



Product Service

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Technical Report No.

71361308b

dated

2009-11-18

Client: Hartmann Elektronik GmbH
Motorstraße 43
70499 Stuttgart

Manufacturer and / or location of manufacturing: see client

Unit/s under test (UUT): CPCI Complete systems 8Slot 84TE/3HE ATX
CPCI/64 5V Complete systems 4Slot 84TE/2HE

Test specification: Vibration test MIL-STD-810F 1 January 2000 Annex C
U.S. highway truck: Figure 514.5C-1, vertical
Shock test (Sawtooth) Figure 516.5-10

Test scope: Verification of suitability for intended application according the under position 3 detailed test specification.

Test result: The units under test were not opened. The visual inspection showed no deficiencies or damages.

A detailed test will be carried out by the customer at his location.

The functional test and electrical tests were carried out by the customer. The electrical test on the power supply, the fans and the backplane was successful.

The functional test on the backplane showed a correct data communication.

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Accredited Test Laboratory
Deutsche Akkreditierungsstelle Technik
(DA Tech in der TGA GmbH):
DAR-Reg.No. DAT-P—087/99-11

Rep.-No: 71361308b
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Editor: Herbert Lang
Date of issue: 2009-11-18

Phone: + 49 621 395-845
Fax: + 49 621 395-604

E-Mail: Herbert.Lang@tuev-sued.de

TUV[®]

TÜV SÜD Product Service GmbH

Mannheim Branch
Dudenstraße 28
68167 Mannheim
Germany



Product Service

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Integrated documentation

None

1 Unit/s under test (UUT)

The units under test were subracks

CPCI	Complete system	8Slot 84TE/3HE ATX	No.: LMH0000100
CPCI/64 5V	Complete system	4Slot 84TE/2HE	No.: LMH0000130

The specimens were not powered.

2 Order

2.1 Date of order, initial of client

Company Hartmann Elektronik GmbH ordered from TÜV SÜD Product Service GmbH with order sheet dated 2009-11-02, to test the a.m. UUT.

2.2 Receipt of UUT

The samples were delivered by mail on 2009-11-09.

2.3 Reconsignment of UUT

The samples were sent by mail on 2009-11-13.

3 Test specification

3.1 Vibration test, random

3.1.1 U.S. highway truck vibration (vertical)

Frequency range:	10 Hz- 500 Hz
Acceleration:	10 Hz, 0.01500 g ² /Hz
	40 Hz, 0.01500 g ² /Hz
	500 Hz, 0.00015
Acceleration:	1.04 g _{rms}
Test duration:	1 h / axis, in 3 axes

3.2 Shock test (Sawtooth)

Type of shock: half sine
 Acceleration: 20 g
 Shock duration: 11 ms
 Number of shocks: 3 shocks each in both directions on three mutually perpendicular axes

4 Test equipment

Equipment	Type	Ser.-No.	Manufacturer
Shaker:	1000 IAR		Unholtz-Dickie
Vibration control system:	V Win		Unholtz-Dickie
Signal conditioner:	133	AG 90	Endevco
Accelerometer:	4514-B-001	54454	Brüel & Kjaer

The measuring equipment is calibrated regularly according to the calibration instructions of TÜV SÜD PRODUCT SERVICE GmbH. All calibrations are traced back to national standards.

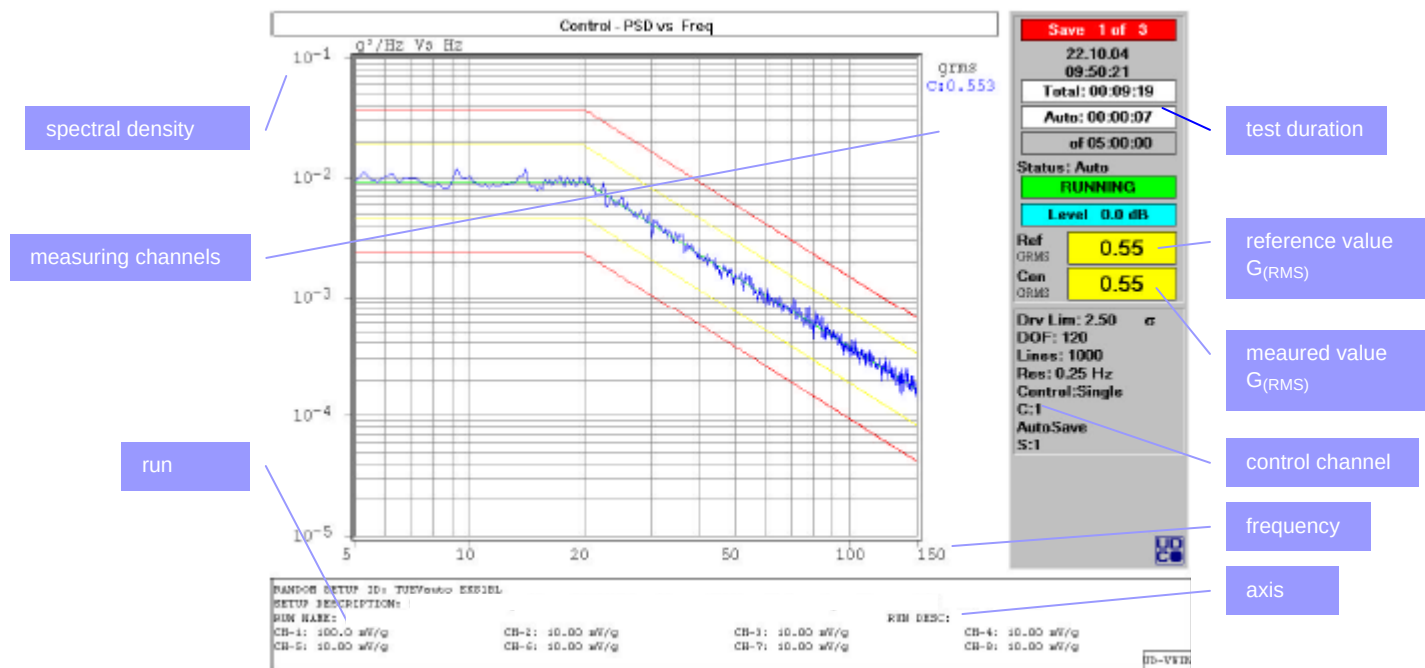
5 Test sequence

Test date: 2009-11-11

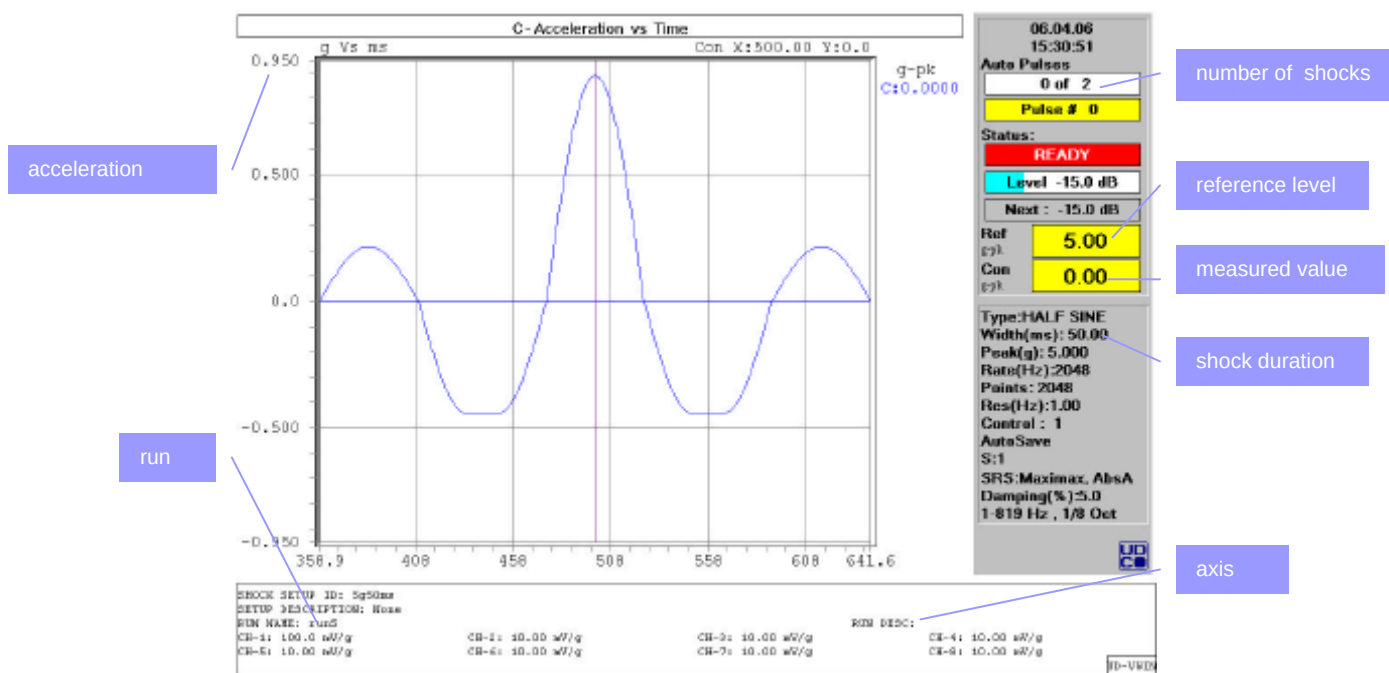
No.	Test	Run	Axis	Notes
1	Vibration, random	10	z	
2	Shocks 3 positive 3 negative	11	z	
3	Vibration, random	13	y	
4	Shocks 3 positive 3 negative	14	y	
5	Vibration, random	16	x	
6	Shocks 3 positive 3 negative	17	x	

6 Legend of measuring diagrams

6.1 Vibration test random



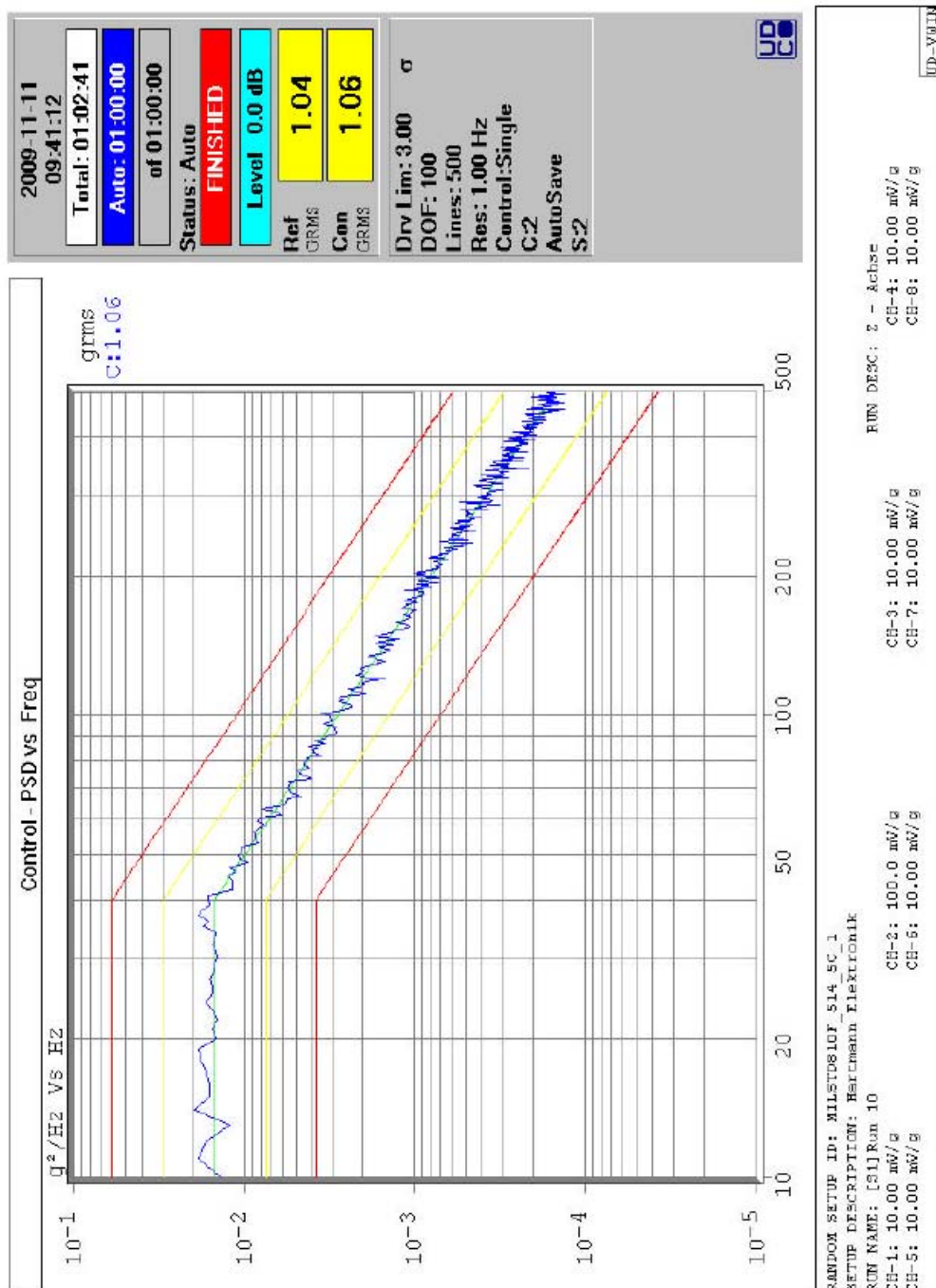
6.2 Shock test



Note: Before applying the test shocks several reference shocks of a lower level (- 15 dB) were applied as equipment test. This explains the different number of shocks in the measuring diagrams.

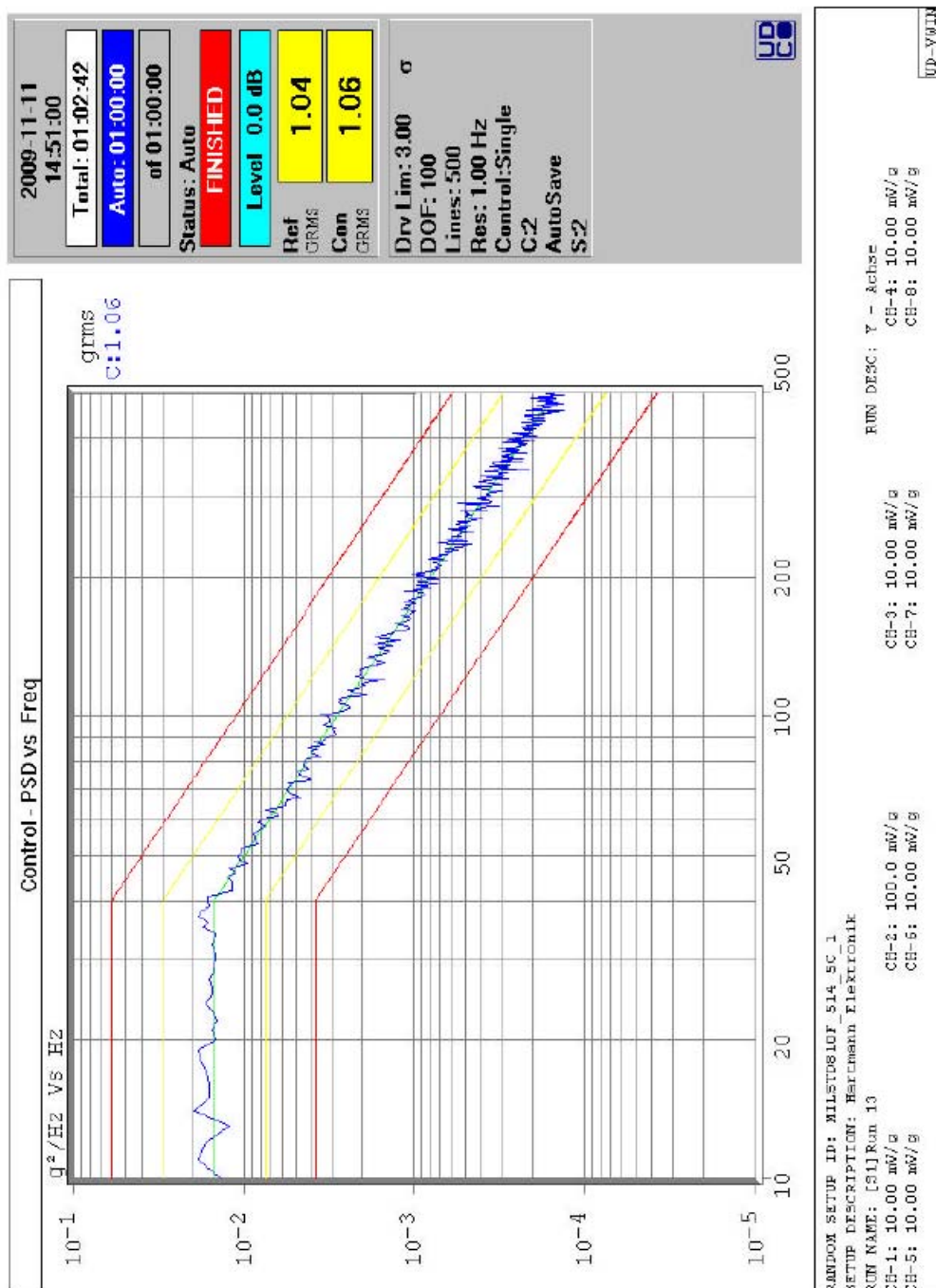
7 Test documentation

7.1 measuring diagrams of the vibration test, random





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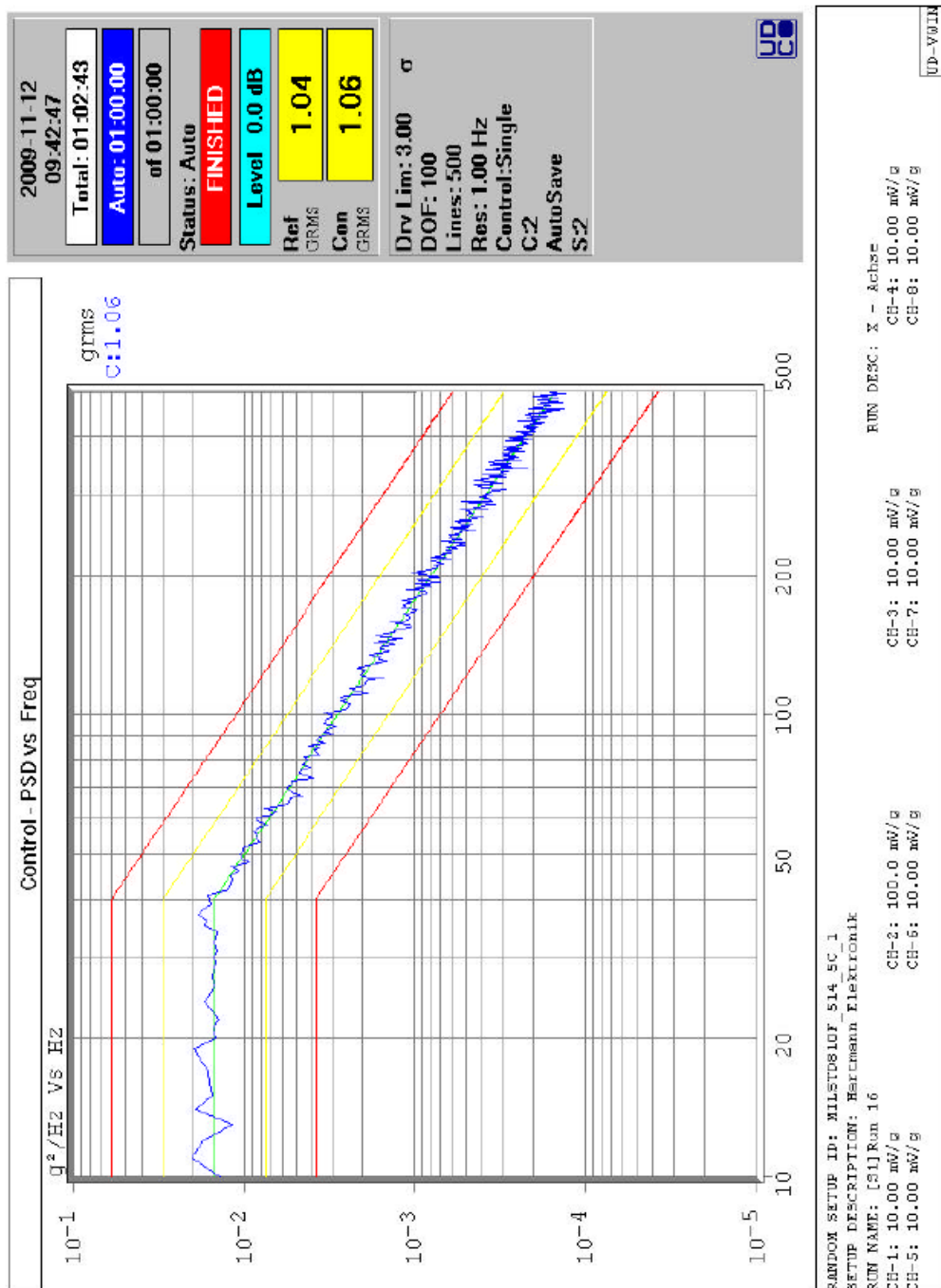
Phone: + 49 621 395-845
Fax: + 49 621 395-604

E-Mail: Herbert.Lang@tuev-sued.de

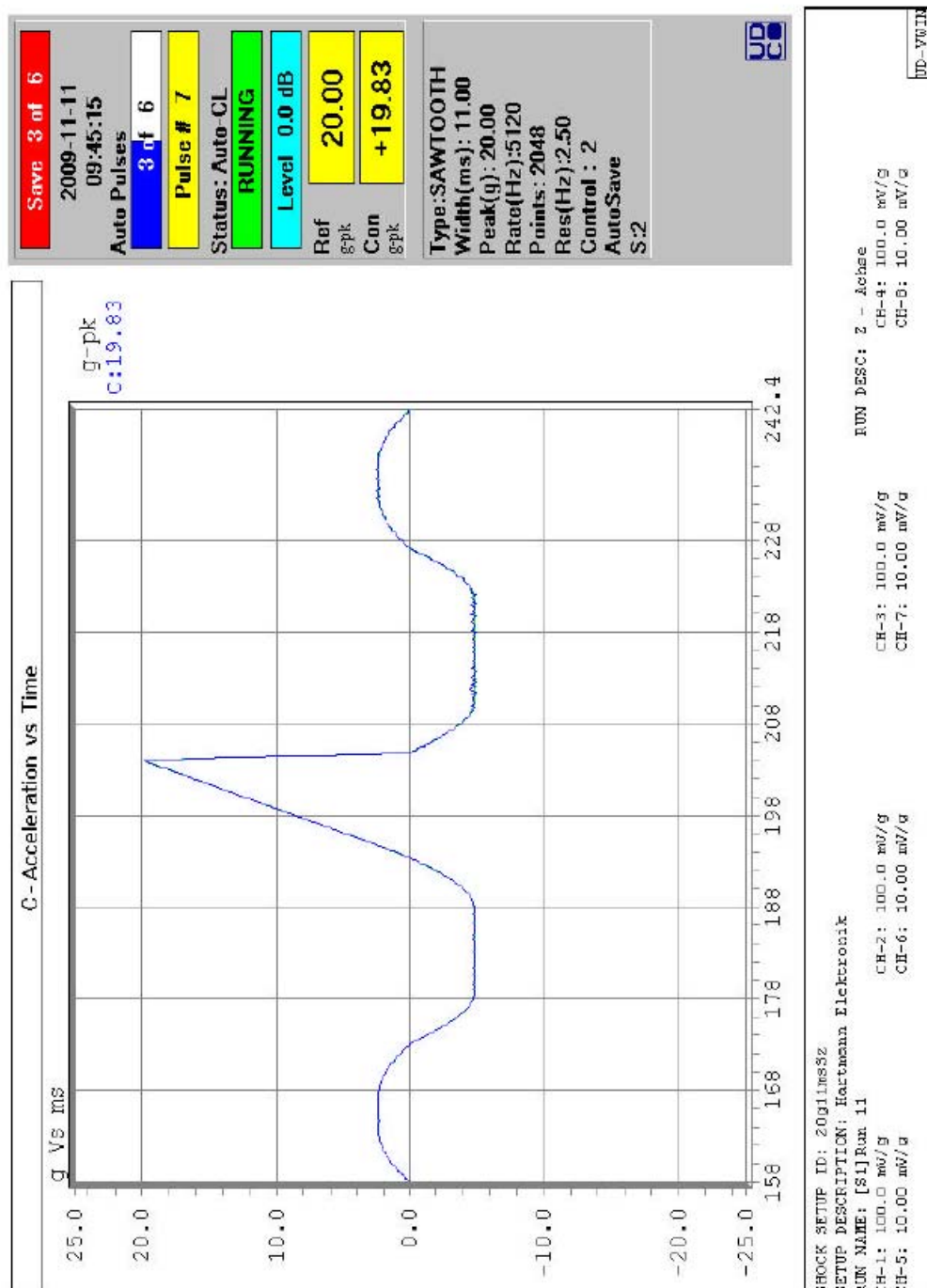


TÜV SÜD Product Service GmbH

Mannheim Branch
Dudenstraße 28
68167 Mannheim
Germany

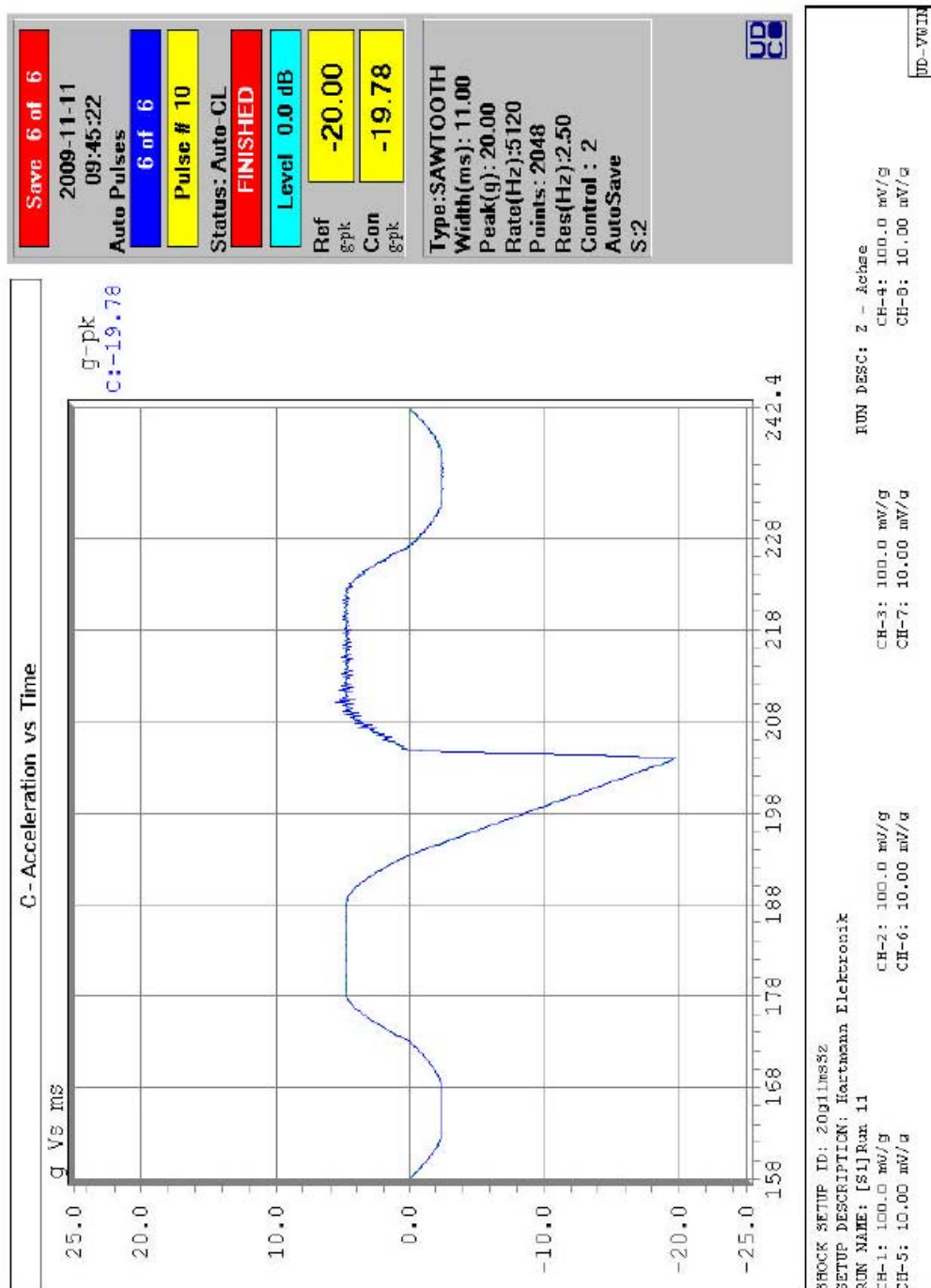


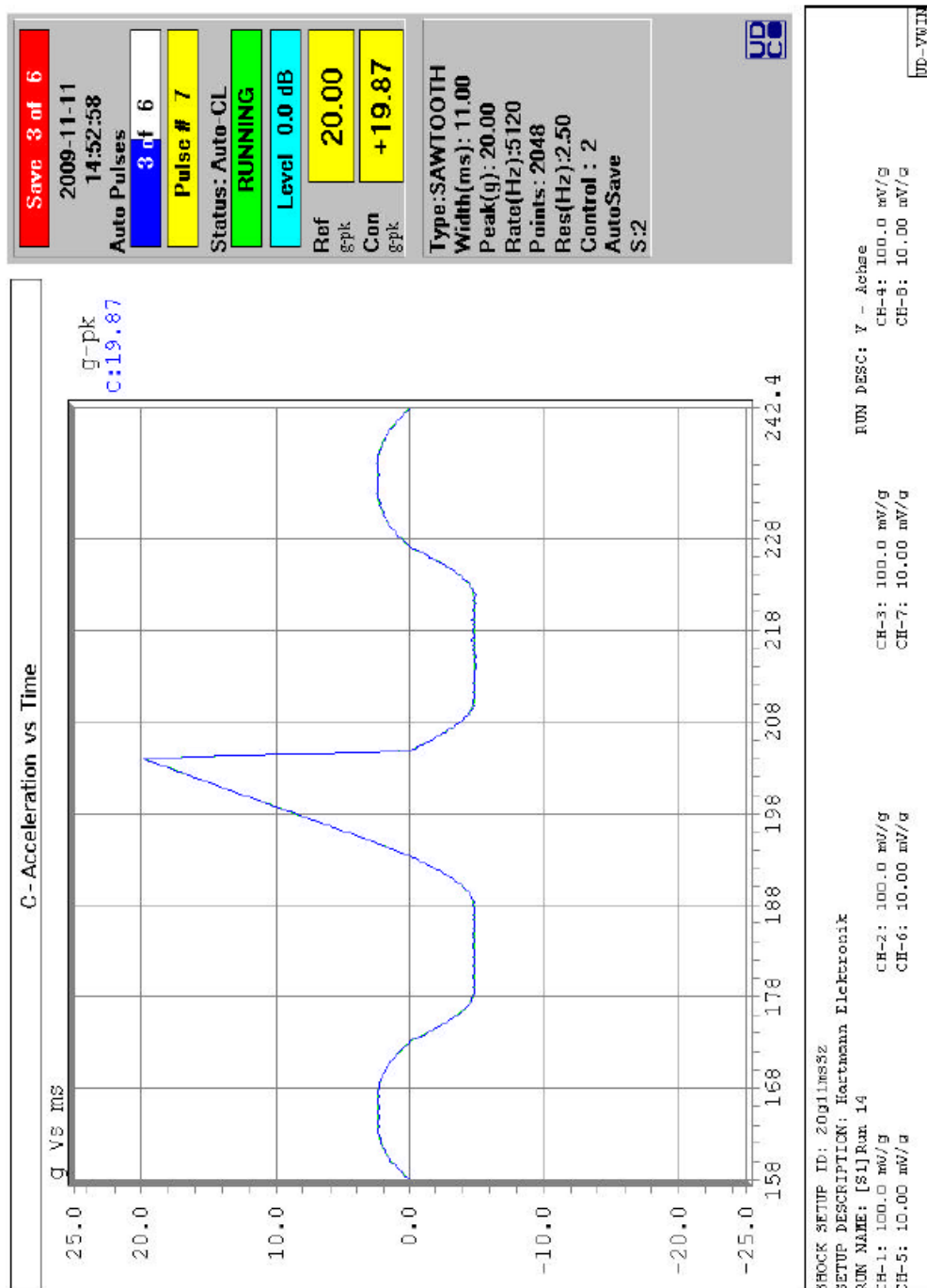
7.2 measuring diagrams of the shock test

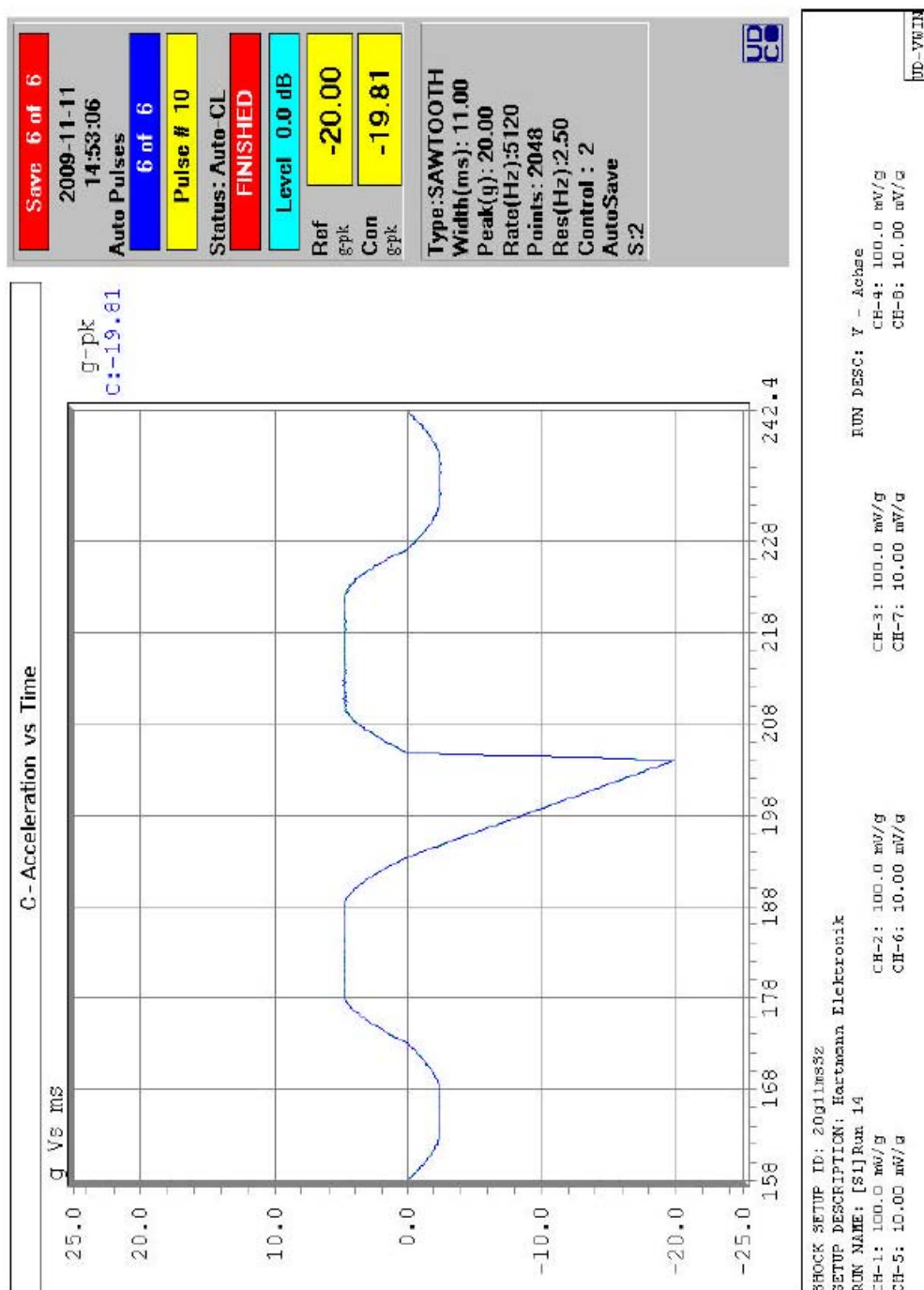




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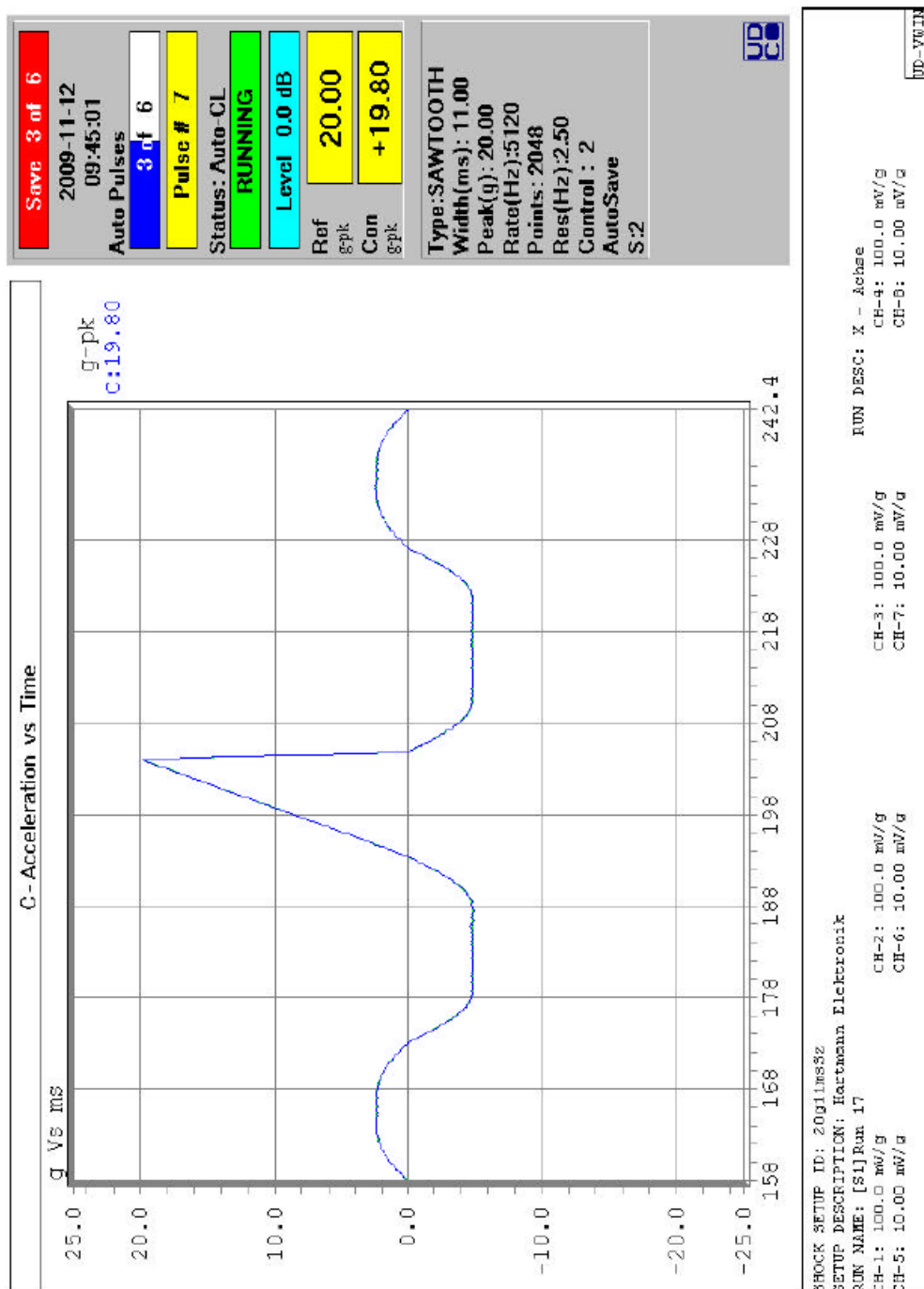


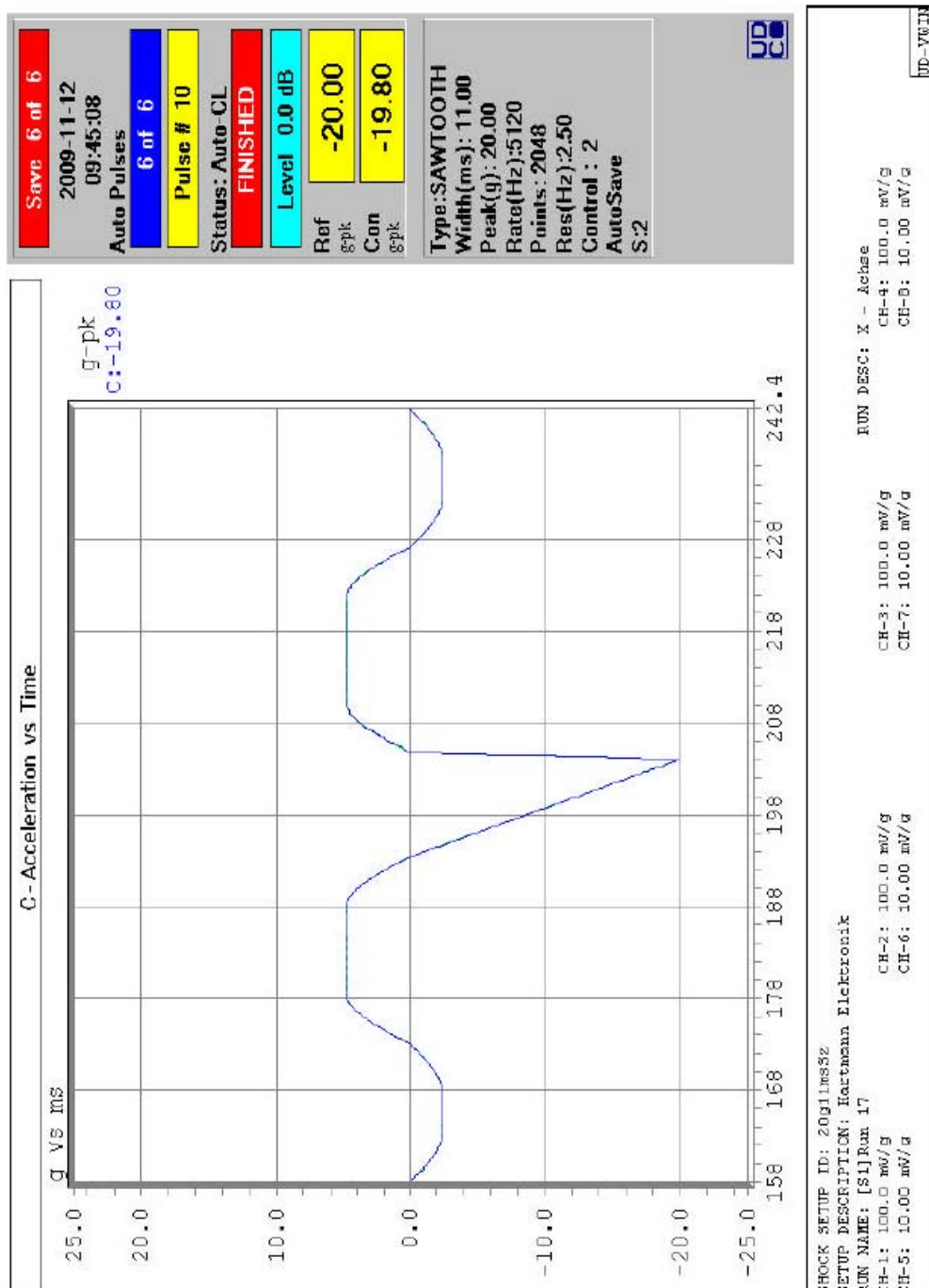




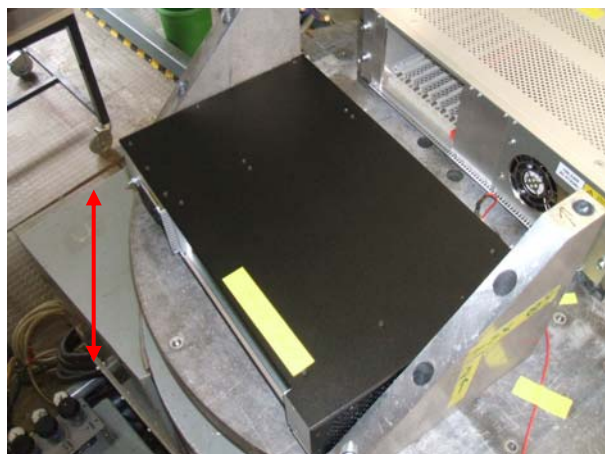


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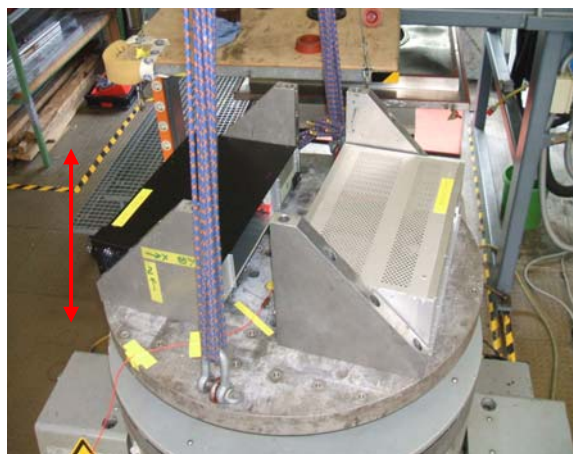




8 Photo documentation



1. z- axis,



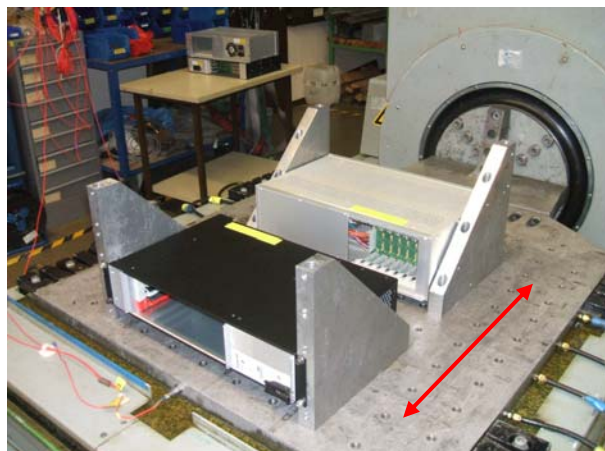
2. z- axis,



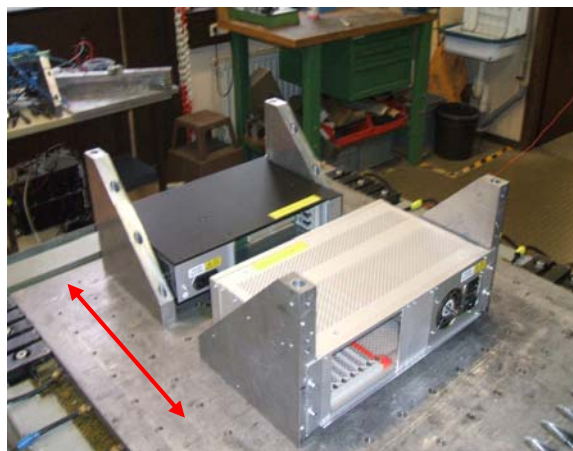
3. y- axis,



4. y- axis,



4. x- axis,



6. x- axis,

Verified
Signature



Wolfgang Jakobi
Dept. Manager

Edited
Signature



Herbert Lang
Test Engineer