

Document Name:	ENVIRONMENTAL TEST REPORT
Unit Name:	CMC-E
Customer Name:	BES SYSTEMS LTD.
Document Rev.:	(--)
Document Status:	Released
Drawing/Doc. Id:	2122A01779
Last Updated On:	9 AUGUST 2007
Last Updated By:	GUY BARKAY



Elisra Electronic Systems Ltd.
 Operations & Materials Division
 Environmental Test Laboratory

©2007 Elisra Electronic Systems Ltd.

This document contains confidential information which is protected by copyright and is proprietary to Elisra Electronic Systems Ltd. No part of this document may be used, copied, disclosed, or conveyed to another party without prior written consent of Elisra Electronic Systems Ltd.

LABORATORY DETAILS

Lab Name	Elisra - Environmental Test Laboratory
Address	48, Mivtza Kadesh St. Bene Beraq, 51203 Israel
Tel.	972-3-6175266, 972-3-5703708
Fax.	972-3-6175866
E-Mail	dovc@elisra.com

CUSTOMER DETAILS

Customer Name	BES SYSTEMS LTD.
Address	6/B TFUZOT ISRAEL, GIVATAIM 53583, ISRAEL
Tel.	972-3-5714998
Fax.	972-3-5715085
E-Mail	FILMUS@BES.CO.IL

DOCUMENT CONTROL

This document is a controlled document. It is your responsibility to ensure that you have the appropriate version of this document. This document is not subject to version control when printed. This document was developed using version 2.01 of the iDDE-2000/etr editing environment developed and supported by the corporate Software Engineering Department of the Quality Management Division. The format and contents of this document is in accordance with those provided by version 2.01 of the iDDE-2000/etr environment.

a. DOCUMENT HISTORY

The following table records information regarding released editions of this document and briefly describes their file location, purpose and changes made to them.

Edition Id	Release Date	Responsible Author	File Reference, Purpose and Description of Changes
---	9/8/2007	Guy Barkay	File Reference: C:\Documents and Settings\58yaronc.ELISRA_EX\My Documents\REPORTS\BES\BES-1779.doc Purpose: Changes:

b. DOCUMENT APPROVALS

This edition has been approved by:

	Name	Title	Signature	Date
Author	Guy Barkay	Test Engineer		9 August 2007
Approved	Dov Carmeli	Lab Manager		9 August 2007

c. DISTRIBUTION LIST

Organizational Unit	Title	Title	Title	Title

d. OPEN ISSUES

This part of the document control section is used to record and track open issues and/or unresolved questions. As the development of this document proceeds, these issues and questions should be resolved and then removed from the list.

No.	Subject/Section	Description
1.		
2.		
3.		

TABLE OF CONTENTS

1. INTRODUCTION	5
1.1. PURPOSE.....	5
1.2. SCOPE.....	5
1.3. GLOSSARY	5
1.4. APPLICABLE DOCUMENTS	5
1.5. EXECUTIVE SUMMARY	6
2. VIBRATION TEST	7
2.1. UNIT UNDER TEST OVERVIEW	7
2.2. TECHNICAL SOURCE	7
2.3. TEST INSTRUMENTATION	7
2.4. TEST PROCEDURE	7
2.4.1. EXCLUSIONS FROM THE TEST METHOD.....	7
2.4.2. AIRCRAFT VIBRATION TEST PROCEDURE DESCRIPTION.....	8
2.4.3. GROUND MOBILE VIBRATION TEST PROCEDURE DESCRIPTION.....	8
2.4.4. NAVAL VIBRATION TEST PROCEDURE DESCRIPTION.....	9
2.4.5. TEST SEQUENCE.....	9
2.4.6. TEST PERFORMANCE.....	9
2.4.7. CMC-E MOUNTED ON ELECTRODYNAMICS SHAKER.....	10
2.5. TEST RESULTS	12
2.6. PRODUCT RESPONSE GRAPHS	13
3. MECHANICAL SHOCK TEST	21
3.1. UNIT UNDER TEST OVERVIEW	21
3.2. TECHNICAL SOURCE	21
3.3. TEST INSTRUMENTATION	21
3.4. TEST PROCEDURE	21
3.4.1. EXCLUSIONS FROM THE TEST METHOD.....	21
3.4.2. MECHANICAL SHOCK TEST PROCEDURE DESCRIPTION.....	22
3.4.3. TEST PERFORMANCE.....	22
3.4.4. CMC-E MOUNTED ON ELECTRODYNAMICS SHAKER.....	22
3.5. TEST RESULTS	22
3.6. PRODUCT RESPONSE GRAPHS	23

1. INTRODUCTION

1.1. PURPOSE

The purpose of this document is to verify that the **CMC-E** meets all requirements as per the applicable documents.

1.2. SCOPE

The scope of this Environmental Test Report includes the environmental test results as specified by the customer and by the related resources.

1.3. GLOSSARY

Abbreviation / Acronym / Term	Explanation / Description
iDDE	Integrated Document Development Environment
ID	IDentifier
NA	Not Applicable
TBD	To Be Defined
ETR	Environmental Test Report
ETS	European Telecommunication Standard
IEC	International Electronic Community
NC	Not Controlled
UUT	Unit Under Test

1.4. APPLICABLE DOCUMENTS

This section contains a list of resources (e.g., documents, files, tools) referenced by or related to this document. All documents' revisions are the latest known on the date of the contract signing.

- CMC-E QUALIFICATION PROCEDURE, DOC NO. 20624050-405, REVISION A.
- MIL-STD-810F
- MIL-STD-810E
- MIL 167 EXPLORATORY TEST

1.5. EXECUTIVE SUMMARY

The following table summarizes the tests that have been performed in Elisra - Environmental Test Laboratory.

BES SYSTEMS LTD. performed the functional tests and they are his sole responsibility.

No.	Test Name	Pass/Fail
1.	Vibration Test	Pass
2.	Mechanical Shock Test	Pass

Statement Of Compliance with test requirements.

We, Elisra - Environmental Test Laboratory, declare under our sole responsibility that the **CMC-E** was tested to comply with the requirements of the applicable environmental test specification.

2. VIBRATION TEST

2.1. UNIT UNDER TEST OVERVIEW

Test Date	8/8/07
Customer Representative	Mr. Filmus Michael
Customer	BES SYSTEMS LTD.
Unit Name	CMC-E
Item Manufacturer	BES SYSTEMS LTD.
Catalog Number	20624050-100
Serial Number	01

2.2. TECHNICAL SOURCE

- CMC-E QUALIFICATION PROCEDURE, DOC NO. 20624050-405, REVISION A.
- MIL STD 810F / METHOD 514.5 / FIGURE 514.5C-3
- MIL 167 EXPLORATORY TEST

2.3. TEST INSTRUMENTATION

Instrumentation Name	Manufacturer / Model	Calibration Expired Date
Electrodynamics Vibration System	L.D.S - Model: 964-LS L.D.S – model: V-850	N.C.R
Vibration Control System	UNHOLTZ DICKIE Model: UD VWIN	30/08/2007
Control Accelerometer	Endevco Model 224C.	31/07/2008

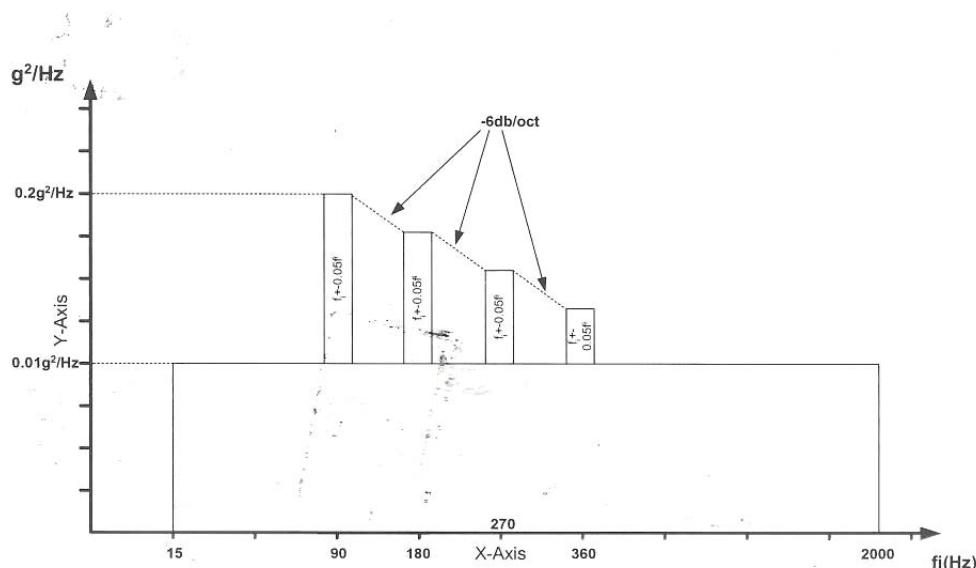
2.4. TEST PROCEDURE

2.4.1. EXCLUSIONS FROM THE TEST METHOD

Not applicable.

2.4.2. AIRCRAFT VIBRATION TEST PROCEDURE DESCRIPTION

Item Position	The test item was rigidly attached to vibration exciter
Technical Source	Mil Std 810F / Method 514.5 / Fig. 514.5C-9
Vibration Axes	3 (transverse, Longitudinal, vertical)
Frequency Range	15-2000 Hz.
Vibration Time in Each Axis	1 hour
Vibration Level	4.8 Grms



2.4.3. GROUND MOBILE VIBRATION TEST PROCEDURE DESCRIPTION

Item Position	The test item was rigidly attached to vibration exciter
Vibration Axes	3 (transverse, Longitudinal, vertical)
Technical Source	Mil Std 810F / Method 514.5 / Fig. 514.5C-3
Frequency Range	5-500 Hz.
Vibration Time in Each Axis	1 hour
Vibration Level	Transverse - 1.53 g rms Longitudinal - 1.96 g rms Vertical – 1.683 g rms

2.4.4. NAVAL VIBRATION TEST PROCEDURE DESCRIPTION

Item Position	The test item was rigidly attached to vibration exciter
Vibration Axes	2 (transverse. Longitudinal)
Technical Source	MIL 167 EXPLORATORY TEST
Frequency Range	50 Hz.
Vibration Time in Each Axis	11 MINUTES AND 45 SECONDS

2.4.5. TEST SEQUENCE

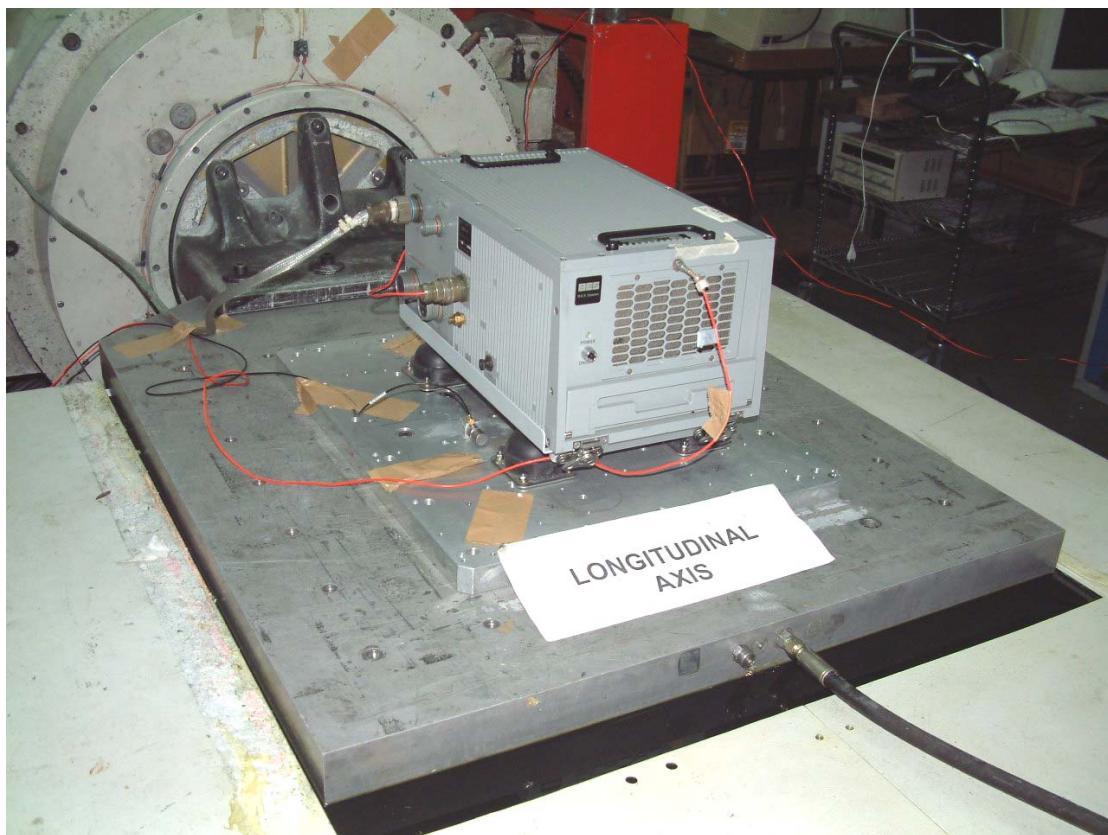
AXIS	PROCEDURE	VIBRATION DURATION	Graph No.
TRANS.	AIRCRAFT VIBRATION TEST	1 HOUR	1
	GROUND MOBILE VIBRATION TEST	1 HOUR	2
	NAVAL VIBRATION TEST	11 MINUTES AND 45 SECONDS	3
LONG.	AIRCRAFT VIBRATION TEST	1 HOUR	4
	GROUND MOBILE VIBRATION TEST	1 HOUR	5
	NAVAL VIBRATION TEST	11 MINUTES AND 45 SECONDS	6
VERT.	AIRCRAFT VIBRATION TEST	1 HOUR	7
	GROUND MOBILE VIBRATION TEST	1 HOUR	8

2.4.6. TEST PERFORMANCE

Functional Test	<ul style="list-style-type: none"> Performed by customer representative during and at the end of test.
Visual Test	<ul style="list-style-type: none"> Performed by customer representative during and at the end of test.

2.4.7. CMC-E MOUNTED ON ELECTRODYNAMICS SHAKER





2.5. TEST RESULTS

In visual inspection at completion of test, no external damage observed.
Operational test performed by the customer during and after the vibration test.
Pass O.K.

2.6. PRODUCT RESPONSE GRAPHS

TRANSVERSE AXIS

AIRCRAFT VIBRATION TEST GRAPH NO.1

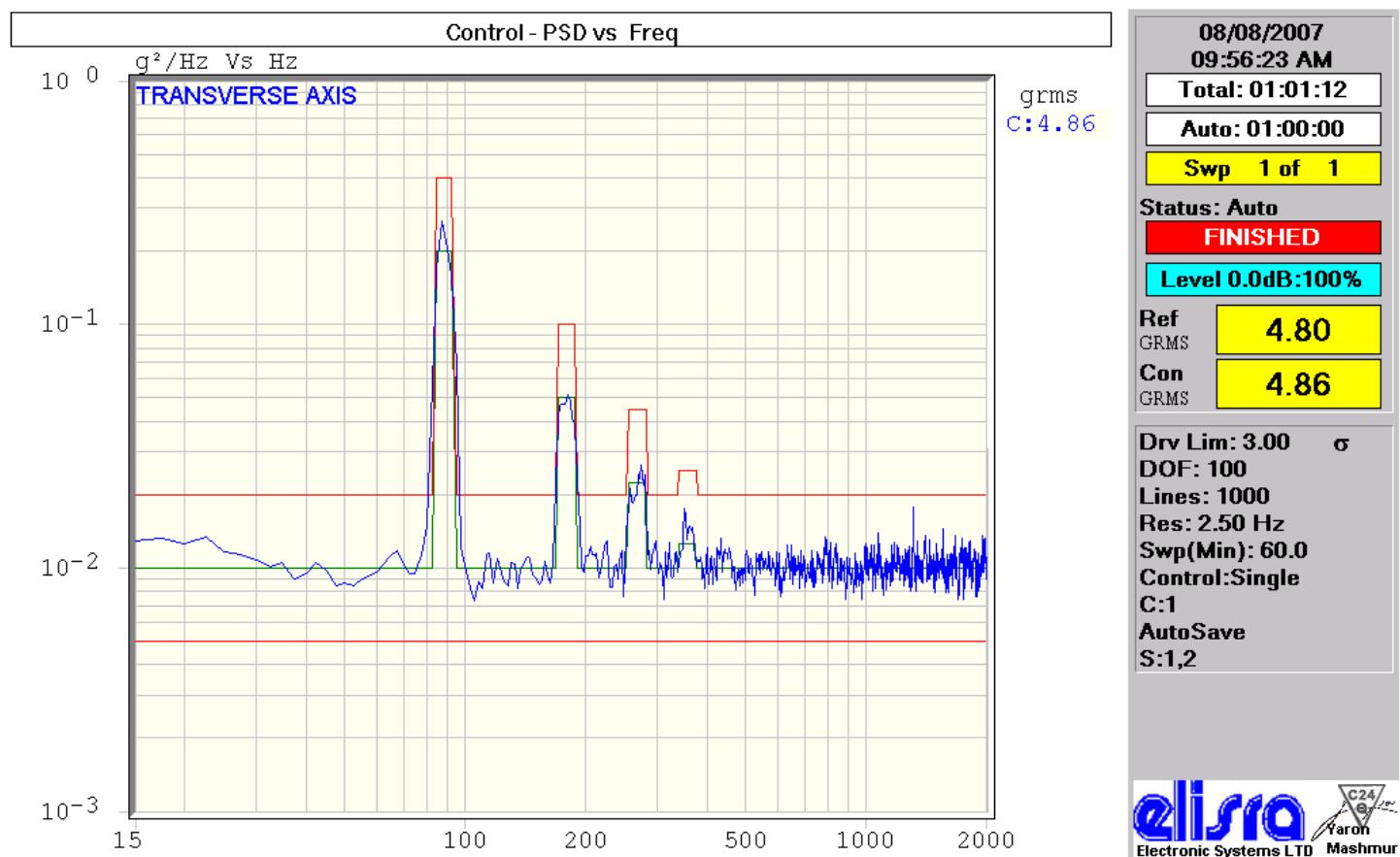
SETUP NAME: BES CMC-E

SETUP DESC: CMC-E Qualification - Aircraft Environment

SETUP COMMENTS: CMC-E P/N : 20624050-100 , S.N.: 01.

RUN NAME: run7

SAVE NUMBER: 1



GROUND MOBILE VIBRATION TEST GRAPH NO.2

SETUP NAME: MIL 810F FIGURE 514-5C-3 (TRANSVERSE)

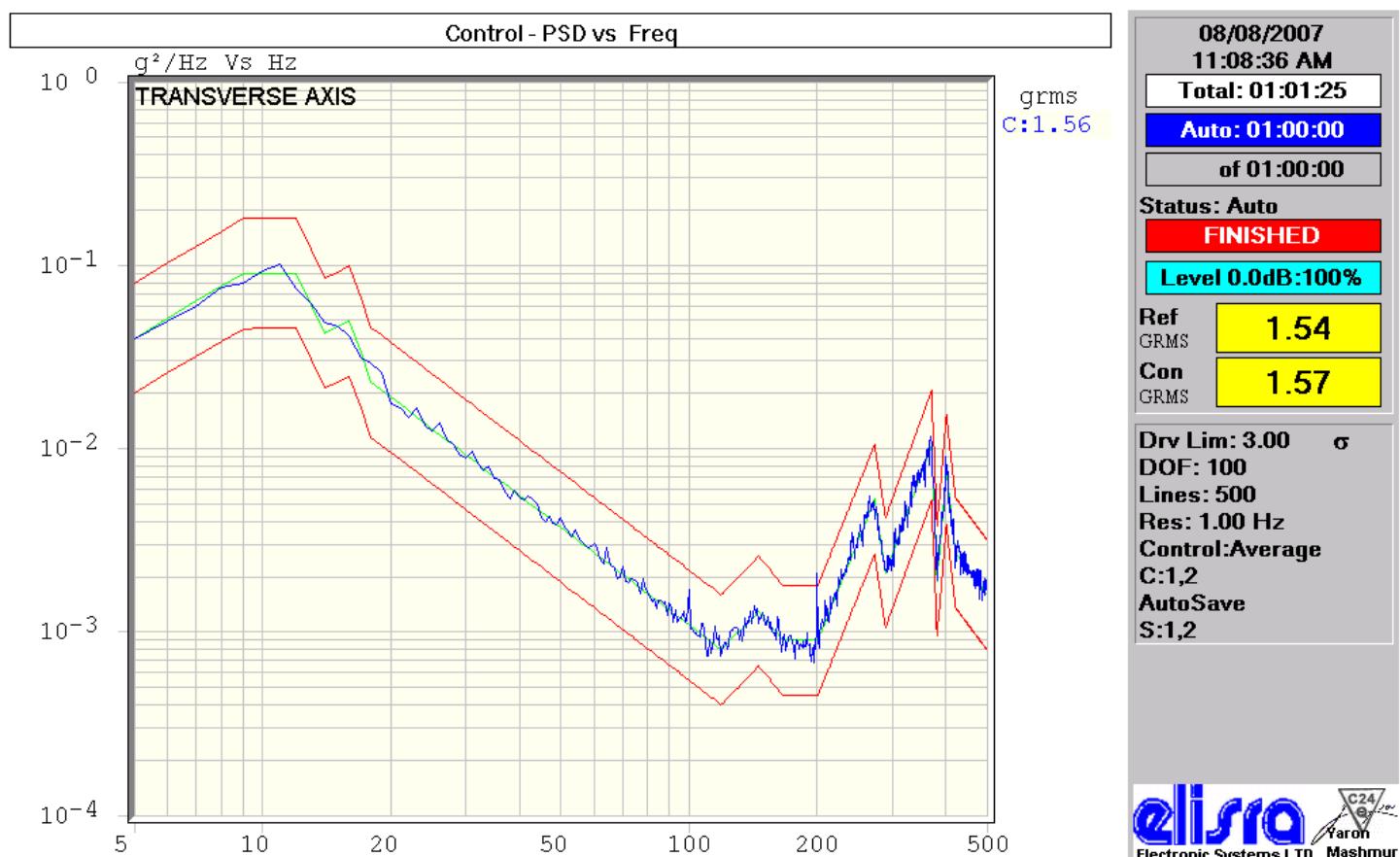
SETUP DESC: MIL STD 810F / METHOD 514.5 / FIGURE 514.5C-3 - TRANSVERSE AXIS

SETUP COMMENTS: CMC-E Qualification -Ground Mobile Environment

CMC-E P/N : 20624050-100 , S.N.: 01.

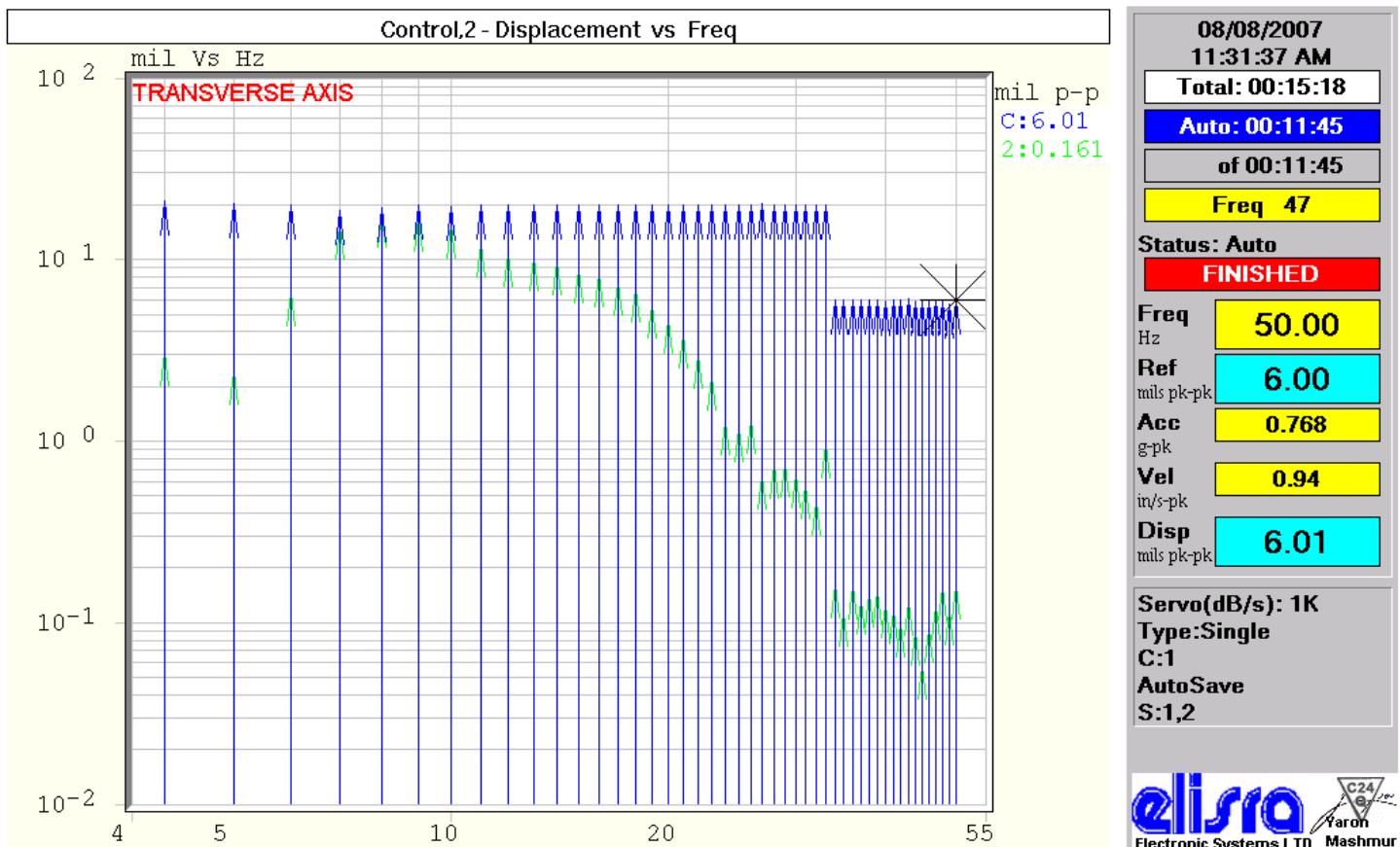
RUN NAME: run5

SAVE NUMBER: 1



NAVAL VIBRATION TEST GRAPH NO.3

SETUP NAME: Mil 167 Exploratory Test
 CMC-E QUALIFICATION - NAVAL EXPLORATORY TEST
 CMC-E P/N : 20624050-100 , S.N.: 01.
 RUN NAME: run10
 SAVE NUMBER: 1



LONGITUDINAL AXIS

AIRCRAFT VIBRATION TEST GRAPH NO.4

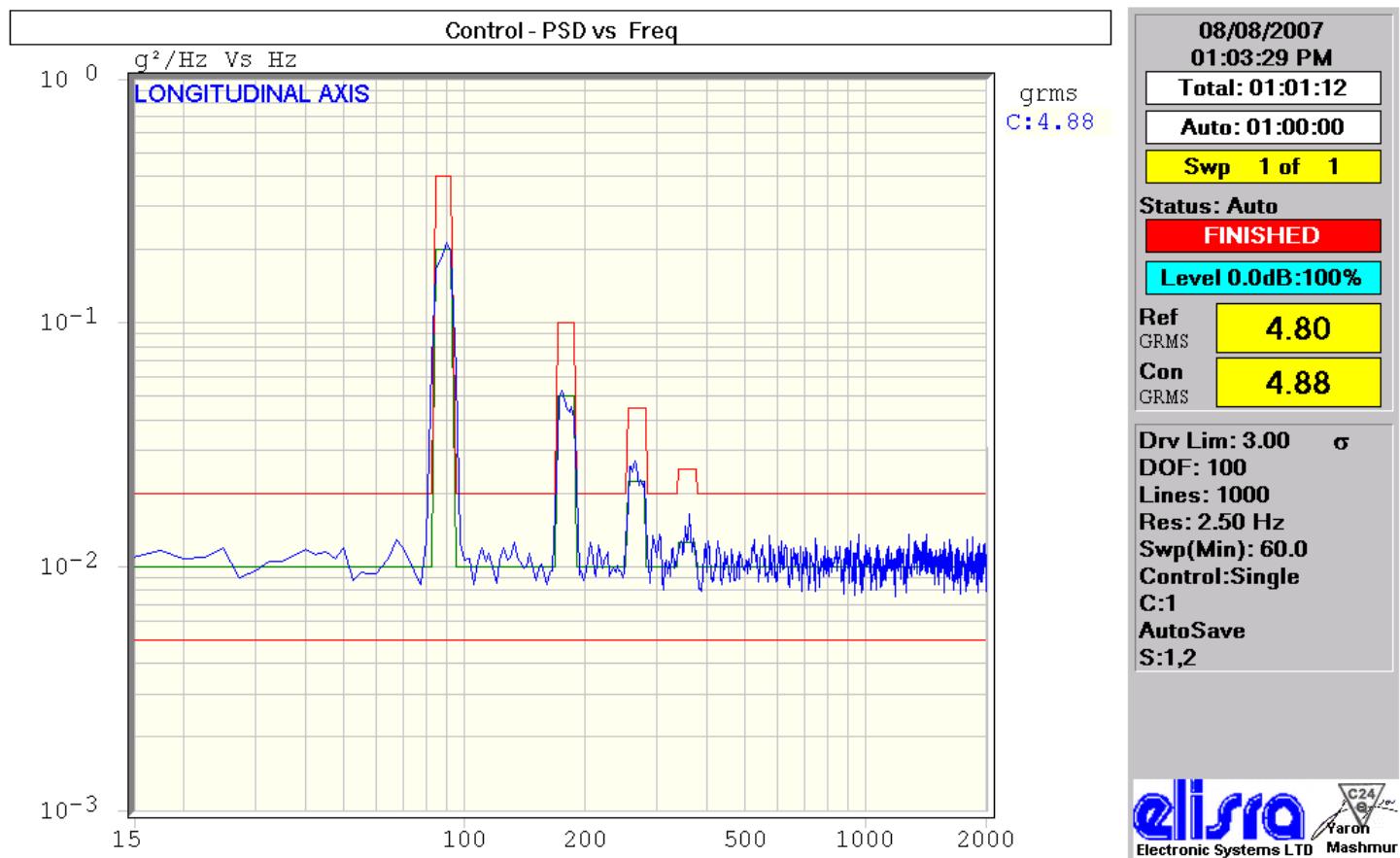
SETUP NAME: BES CMC-E

SETUP DESC: CMC-E Qualification - Aircraft Environment

SETUP COMMENTS: CMC-E P/N : 20624050-100 , S.N.: 01.

RUN NAME: run8

SAVE NUMBER: 1



GROUND MOBILE VIBRATION TEST GRAPH NO.5

SETUP NAME: MIL 810F FIGURE 514-5C-3 (LONGITUDINAL)

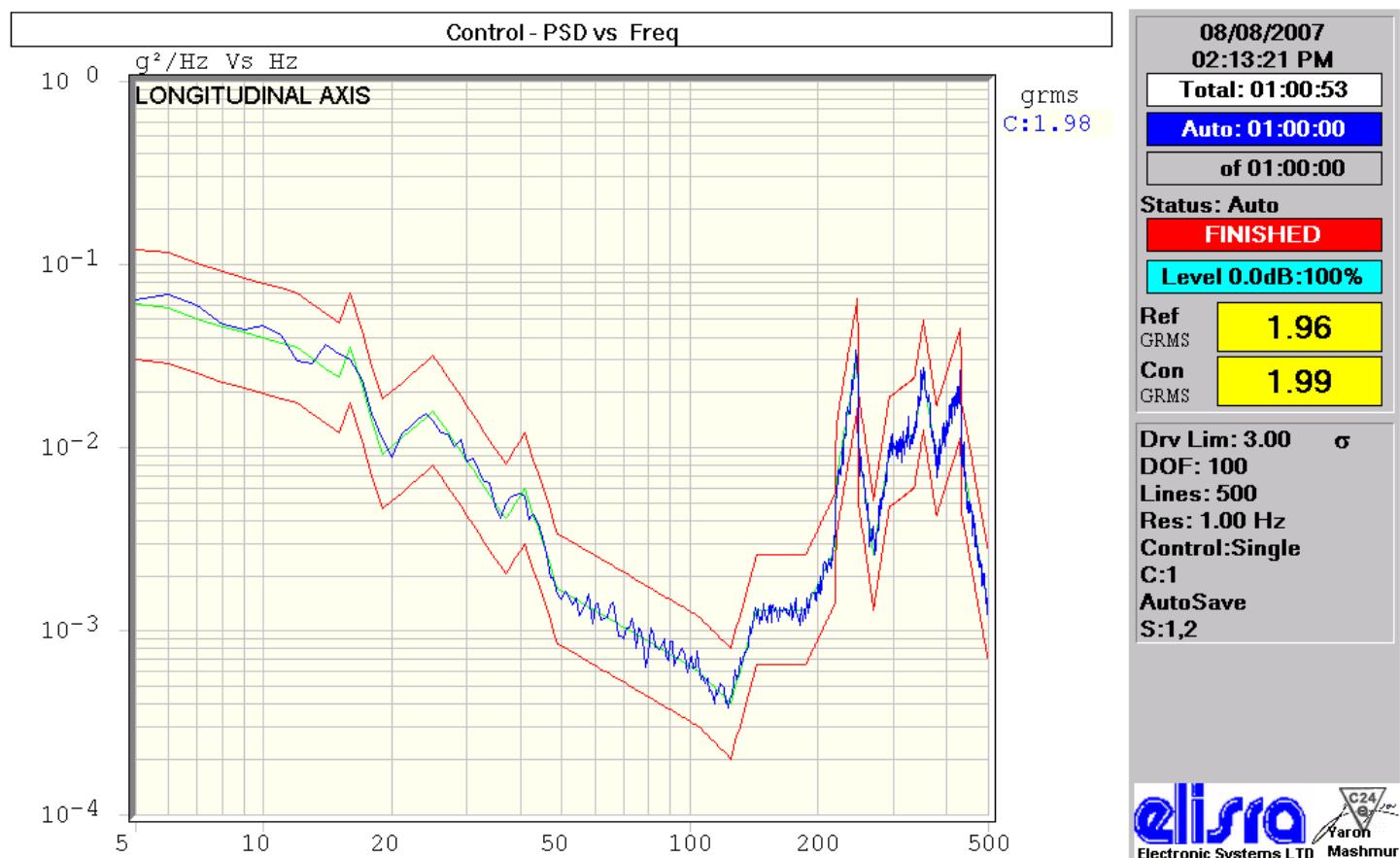
SETUP DESC: MIL STD 810F / METHOD 514.5 / FIGURE 514.5C-3 - LONGITUDINAL AXIS

SETUP COMMENTS: CMC-E QUALIFICATION - GROUND MOBILE ENVIRONMENT

CMC-E P/N : 20624050-100 , S.N.: 01.

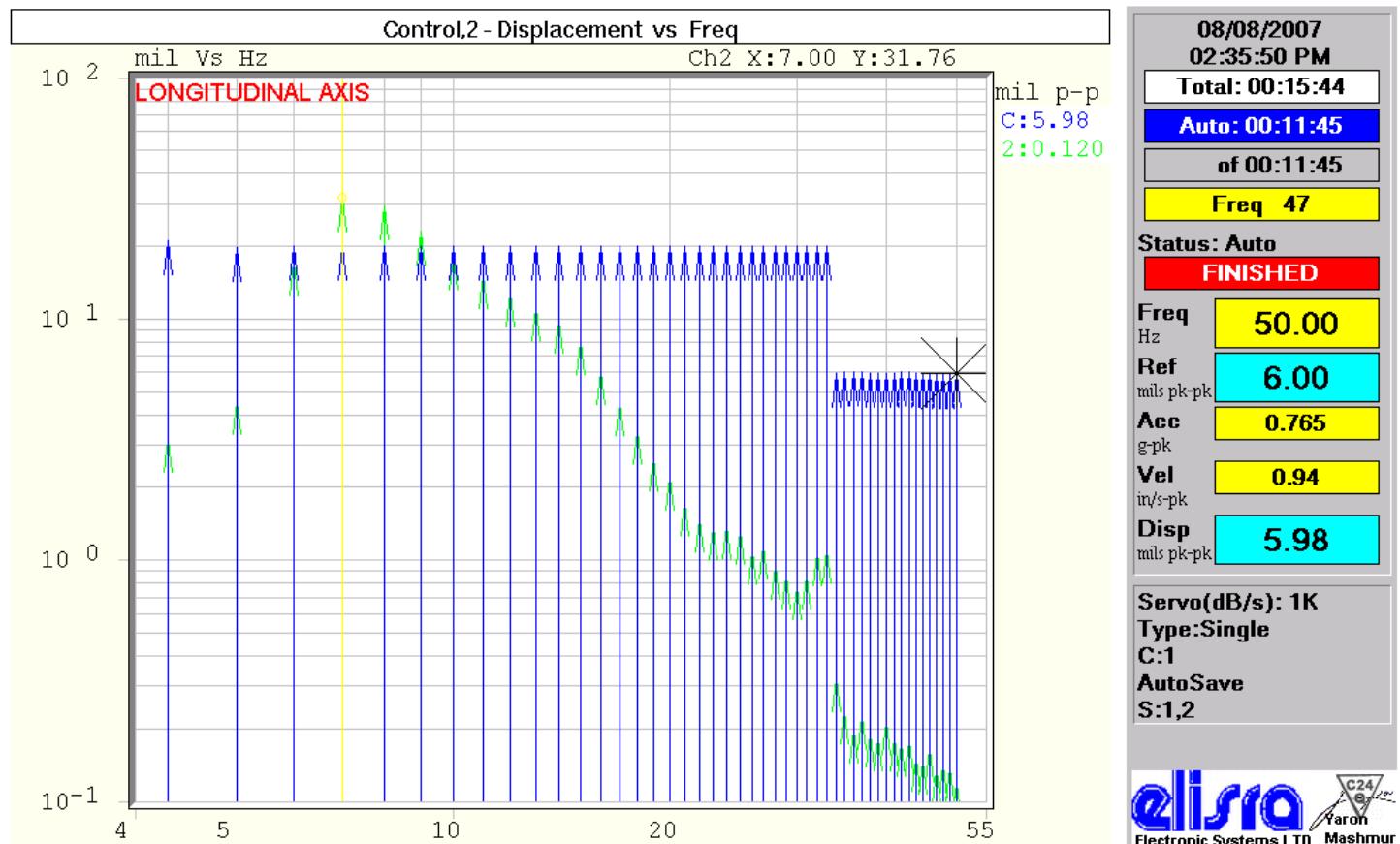
RUN NAME: run1

SAVE NUMBER: 1



NAVAL VIBRATION TEST GRAPH NO.6

SETUP NAME: Mil 167 Exploratory Test
 CMC-E QUALIFICATION - NAVAL EXPLORATORY TEST
 CMC-E P/N : 20624050-100 , S.N.: 01.
 RUN NAME: run11
 SAVE NUMBER: 1



VERTICAL AXIS

AIRCRAFT VIBRATION TEST GRAPH NO.7

SETUP NAME: BES CMC-E

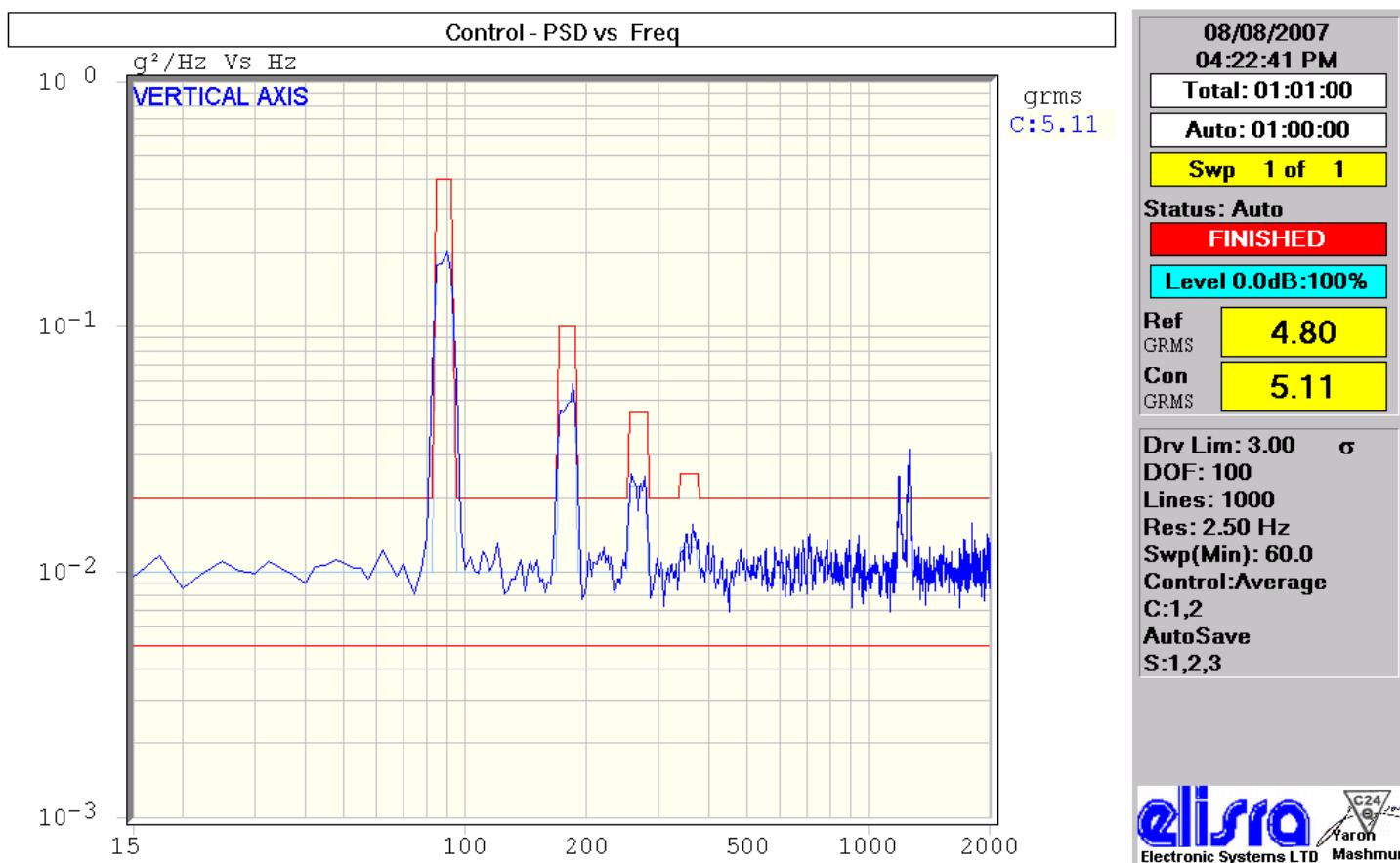
SETUP DESC: CMC-E Qualification - Aircraft Environment

SETUP COMMENTS: CMC-E P/N : 20624050-100 , S.N.: 01.

RUN NAME: run9

RUN DESC: VERTICAL AXIS

SAVE NUMBER: 1



GROUND MOBILE VIBRATION TEST GRAPH NO.8

SETUP NAME: MIL 810F FIGURE 514-5C-3 (VERTICAL)
 SETUP DESC: MIL STD 810F / METHOD 514.5 / FIGURE 514.5C-3 - VERTICAL AXIS
 SETUP COMMENTS: CMC-E QUALIFICATION - GROUND MOBILE ENVIRONMENT
 CMC-E P/N : 20624050-100 , S.N.: 01.

RUN NAME: run3
 RUN DESC: VERTICAL AXIS
 SAVE NUMBER: 1



3. MECHANICAL SHOCK TEST

3.1. UNIT UNDER TEST OVERVIEW

Test Date	8/8/07
Customer Representative	Mr. Filmus Michael
Customer	BES SYSTEMS LTD.
Unit Name	CMC-E
Item Manufacturer	BES SYSTEMS LTD.
Catalog Number	20624050-100
Serial Number	01

3.2. TECHNICAL SOURCE

- CMC-E QUALIFICATION PROCEDURE, DOC NO. 20624050-405, REVISION A.
- MIL-STD-810F, METHOD 516.5

3.3. TEST INSTRUMENTATION

Instrumentation Name	Manufacturer / Model	Calibration Expired Date
Electrodynamics Vibration System	L.D.S - Model: 964-LS L.D.S – model: V-850	N.C.R
Vibration Control System	UNHOLTZ DICKIE Model: UD VWIN	30/08/2007
Control Accelerometer	Endevco Model 224C.	31/07/2008

3.4. TEST PROCEDURE

3.4.1. EXCLUSIONS FROM THE TEST METHOD

Not applicable.

3.4.2. MECHANICAL SHOCK TEST PROCEDURE DESCRIPTION

Item Position	The test item was rigidly attached to shock machine.
Number of Shocks	3 shocks were conducted in each of 6 directions of the test item.
Shock Level	40 g.
Time Duration	11 msec.
Shape	Saw tooth.
Total Number of Shocks	18 shocks.

3.4.3. TEST PERFORMANCE

Functional Test	<ul style="list-style-type: none"> Performed by customer representative during and at the end of test.
Visual Test	<ul style="list-style-type: none"> Performed by customer representative during and at the end of test.

3.4.4. CMC-E MOUNTED ON ELECTRODYNAMICS SHAKER

- See pictures in paragraph 2.4.4.

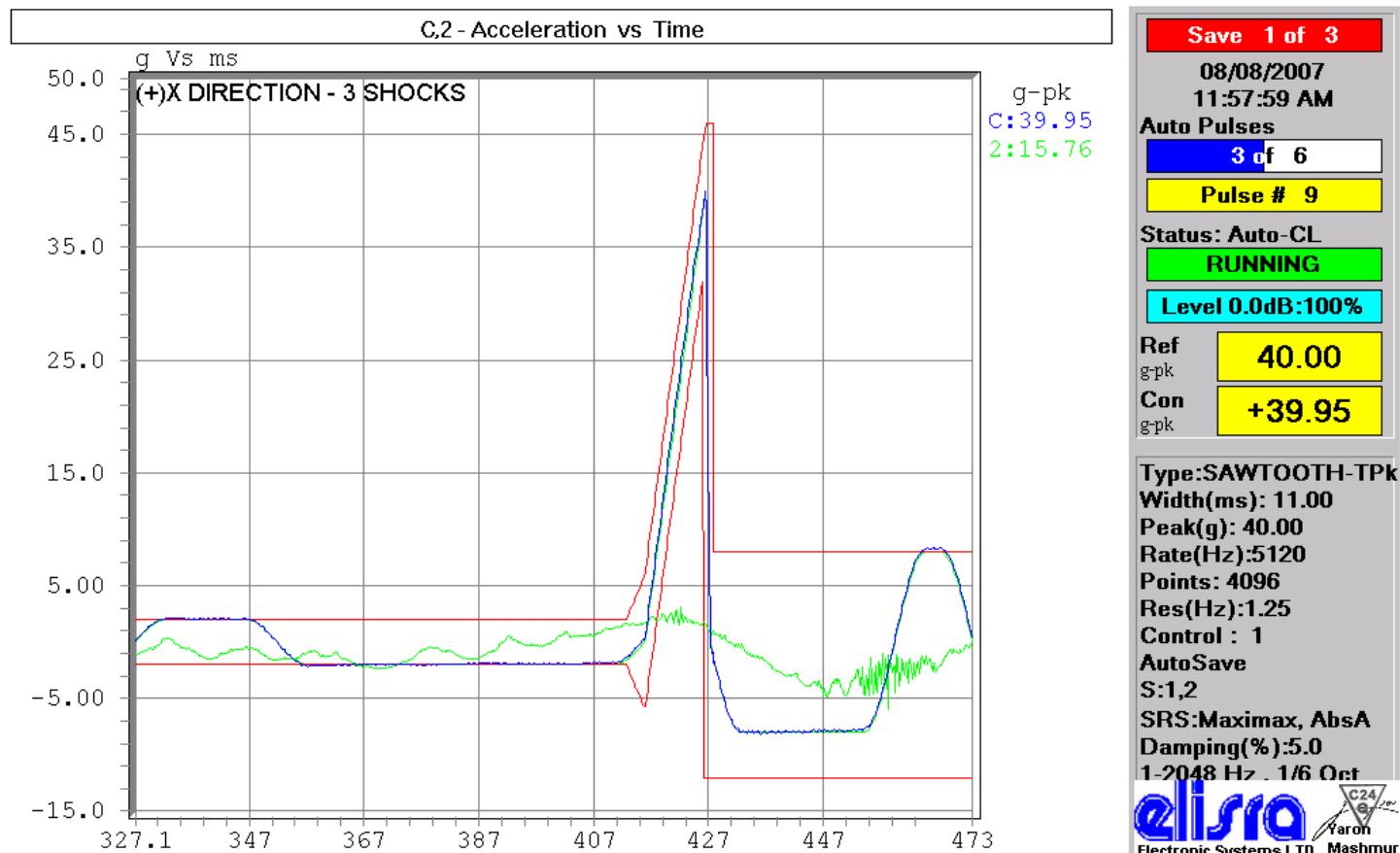
3.5. TEST RESULTS

In visual inspection at completion of test, no external damage observed.

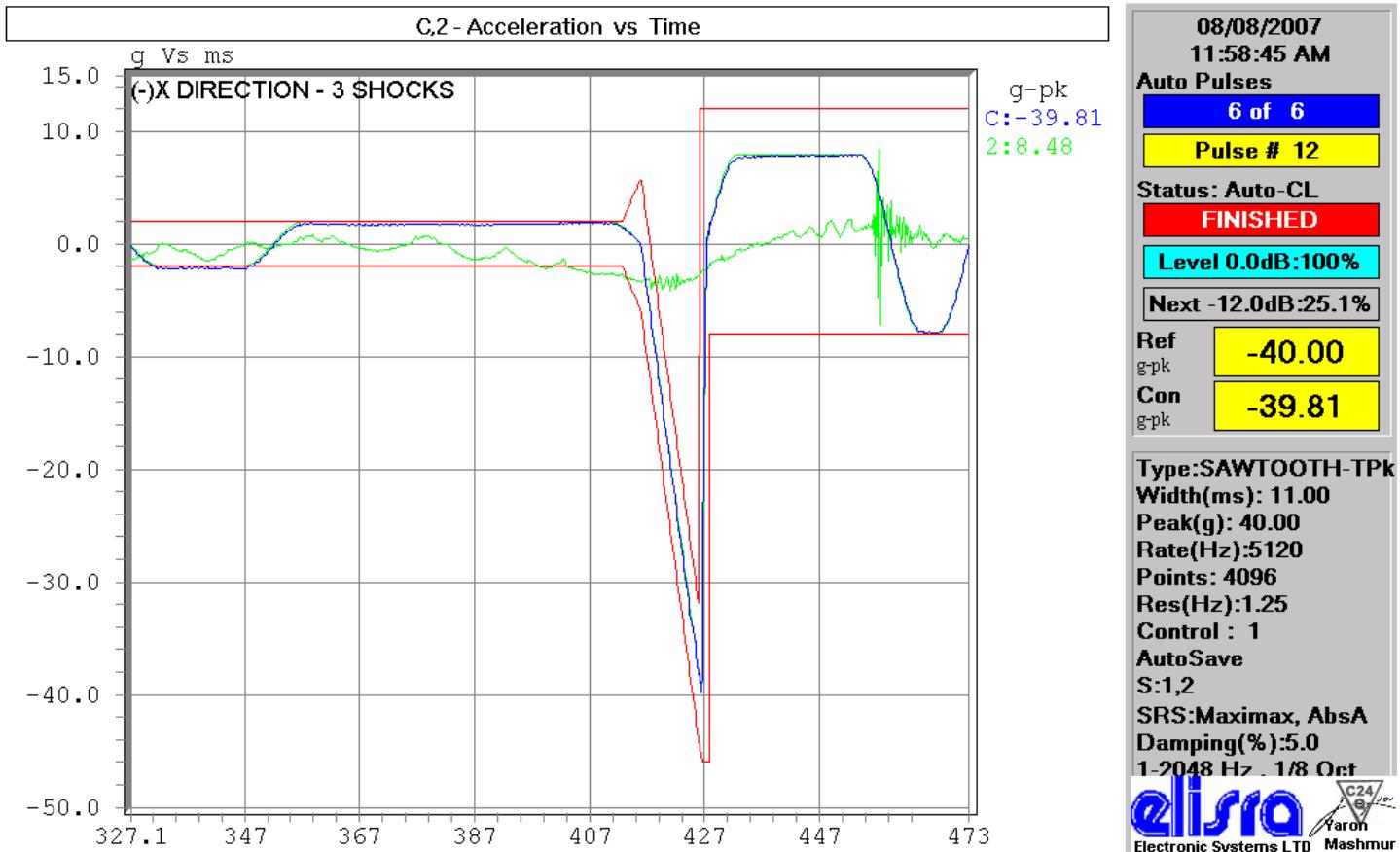
Operational test performed by the customer during and after the mechanical shock test.
Pass O.K.

3.6. PRODUCT RESPONSE GRAPHS

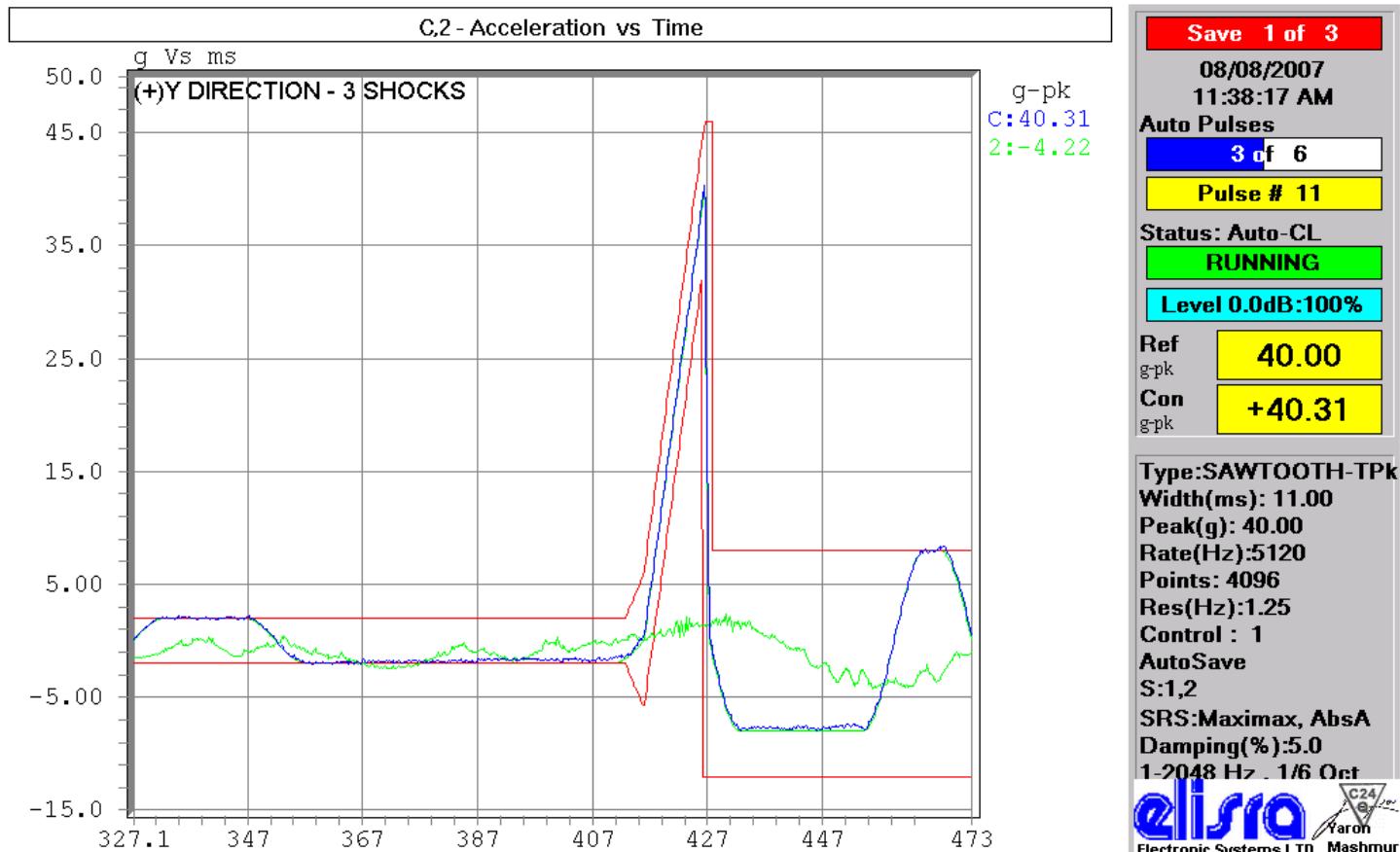
SETUP NAME: ST40g11ms
 CMC-E QUALIFICATION – SHOCK ENVIRONMENT
 CMC-E P/N : 20624050-100 , S.N.: 01.
 RUN NAME: run32
 SAVE NUMBER: 1



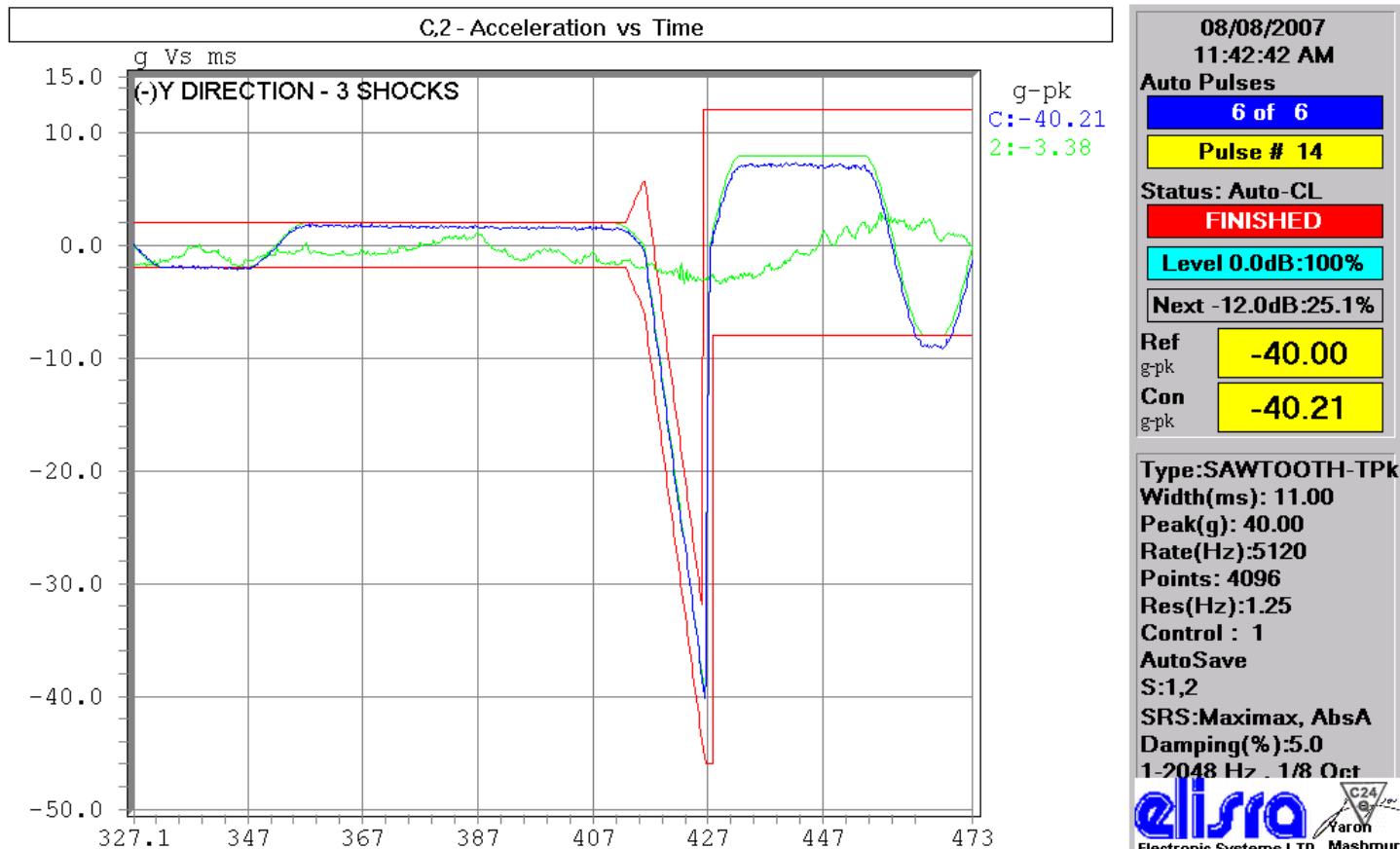
SETUP NAME: ST40g11ms
 CMC-E QUALIFICATION – SHOCK ENVIRONMENT
 CMC-E P/N : 20624050-100 , S.N.: 01.
 RUN NAME: run32
 SAVE NUMBER: 1



SETUP NAME: ST40g11ms
 CMC-E QUALIFICATION – SHOCK ENVIRONMENT
 CMC-E P/N : 20624050-100 , S.N.: 01.
 RUN NAME: run31
 SAVE NUMBER: 1

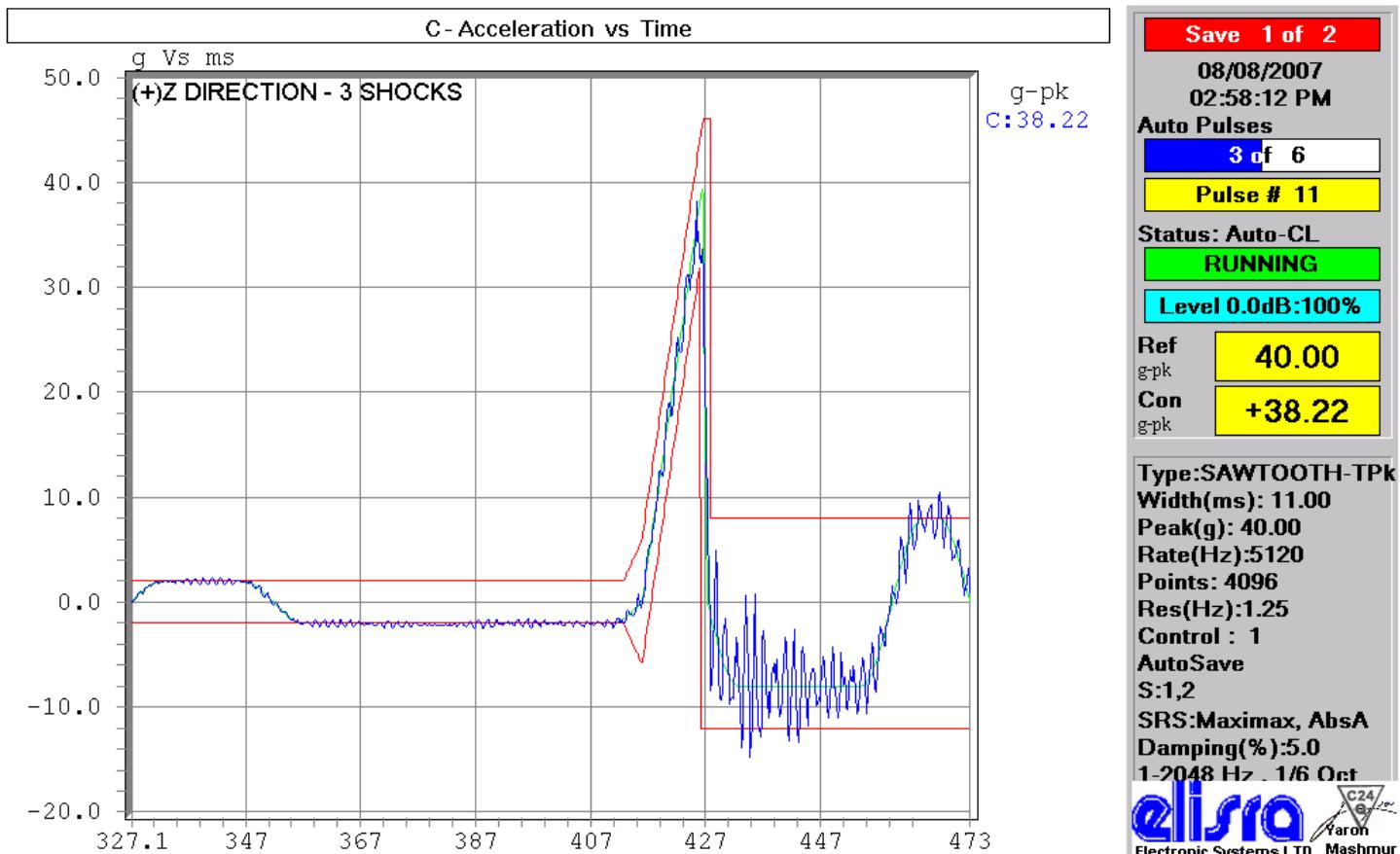


SETUP NAME: ST40g11ms
 CMC-E QUALIFICATION – SHOCK ENVIRONMENT
 CMC-E P/N : 20624050-100 , S.N.: 01.
 RUN NAME: run31



SETUP NAME: ST40g11ms
 SETUP DESC: SHOCK TEST - 40G,11mSec
 SETUP COMMENTS: CMC-E QUALIFICATION - SHOCK ENVIRONMENT
 CMC-E P/N : 20624050-100 , S.N.: 01.

RUN NAME: run33
 SAVE NUMBER: 1



SETUP NAME: ST40g11ms
 SETUP DESC: SHOCK TEST - 40G,11mSec
 SETUP COMMENTS: CMC-E QUALIFICATION - SHOCK ENVIRONMENT
 CMC-E P/N : 20624050-100 , S.N.: 01.

RUN NAME: run33
 SAVE NUMBER: 1

