physical damages.



Photo No. 1: Vibration and Shock testing, Lateral axis



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Photo No. 2: Vibration and Shock testing, Longitudinal axis



Photo No. 3: Vibration and shock testing, Vertical axis



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5.1.4. Test Results

No visible damage was observed during the test and at its completion.

5.1.5. Appendices

The vibration curves for the test are shown in appendices A-1 through A- 3.

5.2. Mechanical Shock Test

5.2.1. Test Specifications

- a. Standard: IEC 68-2-27
- b. Test Conditions:
 - 1. Shock pulse shape: Half sine.
 - 2. Test levels (peak acceleration and duration): 15g, 11msec and 30g, 6msec .
 - 3. Test axes: Three (3) orthogonal axes, longitudinal, lateral and vertical. Two (2) directions at each axis, positive and negative.
 - 4. Number of shocks: 3 shocks at each direction, at each axis, at each test level, i.e. a total of 36 shocks at the test.

5.2.2. Test Facility

- a. Unholtz & Dickie Vibration system 3,000 lbs capacity.
- b. UDVwin Vibration Control system, calibrated until June 25th 2003.
- c. Signal Conditioning: Brüel & Kjaer NEXUS, model: 2693, calibrated until July 2nd 2003 .
- d. Endevco accelerometers: Model: 752M1 s/n: 11089 calibrated until August 27th 2003 .



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5.2.3. Test Performance

- a. The test was conducted on June 12th 2003 .
- b. The test was performed in accordance with paragraph 5.2.1. above.
- c. The LCU500 unit was inspected between each axis for physical damages.

5.2.4. Test Results

No visible damage was observed during the test and at its completion.

5.2.5. Appendices

The vibration curves for the test are shown in appendices B-1 through B-12 .

6. SUMMARY

- 6.1. Upon completion of the tests, The LCU500 unit was visually inspected by ETL personnel and was found in proper mechanical condition. The customer conducted electrical and functional inspections and found the unit performing properly.
- 6.2. The customer will draw the conclusions regarding the degree to which the product withstand the environmental conditions detailed in this report.



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APPENDIX A

Vibration Curves



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APPENDIX B

Mechanical Shock Curves