

TEST REPORT

Report No. : SGS-R13-1065-EN
Applicant : SAMSUNG TECHWIN Co, Ltd.
Address : Samsung Techwin R&D Center, 701, Sampyeong-dong, Bundang-gu, Seongnam-si, Gyeonggi-do, Korea
Product : Mobile NVR
Model : SRM-872
Environment : Temp. (25 ± 5) °C, Humidity (60 ± 5) % R.H.
Test Date : September 9, 2013 ~ September 10, 2013
Standard : EN 61373: 2010 (Category 1 Class B)
Test Result : Refer to the attached document
Use of report : Validation

This is certified that the above mentioned products have been tested for the sample provided by client.

Confirmation	Tested by Name : An, Hyo-kyung	Approved by Name : Kim, In-kee
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- ※ The test results is based on the test conducted on the test sample, which was requested by the client.
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September 13, 2013

SGS KOREA Co., Ltd.

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Summary of Test Results

Mobile NVR / SRM-872	
TEST ITEM	TEST RESULT
Long-life Test	No abnormal was found
Shock Test	No abnormal was found
Functional Random Test	No abnormal was found

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1. Overview

As requested by the client, this test was conducted on test sample according to the test specification presented by the client.

2. Product

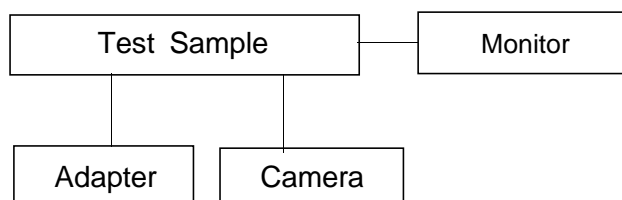
2.1 Description

Applicant : SAMSUNG TECHWIN Co, Ltd.
 Manufacturer : SAMSUNG TECHWIN Co, Ltd.
 Product : Mobile NVR
 Model : SRM-872
 Serial No. : N/A

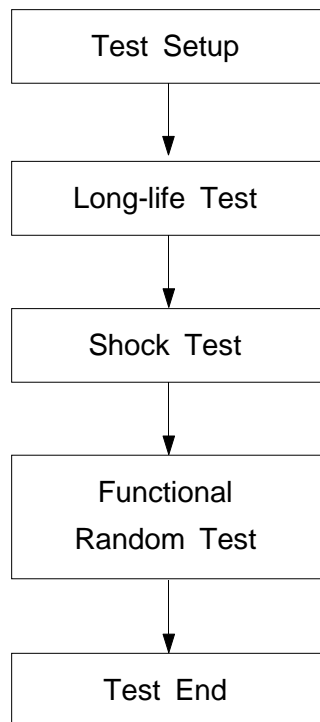
2.2 Photograph



2.3 System Configuration



3. Test Process



4. Test Condition & Test Result

Refer to each test report (Next page)

4.1 Long-life Test

Applicant	SAMSUNG TECHWIN Co, Ltd	Dept. in charge	Reliability Test Team
Product	Mobile NVR	Tester	An, Hyo-Kyung (+82-31-548-0727)
Model	SRM-872	Date	September 9, 2013 ~ September 10, 2013
Serial No.	N/A		
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(1) Test Conditions

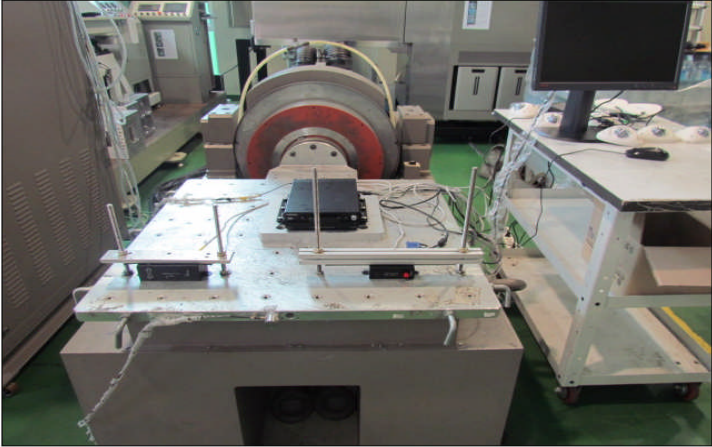


- 1) Test type : Random
- 2) Frequency : (5 ~ 150) Hz
- 3) Acceleration : Z - 5.72 m/s² r.m.s.
X - 2.55 m/s² r.m.s.
Y - 3.96 m/s² r.m.s.
- 4) Test time : Total 15 h (each axis 5 h)
- 5) Test axis : Vertical (Z), Transverse (X), Longitudinal (Y)
- 6) Check time : After the test
- 7) Sample condition : Unpackaged product / Non-operation
- 8) Sample quantity : 1 EA

(2) Environment Condition : Temperature (25 ± 5) °C, Humidity (60 ± 5) % R.H.

(3) Test Method

- 1) Perform a visual inspection and an operational check for the specimen.
- 2) Fix the specimen on the vibration table.
- 3) Operate the vibration tester.
- 4) Repeat from steps 1) to step 3) for each required axis.
- 5) Perform a final visual inspection and an operational check for the specimen.

(4) Test Photograph

Test axis	Test photograph
Vertical (Z)	
Transverse (X)	
Longitudinal (Y)	

(5) Test Equipment

Description	Manufacturer and Model	Serial Number	The due date of next Calibration	Calibration Laboratory
Vibration Tester	Shinken/G-0215NS	SG-4589	May 16, 2014	SICT
Accelerometer	Fujisera/S41SCB	0107	May 16, 2014	SICT

(6) Test Result

Check List	Test Result
1. Visual inspection -. Mechanical damage such as deformation, crack, separating, loosening of screw, etc.	No abnormal was found
2. Performance check -. Video output	Refer to ※ Appendix 1.

※ Appendix 1. Performance Check



<Z axis>



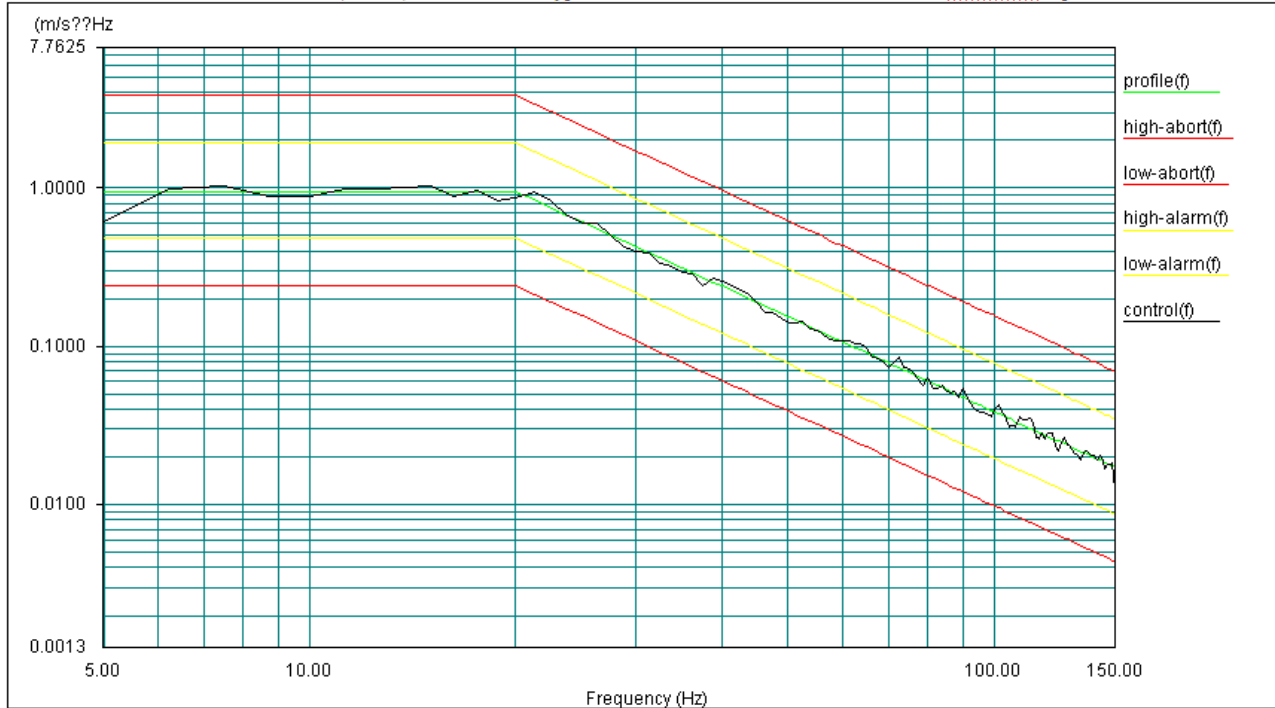
<X axis>



<Y axis>

※ Appendix 1. Long-life Test Data _ Z axis

Project File Name: long-life_tgst(vertical).png
 Profile Name: Class B-Functional test (vertical) Test Type: Random Run Folder: \RunDefault Sep 10, 2013 09-53-25



Level: 0 dB
 Control RMS: 5.599784 m/s² Full Level Elapsed Time: 05:00:00 Lines: 400 Frame Time: 0.800000 Seconds
 Demand RMS: 5.613488 m/s² Remaining Time: 00:00:00 DOF: 154 dF: 1.250000 Hz
 Data saved at 03:05:49 PM, Tuesday, September 10, 2013 Report created at 03:05:50 PM, Tuesday, September 10, 2013

Long-life Test Data _ X axis

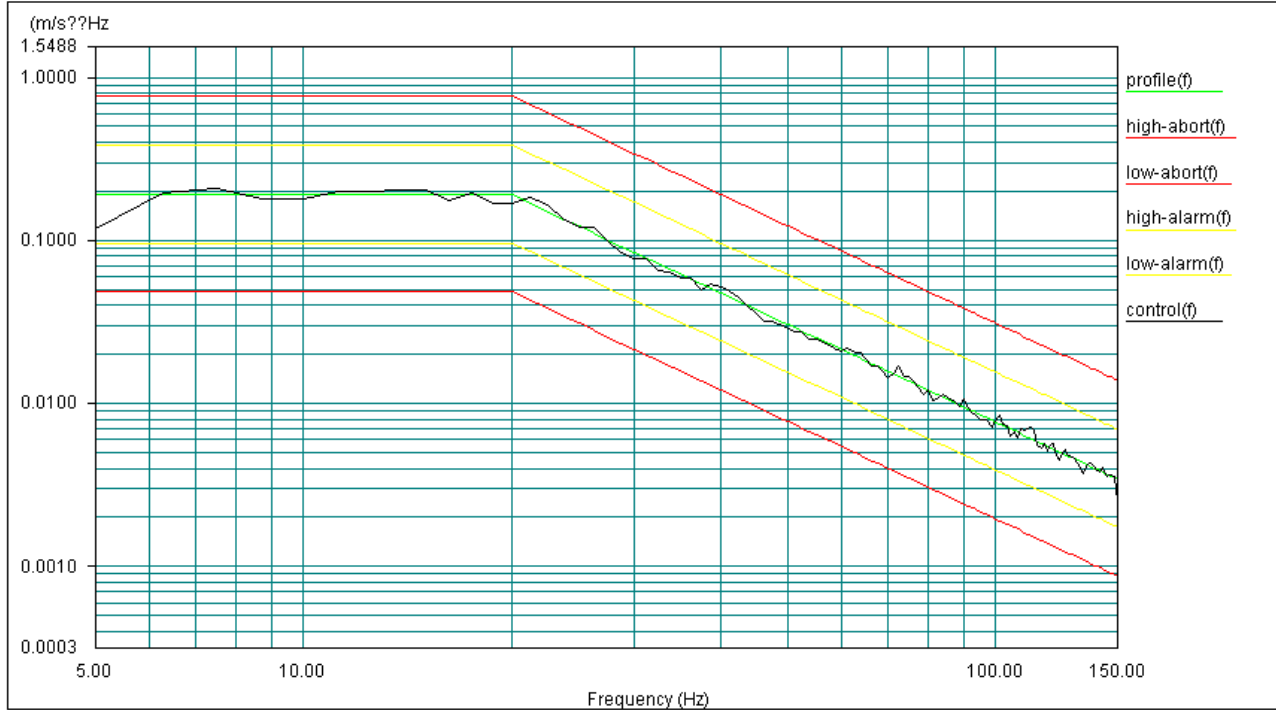
Project File Name: long-life test(transverse)(RANDOM).prj

Profile Name: Class B-Functional test (vertical)

Test Type: Random

Run Folder:

RunDefault Sep 09, 2013 17:59:44



Level: 0 dB

ControlRMS: 2.616432 m/s²

Full Level Elapsed Time: 05:00:00

Lines: 400

Frame Time: 0.800000 Seconds

DemandRMS: 2.505215 m/s²

Remaining Time: 00:00:00

DOF: 154

dF: 1.250000 Hz

Data saved at 08:25:12 AM, Tuesday, September 10, 2013

Report created at 08:25:13 AM, Tuesday, September 10, 2013

Long-life Test Data _ Y axis

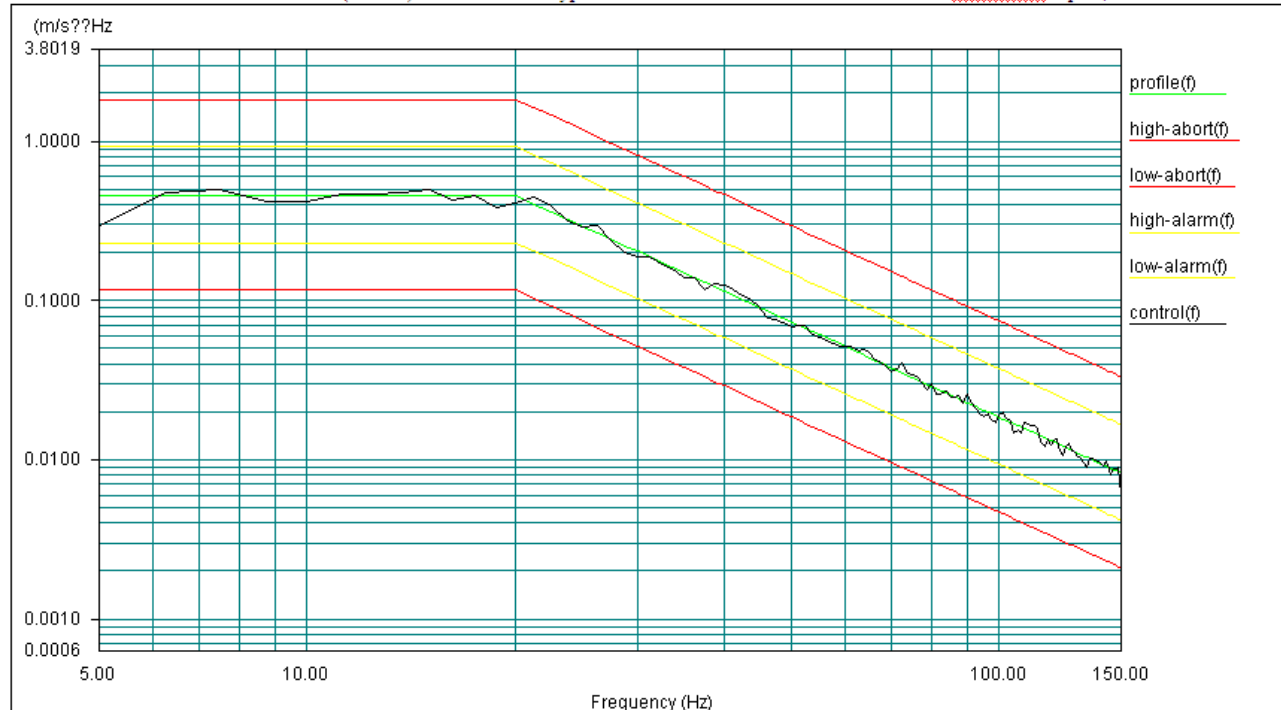
Project File Name: long-life test(longitudinal)(RANDOM).prj

Profile Name: Class B-Functional test (vertical)

Test Type: Random

Run Folder:

RunDefault Sep 09, 2013 11-11-17



Level: 0 dB

ControlRMS: 3.887219 m/s² Full Level Elapsed Time: 05:00:00

Lines: 400 Frame Time: 0.800000 Seconds

DemandRMS: 3.881904 m/s² Remaining Time: 00:00:00

DOF: 154 dF: 1.250000 Hz

Data saved at 04:14:46 PM, Monday, September 09, 2013

Report created at 04:14:50 PM, Monday, September 09, 2013

4.2 Shock Test

Applicant	SAMSUNG TECHWIN Co, Ltd	Dept. in charge	Reliability Test Team
Product	Mobile NVR	Tester	An, Hyo-Kyung (+82-31-548-0727)
Model	SRM-872	Date	September 9, 2013 ~ September 10, 2013
Serial No.	N/A		
Standard	EN 61373: 2010 (Category 1 Class B)	Page	11

(1) Test Conditions


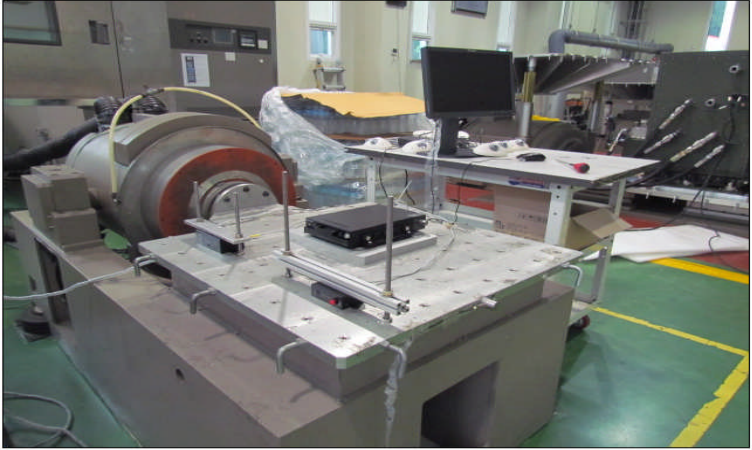
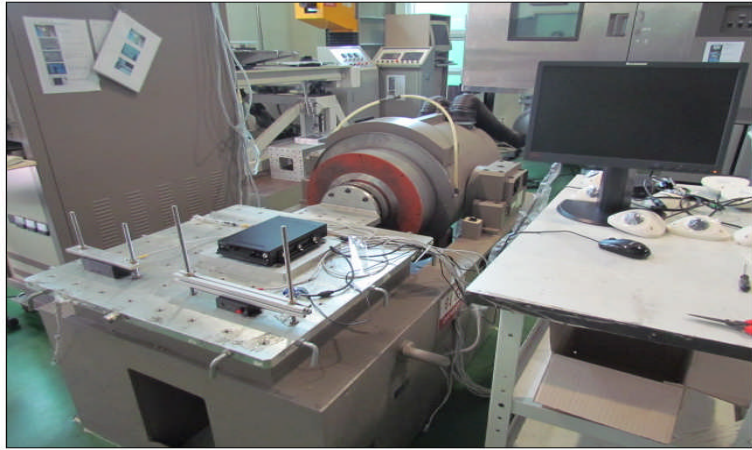
- 1) Test type : Half sine
- 2) Acceleration : Z - 30 m/s², X - 30 m/s², Y - 50 m/s²
- 3) Duration : 30 ms
- 4) Test time : 18 times in total (6 times in each axis : positive 3 / negative 3)
- 5) Test axis : Vertical (Z), Transverse (X), Longitudinal (Y)
- 6) Check time : After the test
- 7) Sample condition : Unpackaged product / Non-operation
- 8) Sample quantity : 1 EA

(2) Environment Condition : Temperature (25 ± 5) °C, Humidity (60 ± 5) % R.H.

(3) Test Method

- 1) Perform a visual inspection and an operational check for the specimen.
- 2) Fix the specimen on the vibration table.
- 3) Operate the vibration tester.
- 4) Repeat from steps 1) to step 3) for each required axis.
- 5) Perform a final visual inspection and an operational check for the specimen.

(4) Test Photograph

Test axis	Test photograph
Vertical (Z)	
Transverse (X)	
Longitudinal (Y)	

(5) Test Equipment

Description	Manufacturer and Model	Serial Number	The due date of next Calibration	Calibration Laboratory
Vibration Tester	Shinken/G-0215NS	SG-4589	May 16, 2014	SICT
Accelerometer	Endevco/7201-10	15574	July 02, 2014	KTL

(6) Test Result

Check List	Test Result
1. Visual inspection -. Mechanical damage such as deformation, crack, separating, loosening of screw, etc.	No abnormal was found
2. Performance check -. Video output	Refer to ※ Appendix 1.

※ Appendix 1. Performance Check



<Z axis>

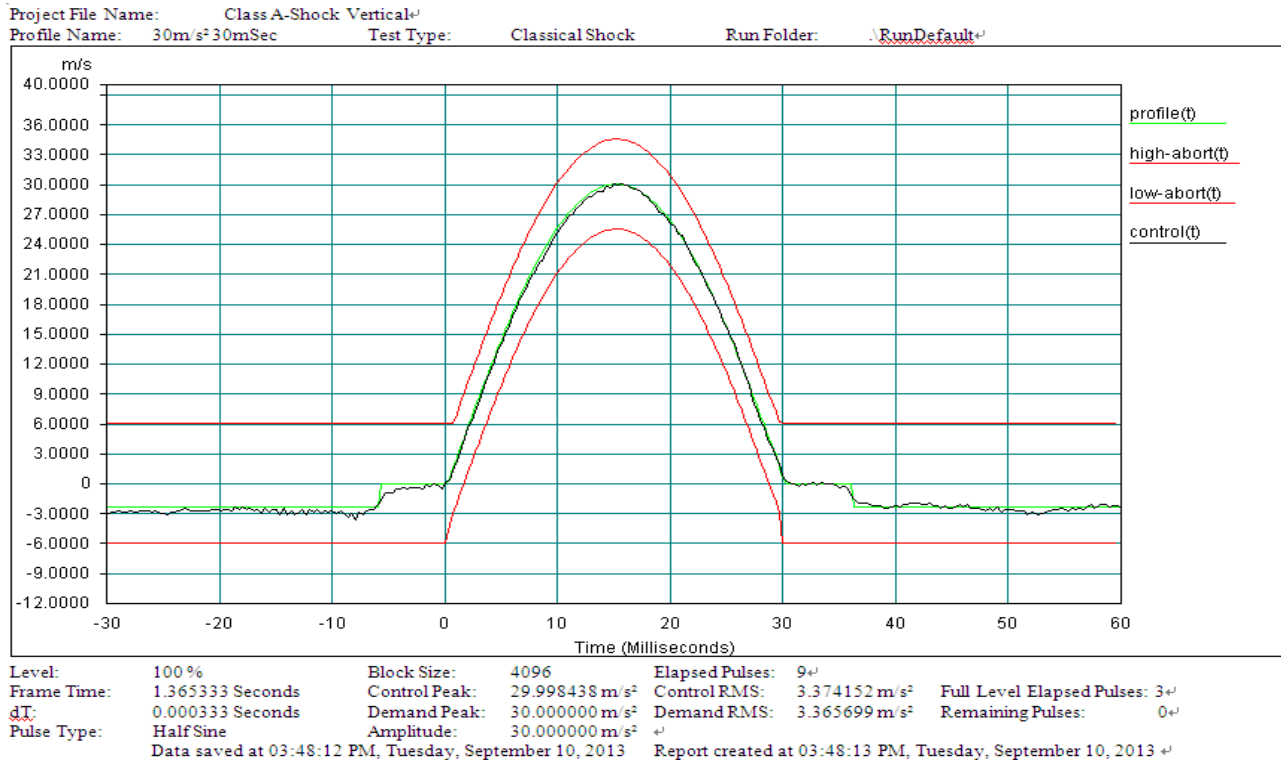


<X axis>



<Y axis>

※ Appendix 1. Shock Test Data _ Z axis

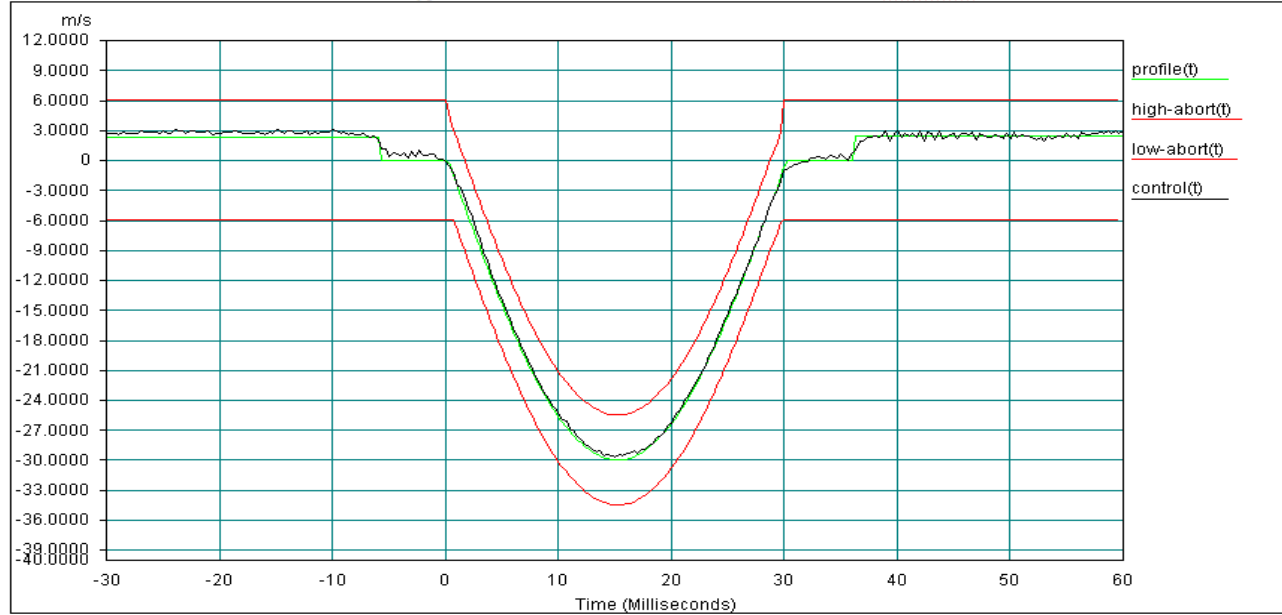


Project File Name: Class A-Shock Vertical

Profile Name: 30m/s² 30mSec

Test Type: Classical Shock

Run Folder: RunDefault



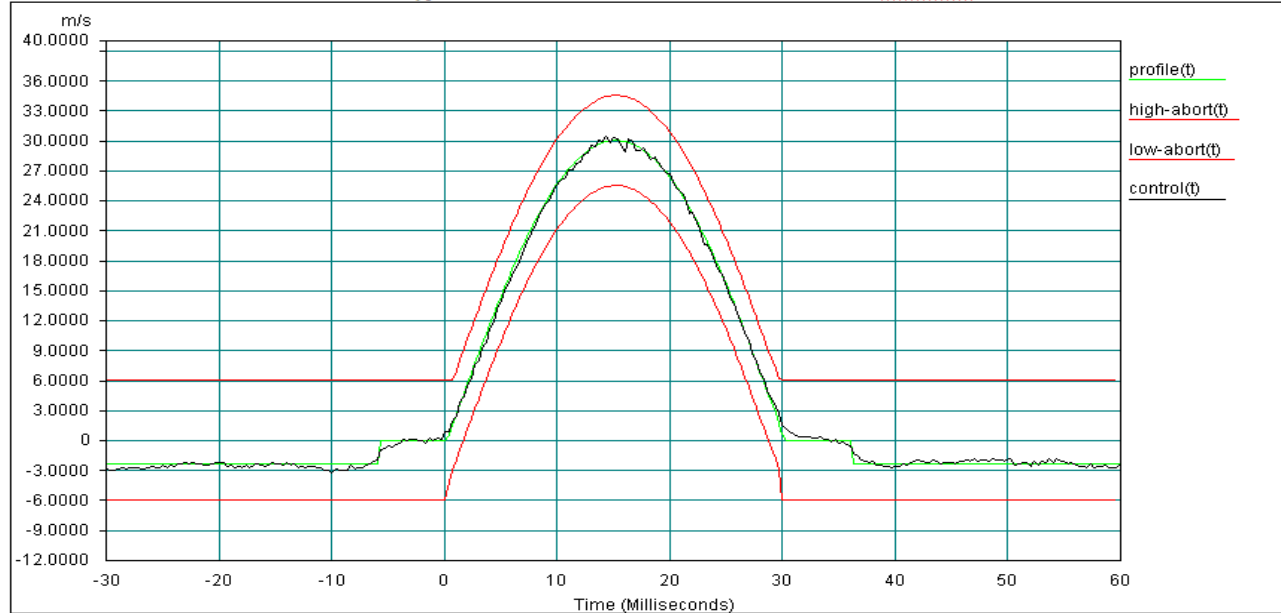
Level: 100 % Block Size: 4096 Elapsed Pulses: 9
Frame Time: 1.365333 Seconds Control Peak: 29.639591 m/s² Control RMS: 3.366716 m/s² Full Level Elapsed Pulses: 3
dt: 0.000333 Seconds Demand Peak: 30.000000 m/s² Demand RMS: 3.365699 m/s² Remaining Pulses: 0
Pulse Type: Half Sine Amplitude: 30.000000 m/s²
Data saved at 03:48:47 PM, Tuesday, September 10, 2013 Report created at 03:48:48 PM, Tuesday, September 10, 2013

Shock Test Data _ X axis

Project File Name: Class A-Shock Transverse⁺

Profile Name: 30m/s² 30mSec

Test Type: Classical Shock

Run Folder: .RunDefault⁺


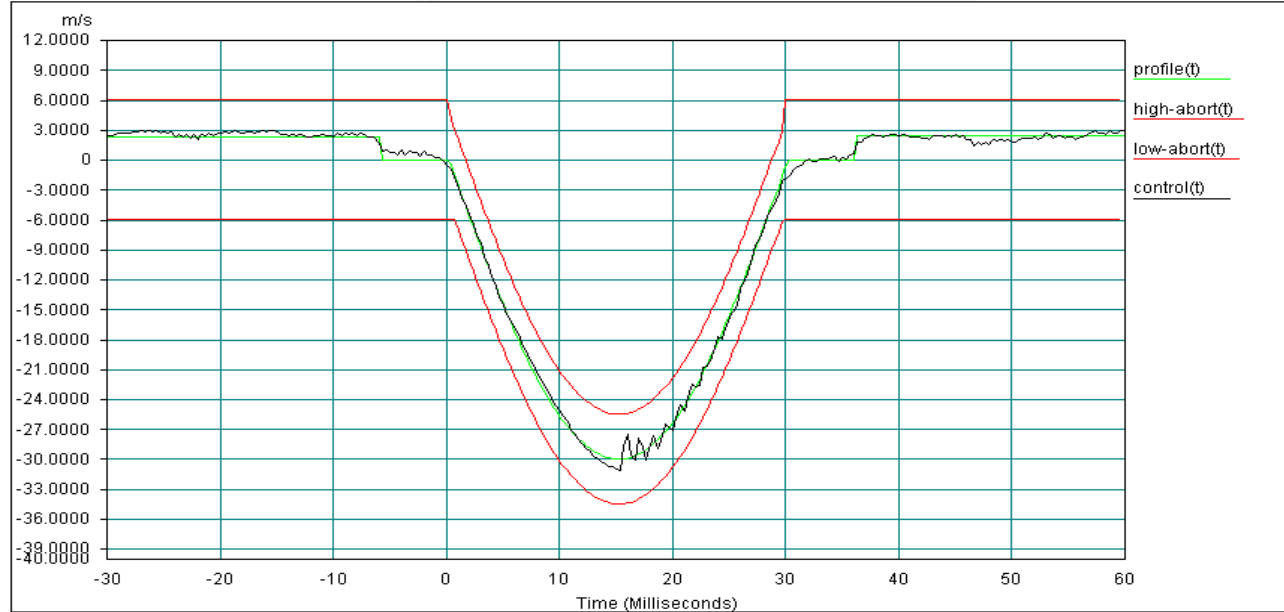
Level: 100 % Block Size: 4096 Elapsed Pulses: 10⁺
Frame Time: 1.365333 Seconds Control Peak: 30.373644 m/s² Control RMS: 3.365689 m/s² Full Level Elapsed Pulses: 3⁺
dT: 0.000333 Seconds Demand Peak: 30.000000 m/s² Demand RMS: 3.365699 m/s² Remaining Pulses: 0⁺
Pulse Type: Half Sine Amplitude: 30.000000 m/s²⁺
Data saved at 08:58:19 AM, Tuesday, September 10, 2013 Report created at 08:58:23 AM, Tuesday, September 10, 2013⁺

Project File Name: Class A-Shock Transverse

Profile Name: 30m/s² 30mSec

Test Type: Classical Shock

Run Folder: RunDefault



Level: 100 % Block Size: 4096 Elapsed Pulses: 10
Frame Time: 1.365333 Seconds Control Peak: 31.070517 m/s² Control RMS: 3.378407 m/s² Full Level Elapsed Pulses: 3
dt: 0.000333 Seconds Demand Peak: 30.000000 m/s² Demand RMS: 3.365699 m/s² Remaining Pulses: 0
Pulse Type: Half Sine Amplitude: 30.000000 m/s²
Data saved at 09:05:55 AM, Tuesday, September 10, 2013 Report created at 09:05:56 AM, Tuesday, September 10, 2013

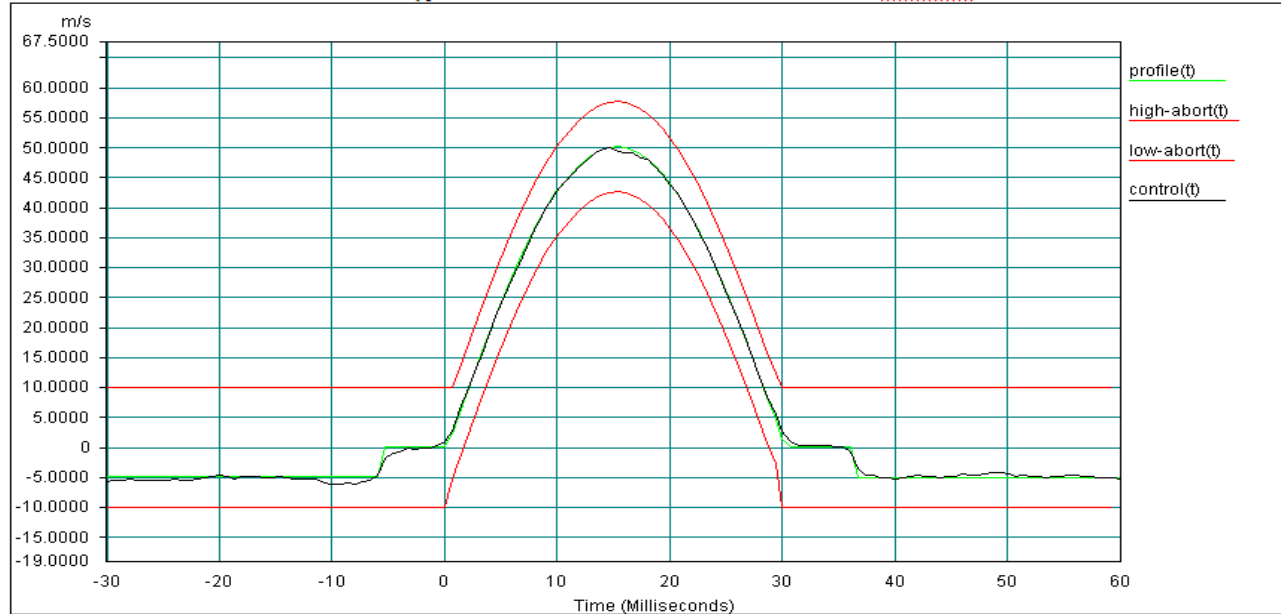
Shock Test Data _ Y axis

Project File Name: Class A-Shock Longitudinal⁺

Profile Name: 50m/s² 30mSec

Test Type: Classical Shock

Run Folder: RunDefault⁺



Level:	100 %	Block Size:	2048	Elapsed Pulses:	10 ⁺	
Frame Time:	1.365333 Seconds	Control Peak:	49.959782 m/s²	Control RMS:	5.693038 m/s²	Full Level Elapsed Pulses: 3 ⁺
dt:	0.000667 Seconds	Demand Peak:	50.000000 m/s²	Demand RMS:	5.699245 m/s²	Remaining Pulses: 0 ⁺
Pulse Type:	Half Sine	Amplitude:	50.000000 m/s²			

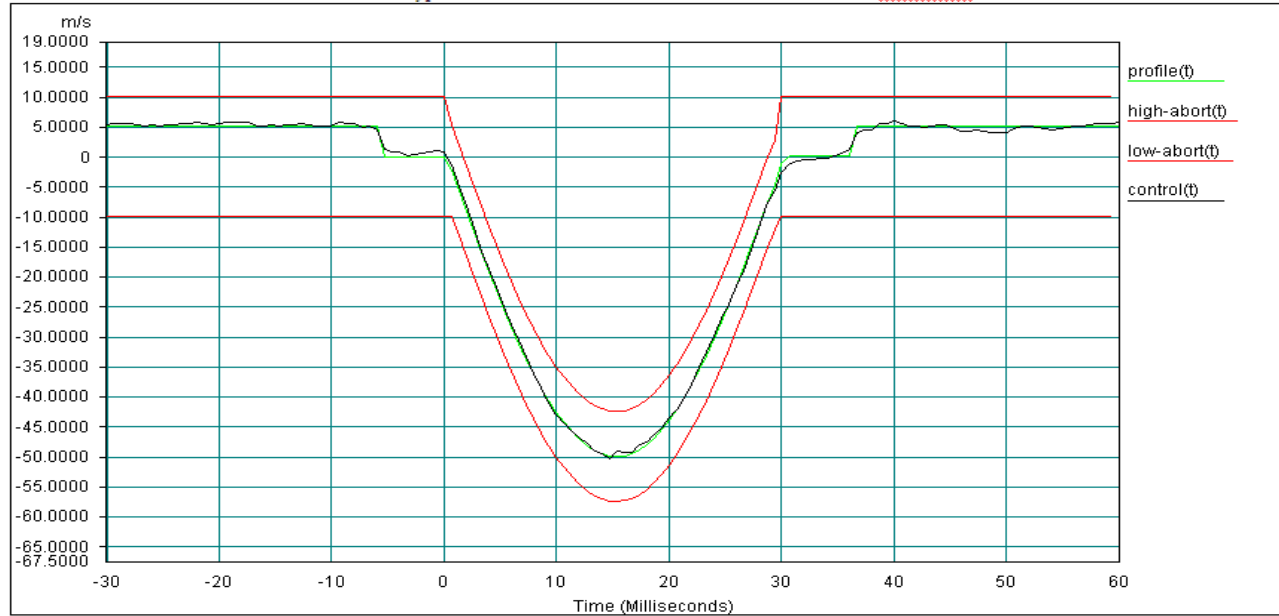
Data saved at 04:27:13 PM, Monday, September 09, 2013 Report created at 04:27:14 PM, Monday, September 9, 2013 ⁺

Project File Name: Class A-Shock Longitudinal

Profile Name: 50m/s² 30mSec

Test Type: Classical Shock

Run Folder: RunDefault



Level: 100 % Block Size: 2048 Elapsed Pulses: 10
Frame Time: 1.365333 Seconds Control Peak: 50.379955 m/s² Control RMS: 5.689444 m/s² Full Level Elapsed Pulses: 3
dT: 0.000667 Seconds Demand Peak: 50.000000 m/s² Demand RMS: 5.699245 m/s² Remaining Pulses: 0
Pulse Type: Half Sine Amplitude: 50.000000 m/s²
Data saved at 04:27:49 PM, Monday, September 09, 2013 Report created at 04:27:50 PM, Monday, September 9, 2013

4.3 Functional Random Test

Applicant	SAMSUNG TECHWIN Co, Ltd	Dept. in charge	Reliability Test Team
Product	Mobile NVR	Tester	An, Hyo-Kyung (+82-31-548-0727)
Model	SRM-872	Date	September 9, 2013 ~ September 10, 2013
Serial No.	N/A		
Standard	EN 61373: 2010 (Category 1 Class B)	Page	8

(1) Test Conditions


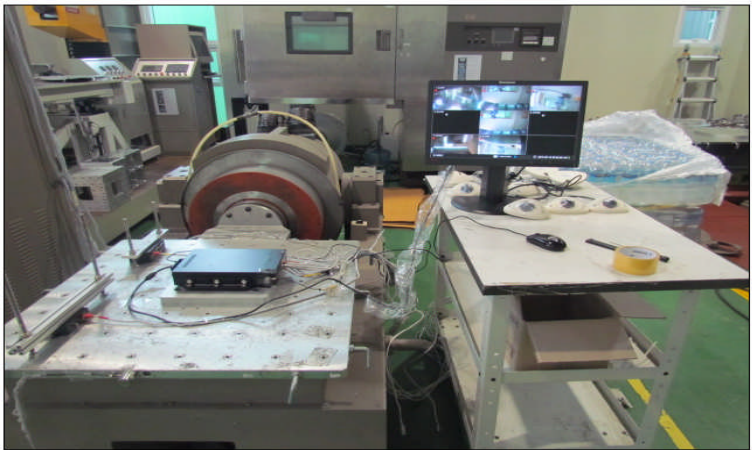

- 1) Test type : Random
- 2) Frequency : (5 ~ 150) Hz
- 3) Acceleration : Z - 1.01 m/s² r.m.s.
X - 0.45 m/s² r.m.s.
Y - 0.7 m/s² r.m.s.
- 4) Test time : Total 30 min (each axis 10 min)
- 5) Test axis : Vertical (Z), Transverse (X), Longitudinal (Y)
- 6) Check time : During the test
- 7) Sample condition : Unpackaged product / Operation
- 8) Sample quantity : 1 EA
- 9) Input voltage : AC 220 V

(2) Environment Condition : Temperature (25 ± 5) °C, Humidity (60 ± 5) % R.H.

(3) Test Method

- 1) Perform a visual inspection and an operational check for the specimen.
- 2) Fix the specimen on the vibration table.
- 3) Operate the vibration tester.
- 4) Repeat from steps 1) to step 3) for each required axis.
- 5) Perform a final visual inspection and an operational check for the specimen.

(4) Test Photograph

Test axis	Test photograph
Vertical (Z)	
Transverse (X)	
Longitudinal (Y)	

(5) Test Equipment

Description	Manufacturer and Model	Serial Number	The due date of next Calibration	Calibration Laboratory
Vibration Tester	Shinken/G-0215NS	SG-4589	May 16, 2014	SICT
Accelerometer	Fujisera/S41SCB	0107	May 16, 2014	SICT

(6) Test Result

Check List	Test Result
1. Visual inspection -. Mechanical damage such as deformation, crack, separating, loosening of screw, etc.	No abnormal was found
2. Performance check -. Video output	Refer to ※ Appendix 1.

※ Appendix 1. Performance Check



<Z axis>



<X axis>



<Y axis>

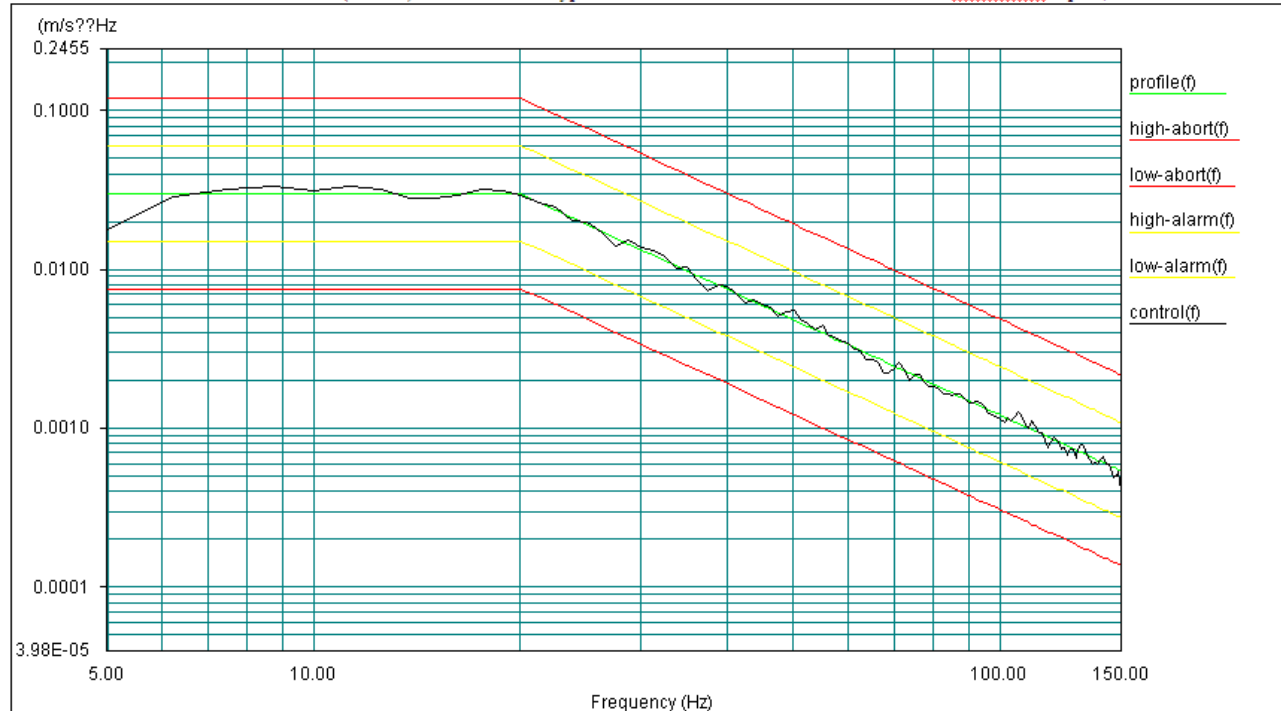
※ Appendix 1. Functional Random Test Data _ Z axis

Project File Name: functionaltest(vertical).pri

Profile Name: Class B-Functional test (vertical)

Test Type: Random

Run Folder: \RunDefault Sep 10, 2013 15-58-52



Level: 0 dB

Control RMS: 1.040906 m/s² Full Level Elapsed Time: 00:10:00 Lines: 400 Frame Time: 0.800000 Seconds

Demand RMS: 0.991922 m/s² Remaining Time: 00:00:00 DOF: 154 dF: 1.250000 Hz

Data saved at 04:09:53 PM, Tuesday, September 10, 2013 Report created at 04:09:54 PM, Tuesday, September 10, 2013

Functional Random Test Data _ X axis

Project File Name: functionaltest(transverse)(RANDOM).prj

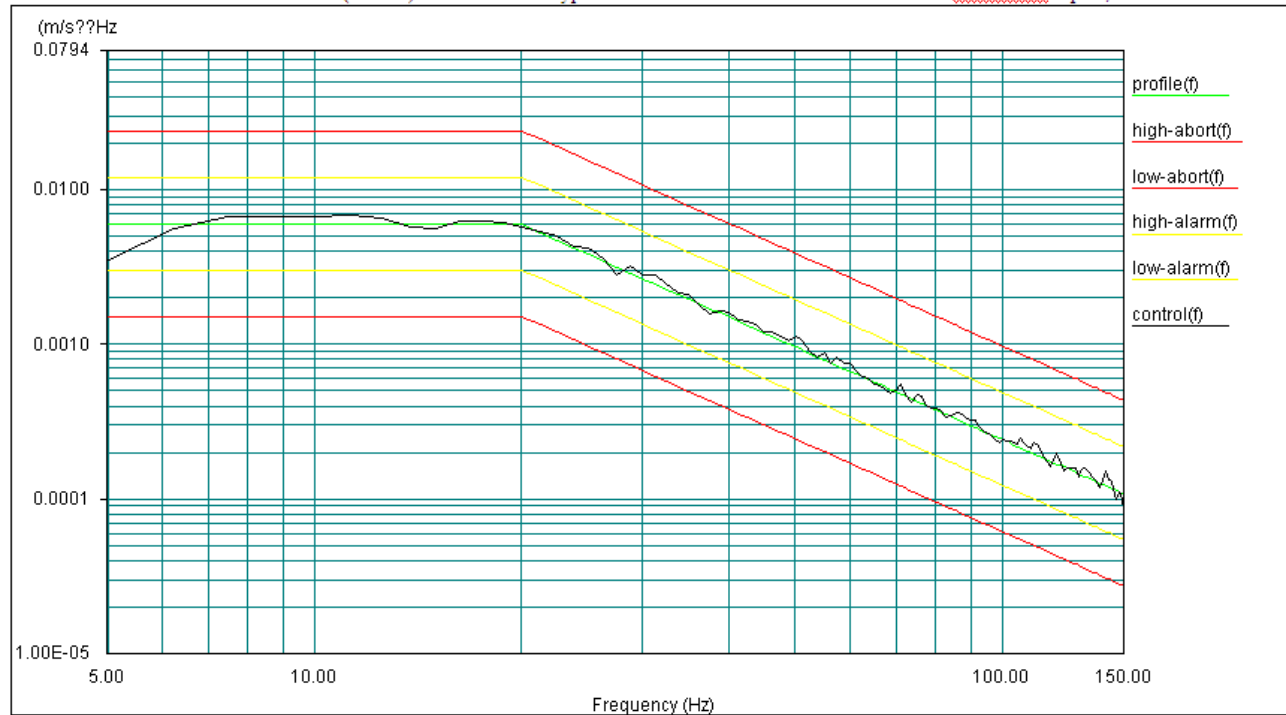
Profile Name: Class B-Functional test (vertical)

Test Type:

Random

Run Folder:

RunDefault Sep 10, 2013 09-13-13



Level: 0 dB

Control RMS: 0.455054 m/s²

Full Level Elapsed Time: 00:10:00

Lines: 400

Frame Time:

0.800000 Seconds

Demand RMS: 0.442864 m/s²

Remaining Time:

00:00:00

DOF: 154

dF:

1.250000 Hz

Data saved at 09:25:07 AM, Tuesday, September 10, 2013

Report created at 09:25:08 AM, Tuesday, September 10, 2013

Functional Random Test Data _ Y axis

Project File Name: functionaltest(longitudinal)(RANDOM).prj

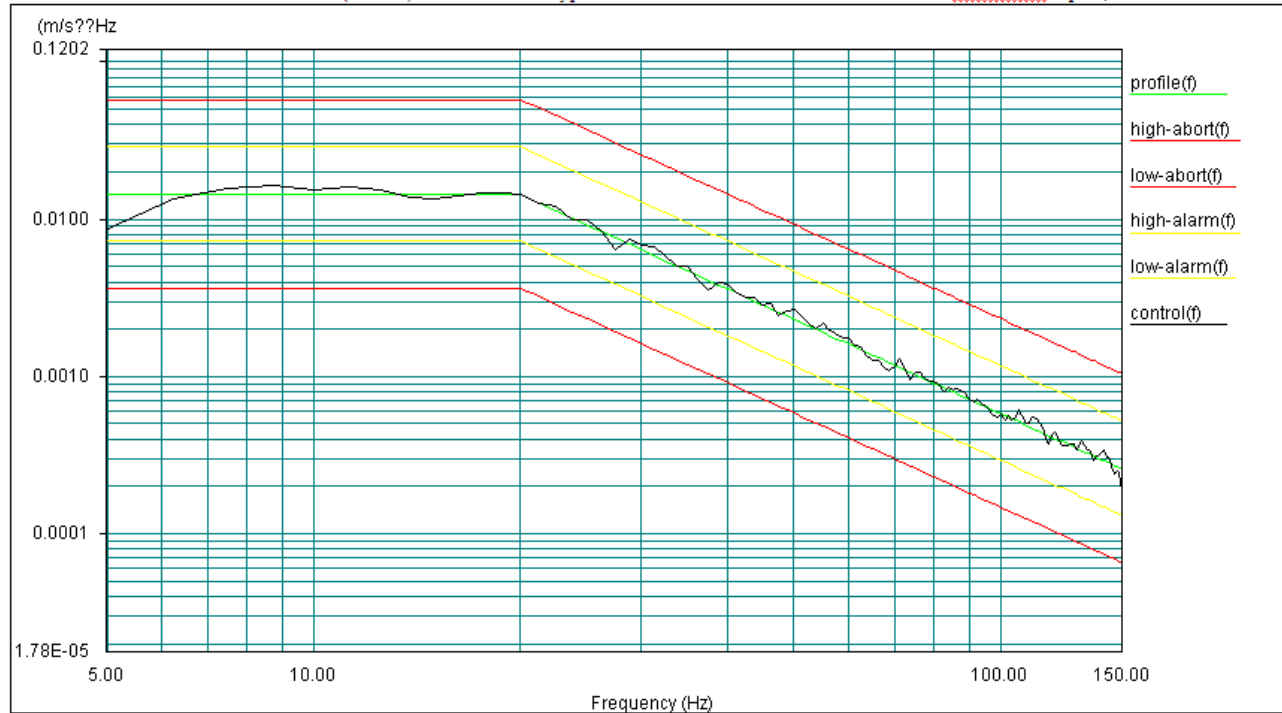
Profile Name: Class B-Functional test (vertical)

Test Type:

Random

Run Folder:

RunDefault Sep 09, 2013 16:36:57



Level: 0 dB

Control RMS: 0.749754 m/s²

Full Level Elapsed Time: 00:10:00

Lines: 400

Frame Time:

0.800000 Seconds

Demand RMS: 0.686081 m/s²

Remaining Time: 00:00:00

DOF: 154

dF:

1.250000 Hz

Data saved at 04:49:23 PM, Monday, September 09, 2013

Report created at 04:49:24 PM, Monday, September 9, 2013