AUSTRIAN RESEARCH CENTERS

ACCREDITED TESTING LABORATORY (NR. 32)
for Electromagnetic Compatibility
Notified Body according to EU-Directive 2004/108/EC
FCC listed laboratory (Registration Number: 285819)

TEST REPORT NR. EMV-E 57/07

Subject: **EN 61000-6-1:2001 and**
EN 61000-6-3:2001
detailed results can be found on page 2

Only the standards reffered above are object of this test report. Electro-physical effects of the device under test were not investigated.

Ordered by: **Bachmann & Benisch OEG**

Address: Rudolf-Diesel-Straße 26
2700 Wiener Neustadt
Austria

On: **WetEx Generator**
electro-physical wall dehumidifier

Technical responsibility:

Dipl.-Ing. Kurt Lamedschwandner, M.B.A.

Test performed by:

Ing. Thomas Nakovits

Date: 12th of October 2007

Internal order number: ITM/E-1104

This report contains the pages 1 to 33.

Comments:
The test result refers exclusively to the test subject.
The production or transmission of extracts of the present report is subject to authorisation by the testing laboratory.

1. Summary of all measurements and tests

Emission measurements:

Measurements according to EN 61000-6-3:2001			
Norm. References	Measurement range	Term	Result
EN 55014-1 table 1		Discontinuous interference	n.a.
EN 55022 class B	0.15 MHz - 30 MHz	Conducted voltage emissions	**PASS**
EN 55022 class B	0.15 MHz - 30 MHz	Conducted current emissions	n.a.
EN 55022 class B	30 MHz - 1000 MHz	Radiated emissions	**PASS**
EN 61000-3-2	0 - 2 kHz	Harmonic current emissions	**PASS**
EN 61000-3-3		Voltage fluctuations and flicker	**PASS**

n.a. not applicable
PASS The device under test meets the requirements of the standard

Susceptibility immunity tests:

Tests according to EN 61000-6-1:2001			
Norm. References	Test specifications	Term	Result
EN 61000-4-2	± 4 kV, ± 8 kV	Electrostatic discharge	**PASS**
EN 61000-4-3	3 V/m, 80 MHz - 1000 MHz	Radio-frequency electromagnetic field	**PASS**
EN 61000-4-4	± 1 kV	Fast transients	**PASS**
EN 61000-4-5	± 1 kV, ± 2 kV	Surges	**PASS**
EN 61000-4-6	3 V, 0.15 MHz - 80 MHz	Radio-frequency continuous conducted	**PASS**
EN 61000-4-8	3 A/m, 50 & 60 Hz	Power-frequency magnetic field	**PASS**
EN 61000-4-11	30 %, 60 %, 100 %	Voltage dips and interruptions	**PASS**

n.a. not applicable
PASS The device under test meets the requirements of the standard

2. Contents

3. Results

All measurements and tests were done in “normal operation” mode.

Emissions:

Result of conducted voltage emissions measurements

The device under test fulfils the requirements of the standard EN 55022 class B according to EN 61000-6-3:2001
in the frequency range 0.15 MHz to 30 MHz at the AC mains.

Results of radiated emission measurements

Interpretation of the EMC-Test laboratory Seibersdorf:
All emissions of the test item that were found in precompliance measurements at 3 m test distance above floor absorbers were at least 6 dB below the limit. With reference to the measuring method used, results of a standard compliance measurement on an open-area test site according to CISPR 16-1 can be expected to be below the limits as well.
The device under test fulfils the requirements of the standard EN 55022 class B according to EN 61000-6-3:2001
in the frequency range 30 MHz to 1 GHz.

Result of the harmonic current emissions measurements

The device under test fulfils the requirements of the standard EN 61000-3-2 according to EN 61000-6-3:2001
in the frequency range 0 to 2 kHz at the AC mains.

Result of voltage fluctuations and flicker measurements

The device under test fulfils the requirements of the standard EN 61000-3-3 according to EN 61000-6-3:2001
in the frequency range 0 to 2 kHz at the AC mains.

Susceptibility / immunity tests:

Results of electrostatic discharge immunity tests

The device under test fulfils the requirements of the standard EN 61000-4-2 according to EN 61000-6-1:2001

- contacted discharge: ± 4 kV
- air discharge: ± 8 kV

Applicable failure criterion according to clause 5 of EN 61000-6-1:2001: **B**

Result of the radio-frequency electromagnetic field immunity tests

The device under test fulfils the requirements of the standard EN 61000-4-3 according to EN 61000-6-1:2001

- 3 V/m, modulated with 1 kHz sinewave AM 80%
  in the frequency range 80 to 1000 MHz.

Applicable failure criterion according to clause 5 of EN 61000-6-1:2001: **A**

Result of the fast transients immunity tests

The device under test fulfils the requirements of the standard EN 61000-4-4 according to EN 61000-6-1:2001

- ± 1 kV at the AC mains.

Applicable failure criterion according to clause 5 of EN 61000-6-1:2001: **B**

Result of the surge immunity tests

The device under test fulfils the requirements of the standard EN 61000-4-5 according to EN 61000-6-1:2001

- ± 1 kV line : line and ± 2 kV line : earth at the AC mains.

Applicable failure criterion according to clause 5 of EN 61000-6-1:2001: **B**

Result of the radio-frequency continuous conducted immunity tests

The device under test fulfils the requirements of the standard EN 61000-4-6 according to EN 61000-6-1:2001

- 3 V, modulated with 1 kHz sinewave AM 80%
  in the frequency range: 0.15 MHz to 80 MHz at the AC mains.

Applicable failure criterion according to clause 5 of EN 61000-6-1:2001: **A**

Result of the power-frequency magnetic fields immunity tests

The device under test fulfils the requirements of the standard EN 61000-4-8 according to EN 61000-6-1:2001

- 50 & 60 Hz, 3 A/m.

Applicable failure criterion according to clause 5 of EN 61000-6-1:2001: **A**

Result of voltage dips and voltage interruptions immunity tests

The device under test fulfils the requirements of the standard EN 61000-4-11 according to EN 61000-6-1:2001

- 30 % / 0.5 periods
- 60 % / 5 periods
- 100 % / 250 periods

at the AC mains.

Applicable failure criterion according to clause 5 of EN 61000-6-1:2001:
B (30 % / 0.5 periods)
C (60 % / 5 periods, 100 % / 250 periods)

4. Measurement and test equipment and procedures

Measurement and test uncertainties are within the limits given in the CISPR 16-4-2

4.1 Conducted voltage emissions measurements

Measurement equipment

Reference numbers of test equipment used see in ***annex A***:

10, 32, 62, 67, 74, 76

Measurement procedure and measurement setup

Conducted voltage emission measurements were done inside the shielded high frequency laboratory 1 of the EMC-Test Laboratory Seibersdorf.
Measurement procedure and setup were according to EN 55022.

Measurement parameters

According to:	EN 61000-6-3:2001
Class:	B
Frequency range:	0.15 MHz to 30 MHz
Bandwidth:	9 kHz

Measurements carried out

Measurements were done at the AC mains:

Measurement at	Result
L	Plot 01
N	Plot 02

The above mentioned plots can be found in ***annex C***.

4.2 Radiated emission measurements

Measurement equipment

Reference numbers of test equipment used see in ***annex A***:

10, 36, 61, 67, 69, 76

Measurement procedure and measurement setup

The radiated emission pre-measurements were done inside the shielded anechoic chamber of the EMC-Test Laboratory Seibersdorf.
Measurement procedure and setup were according to the standard EN 55022.

Measurement parameters

According to:	EN 61000-6-3:2001
Class:	B
Frequency range:	30 MHz to 1000 MHz
Bandwidth:	120 kHz
Antenna polarisation:	horizontal and vertical
Test item orientation:	0°/90°/180°/270°

Measurements carried out in the anechoic chamber

Pre-measurements in the anechoic chamber:

Orientation	Polarisation	Results
0°	horizontal	Plot 03
0°	vertical	Plot 04
90°	horizontal	Plot 05
90°	vertical	Plot 06
180°	horizontal	Plot 07
180°	vertical	Plot 08
270°	horizontal	Plot 09
270°	vertical	Plot 10

Interpretation of the EMC-Test laboratory Seibersdorf:
Since all emissions of the device under test that were found in precompliance measurements carried out in the anechoic chamber were at least 6 dB below the limit, the measured results imply that compliance measurements on an open-area test site according to CISPR 16-1 would also yield results below the limits.

The above mentioned plots can be found in ***annex C***.

4.3 Harmonic current emissions and flicker measurements

Measurement equipment

Reference numbers of test equipment used see in ***annex A***:

72

Measurement procedure and test setup

The harmonic current emissions, voltage fluctuations and flicker measurements were done inside the laboratory 2 of the EMC-Test Laboratory Seibersdorf.
Measurement procedure and test setup were according to EN 61000-3-2 and EN 61000-3-3.

According to:	EN 61000-3-2:2006
Table/Class:	1/A
Frequency range:	100 Hz - 2400 Hz

According to: EN 61000-3-3+A1:2001

Measurements carried out

Harmonic current emission measurements:

Measurement at	Result
power supply line	Table 01 Figure 01

Flicker measurements:

Measurement at	Result
power supply line	Table 02

The above mentioned tables and figure can be found on the ***next pages***.

Name:	Ing. Thomas Nakovits	Serial no:	
Department:	ITM / EMV-Prüfzentrum	Operating modes:	normal
Company:	Austrian Research Centers	Comment1:	--
Test report no:		Comment2:	--
Device:	WetEx Generator	Comment3:	--
Specimen:		Comment4:	--
Manufacturer:	EGM	Date:	11.10.2007
Type:		Test date:	04.10.2007

Maximum RMS current and corresponding values in timewindow 43:

Voltage:	229.90 Vrms		THD=0.06 %	THV=0.134 V	POHV=0.028 V	PWHD=0.08 %
Current:	0.007 Arms		THD=0.66 %	THC=0.000 A	POHC=0.000 A	PWHD=2.57 %
Power:	0.0 W	P1=0.0 W	1.7 VA			
Powerfactor:	0.008	CosPhi1: 0.007				

Testconditions: EN 61000-3-2:2006, f=50 Hz, Phase=L1, Range=0.16 A
Timewindow cycles=10/12 (200ms), Grouping of harmonics=on

HARMONIC ANALYSIS: Test PASS
Tobs = entire measurement; POHC: avg=0.00 A, limits=0.25 A

Ha	Entire measurement (1.0 min = 300 time windows)							Worst 2.5 min		Average		PASS	FAIL
	Maximum	Window	EN61000-3-2 Class A	Margin in MaxWin	100 to 150%	150 to 200%	Exceeded	100 to 150%	Exceeded	Value	Exceeded		
DC	0.0001 A	93	-.----	---.-	0	0	0	n.e.	n.e.	0.0001 A	0	X	
1	0.0073 A	43	-.----	---.-	0	0	0	n.e.	n.e.	0.0073 A	0	X	
2	0.0000 A	300	1.0800 A	-100.0 %	0	0	0	n.e.	n.e.	0.0000 A	0	X	
3	0.0000 A	38	2.3000 A	-100.0 %	0	0	0	n.e.	n.e.	0.0000 A	0	X	
4	0.0000 A	175	0.4300 A	-100.0 %	0	0	0	n.e.	n.e.	0.0000 A	0	X	
5	0.0000 A	4	1.1400 A	-100.0 %	0	0	0	n.e.	n.e.	0.0000 A	0	X	
6	0.0000 A	7	0.3000 A	-100.0 %	0	0	0	n.e.	n.e.	0.0000 A	0	X	
7	0.0000 A	276	0.7700 A	-100.0 %	0	0	0	n.e.	n.e.	0.0000 A	0	X	
8	0.0000 A	272	0.2300 A	-100.0 %	0	0	0	n.e.	n.e.	0.0000 A	0	X	
9	0.0000 A	143	0.4000 A	-100.0 %	0	0	0	n.e.	n.e.	0.0000 A	0	X	
10	0.0000 A	92	0.1840 A	-100.0 %	0	0	0	n.e.	n.e.	0.0000 A	0	X	
11	0.0000 A	135	0.3300 A	-100.0 %	0	0	0	n.e.	n.e.	0.0000 A	0	X	
12	0.0000 A	132	0.1533 A	-100.0 %	0	0	0	n.e.	n.e.	0.0000 A	0	X	
13	0.0000 A	150	0.2100 A	-100.0 %	0	0	0	n.e.	n.e.	0.0000 A	0	X	
14	0.0000 A	58	0.1314 A	-100.0 %	0	0	0	n.e.	n.e.	0.0000 A	0	X	
15	0.0000 A	204	0.1500 A	-100.0 %	0	0	0	n.e.	n.e.	0.0000 A	0	X	
16	0.0000 A	193	0.1150 A	-100.0 %	0	0	0	n.e.	n.e.	0.0000 A	0	X	
17	0.0000 A	91	0.1324 A	-100.0 %	0	0	0	n.e.	n.e.	0.0000 A	0	X	
18	0.0000 A	202	0.1022 A	-100.0 %	0	0	0	n.e.	n.e.	0.0000 A	0	X	
19	0.0000 A	111	0.1184 A	-100.0 %	0	0	0	n.e.	n.e.	0.0000 A	0	X	
20	0.0000 A	261	0.0920 A	-100.0 %	0	0	0	n.e.	n.e.	0.0000 A	0	X	
21	0.0000 A	218	0.1071 A	-100.0 %	0	0	0	n.e.	n.e.	0.0000 A	0	X	
22	0.0000 A	81	0.0836 A	-100.0 %	0	0	0	n.e.	n.e.	0.0000 A	0	X	
23	0.0000 A	208	0.0978 A	-100.0 %	0	0	0	n.e.	n.e.	0.0000 A	0	X	
24	0.0000 A	155	0.0767 A	-100.0 %	0	0	0	n.e.	n.e.	0.0000 A	0	X	
25	0.0000 A	123	0.0900 A	-100.0 %	0	0	0	n.e.	n.e.	0.0000 A	0	X	
26	0.0000 A	250	0.0708 A	-100.0 %	0	0	0	n.e.	n.e.	0.0000 A	0	X	
27	0.0000 A	35	0.0833 A	-100.0 %	0	0	0	n.e.	n.e.	0.0000 A	0	X	
28	0.0000 A	251	0.0657 A	-100.0 %	0	0	0	n.e.	n.e.	0.0000 A	0	X	
29	0.0000 A	159	0.0776 A	-100.0 %	0	0	0	n.e.	n.e.	0.0000 A	0	X	
30	0.0000 A	192	0.0613 A	-100.0 %	0	0	0	n.e.	n.e.	0.0000 A	0	X	
31	0.0000 A	244	0.0726 A	-100.0 %	0	0	0	n.e.	n.e.	0.0000 A	0	X	
32	0.0000 A	162	0.0575 A	-100.0 %	0	0	0	n.e.	n.e.	0.0000 A	0	X	
33	0.0000 A	252	0.0682 A	-100.0 %	0	0	0	n.e.	n.e.	0.0000 A	0	X	
34	0.0000 A	229	0.0541 A	-100.0 %	0	0	0	n.e.	n.e.	0.0000 A	0	X	
35	0.0000 A	203	0.0643 A	-100.0 %	0	0	0	n.e.	n.e.	0.0000 A	0	X	
36	0.0000 A	5	0.0511 A	-100.0 %	0	0	0	n.e.	n.e.	0.0000 A	0	X	
37	0.0000 A	192	0.0608 A	-100.0 %	0	0	0	n.e.	n.e.	0.0000 A	0	X	
38	0.0000 A	246	0.0484 A	-100.0 %	0	0	0	n.e.	n.e.	0.0000 A	0	X	
39	0.0000 A	86	0.0577 A	-100.0 %	0	0	0	n.e.	n.e.	0.0000 A	0	X	
40	0.0000 A	207	0.0460 A	-100.0 %	0	0	0	n.e.	n.e.	0.0000 A	0	X	

Geprüft mit EMC test software V 2.4b / PAS5000 von Spitzenberger + Spies GmbH & Co. KG, Schmidstr 32-34, D-94234 Viechtach, 04.10.2007

Table 01

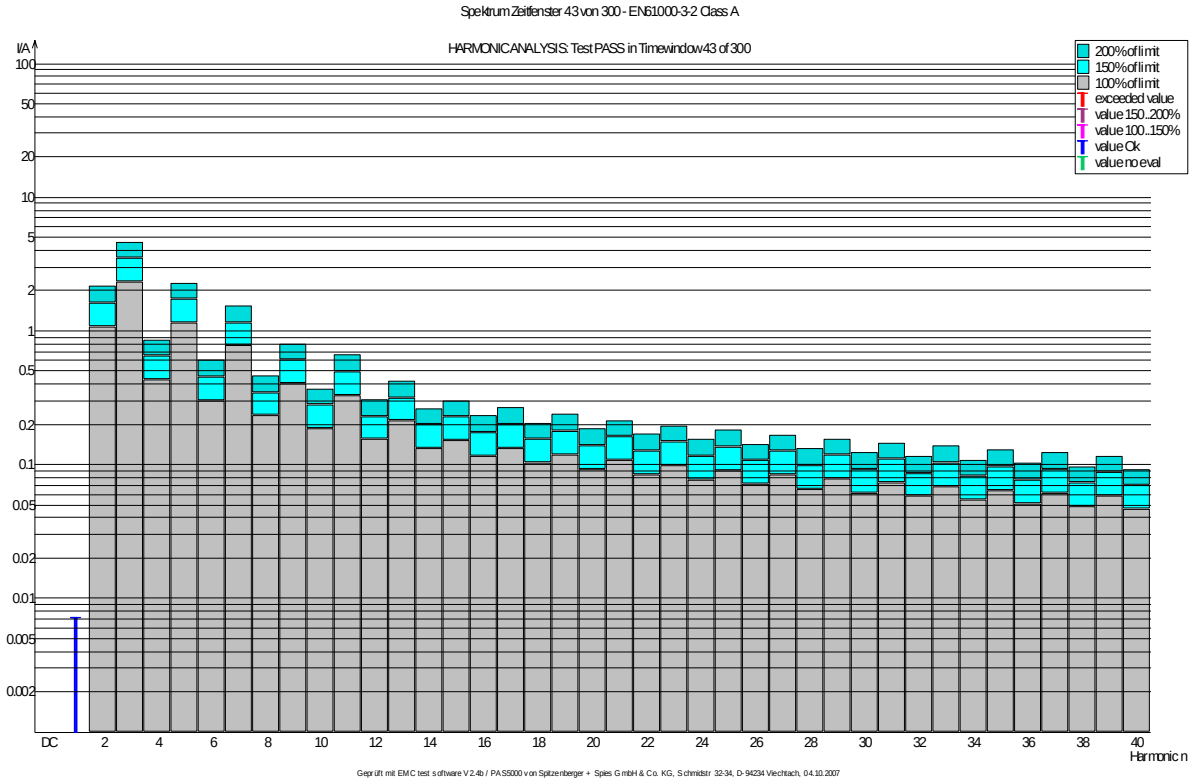


Figure 01

Name:	Ing. Thomas Nakovits	Serial no:	
Department:	ITM / EMV-Prüfzentrum	Operating modes:	normal
Company:	Austrian Research Centers	Comment1:	--
Test report no:		Comment2:	--
Device:	WetEx Generator	Comment3:	--
Specimen:		Comment4:	--
Manufacturer:	EGM	Date:	11.10.2007
Type:		Test date:	04.10.2007

Testconditions: EN61000-3-3:1995+A1+A2 / 230 V / 50 Hz / Phase L1 / Obs 1 x 5 min / Ztest (0.400+j0.25

FLICKER: Test PASS!

Time	Pmax	Pst	Sliding Plt	d(t)>3.30% [s]	dmax [%]	dc [%]	PASS	FAIL
11:17:56	0.000	0.0050	-.----	0.000	0.018	-.---	X	
Limits:		1.000	0.650	0.500	4.000	3.300		
Plt: 0.005000								
Evaluated: PST								

FLICKER: Source test PASS!

Time	Pmax	Pst	Sliding Plt	d(t)>3.30% [s]	dmax [%]	dc [%]	PASS	FAIL
11:17:56	0.000	0.0050	-.----	0.000	0.024	-.---	X	
Plt: 0.005000								
Evaluated: PST <= 0.4 dmax < 20% dmax1								

Geprüft mit EMC test software V2.4b / PASS000 von Spitzenberger + Spies GmbH & Co. KG, Schmidstr 32-34, D-94234 Viechtach, 04.10.2007

Table 02

4.4 Electrostatic discharge immunity tests

Test equipment

Reference numbers of test equipment used see in ***annex A***:

22

Test procedure and test setup

The electrostatic discharge immunity tests were done inside the shielded high frequency laboratory 1 of the EMC-Test Laboratory Seibersdorf.
Test procedure and setup were according to the standard IEC 61000-4-2.

Test parameters

According: EN 61000-6-1:2001
Amplitude: ± 4 kV contact discharge
± 8 kV air discharge

Tests carried out

Contact discharge:

Test point at	Amplitude	Results
all metalic parts	± 4 kV	PASS
power connector	± 4 kV	PASS

Air discharge:

Test point at	Amplitude	Results
case, all sides	± 8 kV	PASS
display	± 8 kV	PASS

4.5 Radio-frequency electromagnetic field immunity tests

Test equipment

Reference numbers of test equipment used see in ***annex A***:

10, 20, 36, 46, 55, 64, 68, 69, 77

Test procedure and test setup

The radio-frequency electromagnetic field immunity tests were done inside the shielded anechoic chamber of the EMC-Test Laboratory Seibersdorf.
Test procedure and setup were according to EN 61000-4-3.

Test parameters

According:	EN 61000-6-1:2001
Frequency range:	80 MHz to 1000 MHz
Test field strength:	3 V/m
Modulation:	1 kHz sinewave AM 80%
Polarisation:	horizontal and vertical
Orientation:	0°/90°/180°/270°

Tests carried out

Tests in the anechoic chamber:

Orientation	Polarisation	Results
0°	horizontal	PASS
0°	vertical	PASS
90°	horizontal	PASS
90°	vertical	PASS
180°	horizontal	PASS
180°	vertical	PASS
270°	horizontal	PASS
270°	vertical	PASS

4.6 Fast transients immunity tests

Test equipment

Reference numbers of test equipment used see in ***annex A***:

23

Test procedure and test setup

The fast transients immunity tests were done inside the shielded high frequency laboratory 1 of the EMC-Test Laboratory Seibersdorf.
Test procedure and setup were according to EN 61000-4-4.

Test parameters

According:	EN 61000-6-1:2001
Amplitude:	± 1 kV AC power supply lines
Repetition rate:	5 kHz
Impulses:	5/50 ns
Duration:	1 minute

Tests carried out

Tests performed with coupling filter:

Test at		Amplitude	Results
230 V AC power supply lines	L, N, L&N	± 1 kV	PASS

4.7 Surges immunity tests

Test equipment

Reference numbers of test equipment used see in ***annex A***:

23

Test procedure and test setup

The surges immunity tests were done inside the shielded high frequency laboratory 1 of the EMC-Test Laboratory Seibersdorf.
Test procedure and setup were according to EN 61000-4-5.

Test parameters

According:	EN 61000-6-1:2001
Amplitude:	± 2 kV Line : GND
Coupling:	18 µF
Amplitude:	± 1 kV Line : Line
Coupling:	10 Ω / 9 µF
Repetition rate:	10 alternating (5 positive, 5 negative)
Recovery time:	50 s
Impulse:	1.2/50 µs

Tests carried out

Tests performed with coupling filter at the AC mains:

Test at		Amplitude	Results
AC main	N : GND	± 2 kV	PASS
AC main	L : GND	± 2 kV	PASS
AC main	L : N	± 1 kV	PASS

4.8 Radio-frequency continuous conducted immunity tests

Test equipment

Reference numbers of test equipment used see in ***annex A***:

10, 20, 35, 48, 54, 63, 68, 77

Test procedure and test setup

The radio-frequency continuous conducted immunity tests were done inside the shielded high frequency laboratory 1 of the EMC-Test Laboratory Seibersdorf.
Test procedure and setup were according to EN 61000-4-6.

Test Parameters

According:	EN 61000-6-1:2001
Frequency range:	0.15 MHz to 80 MHz
Voltage level:	3 V
Modulation:	1 kHz sinewave AM 80 %

Tests carried out

Tests performed with CDN:

Test at	Results
230 V AC power supply lines	Pass

4.9 Power-frequency magnetic fields immunity tests

Test equipment

Reference numbers of test equipment used see in ***annex A***:

43, 72

Test procedure and test setup

The power-frequency magnetic fields immunity tests were done inside the laboratory 2 of the EMC-Test Laboratory Seibersdorf.
Test procedure and setup were according to EN 61000-4-8.

Test parameters

According:	EN 61000-6-1:2001
Frequency:	50 & 60 Hz
Test field:	3 A/m

Tests carried out

Orientation	Result
X	PASS
Y	PASS
Z	PASS

4.10 Voltage dips and interruptions immunity tests

Test equipment

Reference numbers of test equipment used see in ***annex A***:

72

Test procedure and test setup

The voltage dips, short interruptions and voltage variations immunity tests were done inside the laboratory 2 of the EMC-Test Laboratory Seibersdorf.
Test procedure and test setup were according to EN 61000-4-11.

Test parameters

Voltage dips:

According: EN 61000-6-1:2001
Reduction / Duration: 30 % / 0.5 periods
Reduction / Duration: 60 % / 5 periods

Voltage interruptions:

According: EN 61000-6-1:2001
Reduction / Duration: 100 % / 250 periods

Tests carried out

Voltage dips:

Reductions	Periods	Results
30 %	0.5	PASS
60 %	5	PASS

Voltage interruptions:

Reductions	Periods	Results
100 %	250	PASS

5. Additional informations

5.1. Device under Test (DUT)

DUT:	**WetEx Generator** Model: R14 electro-physical wall dehumidifier
Item Number:	2007003
Hardware Rev.:	3807
Software Version:	n.a.
Serial number:	7032
Supply voltage:	230 V AC
Year of Manufacturing:	2007
Manufacturer:	**Bachmann & Benisch OEG**
Address:	Rudolf-Diesel-Strasse 26 A-2700 Wiener Neustadt Austria
Description:	The DUT is a wireless system for the drying out of building walls.
Product homepage:	http://www.wet-ex.eu/
Configuration:	During the measurements and tests no ancillary components / devices were additionally mounted / connected at/to the DUT.

5.2. Test configuration

The DUT was mounted by Mr. Benisch, Bachmann & Benisch OEG, on the turntable in the anechoic chamber, in the high frequency laboratory 1 and the laboratory 2 of the EMC-Test Laboratory Seibersdorf.

5.3. Function monitoring:

The proper function of the DUT was ensured by observing the LED and the counter on the front panel with a video camera.

Applicable failure criterion according to clause 5 of EN 61000-6-1:2001

5.4. Standards

Emission:

EN 61000-6-3:2001
Electromagnetic compatibility (EMC)
Part 6-3: Generic standards -
Emission standard for residential, commercial and light-industrial enviroments

Susceptibility / Immunity:

EN 61000-6-1:2001
Electromagnetic compatibility (EMC)
Part 6-1: Generic standards -
Immunity for for residential, commercial and light-industrial enviroments

5.5. Date and location of the measurements and tests

Date:	Measurements and tests were performed on the 14th of August 2007 in the presence of Mr. Benisch, Bachmann & Benisch OEG.
Location:	Anechoic chamber, high frequency laboratory 1 and laboratory 2 of the EMC-Test Laboratory Seibersdorf.

Test performed by:

Ing. Thomas Nakovits

Annex A

Measurement and test equipment used

To facilitate inclusion on each page of the test equipment used for related tests, each item of test equipment and ancillaries such as cables are identified (numbered) by the Test Laboratory.

Test Equipment and ancillaries used for tests:

Last update: 30.06.2007

N°	Instrument / Ancillary	Type	Manufacturer	Serial No	ID-No
1	Spectrum Analyzer	8566B	HP	2637A03869	E0100
2	Spectr. Analyzer Display	8566B	HP	2648A13827	E0101
3	Quasi - Peak Adapter	85650A	HP	2521A00861	E0102
4	Spectrum Analyzer	85680B	HP	3138A05505	E0104
5	Spectr. Analyzer Display	85662A	HP	3144A20395	E0105
6	Quasi-Peak Adapter	85650A	HP	3145A01605	E0106
7	RF Preselector	85685A	HP	3146A01305	E0107
8	Spectrum Analyzer	85422E	HP	3549A0016	E0113
9	RF Preselector	85420E	HP	3427A0014	E0114
10	Test Receiver	ESIB26	R & S	100136	E0127
11	Digital Oszilloscope	TDS 684B	Tektronix	B010314	E0136
12	Power Meter	436A	HP	2515U0351	E0140
13	Power Sensor	8481H	HP	2349A08053	E0141
14	Audio Analyzer	UPA 3	R & S	894027/028	E0170
15	Test Receiver	ESH3	R & S	881364/005	E0171
16	Modulation Analyzer	FMA	R & S	825630/0006	E0173
17	Signal Generator	SMG	R & S	883056/082	E0210
18	Signal Generator	SMH	R & S	862490/013	E0211
19	Signal Generator	SMT 03	R & S	834665/00	E0212
20	Signal Generator	E8257D	Agilent	MY44320151	E0217
21	Functionsgenerator AFS	AFS	R & S	829719	E0231
22	Impulse Tester System	ESD30C	EM Test AG	V0539100755	E0323
23	Burst-, Surge-, Power-Fail Generator	UCS 500 M6B	EM Test AG	V0642101869	E0333
24	Audiotransformator	6220-1A	Solar		E0401
25	R.F. Capacitor (10 MFD)	6512-106R	Solar		E0403
26	Coupling Clamp	FCC F-35-1	Fischer	52	E0409
27	Coupling Clamp	FCC F-50	Fischer	89	E0411
28	Audio Power Amplifier 100 W	6552-1A	Solar	943310	E0416
29	LISN (KFZ/Mil)	6338-5-TS-50N	Solar	950141	E0417
30	LISN (KFZ/Mil)	6338-5-TS-50N	Solar	950142	E0418
31	Coupling Clamp	9144-1N	Solar	935716	E0422
32	LISN (1~)	ESH3-Z5	R & S	861189/007	E0500
33	LISN (1~)	ESH3-Z5	R & S	831.5518.52	E0502
34	LISN (3~)	ESH2-Z5	R & S	890485/015	E0503
35	CDN	M3	MEB		E0512
36	BILOG Antenna	CBL6112A	Chase	2230	E0517
37	Biconical Antenna	3109	EMCO	2230	E0520
38	Log periodic Antenna	3146	EMCO	1575	E0530
39	Hornantenna	3115	EMCO	9808-5569	E0567
40	Active electric field antenna	3301	EMCO	2471	E0576
41	Active Loop	HFH2-Z2	R & S	891847/0013	E0578
42	Absorbt. -mess. -clamp	MDS 21	R & S	890683/014	E0590
43	Helmholtz Frame	DC-200Hz	ARCS		E0591
44	Shielded Spool		ARCS		E0691

Test Equipment and ancillaries used for tests continued:

N°	Instrument / Ancillary	Type	Manufacturer	Serial No	ID-No
45	Power Amplifier (-220M)	2000 LA	AR	11620	E0700
46	Power Amplifier (-1G)	500W1000M7	AR	14719	E0712
47	Power Amplifier (-4,2G)	AR50S1G4	AR	27947	E0717
48	Power Amplifier (-100M)	500A100A	AR	301583	E0718
49	Amplifier (-18G)	TWAL 0418-20	Bonn	025112	E0719
50	Amplifier	ZHL-1042J	Avantek	NO 21593	E0726
51	Amplifier	ZHL-42	Avantek	010 991-2	E0727
52	Amplifier	AFT-8463	Avantek	Y286	E0728
53	Amplifier	DBL-0218N308	Narda	018 0217	E0736
54	Directional Coupler	DC 2000	AR	9397/1673	E0800
55	Directional Coupler	DC 6280	AR	14627	E0816
56	Directional Coupler	DC 7144	AR	27686	E0821
57	Splitter A (180°,BNC, 1W)	ZFSCJ-2-1	Mini Circuits	8617 02	E0840
58	Splitter B (180°,BNC, 1W)	ZFSCJ-2-1	Mini Circuits	8632 04	E0841
59	Splitter	ZFSC-3-4	Mini Circuits	9424 02	E0844
60	Set 4		ARCS		E0865
61	Set 7		ARCS		E0866
62	Set 9		ARCS		E0867
63	Set CS		ARCS		E0897
64	Set RS		ARCS		E0898
65	Set 3		ARCS		E0899
66	Emi Software	HP85869A	HP		E0900
67	EMC32 Emi Software	V 6.10.10	R & S	100044	E0903
68	ArcsSus Test Software	V 1.5.3	ARCS		E0913
69	Anechoic Chamber		ARCS		E1000
70	Open area test side		ARCS		E1010
71	Stripline	StrL1	ARCS		E1023
72	Comp.contr.meas.system	EMCE5000/PAS	Spitz.&Spies		E1040
73	Automotive Test Generator	LD, MPG, EFT, CNA, VDS	EM Test		E1050
74	Impuls Limiter	ESH3-Z2	R&S	34418	E1150
75	Hornantenna	AT4002A	AR		E1601
76	PC	Optiplex 745	Dell		C3TM02
77	PC	Optiplex GX280	Dell	9FkJH1J	
78	Temp. Chamber	300/40D	Weiß	512	

Annex B

Photos

of the DUT and the configuration

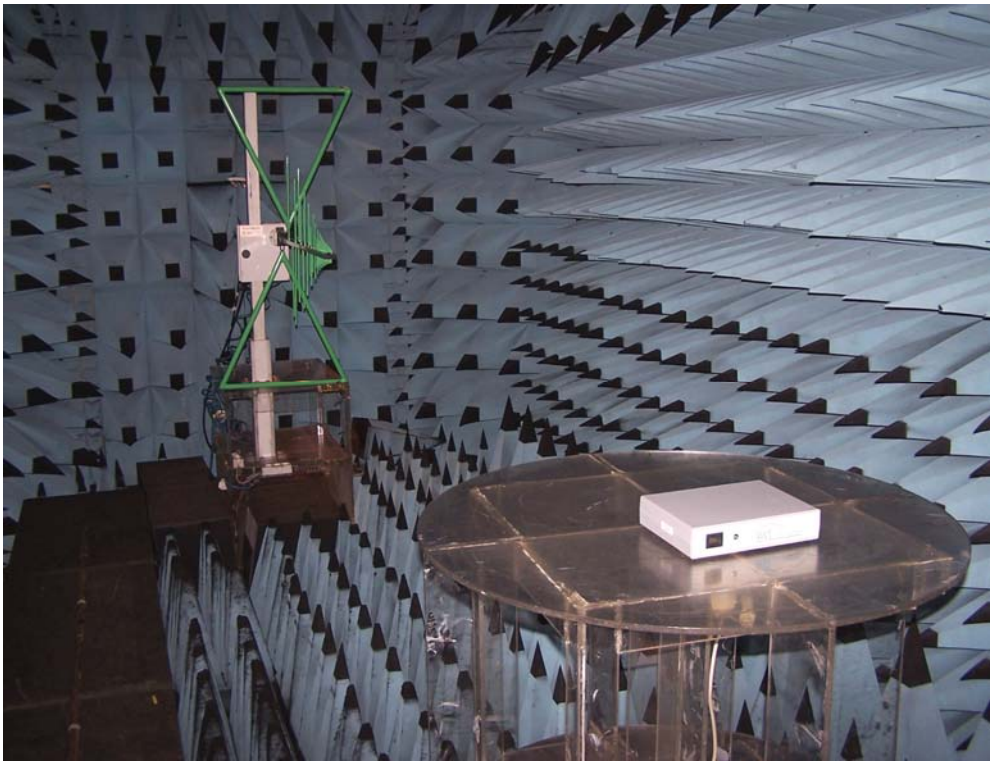


Photo 1: Test setup in the anechoic chamber,
radiated emission measurements

Photo 2: Test setup in the shielded high frequency laboratory 1,
conducted emission measurements

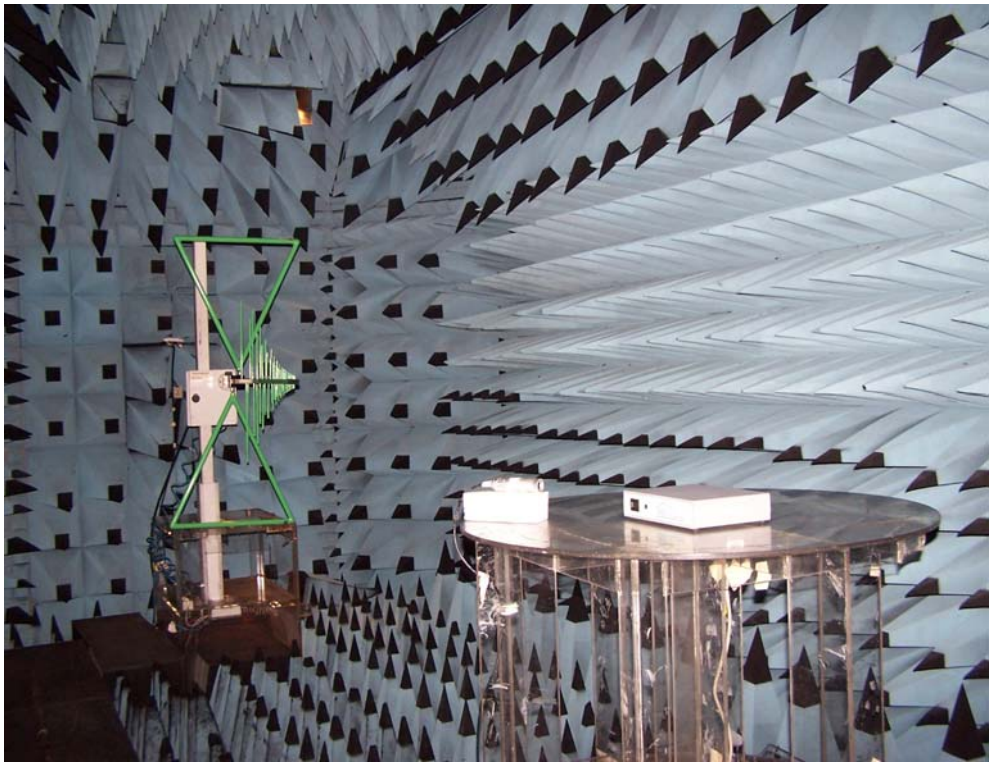


Photo 3: Test setup in the anechoic chamber,
Radio-frequency electromagnetic field immunity tests

Photo 4: Test setup in the shielded high frequency laboratory 1,
Radio-frequency continuous conducted immunity tests

Photo 5: Test setup in the shielded high frequency laboratory 1,
Burst and Surge immunity tests

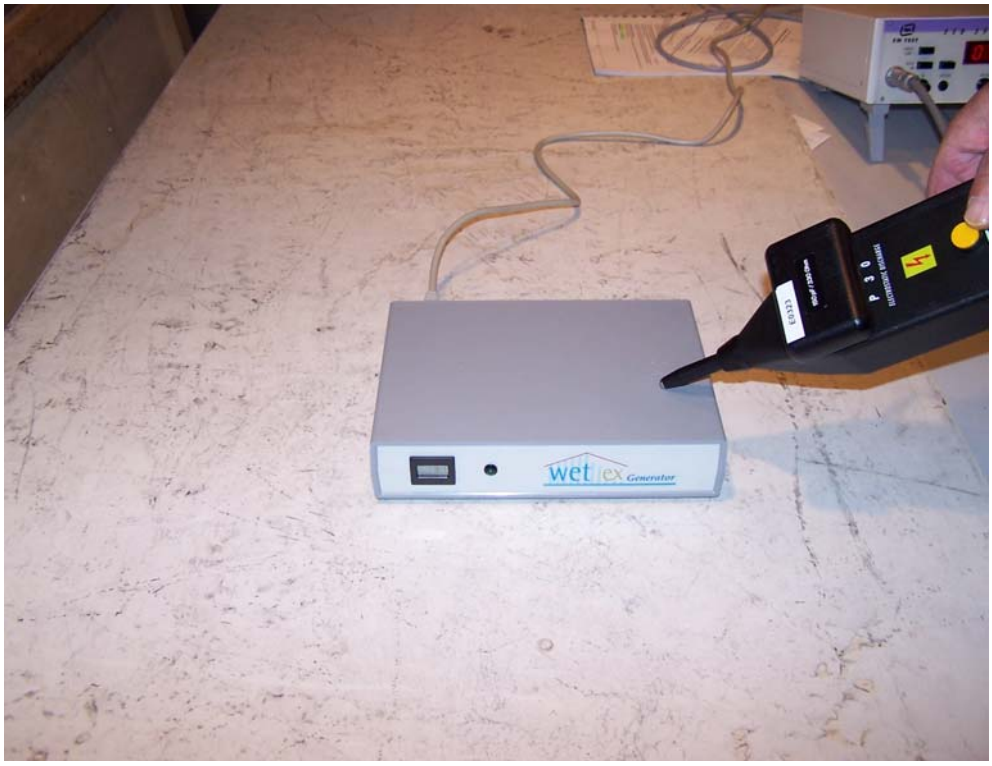


Photo 6: Test setup in the shielded high frequency laboratory 1,
Electrostatic discharge immunity tests

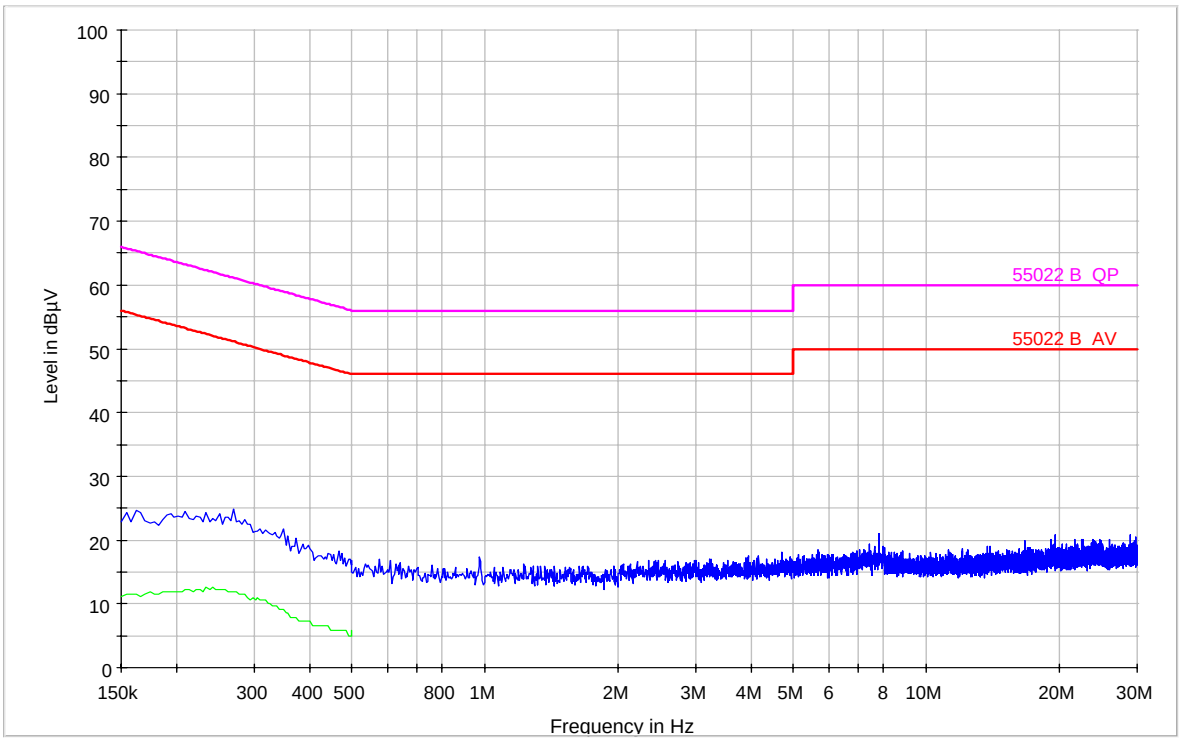
Photo 7: Test setup in the laboratory 2,
voltage dips and interruptions immunity tests,
harmonic current emissions and flicker measurements

Photo 8: Test setup in the laboratory 2,
power-frequency magnetic field immunity tests

Annex C

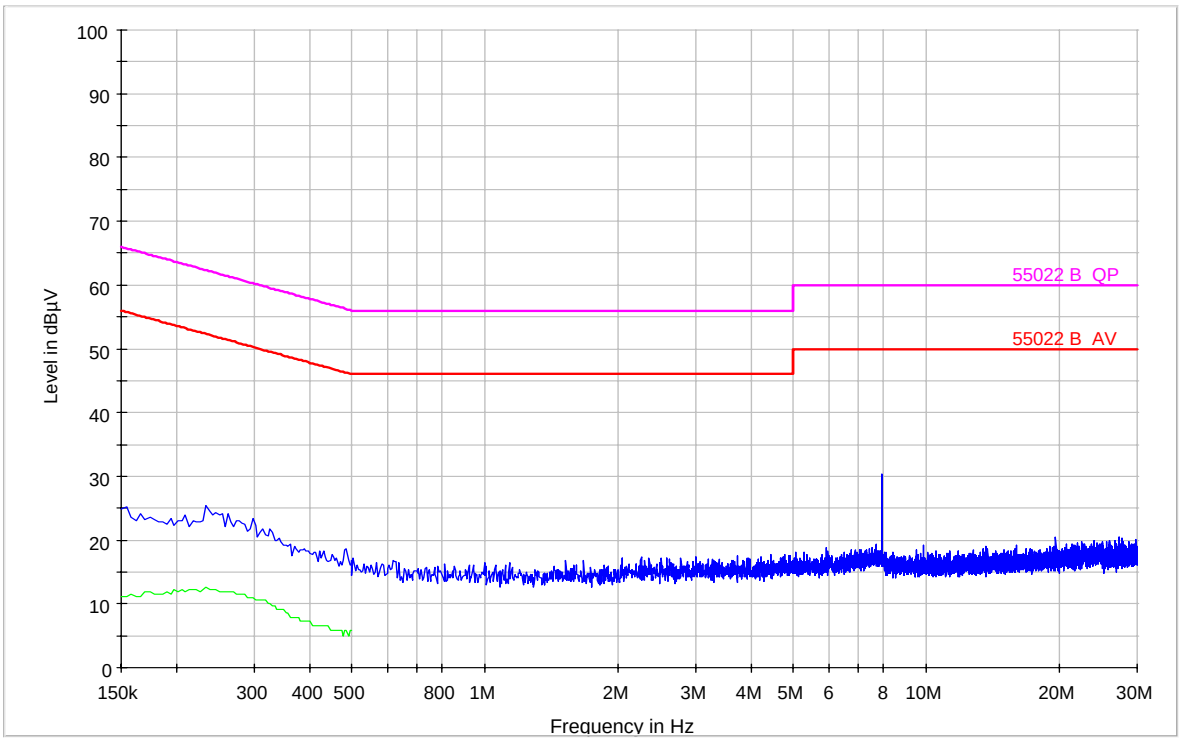
Plots of the emission measurements

conducted emissions in the frequency range 0.15 to 30 MHz
radiated emissions in the frequency range 30 to 1000 MHz



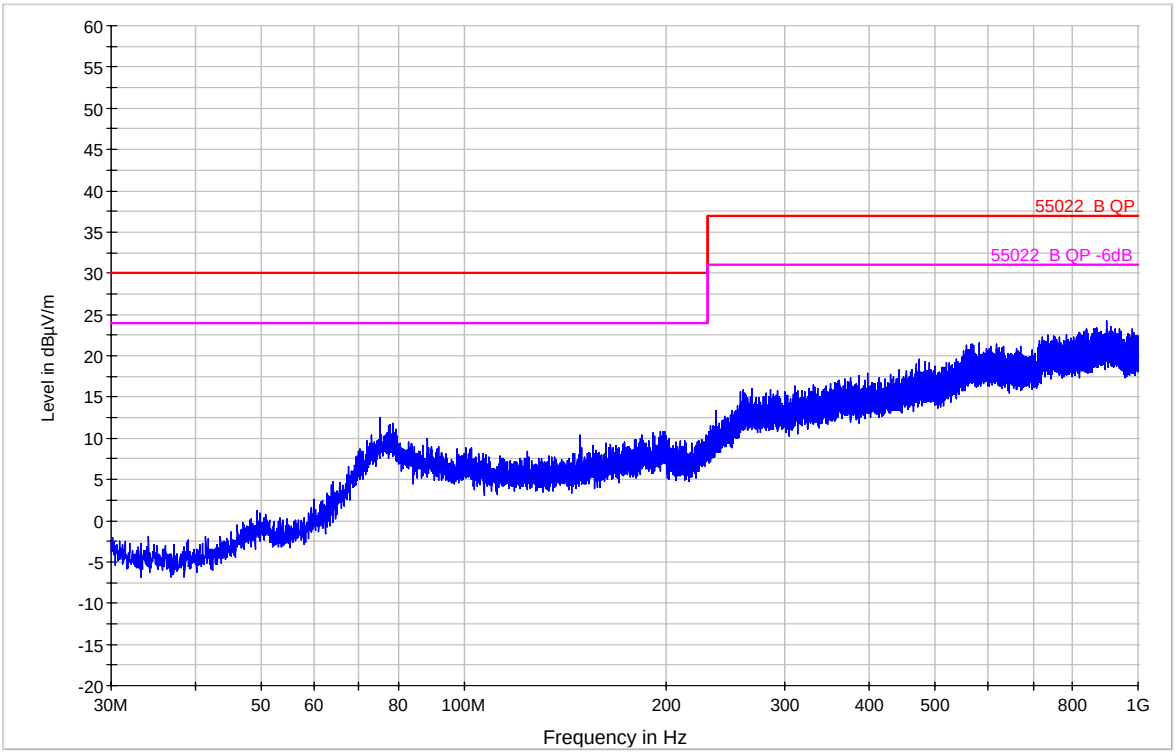
EGM E-1104 14.08.2007 NT
Wet Ex Generator, Normalbetrieb
09 Messung an L1

Plot 1



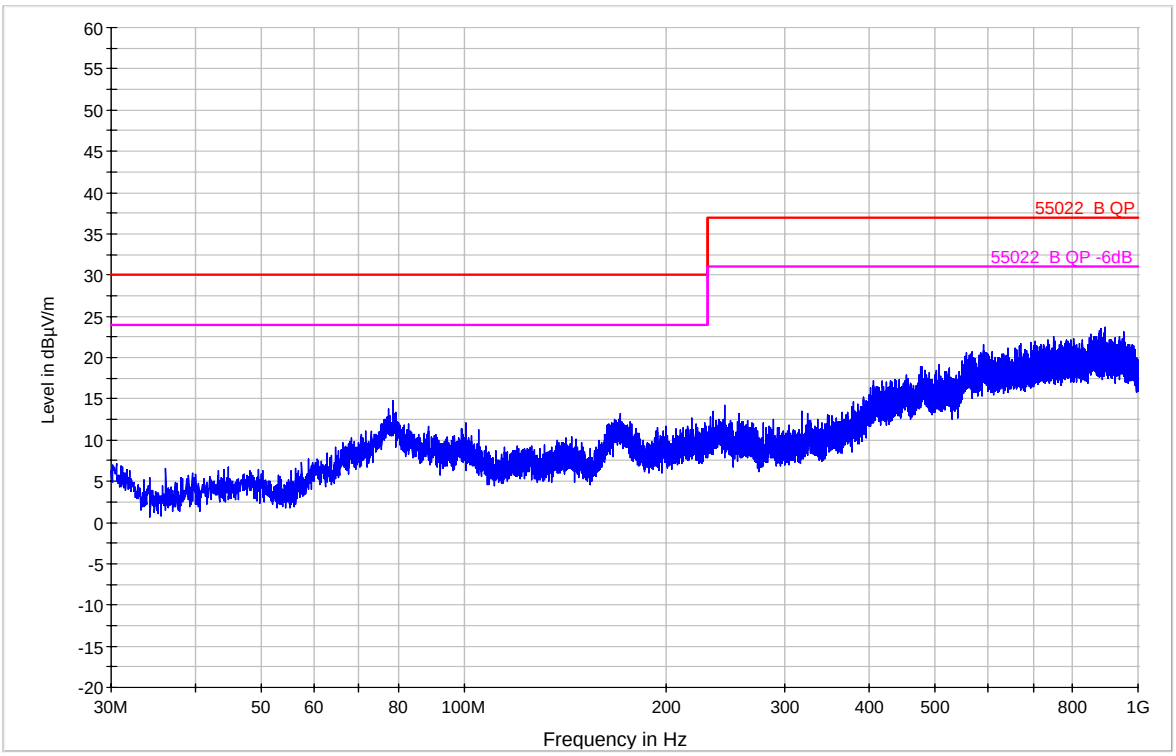
EGM E-1104 14.08.2007 NT
Wet Ex Generator, Normalbetrieb
10 Messung an N

Plot 2



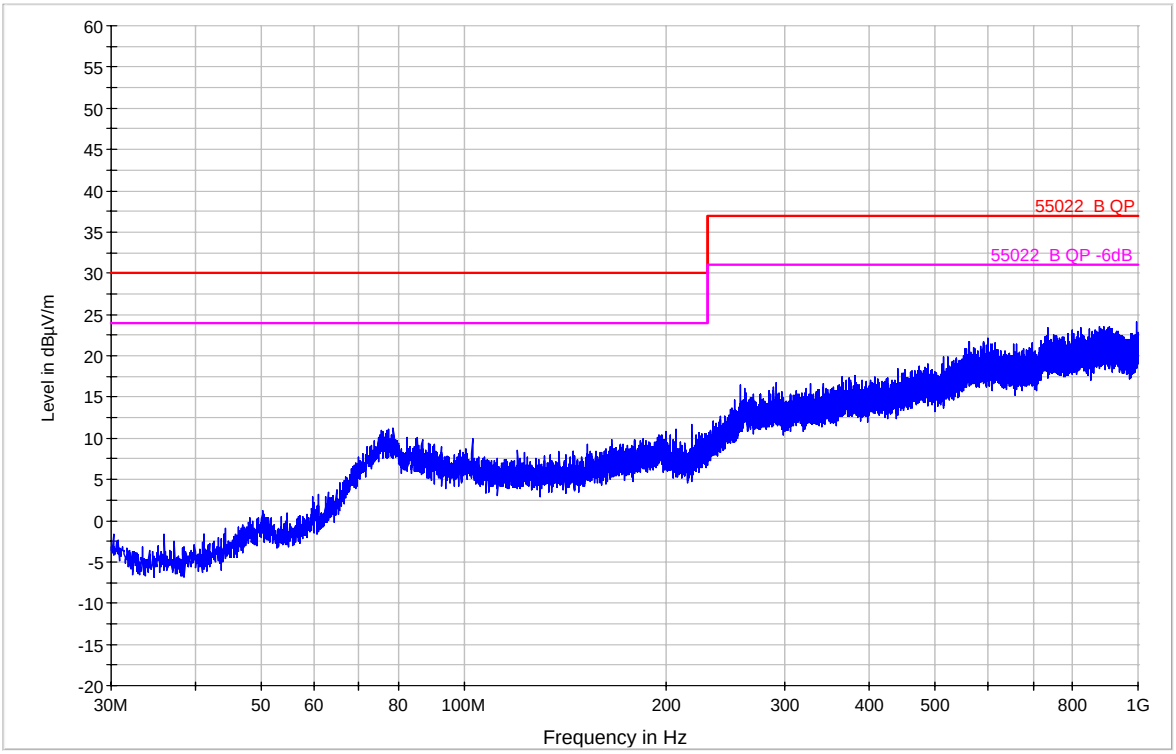
EGM E-1104 14.08.2007 NT
Wet Ex Generator, Normalbetrieb
02 0 deg., H

Plot 3



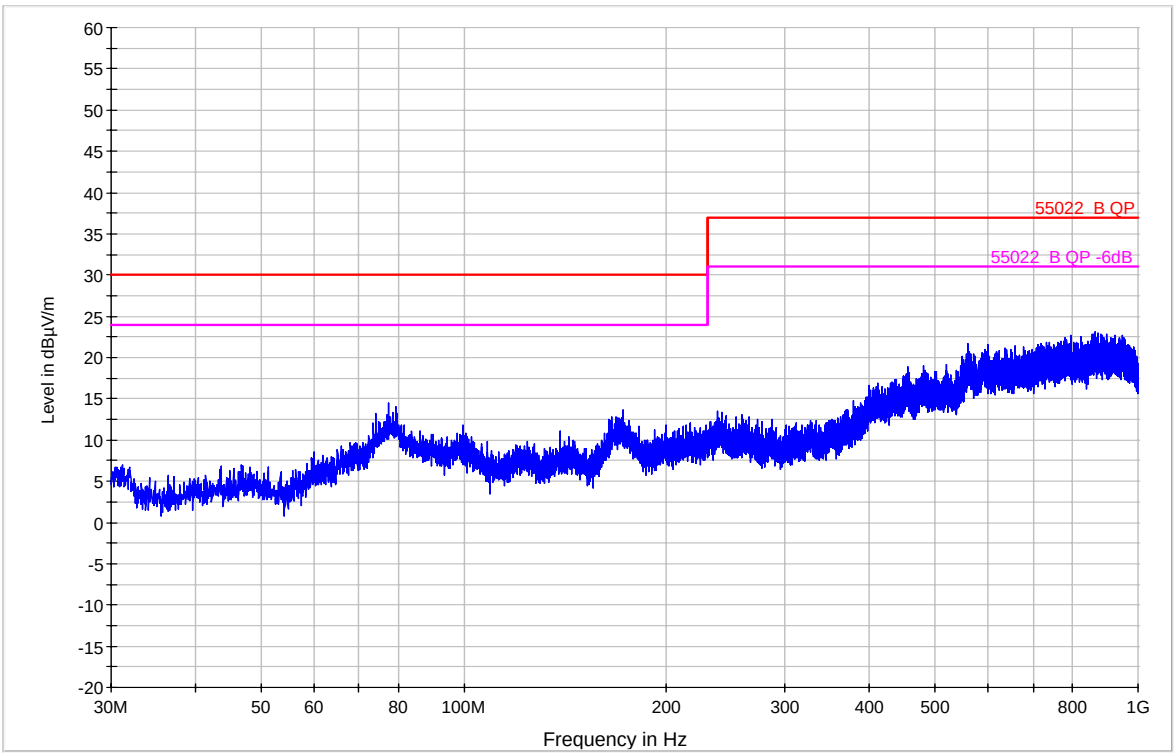
EGM E-1104 14.08.2007 NT
Wet Ex Generator, Normalbetrieb
01 0 deg., V

Plot 4



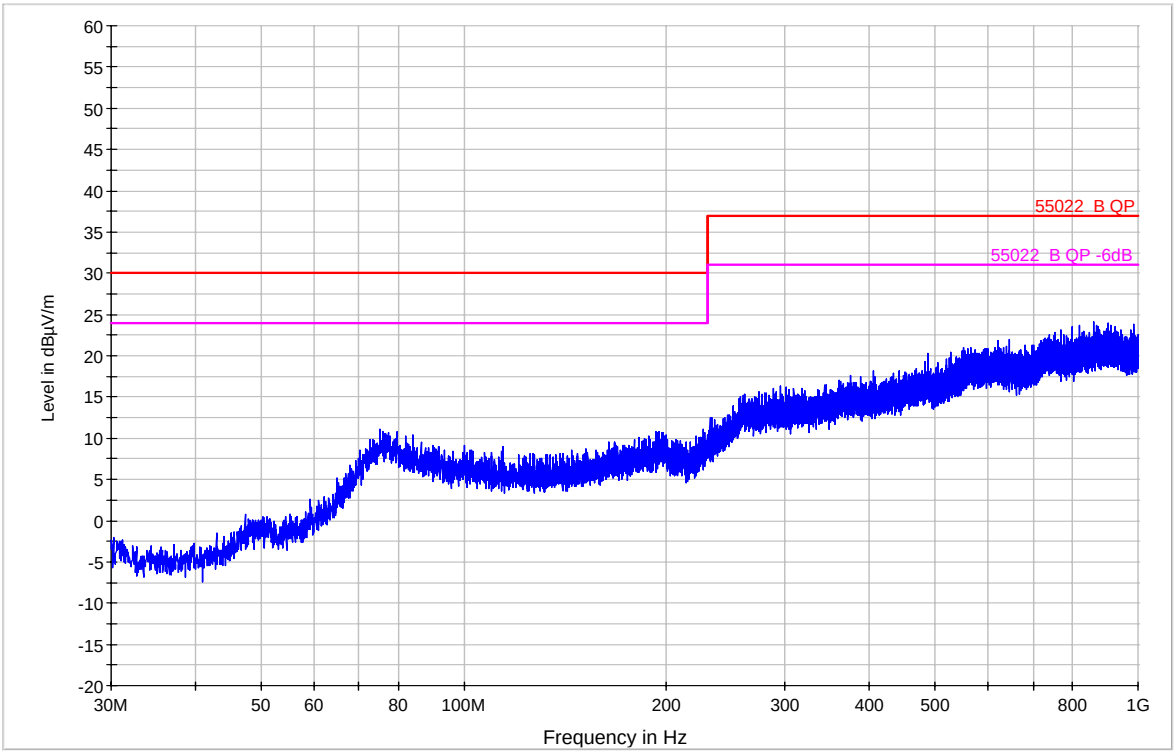
EGM E-1104 14.08.2007 NT
Wet Ex Generator, Normalbetrieb
03 90 deg., H

Plot 5



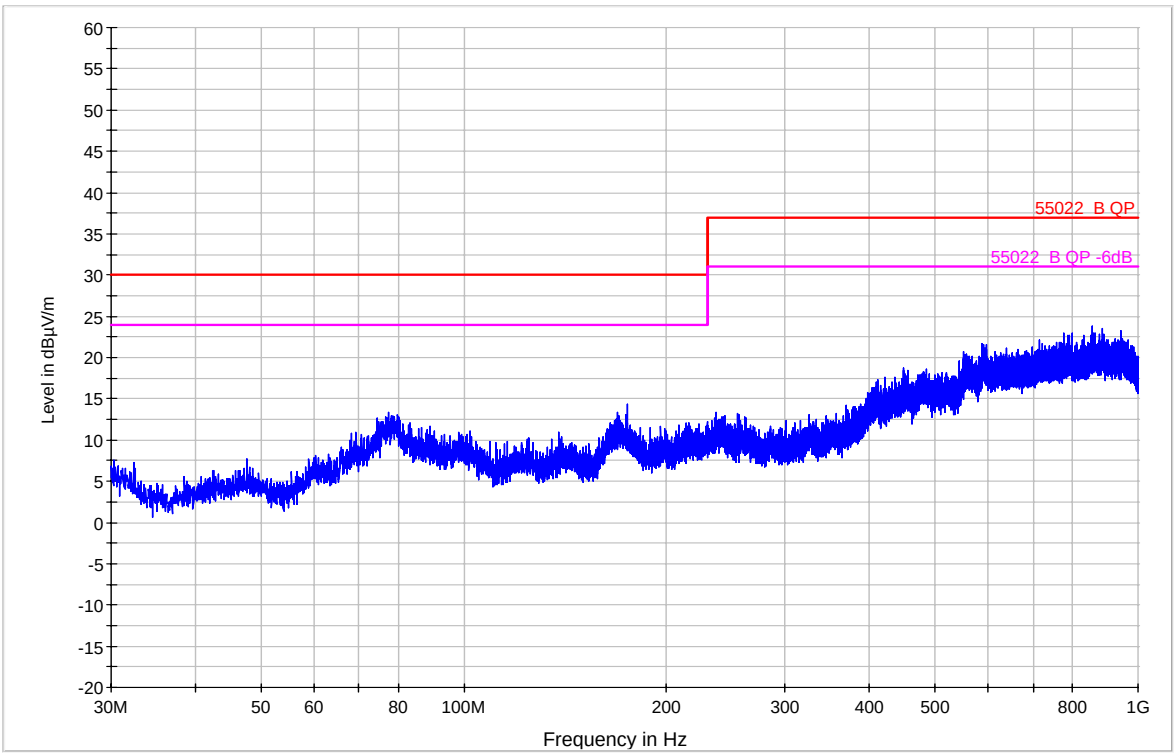
EGM E-1104 14.08.2007 NT
Wet Ex Generator, Normalbetrieb
04 90 deg., V

Plot 6



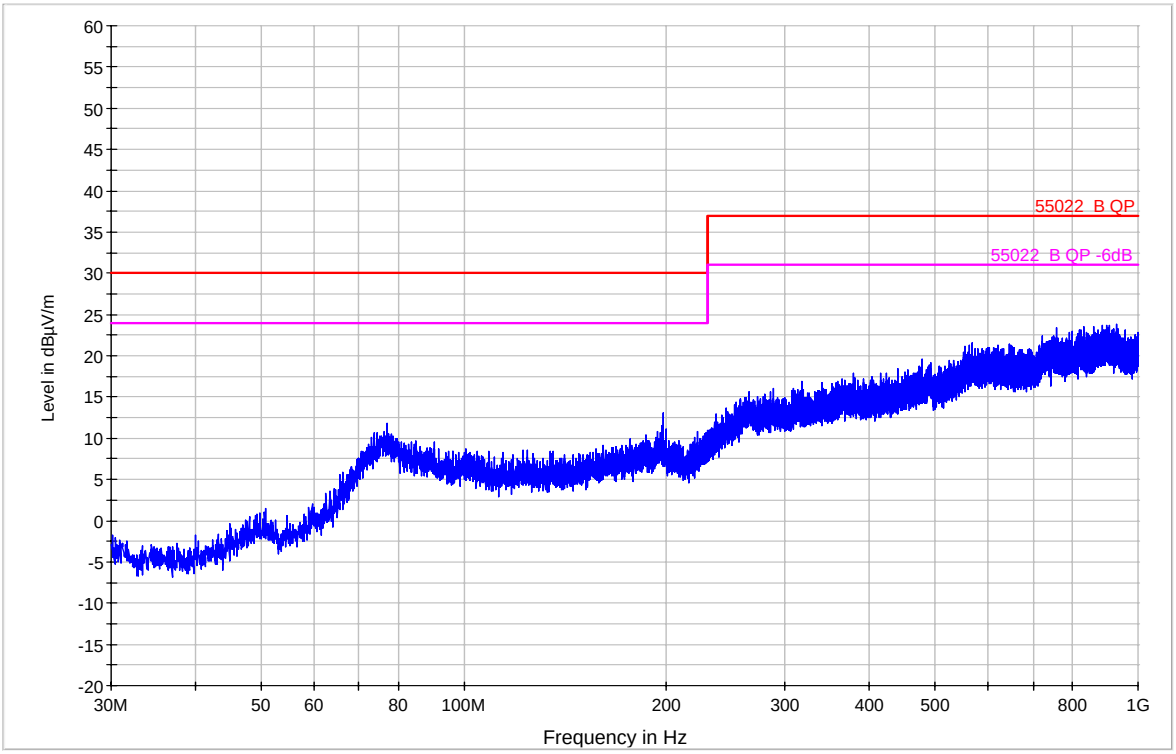
EGM E-1104 14.08.2007 NT
Wet Ex Generator, Normalbetrieb
06 180 deg., H

Plot 7



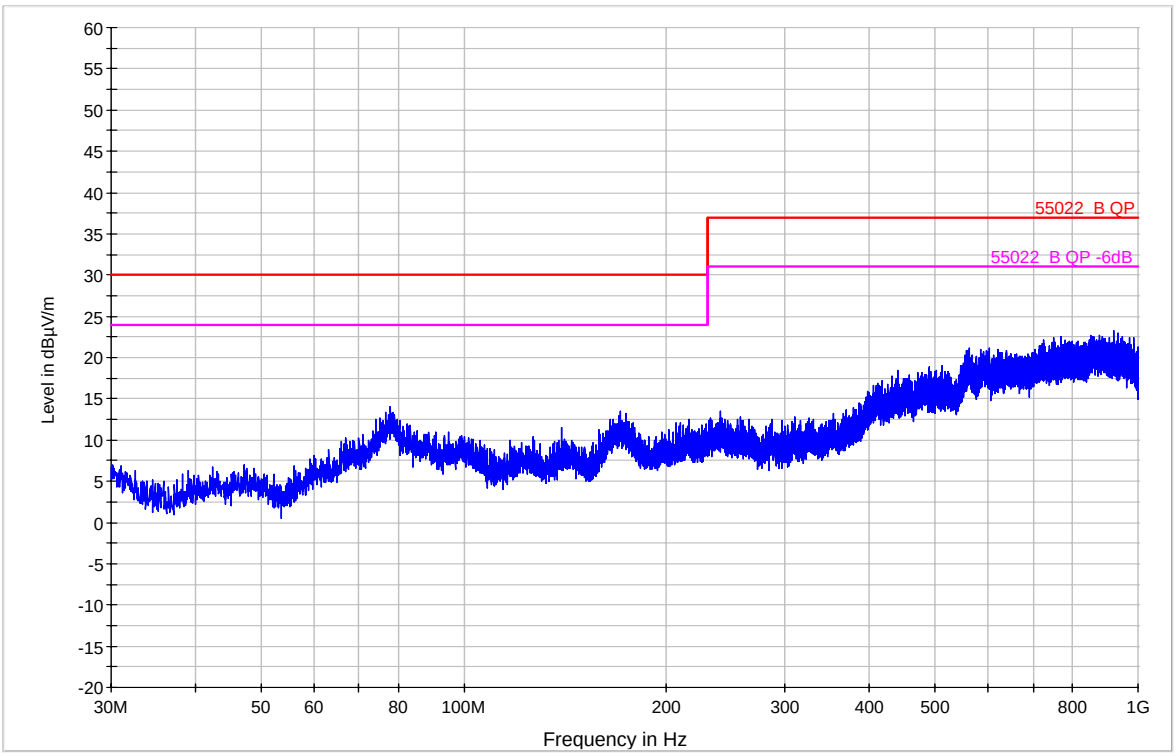
EGM E-1104 14.08.2007 NT
Wet Ex Generator, Normalbetrieb
05 180 deg., V

Plot 8



EGM E-1104 14.08.2007 NT
Wet Ex Generator, Normalbetrieb
07 270 deg., H

Plot 9



EGM E-1104 14.08.2007 NT
Wet Ex Generator, Normalbetrieb
08 270 deg., V

Plot 10