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PRODUCT SERVICE

Test report

Akkreditiertes
Prüflabor (DATech)
Reg.Nr.TTI-G054/92-01

Report number	Amount execution	Pages	issued date
MHM-EST-7.990188055	1	8	17.01.2000

Examination

Vibration and shock tests (For details please have a look to position 3)

Test basic/specification

Customer requirement of 09.12.1999

Inspection	Item type name	Ident No.
Subrack	europac PRO 6 U 84HP 235mm deep Heavy Version	

Client	Manufacturer
Schroff GmbH Langenalber Str.96- 100 75334 Straubenhardt	see client

Editor	Entrance Date	Test date/period
Lang	16.12.1999	16.12.- 17.12.1999 10.01.2000

provided Signature	examined Signature

PRODUCT SERVICE

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1 Report documentation

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2 Test equipment

Inspection device	**Type**	**Manufacturer**
Electro-dynamic oscillator-active:	V875-440	Ling Dynamic Systems
Digital control governor:	Vibco-NT	Mahrenholz & Partner
Charge amplifier:	133	Endevco
Acceleration adaptor:	752-10 , 61A- 100	Endevco

All measuring instruments are submitted in accordance with calibration instruction of the TUEV Product service GmbH of a regular calibration, traceable to national norms.

3 Examination

3.1 Inspection item

The item under test was a europacPRO subrack 6 U (heavy version) was loaded with 10,5 at dummy loads (distributed over 21 boards).

3.2 Test specification

3.2.1 Vibration test sinusoidally

Frequency range: 8 Hz - 70 Hz
Amplitude: 0,3 g (x- and y-Axis)
0,5 g (z- Axis)
Sweep speed: 1 Okt./min
Testing period: 120 min for each axis

3.2.2 Shock test

Shock form: halfsinusoidally
Amplitude: 3g (x- and y- Axis)
Amplitude: 5g (z- Axis)
Shock duration: 11 ms
Number of shocks: 3 shocks in both directions of the 3 axis

3.2.3 Earthquake test 1 sinusoidally

Frequency range: 1 Hz - 10 Hz (x, y and z- Axis)
Amplitude: 10 mm (x, y and z- Axis)
Testing period: 5 s for each frequency (1 Hz- 5s, 2 Hz- 5s, 3 Hz- 5s....10 Hz- 5s)

3.2.4 Earthquake test 2 sinusoidally

Frequency range: 10 Hz - 55 Hz (x, y and z- Axis)
Amplitude: 0,75 mm (x, y and z- Axis)
Testing period: 120s for each frequency (10 Hz- 120s, 15 Hz- 120s, 16 Hz- 120s.... 55 Hz- 120s)

3.3 Test sequence

No.	Test	Run	Axis	Page	Measuring points and remarks
1	Vibration	1	Y	/A-1/1- /A-1/5	Channel 1: Center rail, see photo 4 Channel 2: Side panel, right, see photo 6 Channel 3: Rear cover, see photo 5 Channel 4: Horizontal rail, at front/top, see photo 2
2	Shocks	2	Y	/A-2/1	
3	Shocks	3	Y	/A-2/2	
4	Vibration	4	X	/A-1/6- /A-1/10	Channel 1: Center rail, see photo 4 Channel 2: Horizontal rail above, see photo 7 Channel 3: Rear cover, see photo 5 Channel 4: Horizontal rail, at front/top, see photo 2
5	Shocks	5	X	/A-2/3	
6	Shocks	6	X	/A-2/4	
7	Vibration	7	Z	/A-1/11- /A-1/15	Channel 1: Center rail, see photo 4 Channel 2: Side panel, right, see photo 6 Channel 3: Rear cover, see photo 5 Channel 4: Horizontal rail, at front/top, see photo 2
8	Shocks	8	Z	/A-2/5	
9	Shocks	9	Z	/A-2/6	

After run of run 9:
The fixing screws from the board to front panel/handle were replaced by screws locktited.

No.	Test	Run	Axis	Page	Measuring points and remarks
10	Earthquake test 1	10	Z	/A-3/1-/A-3/5	Acceleration setup as Run 7
11	Earthquake test 2	11	Z	/A-4/1-/A-4/5	Acceleration setup as Run 7
12	Earthquake test 1	12	Y	/A-3/6-/A-3/10	Acceleration setup as Run 1
13	Earthquake test 1	13	X	/A-3/11-/A-3/15	Acceleration setup as Run 4
14	Earthquake test 2	14	X	/A-4/6-/A-4/10	Acceleration setup as Run 4
15	Earthquake test 2	15	Y	/A-4/11-/A-4/15	Acceleration setup as Run 1

4 Inspection result

No damage could be identified from visual inspection. A detailed examination was carried out by the client, in house.

5 Inspection result

5.1 Vibration tests, sinusoidally (see / A-1 / A-3 / A-4/ Page 5)

1 Frequency range in Hz
2 Acceleration level in g
3 Description
4 Testing period

5.2 Shock tests (see / A-2 / Page 1)

1 Acceleration level in g
2 Maximally measured effective force in g
3 Shock duration in ms
4 Number of test shocks

6 Bilddokumentation

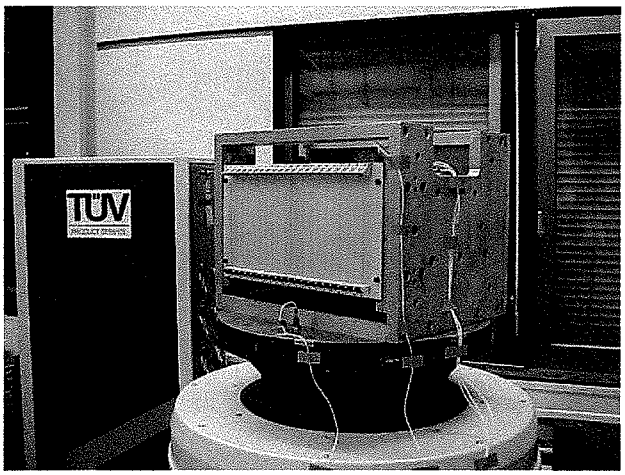


Foto 1: Z - Achse

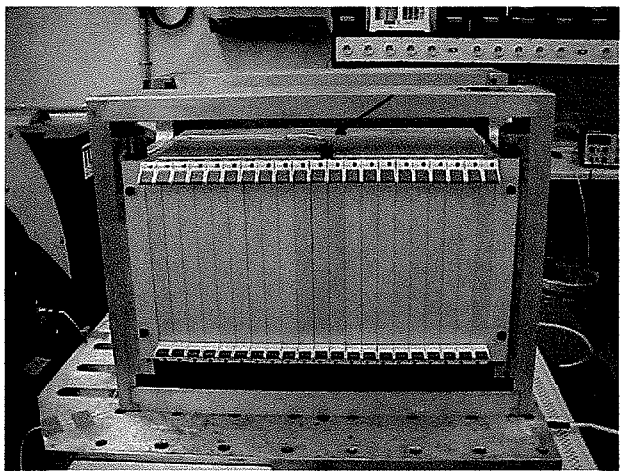


Foto 2: Y - Achse

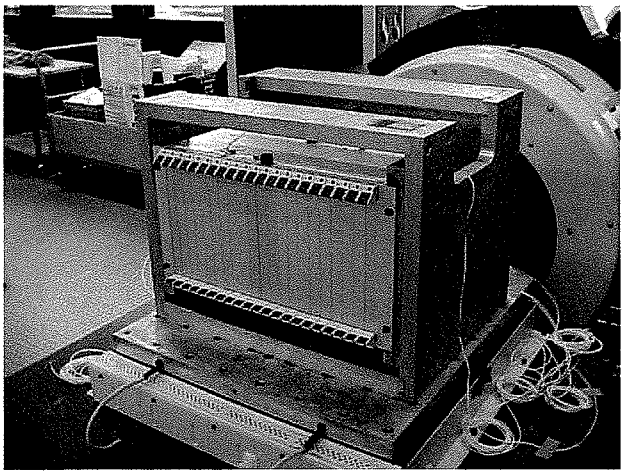
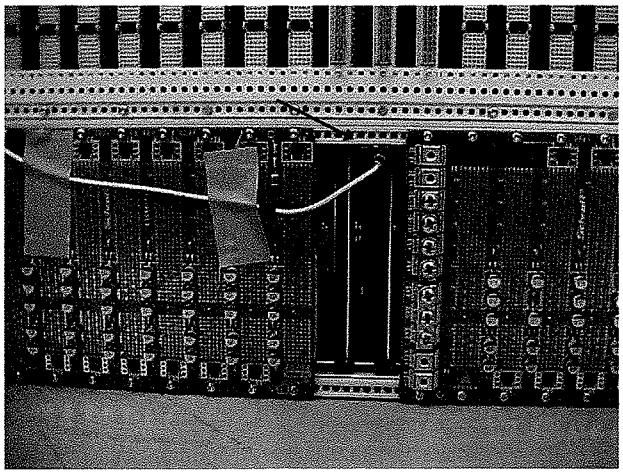


Foto 3: X - Achse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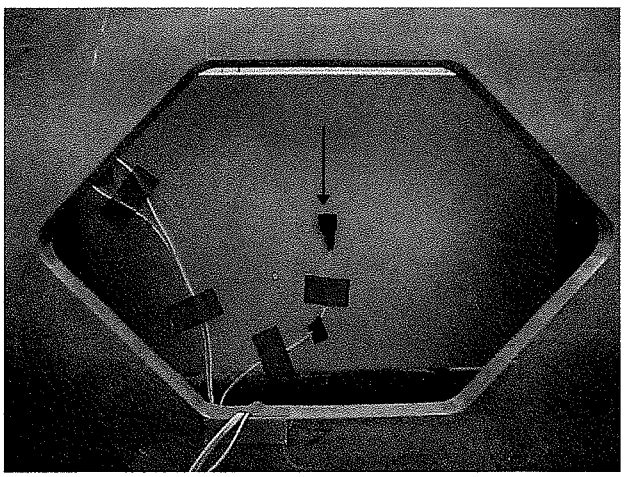
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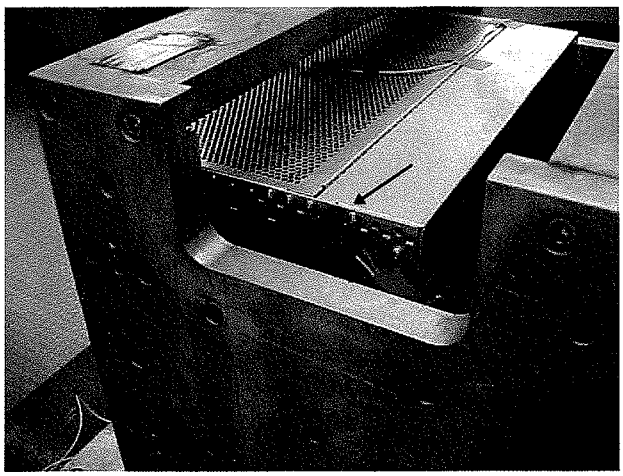
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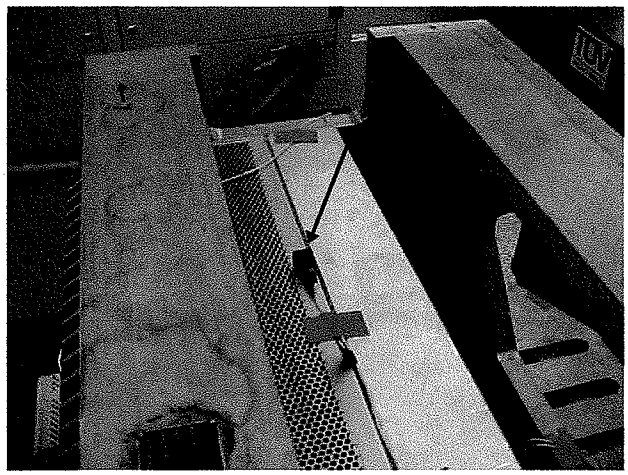

Foto 7

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