

# Center for Quality Engineering

## Test Report No.: T09YSR1K

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<b>Order No.:</b> T09Y	<b>Pages:</b> 8	<b>Enclosures :</b> 7	<b>Munich, 15 Feb. 2005</b>
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<b>Client:</b>	Schroff Sas Z.I – 4 rue du Marais F-67660 Betschdorf France
<b>Equipment under test:</b>	Cabinet Varistar Slim-Line IP55 2000Hx600Bx600T", Art. No : 10130-020/30
<b>Manufacturer:</b>	Schroff Sas
<b>Task:</b>	Vibrationtest
<b>Test Specification(s) [covered by accreditation]:</b>	IEC 68-2-6 , Test Fc : Vibration (sinusoidal)
<b>Test Specification(s) [not covered by accreditation]:</b>	IEC 61587-1
<b>Result:</b>	No mechanical deviations are detected.

The results relate only to the items tested as described in this test report.

<b>Approved by:</b>	<b>Position</b>	<b>Signature / Date</b>
Mr. Udo Alt	Director CQE 31	15.02.2005

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## 1 Summary

The report contains the results from the environmental compatibility technical analysis of the Cabinet **Varistar Slim-Line IP55**, 2000Hx600Bx600T", Art. No : 10130-020/30 **completed with Dummiesubbracks** regard to

### **IEC 61587, performance level DL6 and IEC 60068-2-6 for Vibration**

Testing was performed by Siemens AG, ICN TQM QE at their test-facilities.

Requirement	Criteria met (yes/no)	Remark
IEC 68-2-6 , Test Fc : Vibration (sinusoidal)	y	

## 2 References

### 2.1 Specifications

#### **IEC 61587-1 : 1999-06**

Mechanical structures for electronic equipment -  
Tests for IEC 60197 and IEC 60297 –

Part 1:

Climatic, mechanical tests and safety aspects for cabinets, racks, subbracks and chassis

#### **IEC 60068-2-6 : 1995-03**

Environmental testing

Part 2 : Tests , Test Fc: Vibration (sinusoidal)

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### 3 General Information

#### 3.1 Identification of Client

Client: Schroff Sas, R&D  
 Address: Z.I – 4 rue du Marais  
 F-67660 Betschdorf  
 Country: France

#### 3.2 Test Laboratory

Name: Siemens AG, COM CTO CQE 31  
 Address: Hofmannstrasse 51  
 81359 Munich  
 Country: Germany  
 Phone: (089) 722 26105 Mr. Alt  
 Fax: (089) 722 25326  
 E-Mail: [Udo.Alt@siemens.com](mailto:Udo.Alt@siemens.com)

#### 3.3 Storage of Records

The original of the test plan / report is delivered to the client. It is in the responsibility of the client to administer and store the test report for future use.

The EUT-software has to be kept by the client and must be available for future examinations.

#### 3.4 Time Schedule

Delivery of EUT: 07.02.2005  
 Start of test: 09.02.2005  
 End of test: 09.02.2005

#### 3.5 Participants

Participants Testreport

Name	Function	Company	Department	Location
Mr. Knier	Accredited testing	Siemens AG	COM CTO CQE 31	Mch H
Mr. Meyer	Client	Schroff Sas		Betschdorf
Mr. Marcinkowski	Client	Schroff Sas		Betschdorf

## 4 Equipment under Test

### 4.1 Description of EUT

Cabinet " Varistar Slim-Line IP55 2000Hx600Bx600T",  
Seal:

Art. No : 10130-020/30  
Art No : 60130-027

### 4.2 Failure Criteria

No mechanical deviations.

## 5 Test Equipment

### 5.1 Test Facility

The measurements were carried out in the Center for Quality Engineering: Siemens AG, Department ICN TQM QE 31, Hofmannstraße 50, 81359 München, Germany.

### 5.2 Measuring Equipment

Ident. No.	EQUIPMENT	TYPE	MANUF.	Status of Equipment	Cal.-Date YYYY/MM	Cal. due date YYYY/MM
S0795	Frequency Counter	P6101,FP2	Newport	ind	-	-
S0854	Frequency Display	L4S4RA8W	Newport	ind	-	-
S1402	Charge Amplifier	D22PMG	Unholtz Dickie	cal	2004/02	2005/02
S1403	Charge Amplifier	D22PMG	Unholtz Dickie	cal	2004/02	2005/02
S1404	Charge Amplifier	D22PMG	Unholtz Dickie	cal	2004/02	2005/02
S1405	Charge Amplifier	D22PMG	Unholtz Dickie	cal	2004/02	2005/02
S1418	PARAGON MAINFRAME	35650A	hp	cal	2004/02	2005/02
S1419	Vibration Exciter with Transistor switch Amplifier	SW9100	RMS	cal	2004/02	2005/02
S5004	Oscilloscope	D1011	Siemens	ind	-	-
S5325	Personal Computer with Vibco NT V2.7.2	Scenic L	FSC MP	not	-	-
S5059	Accelerometer	224C	Endevco	cal	2004/12	2006/12
S5055	Accelerometer	4369	Bruel & Kjaer	cal	2004/12	2006/12
S5054	Accelerometer	4369	Bruel & Kjaer	cal	2004/12	2006/12
S5082	Accelerometer	4384	Bruel & Kjaer	cal	2004/12	2006/12

cal=calibrated Equipment - cpu=checked prior to use - chk=checked equipment ( dated)

ind=for indication only - not=not calibrated equipment - ref=Reference standard

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**6 Specifications, Tests and Results : Environmental**

The test results in the report refer exclusively to the test object described in section 4 and the test period in section 3.4.

**6.1 Requirements Specification**

**IEC 61587-1 : 1999-06**

Mechanical structures for electronic equipment -Tests for IEC 60197 and IEC 60297 – Performance Level DL6

**6.2 Test Specification**

**6.2.1 Vibration sinusoidal**

Acc. To IEC 60068-2-6, part Fc

Test	Parameter	Dim	Test severity	Dur.	Reference	Method
Vibration sinusoidal	displacement	mm	3,5		IEC 68-2-6	Fc: Vibration (sinusoidal)
	acceleration	m/s <sup>2</sup>	10			
	frequency range	Hz	5-9 9-100	3 x 10		
	frequency change		1 Okt/min	sweep		
	axes of vibration		3	cycles		

**6.3 Test Performance**

For the tests the EUT was completed with dummy-subracks and a dummy weight as described in IEC 61587 page 29, figure 8 and table 7. At the shaker table the EUT was mounted by using of its normal fixing points (see photos 1-3).

The tests are performed in 3 mutually perpendicular axes.

Definition of vibration axes

Z axis = vertical

X axis = longitudinal (side – side)

Y axis = lateral (front – back)

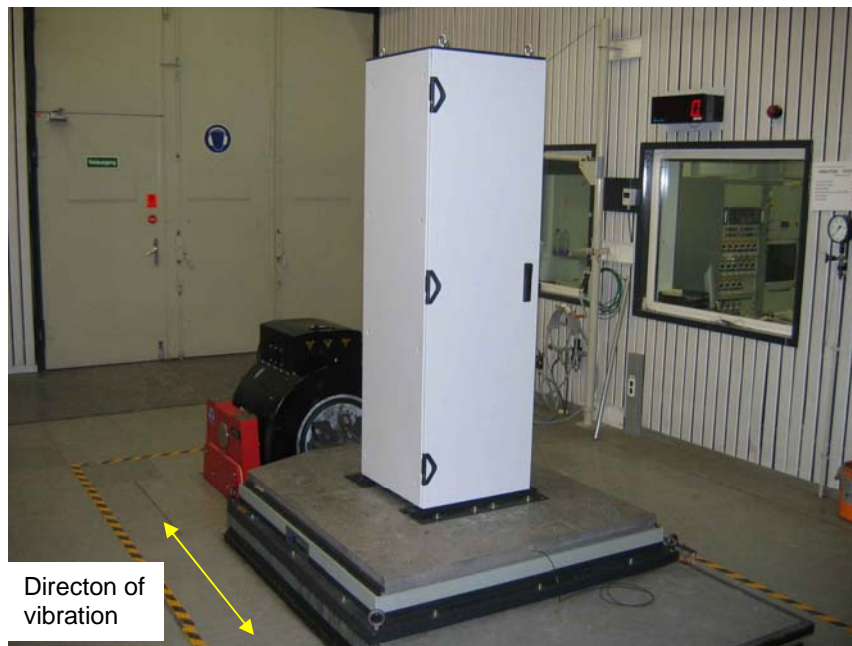
At top of the cabinet the dynamic behaviour of the cabinet was recorded (diagrams see enclosures page

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**Photo 1:** EUT mounted at vibration table. Axis of vibration **X** – longitudinal (side - side)



**Photo 2:** EUT mounted at vibration table. Axis of vibration **Y** -lateral (front – back)

Depart.: COM CTO CQE 31	<b>Test Report</b>	Date: 15 Feb. 2005
Author: Knier	Cabinet Slimline	7/8

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**Photo 3:** EUT mounted at vibration table. Axis of vibration Z (vertical)

## 6.4 Test Results

### 6.4.1 Vibration sinusoidal

During and after the vibration test no mechanical deviations were occurred.



**7 Enclosures**

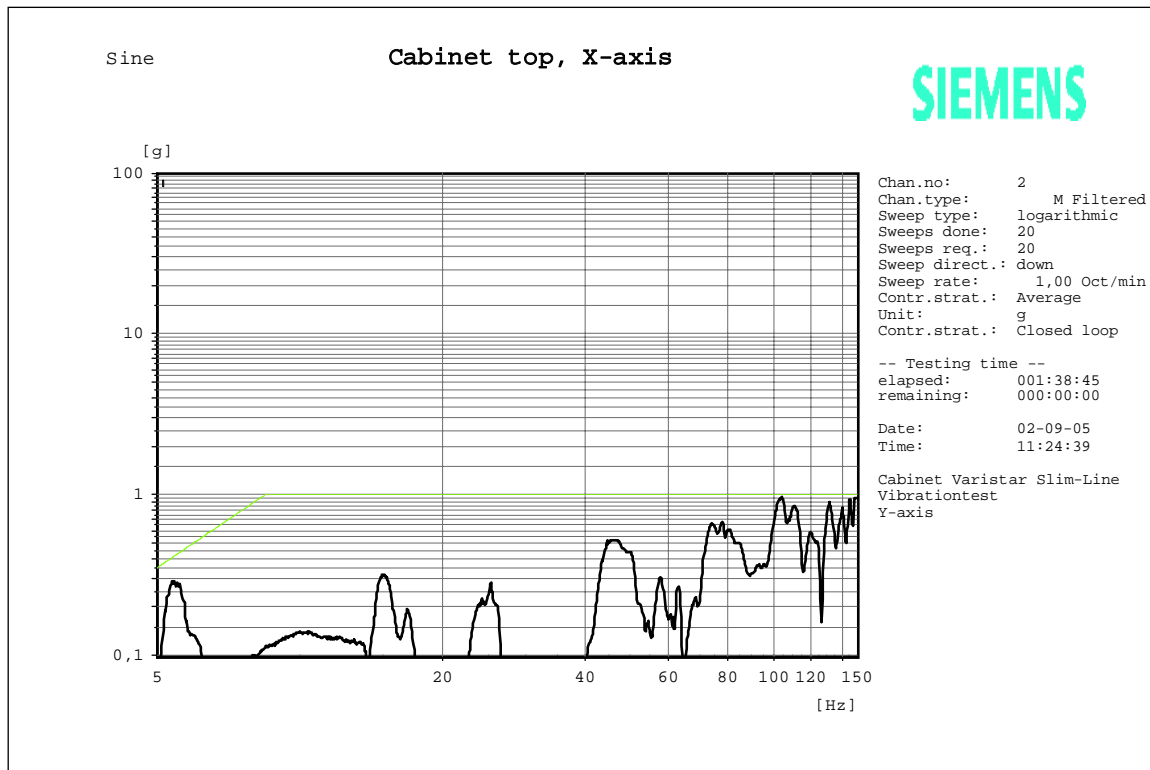
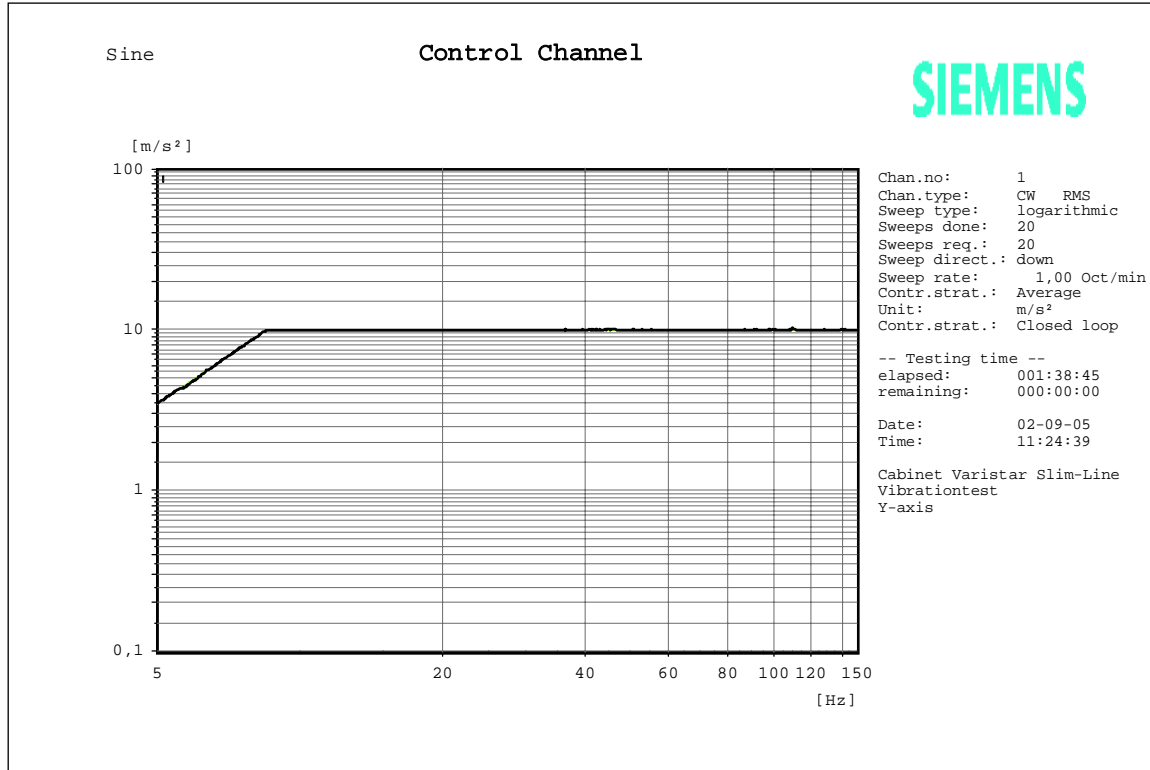
**7.1 Accreditation Certificate**

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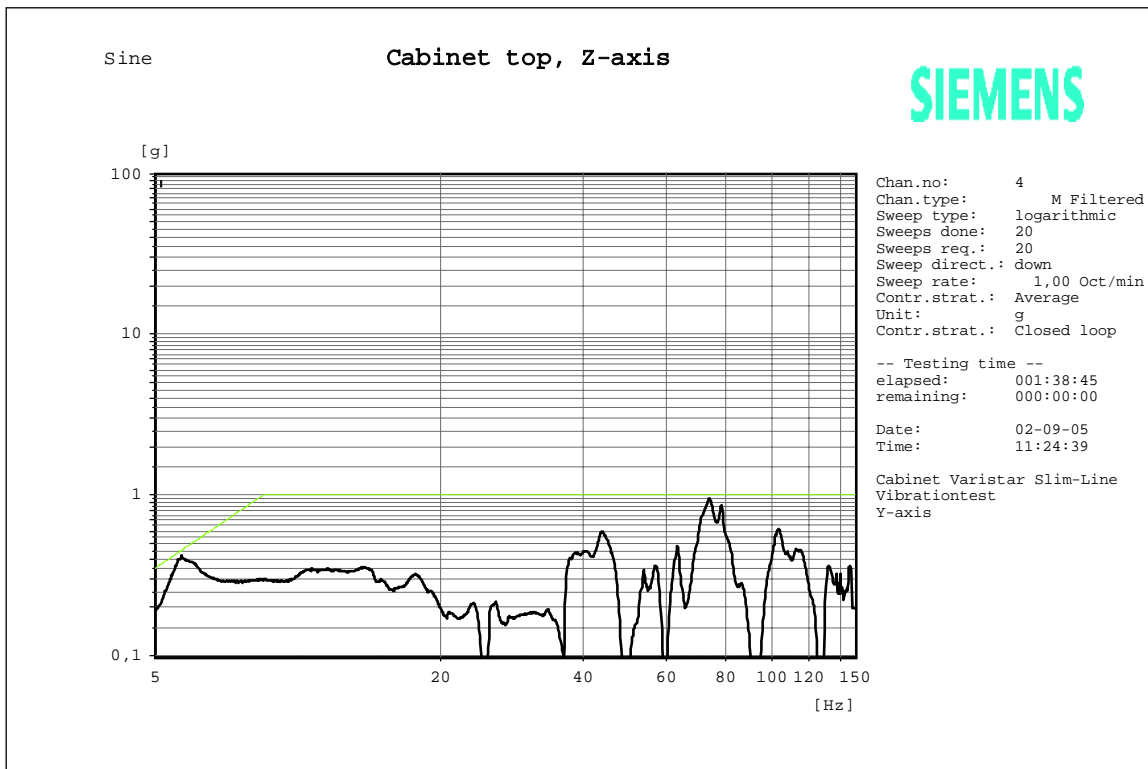
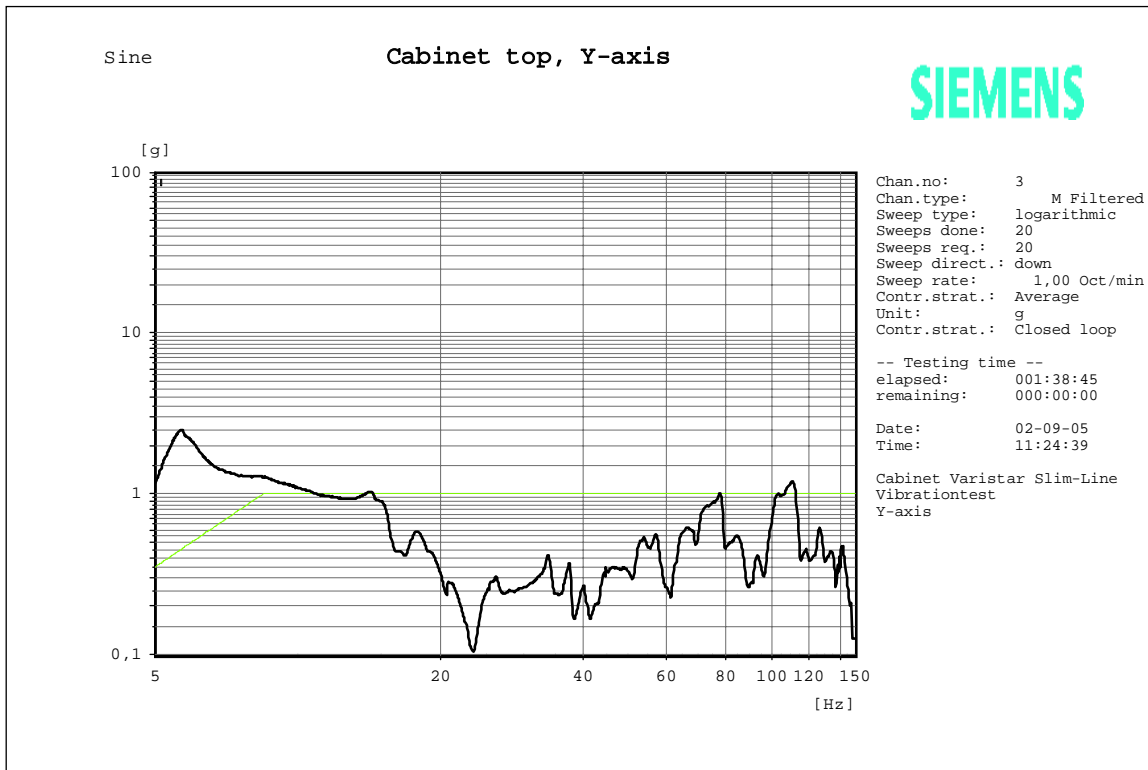


**7.2 Diagram of vibration response**  
**Y-axis**

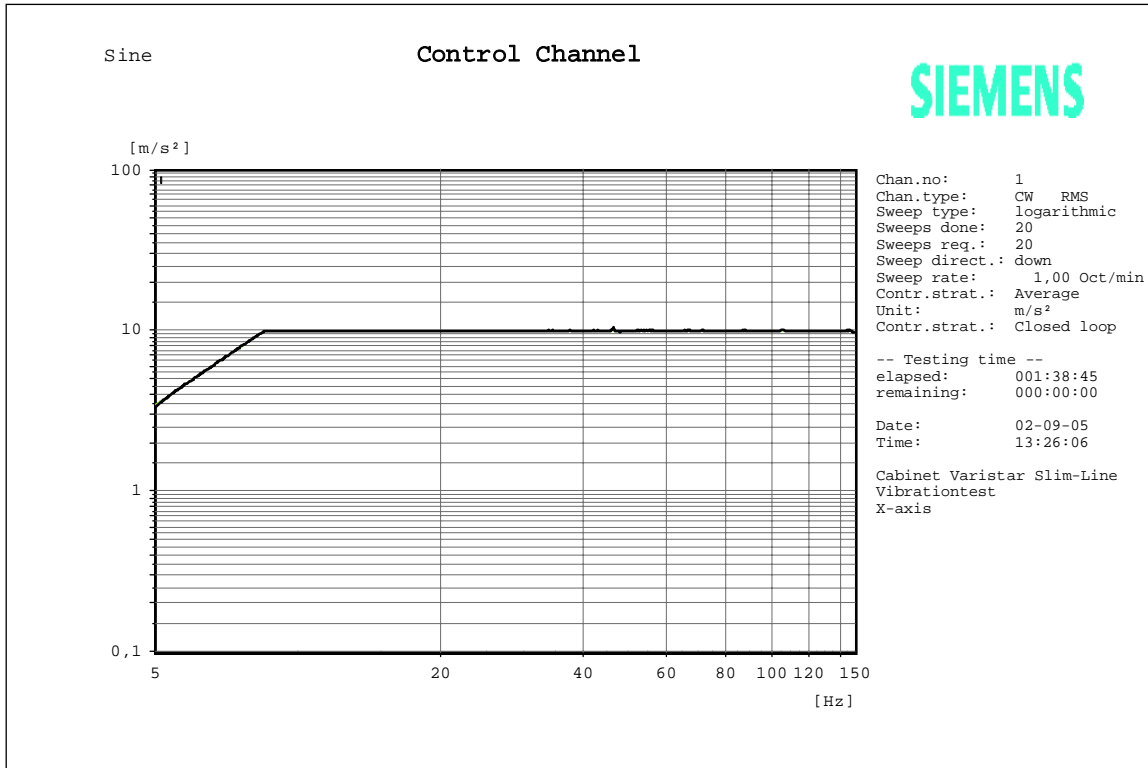
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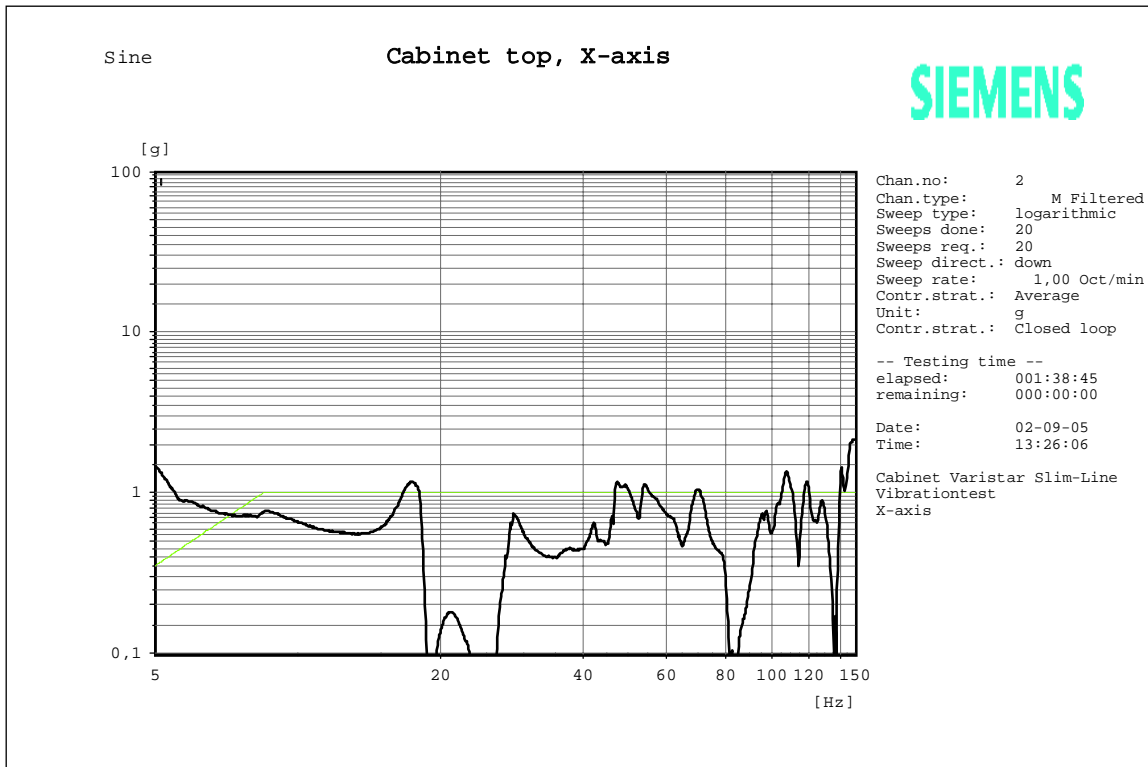
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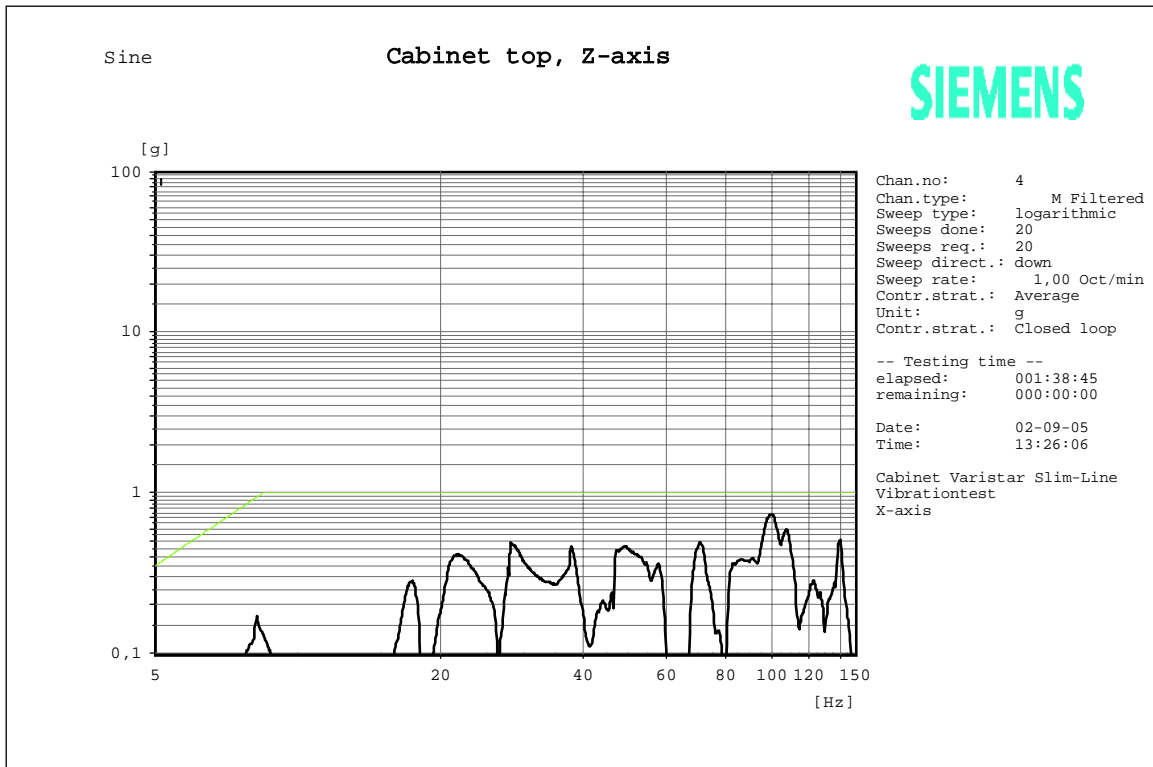
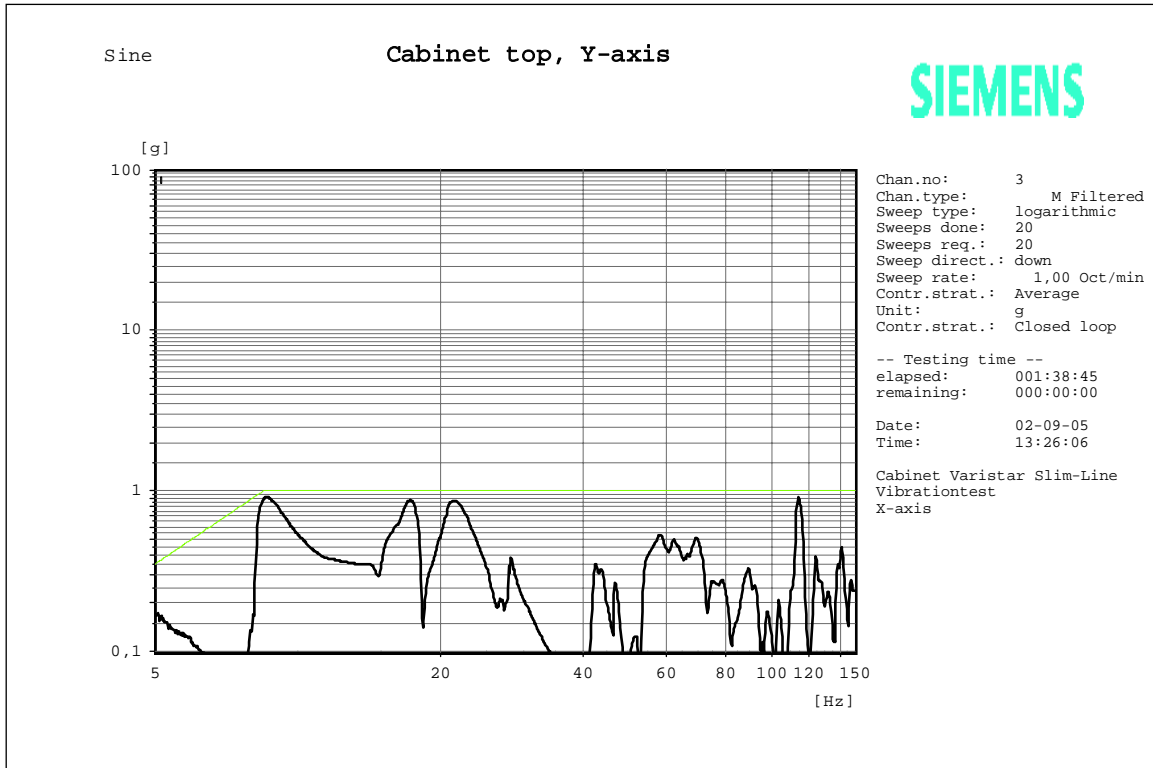
**X-axis**



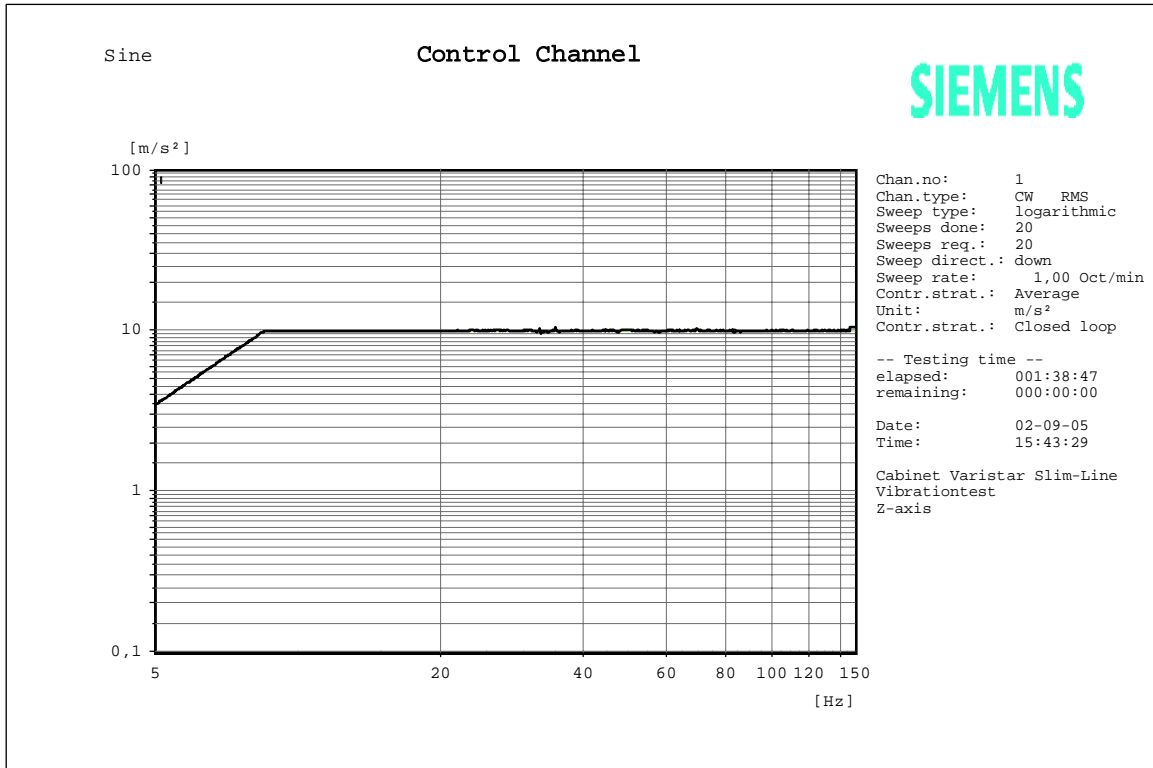
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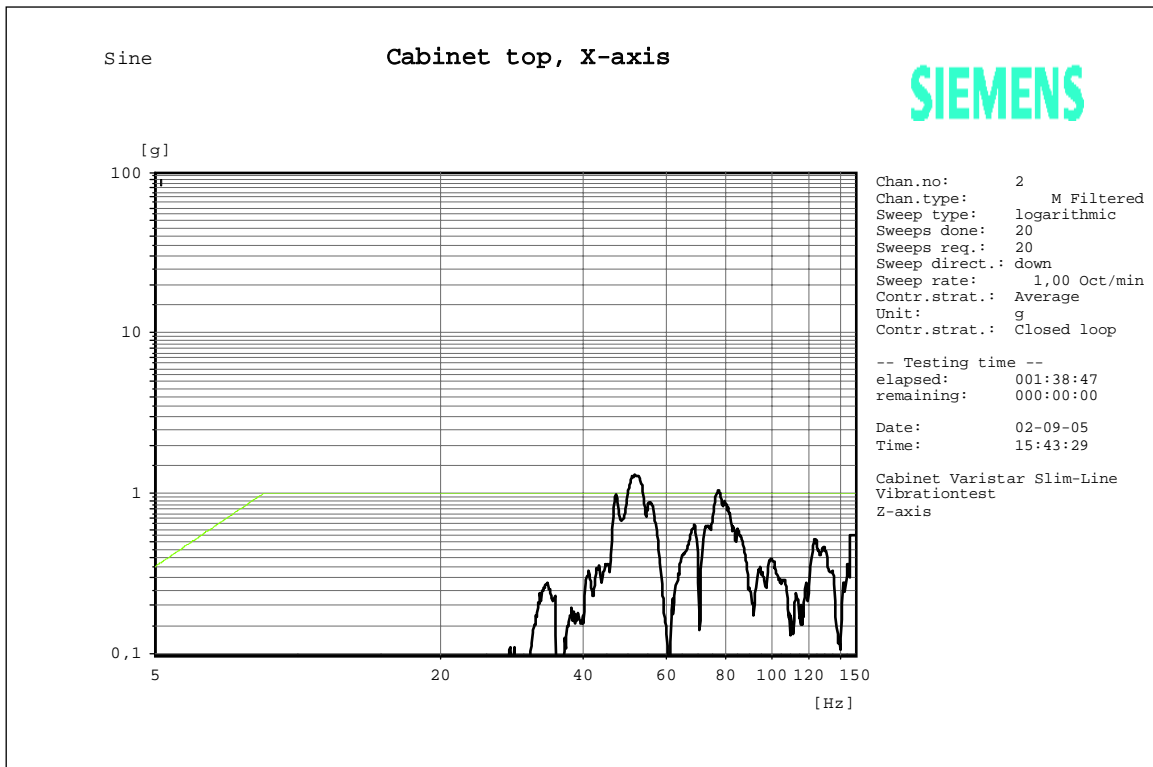
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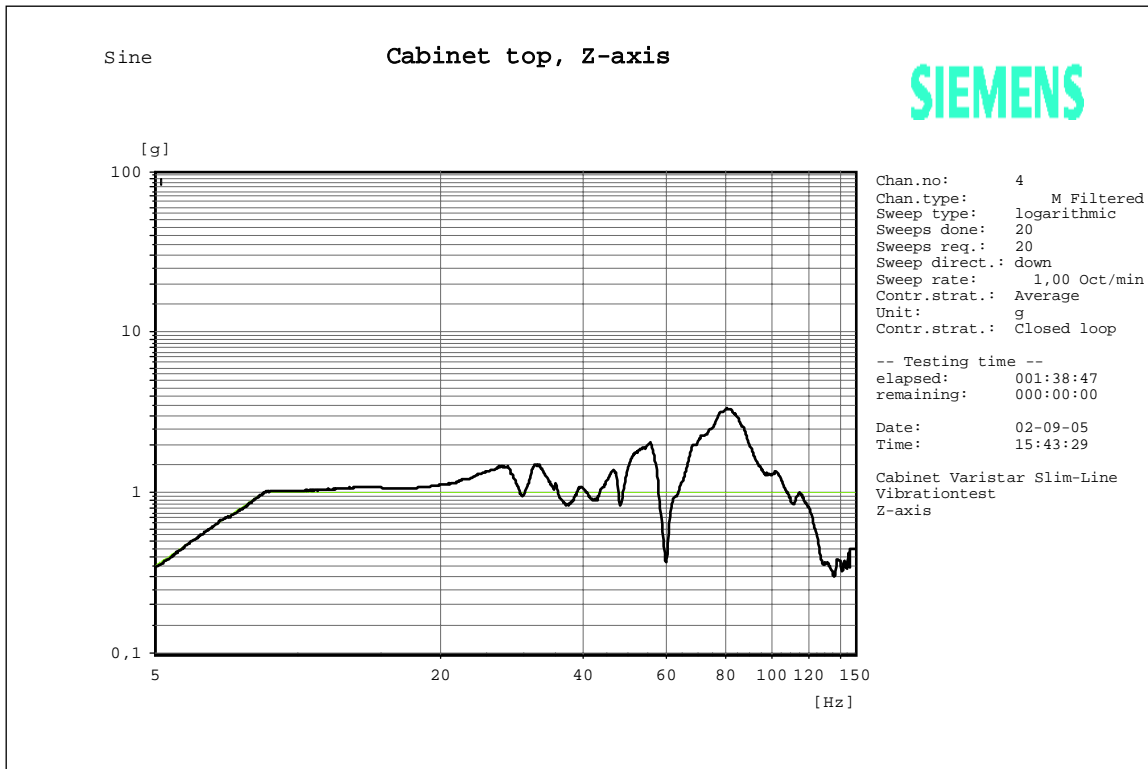
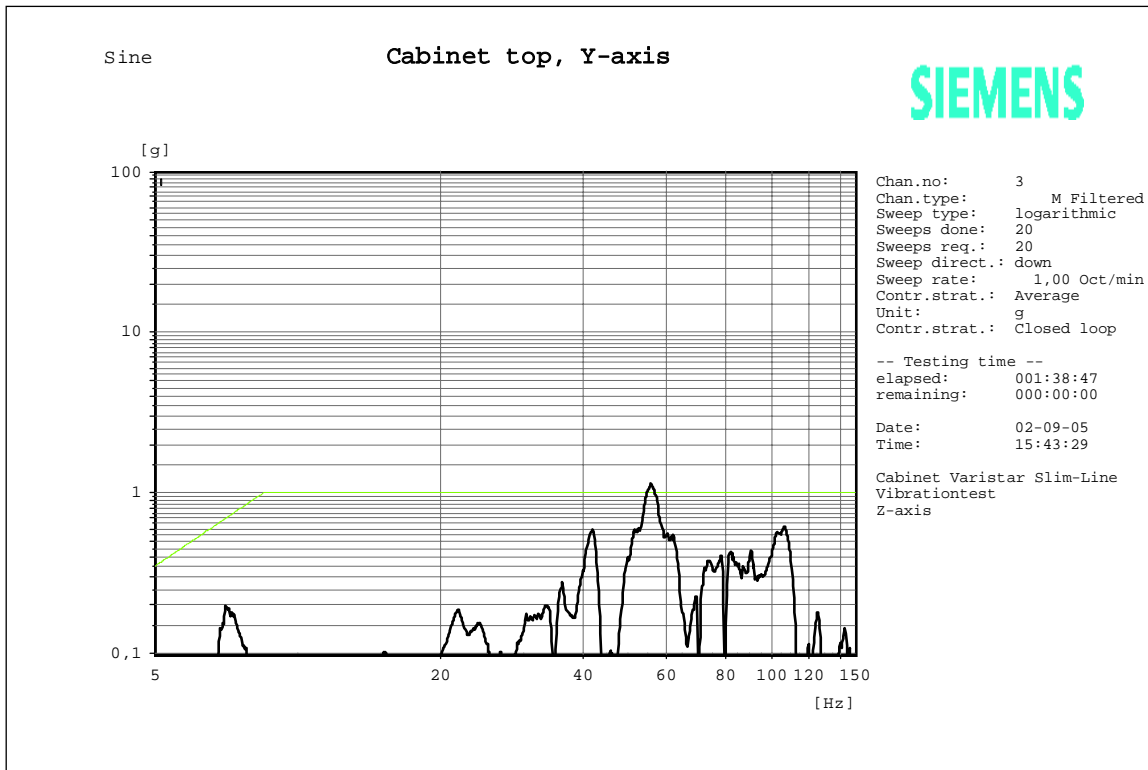
**Z-axis**



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Mch H, 15 Feb. 2005

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