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Gerätetechnik
und Elektronik.
Accredited
Laboratory (DA Tech)
Reg.No. TTI-Go54/92-01

Test Report

Report No.	Number of copies	Pages	issued date
MHM-EST-7.970170053/D Jakobi	1	6	05.02.1997

Test

Vibration and shock test

Test basis / Specification

BN 411002

Object under test	Type designation	Identification No.
Subrack	europac PRO 3 U „Heavy version“	

Client	Manufacturer
Schroff GmbH	Schroff GmbH
Langenalberstraße 96 – 100	
75334 Straubenhardt	

Tester	Receipt of test object	Test date and period
Jacobi	Date 28.01.1997	29.and 30.01.1997
issued by Signature	verified by Signature	

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1 Used documents

/U- 1/	Measuring diagrams of the resonance search	Pages 1 and 2
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All these documents are filed in the test report GEL3-UM-7.970170053/B

2 Test equipment

Prüfmittel	**Type**	**Manufacturer**
Shaker :	1000 IAR	Unholtz-Dickie
Vibration control system :	400 AT	Unholtz-Dickie
Signal conditioner :	104/109	Endevco
Accelerometers :	4500	Brüel & Kjaer
	10B10T	Unholtz-Dickie
	226C	Endevco

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

3 Test procedure

3.1 Object under test

The object under test was a subrack. It would be tested in a mounting frame. The frame was built by the client. The subrack was fitted with 4 dummies. (2,50 kg each).

3.2 Test specification

3.2.1 Resonance search

Motion:	sinusoidal
Frequency range:	3 – 100 Hz
Amplitude:	3 – 10 Hz 0,156 m/s
	10 – 100 Hz 1 g
Sweep rate:	1 Oct/min
Test duration:	1 Sweep

3.2.2 Resonance dwell

Motion:	sinusoidal
Frequency range:	resonances determined according to 3.2.1
Amplitude:	1 g
Test duration:	15 min

3.2.3 Vibration test

Motion:	sinusoidal
Frequency range:	3 – 100 Hz
Amplitude:	3 - 10 Hz 0,156 m/s
	10 -100 Hz 1 g
Sweep rate:	1 Oct/min
Test duration:	2h less the resonance dwell

3.2.4 Shock tests

Type of shock:	half-sine
Amplitude:	5 g
Shock duration:	11 ms
Application:	3 shocks per axis on three mutually perpendicular axes.

3.2.5 Dwell at 50 Hz

Motion:	sinusoidal
Frequency range:	50 Hz
Amplitude:	3g
Test duration:	2 min

3.3 Test sequence

No.	Test	Run	Axis	Page	Comments
1	Resonance search	1	Y	/U- 1/1	subrack middle, at the top, at the back
2	Resonant dwell	1	Y	/U- 2/1	
3	Vibration test	1	Y	/U- 3/1	
4	Dwell at 50 Hz	1	Y	/U- 5/1	
5	Shock test	1 2	Y	/U- 4/1	

No.	Test	Run	Axis	Page	Comments
6	Resonance search	2	X	/U- 1/1	subrack middle, at the top, at the back
7	Resonant dwell	2	X	/U- 2/1	
8	Vibration test	2	X	/U- 3/1	
9	Dwell at 50 Hz	2	X	/U- 5/1	
10	Shock test	3 4	-X +X	/U- 4/2	
11	Resonance search	3	Z	/U- 1/ 2	
12	Resonant dwell	3	Z	/U- 2/2	
13	Vibration test	3	Z	/U- 3/2	
14	Dwell at 50 Hz	3	Z	/U- 5/2	
15	Shock test	5 6	-Z +Z	/U- 4/3	

4 Test result

The visual inspection showed no damage.

5 Explanation of the measuring diagrams

5.1 Vibration test (see /U1 / page 1)

1 Frequency range in Hz
2 Acceleration level in g
3 Control channel
4 Reference level
5 Constant acceleration
6 Test duration
7 Measuring levels
8 Cursor
9 Measuring channels

- frequency : FREQ in Hz
- acceleration : A in g
- velocity : V in m/s
- displacement : D in mm

5.2 Resonance list (see /U-1 / page 2)

1 Ratio limit
2 Measuring channel
3 Frequency in Hz
4 Test level in g
5 Measuring level in g
6 Ratio

5.3 Shock test, (see /U-4 / page 1)

1 Reference level in g
2 Measured level in g
3 Number of shocks
4 Cursor