TESTS REPORT

3E02444ST Issue 1

This test report supersedes our report 3E02444ST of 06/09/2018

VIBRATION AND SHOCK TESTS
Railway applications – Environmental conditions for equipment
Part 3: Equipment for signaling and telecommunications

COMPANY: nVent

Certified accurate for SOPAVAL
MARLY 09/10/2018

DUHEM Guillaume
Ingénieur d'affaire

This test report only concerns equipment submitted for testing.

CONTENTS

Page

1. GENERAL PART

1.1 ORDER ISSUER

nVent
Z.I. 4 RUE DU MARAIS
67660 BETSCHDORF

1.2 ORDER NUMBER AND ORDER DATE

Reference 3E02444ST Issue 1: order No. 4502273669 of 2018-07-09

1.3 TEST PERFORMANCE DATE

Tests performed from 10/08/2018 to 13/08/2018

1.4 COMMERCIAL CONTACT

Your commercial contact for this affair is Sandrine MENARD
Tel: 03 27 21 59 84
Email: sandrine.menarddelencre@sopaval.fr

2. EQUIPMENT PRESENTED FOR TESTS

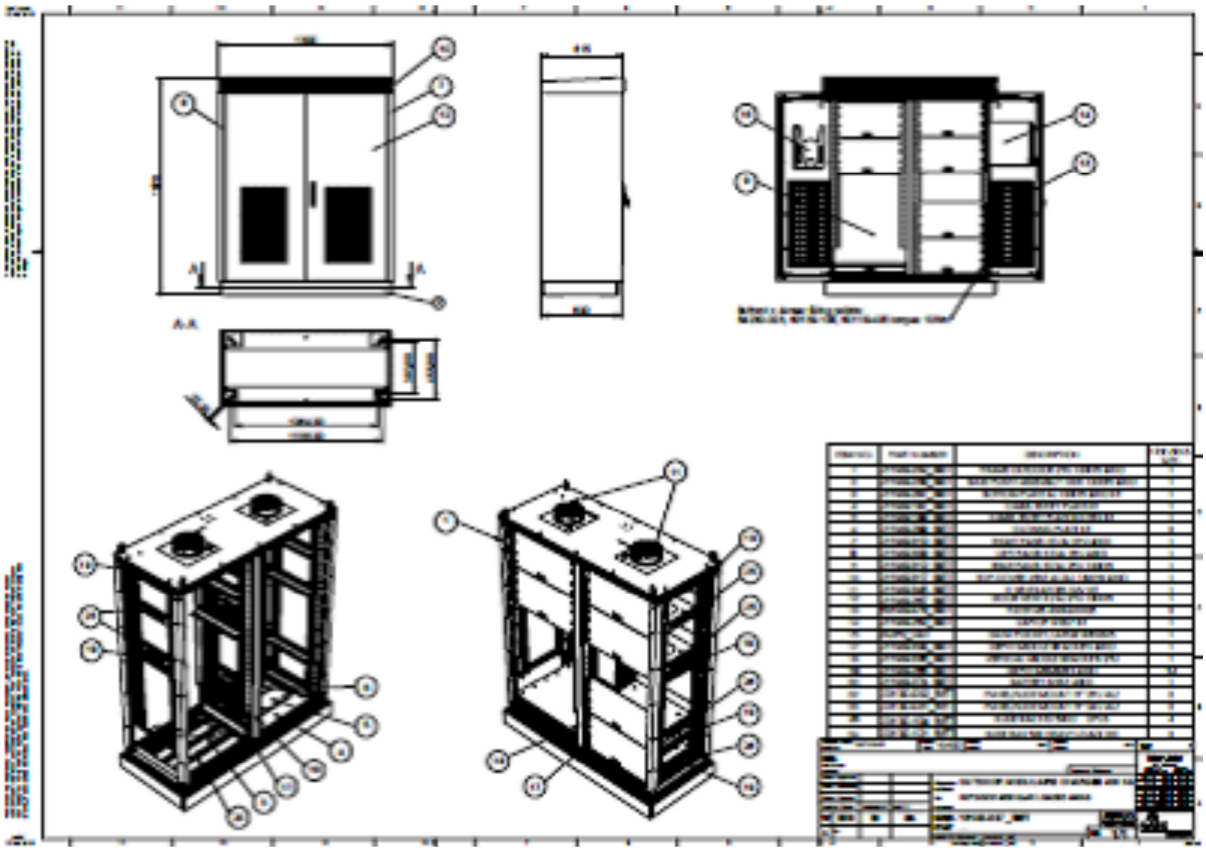
DESIGNATION	PART NUMBER	SERIAL NUMBER
See report in appendix 1E31741M2 Issue 1 of 04/10/2018		

Description: Modular Bay

Manufacturer: nVent

Model: Outdoor modulaire 10149-337

Product description:



3. TEST PROGRAM AND SUMMARY RESULTS

The test program, designated by the representatives of nVent, is defined in IEC 61963-3 (table 5d class 1).

TESTS	RESULTS	PARAGRAPH
Vibration and shock tests	Tests are fully performed according to prescriptions. No observation on the equipment was reported during the tests.	4.3

4. VIBRATION AND SHOCK TESTS

4.1 TEST PROGRAM

See report in appendix 1E31741M2 Issue 1 of 04/10/2018

4.2 TEST RESULTS

See report in appendix 1E31741M2 Issue 1 of 04/10/2018

4.3 CONCLUSION

4.3.1. TEST PROGRAM CARRIED OUT

Tests are fully performed according to prescriptions.

« Insérer les courbes de pilotage avec les gabarits d'essais permettant de justifier la conclusion sur le respect du programme »

4.3.2. PERFORMANCE OF THE EQUIPMENT SUBMITTED FOR TESTING

No observation on the equipment was reported during the tests.

APPENDICES

APPENDIX 1

Test report 1E31741M2 Issue 1 of 04102018

TESTS REPORT

1E31741M2 Issue 1

This test report supersedes our report 1E31741M2 of 31/08/2018

VIBRATION AND SHOCK TESTS

Railway applications – Environmental conditions for equipment –
Part 3 : Equipment for signaling and telecommunications

COMPANY: SOPAVAL

Certified accurate for SOPEMEA
VELIZY- VILLACOUBLAY 04/10/2018

MARTY Lisbeth
Ingénieur d'Essais

This test report only concerns equipment submitted for testing.

CONTENTS

Page

1. GENERAL PART

1.1 ORDER ISSUER

SOPAVAL
RUE ANTOINE LAURENT DE LAVOISIER - ZAE LES DIX MUIDS
59770 MARLY

1.2 ORDER NUMBER AND ORDER DATE

Reference 1E31741M2 Issue 1: order No. ACD301048 of 2018-07-25

1.3 TEST PERFORMANCE DATE

Tests performed from 10/08/2018 to 13/08/2018.

1.4 COMMERCIAL CONTACT

Your commercial contact for this affair is Damien RIFFAUD
Tel: 01 45 37 64 68
Email: riffaud@sopemea.fr

2. EQUIPMENT PRESENTED FOR TESTS

SOPAVAL for nVent submits the following equipment for testing :

DESIGNATION	PART NUMBER	SERIAL NUMBER
Outdoor MODULAR cabinet 29U	10149-337 (**)	-

(**) Part Number provided by the customer after the tests but not noticed by SOPEMEA.

Photograph n°1 : Outdoor modular cabinet 29U without the ballasts (closed).

Photograph n°2 : Outdoor modular cabinet 29U without the ballasts (opened)

3. TEST PROGRAM AND SUMMARY RESULTS

The test program, designated by the representatives of SOPAVAL, is defined in paragraph 4.1.

TESTS	RESULTS	PARAGRAPH
Vibration and shock tests	Tests are fully performed according to prescriptions. No observation on the equipment was reported during the tests.	4.3

4. VIBRATION AND SHOCK TESTS

4.1 TEST PROGRAM

4.1.1. PROGRAM A : RANDOM VIBRATION TESTS

STANDARD OF REFERENCE: EN 50125-3 §4.13.1 table 5 appendix C4

Frequency in Hz	PSD in $(m/s^2)^2/Hz$	PSD in g^2/Hz
5	0.02	0.00020782
10	0.0195028	0.00020266
20	0.01854517	0.0001927
30	0.01763457	0.00018324
40	0.01676868	0.00017425
50	0.0159453	0.00016569
60	0.01516236	0.00015755
70	0.01441786	0.00014982
80	0.01370991	0.00014246
90	0.01303673	0.00013547
100	0.0123966	0.00012881
200	0.00749276	7.7858E-05
300	0.00452878	4.7059E-05
400	0.00273729	2.8443E-05
500	0.00165448	1.7192E-05
600	0.001	1.0391E-05
2000	0.001	1.0391E-05

RMS acceleration: 0.234 g ($2.3 m/s^2$)
Test duration per axis: 2 h
The slope between 5 and 600 Hz is -0.0218 dB/Hz.

Number of axes: 3 (OX, OY, OZ)

Configuration

The equipment is not powered during the tests.

Checks

Visual checks are carried out by the representative of nVent and the technician of SOPEMEA.

4.1.2. PROGRAM B : SHOCK TESTS

STANDARD OF REFERENCE: EN 50125-3 §4.13.2 table 6

Pulse shape: half-sine
Duration: 11 ms

Direction	vertical	- vertical
Amplitude in m/s²	20	20
Amplitude in g	2.04	2.04
Number of shocks	1	1

Configuration

The equipment is not powered during the tests.

Checks

Visual checks are carried out by the representative of nVent and the technician of SOPEMEA.

4.2 PROCEDURE

4.2.1. TEST EQUIPMENT USED

Test facility

DESIGNATION	INTERNAL REF.	VALIDITY ± 1 MONTH
Electrodynamic exciter	KV1315	14/09/2018

Control

DESIGNATION	MANUFACTURER	TYPE	NUMBER	VALIDITY ± 1 MONTH
Servo system	DATA PHYSICS	ISTPIL5	SSN99001	25/08/2018
Accelerometer	ENDEVCO	224c	CPI90037	05/10/2018
Conditioner	SOPEMEA	ASS02U	ACP85003	05/10/2018
Accelerometer	ENDEVCO	224C	CPI98003	05/10/2018
Conditioner	SOPEMEA	ASS02U	ACP85005	05/10/2018
Accelerometer	BRUEL & KJAER	4383	CPI90001	05/10/2018
Conditioner	TELEMECANIQUE	ASS01	ACP76005	05/10/2018

Measurements

DESIGNATION	MANUFACTURER	TYPE	NUMBER	VALIDITY ± 1 MONTH
Accelerometer	ENDEVCO	2226C	CAP15006	21/06/2019
Accelerometer	ENDEVCO	2226C	CAP15010	21/06/2019
Accelerometer	ENDEVCO	226C	CAP76108	19/12/2018
Accelerometer	ENDEVCO	226C	CAP76051	19/12/2018
Charge amplifier	SOPEMEA	ASS02	ACH78006	11/08/2018

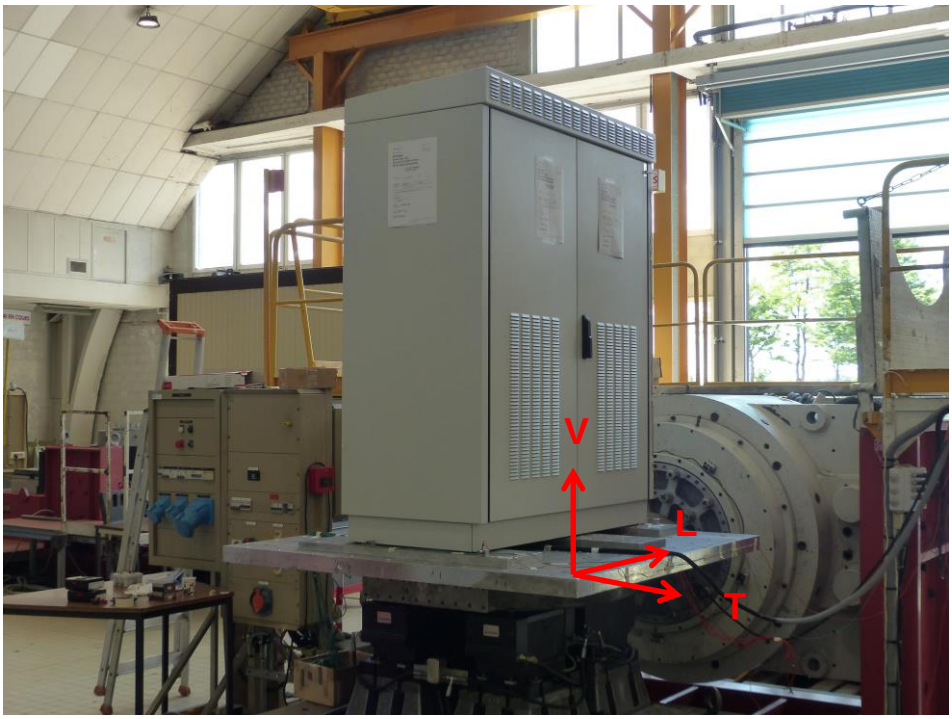
Recorders and servitudes

DESIGNATION	MANUFACTURER	TYPE	NUMBER	VALIDITY ± 1 MONTH
Torque wrench	FACOM	S315DA	CDD00001	18/09/2019

4.2.2. TEST CONDITIONS

4.2.2.1 Orientation reference

The equipment position is defined according to the axes of the orthogonal system shown in photograph below:



Photograph n°3 : Overall view along Longitudinal axis

4.2.2.2 Mounting

The Outdoor Modular cabinet 29U is fixed using four M12 screws (class 8.8) tightened to 80 Nm torque, to a SOPEMEA tool made up of two « silat » type plates.
The assembly is fixed to a rectangular plate 1.5 m x 1.5 m.
The rectangular plate is attached to the test facility for the longitudinal and transversal axes.
For the vertical axis, the rectangular plate is fixed to a transmitter attached to the test facility.

The Outdoor Modular cabinet 29U is equipped with ballasts inside, the photograph n° 16, page 20 shows the various ballasts (positions and weights). the total weight of the ballasts is 400 kg.

4.2.2.3 Random

The tests are performed on a vibrator driven by a digital control system.

The random vibration signals transmitted with a Gaussian distribution of the instantaneous values, are defined by their Power Spectral Density (PSD) G(f) and their frequency range df = f2 - f1.

RMS acceleration is defined using the equation:

$$\bar{\Gamma}^2 = \int_{f_1}^{f_2} G(f).df$$ with G(f) in g²/Hz and f in Hz

The vibration level is controlled at 2 reference points, on the maximum signal of the control accelerometers for each df considered.

4.2.2.4 Shocks

The tests are performed on a vibration generator.

The shock is defined by its pulse shape, its amplitude and pulse duration.
The pre and post pulses are defined from the reference method used as a reference for the test.
The measurement is performed on the filtered signal df = 2.5 - 2000 Hz of the reference accelerometer.

4.2.2.5 Location of the measurement points

Sensors are placed on the tested equipment. Their type, designation and location are described in the table hereafter.

DESIGNATION	SENSOR TYPE	LOCATION	PHOTOGRAPH NO.
Point 1	Uniaxial accelerometer	On the lower part of the Outdoor Modular cabinet 29U, at the front, right side	6
Point 2	Uniaxial accelerometer	On the upper part of the Outdoor Modular cabinet 29U, at the front, right side	7
Point 3	Uniaxial accelerometer	On the lower part of the Outdoor Modular cabinet 29U, at the front, left side	8
Point 4	Uniaxial accelerometer	On the upper part of the Outdoor Modular cabinet 29U, at the front, left side	9
Témoin	Uniaxial accelerometer	On one of « silat » plates, at front left	11, 13 and 15
Control 1	Uniaxial accelerometer	On one of « silat » plates, at front right	6, 10, 12 and 14
Control 2	Uniaxial accelerometer	On one of « silat » plates, at rear left	8, 11, 13 and 15

4.2.2.6 Data acquisition and processing

The signal delivered by the accelerometric measurement channels are recorded and restored by the digital control system.
Measurement and processing parameters are reported on the graphs.

4.3 TEST RESULTS

Personnel conducting the tests:

NAME	FUNCTION
CEDOLIN Jean Michel	Test technician

Persons attending the tests:

NAME	COMPANY
Mr. GERTZ	nVent

4.3.1. TESTS SCHEDULE

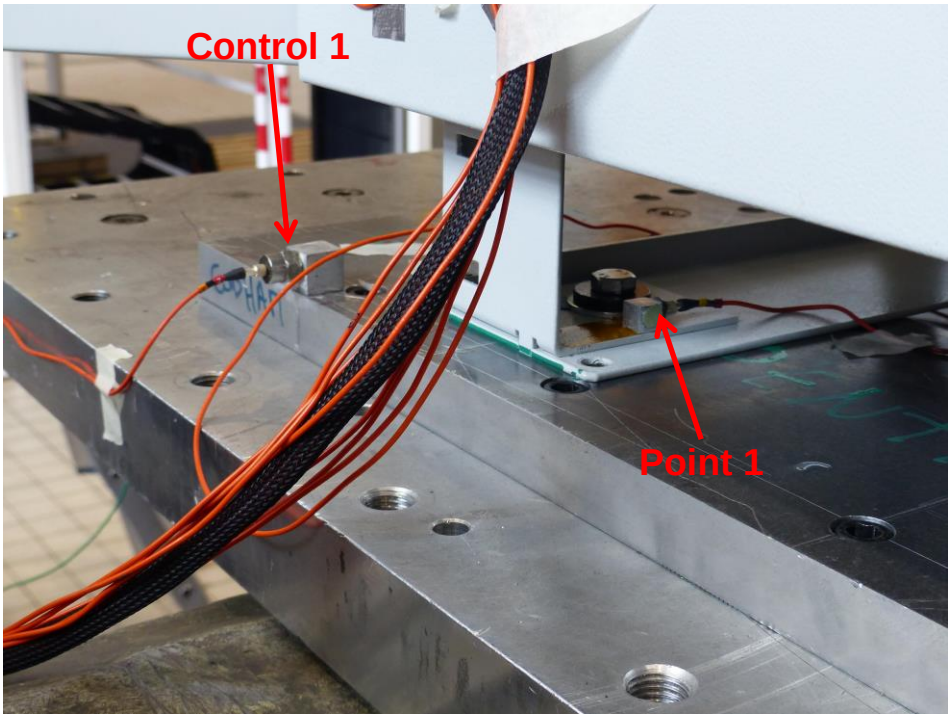
A drawing of the Outdoor Modular cabinet 29U equipped with ballasts, provided by nVent is presented in appendix 1.
The acceleration recordings are presented in appendix 2.

DATE	AXIS	PROGRAM	DURATION	GRAPH NO	COMMENTS
10/08/2018	L	A	2 h	1 – 5	Random vibration test : figure C.4. Nothing to report. Visual checks after the test : nothing to report
10/08/2018	T	A	2 h	6 – 10	Random vibration test : figure C.4. Nothing to report. Visual checks after the test : nothing to report
13/08/2018	V	A	2 h	11 – 15	Random vibration test : figure C.4. Nothing to report. Visual checks after the test : nothing to report
13/08/2018	V	B	1 shock / direction	16 - 32	Shock tests : 2.04 g 11 ms. Controlling at Control 1. Positive shock : the control accelerometer is disturbed during the post lobe. Negative shock : the control accelerometer is strongly disturbed during shock application. Visual checks after the test : nothing to report

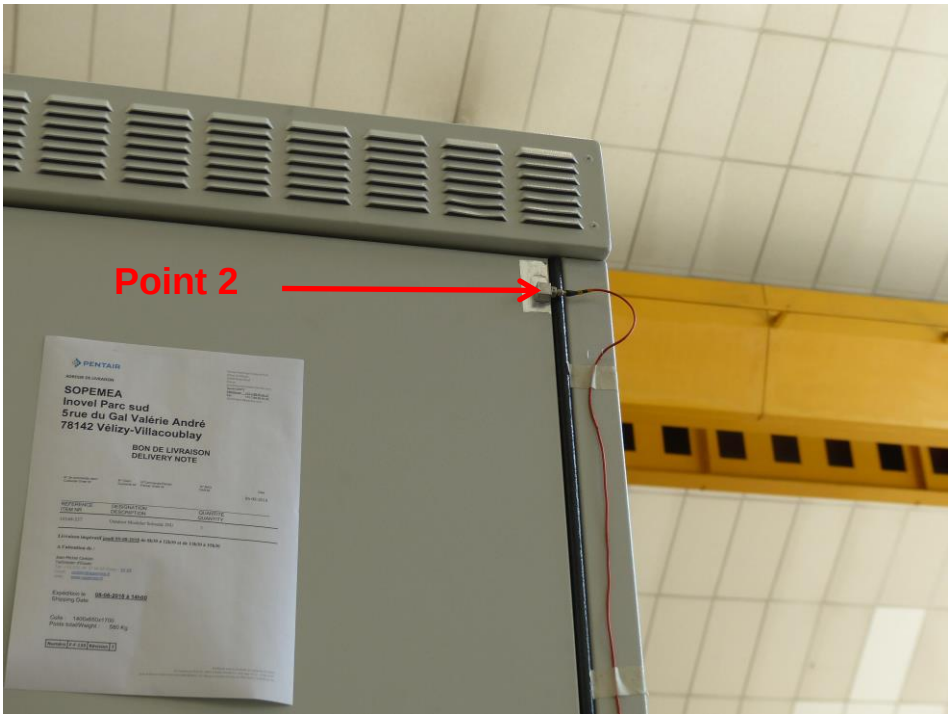
4.3.2. PHOTOGRAPHS OF THE TESTS

Photograph n°4 : Overall view along Transverse axis

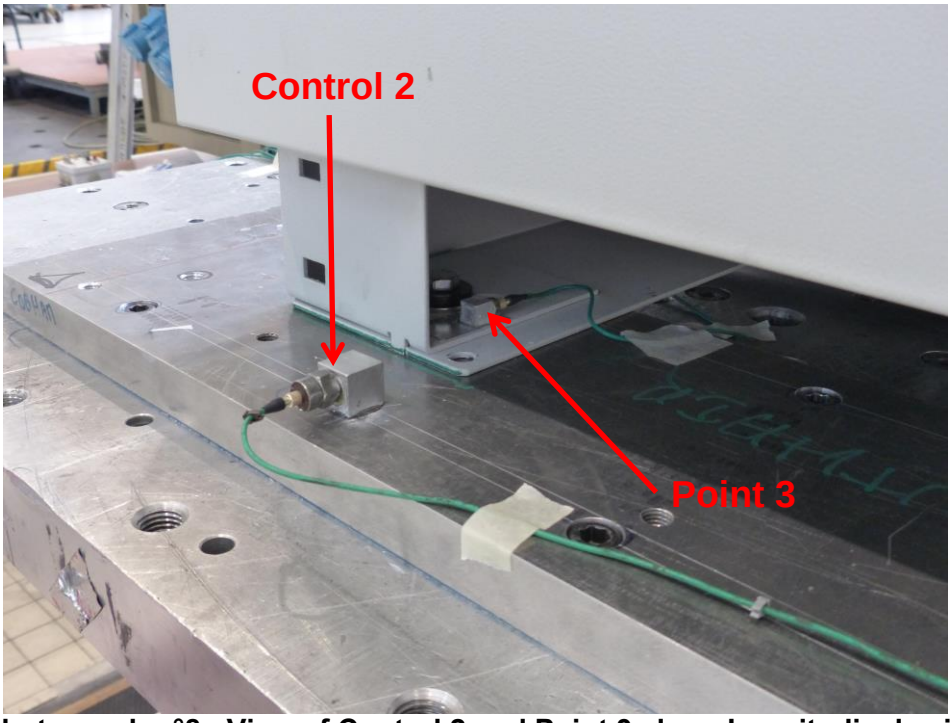
Photograph n°5 : Overall view along Vertical axis



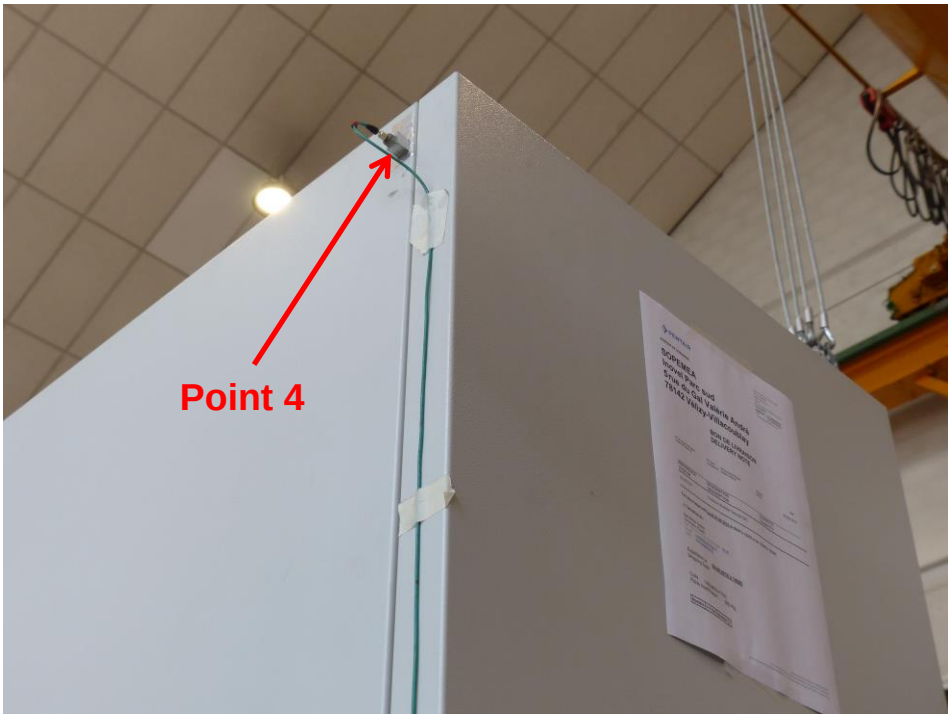
Photograph n°6 : View of Control 1 and Point 1 along Longitudinal axis



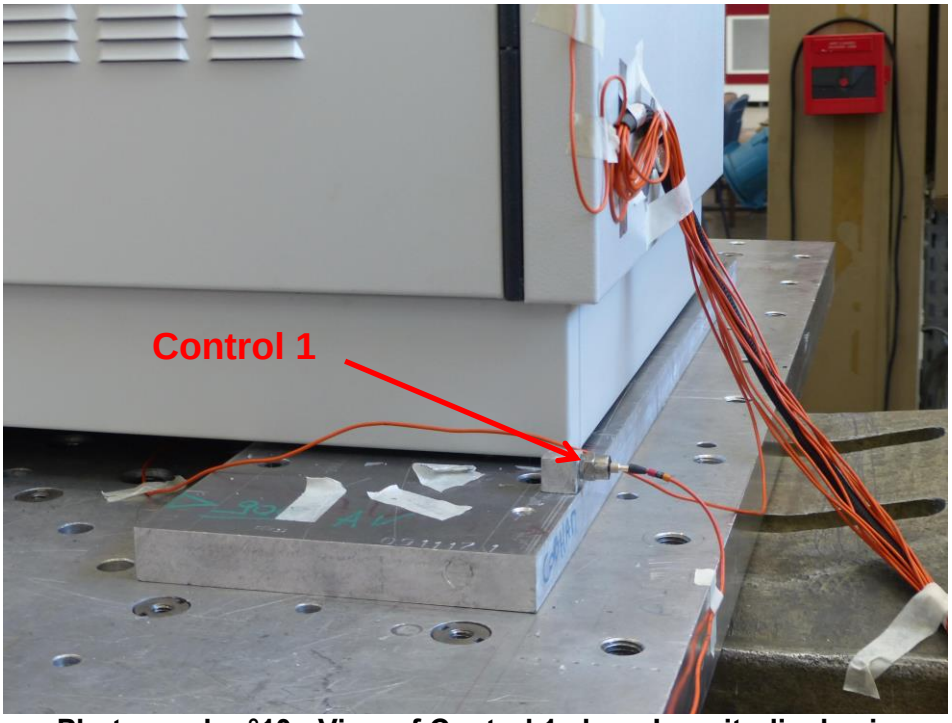
Photograph n°7 : View of measurement Point 2



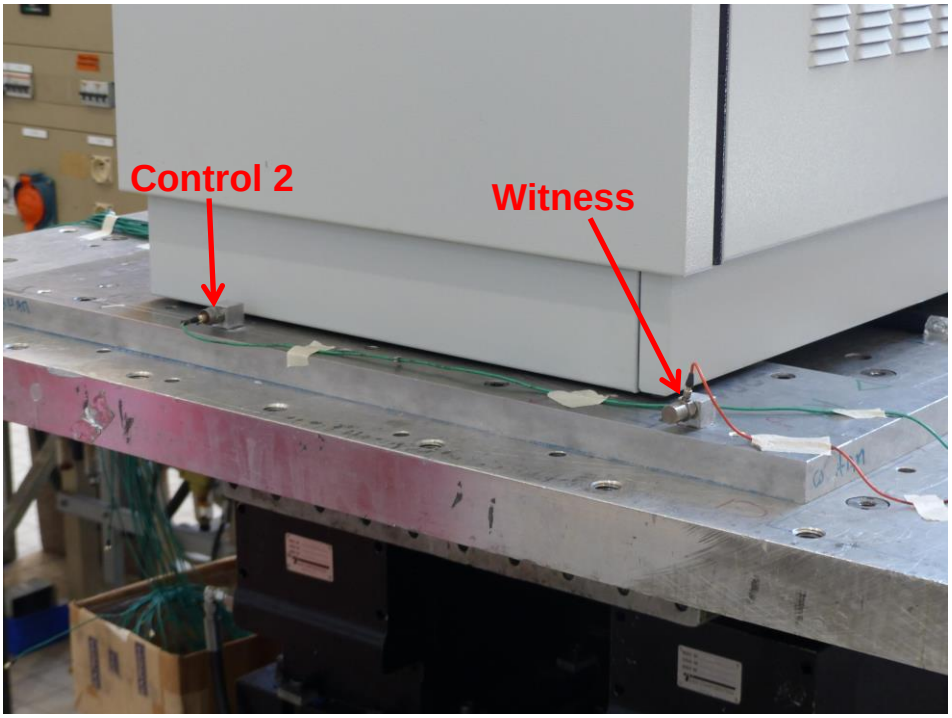
Photograph n°8 : View of Control 2 and Point 3 along Longitudinal axis



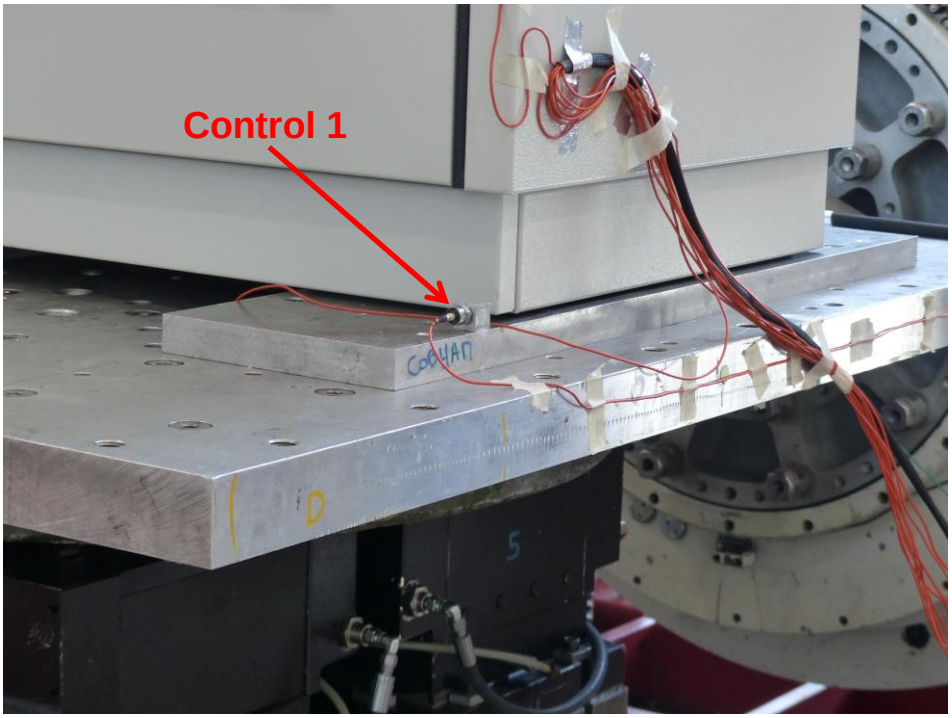
Photograph n°9 : View of measurement Point 4



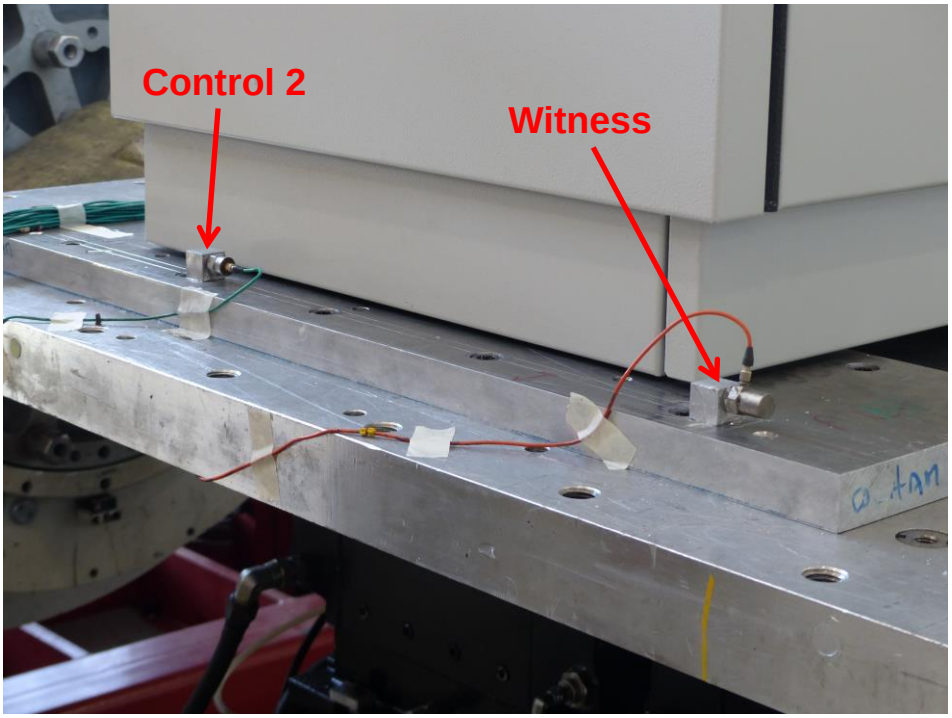
Photograph n°10 : View of Control 1 along Longitudinal axis



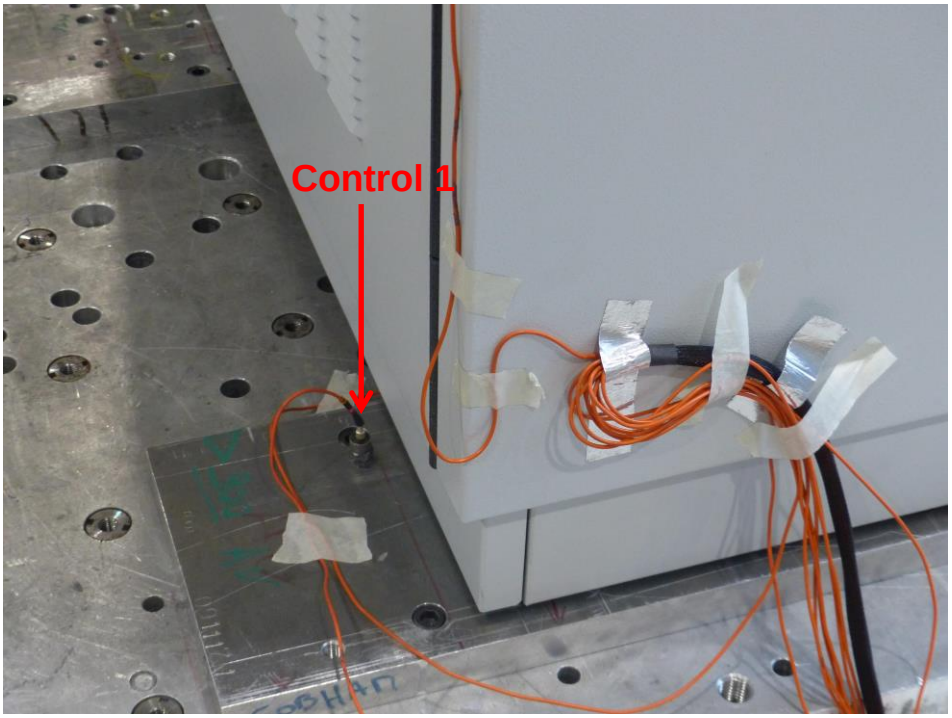
Photograph n°11 : View of Control 2 and Witness along Longitudinal axis



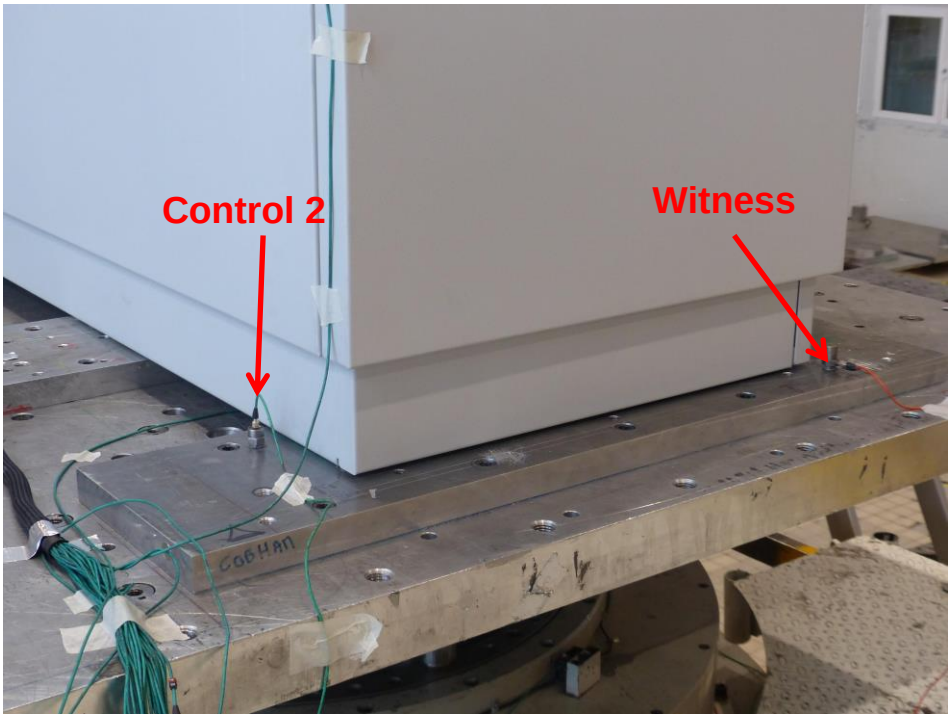
Photograph n°12 : View of Control 1 along Transverse axis



Photograph n°13 : View of Control 2 and Witness along Transverse axis



Photograph n°14 : View of Control 1 along Vertical axis



Photograph n°15 : View of Control 2 and Witness along Vertical axis

Photograph n°16 : Distribution of the ballasts inside the cabinet

4.3.3. CONCLUSION

4.3.3.1 Test program carried out

Tests are fully performed according to prescriptions.

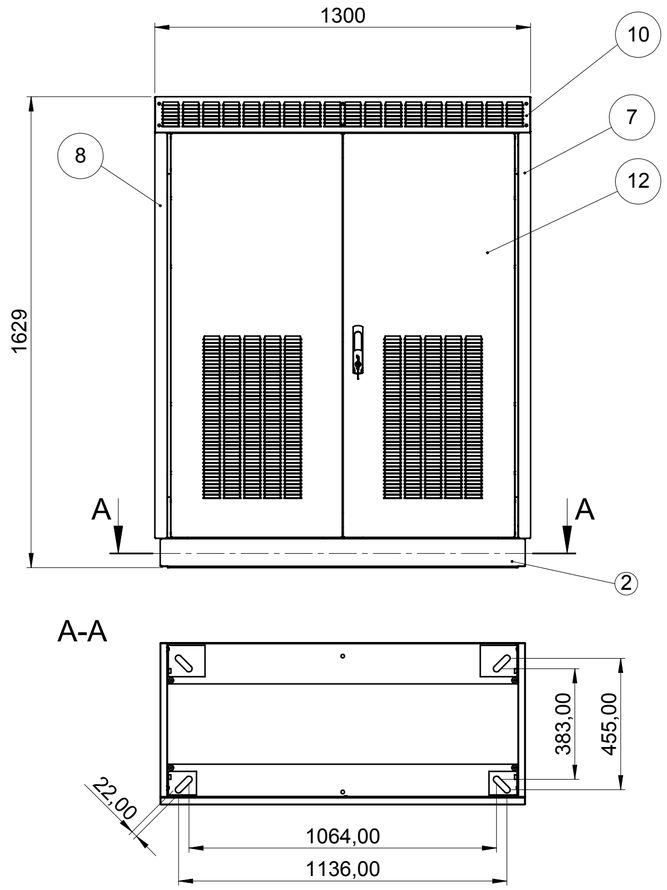
4.3.3.2 Performance of the equipment submitted for testing

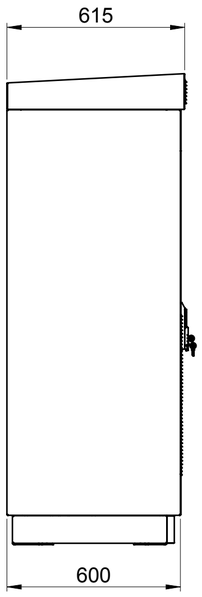
No observation on the equipment was reported during the tests.

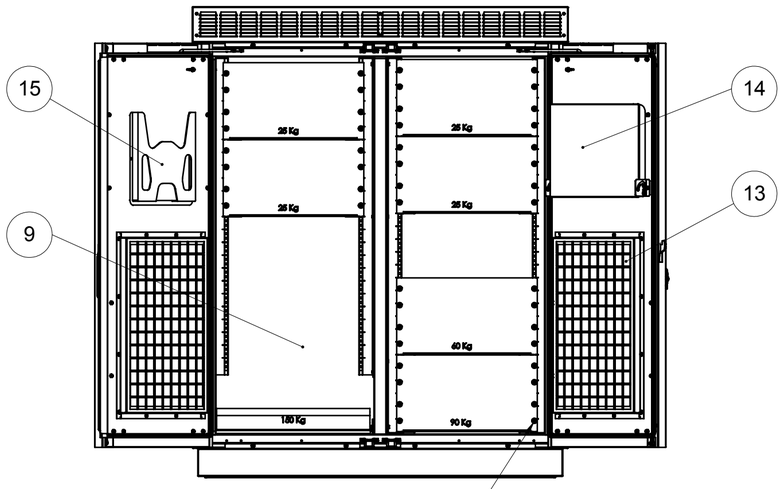
APPENDICES

APPENDIX 1

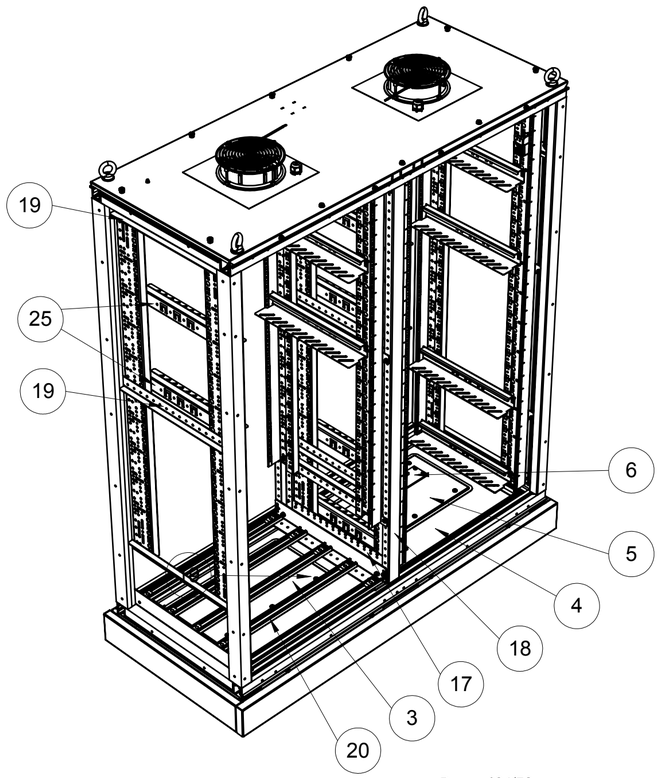
Drawing of the cabinet

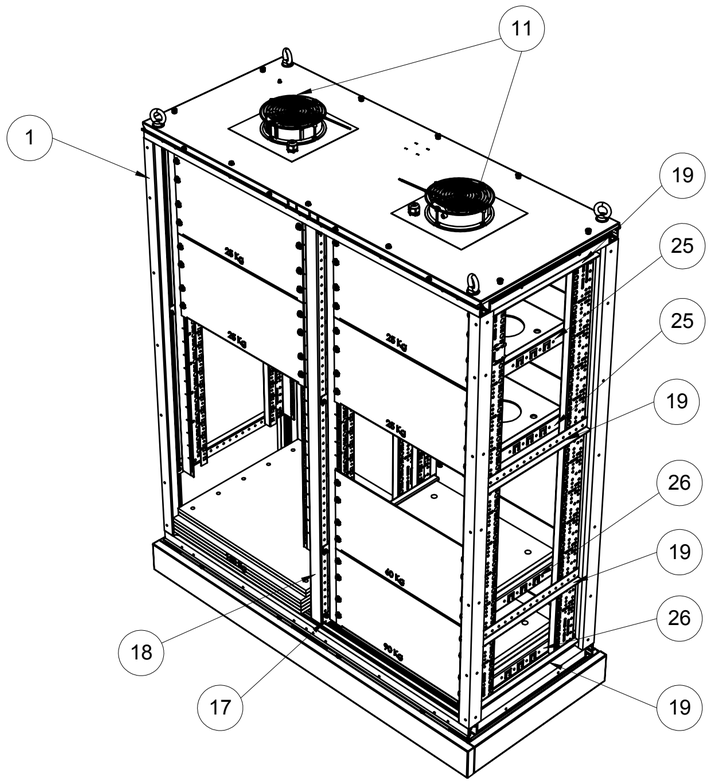






8xfront + 4xrear fixing points:
64230-023, 60130-108, 60118-405 torque: 10Nm





ITEM NO.	PART NUMBER	DESCRIPTION	Standard/ QTY.
1	21149-232_BET	FRAME OUTDOOR 29U 1300W 600D	1
2	21149-239_BET	BASE PLINTH ASSEMBLY 100H 1300W 600D	1
3	21149-297_BET	BOTTOM PLATE AL 1300W 600D KIT	1
4	21149-197_BET	CABEL ENTRY PLATE KIT	1
5	21149-199_BET	CABEL ENTRY PLATE ICOTEK KIT	1
6	21149-299_BET	CLOSING PLATE KIT	2
7	21149-310_BET	RIGHT PANEL ST/AL 29U 600D	1
8	21149-309_BET	LEFT PANEL ST/AL 29U 600D	1
9	21149-312_BET	REAR PANEL ST/AL 29U 1300W	1
10	21149-317_BET	TOP COVER VENT AL/AL 1300W 600D	1
11	21149-345_BET	2 VENTILATORS 24V KIT	1
12	21149-267_BET	DOOR VENT ST/AL 29U 1300W	1
13	60149-479_BET	FILTER M5 430X600X25	2
14	21149-250_BET	LAPTOP SHELF KIT	1
15	ADP2_DZI	DATA POCKET, LARGE 305X305	1
17	21149-334_BET	DEPTH MIDDLE BRACKETS 600D	1
18	21149-336_BET	VERTICAL MIDDLE BRACKETS 29U	1
19	21149-266_BET	DEPTH MEMBERS 600D	12
20	21149-274_BET	BATTERY SHELF 600D	1
22	23130-032_BET	PANEL/SLIDE MOUNT 19'' 29U ALZ	2
23	23130-031_BET	PANEL/SLIDE MOUNT 19'' 24U ALZ	2
25	23130-104_BET	SLIDE RAIL STD 500D 2PCS	4
26	23130-121_BET	SLIDE RAIL 500 HEAVY LOAD(2X)	2

Utilisation initiale / Initial use: OUTDOOR
Echelle / Scale: 1:15
Surface / Surface: mm²
Volume / Volume: mm³
Masse / Mass: 9
Matière / Material
Pièce de base / Basic-part
Epaisseur / Thickness

Tolérance générale / General Tolerance ISO 2768-mK

Corresp. Tol. nominal size range	Tolérances / Tolerance Limits
0.5 < X ≤ 3 mm	±0.1 mm
3 < X ≤ 6 mm	±0.1 mm
6 < X ≤ 30 mm	±0.2 mm
30 < X ≤ 120 mm	±0.3 mm
120 < X ≤ 400 mm	±0.5 mm
400 < X ≤1000 mm	±0.8 mm
1000 < X ≤2000 mm	±1.2 mm

Libérer / Approved			
Norme / Conformity			
Vérifier / Checked			
Dessiner / Drawn	06/08/2017	GERTZ	

Désignation / Tab.variante: **OUTDOOR MODULAIRE CHARGEE 400 KG**
Title / Tab.variants: **OUTDOOR MODULAR LOADED 400KG**

Index Rev.	ECO-No ECO-No	Date Date	Nom Name
A	NA		

No du plan / Drawing no.: **10149-337 _BET**
Taille du tab. / Tab. Range: ....
Modèle 3D / 3D-Model: 10149-337 _BET
Dimensions en mm / Dimensioning in mm
Page / Sheet: **1/1**
Std Origin Item: 10149-337 _BET

nVent SCHROFF

size A2

APPENDIX 2

Acceleration recordings

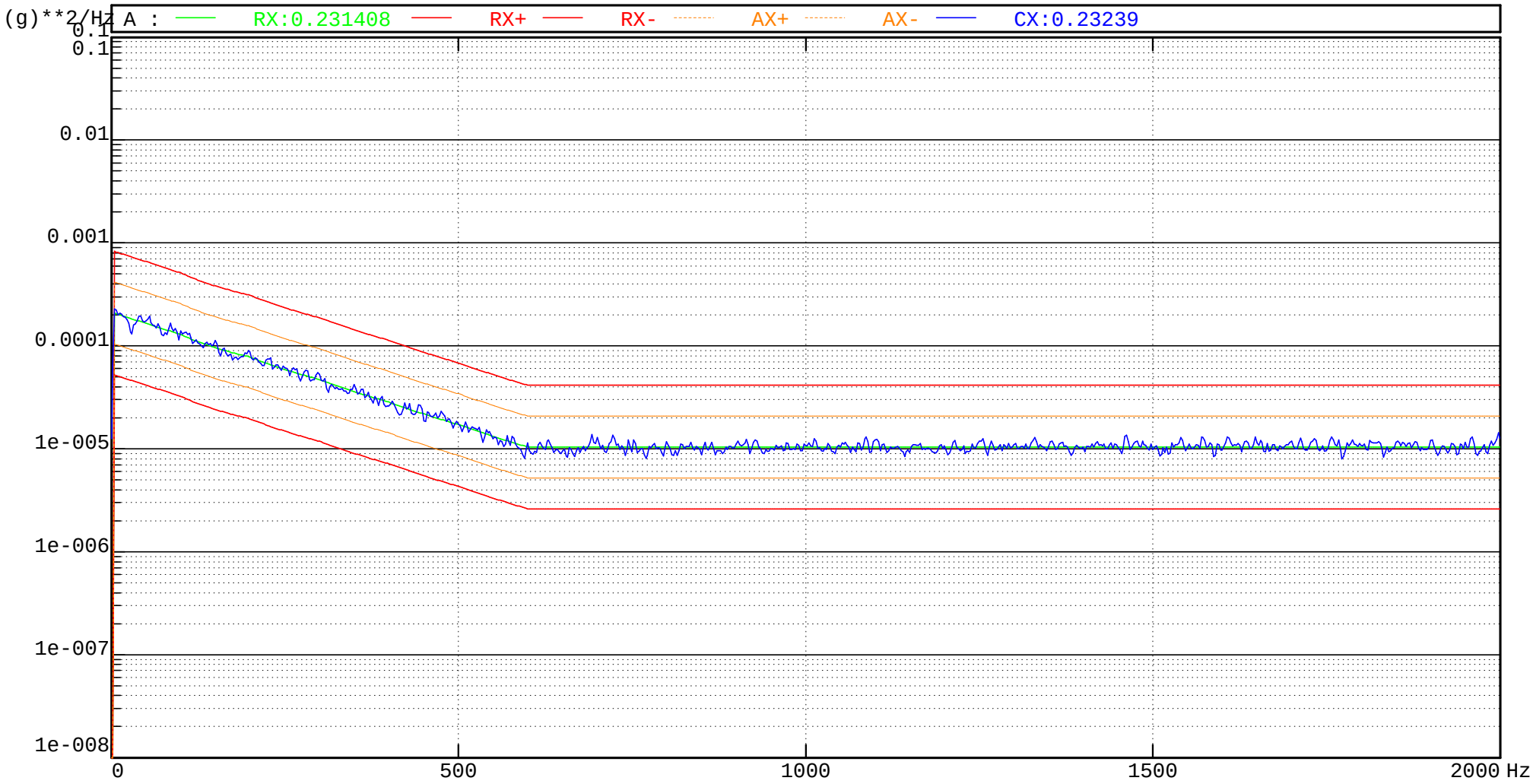
Date : 10-Aug-18

Test : 1E31741

Profile : C4VTL

- Random vibration tests : EN 50125-3 Figure C.4 -

- Longitudinal axis -



Level : 0 dB Duration : 7200 S

Time : 10h41m28s

Save ##35

Fmin : 5 Hz Fmax : 2000 Hz

Control Type : Peak-Hold

Nlines : 801 df : 2.5 Hz

NDOF : 148

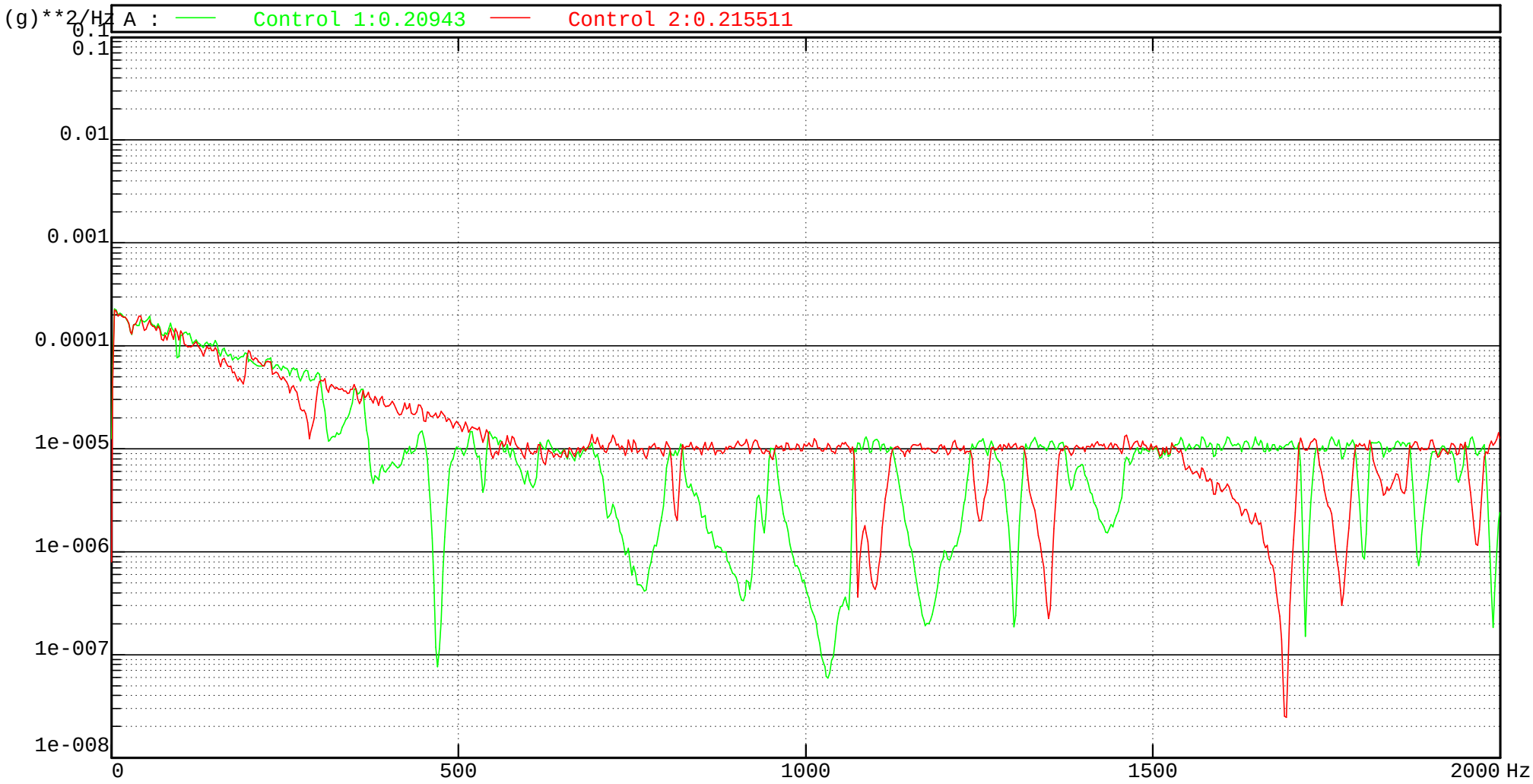
Date : 10-Aug-18

Test : 1E31741

Profile :

- Random vibration tests : EN 50125-3 Figure C.4 -

- Longitudinal axis -



Level : 0 dB Duration : 7200 S

Time : 10h41m28s

Save #35

Fmin : 5 Hz Fmax : 2000 Hz

Control Type : Peak-Hold

Nlines : 801 df : 2.5 Hz

NDOF : 148

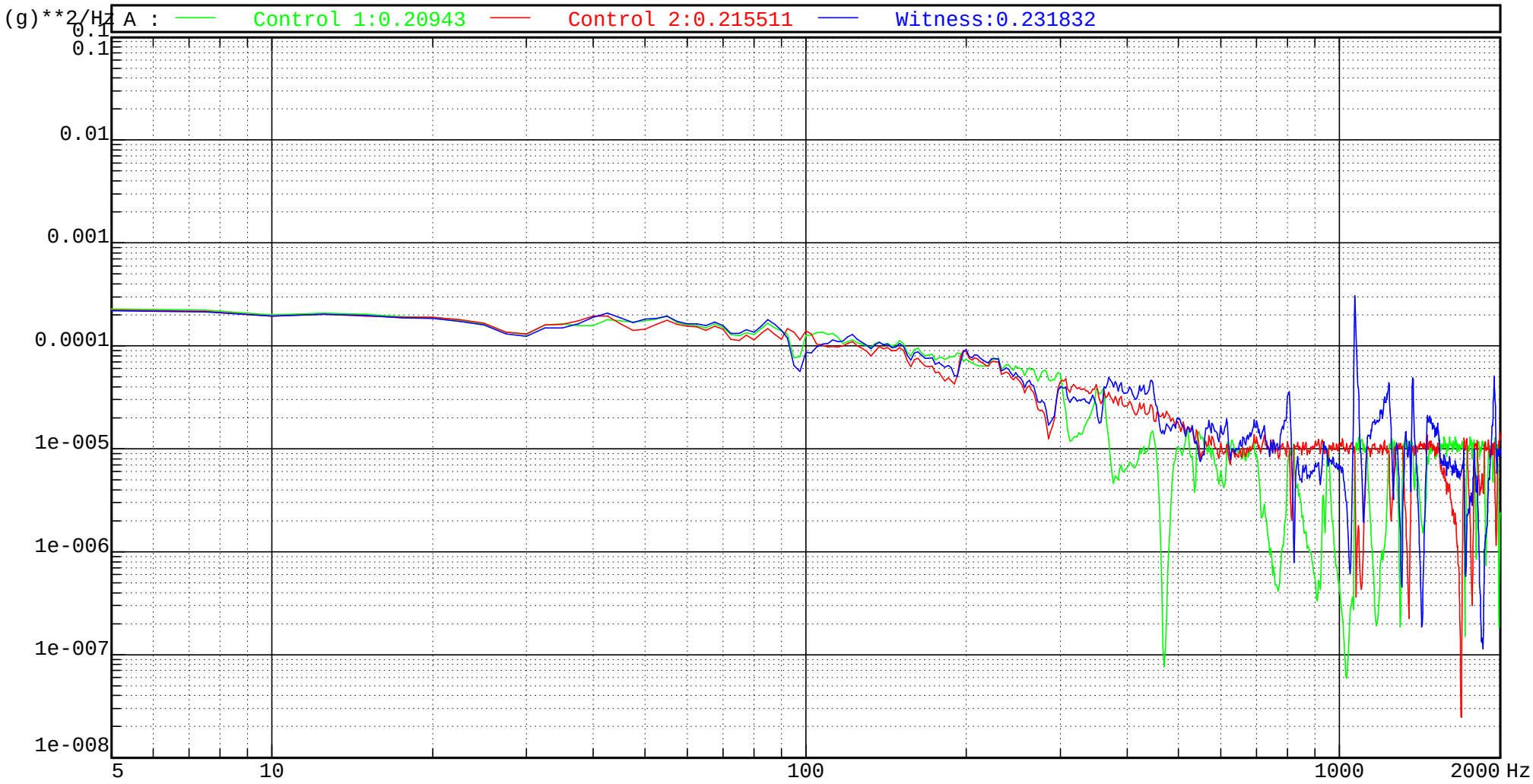
Date : 10-Aug-18

Test : 1E31741

Profile :

- Random vibration tests : EN 50125-3 Figure C.4 -

- Longitudinal axis -



Level : 0 dB Duration : 7200 S

Time : 10h41m28s

Save ##35

Fmin : 5 Hz Fmax : 2000 Hz

Control Type : Peak-Hold

Nlines : 801 df : 2.5 Hz

NDOF : 148

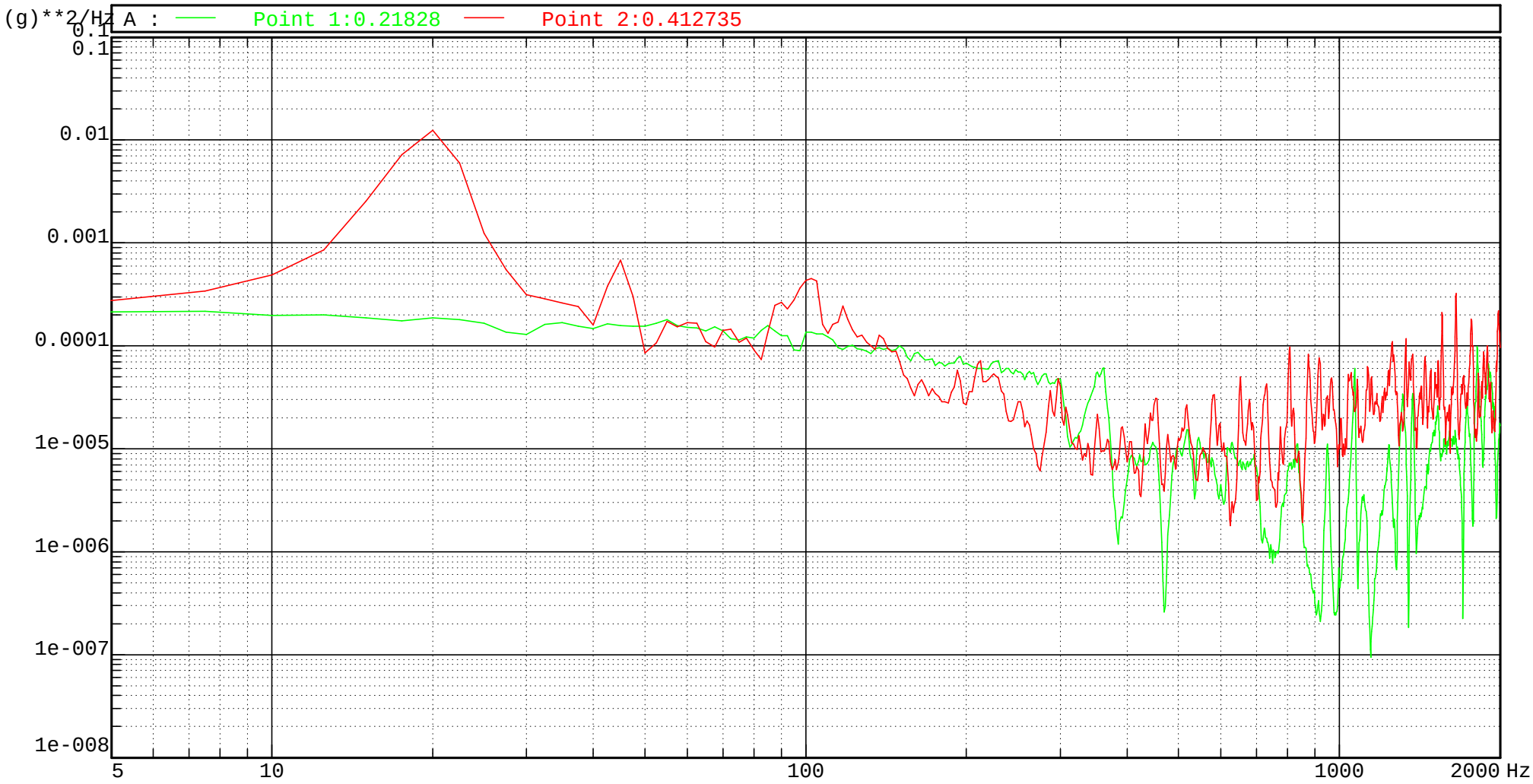
Date : 10-Aug-18

Test : 1E31741

Profile :

- Random vibration tests : EN 50125-3 Figure C.4 -

- Longitudinal axis -



Level : 0 dB Duration : 7200 S

Time : 10h41m28s

Save #35

Fmin : 5 Hz Fmax : 2000 Hz

Control Type : Peak-Hold

Nlines : 801 df : 2.5 Hz

NDOF : 148

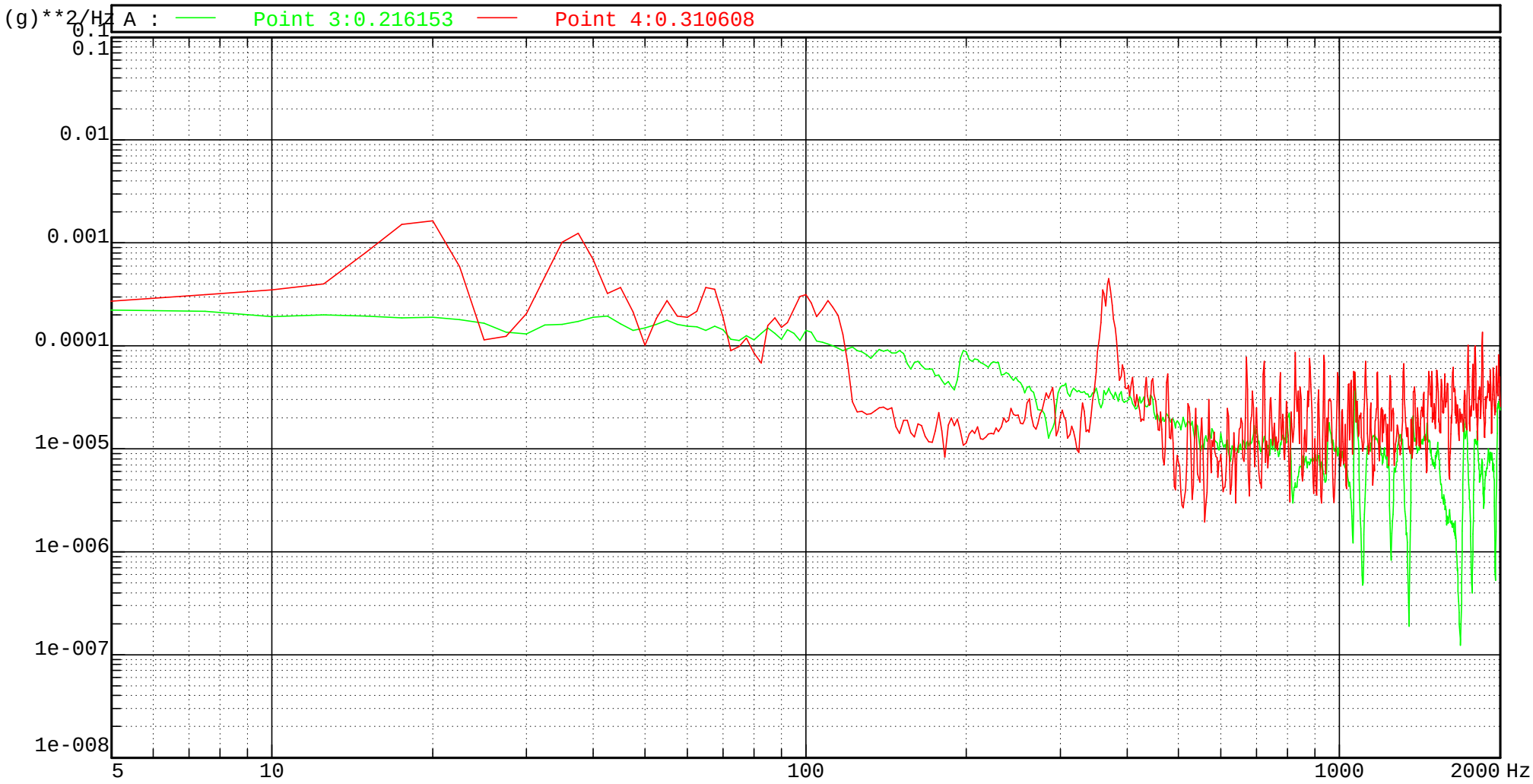
Date : 10-Aug-18

Test : 1E31741

Profile :

- Random vibration tests : EN 50125-3 Figure C.4 -

- Longitudinal axis -



Level : 0 dB Duration : 7200 S

Time : 10h41m28s

Save #35

Fmin : 5 Hz Fmax : 2000 Hz

Control Type : Peak-Hold

Nlines : 801 df : 2.5 Hz

NDOF : 148

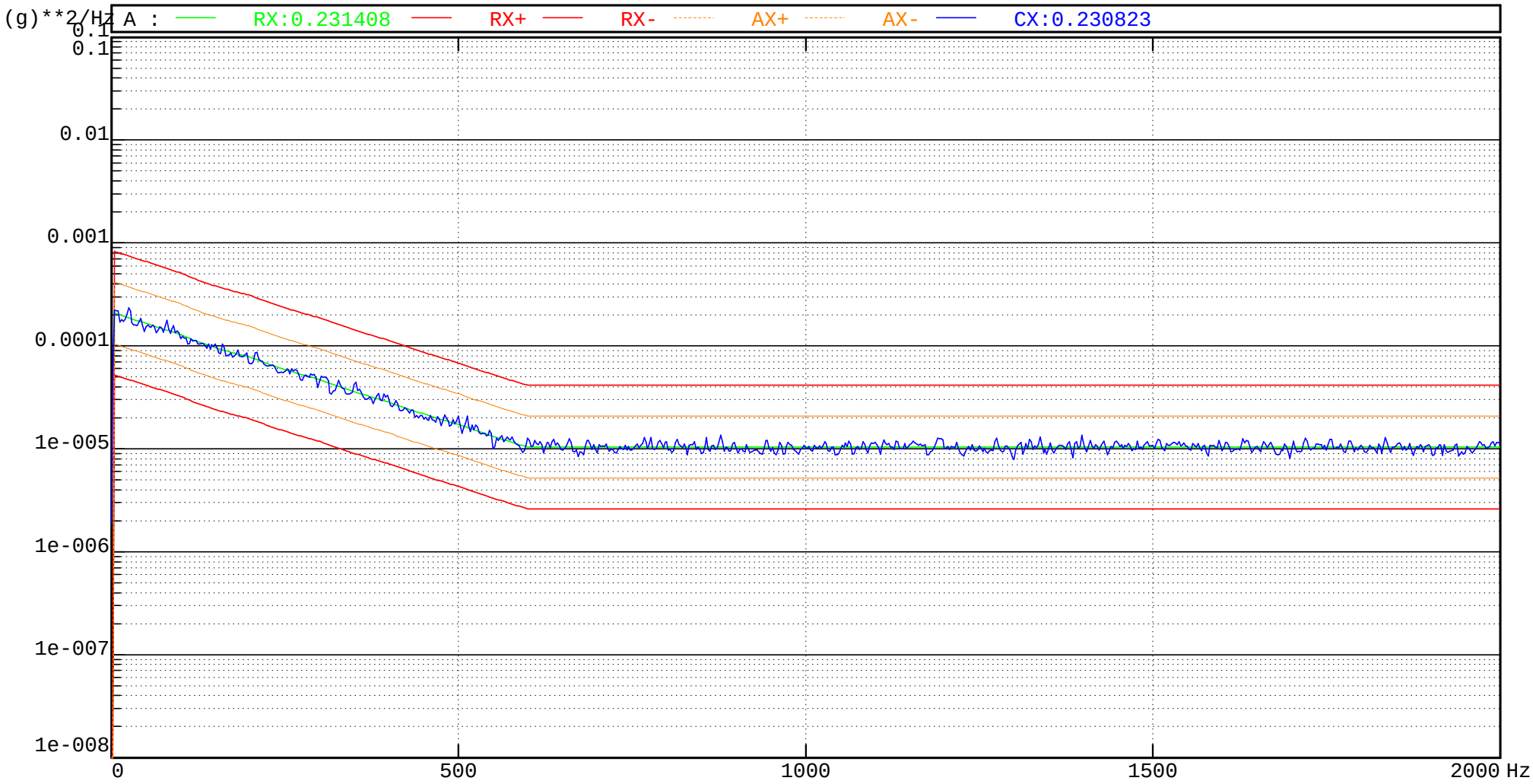
Date : 10-Aug-18

Test : 1E31741

Profile : C4VTL

- Random vibration tests : EN 50125-3 Figure C.4 -

- Transverse axis -



Level : 0 dB Duration : 7200 S

Fmin : 5 Hz Fmax : 2000 Hz

Time : 14h03m45s

Control Type : Peak-Hold

Save #47

Nlines : 801 df : 2.5 Hz

NDOF : 148

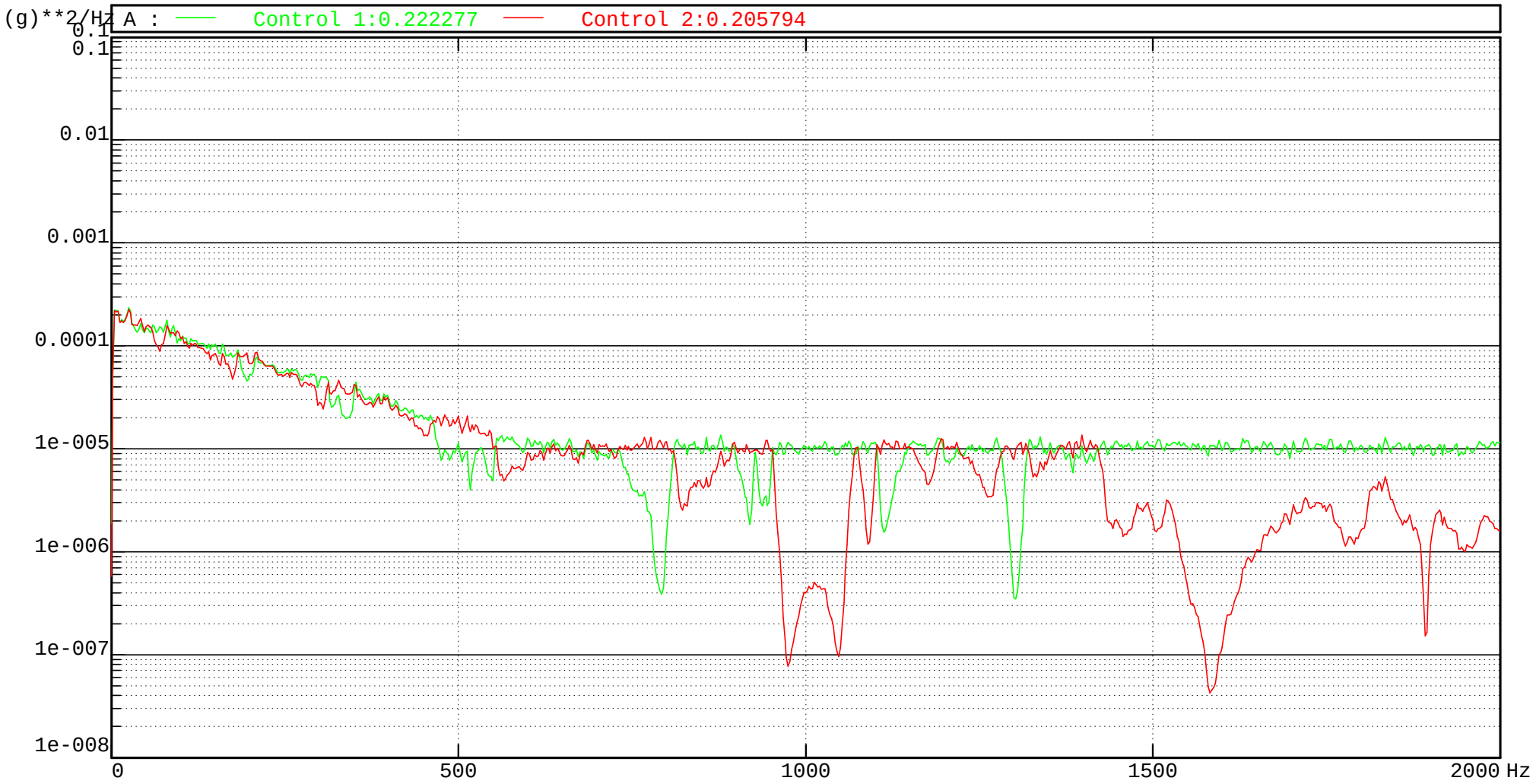
Date : 10-Aug-18

Test : 1E31741

Profile :

- Random vibration tests : EN 50125-3 Figure C.4 -

- Transverse axis -



Level : 0 dB Duration : 7200 S

Time : 14h03m45s

Save #47

Fmin : 5 Hz Fmax : 2000 Hz

Control Type : Peak-Hold

Nlines : 801 df : 2.5 Hz

NDOF : 148

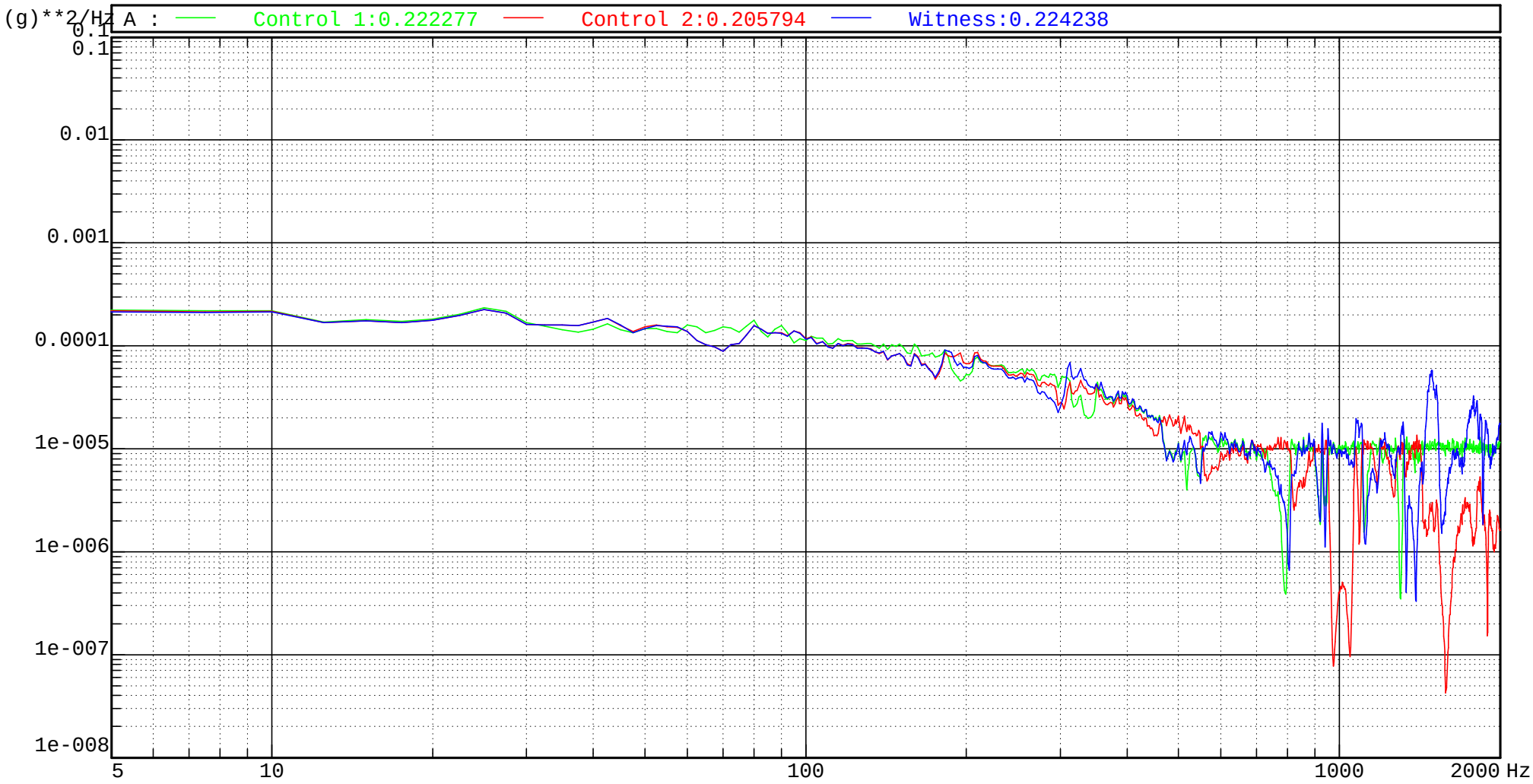
Date : 10-Aug-18

Test : 1E31741

Profile :

- Random vibration tests : EN 50125-3 Figure C.4 -

- Transverse axis -



Level : 0 dB Duration : 7200 S

Time : 14h03m45s

Save ##47

Fmin : 5 Hz Fmax : 2000 Hz

Control Type : Peak-Hold

Nlines : 801 df : 2.5 Hz

NDOF : 148

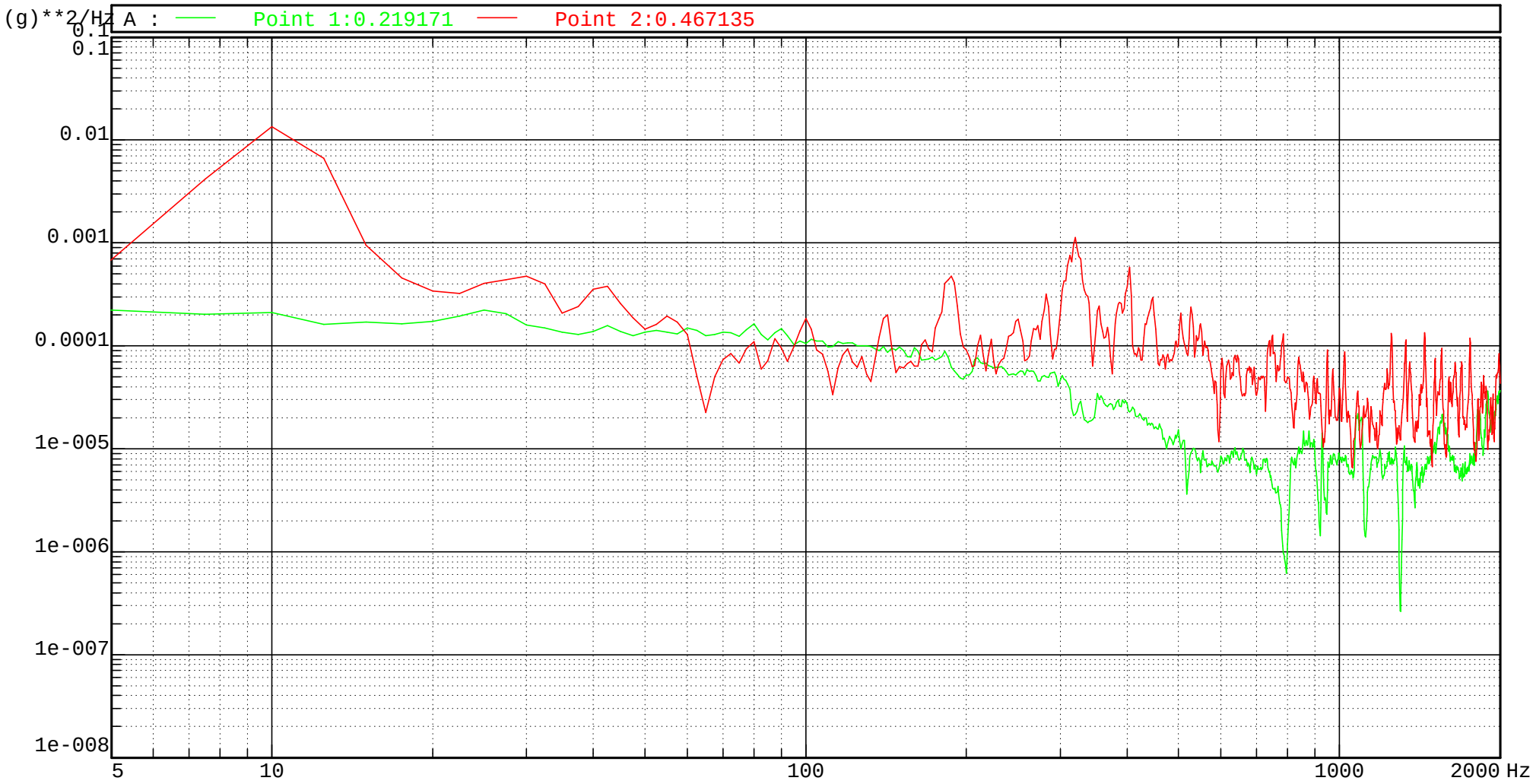
Date : 10-Aug-18

Test : 1E31741

Profile :

- Random vibration tests : EN 50125-3 Figure C.4 -

- Transverse axis -



Level : 0 dB Duration : 7200 S

Time : 14h03m45s

Save #47

Fmin : 5 Hz Fmax : 2000 Hz

Control Type : Peak-Hold

Nlines : 801 df : 2.5 Hz

NDOF : 148

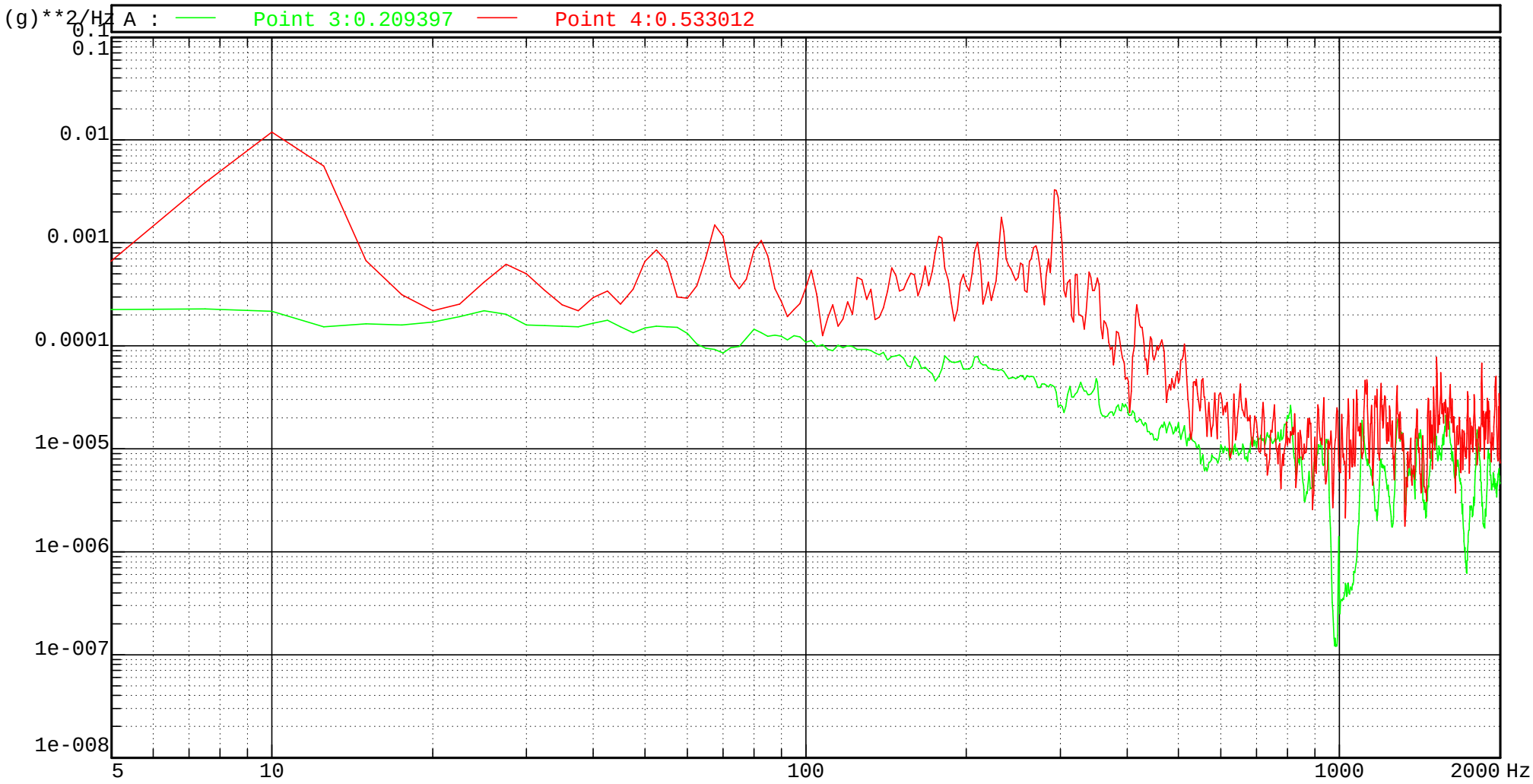
Date : 10-Aug-18

Test : 1E31741

Profile :

- Random vibration tests : EN 50125-3 Figure C.4 -

- Transverse axis -



Level : 0 dB Duration : 7200 S

Time : 14h03m45s

Save #47

Fmin : 5 Hz Fmax : 2000 Hz

Control Type : Peak-Hold

Nlines : 801 df : 2.5 Hz

NDOF : 148

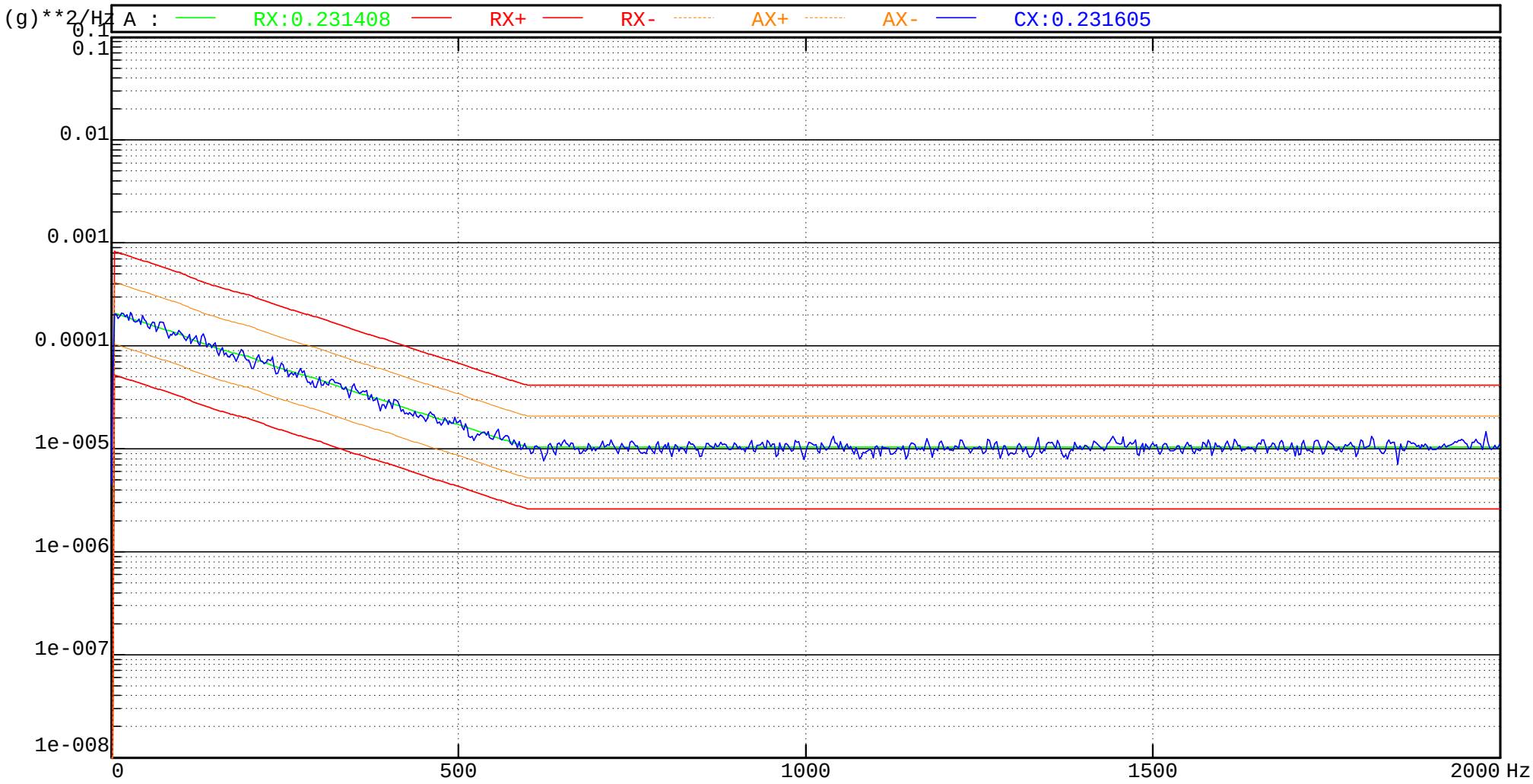
Date : 13-Aug-18

Test : 1E31741

Profile : C4VTL

- Random vibration tests : EN 50125-3 Figure C.4 -

- Vertical axis -



Level : 0 dB Duration : 7200 S

Time : 13h30m52s

Save #60

Fmin : 5 Hz Fmax : 2000 Hz

Control Type : Peak-Hold

Nlines : 801 df : 2.5 Hz

NDOF : 148

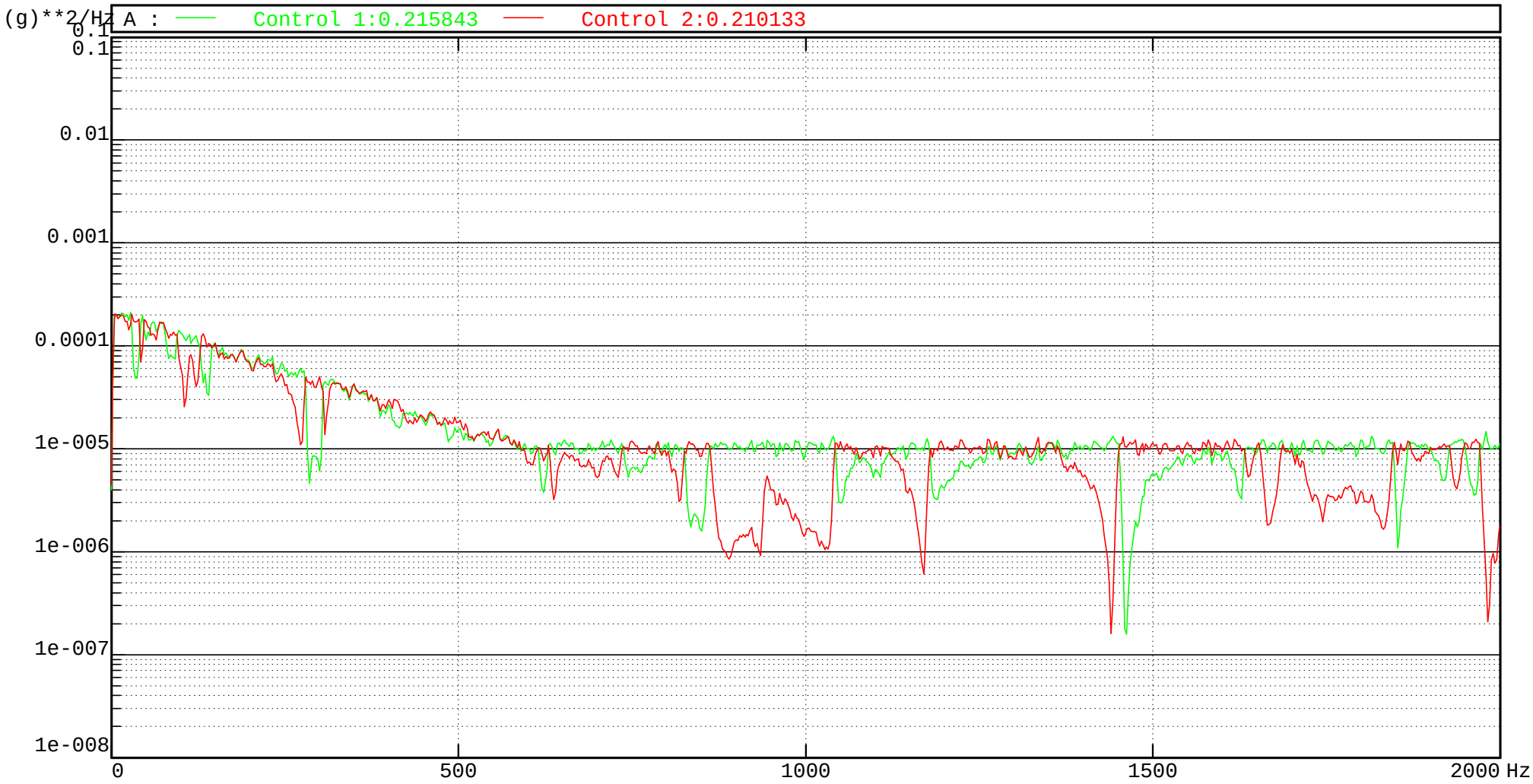
Date : 13-Aug-18

Test : 1E31741

Profile :

- Random vibration tests : EN 50125-3 Figure C.4 -

- Vertical axis -



Level : 0 dB Duration : 7200 S

Time : 13h30m52s

Save #60

Fmin : 5 Hz Fmax : 2000 Hz

Control Type : Peak-Hold

Nlines : 801 df : 2.5 Hz

NDOF : 148

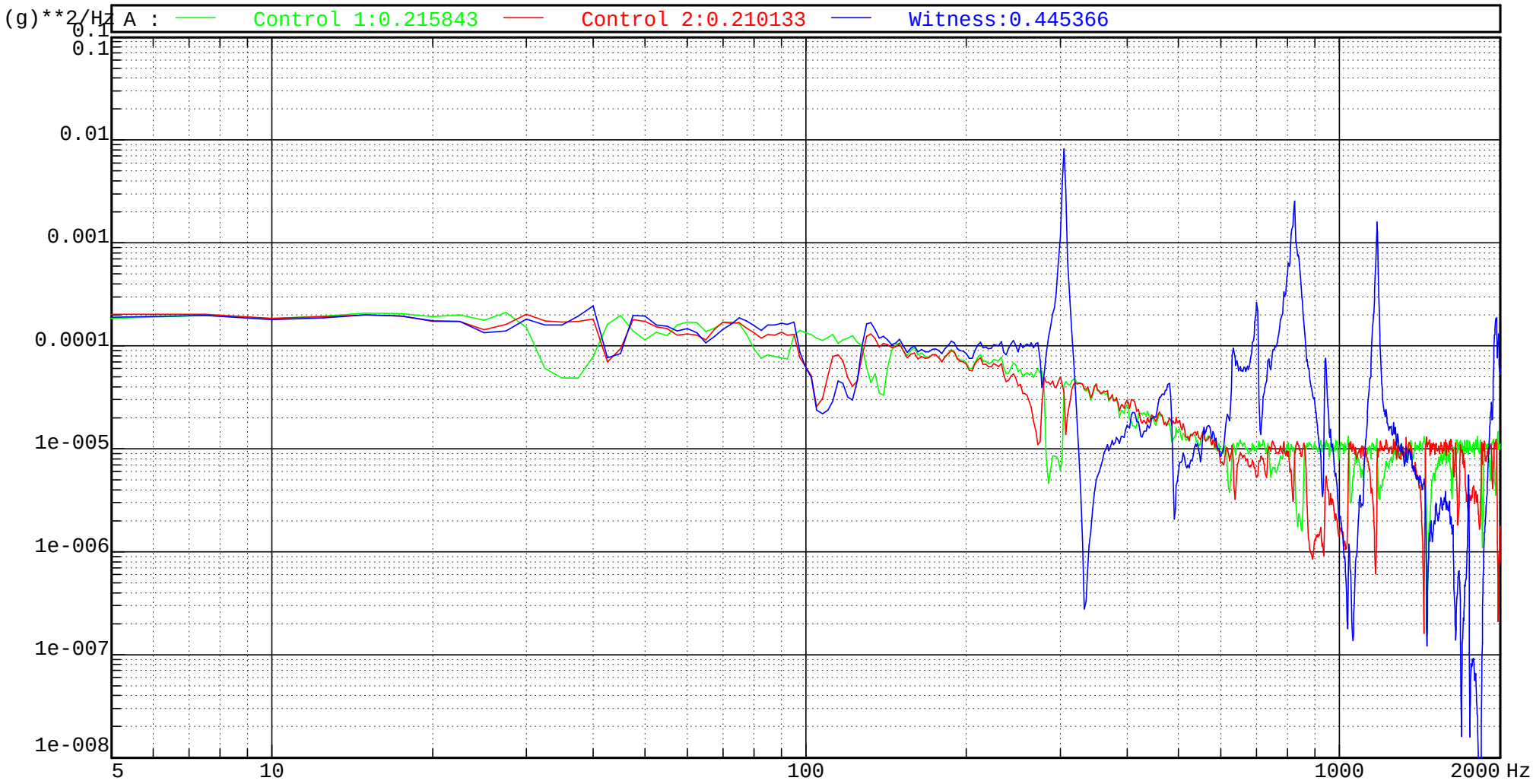
Date : 13-Aug-18

Test : 1E31741

Profile :

- Random vibration tests : EN 50125-3 Figure C.4 -

- Vertical axis -



Level : 0 dB Duration : 7200 S

Time : 13h30m52s

Save ##60

Fmin : 5 Hz Fmax : 2000 Hz

Control Type : Peak-Hold

Nlines : 801 df : 2.5 Hz

NDOF : 148

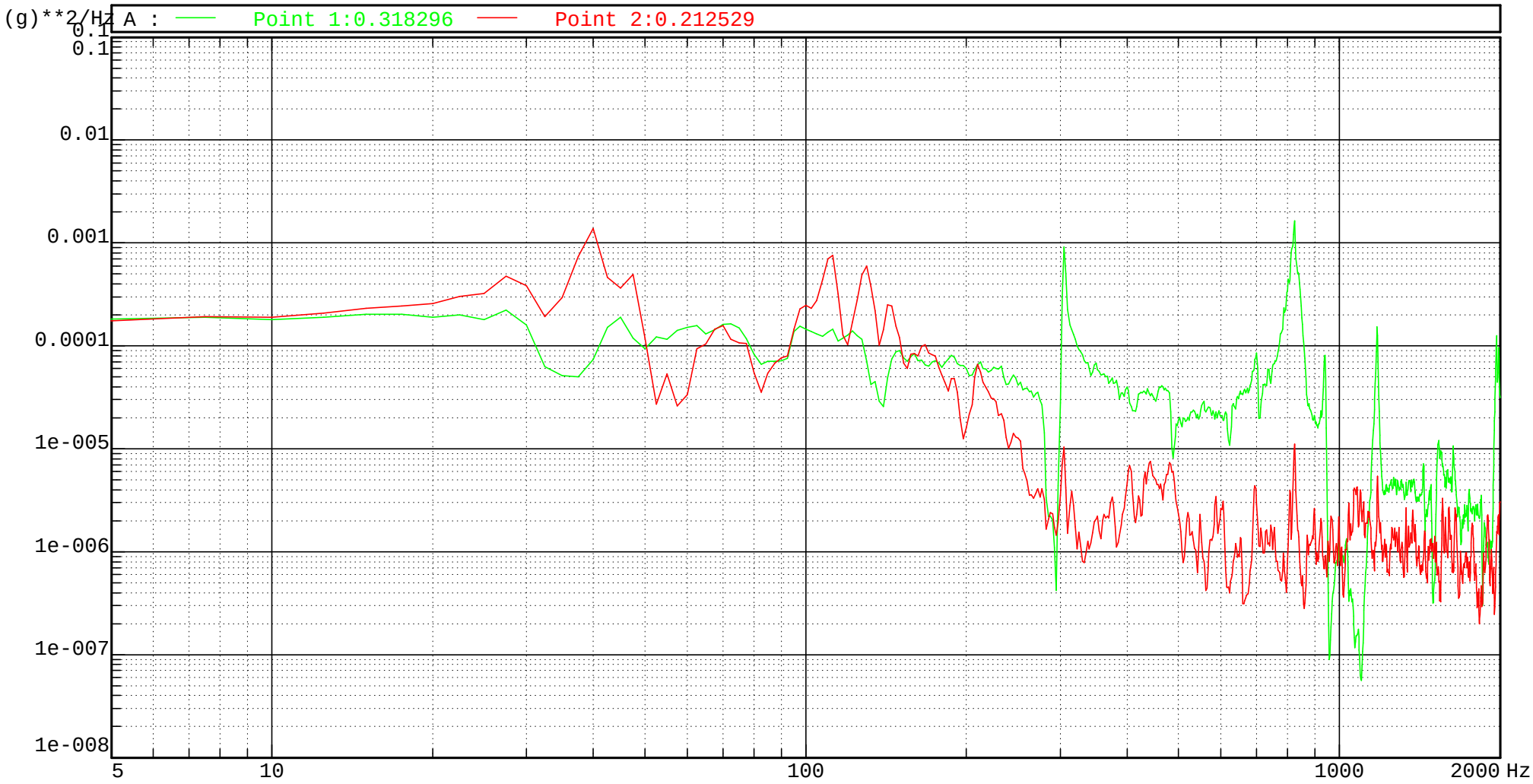
Date : 13-Aug-18

Test : 1E31741

Profile :

- Random vibration tests : EN 50125-3 Figure C.4 -

- Vertical axis -



Level : 0 dB Duration : 7200 S

Time : 13h30m52s

Save #60

Fmin : 5 Hz Fmax : 2000 Hz

Control Type : Peak-Hold

Nlines : 801 df : 2.5 Hz

NDOF : 148

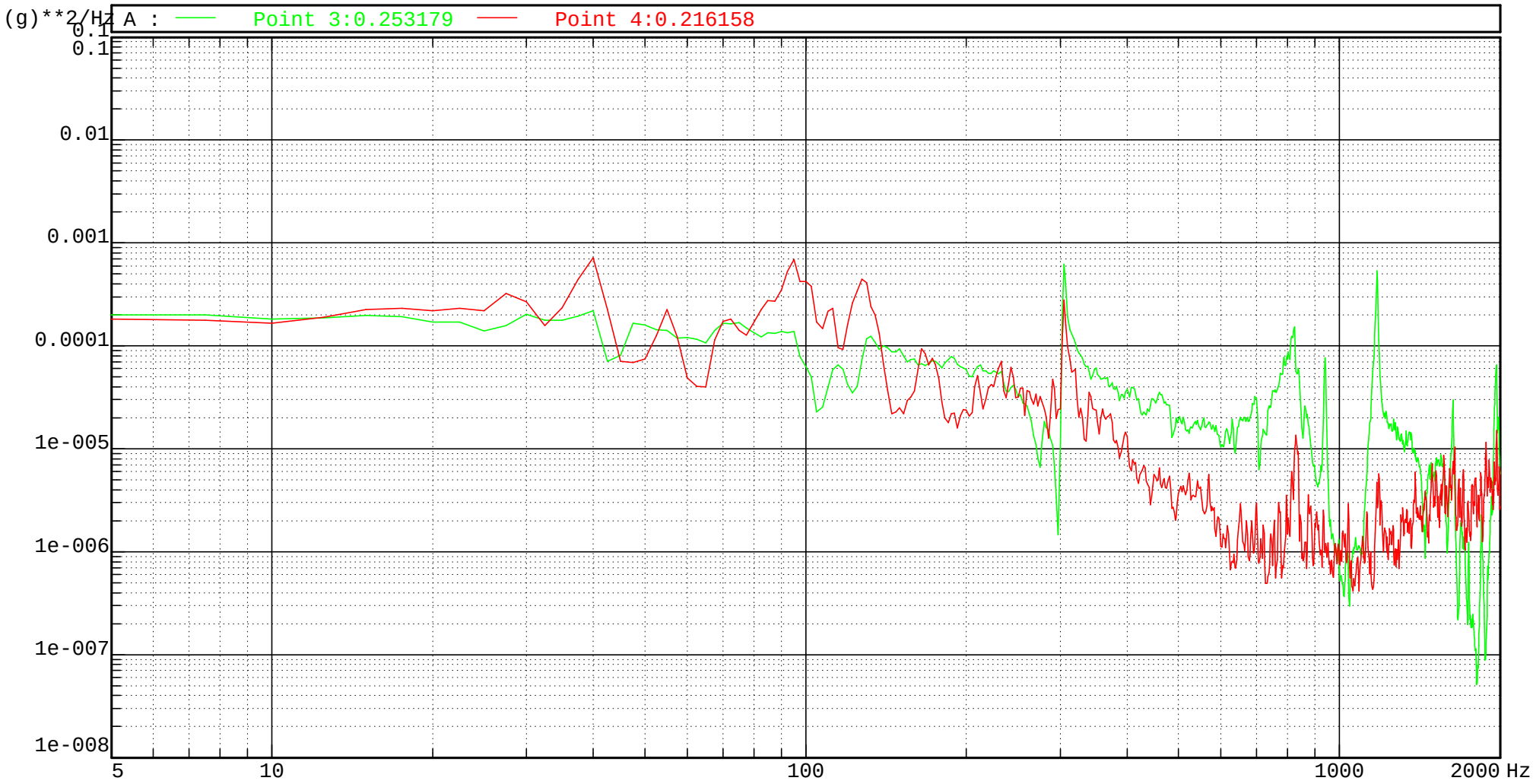
Date : 13-Aug-18

Test : 1E31741

Profile :

- Random vibration tests : EN 50125-3 Figure C.4 -

- Vertical axis -



Level : 0 dB Duration : 7200 S

Time : 13h30m52s

Save #60

Fmin : 5 Hz Fmax : 2000 Hz

Control Type : Peak-Hold

Nlines : 801 df : 2.5 Hz

NDOF : 148

Date : 13-Aug-18

Test : 1E31741

Profile : 2g11

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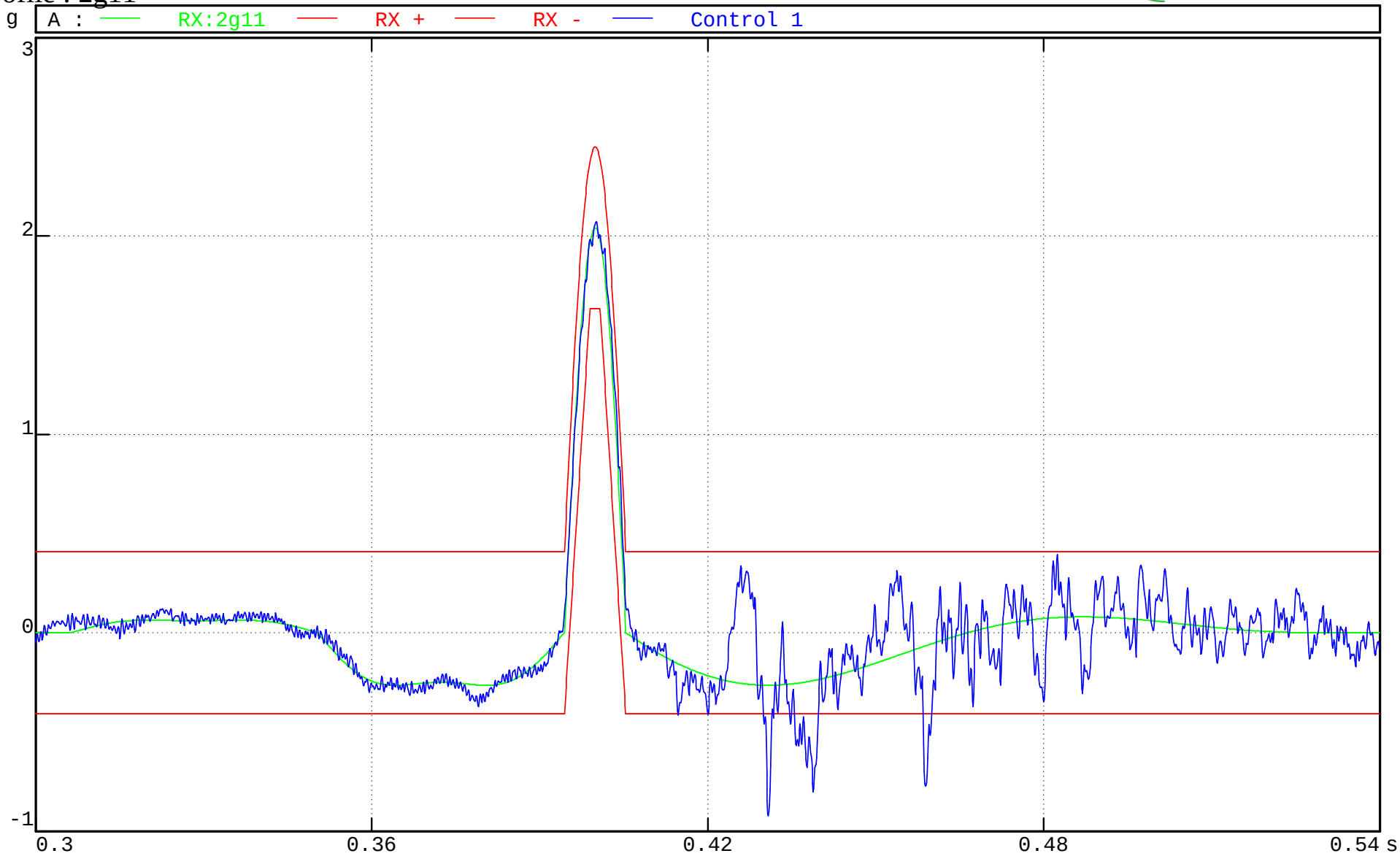
- Shock tests : 20 m/s² (2,04 g) - 11 ms -

- Vertical axis -



Fmin : 1.2 Hz Fmax : 2000 Hz

Level : 0.0 dB (100%)

Polarity : -

Nlines : 1600 df : 1.25 Hz

Shock # 1

Save #0

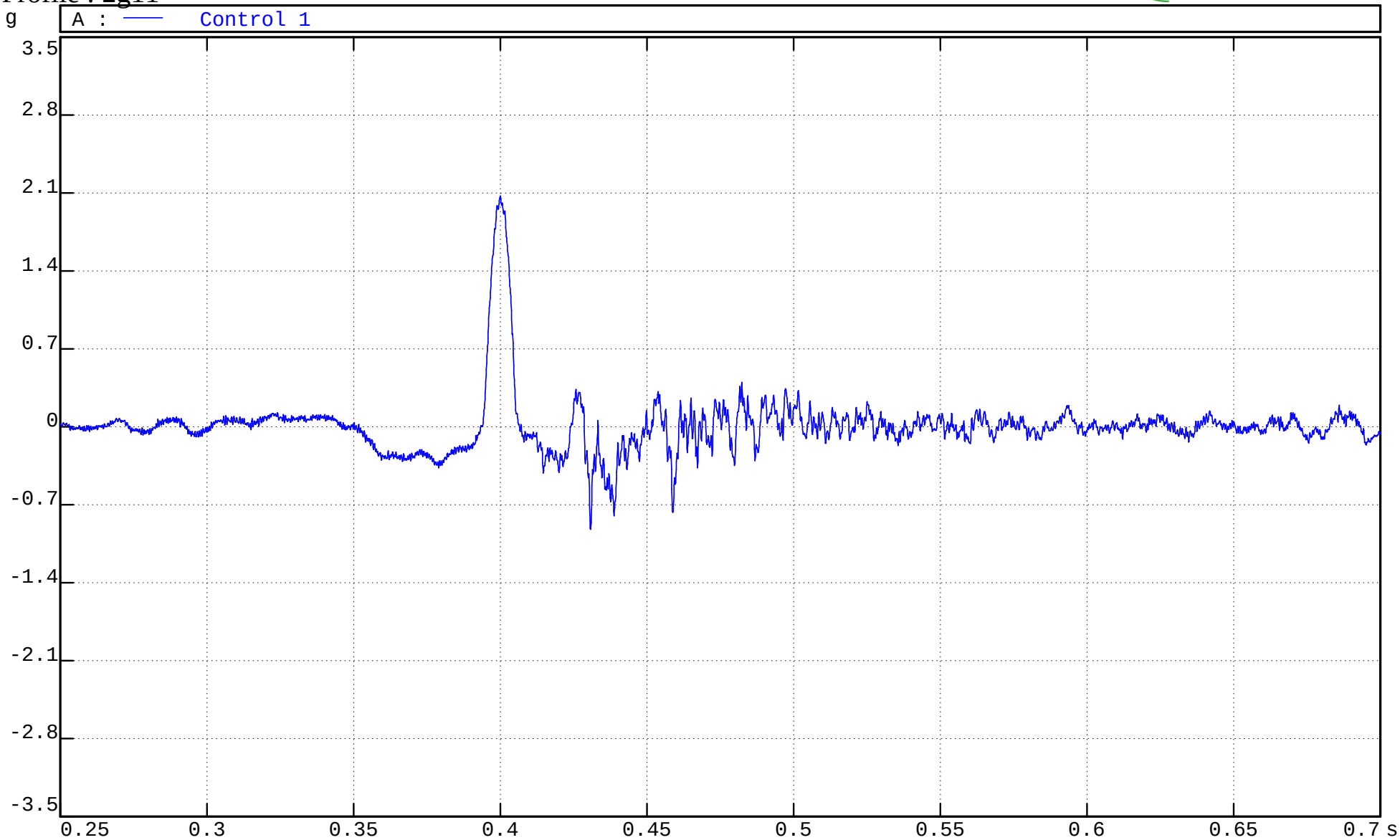
Date : 13-Aug-18

Test : 1E31741

Profile : 2g11

- Shock tests : 20 m/s² (2,04 g) - 11 ms -

- Vertical axis -



Fmin : 1.2 Hz Fmax : 2000 Hz

Level : 0.0 dB (100%)

Polarity : -

Nlines : 1600 df : 1.25 Hz

Shock # 1

Save #31

Date : 13-Aug-18

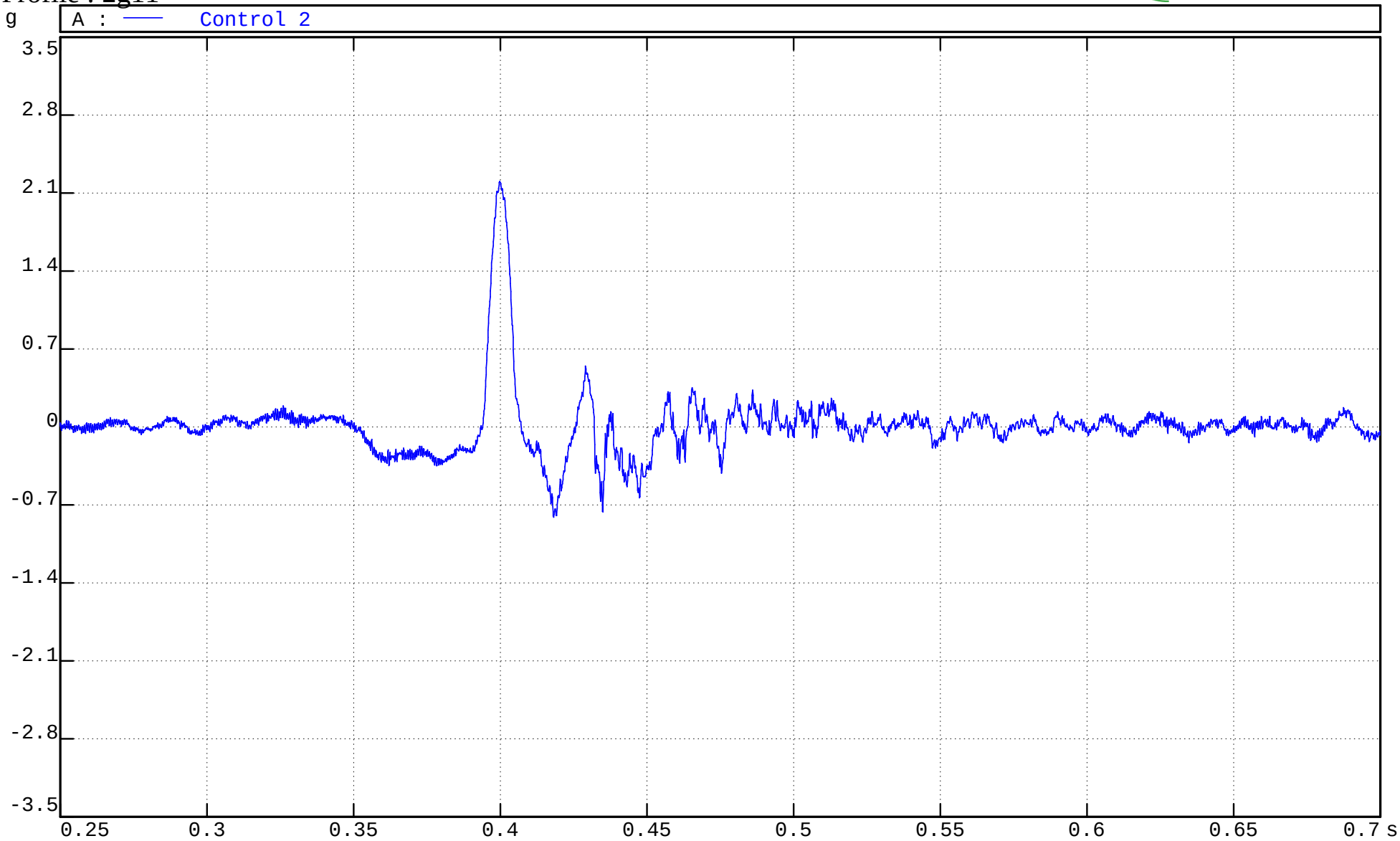
Test : 1E31741

Profile : 2g11

- Shock tests : 20 m/s² (2,04 g) - 11 ms -

- Vertical axis -

Sopemea apave



Fmin : 1.2 Hz Fmax : 2000 Hz

Level : 0.0 dB (100%)

Polarity : -

Nlines : 1600 df : 1.25 Hz

Shock # 1

Save #31

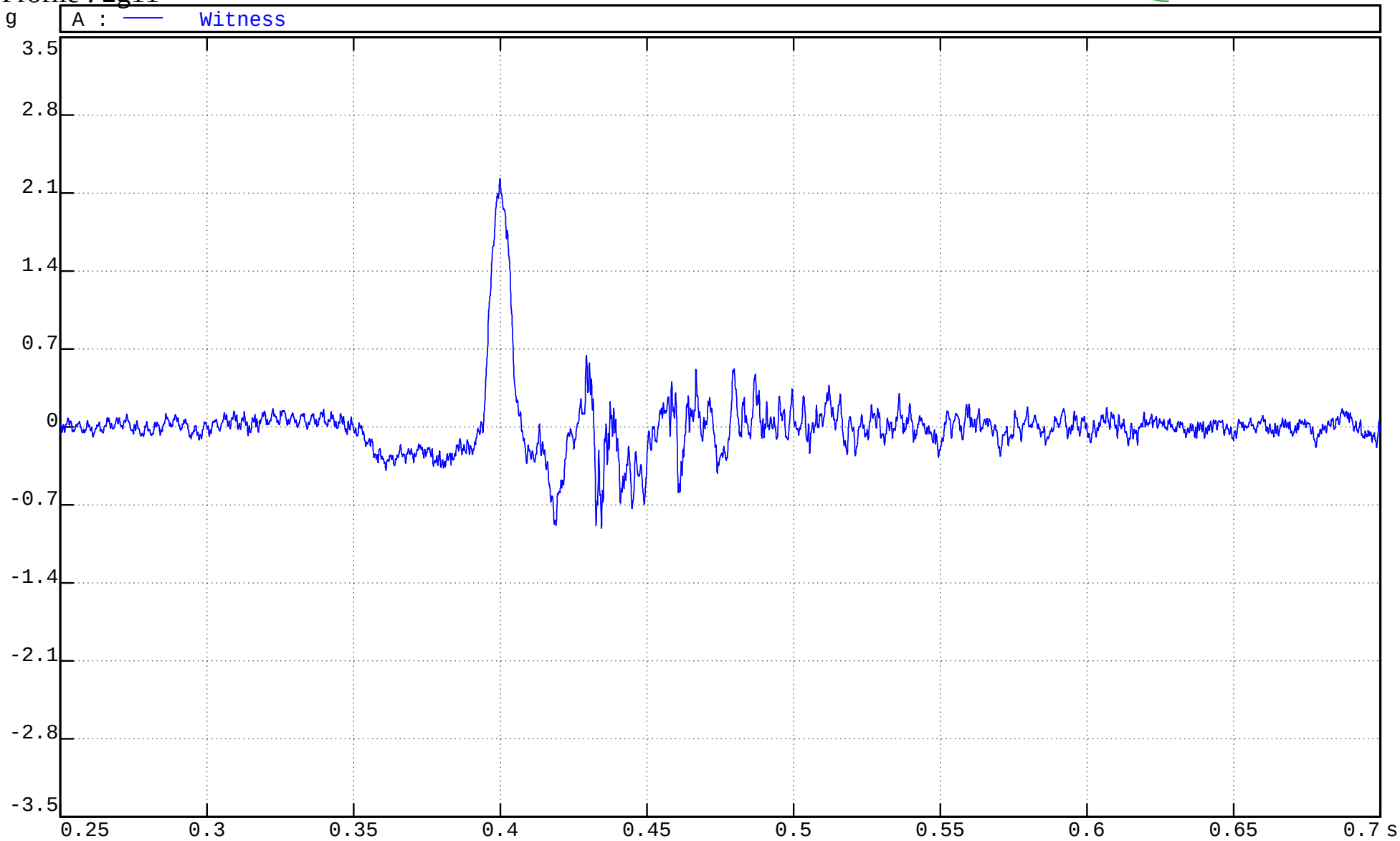
Date : 13-Aug-18

Test : 1E31741

Profile : 2g11

- Shock tests : 20 m/s² (2,04 g) - 11 ms -

- Vertical axis -



Fmin : 1.2 Hz Fmax : 2000 Hz

Level : 0.0 dB (100%)

Polarity : -

Nlines : 1600 df : 1.25 Hz

Shock ## 1

Save ##31

Date : 13-Aug-18

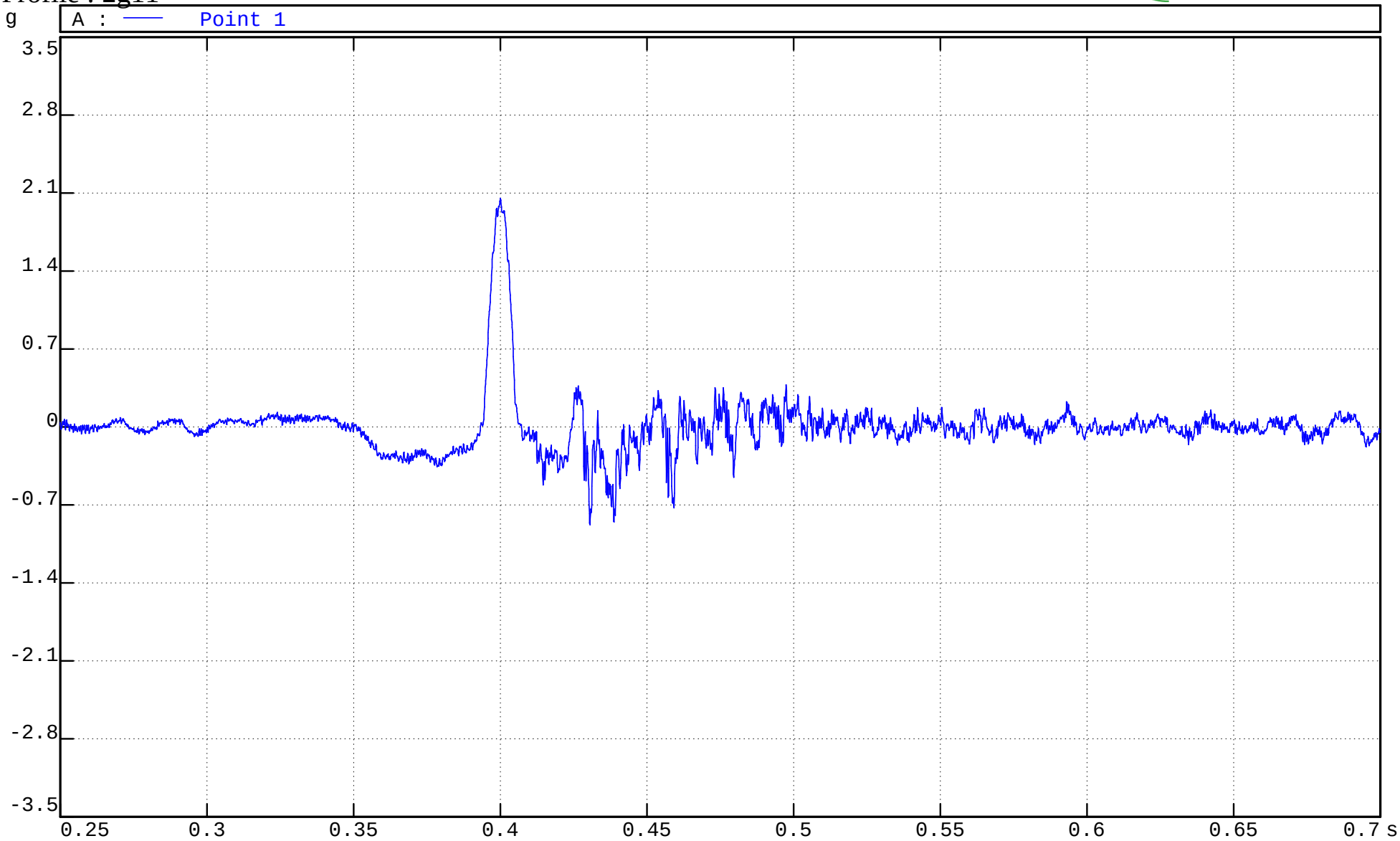
Test : 1E31741

Profile : 2g11

- Shock tests : 20 m/s² (2,04 g) - 11 ms -

- Vertical axis -

Sopemea apave



Fmin : 1.2 Hz Fmax : 2000 Hz

Level : 0.0 dB (100%)

Polarity : -

Nlines : 1600 df : 1.25 Hz

Shock # 1

Save #31

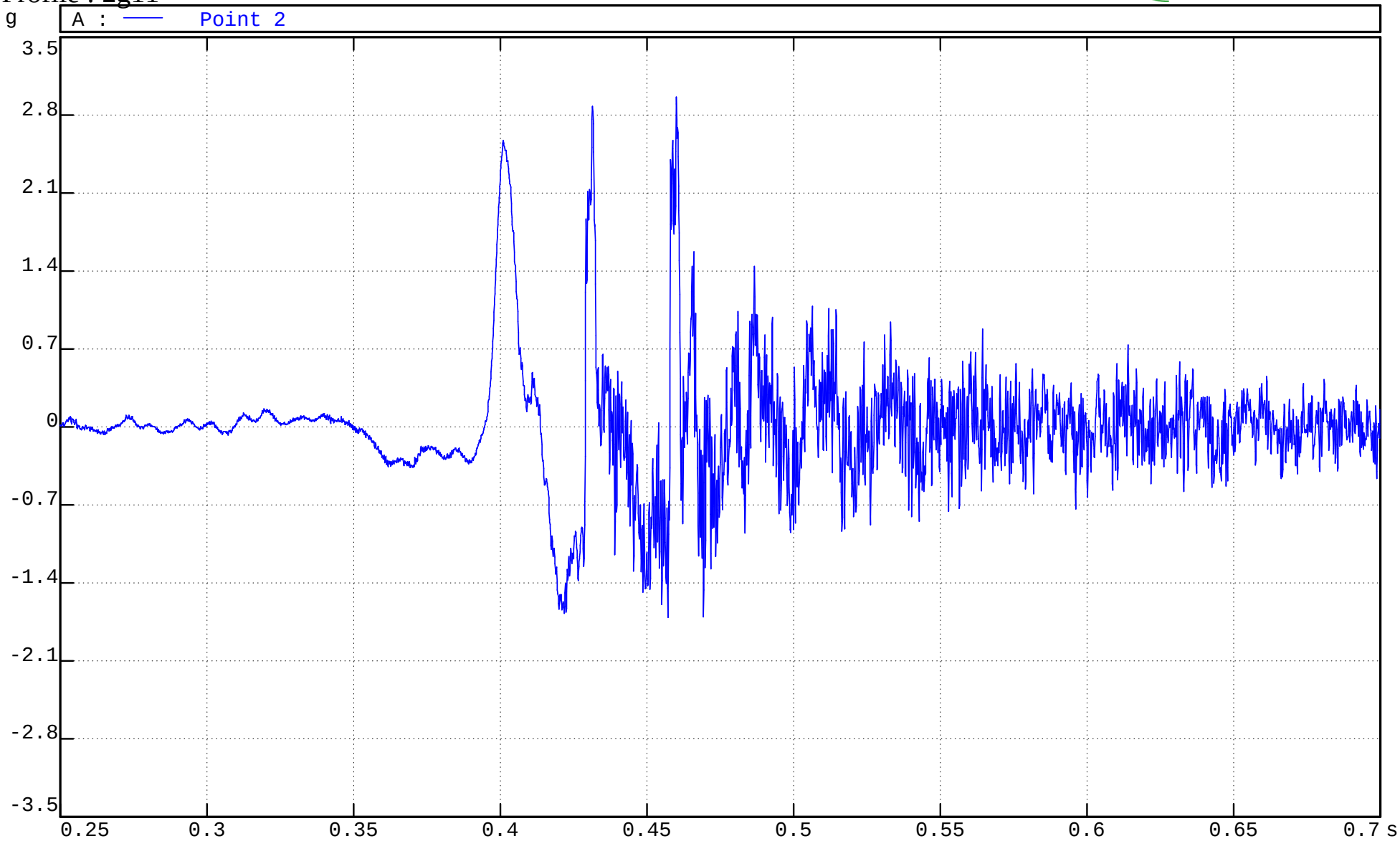
Date : 13-Aug-18

Test : 1E31741

Profile : 2g11

- Shock tests : 20 m/s² (2,04 g) - 11 ms -

- Vertical axis -



Fmin : 1.2 Hz Fmax : 2000 Hz

Level : 0.0 dB (100%)

Polarity : -

Nlines : 1600 df : 1.25 Hz

Shock # 1

Save #31

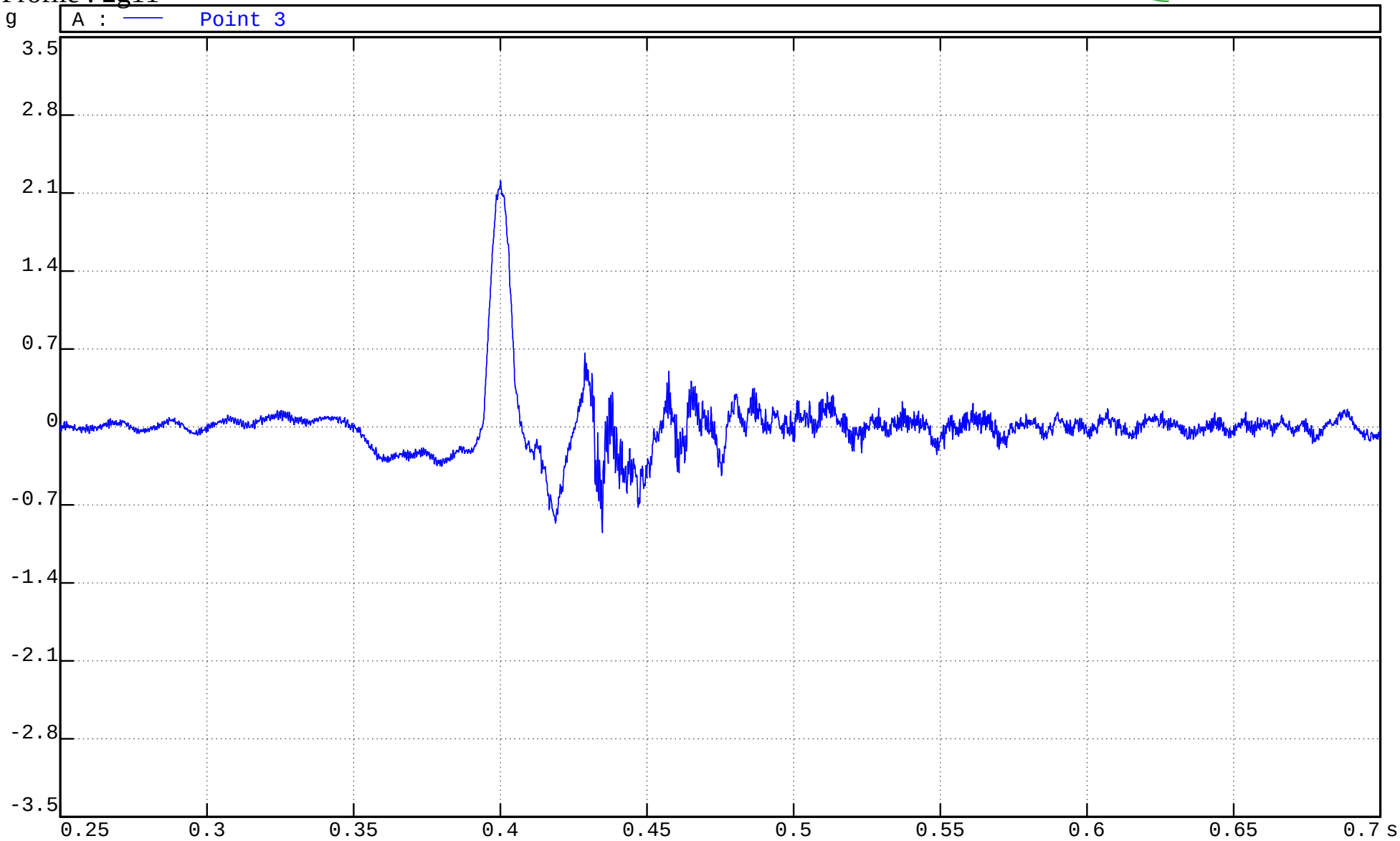
Date : 13-Aug-18

Test : 1E31741

Profile : 2g11

- Shock tests : 20 m/s² (2,04 g) - 11 ms -

- Vertical axis -



Fmin : 1.2 Hz Fmax : 2000 Hz

Level : 0.0 dB (100%)

Polarity : -

Nlines : 1600 df : 1.25 Hz

Shock # 1

Save #31

Date : 13-Aug-18

Test : 1E31741

Profile : 2g11

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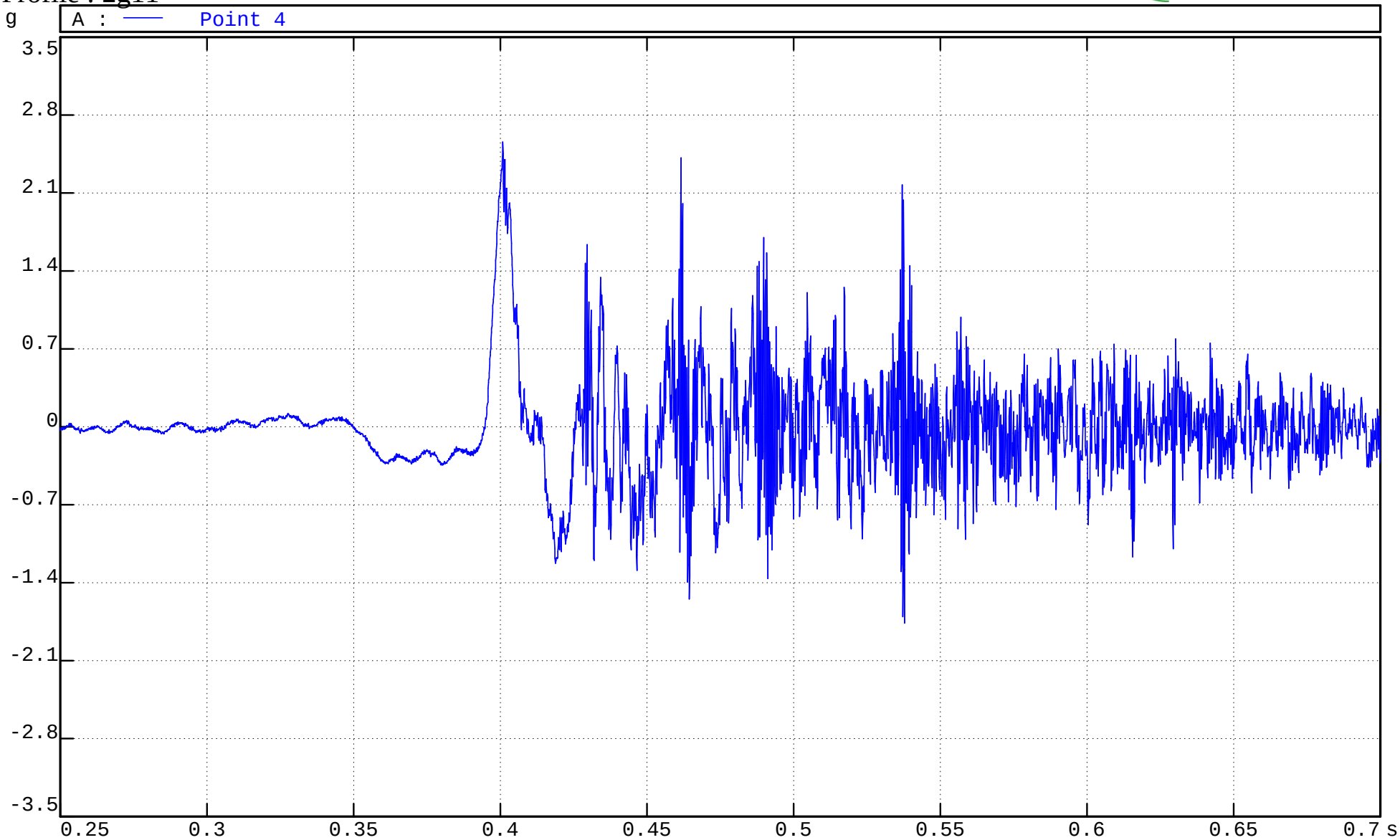
- Shock tests : 20 m/s² (2,04 g) - 11 ms -

- Vertical axis -



Fmin : 1.2 Hz Fmax : 2000 Hz

Level : 0.0 dB (100%)

Polarity : -

Nlines : 1600 df : 1.25 Hz

Shock # 1

Save #31

Date : 13-Aug-18

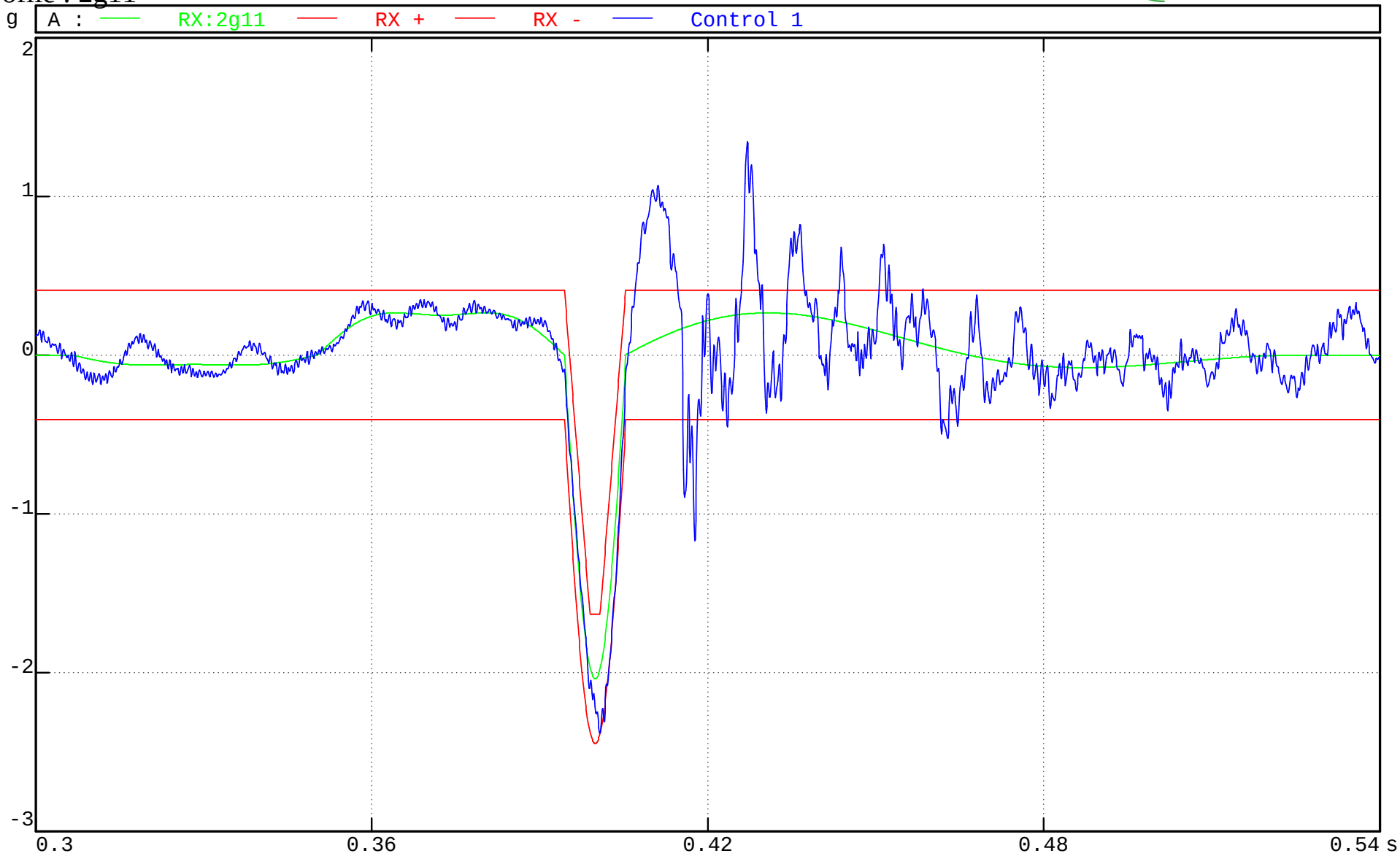
Test : 1E31741

Profile : 2g11

- Shock tests : 20 m/s² (2,04 g) - 11 ms -

- Vertical axis -

Sopemea apave



Fmin : 1.2 Hz Fmax : 2000 Hz
Level : 0.0 dB (100%)

Polarity : -
Nlines : 1600 df : 1.25 Hz

Shock # 1
Save #0

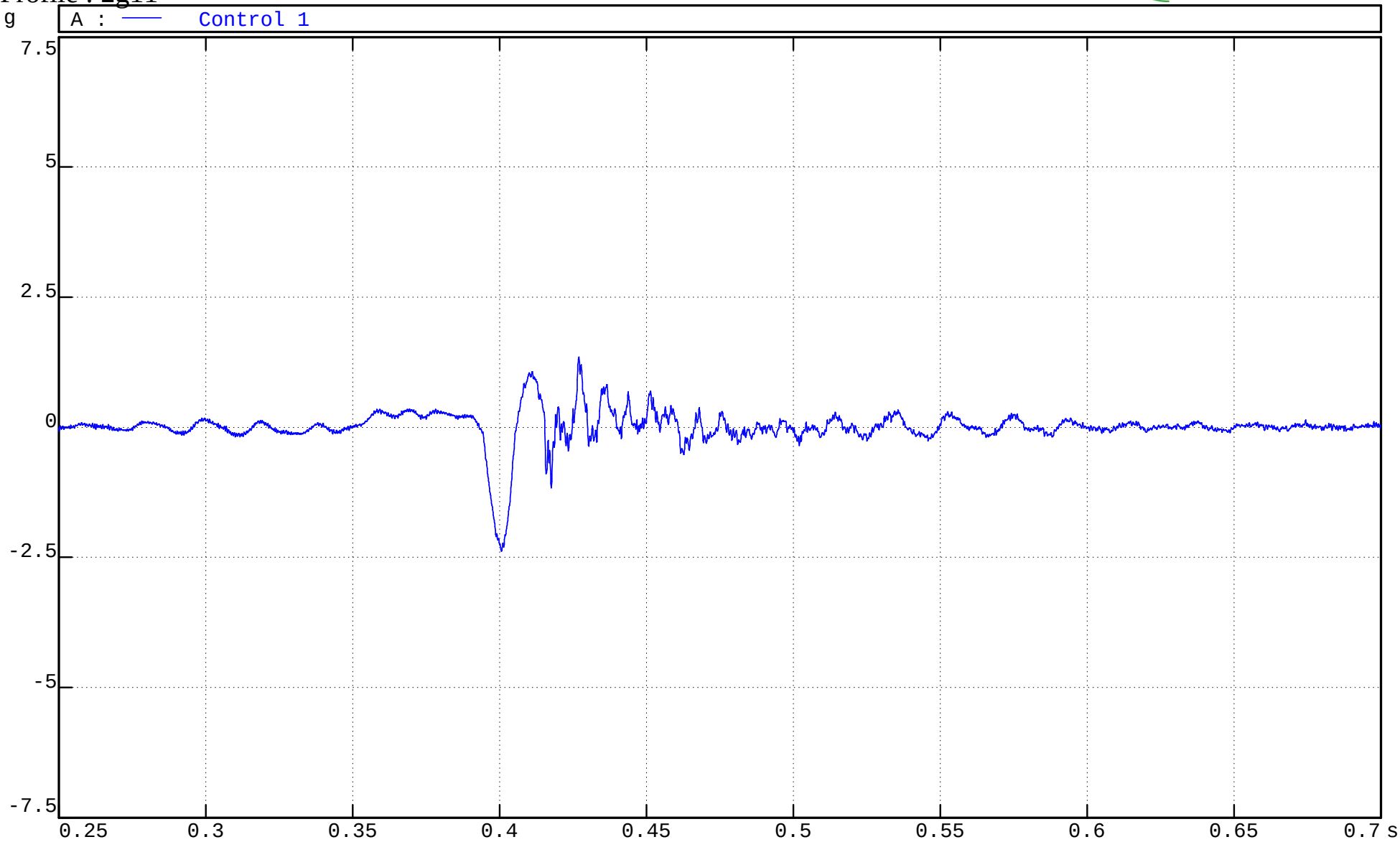
Date : 13-Aug-18

Test : 1E31741

Profile : 2g11

- Shock tests : 20 m/s² (2,04 g) - 11 ms -

- Vertical axis -



Fmin : 1.2 Hz Fmax : 2000 Hz
Level : 0.0 dB (100%)

Polarity : -
Nlines : 1600 df : 1.25 Hz

Shock # 1
Save #64

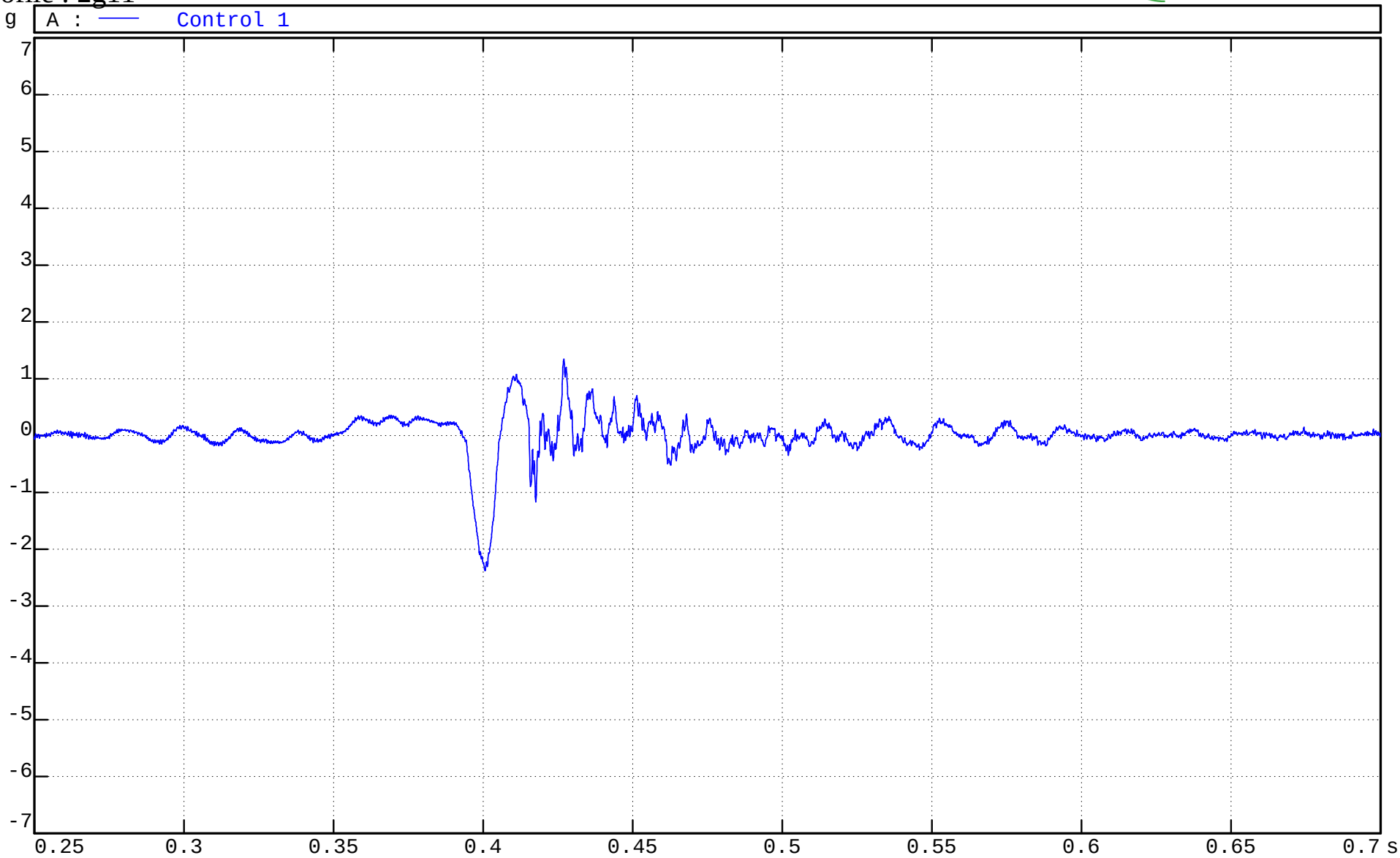
Date : 13-Aug-18

Test : 1E31741

Profile : 2g11

- Shock tests : 20 m/s² (2,04 g) - 11 ms -

- Vertical axis -



Fmin : 1.2 Hz Fmax : 2000 Hz
Level : 0.0 dB (100%)

Polarity : -
Nlines : 1600 df : 1.25 Hz

Shock # 1
Save #64

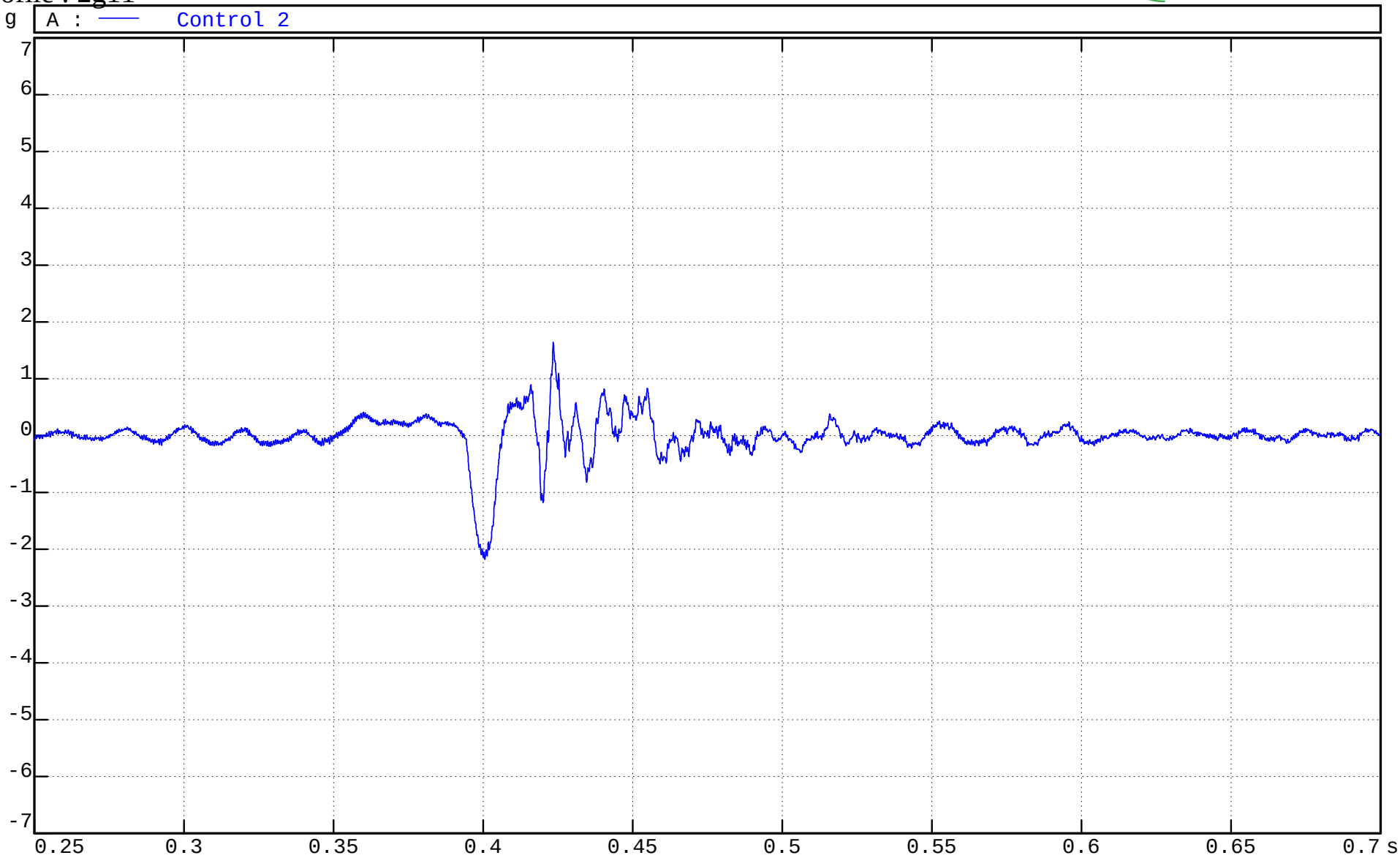
Date : 13-Aug-18

Test : 1E31741

Profile : 2g11

- Shock tests : 20 m/s² (2,04 g) - 11 ms -

- Vertical axis -



Fmin : 1.2 Hz Fmax : 2000 Hz

Level : 0.0 dB (100%)

Polarity : -

Nlines : 1600 df : 1.25 Hz

Shock # 1

Save #64

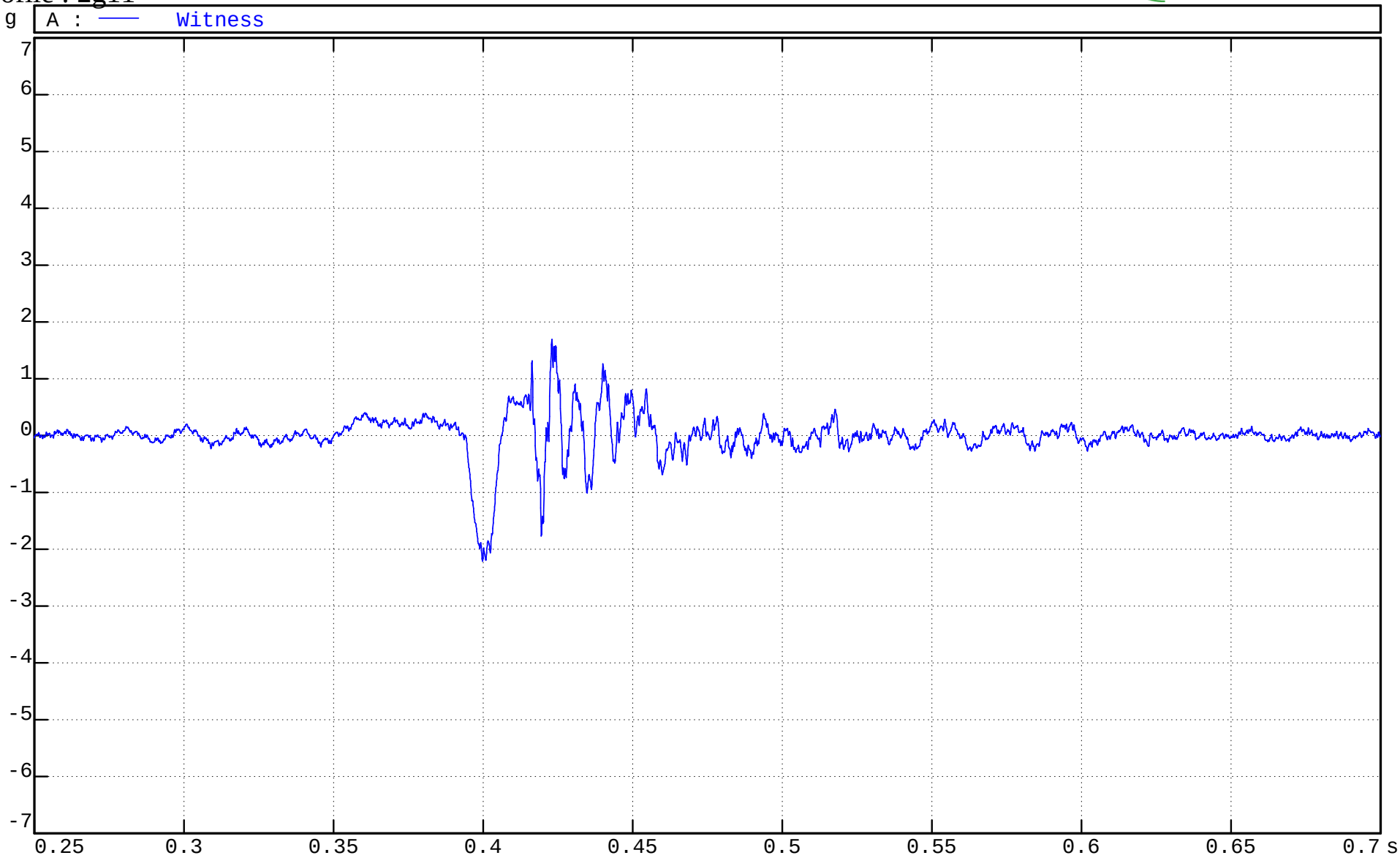
Date : 13-Aug-18

Test : 1E31741

Profile : 2g11

- Shock tests : 20 m/s² (2,04 g) - 11 ms -

- Vertical axis -



Fmin : 1.2 Hz Fmax : 2000 Hz

Level : 0.0 dB (100%)

Polarity : -

Nlines : 1600 df : 1.25 Hz

Shock ## 1

Save ##64

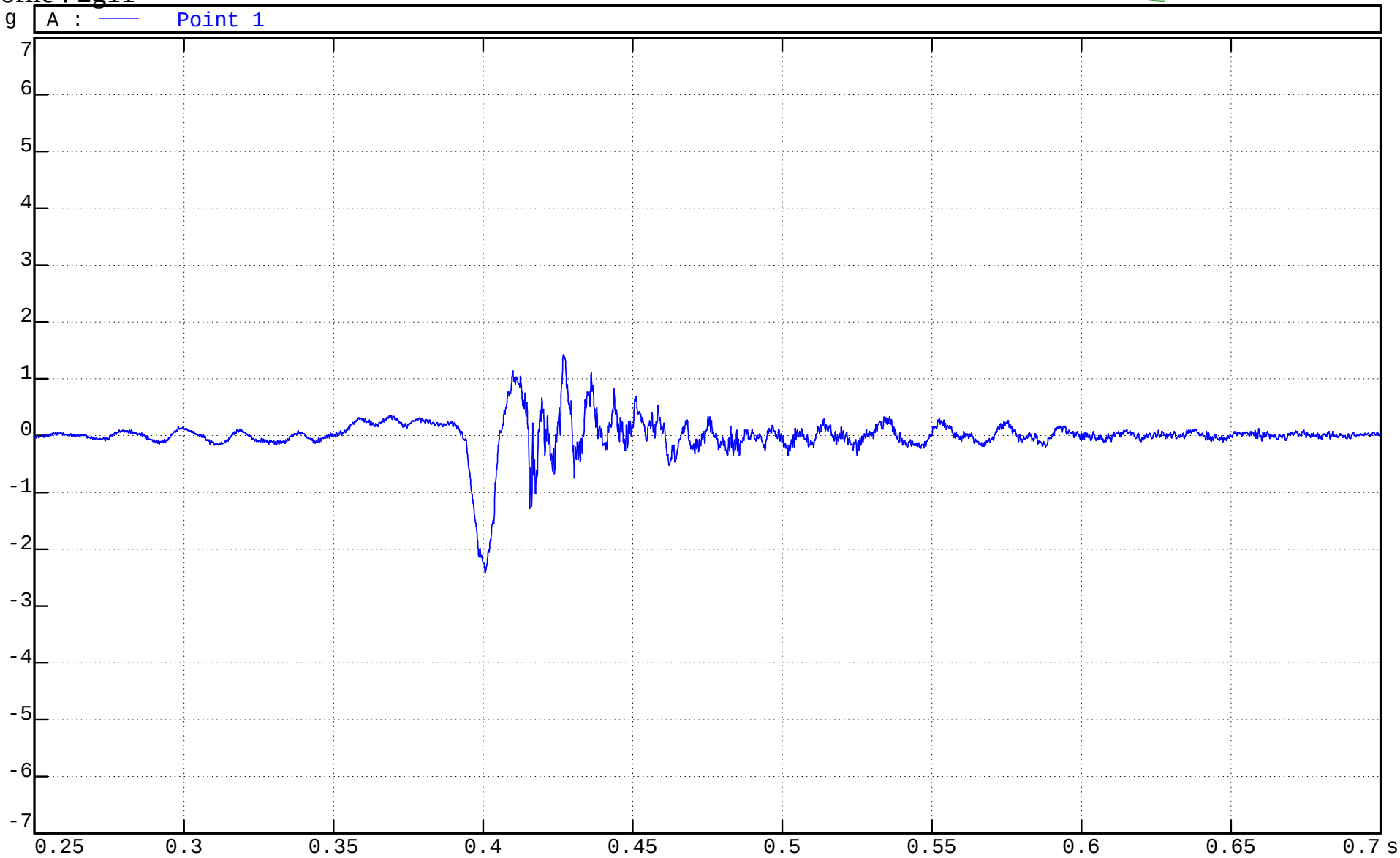
Date : 13-Aug-18

Test : 1E31741

Profile : 2g11

- Shock tests : 20 m/s² (2,04 g) - 11 ms -

- Vertical axis -



Fmin : 1.2 Hz Fmax : 2000 Hz
Level : 0.0 dB (100%)

Polarity : -
Nlines : 1600 df : 1.25 Hz

Shock # 1
Save #64

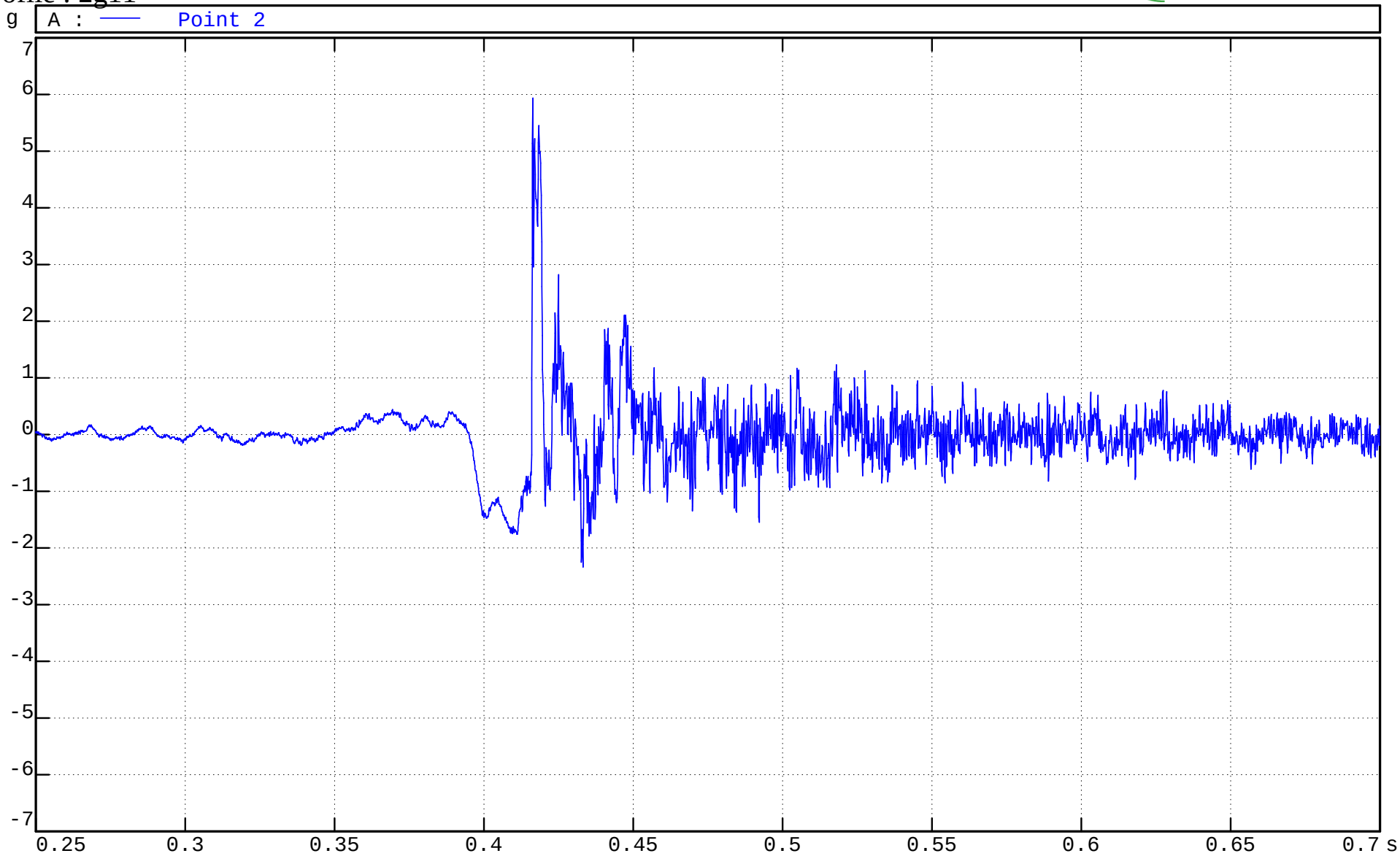
Date : 13-Aug-18

Test : 1E31741

Profile : 2g11

- Shock tests : 20 m/s² (2,04 g) - 11 ms -

- Vertical axis -



Fmin : 1.2 Hz Fmax : 2000 Hz
Level : 0.0 dB (100%)

Polarity : -
Nlines : 1600 df : 1.25 Hz

Shock # 1
Save #64

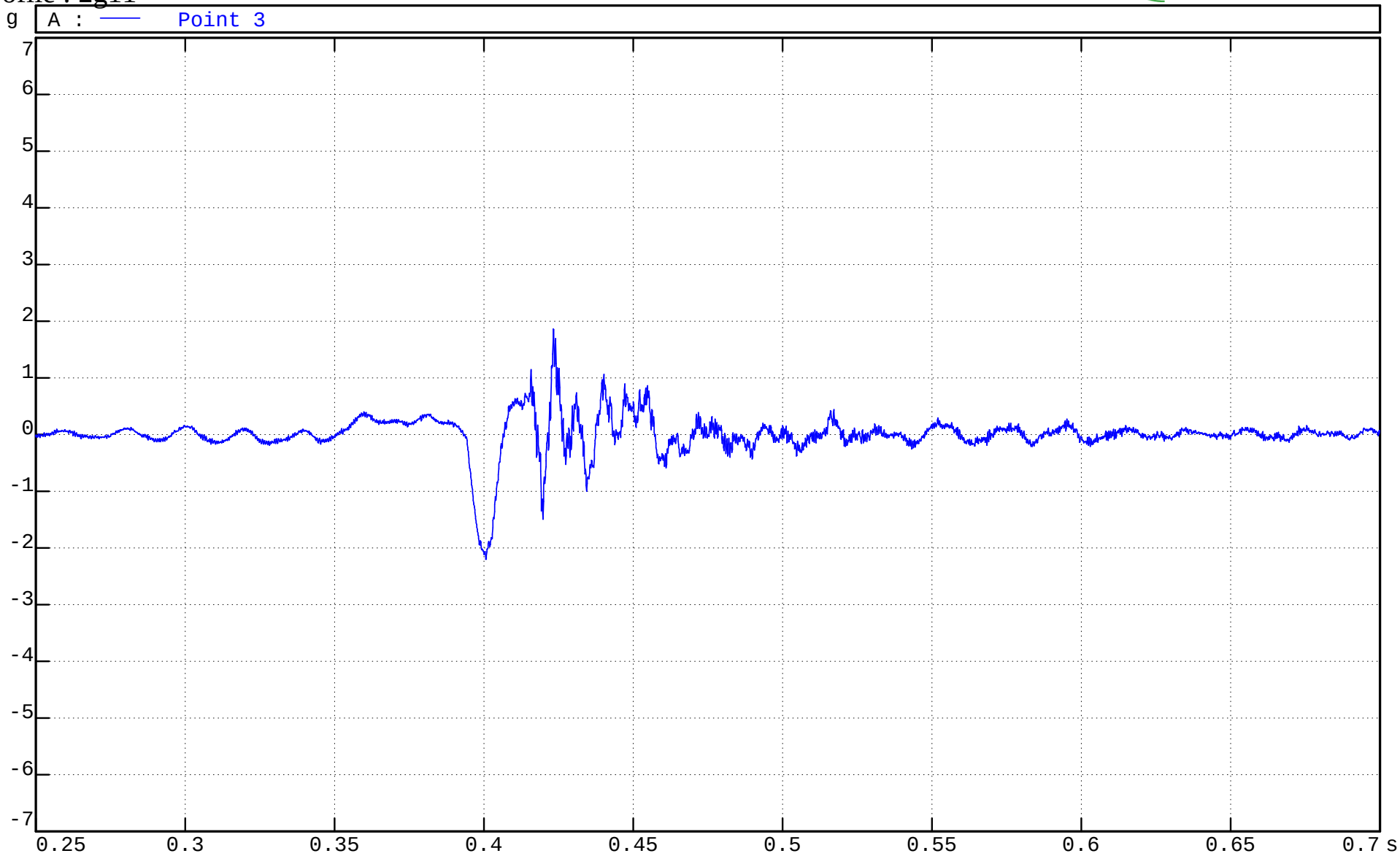
Date : 13-Aug-18

Test : 1E31741

Profile : 2g11

- Shock tests : 20 m/s² (2,04 g) - 11 ms -

- Vertical axis -



Fmin : 1.2 Hz Fmax : 2000 Hz
Level : 0.0 dB (100%)

Polarity : -
Nlines : 1600 df : 1.25 Hz

Shock # 1
Save #64

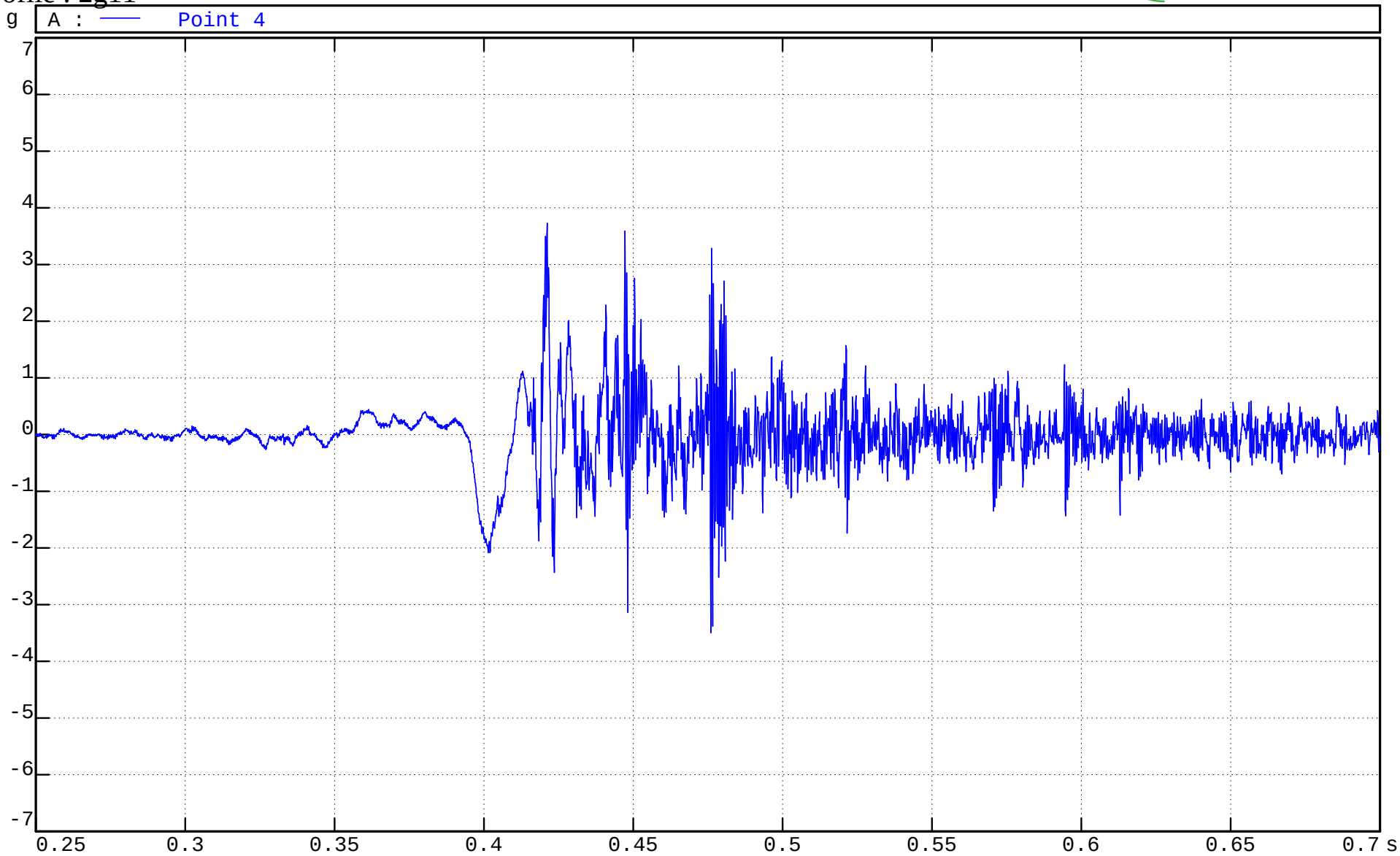
Date : 13-Aug-18

Test : 1E31741

Profile : 2g11

- Shock tests : 20 m/s² (2,04 g) - 11 ms -

- Vertical axis -



Fmin : 1.2 Hz Fmax : 2000 Hz
Level : 0.0 dB (100%)

Polarity : -
Nlines : 1600 df : 1.25 Hz

Shock # 1
Save #64

End of test report

End of test report