ECL-ENV Prüfbericht Nr.: 18-029
ECL-ENV Test Report No.: 18-029

Prüfling:
Equipment under test:

AIS Transponder

Typ:
Type:

Garmin AIS 800 Class B/SO / easy TRX3

Prüfung:
Type of test:

Umweltsimulation/Environmental simulation

IEC 62287-2:2017, Part 9.2
Schocken/Shocks

IEC 62287-2:2017, Part 9.3
Schwingbeanspruchung/Vibration

Ausgabedatum: Date of issue:	09. May 2018		**Unterschrift:** Signature:
Version: Issue-No.:	01	**Autor:** Author:	Thomas Gerngroß Test Engineer Digitally signed by Thomas Gerngroß DN: cn=Thomas Gerngroß, o=Bureau Veritas CPS Germany GmbH, ou=ECL, email=thomas.gerngross@de.bureauveritas.com, c=DE Date: 2018.05.09 11:31:03 +02'00'
Eingangsdatum: Date of delivery:	20. Apr. 2018		
Prüfdatum: Test dates:	20. Apr. 2018	**geprüft:** checked:	**Max Kastl** Test engineer Digital unterschrieben von Max Kastl DN: cn=Max Kastl, o=Bureau Veritas, ou=Umwelt, email=Maximilian.Kastl@de.bureauveritas.com, c=DE Datum: 2018.05.09 13:22:10 +02'00'

Kunde: Client:	**Weatherdock AG GERMANY** Emmericher Straße 17 D-90411 Nürnberg

Prüfzentrum: Test house:	Bureau Veritas CPS Germany GmbH European Compliance Laboratory (ECL) Thurn-und-Taxis-Straße 18 D-90411 Nürnberg

Versionsmanagement/Versions management

V 01.00	**Erste Ausgabe**/First issue

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1 Zusammenfassung der Umwelt-Prüfungen/ Overview of the environmental tests

Bedingung/ Methode Condition/ Method	**Schärfegrad /** Severity	**Dauer /** Duration	**Achse** Axis	**Testdatum/** Test date
Schockprüfung Shock IEC 62287-2:2017, Part 9.3	**100 m/s², Halbsinus**/Half sine **25 ms**	**Richtungen: 6 Anzahl: 3 Schocks in jede Richtung** Directions: 6 Quantity: 3 shocks per direction	**X**	**20. Apr. 2018**
	100 m/s², Halbsinus/Half sine **25 ms**		**Y**	**20. Apr. 2018**
	100 m/s², Halbsinus/Half sine **25 ms**		**Z**	**20. Apr. 2018**
Schwing-beanspruchung / Vibration stress IEC 62287-2:2017, Part 9.2	**2 Hz – 100 Hz; 2 Hz – 13,2 Hz bei ± 1 mm; 13,2 Hz – 100 Hz bei 7 m/s²** 2 Hz – 100 Hz; 2 Hz – 13.2 Hz at ± 1 mm; 13.2 Hz – 100 Hz at 7 m/s²	1 Zyklus/0,2 Oct/min 1 Cycle/0.2 Oct/min	**X**	**20. Apr. 2018**
			Y	**20. Apr. 2018**
			Z	**20. Apr. 2018**

2 **Prüflingsbeschreibung**/Device under test

Der Prüfling ist ein AIS-Transponder für Schiffe. The DUT is an AIS-Transponder for ships.

3 **Normen /** Normative References

IEC 62287-2:2017	**Navigations- und Funkkommunikationsgeräte und -systeme für die Seeschifffahrt - Geräte der Klasse B des automatischen Identifikationssystems (AIS) für Schiffe - Teil 2: Sich selbst abstimmende Zeitmehrfachzugriffstechniken (SOTDMA) (IEC 62287-2:2017); Englische Fassung EN 62287-2:2017** Maritime navigation and radiocommunication equipment and systems - Class B shipborne equipment of the automatic identification system (AIS) - Part 2: Self-organising time division multiple access (SOTDMA) techniques (IEC 62287-2:2017); English version EN 62287-2:2017

4 **Umwelt-Prüfungen/**Environmental tests

4.1 **Allgemein/**General

Zweck der durchgeführten Tests war es, den Prüfling unter den definierten Umweltbedingungen zu überprüfen.
Purpose of the performed tests was to verify the functions of the tested equipment within defined environmental conditions.

4.2 **Test Ergebnisse/**Test results

Funktionsprüfung/
Function control:

- **Die Funktionstests nach IEC 62287-2:2017, Abs. 9.4 wurden vom Kunden jeweils während bzw. nach den von uns durchgeführten Umweltsimulations-Tests erfolgreich durchgeführt.**
  The functional tests according to IEC 62287-2: 2017, part 9.4 have been carried out successfully by the customer during or after the environmental simulation tests carried out by us.
  .

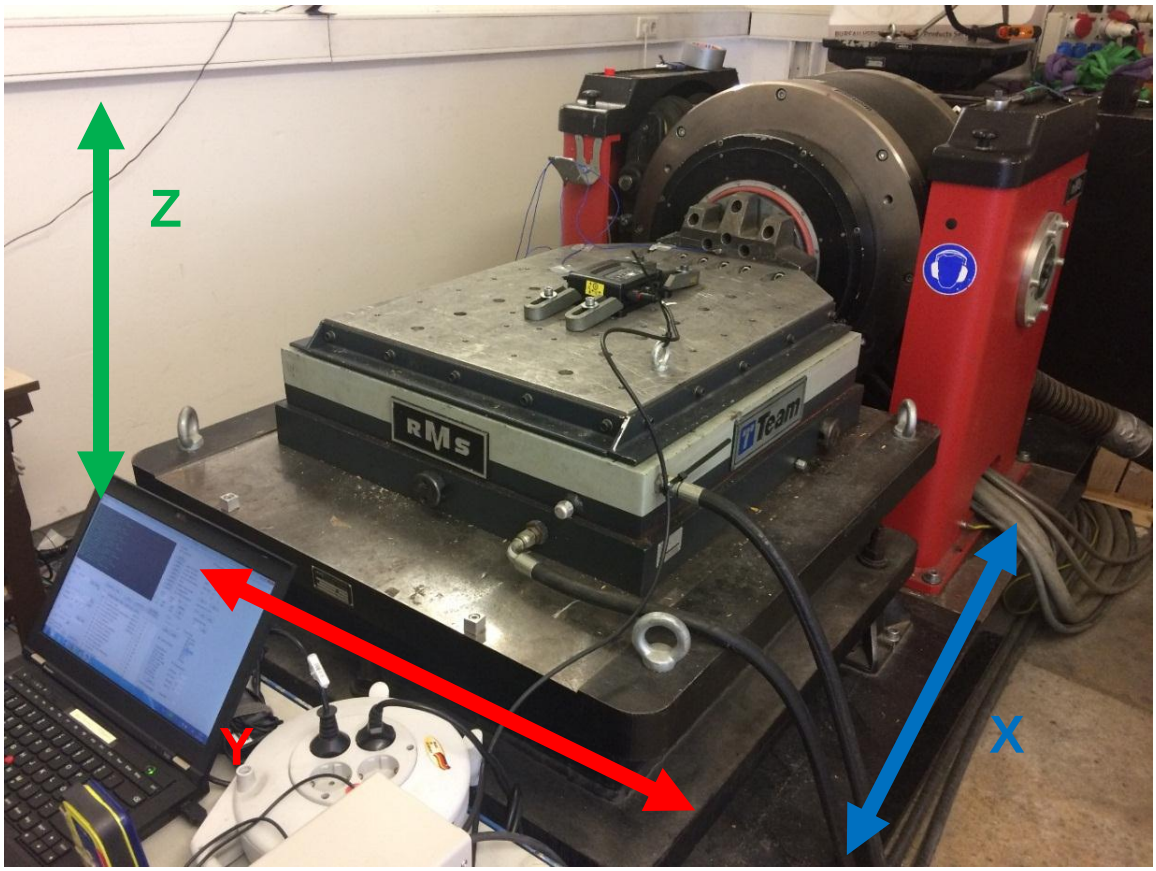
4.3 **Mechanische Tests/**Mechanical tests

Der Prüfling wurde bei diesen Tests mit 24 Volt DC betrieben. At this tests the DUT was supplied with a DC voltage of 24 V.

Benutzte Messgeräte/Used measuring equipment

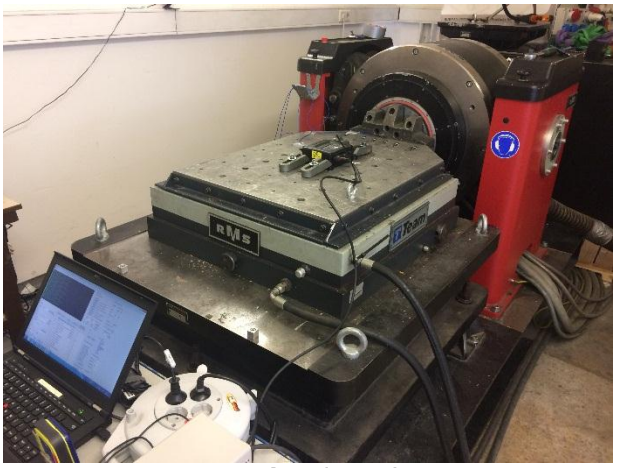
ID No.	Serial No.	Type	Manufacturer	Description	Next Calibration
X296	7643	SW 8200	RMS	Vibration system	Apr. 2018
X530	B130074	VibPilot VP8	m+p International	Vibration system	Nov. 2017
X531	LW196269	352C33	PCB	Accelerometer	Feb. 2019
X532	LW196734	352C33	PCB	Accelerometer	Jan. 2019

Definition der Achsen/Definition of axes

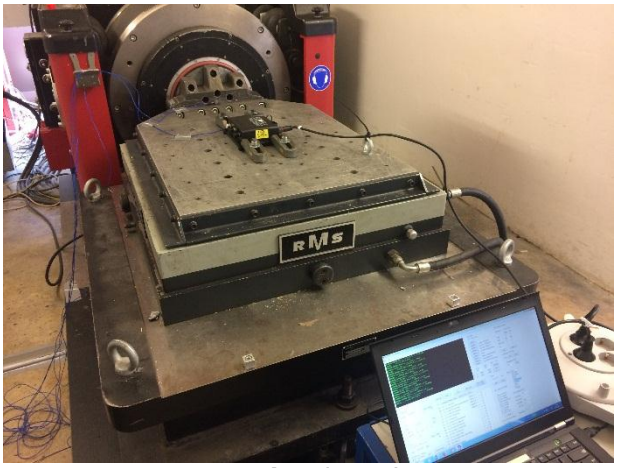


Achsen	**X-Achse:**	**Schwingung horizontal**
Axes	X-Axis:	Vibration horizontal
	Y-Achse:	**Schwingung horizontal**
	Y-Axis:	Vibration horizontal
	Z-Achse:	**Schwingung vertikal**
	Z-Axis:	Vibration vertical

4.3.1 Fotos/Photos

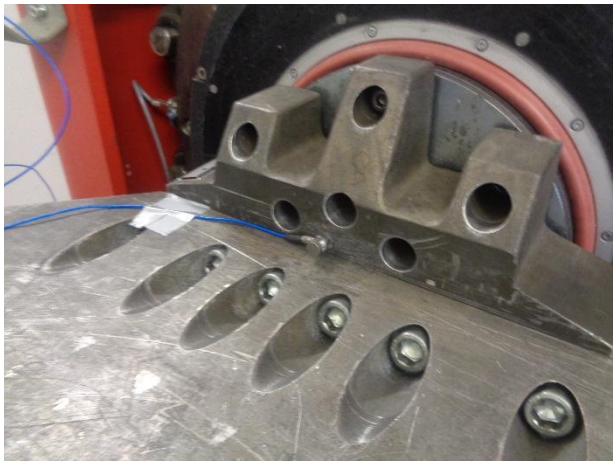


X-Achse/X-Axis



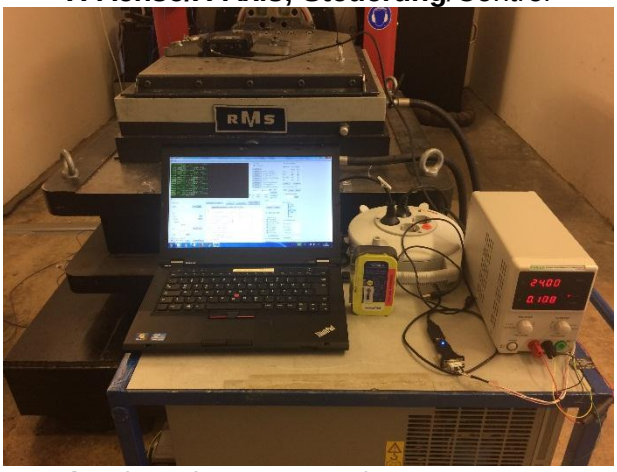
X-Achse/X-Axis

X-Achse/X-Axis



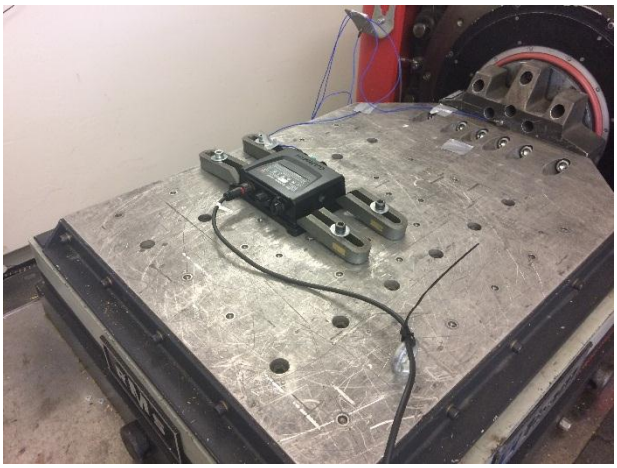
X-Achse/X-Axis; Steuerung/Control

X-Achse/X-Axis**; Messung**/Measurement



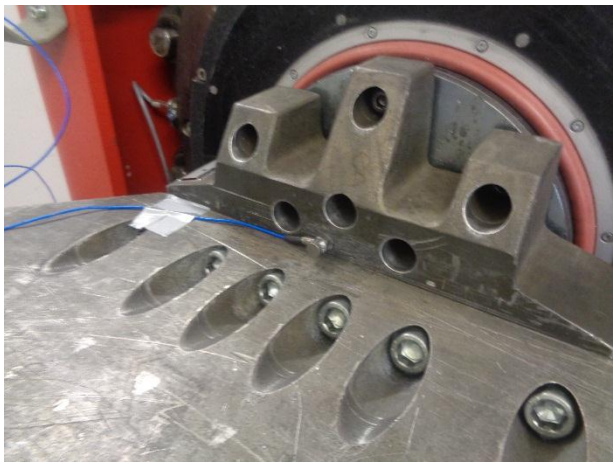
X-Achse/X-Axis**; Messung**/Measurement

Y-Achse/Y-Axis

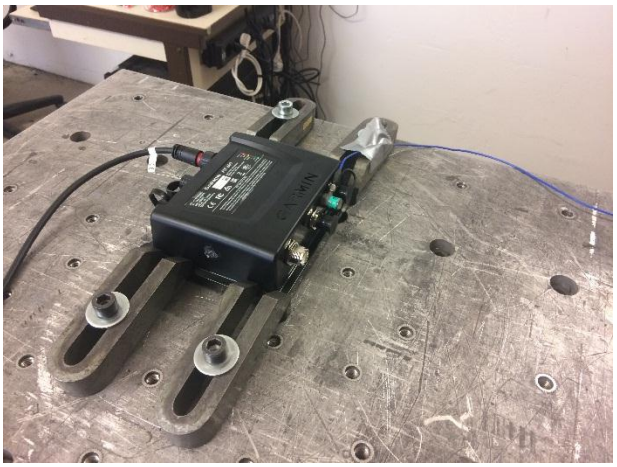


Y-Achse/Y-Axis

Y-Achse/Y-Axis

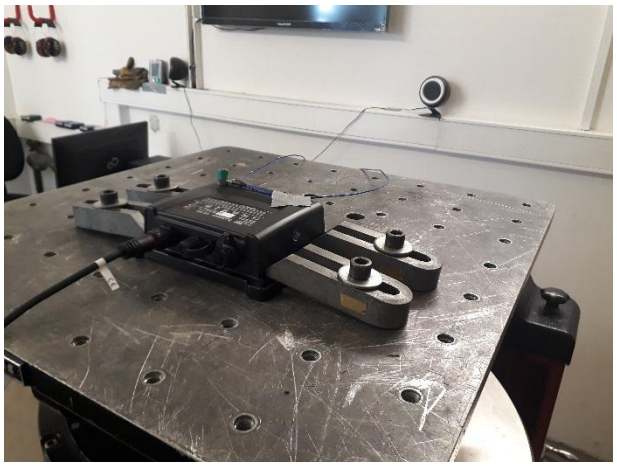


Y-Achse/Y-Axis**; Steuerung**/Control

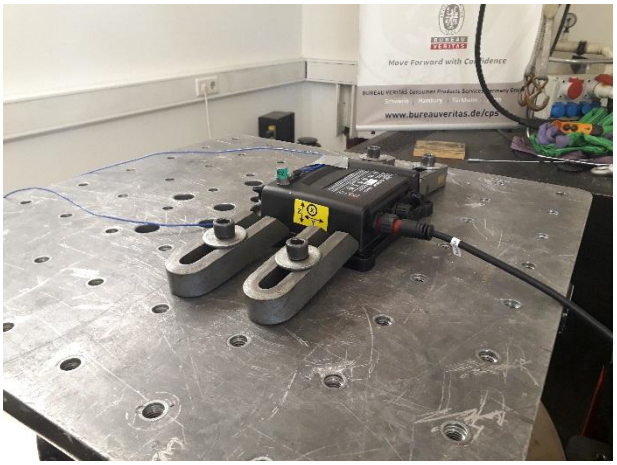


Y-Achse/Y-Axis**; Messung**/Measurement

Z-Achse/Z-Axis



Z-Achse/Z-Axis



Z-Achse/Z-Axis**; Messung** / Measurement

Z-Achse/Z-Axis**; Steuerung** / Control

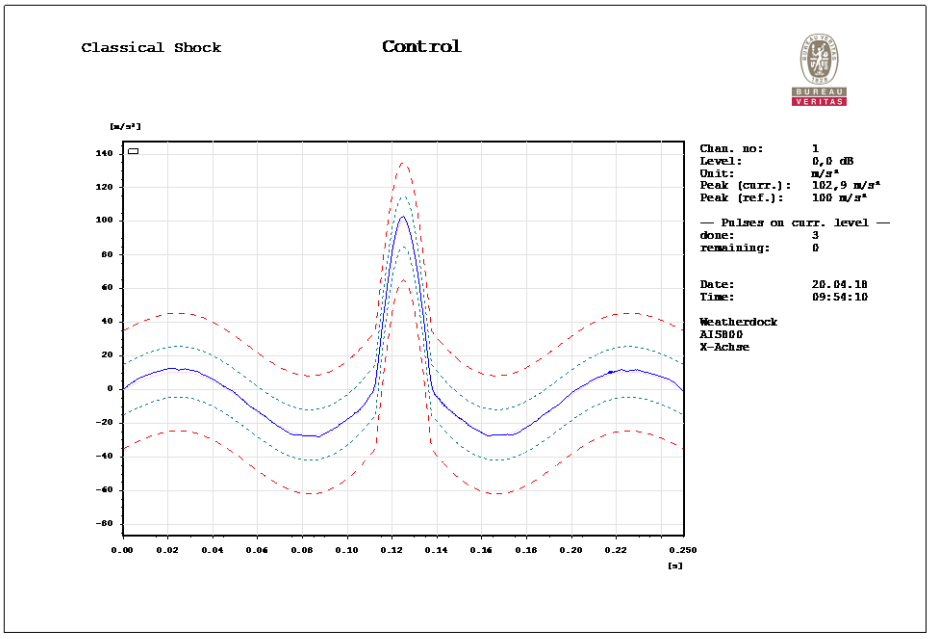
4.3.2 Prüfkurven/Test curves

Legende der Plots/Explanation of plots

Graph-Farbe/Plot colour	**Bedeutung/**Meaning
Blau/Blue	**Regelung/**Control
Orange/Orange	**Messung/**Measurement

4.3.2.1 Schocken/Shock 100 m/s²; 25 ms

Pos. X-Achse/X-Axis positive



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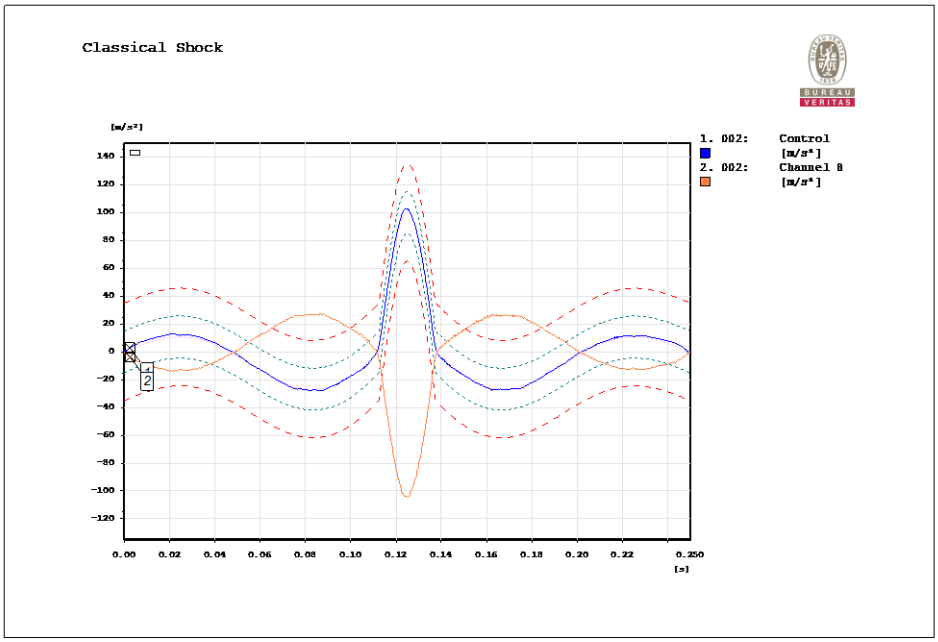

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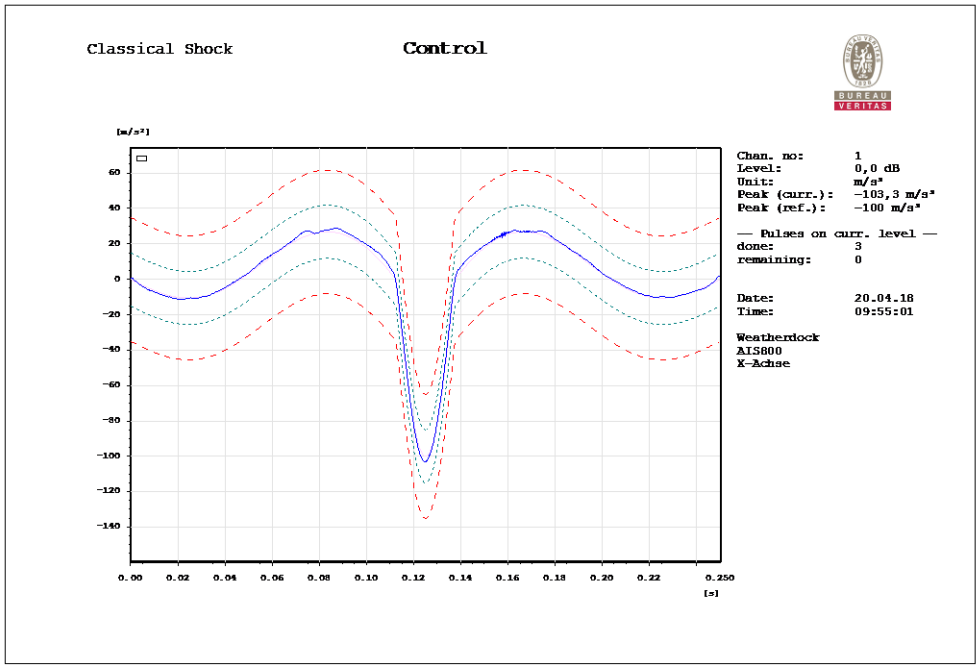
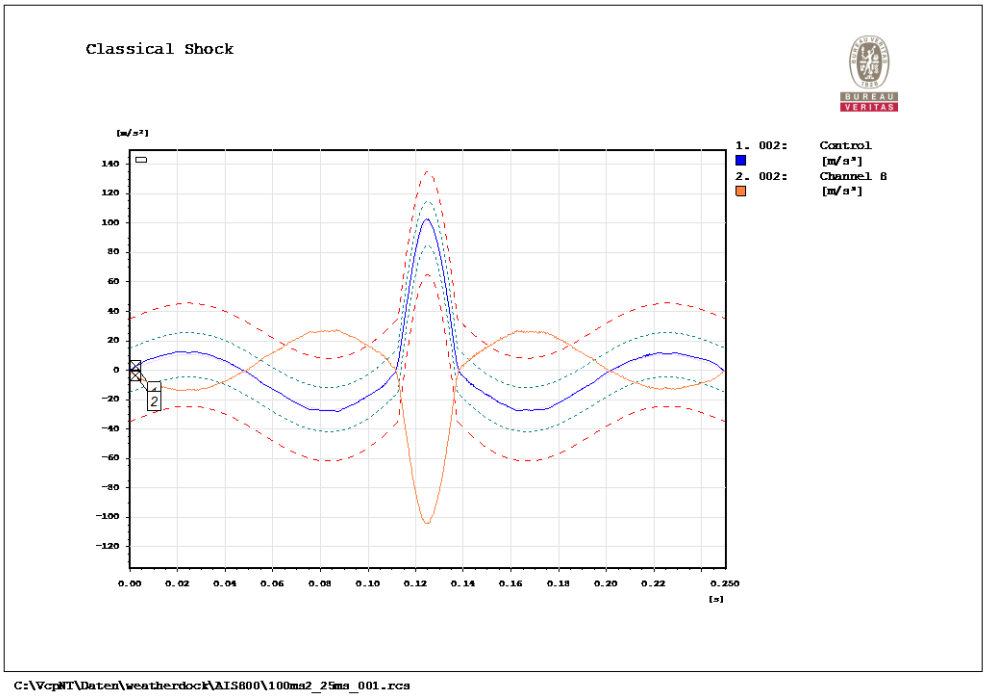
Das Messsignal ist um 180° verdreht dargestellt./The measuring signal is shown with a phase turn of 180°.

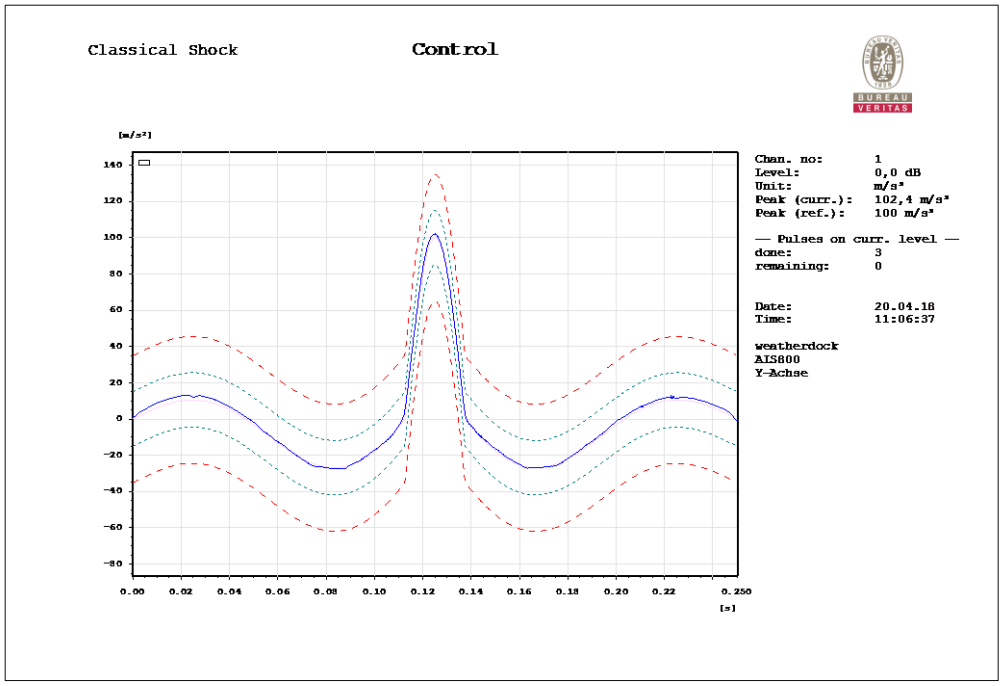
Neg. X-Achse/X-Axis negative





Das Messsignal ist um 180° verdreht dargestellt./The measuring signal is shown with a phase turn of 180°.

Pos. Y-Achse/Y-Axis positive



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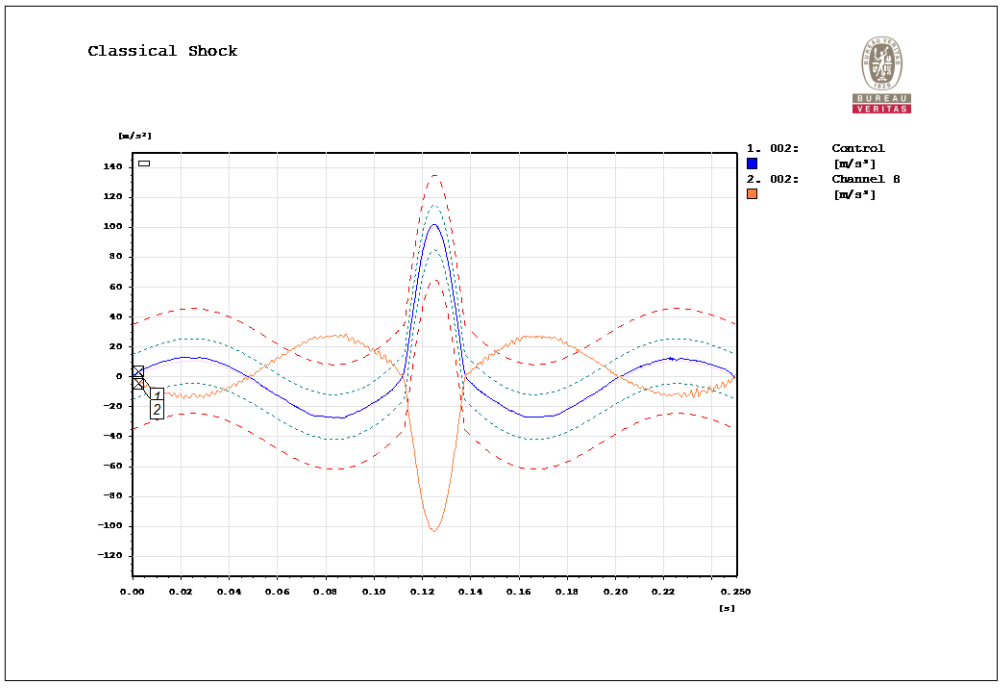

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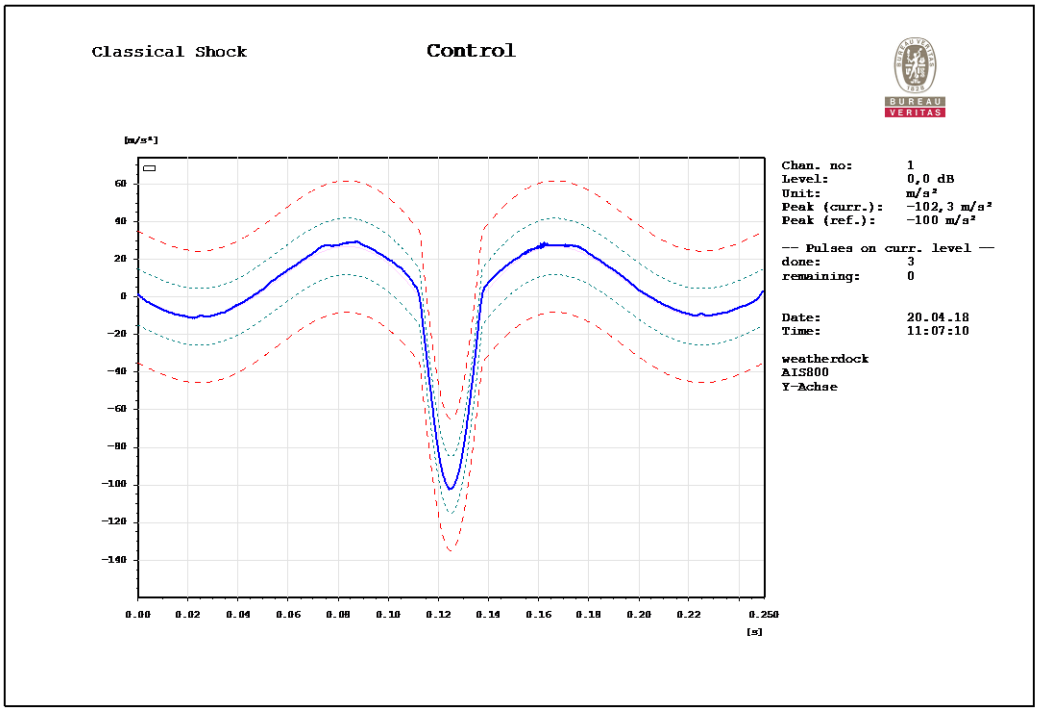
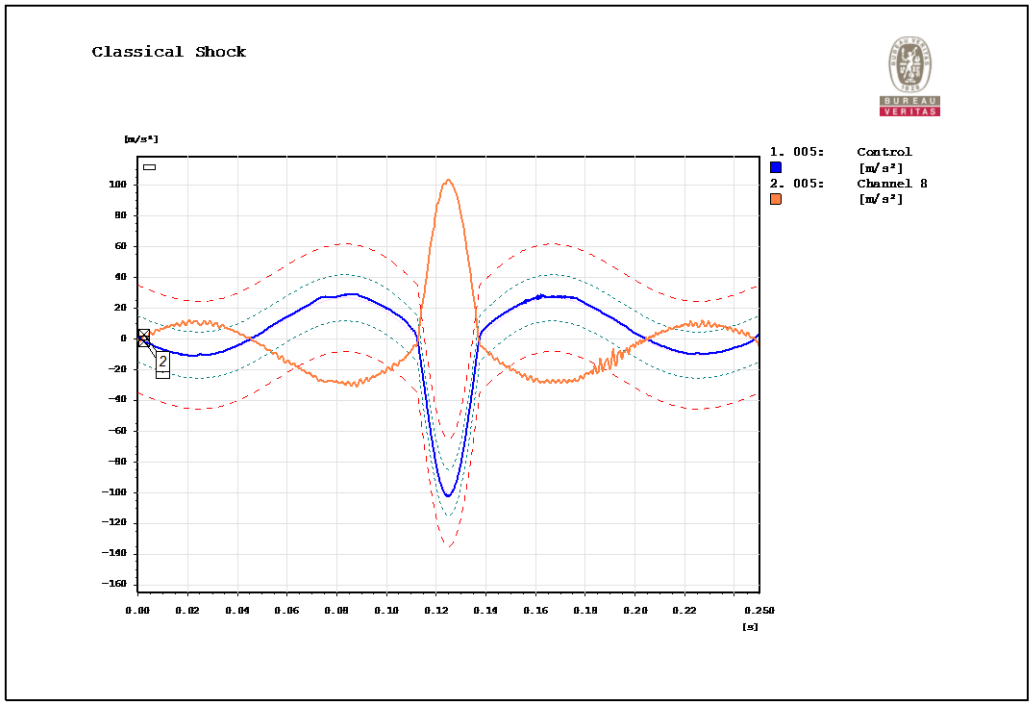
Das Messsignal ist um 180° verdreht dargestellt./The measuring signal is shown with a phase turn of 180°.

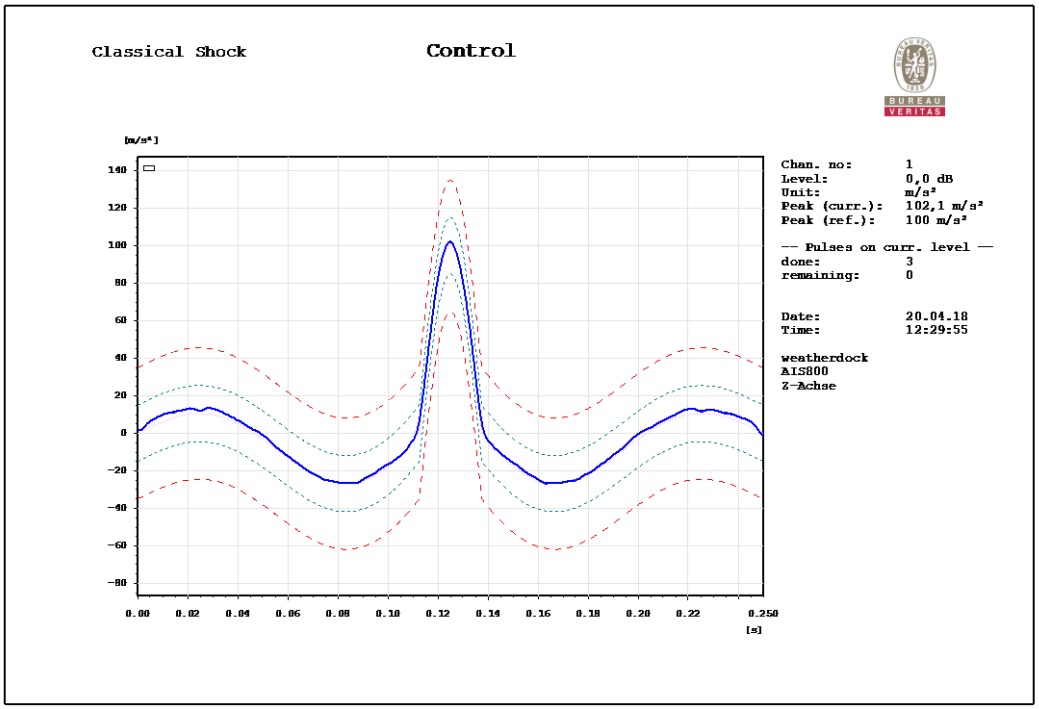
Neg. Y-Achse/Y-Axis negative

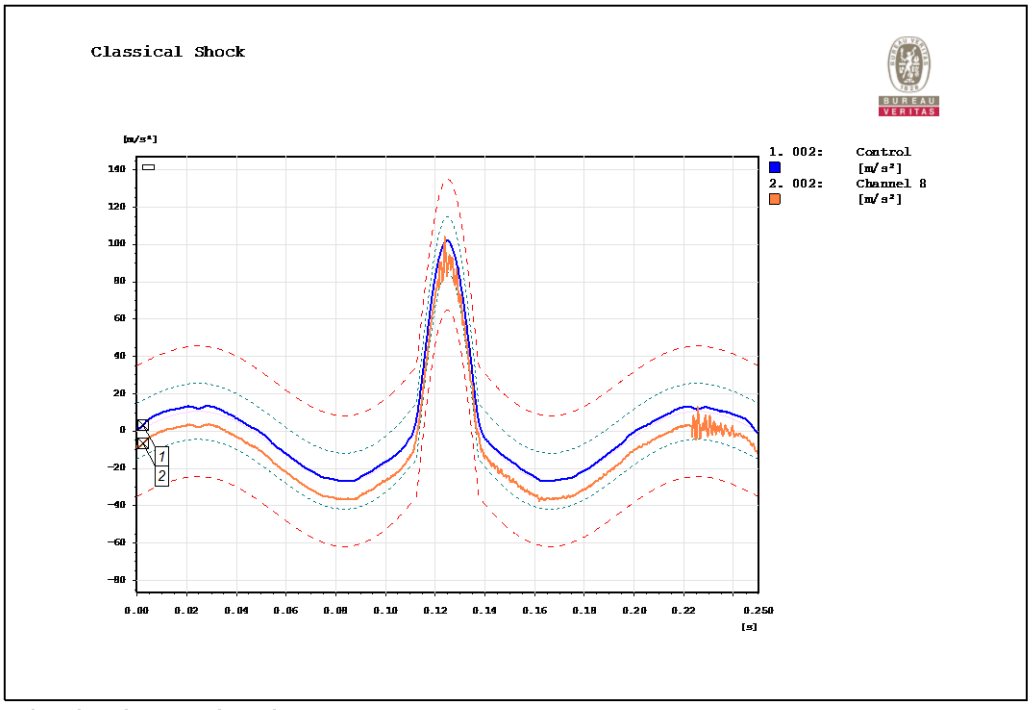




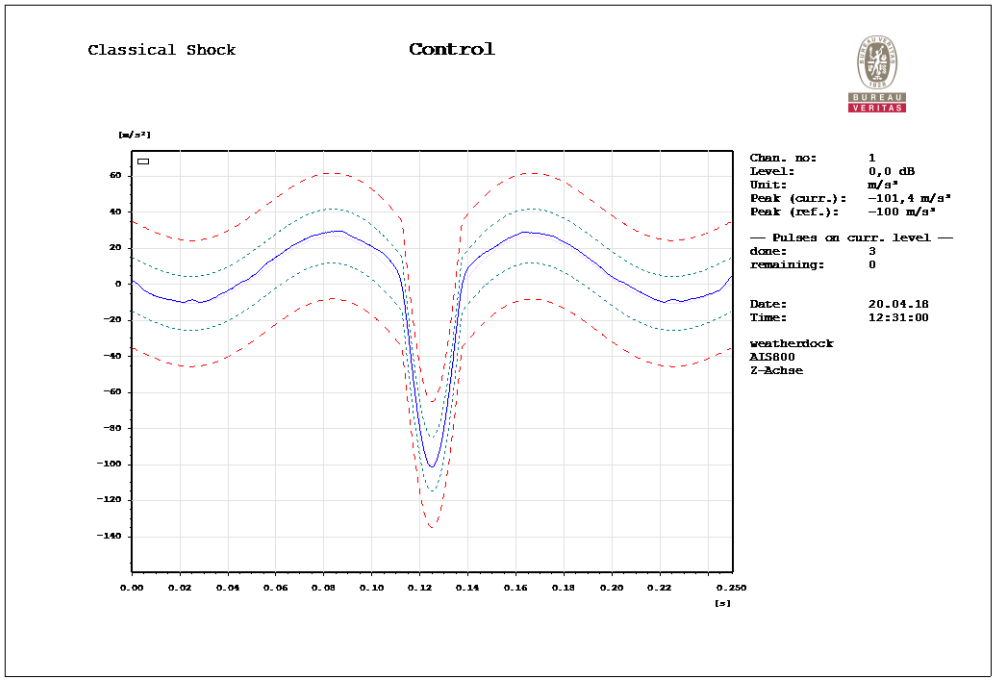
Das Messsignal ist um 180° verdreht dargestellt./The measuring signal is shown with a phase turn of 180°.

Pos. Z-Achse/Z-Axis positive





Neg. Z-Achse/Z-Axis negative



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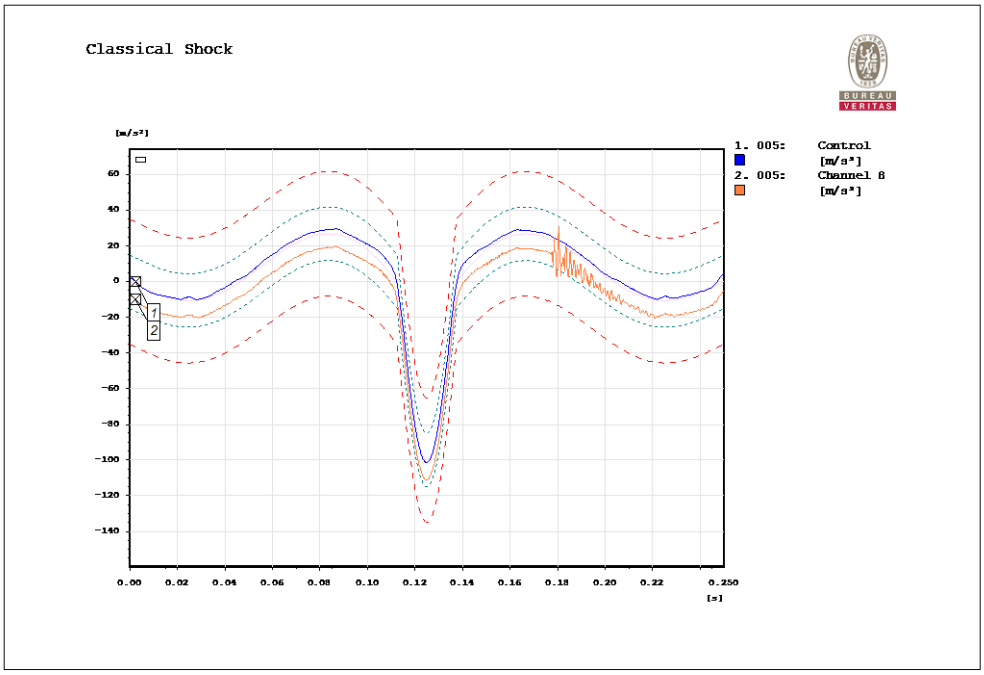

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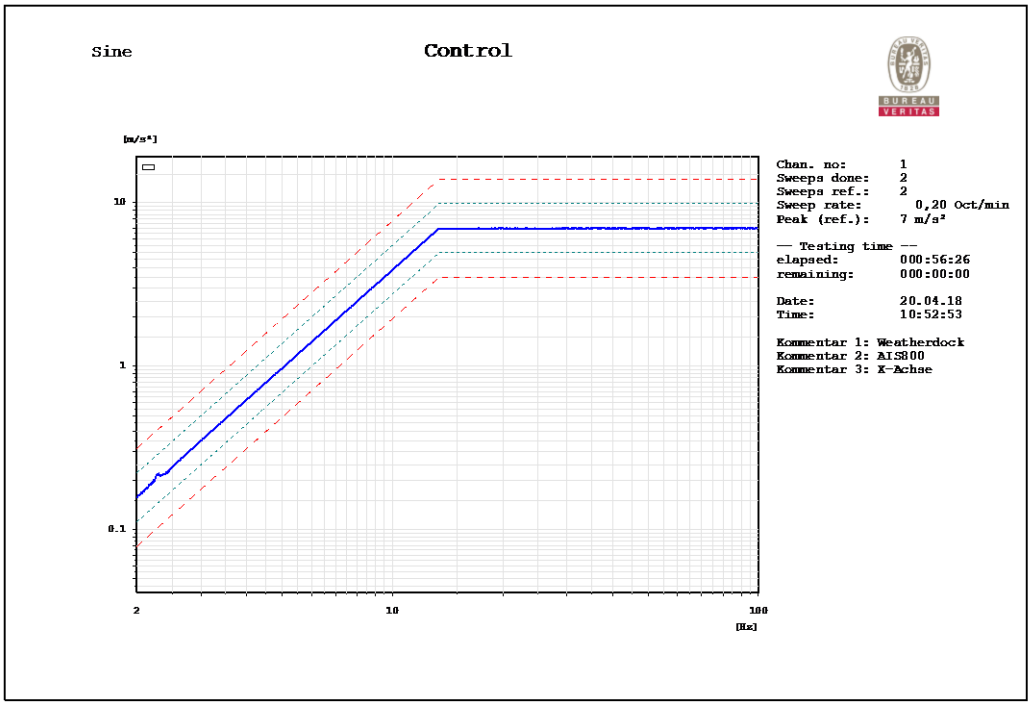
4.3.2.2 **Schwingen/**Vibration

2 Hz … 100 Hz; 0,2 Okt./min;
1 Zyklus;
2 Hz … 13,2 Hz bei ± 1 mm;
13,2 Hz … 100 Hz bei 7 m/s²/
2 Hz … 100 Hz; 0.2 Oct./min;
1 Cycle;
2 Hz … 13.2 Hz at ± 1 mm;
13.2 Hz … 100 Hz at 7 m/s²

X-Achse/X-Axis



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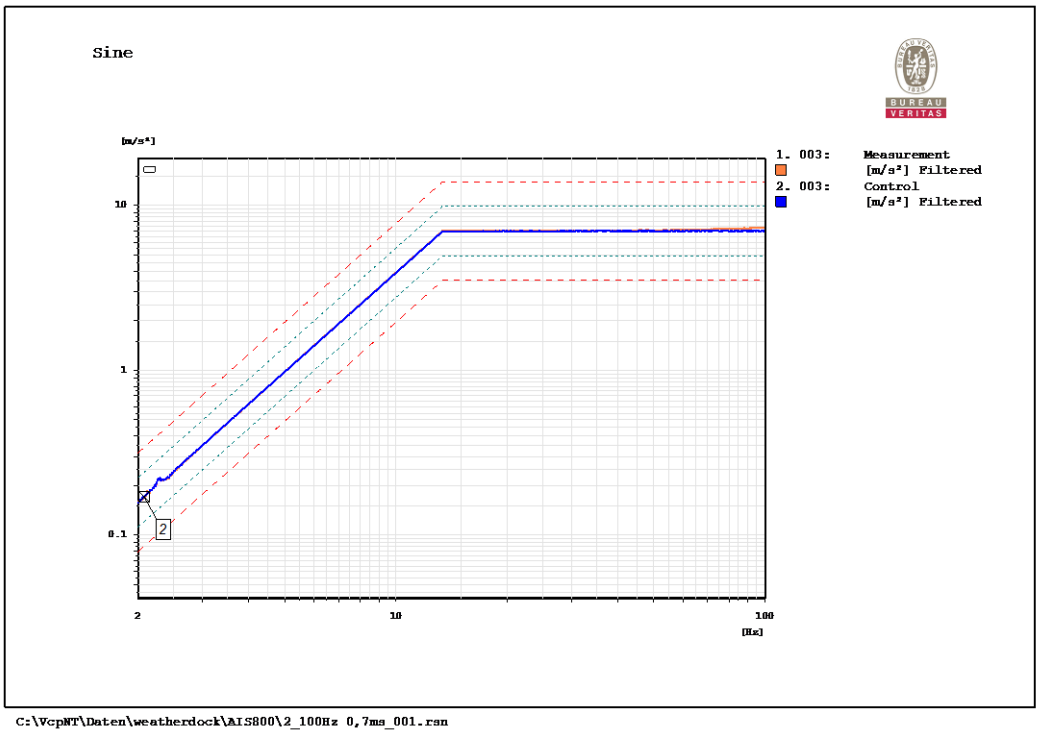

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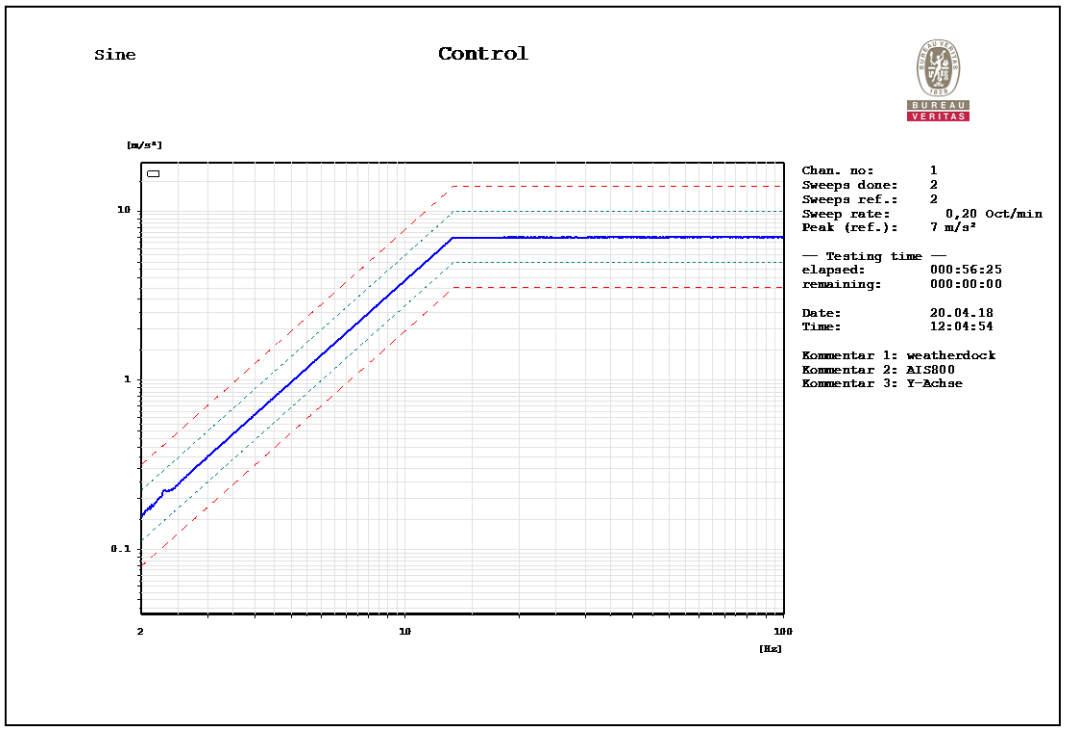
Y-Achse/Y-Axis



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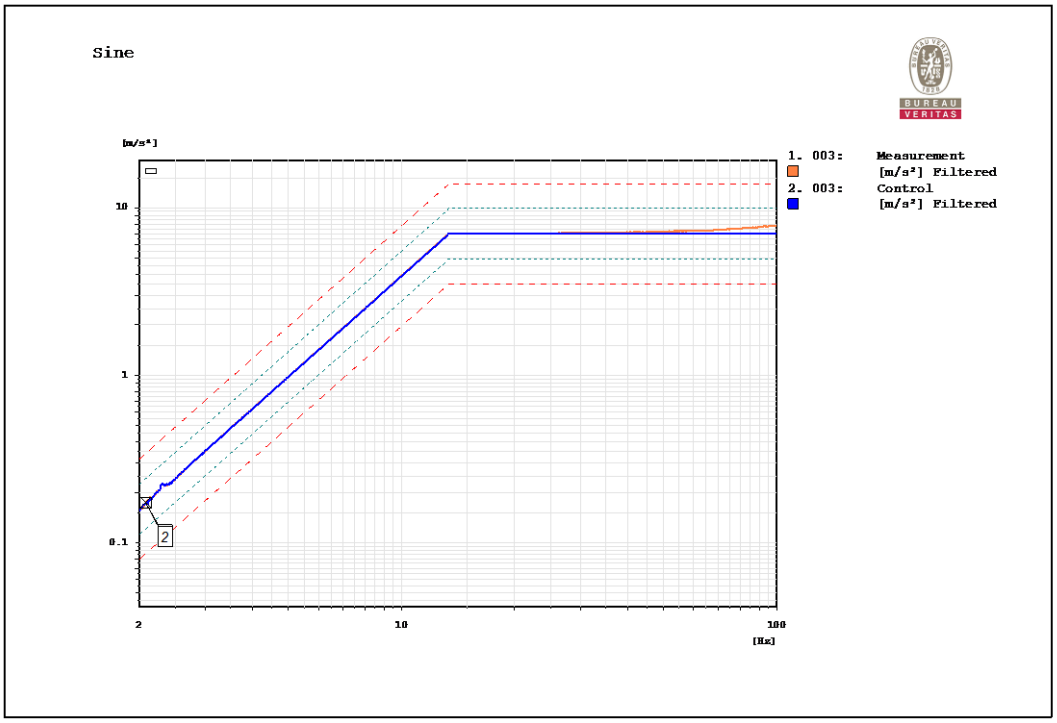

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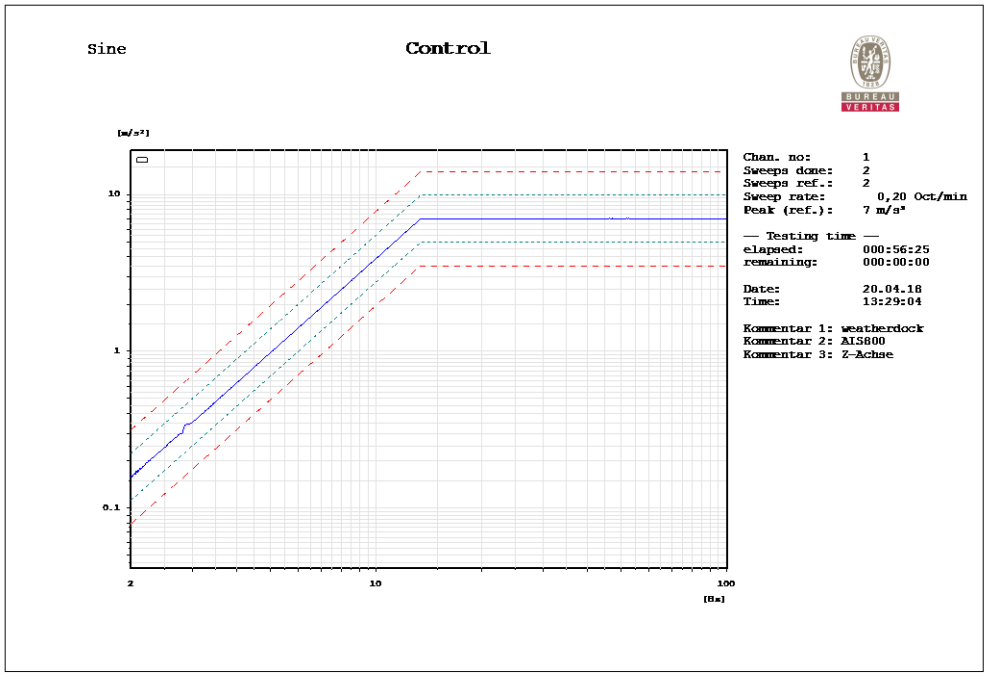
Z-Achse/Z-Axis



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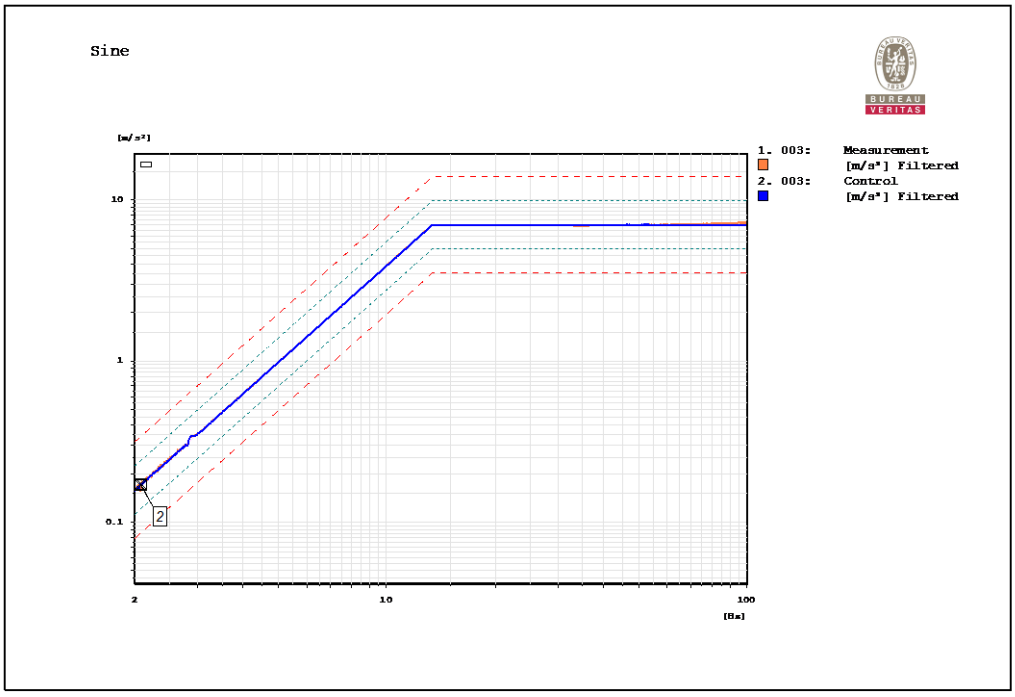

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******** Ende des Prüfberichts *******

****** End of test report *****