Senton GmbH
Aeussere Fruehlingstrasse 45
D-94315 Straubing

Straubing, July 1, 2005

T E S T - R E P O R T

No. 50104-40281 (Edition 1)

for

2500 (H2500)

Wireless Headphone System

Applicant:	Amphony (Deutschland) GmbH
Test Specifications:	FCC Code of Federal Regulations, CFR 47, Part 15, Sections 15.107, 15.109, 15.205, 15.207, 15.215 and 15.249 Industry Canada Radio Standards Specification RSS-210 Issue 5, Sections 6.2.2 (m2), 6.3, 6.6 and 7 (Category I Equipment)

Note:

The test data of this report is related only to the individual item which has been tested. This report shall not be reproduced except in full extent without the written approval of the testing laboratory.

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1 Description of the Equipment Under Test (EUT)

General data of EUT	
Type designation[1]:	2500 (H2500)
Parts[2]:	---
Serial number(s):	01
Manufacturer:	Amphony (Deutschland) GmbH Annenstraße 26 D-10179 Berlin
Type of equipment:	Wireless Headphone System
Version:	as received
FCC ID:	---
Additional parts/accessories:	---

Technical data of EUT	
Application frequency range:	5.725 - 5.850 GHz
Frequency range:	5.725 - 5.850 GHz
Operating frequency:	
Type of modulation:	---
Pulse train:	---
Pulse width:	---
Number of RF-channels:	1
Channel spacing:	N/A
Designation of emissions[3]:	
Type of antenna:	
Size/length of antenna:	
Connection of antenna:	☐ detachable ☒ not detachable
Type of power supply:	AC supply 115 V
Specifications for power supply:	

[1] Type designation of the system if EUT consists of more than one part.
[2] Type designations of the parts of the system, if applicable.
[3] Also known as "Class of Emission".

2 Administrative Data

Application details	
Applicant (full address):	Amphony (Deutschland) GmbH Annenstraße 26 D-10179 Berlin
Contact person:	Mr. Jens Kurrat
Contract identification:	---
Receipt of EUT:	April 20, 2004
Date(s) of test:	May 12 to June 23, 2004 and June 29, 2005
Note(s):	---

Report details	
Report number:	50104-40281
Edition:	1
Issue date:	July 1, 2005

3 Identification of the Test Laboratory

Details of the Test Laboratory	
Company name:	Senton GmbH EMI/EMC Test Center
Address:	Aeussere Fruehlingstrasse 45 D-94315 Straubing Germany
Laboratory accreditation:	DAR-Registration No. DAT-P-171/94-02
FCC test site registration number	90926
Industry Canada test site registration:	IC 3050
Contact person:	Mr. Johann Roidt Phone: (+49) (0)9421 5522-0 Fax: (+49) (0)9421 5522-99

4 Summary

Summary of test results
The tested sample complies with the requirements set forth in the **Code of Federal Regulations CFR 47, Part 15, Sections 15.107, 15.109, 15.205, 15.207, 15.215 and 15.249** of the Federal Communication Commission (FCC) and the **Radio Standards Specification RSS-210 Issue 5, Sections 6.2.2 (m2), 6.3, 6.6 and 7 (Category I Equipment)** of Industry Canada (IC).

Personnel involved in this report	
Laboratory Manager:	Mr. Johann Roidt
Responsible for testing:	Mr. Johann Roidt
Responsible for test report:	Mr. Johann Roidt

5 Operation Mode and Configuration of EUT

Operation Mode(s)
• AC 115 V power supply (DC 9 V) • all cables connected • audio-signal: 1Vpp @ 1kHz • transmitting continuously

Configuration(s) of EUT
Not applicable

List of ports and cables
Not applicable

List of devices connected to EUT
Not applicable

List of support devices
Not applicable

6 Measurement Procedures

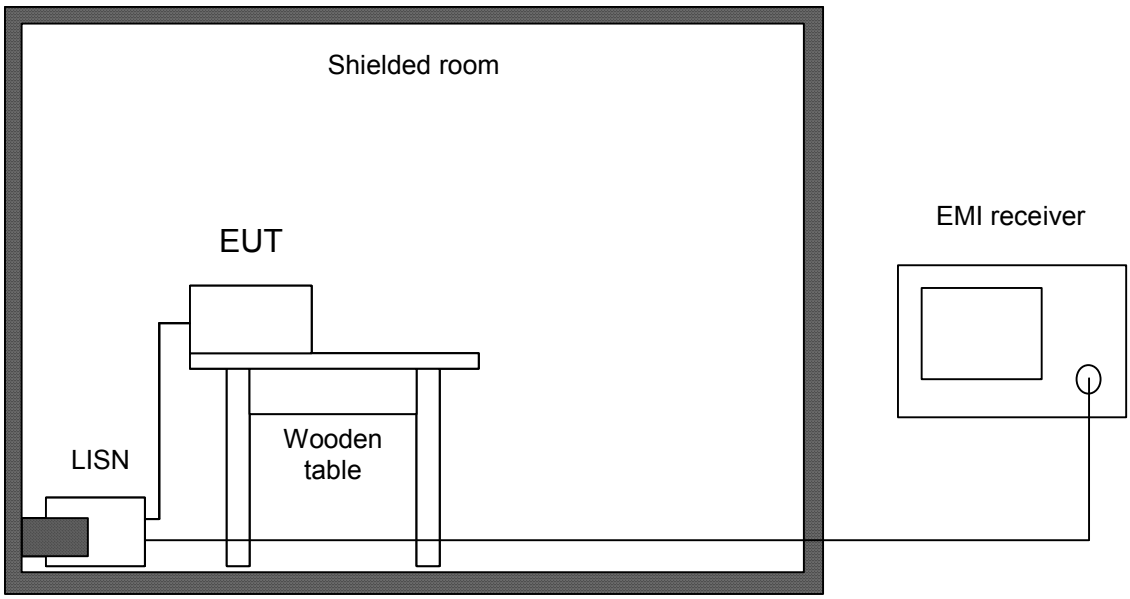
6.1 Conducted AC Powerline Emission

Measurement Procedure:	
Rules and specifications:	CFR 47 Part 15, sections 15.107 and 15.207 IC RSS-210 Issue 5, sections 6.6 and 7.4
Guide:	ANSI C63.4 (CISPR 22)

Conducted emission tests in the frequency range 150 kHz to 30 MHz are performed using Line Impedance Stabilization Networks (LISNs). To simplify testing with quasi-peak and average detector the following procedure is used:

First the whole spectrum of emission caused by the equipment under test (EUT) is recorded with detector set to peak using CISPR bandwidth of 10 kHz. After that all emission levels having less margin than 10 dB to or exceeding the average (CFR 47 Part 15) or quasi-peak (IC RSS-210) limit are retested with detector set to quasi-peak.
If average limit is kept with quasi-peak levels no additional scan with average detector is necessary. In cases of emission levels between quasi-peak and average limit an additional scan with detector set to average is performed.

According to ANSI C63.4, section 13.1.3.1, testing of intentional radiators with detachable antenna shall be performed using a suitable dummy load connected to the antenna output terminals. Otherwise, the tests shall be made with the antenna connected and, if adjustable, fully extended.
Testing with dummy load may be necessary to distinguish (unintentional) conducted emissions on the supply lines from (intentional) emissions radiated by the antenna and coupling directly to supply lines and/or LISN. Usage of dummy load has to be stated in the appropriate test record(s) and notes should be added to clarify the test setup.



Test instruments used:

Used	Type	Model	Serial No. or ID	Manufacturer
☒	EMI receiver	ESHS 10	860043/016	Rohde & Schwarz
☒	LISN	ESH3-Z5	862770/021	Rohde & Schwarz
☒	LISN	ESH3-Z5	830952/025	Rohde & Schwarz
☐	Artificial mains network	ESH 2-Z5	842966/004	Rohde & Schwarz
☐	Shielded room	No. 1	1451	Albatross Projects
☒	Shielded room	No. 4	3FD-100 544	Euroshield

6.2 Radiated Emission in Fully or Semi Anechoic Room

Measurement Procedure:	
Rules and specifications:	CFR 47 Part 15, sections 15.109, 15.215(b) and 15.249 IC RSS-210 Issue 5, sections 6.2.2 (m2) and 7.3
Guide:	ANSI C63.4

Radiated emission in fully or semi anechoic room is measured in the frequency range from 30 MHz to the maximum frequency as specified in CFR 47 Part 15 section 15.33.

Measurements are made in both the horizontal and vertical planes of polarization in a fully anechoic room using a spectrum analyzer with the detector function set to peak and resolution as well as video bandwidth set to 100 kHz (below 1 GHz) or 1 MHz (above 1 GHz).

Testing up to 1 GHz is performed with a linear polarized logarithmic periodic antenna combined with a 4:1 broadband dipole ("Trilog broadband antenna"). For testing above 1 GHz horn antennas are used.

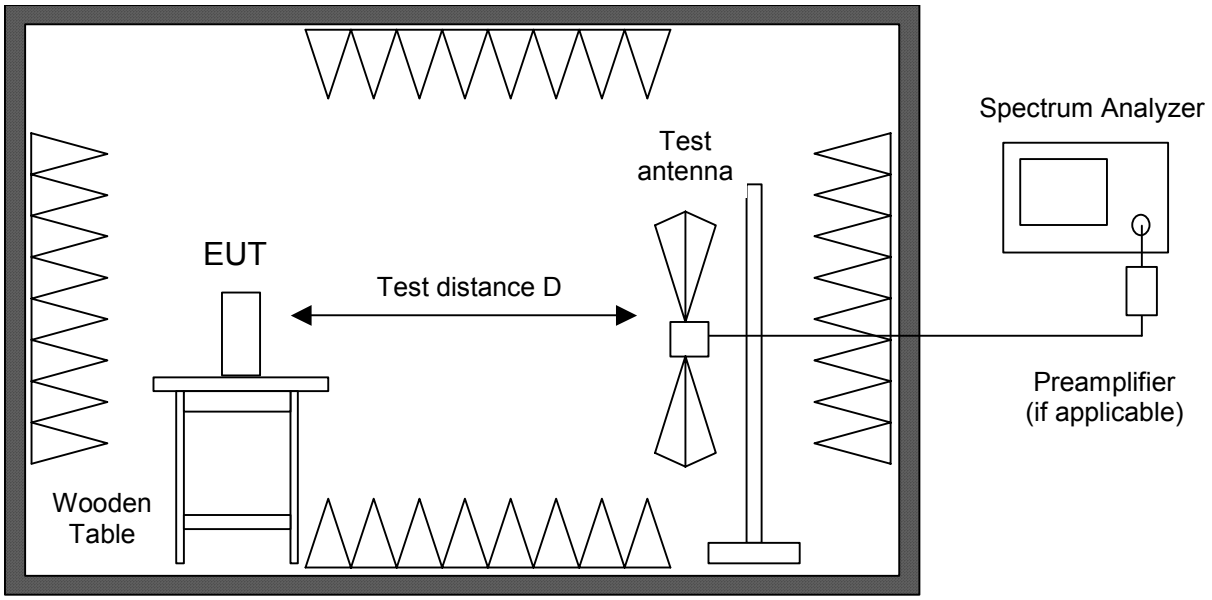
All tests below 18 GHz are performed at a test distance D of 3 meters. For higher frequencies the test distance is reduced (e.g. to 1 meter) due to the sensitivity of the measuring instrument(s) and the test results are calculated according to CFR 47 Part 15 section 15.31(f)(1) using an extrapolation factor of 20 dB/decade. If required, preamplifiers are used for the whole frequency range. Special care is taken to avoid overload, using appropriate attenuators and filters, if necessary.

If the radiated emission limits are expressed in terms of the average value of the emission there also is a peak limit corresponding to 20 dB above the maximum permitted average limit. Additionally, if pulsed operation is employed, the average field strength is determined by averaging over one complete pulse train, including blanking intervals, as specified in CFR 47 Part 15 section 15.35(c). If the pulse train exceeds 0.1 second that 0.1 second interval during which the value of the emission is at its maximum is selected for calculation. The pulse train correction is added to the peak value of the emission to get the average value.

Hand-held or body-worn devices are rotated through three orthogonal axes to determine which attitude and configuration produces the highest emission relative to the limit and therefore shall be used for final testing.

During testing the EUT is rotated all around to find the maximum levels of emissions. Equipment and cables are placed and moved within the range of position likely to find their maximum emissions.

For final testing below 1 GHz an open field test-site is used and the plots recorded in the fully or semi anechoic room are indicated as prescans.



Fully or semi anechoic room

Test instruments used:

Used	Type	Model	Serial No. or ID	Manufacturer
☒	Spectrum Analyzer	FSP 30	100063	Rohde & Schwarz
☐	Spectrum analyzer	R 3271	05050023	Advantest
☐	EMI test receiver	ESMI	839379/013 839587/006	Rohde & Schwarz
☒	Preamplifier	CPA9231A	3393	Schaffner
☐	Preamplifier	R14601		Advantest
☒	Preamplifier 1-8 GHz	AFS3-00100800-32-LN	847743	Miteq
☐	Preamplifier 0.5-8 GHz	AMF-4D-005080-25-13P	860149	Miteq
☒	Preamplifier 8-18 GHz	ACO/180-3530	32641	CTT
☐	External Mixer	WM782A	845881/005	Tektronix
☐	Harmonic Mixer Accessories	FS-Z30	843389/007	Rohde & Schwarz
☒	Trilog broadband antenna	VULB 9163	9163-188	Schwarzbeck
☐	Horn antenna	3115	9508-4553	EMCO
☐	Horn antenna	3160-03	9112-1003	EMCO
☒	Horn antenna	3160-04	9112-1001	EMCO
☒	Horn antenna	3160-05	9112-1001	EMCO
☒	Horn antenna	3160-06	9112-1001	EMCO
☒	Horn antenna	3160-07	9112-1008	EMCO
☐	Horn antenna	3160-08	9112-1002	EMCO
☐	Horn antenna	3160-09	9403-1025	EMCO
☐	Horn antenna	3160-10	399185	EMCO
☒	Fully anechoic room	No. 2	1452	Albatross Projects
☐	Semi-anechoic room	No. 3	1453	Siemens

6.3 Radiated Emission at Open Field Test Site

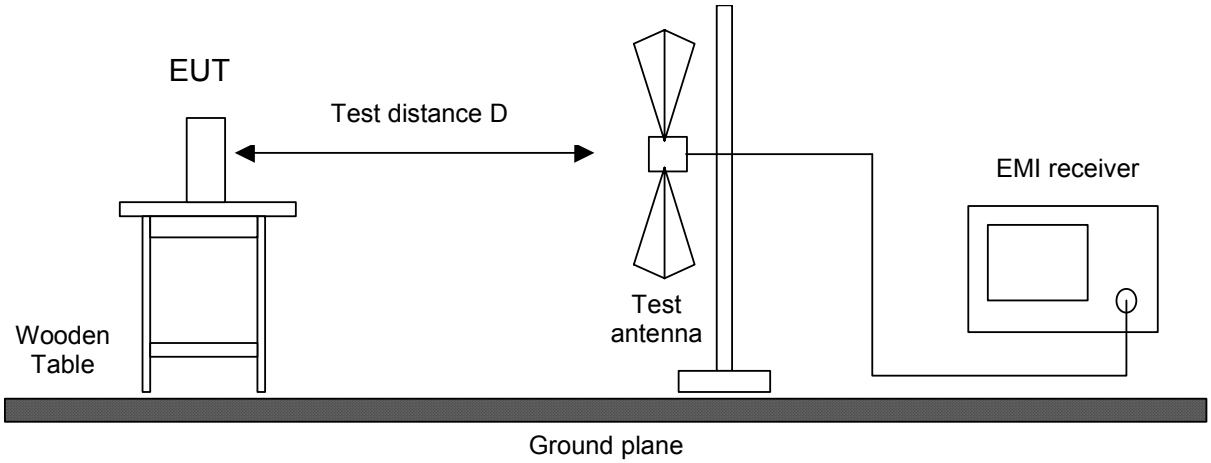
Measurement Procedure:	
Rules and specifications:	CFR 47 Part 15, sections 15.109, 15.215(b) and 15.249 IC RSS-210 Issue 5, sections 6.2.2 (m2) and 7.3
Guide:	ANSI C63.4

Radiated emission at open field test site is measured in the frequency range 30 MHz to 1 GHz using a biconical antenna up to 300 MHz and a logarithmic periodic antenna above. The measurement bandwidth of the test receiver is set to 120 kHz with quasi-peak detector selected.

If the radiated emission limits are expressed in terms of the average value of the emission there also is a peak limit corresponding to 20 dB above the maximum permitted average limit. Additionally, if pulsed operation is employed, the average field strength is determined by averaging over one complete pulse train, including blanking intervals, as specified in CFR 47 Part 15 section 15.35(c). If the pulse train exceeds 0.1 second that 0.1 second interval during which the value of the emission is at its maximum is selected for calculation. The pulse train correction is added to the peak value of the emission to get the average value.

Hand-held or body-worn devices are tested in the position producing the highest emission relative to the limit as verified by prescans in the fully anechoic room. EUT is rotated all around and receiving antenna is raised and lowered within 1 meter to 4 meters to find the maximum levels of emission. Equipment and cables are placed and moved within the range of position likely to find their maximum emissions.

For measuring emissions of intentional radiators and receivers a test distance D of 3 meters is selected. Testing of unintentional radiators is performed at a distance of 10 meters. If limits specified for 3 meters shall be used for measurements performed at 10 meters distance the limits are calculated according to CFR 47 Part 15 section 15.31(d) and (f)(1) using an inverse linear-distance extrapolation factor of 20 dB/decade.



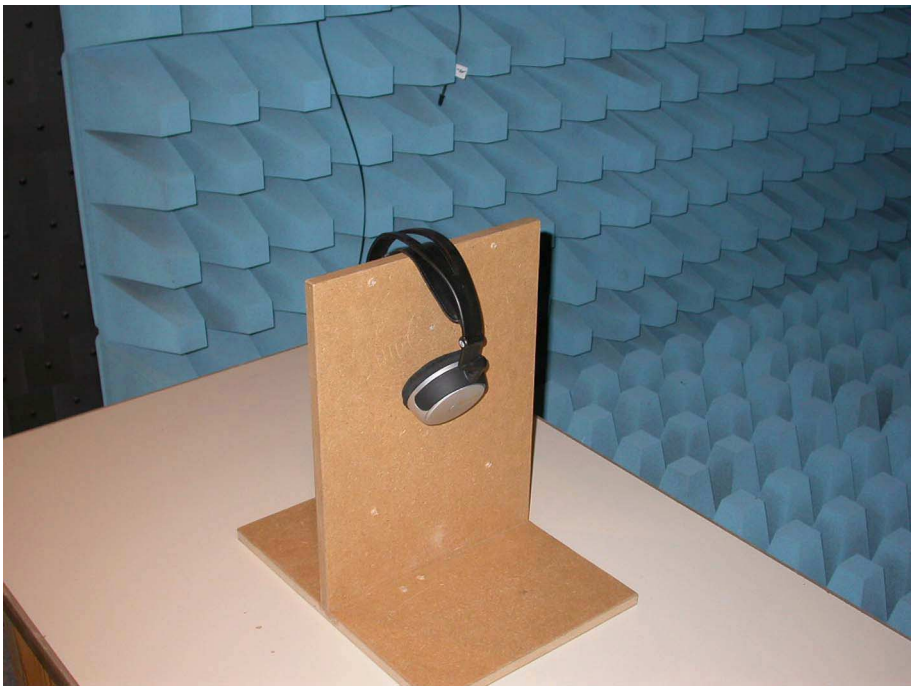
Test instruments used:

Used	Type		Model	Serial No. or ID	Manufacturer
☒	EMI receiver		ESVP	881414/009	Rohde & Schwarz
☒	Biconical antenna	EG 1	HK 116	842204/001	Rohde & Schwarz
☒	Log. per. antenna	EG 1	HL 223	841516/023	Rohde & Schwarz
☒	Open field test site		EG 1	1450	Senton

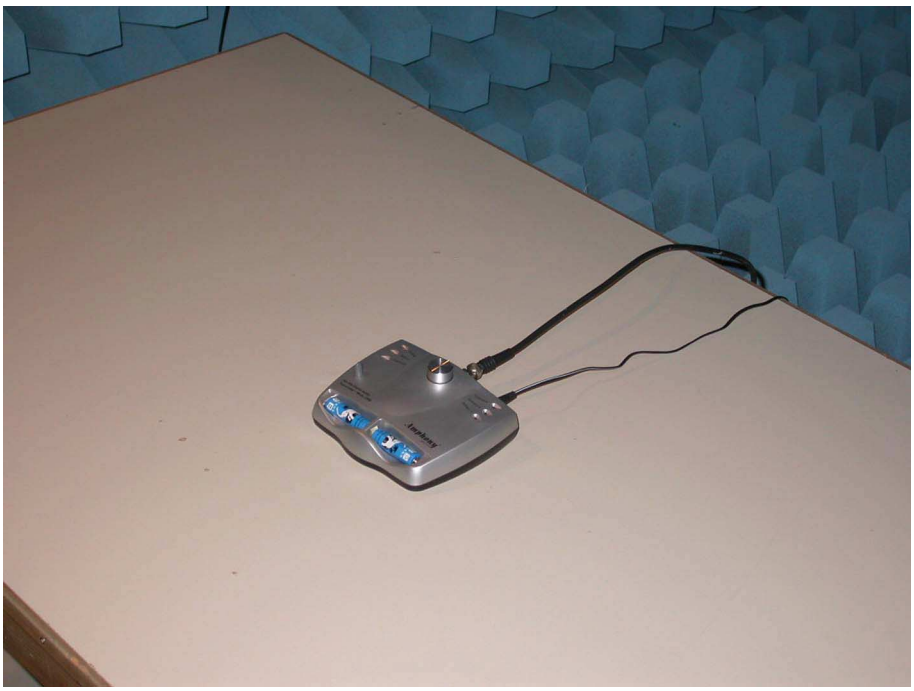
7 Photographs Taken During Testing

Test setup for conducted AC powerline emission measurement

Test setup for radiated emission measurement (fully anechoic room)



Test setup for radiated emission measurement (fully anechoic room) - continued -



8 Test Results for Transmitter

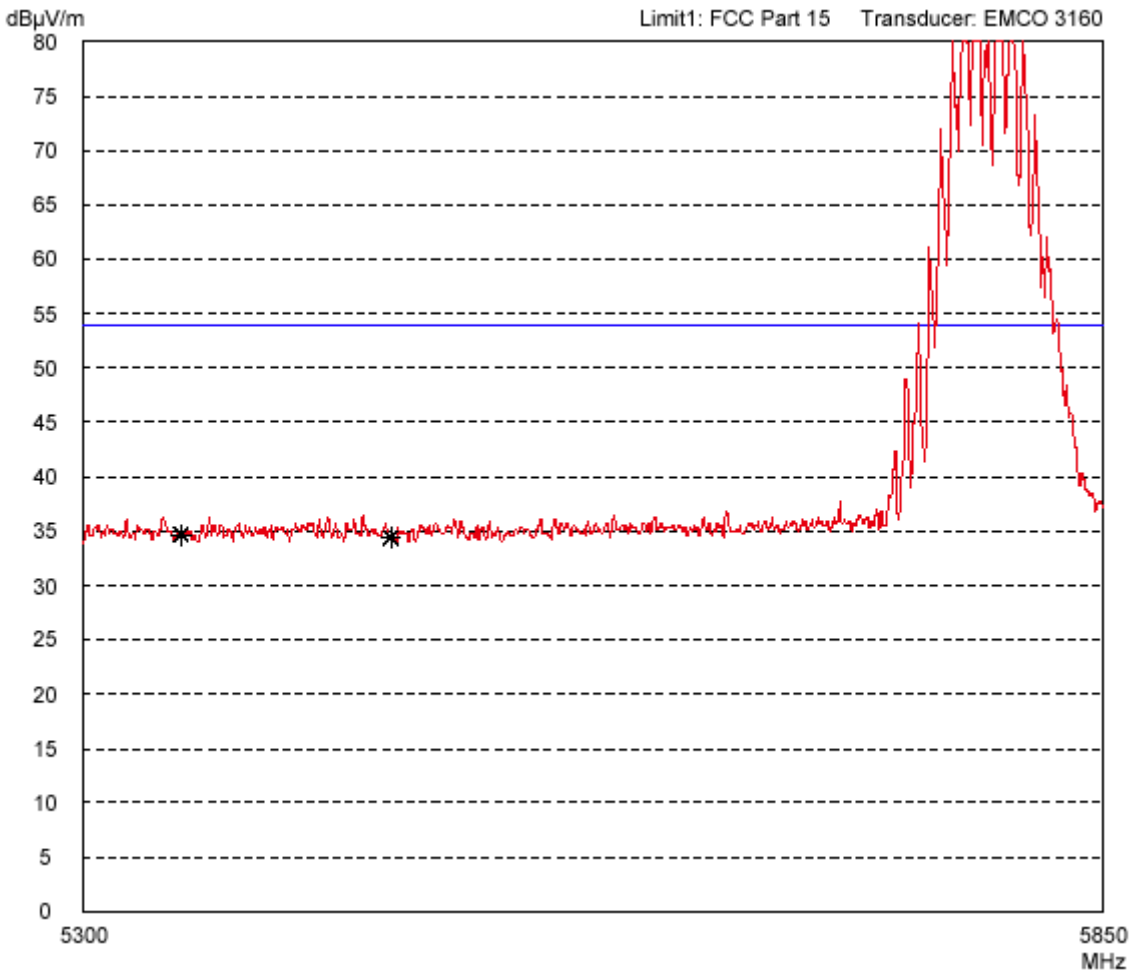
FCC CFR 47 Parts 2 and 15			
Section(s)	*Test*	*Page*	*Result*
15.205(a)	Restricted bands of operation	18	Test passed
15.207	Conducted AC powerline emission 150 kHz to 30 MHz	19	Test passed
15.205(b) 15.249	Radiated emission 9 kHz to 30 MHz	---	Not applicable according to CFR 47 Part 15, section 15.33(a)
15.205(b) 15.215(b) 15.249	Radiated emission 30 MHz to 40 GHz	21	Test passed

IC RSS-210 Issue 5			
Section(s)	*Test*	*Page*	*Result*
6.3(a)	Restricted bands and unwanted emission frequencies	18	Test passed
6.6	Transmitter AC wireline conducted emissions 450 kHz to 30 MHz	19	Test passed
6.2.2(m2) 6.3(b)-(d)	Field strength of emissions 9 kHz to 30 MHz	---	Not applicable according to IC RSS-210 Issue 5, section 6.3(e)
6.2.2(m2) 6.3(b)-(d)	Field strength of emissions 30 MHz to 40 GHz	21	Test passed

8.1 Restricted Bands of Operation

Rules and specifications:	CFR 47 Part 15, section 15.205(a) IC RSS-210 Issue 5, section 6.3(a)
Guide:	ANSI C63.4
Limit:	Only spurious emissions are permitted in any of the frequency bands listed in CFR 47 Part 15, section 15.205(a) or IC RSS-210 Issue 5, section 6.3(a).
Measurement procedure:	Radiated Emission in Fully or Semi Anechoic Room (6.2)

Comment: Date of test: Test site:	--- May 14, 2005 Fully anechoic room, cabin no. 2
Test distance:	3 meters



Test Result:	Test passed

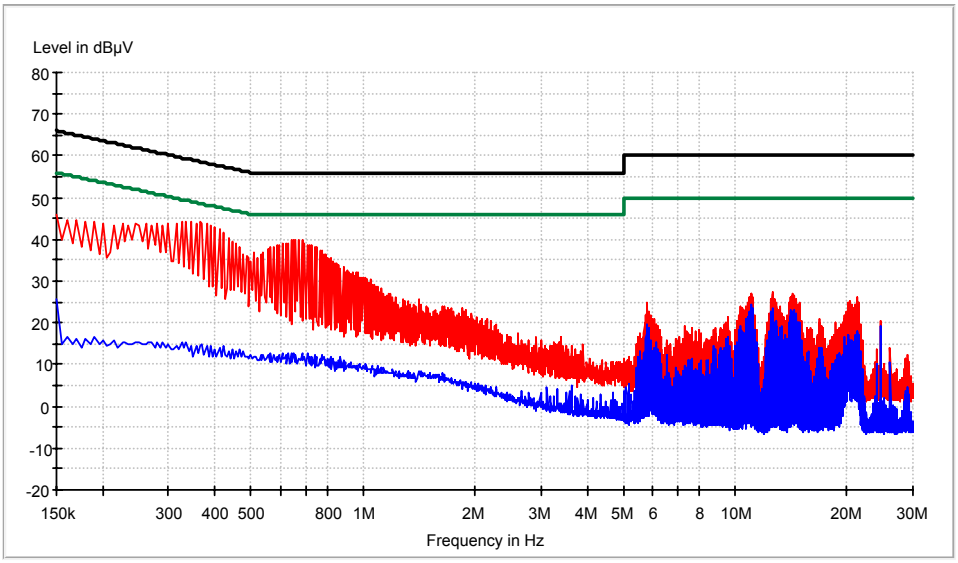
8.2 Conducted Powerline Emission Measurement 150 kHz to 30 MHz

Rules and specifications:	CFR 47 Part 15, section 15.207 IC RSS-210 Issue 5, section 6.6				
Guide:	ANSI C63.4 / CISPR 22				
Limit:	CFR 47 Part 15			IC RSS-210	
	Frequency of Emission (MHz)	Conducted Limit (dBµV)		Frequency of Emission (MHz)	Conducted Limit (dBµV)
		Quasi-peak	Average		Quasi-peak
	0.15 - 0.5 0.5 - 5 5 - 30	66 to 56 56 60	56 to 46 46 50	0.45 - 30	48
Measurement procedure:	Conducted AC Powerline Emission (6.1)				

Comment:	---
Date of test:	June 29, 2005
Test site:	Shielded room, cabin no. 1

Test Result:	Test passed

Tested on:	Power line, L1

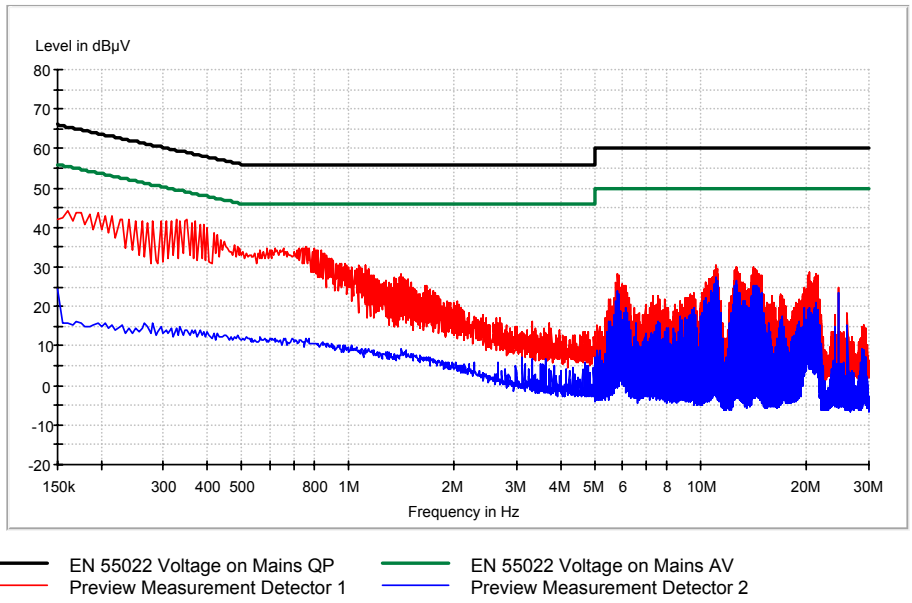


EN 55022 Voltage on Mains QP
Preview Measurement Detector 1
EN 55022 Voltage on Mains AV
Preview Measurement Detector 2

Quasipeak			
Frequency(MHz)	*Level(dBµV)*	*Limit(dBµV)*	*Margin(dB)*
0.15 -30			> 10

Average			
Frequency(MHz)	*Level(dBµV)*	*Limit(dBµV)*	*Margin(dB)*
0.15 - 30			> 10

Tested on:	Power line, N



Quasipeak			
Frequency(MHz)	*Level(dBµV)*	*Limit(dBµV)*	*Margin(dB)*
0.15 -30			> 10

Average			
Frequency(MHz)	*Level(dBµV)*	*Limit(dBµV)*	*Margin(dB)*
0.15 - 30			> 10

Sample calculation of final values:

Final Value (dBµV) = Reading Value (dBµV) + Correction Factor (dB)

8.3 Radiated Emission Measurement 30 MHz to 40 GHz

Rules and specifications:	CFR 47 Part 15, sections 15.215(b) and 15.249 IC RSS-210 Issue 5, section 6.2.2 (m2)		
Guide:	ANSI C63.4		
Limit:	Frequency of Emission (MHz)	Field Strength (µV/m)	Field Strength (dBµV/m)
	30 - 88	100	40.0
	88 - 216	150	43.5
	216 - 960	200	46.0
	Above 960	500	54.0
	Additionally, the level of any unwanted emissions shall not exceed the level of the fundamental emission.		
Measurement procedures:	Radiated Emission in Fully or Semi Anechoic Room (6.2) Radiated Emission at Open Field Test Site (6.3)		

Comment:	---
Date of test:	May 12 to 14 and June 23, 2005
Test site:	Frequencies ≤ 1 GHz: Open field test site Frequencies > 1 GHz: Fully anechoic room, cabin no. 2
Test distance:	3 meters

Test Result:	Test passed

Frequency (MHz)	Antenna Polarization	Detector	Receiver Reading (dBµV)	Correction Factor (dB/m)	Pulse Train Correction (dB)	Final Value (dBµV/m)	Limit (dBµV/m)	Margin (dB)
97.900	vertical	Quasi-Peak	15.7	14.3		30.0	43.5	13.5
136.700	horizontal	Quasi-Peak	25.2	9.8		35.0	43.5	8.5
150.280	horizontal	Quasi-Peak	25.4	9.6		35.0	43.5	8.5
159.980	horizontal	Quasi-Peak	24.9	10.0		35.0	43.5	8.5
176.147	horizontal	Quasi-Peak	24.1	10.8		34.9	43.5	8.6
189.727	horizontal	Quasi-Peak	25.9	11.9		37.8	43.5	5.7
202.660	vertical	Quasi-Peak	24.2	12.1		36.3	43.5	7.2
215.593	vertical	Quasi-Peak	24.4	12.5		36.9	43.5	6.7
228.527	vertical	Quasi-Peak	26.2	13.0		39.2	46.0	6.8
242.107	horizontal	Quasi-Peak	24.5	13.5		38.0	46.0	8.0
255.040	horizontal	Quasi-Peak	21.6	13.5		35.1	46.0	10.9
282.847	horizontal	Quasi-Peak	23.3	14.2		37.5	46.0	8.5
2896.000	vertical	Quasi-Peak	14.0	36.2		50.2	54.0	**3.8**

Sample calculation of final values:

Final Value (dBµV/m) = Reading Value (dBµV) + Correction Factor (dB/m) + Pulse Train Correction (dB)

9 Test Results for Receiver

FCC CFR 47 Part 15			
Section(s)	*Test*	*Page*	*Result*
15.107	Conducted AC powerline emission 150 kHz to 30 MHz	---	Not applicable
15.109	Radiated emission 30 MHz to 29 GHz	24	Test passed
15.111(a)	Antenna power conduction emission of receivers 9 kHz to 29 GHz	---	Not applicable

IC RSS-210 Issue 5			
Section(s)	*Test*	*Page*	*Result*
7.4	Receiver AC wireline conducted emissions 450 kHz to 30 MHz	---	Not applicable
7.3	Receiver spurious emissions (Radiated) 30 MHz to 29 GHz	24	Test passed
7.2	Receiver spurious emissions (Antenna Conducted) 9 kHz to 29 GHz	---	Not applicable

9.1 Radiated Emission Measurement 30 MHz to 29 GHz

Rules and specifications:	CFR 47 Part 15, section 15.109 (Class B) IC RSS-210 Issue 5, section 7.3		
Guide:	ANSI C63.4		
Limit:	Frequency of Emission (MHz)	Field Strength (µV/m)	Field Strength (dBµV/m)
	30 - 88	100	40.0
	88 - 216	150	43.5
	216 - 960	200	46.0
	Above 960	500	54.0
Measurement procedures:	Radiated Emission in Fully or Semi Anechoic Room (6.2) Radiated Emission at Open Field Test Site (6.3)		

Comment:	---
Date of test:	May 14 and June 23, 2004
Test site:	Frequencies ≤ 1 GHz: Open field test site Frequencies > 1 GHz: Fully anechoic room, cabin no. 2
Test distance:	3 meters

Test Result:	Test passed

Frequency (MHz)	Antenna Polarization	Detector	Receiver Reading (dBµV)	Correction Factor (dB/m)	Final Value (dBµV/m)	Limit (dBµV/m)	Margin (dB)
164.507	horizontal	Quasi-Peak	23.8	10.2	34.0	43.5	**9.5**

Sample calculation of field final values:

Final Value (dBµV/m) = Reading Value (dBµV) + Correction Factor (dB/m)

10 Referenced Regulations

All tests were performed with reference to the following regulations and standards:

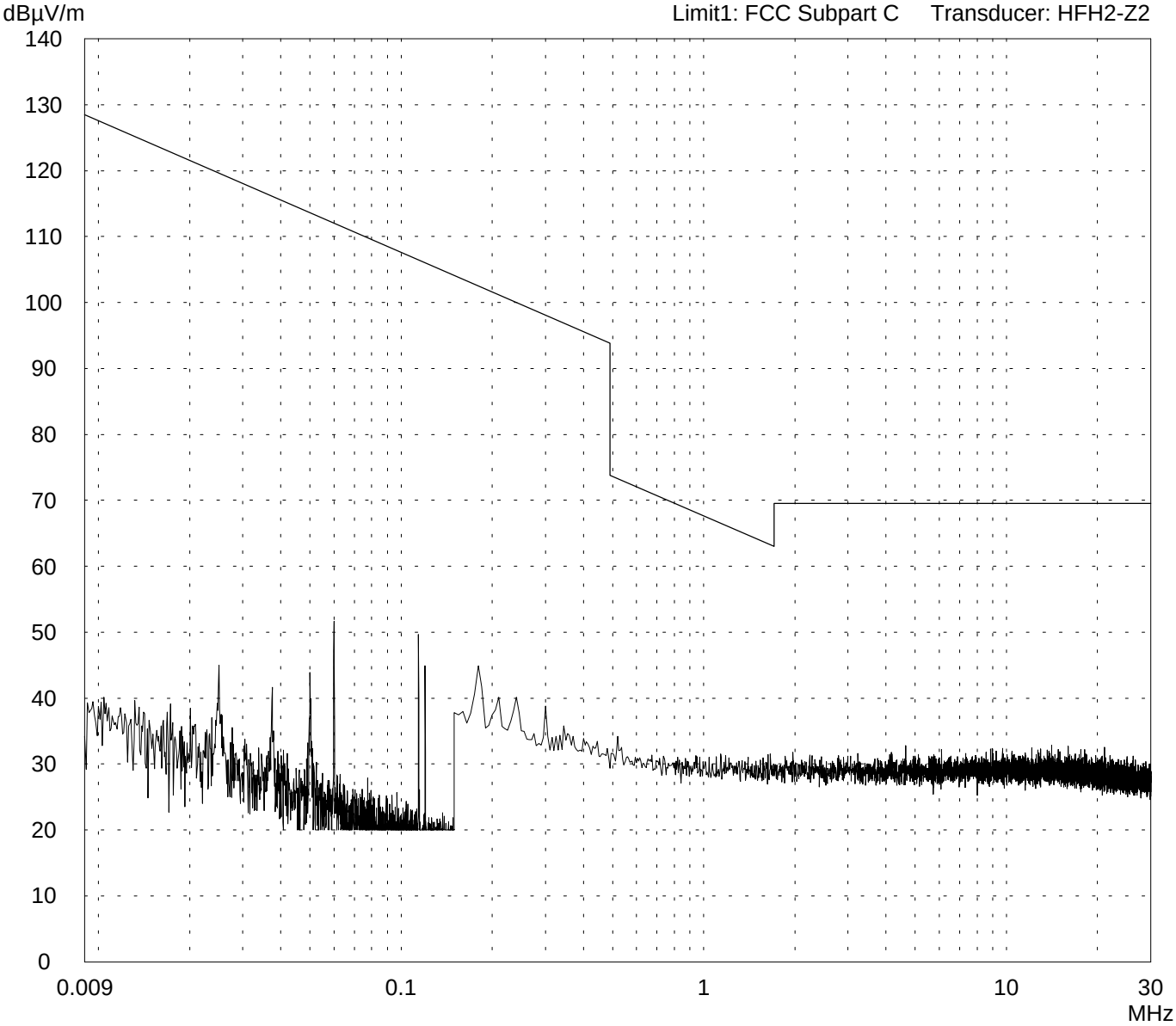
☒	CFR 47 Part 2	Code of Federal Regulations Part 2 (Frequency allocation and radio treaty matters; General rules and regulations) of the Federal Communication Commission (FCC)	October 10, 2004
☒	CFR 47 Part 15	Code of Federal Regulations Part 15 (Radio Frequency Devices) of the Federal Communication Commission (FCC)	April 5, 2005
☒	ANSI C63.4	American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz	December 11, 2003 (published on January 30, 2004)
☒	RSS-210	Radio Standards Specification RSS-210 Issue 5 for Low Power Licence-Exempt Radiocommunication Devices (All Frequency Bands), published by Industry Canada	November 2001
☒	RSS-102	Radio Standards Specification RSS-102 Issue 1: Evaluation Procedure for Mobile and Portable Radio Transmitters with respect to Health Canada's Safety Code 6 for Exposure of Humans to Radio Frequency Fields, published by Industry Canada	September 1999
☐	ICES-003	Interference-Causing Equipment Standard ICES-003 Issue 4 for Digital Apparatus, published by Industry Canada	February 2004
☒	CISPR 22	Third Edition of the International Special Committee on Radio Interference (CISPR), Pub. 22, "Information Technology Equipment – Radio Disturbance Characteristics – Limits and Methods of Measurement"	1997
☐	CAN/CSA-CEI/IEC CISPR 22	Limits and Methods of Measurement of Radio Disturbance Characteristics of Information Technology Equipment	2002
☒	TRC-43	Notes Regarding Designation of Emission (Including Necessary Bandwidth and Classification), Class of Station and Nature of Service, published by Industry Canada	October 9, 1982

11 Charts taken during testing

Radiated Emission Test 9 kHz - 30 MHz
according to FCC Part 15 Subpart C

Model: H 2500	Mode: TX active
Serial no.: 0001	
Applicant: Amphony	
Test site: Shielded room, cabin no. 1	
Tested on: Test distance 3 metres	
Date of test: 07/15/2005 — Operator: J. Roidt	
Test performed: automatically — File name:	

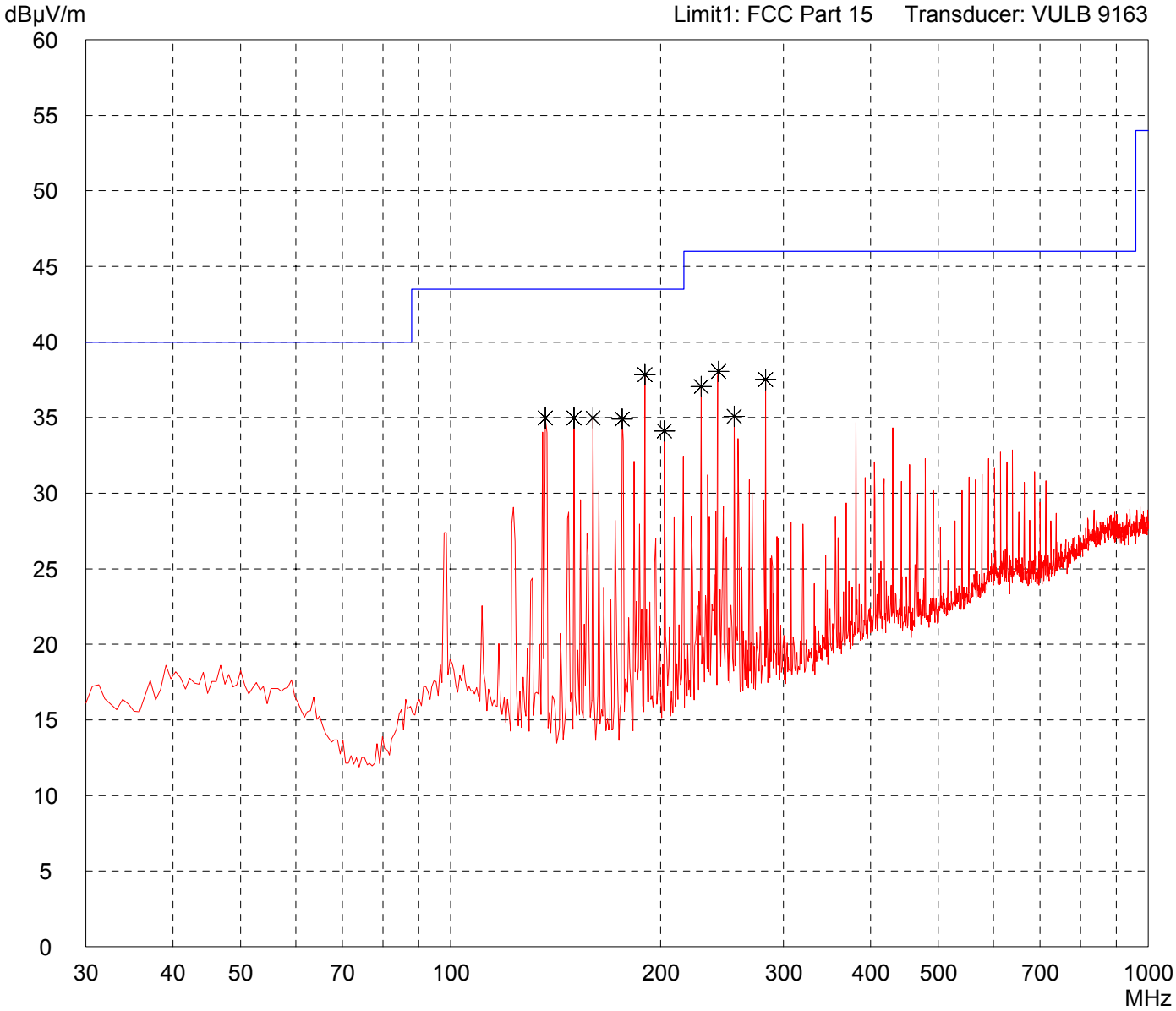
Detector: Peak / Final Results: QP	Final results: 20 dB Margin — 25 Subranges



Result: Limit kept	Project file: 00000-00000 — Page of Pages

Radiated Emission Test 30 MHz - 1 GHz
acc. to FCC Part 15.225 (Fully Anechoic Chamber)

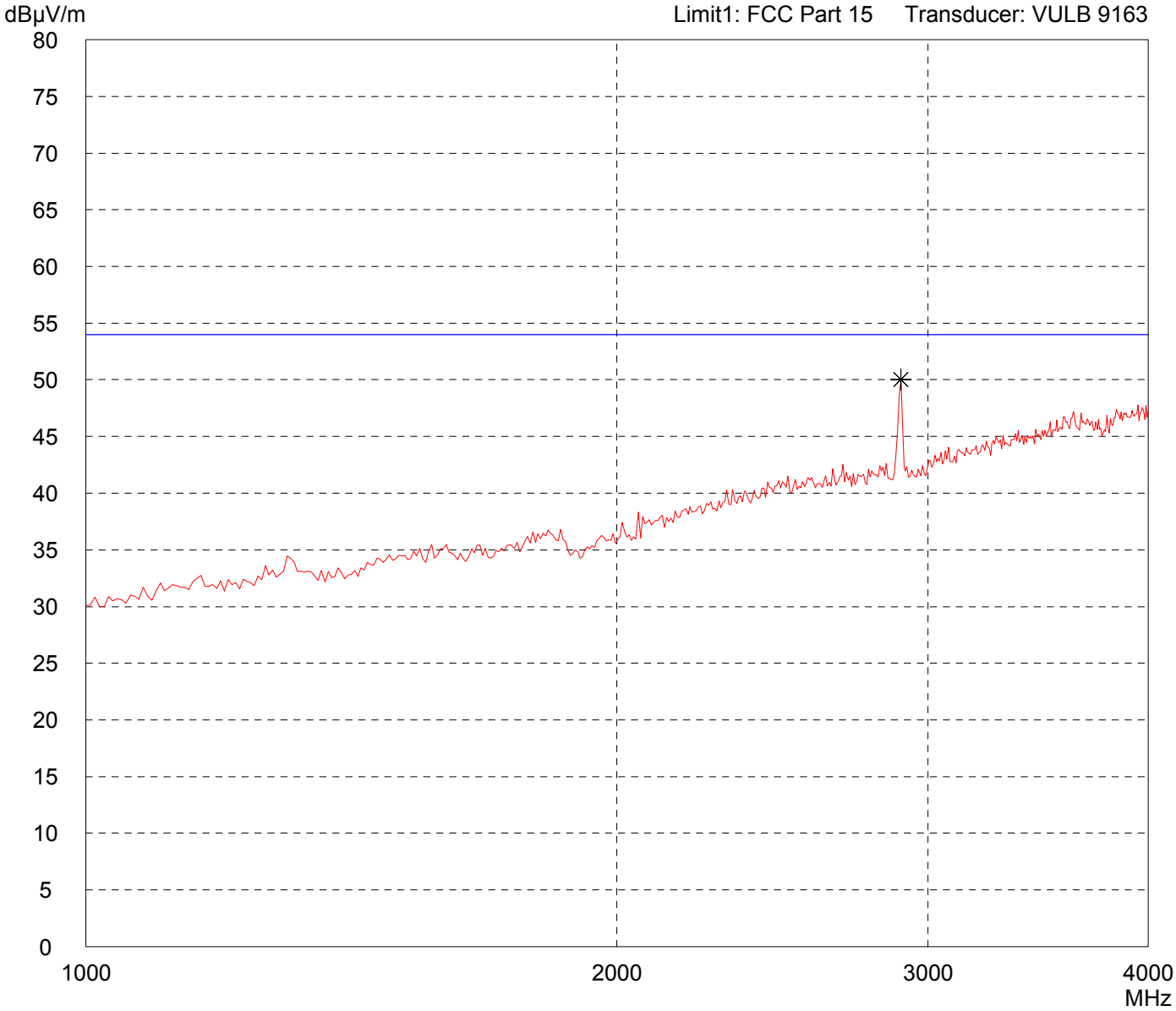
Model: 2500 (H2500) - Transmitter	Comment: - AC 115 V power supply (DC 9 V) - all cables connected - Audio-signal: 1Vpp @ 1kHz - transmitting continously
Serial no.: 01	
Applicant: Amphony GmbH	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Horizontal Polarization	
Date of test: 05/12/2004 — Operator: M. Steindl	
Test performed: automatically — File name: default.emi	
Detector: Peak	List of values: Selected by hand



Result: Prescan	Project file: 50104-40281-1 Page of Pages

Radiated Emission Test 1 GHz - 4 GHz
acc. to FCC Part 15.225 (Fully Anechoic Chamber)

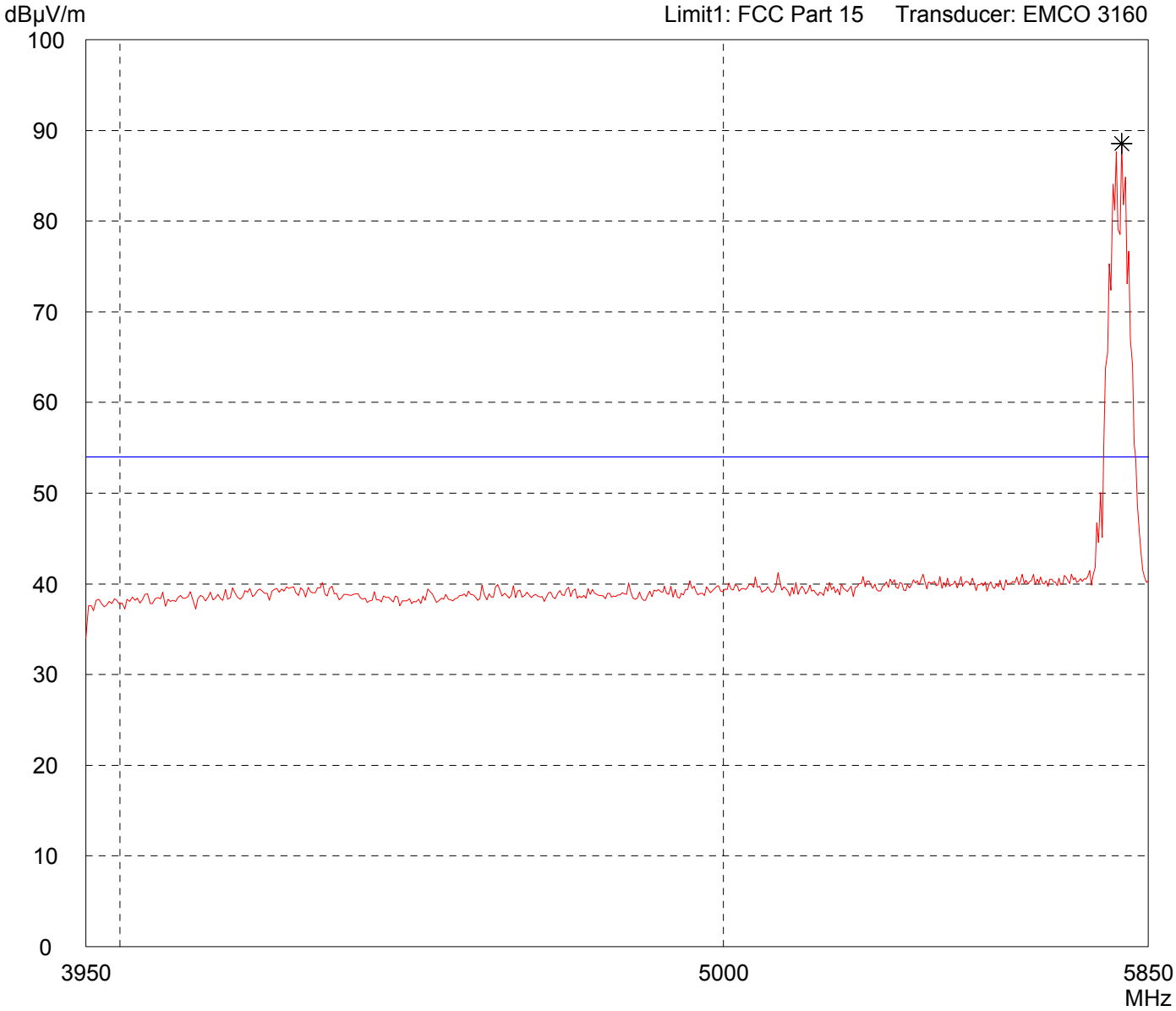
Model: 2500 (H2500) - Transmitter	Comment: - AC 115 V power supply (DC 9 V) - all cables connected - Audio-signal: 1Vpp @ 1kHz - transmitting continously
Serial no.: 01	
Applicant: Amphony GmbH	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Horizontal Polarization	
Date of test: 05/12/2004 — Operator: M. Steindl	
Test performed: automatically — File name: default.emi	
Detector: Peak	List of values: Selected by hand



Result: Prescan	Project file: 50104-40281-1 Page of Pages

Radiated Emission Test 3.95 GHz - 5.85 GHz
acc. to FCC Part 15 (EMCO 3160)

Model: 2500 (H2500) - Transmitter	Comment: - AC 115 V power supply (DC 9 V) - all cables connected - Audio-signal: 1Vpp @ 1kHz - transmitting continiously
Serial no.: 01	
Applicant: Amphony GmbH	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Horizontal Polarization	
Date of test: 05/14/2004 — Operator: M. Steindl	
Test performed: automatically — File name: default.emi	
Detector: Peak	List of values: Selected by hand

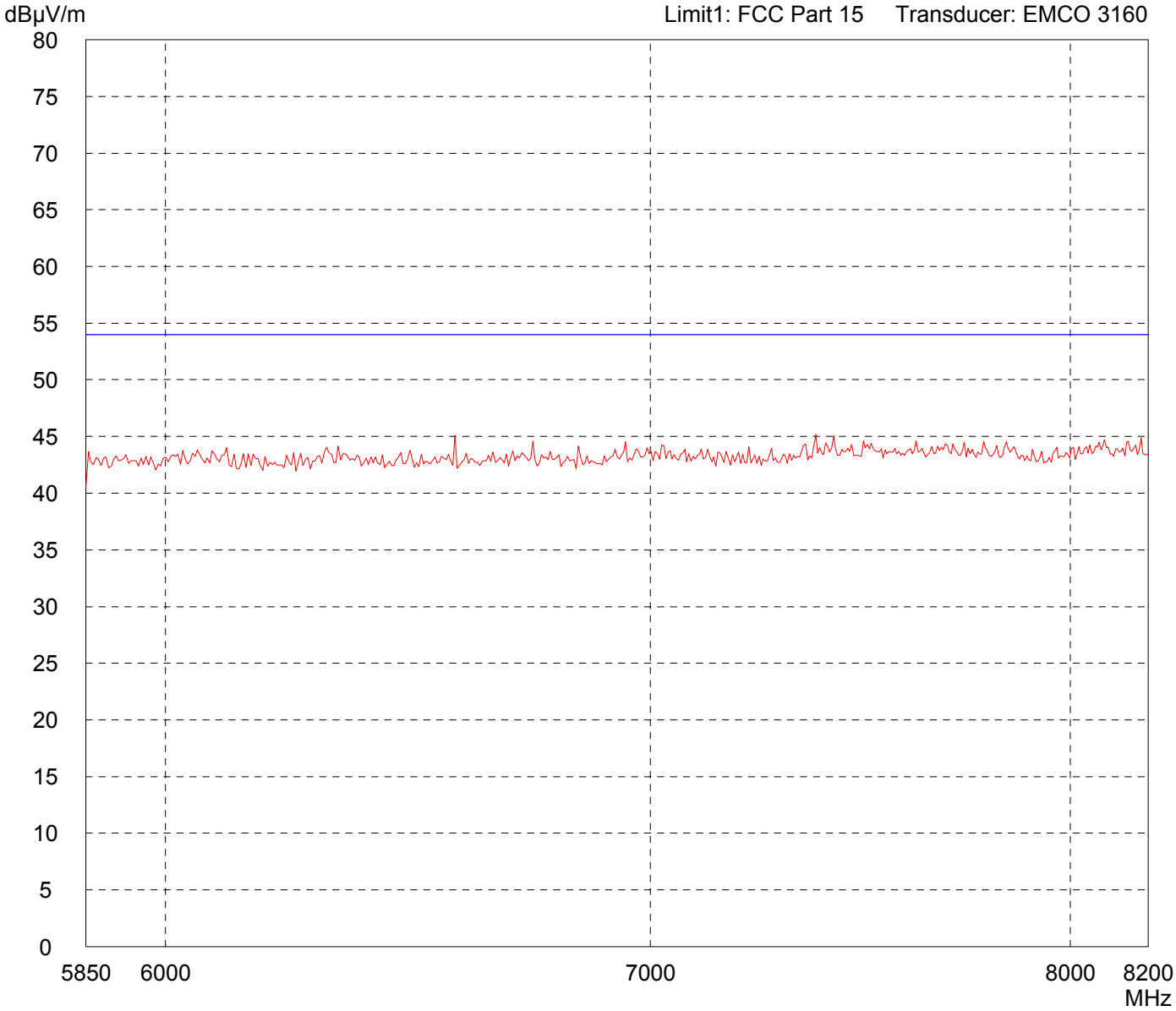


Result: Prescan	Project file: 50104-40281-1 Page of Pages

Radiated Emission Test 5.85 GHz - 8.2 GHz
acc. to FCC Part 15 (EMCO 3160)

Model: 2500 (H2500) - Transmitter	Comment: - AC 115 V power supply (DC 9 V)
Serial no.: 01	- all cables connected - Audio-signal: 1Vpp @ 1kHz
Applicant: Amphony GmbH	- transmitting continiously
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Horizontal Polarization	
Date of test: 05/14/2004 — Operator: M. Steindl	
Test performed: automatically — File name: default.emi	

Detector: Peak	List of values: Selected by hand



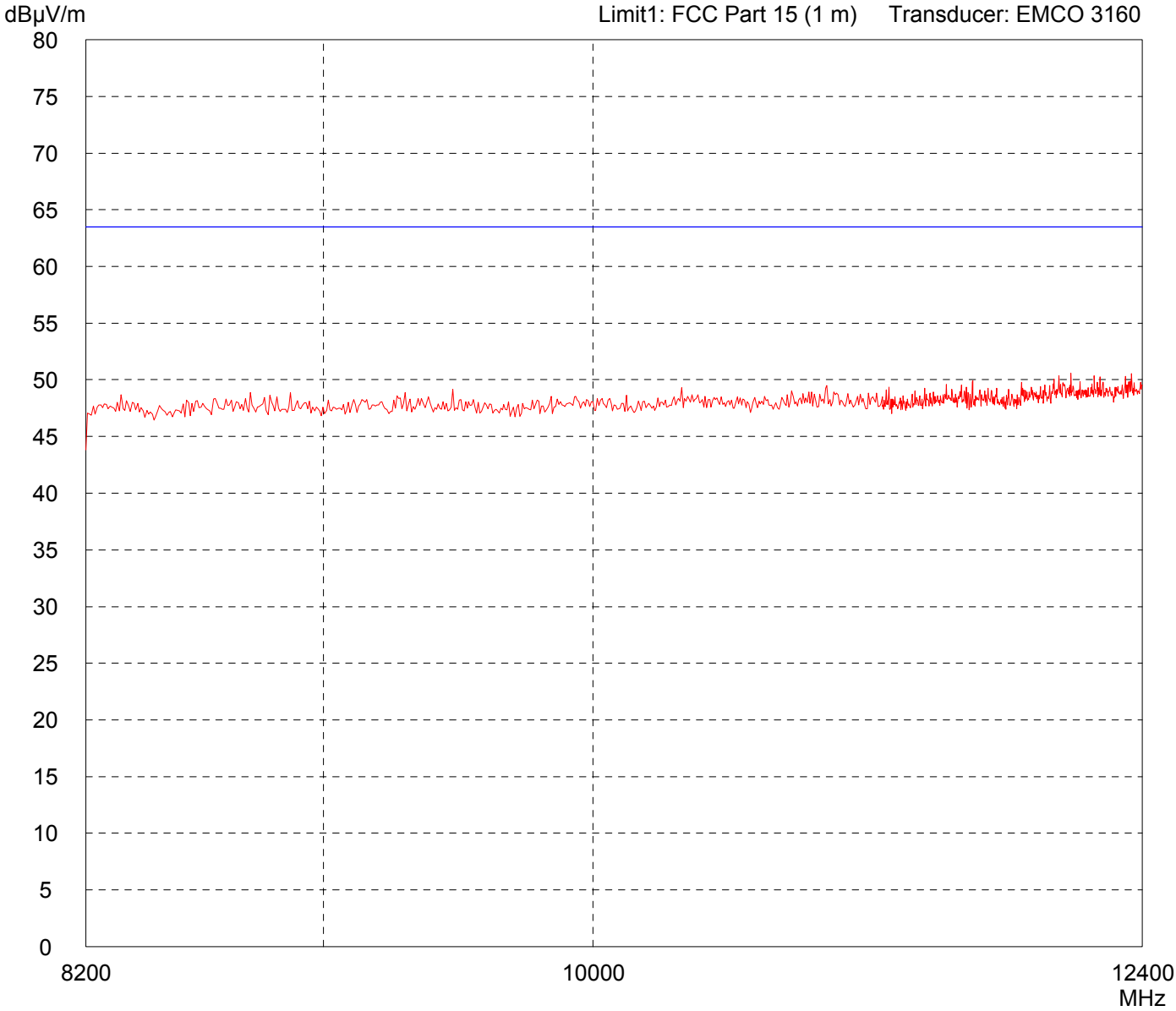
Result: Prescan	Project file: 50104-40281-1 Page of Pages

Radiated Emission Test 8.2 GHz - 12.4 GHz
acc. to FCC Part 15 (EMCO 3160)

Model: 2500 (H2500) - Transmitter	Comment: - AC 115 V power supply (DC 9 V)
Serial no.: 01	- all cables connected - Audio-signal: 1Vpp @ 1kHz
Applicant: Amphony GmbH	- transmitting continiously
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 1 meter Horizontal Polarization	
Date of test: 05/14/2004 — Operator: M. Steindl	
Test performed: automatically — File name: default.emi	

Detector: Peak	List of values: 10 dB Margin — 50 Subranges

Limit1: FCC Part 15 (1 m) Transducer: EMCO 3160

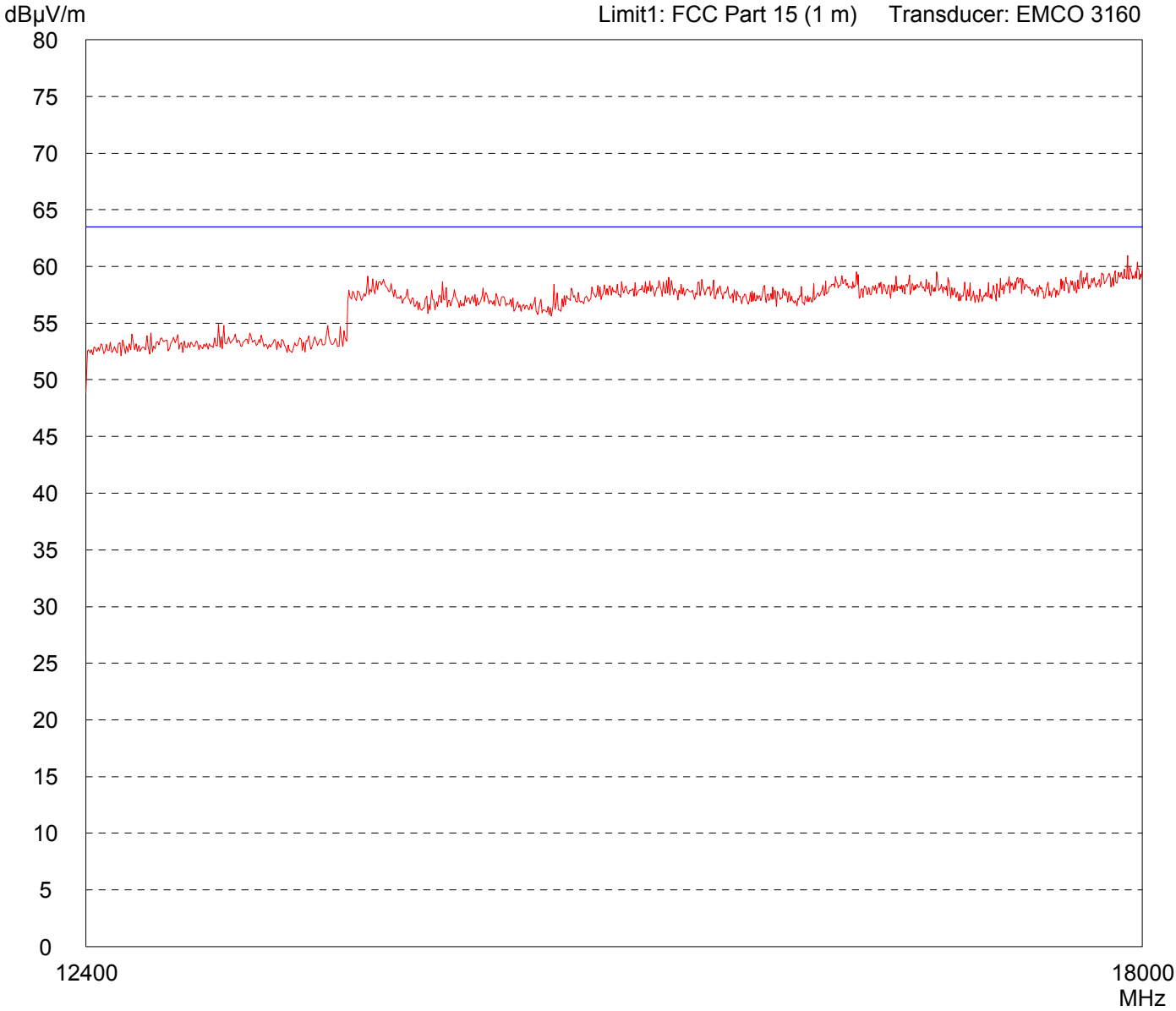


Result: Prescan	Project file: 50104-40281-1 Page of Pages

Radiated Emission Test 12.4 GHz - 18 GHz
acc. to FCC Part 15 (EMCO 3160)

Model: 2500 (H2500) - Transmitter	Comment: - AC 115 V power supply (DC 9 V)
Serial no.: 01	- all cables connected - Audio-signal: 1Vpp @ 1kHz
Applicant: Amphony GmbH	- transmitting continiously
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 1 meter Horizontal Polarization	
Date of test: 05/14/2004 — Operator: M. Steindl	
Test performed: automatically — File name: default.emi	

Detector: Peak	List of values: Selected by hand

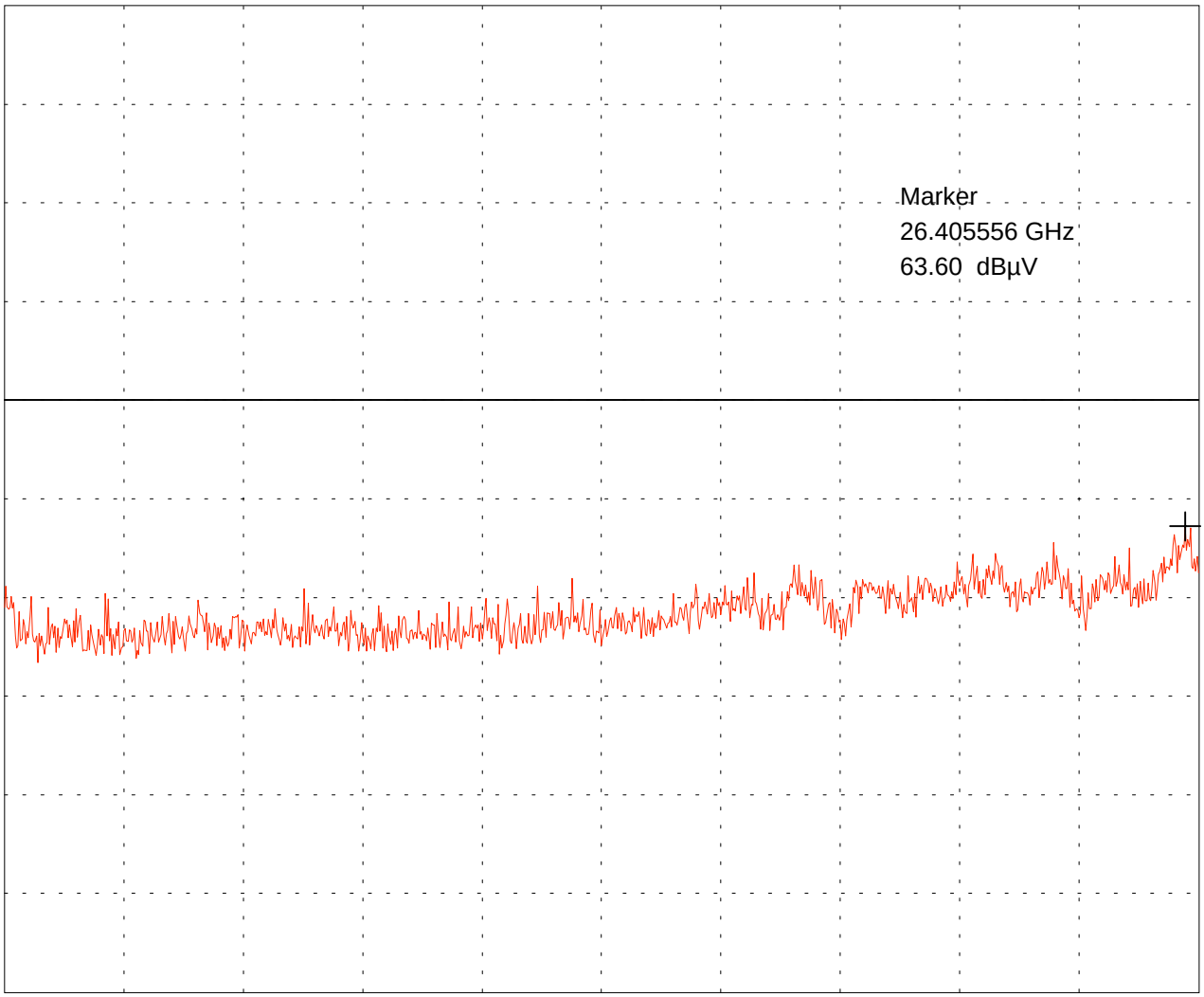


Result: Prescan	Project file: 50104-40281-1 Page of Pages

Radiated Emission Test 18 GHz - 26.5 GHz acc. to FCC Part 15.225

Model: 2500 (H2500) - Transmitter	Mode: - AC 115 V power supply (DC 9 V) - all cables connected - Audio-signal 1 Vpp @ 1 kHz - transmitting continiously - test distance: 0.5 m - polarisation: horizontal
Serial No.: 02	
Applicant: Amphony GmbH	

Ref.Level 90 dBµV ATT 0 dB Ref. Offset 43 dB
5 dB/Div.



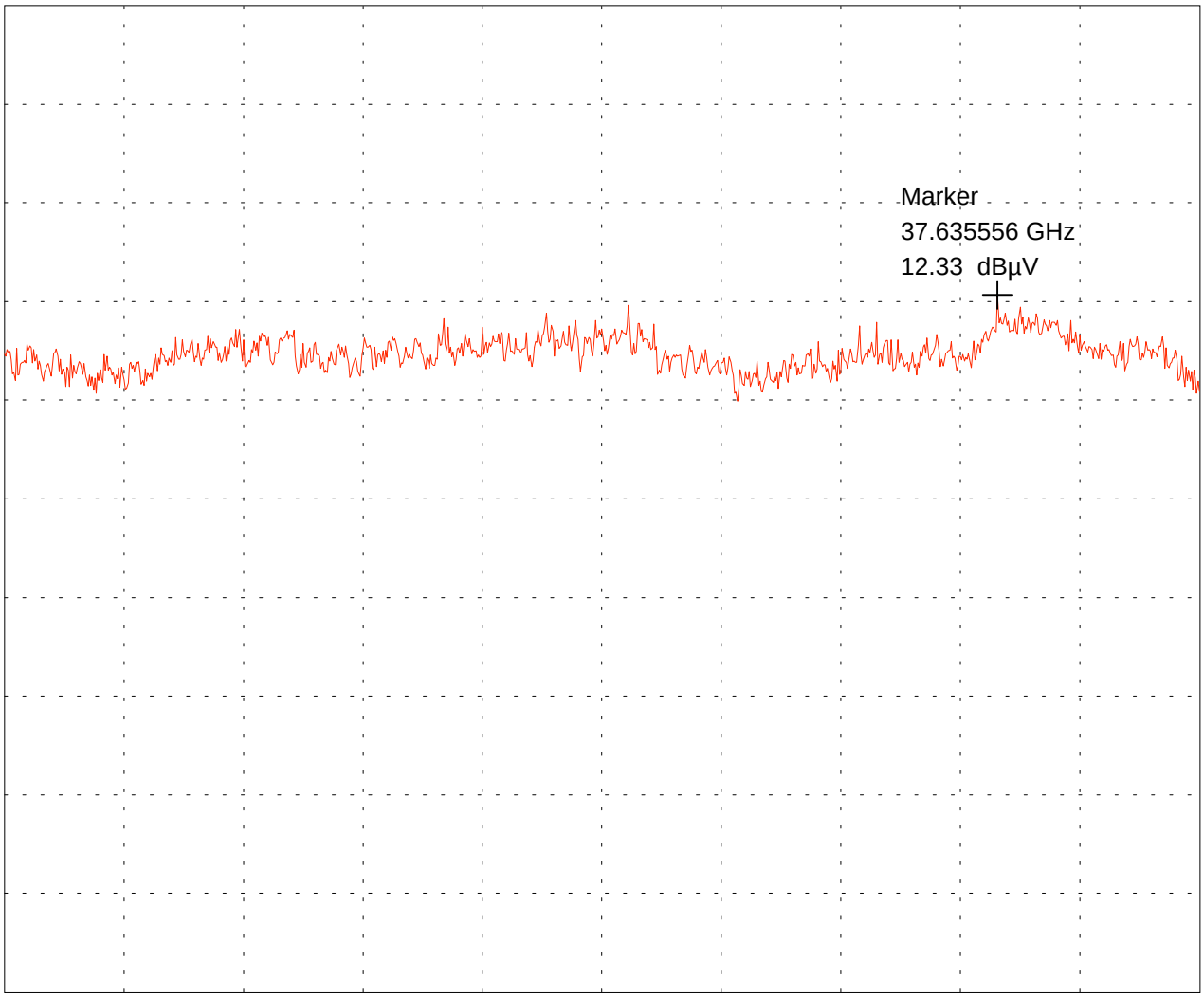
Start 18.000 GHz Stop 26.500 GHz
RBW 1 MHz VBW 1 MHz SWP 40 ms

Tested by: Martin Steindl	Project-No.: 50104-40281
Date: 06/23/2004	Page of pages

Radiated Emission Test 26 GHz - 29 GHz acc. to FCC Part 15.225

Model: 2500 (H2500) - Transmitter	Mode: - AC 115 V power supply (DC 9 V) - all cables connected - Audio-signal 1 Vpp @ 1 kHz - transmitting continiously - test distance: 0.25 m - polarisation: horizontal
Serial No.: 01	
Applicant: Amphony GmbH	

Ref.Level 27 dBµV ATT 0 dB
5 dB/Div.



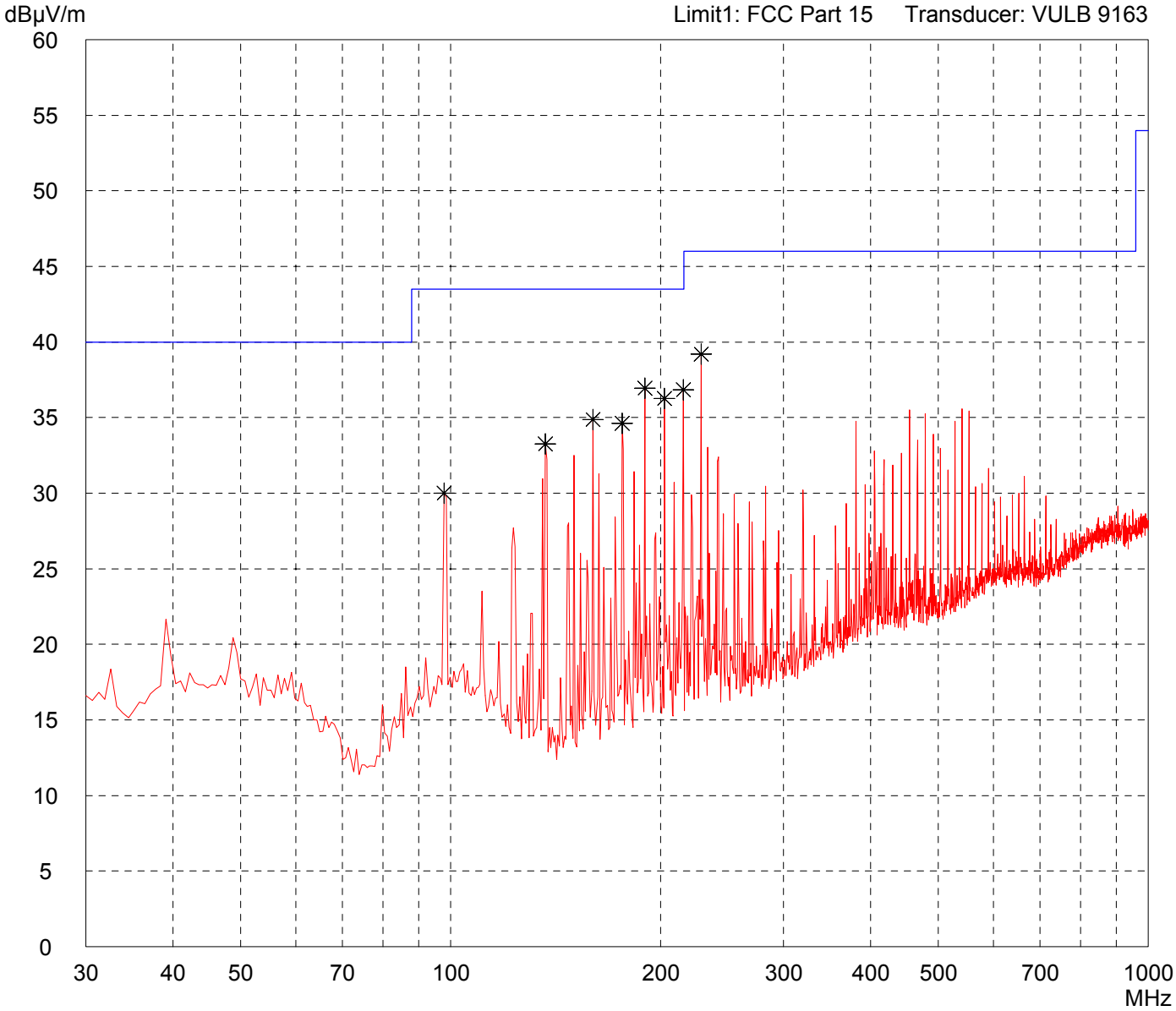
Start 26.000 GHz Stop 40.000 GHz
RBW 1 MHz VBW 100 kHz SWP 420 ms

Tested by: Martin Steindl	Project-No.: 50104-40281
Date: 06/23/2004	Page of pages

Radiated Emission Test 30 MHz - 1 GHz
acc. to FCC Part 15.225 (Fully Anechoic Chamber)

Model: 2500 (H2500) - Transmitter	Comment: - AC 115 V power supply (DC 9 V)
Serial no.: 01	- all cables connected - Audio-signal: 1Vpp @ 1kHz
Applicant: Amphony GmbH	- transmitting continously
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Vertical Polarization	
Date of test: 05/12/2004 — Operator: M. Steindl	
Test performed: automatically — File name: default.emi	

Detector: Peak	List of values: Selected by hand

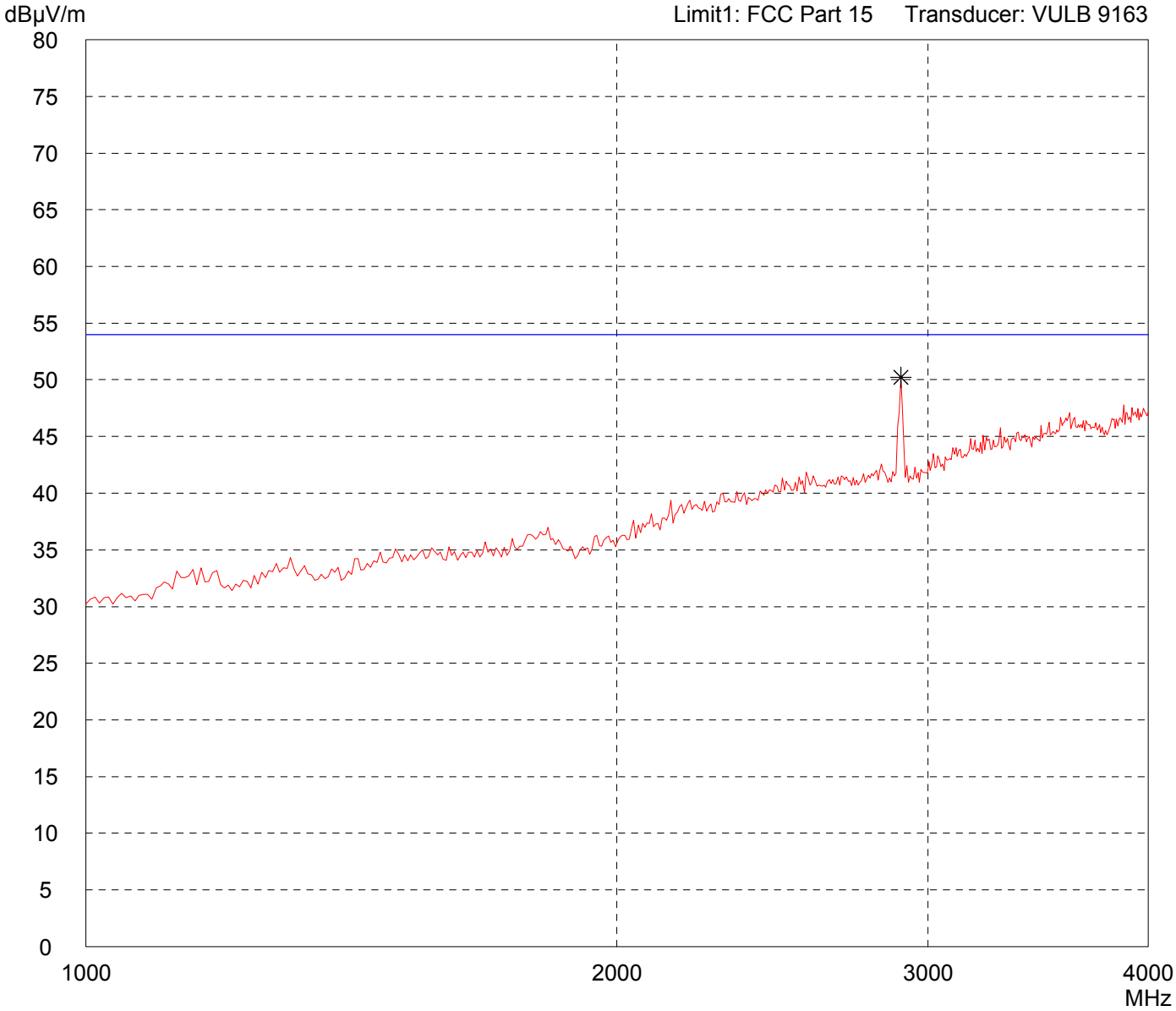


Result: Prescan	Project file: 50104-40281-1 Page of Pages

Radiated Emission Test 1 GHz - 4 GHz
acc. to FCC Part 15.225 (Fully Anechoic Chamber)

Model: 2500 (H2500) - Transmitter	Comment: - AC 115 V power supply (DC 9 V)
Serial no.: 01	- all cables connected - Audio-signal: 1Vpp @ 1kHz
Applicant: Amphony GmbH	- transmitting continously
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Vertical Polarization	
Date of test: 05/12/2004 — Operator: M. Steindl	
Test performed: automatically — File name: default.emi	

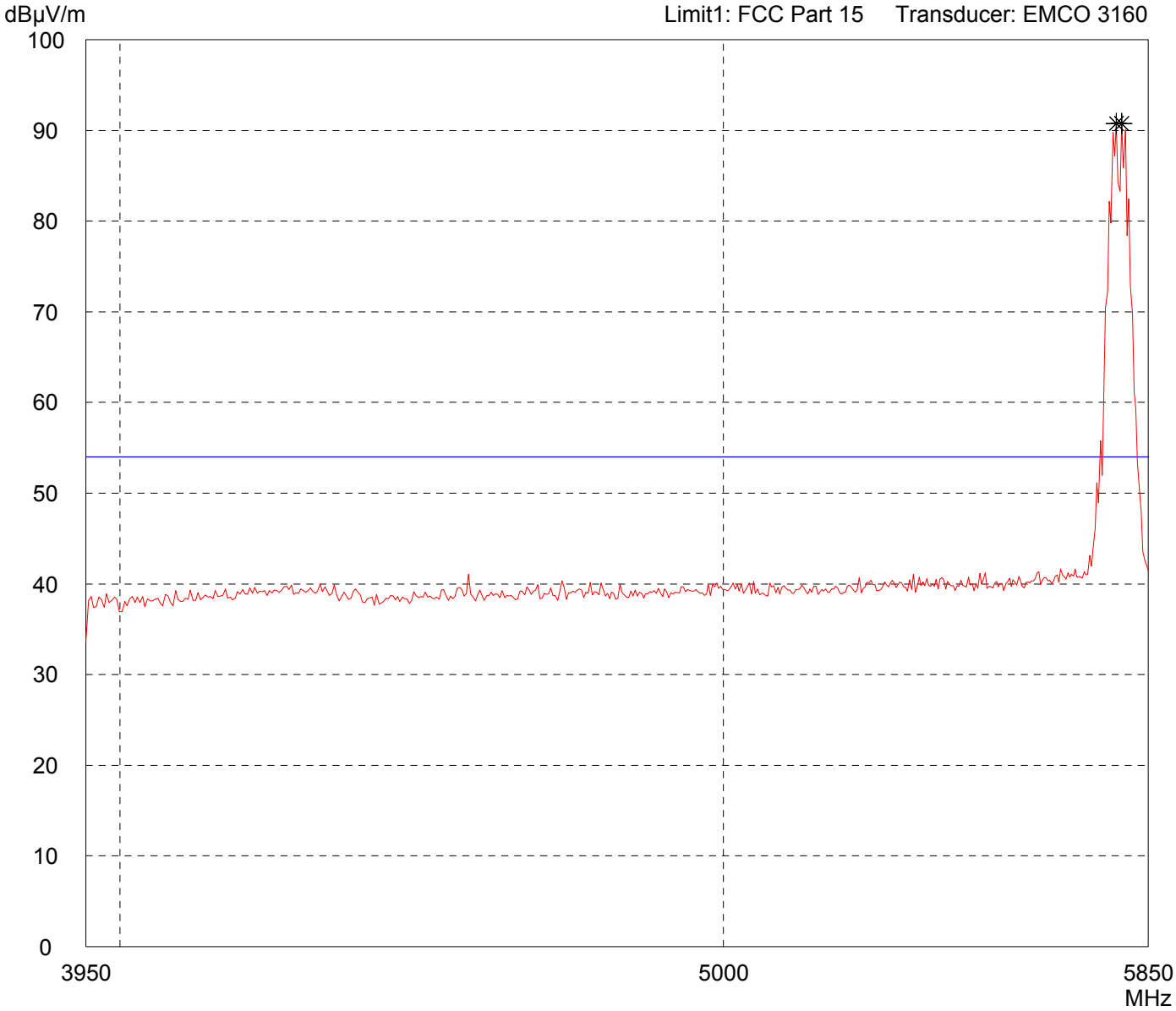
Detector: Peak	List of values: Selected by hand



Result: Prescan	Project file: 50104-40281-1 Page of Pages

Radiated Emission Test 3.95 GHz - 5.85 GHz
acc. to FCC Part 15 (EMCO 3160)

Model: 2500 (H2500) - Transmitter	Comment: - AC 115 V power supply (DC 9 V) - all cables connected - Audio-signal: 1Vpp @ 1kHz - transmitting continiously
Serial no.: 01	
Applicant: Amphony GmbH	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Vertical Polarization	
Date of test: 05/14/2004 — Operator: M. Steindl	
Test performed: automatically — File name: default.emi	
Detector: Peak	List of values: Selected by hand

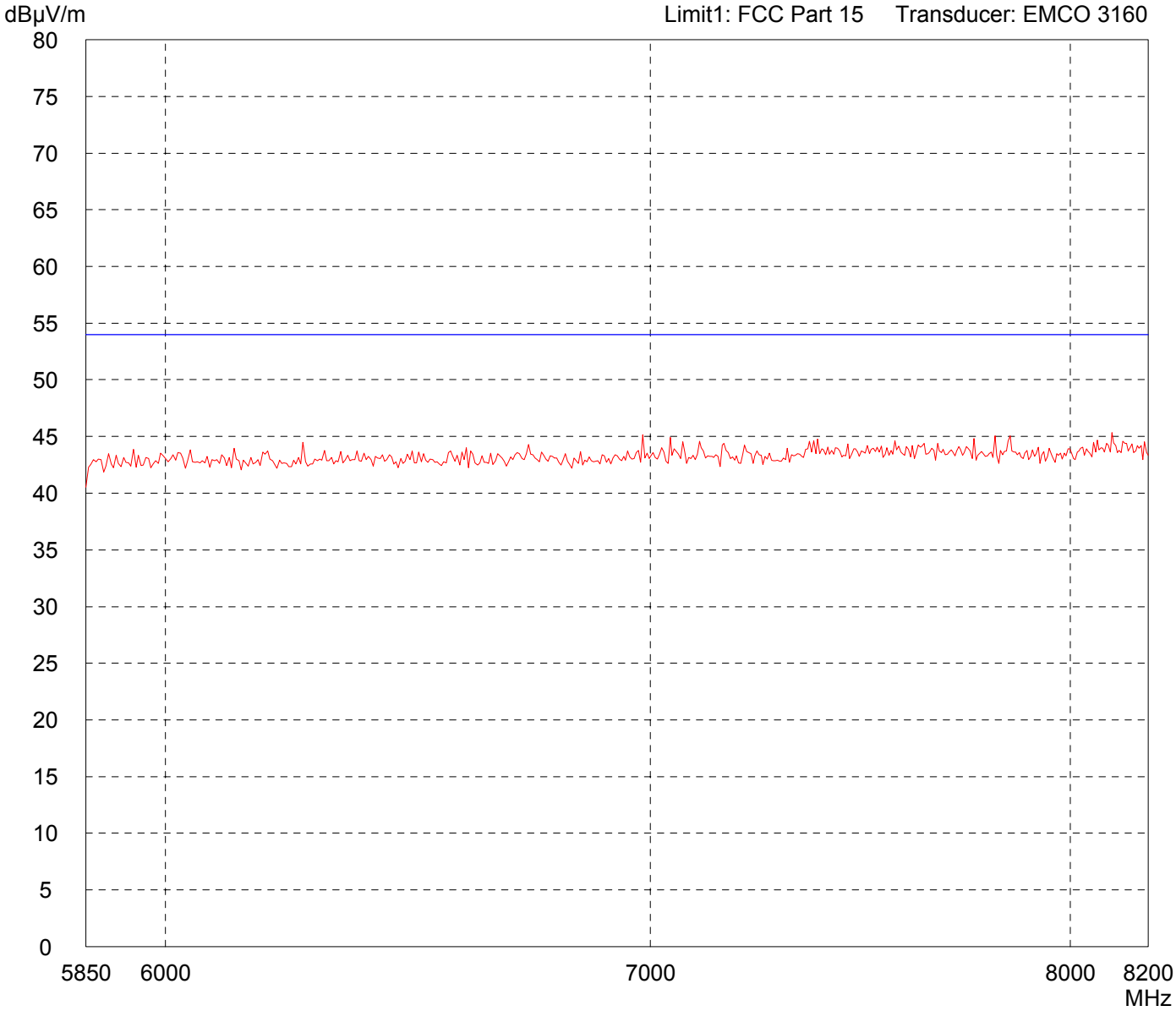


Result: Prescan	Project file: 50104-40281-1 Page of Pages

Radiated Emission Test 5.85 GHz - 8.2 GHz
acc. to FCC Part 15 (EMCO 3160)

Model: 2500 (H2500) - Transmitter	Comment: - AC 115 V power supply (DC 9 V)
Serial no.: 01	- all cables connected - Audio-signal: 1Vpp @ 1kHz
Applicant: Amphony GmbH	- transmitting continiously
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Vertical Polarization	
Date of test: 05/14/2004 — Operator: M. Steindl	
Test performed: automatically — File name: default.emi	

Detector: Peak	List of values: Selected by hand



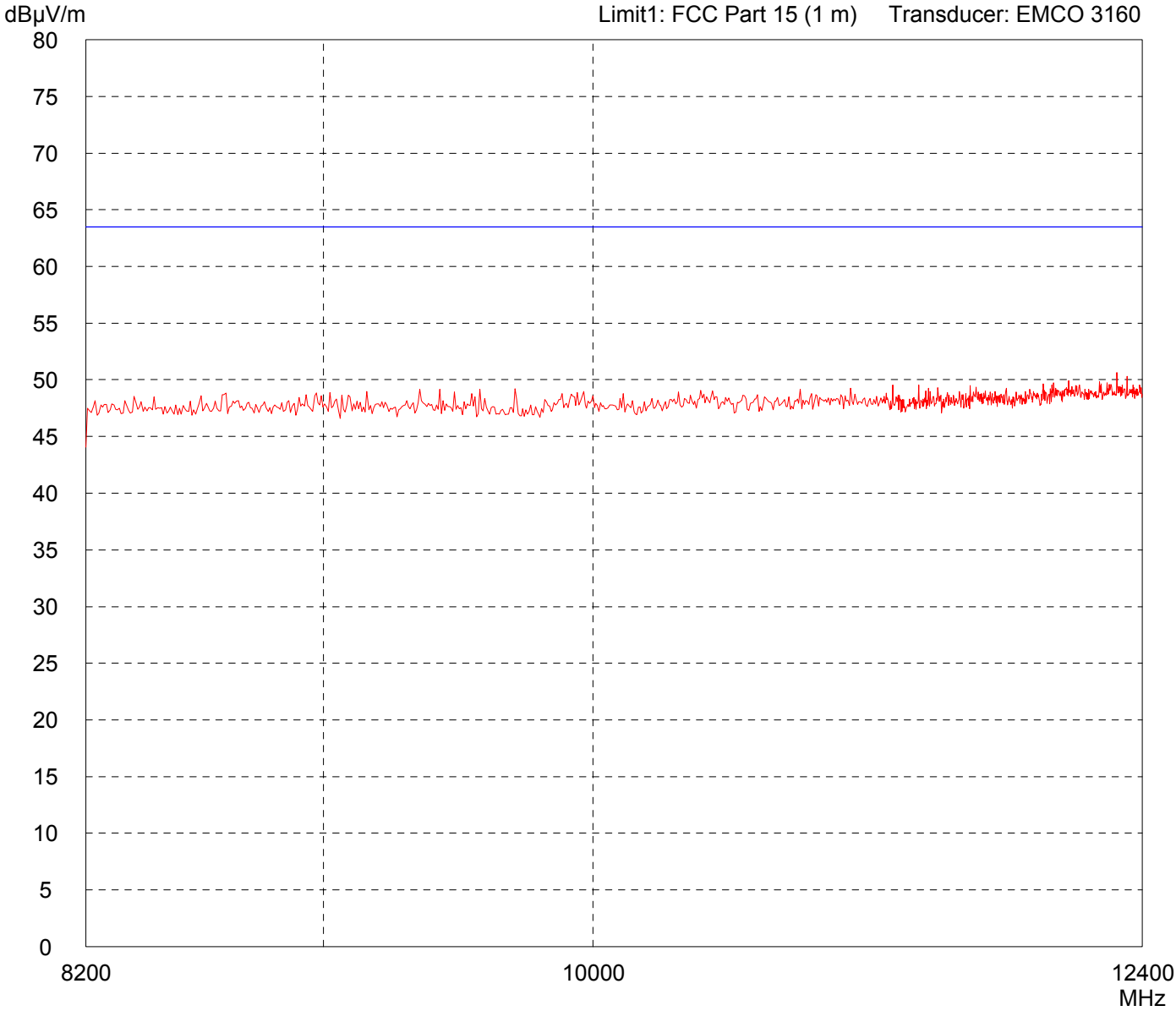
Result: Prescan	Project file: 50104-40281-1 Page of Pages

Radiated Emission Test 8.2 GHz - 12.4 GHz
acc. to FCC Part 15 (EMCO 3160)

Model: 2500 (H2500) - Transmitter	Comment: - AC 115 V power supply (DC 9 V)
Serial no.: 01	- all cables connected - Audio-signal: 1Vpp @ 1kHz
Applicant: Amphony GmbH	- transmitting continiously
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 1 meter Vertical Polarization	
Date of test: 05/14/2004 — Operator: M. Steindl	
Test performed: automatically — File name: default.emi	

Detector: Peak	List of values: 10 dB Margin — 50 Subranges

Limit1: FCC Part 15 (1 m) Transducer: EMCO 3160



Result: Prescan	Project file: 50104-40281-1 Page of Pages

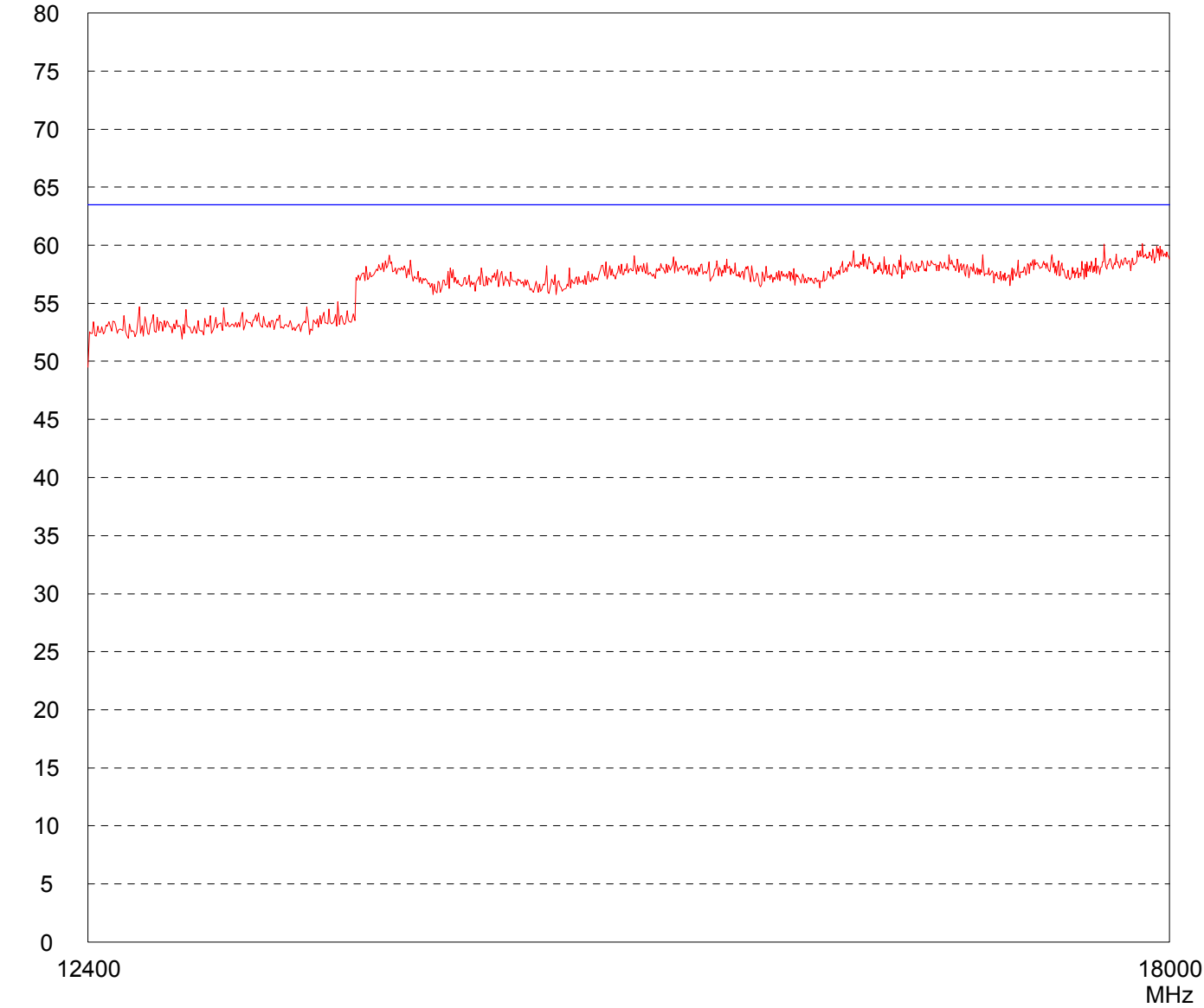
Radiated Emission Test 12.4 GHz - 18 GHz
acc. to FCC Part 15 (EMCO 3160)

Model: 2500 (H2500) - Transmitter	Comment: - AC 115 V power supply (DC 9 V)
Serial no.: 01	- all cables connected - Audio-signal: 1Vpp @ 1kHz
Applicant: Amphony GmbH	- transmitting continiously
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 1 meter Vertical Polarization	
Date of test: 05/14/2004 — Operator: M. Steindl	
Test performed: automatically — File name: default.emi	

Detector: Peak	List of values: Selected by hand

dBµV/m

Limit1: FCC Part 15 (1 m) Transducer: EMCO 3160

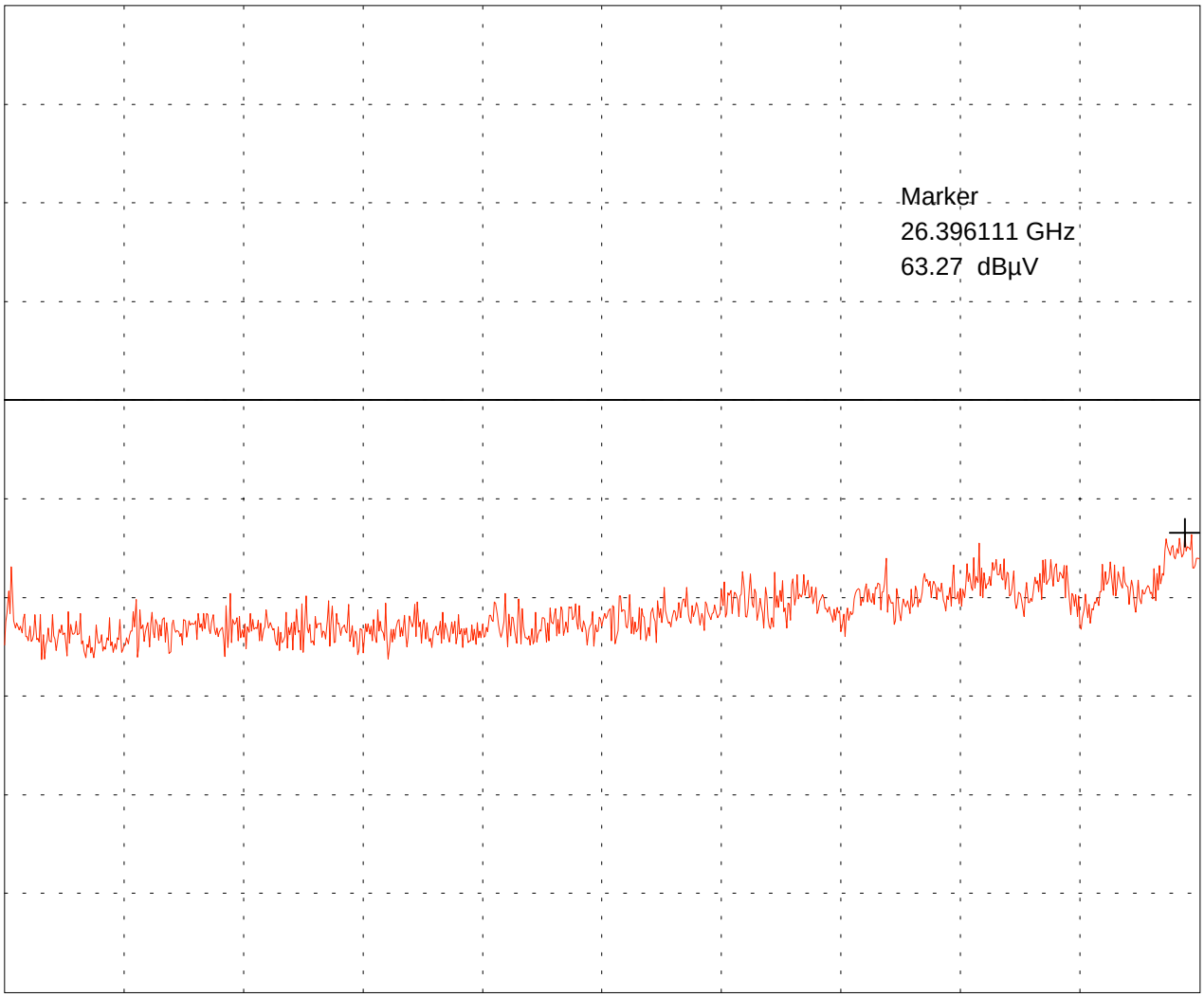


Result: Prescan	Project file: 50104-40281-1 Page of Pages

Radiated Emission Test 18 GHz - 26.5 GHz acc. to FCC Part 15.225

Model: 2500 (H2500) - Transmitter	Mode: - AC 115 V power supply (DC 9 V) - all cables connected - Audio-signal 1 Vpp @ 1 kHz - transmitting continiously - test distance: 0.5 m - polarisation: vertical
Serial No.: 02	
Applicant: Amphony GmbH	

Ref.Level 90 dBµV ATT 0 dB Ref. Offset 43 dB
5 dB/Div.



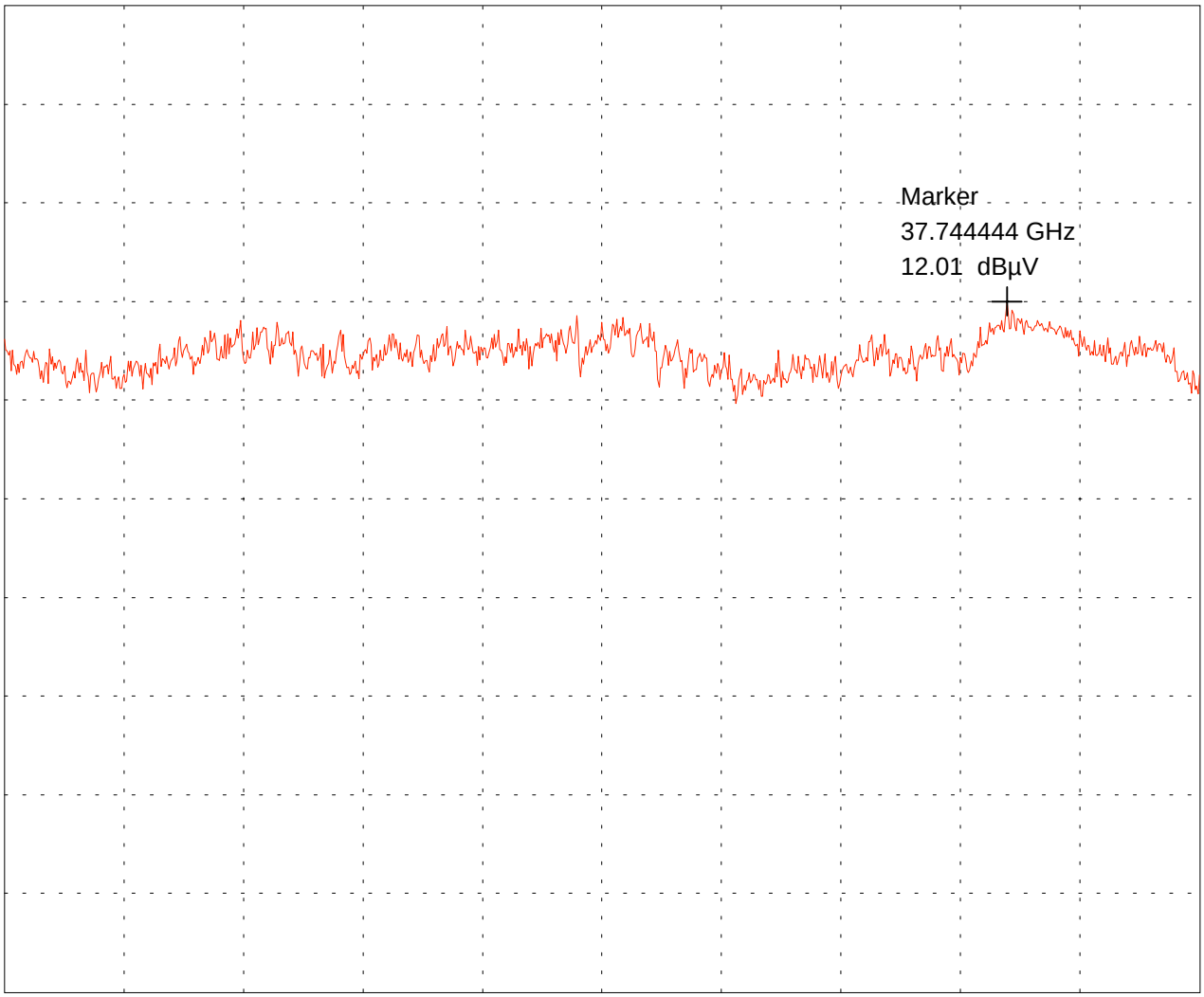
Start 18.000 GHz Stop 26.500 GHz
RBW 1 MHz VBW 1 MHz SWP 40 ms

Tested by: Martin Steindl	Project-No.: 50104-40281
Date: 06/23/2004	Page of pages

Radiated Emission Test 26 GHz - 29 GHz acc. to FCC Part 15.225

Model: 2500 (H2500) - Transmitter	Mode: - AC 115 V power supply (DC 9 V) - all cables connected - Audio-signal 1 Vpp @ 1 kHz - transmitting continiously - test distance: 0.25 m - polarisation: vertical
Serial No.: 01	
Applicant: Amphony GmbH	

Ref.Level 27 dBµV ATT 0 dB
5 dB/Div.



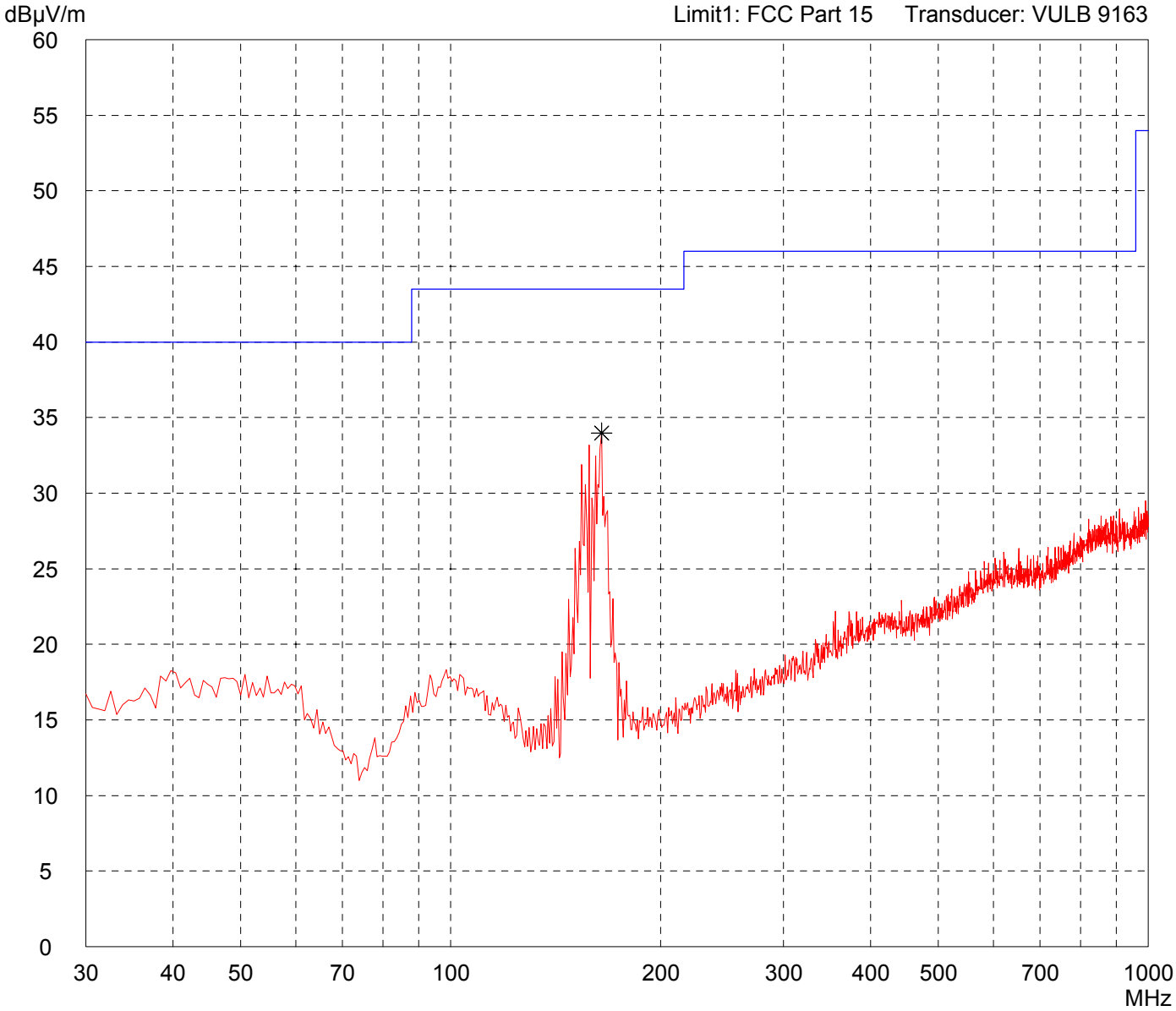
Start 26.000 GHz Stop 40.000 GHz
RBW 1 MHz VBW 100 kHz SWP 420 ms

Tested by: Martin Steindl	Project-No.: 50104-40281
Date: 06/23/2004	Page of pages

Radiated Emission Test 30 MHz - 1 GHz
acc. to FCC Part 15 (Fully Anechoic Chamber)

Model: 2500 (H2500) - Headphones	Comment: - 2 x 1.5 V battery supply
Serial no.: 01	
Applicant: Amphony GmbH	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Horizontal Polarization	
Date of test: 05/14/2004 — Operator: M. Steindl	
Test performed: automatically — File name: default.emi	

Detector: Peak	List of values: 10 dB Margin — 50 Subranges

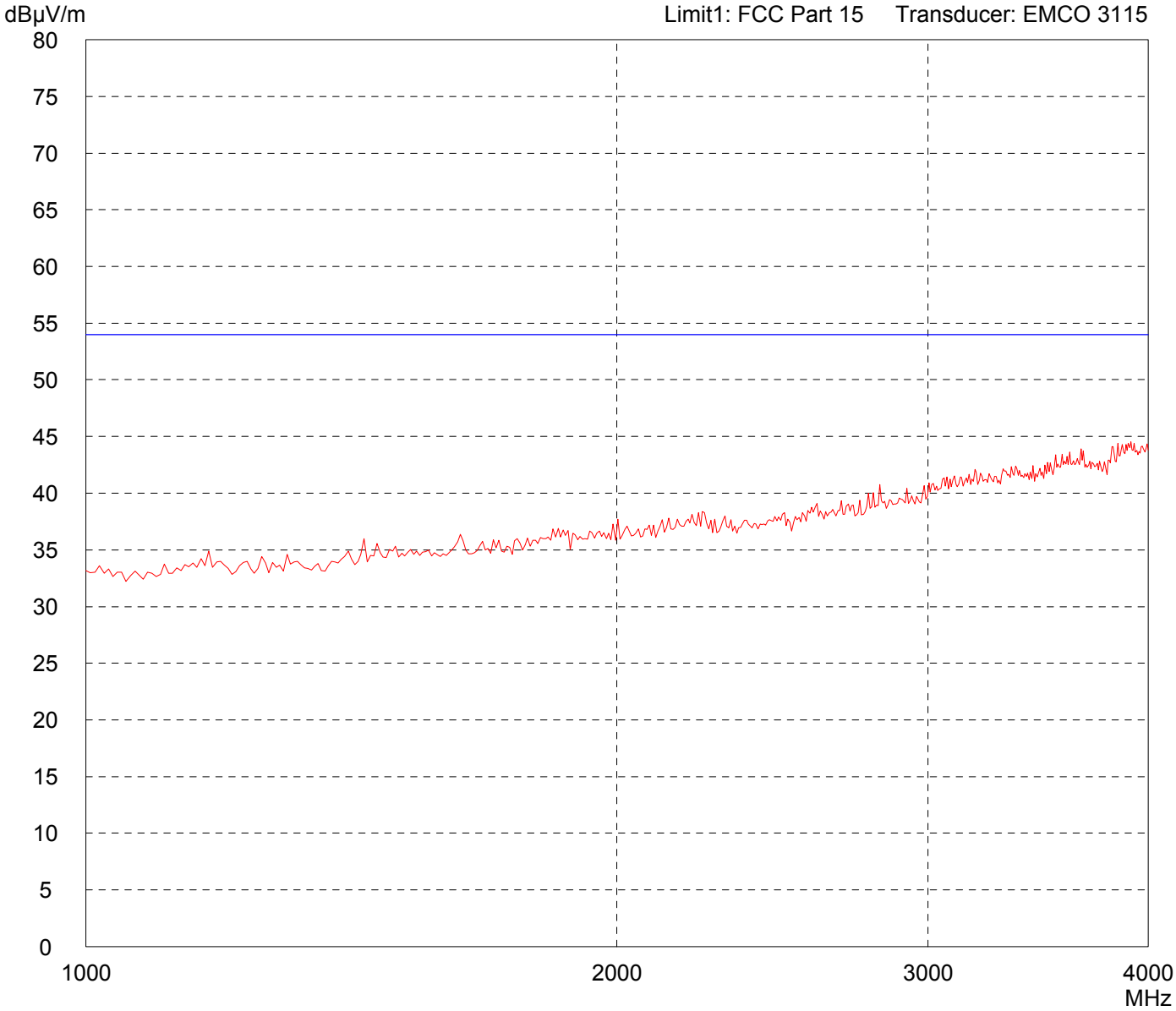


Result: Prescan	Project file: 50104-40281-2 — Page of Pages

Radiated Emission Test 1 GHz - 4 GHz
acc. to FCC Part 15 (EMCO 3115)

Model: 2500 (H2500) - Headphones	Comment: - 2 x 1.5 V battery supply
Serial no.: 01	
Applicant: Amphony GmbH	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Horizontal Polarization	
Date of test: 05/14/2004 — Operator: M. Steindl	
Test performed: automatically — File name: default.emi	

Detector: Peak	List of values: Selected by hand



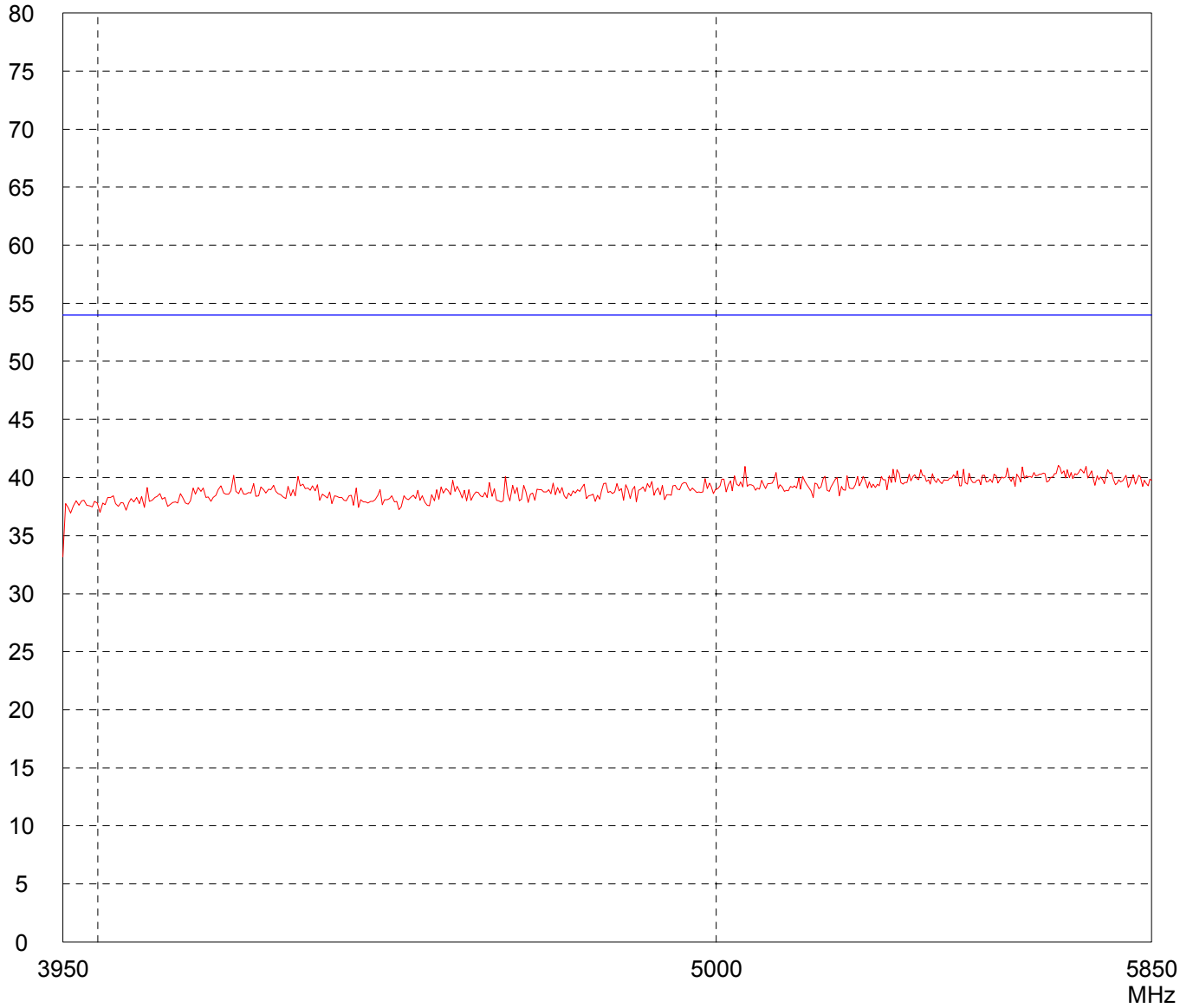
Result: Prescan	Project file: 50104-40281-2 Page of Pages

Radiated Emission Test 3.95 GHz - 5.85 GHz
acc. to FCC Part 15 (EMCO 3160)

Model: 2500 (H2500) - Headphones	Comment: - 2 x 1.5 V battery supply
Serial no.: 01	
Applicant: Amphony GmbH	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Horizontal Polarization	
Date of test: 05/14/2004 — Operator: M. Steindl	
Test performed: automatically — File name: default.emi	

Detector: Peak	List of values: 10 dB Margin — 50 Subranges

dBµV/m — Limit1: FCC Part 15 — Transducer: EMCO 3160

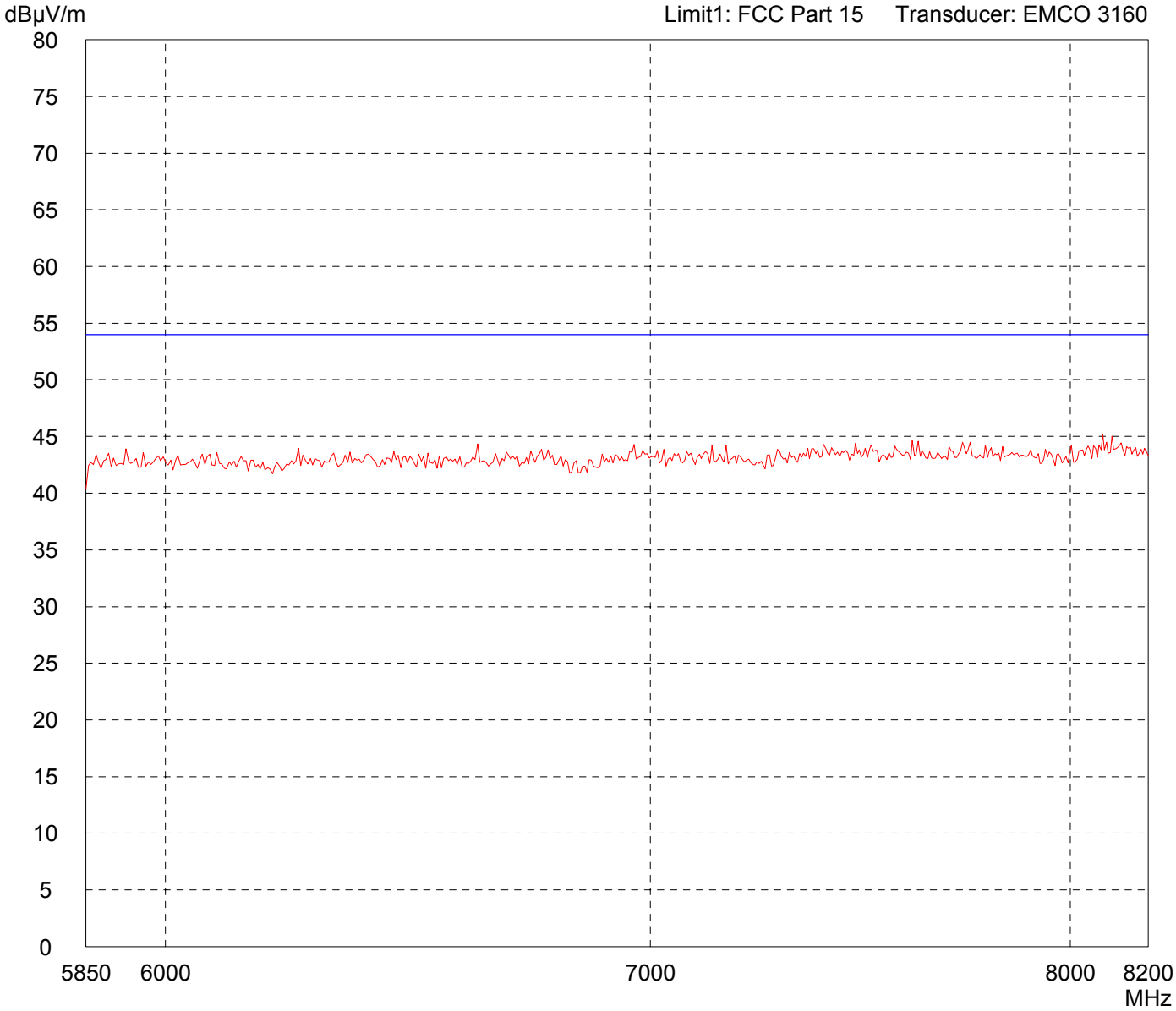


Result: Prescan	Project file: 50104-40281-2 — Page of Pages

Radiated Emission Test 5.85 GHz - 8.2 GHz
acc. to FCC Part 15 (EMCO 3160)

Model: 2500 (H2500) - Headphones	Comment: - 2 x 1.5 V battery supply
Serial no.: 01	
Applicant: Amphony GmbH	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 1 meter Horizontal Polarization	
Date of test: 05/14/2004 — Operator: M. Steindl	
Test performed: automatically — File name: default.emi	

Detector: Peak	List of values: 10 dB Margin — 50 Subranges



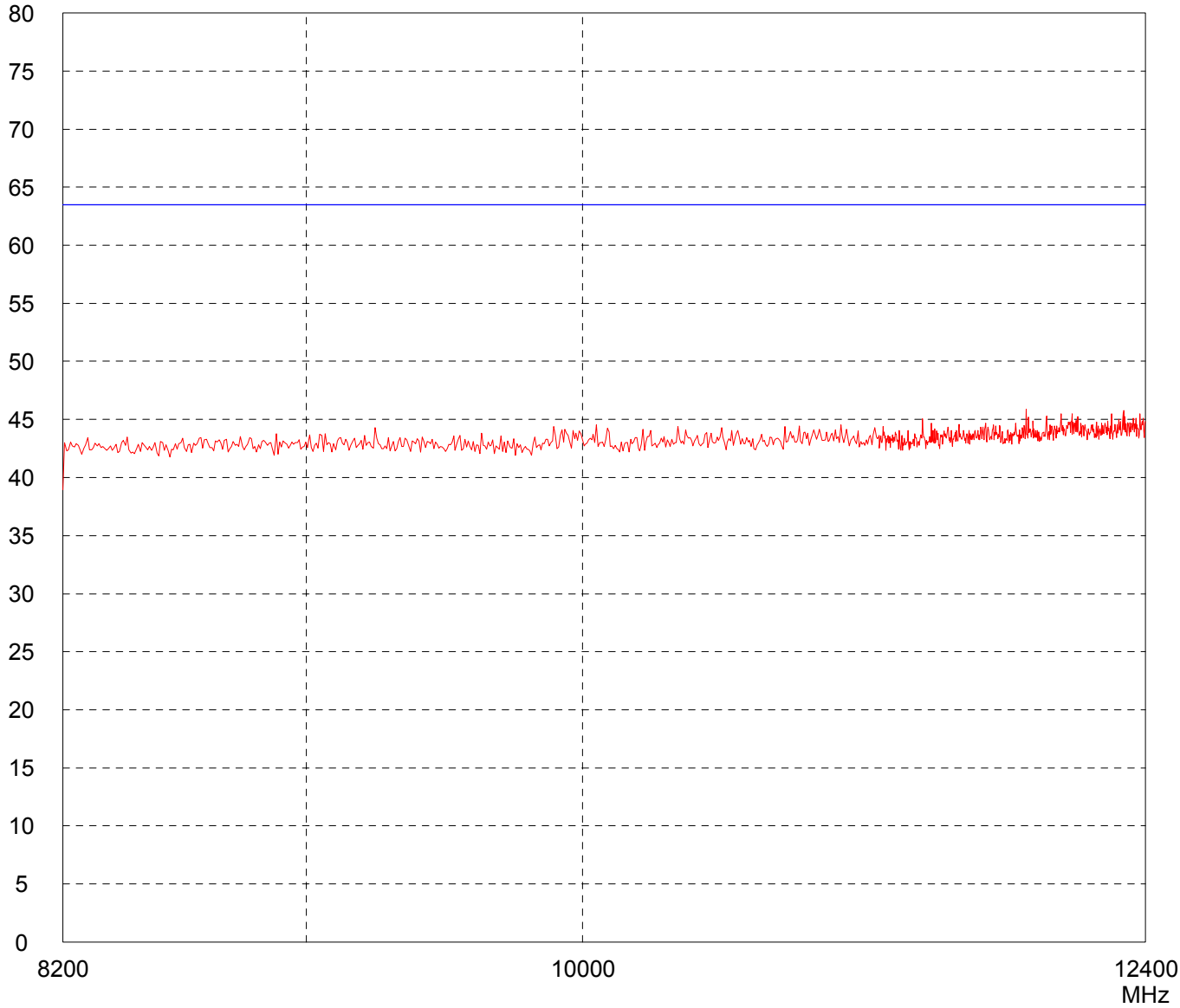
Result: Prescan	Project file: 50104-40281-2 — Page of Pages

Radiated Emission Test 8.2 GHz - 12.4 GHz
acc. to FCC Part 15 (EMCO 3160)

Model: 2500 (H2500) - Headphones	Comment: - 2 x 1.5 V battery supply
Serial no.: 01	
Applicant: Amphony GmbH	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 1 meter Horizontal Polarization	
Date of test: 05/14/2004 — Operator: M. Steindl	
Test performed: automatically — File name: default.emi	

Detector: Peak	List of values: 10 dB Margin — 50 Subranges

dBµV/m — Limit1: FCC Part 15 (1 m) — Transducer: EMCO 3160



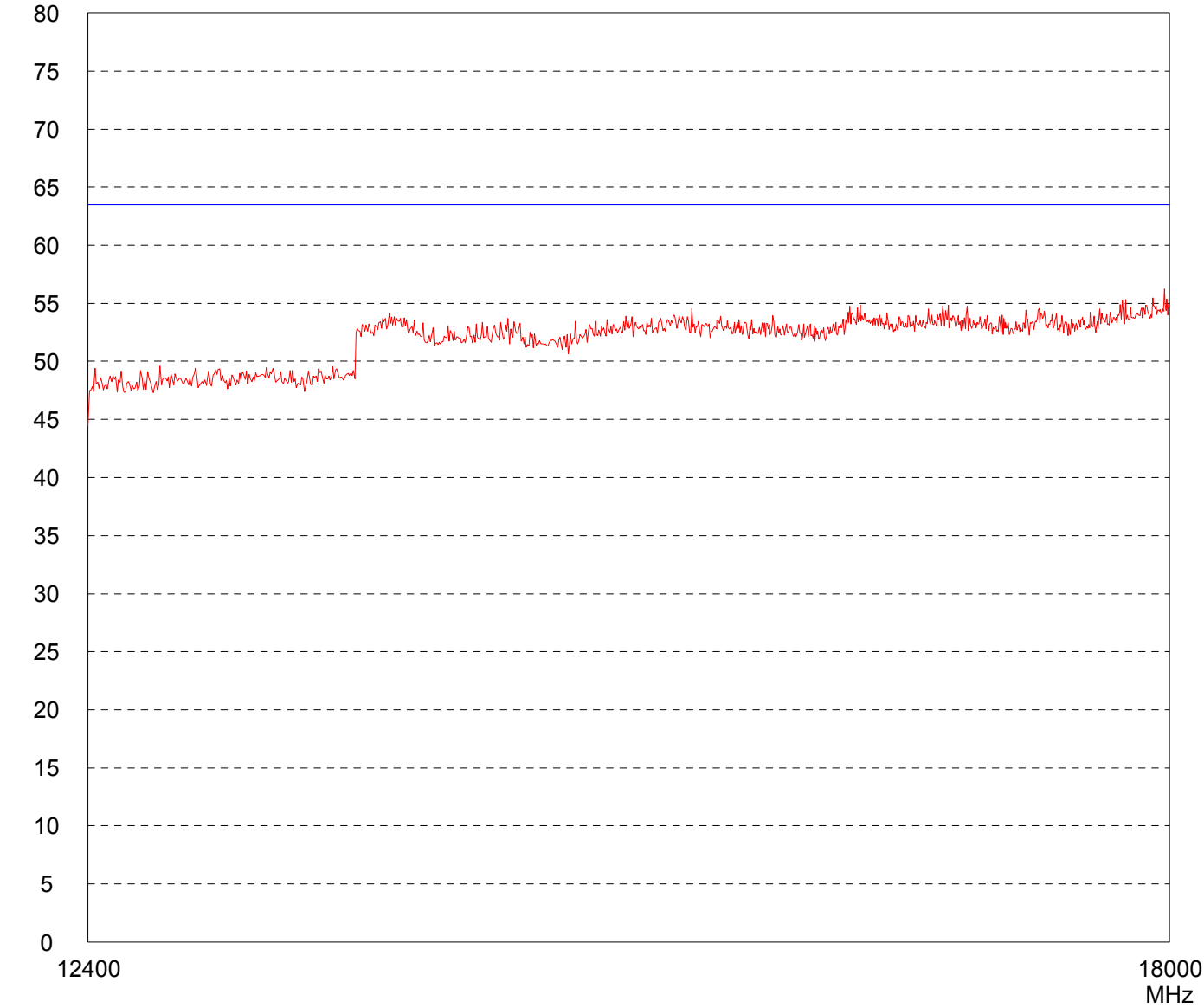
Result: Prescan	Project file: 50104-40281-2 — Page of Pages

Radiated Emission Test 12.4 GHz - 18 GHz
acc. to FCC Part 15 (EMCO 3160)

Model: 2500 (H2500) - Headphones	Comment: - 2 x 1.5 V battery supply
Serial no.: 01	
Applicant: Amphony GmbH	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 1 meter Horizontal Polarization	
Date of test: 05/14/2004 — Operator: M. Steindl	
Test performed: automatically — File name: default.emi	
Detector: Peak	List of values: Selected by hand

dBµV/m

Limit1: FCC Part 15 (1 m) Transducer: EMCO 3160

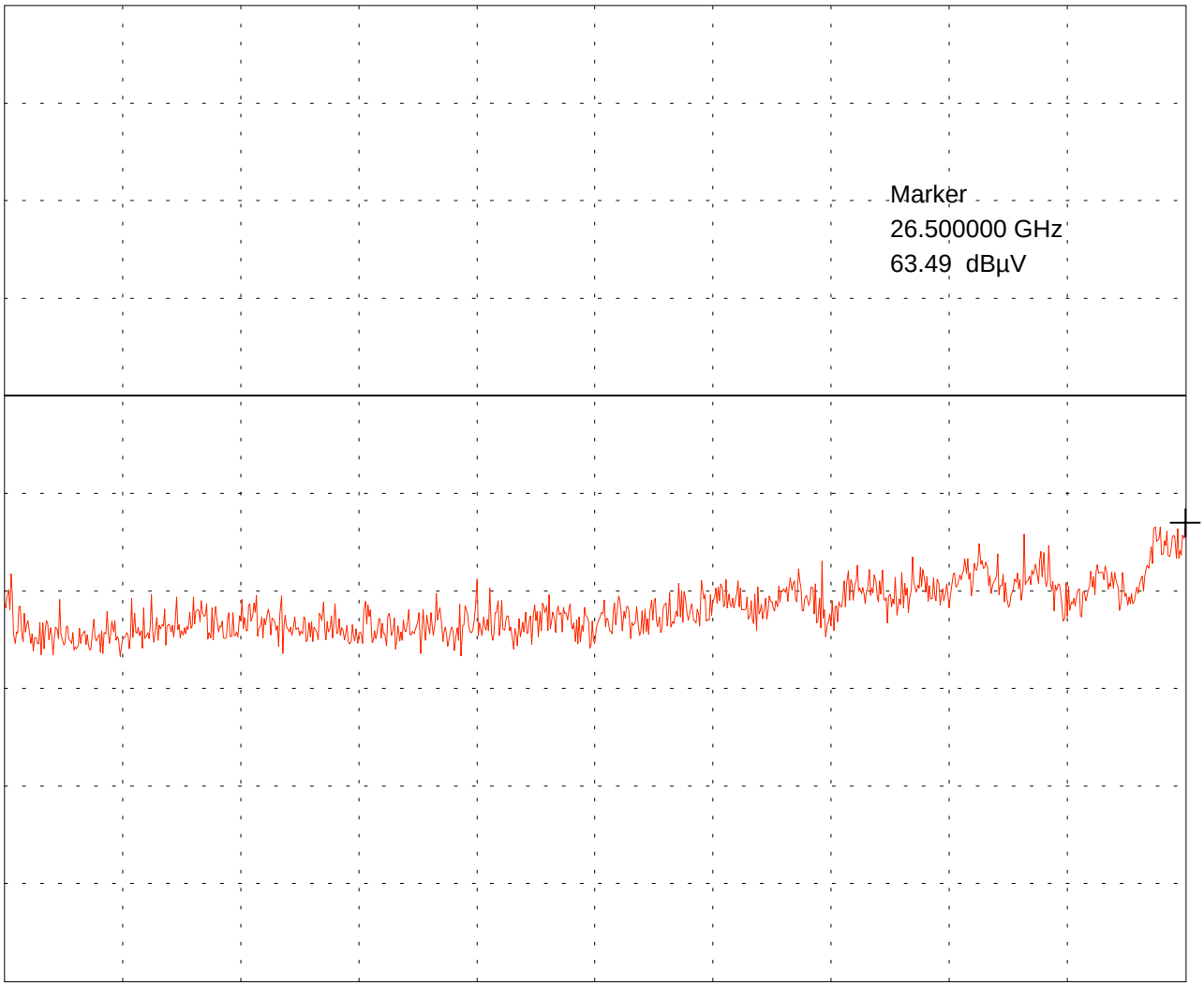


Result: Prescan	Project file: 50104-40281-2 Page of Pages

Radiated Emission Test 18 GHz - 26.5 GHz acc. to FCC Part 15.225

Model: 2500 (H2500) - Headphones	Mode: - 2 x 1.5 V battery supply - test distance: 0.5 m - polarisation: horizontal
Serial No.: 01	
Applicant: Amphony GmbH	

Ref.Level 90 dBµV ATT 0 dB Ref. Offset 43 dB
5 dB/Div.



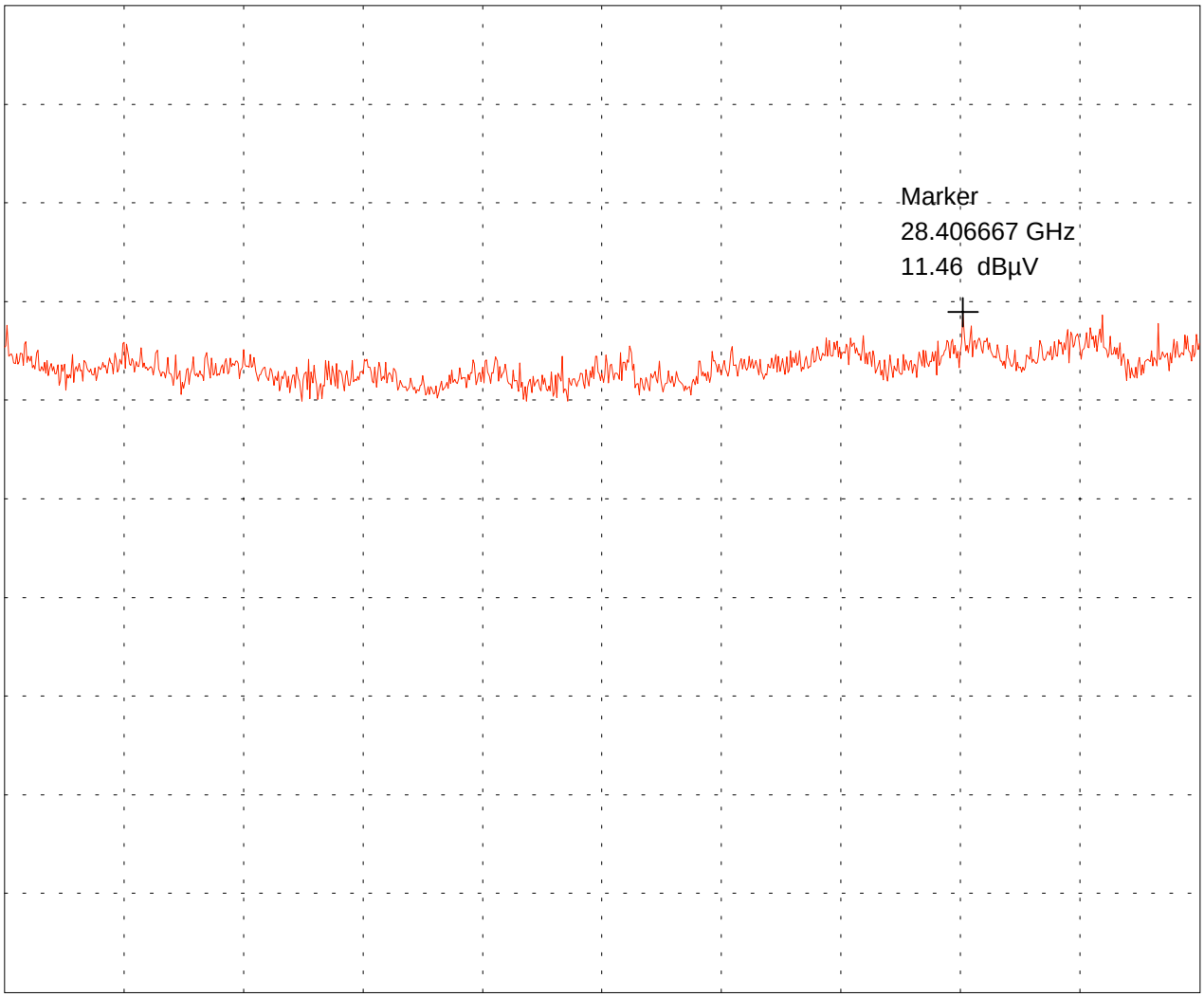
Start 18.000 GHz Stop 26.500 GHz
RBW 1 MHz VBW 1 MHz SWP 40 ms

Tested by: Martin Steindl	Project-No.: 50104-40281
Date: 06/23/2004	Page of pages

Radiated Emission Test 26 GHz - 29 GHz acc. to FCC Part 15.225

Model: 2500 (H2500) - Headphones	Mode: - 2 x 1.5 V battery supply - test distance: 0.25 m - polarisation: horizontal
Serial No.: 01	
Applicant: Amphony GmbH	

Ref.Level 27 dBµV ATT 0 dB
5 dB/Div.



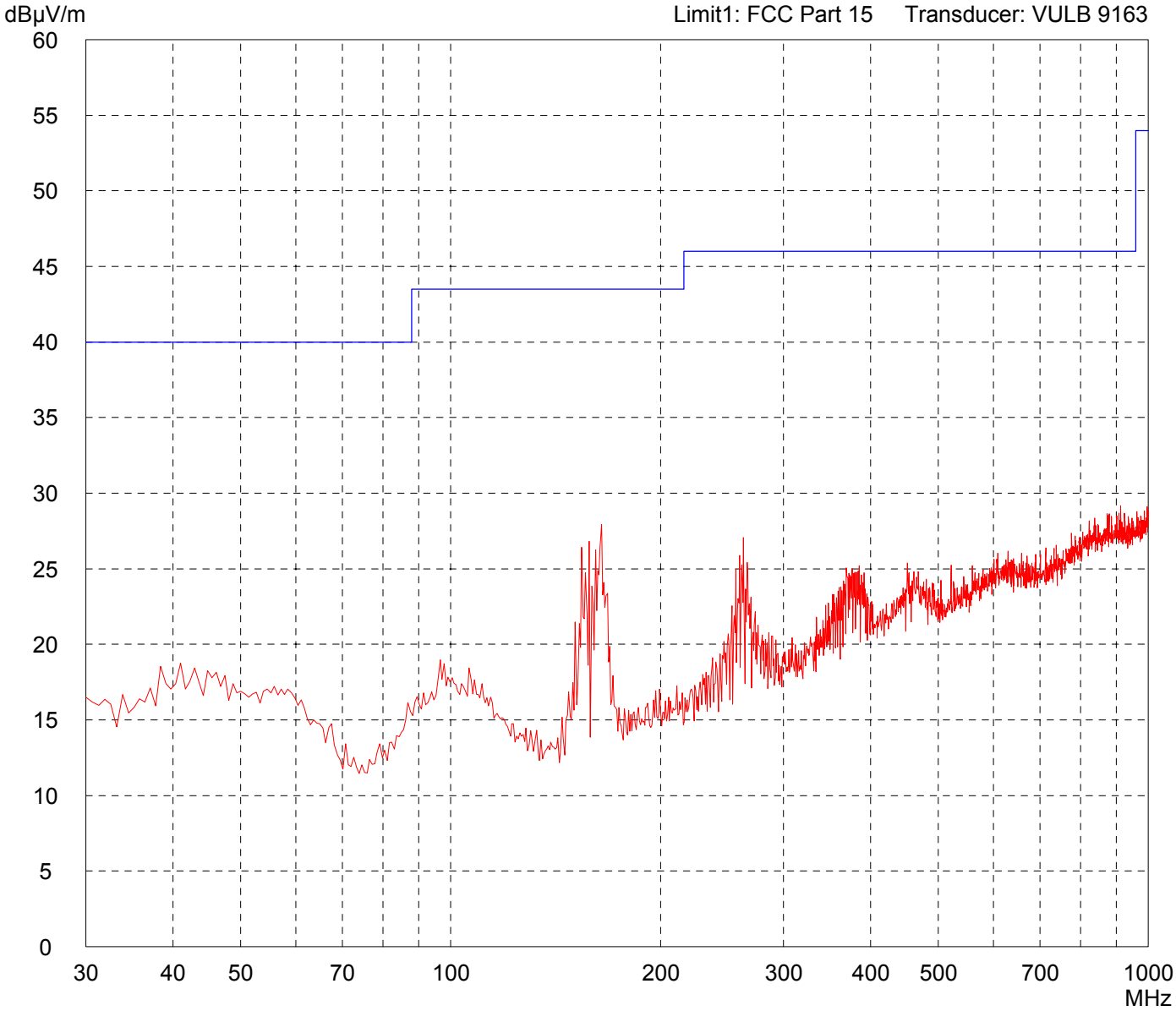
Start 26.000 GHz Stop 29.000 GHz
RBW 1 MHz VBW 100 kHz SWP 100 ms

Tested by: Martin Steindl	Project-No.: 50104-40281
Date: 06/23/2004	Page of pages

Radiated Emission Test 30 MHz - 1 GHz
acc. to FCC Part 15 (Fully Anechoic Chamber)

Model: 2500 (H2500) - Headphones	Comment: - 2 x 1.5 V battery supply
Serial no.: 01	
Applicant: Amphony GmbH	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Vertical Polarization	
Date of test: 05/14/2004 — Operator: M. Steindl	
Test performed: automatically — File name: default.emi	

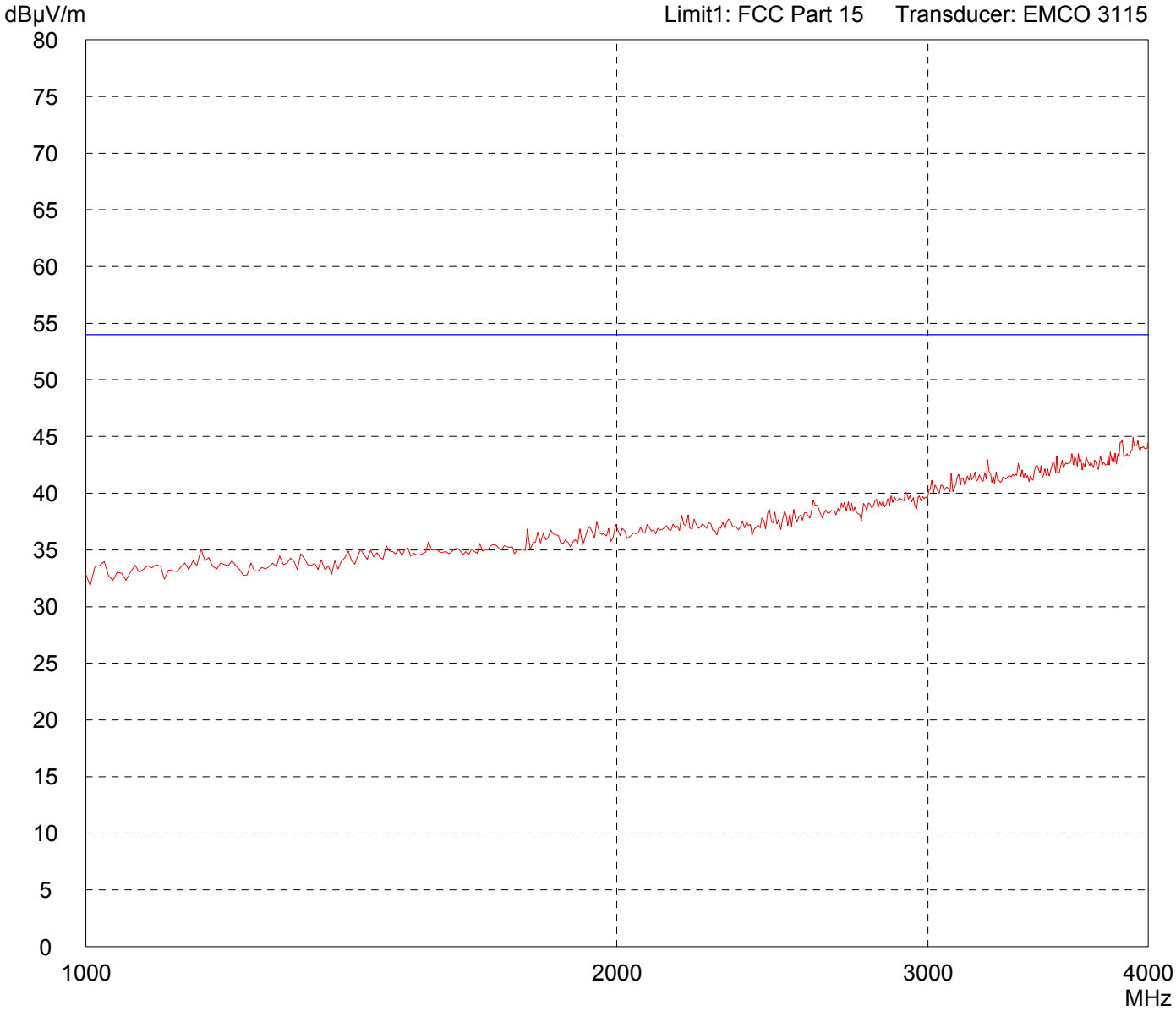
Detector: Peak	List of values: 10 dB Margin — 50 Subranges



Result: Prescan	Project file: 50104-40281-2 — Page of Pages

Radiated Emission Test 1 GHz - 4 GHz
acc. to FCC Part 15 (EMCO 3115)

Model: 2500 (H2500) - Headphones	Comment: - 2 x 1.5 V battery supply
Serial no.: 01	
Applicant: Amphony GmbH	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Vertical Polarization	
Date of test: 05/14/2004 — Operator: M. Steindl	
Test performed: automatically — File name: default.emi	
Detector: Peak	List of values: Selected by hand

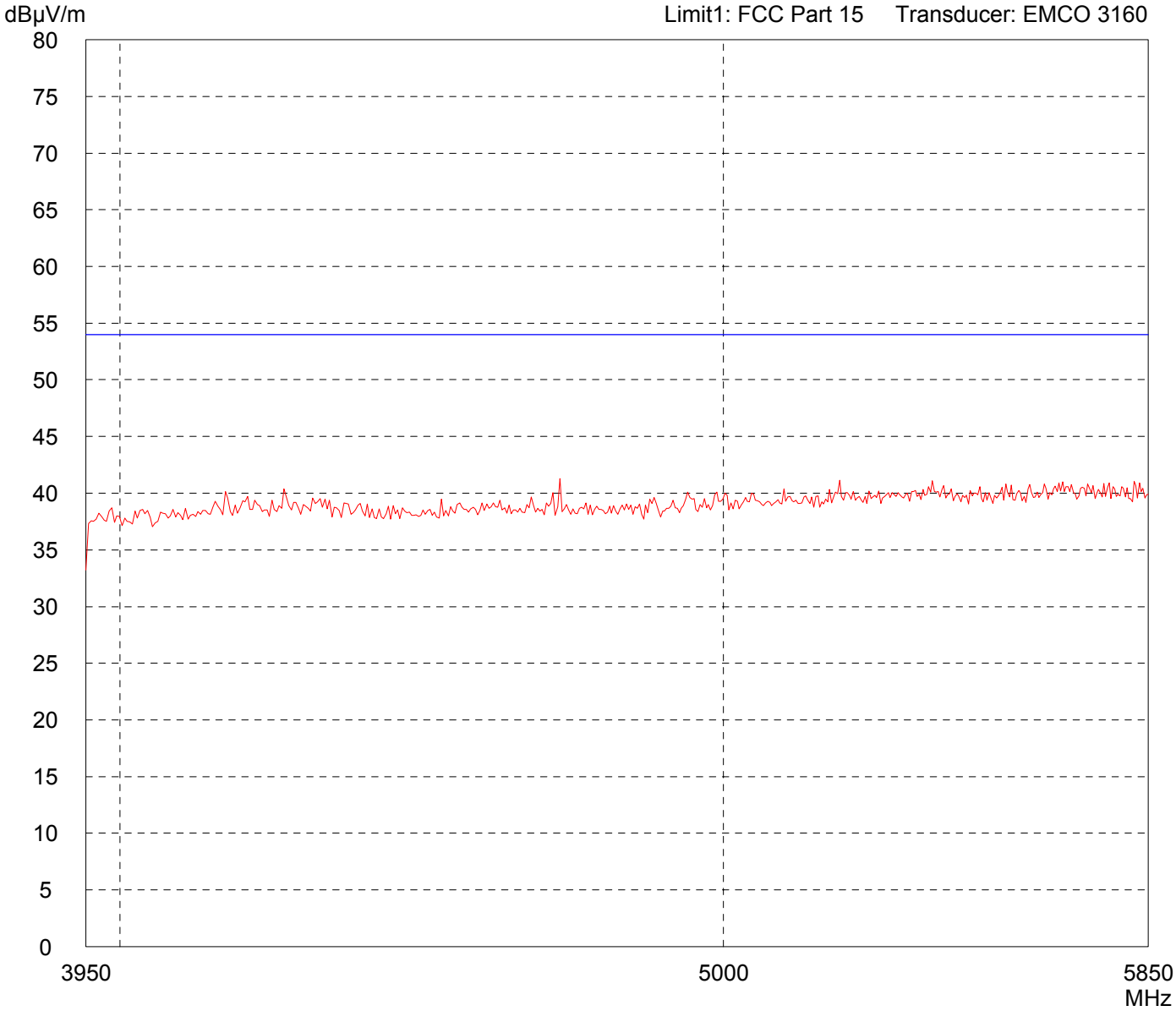


Result: Prescan	Project file: 50104-40281-2 Page of Pages

Radiated Emission Test 3.95 GHz - 5.85 GHz
acc. to FCC Part 15 (EMCO 3160)

Model: 2500 (H2500) - Headphones	Comment: - 2 x 1.5 V battery supply
Serial no.: 01	
Applicant: Amphony GmbH	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Vertical Polarization	
Date of test: 05/14/2004 — Operator: M. Steindl	
Test performed: automatically — File name: default.emi	

Detector: Peak	List of values: 10 dB Margin — 50 Subranges

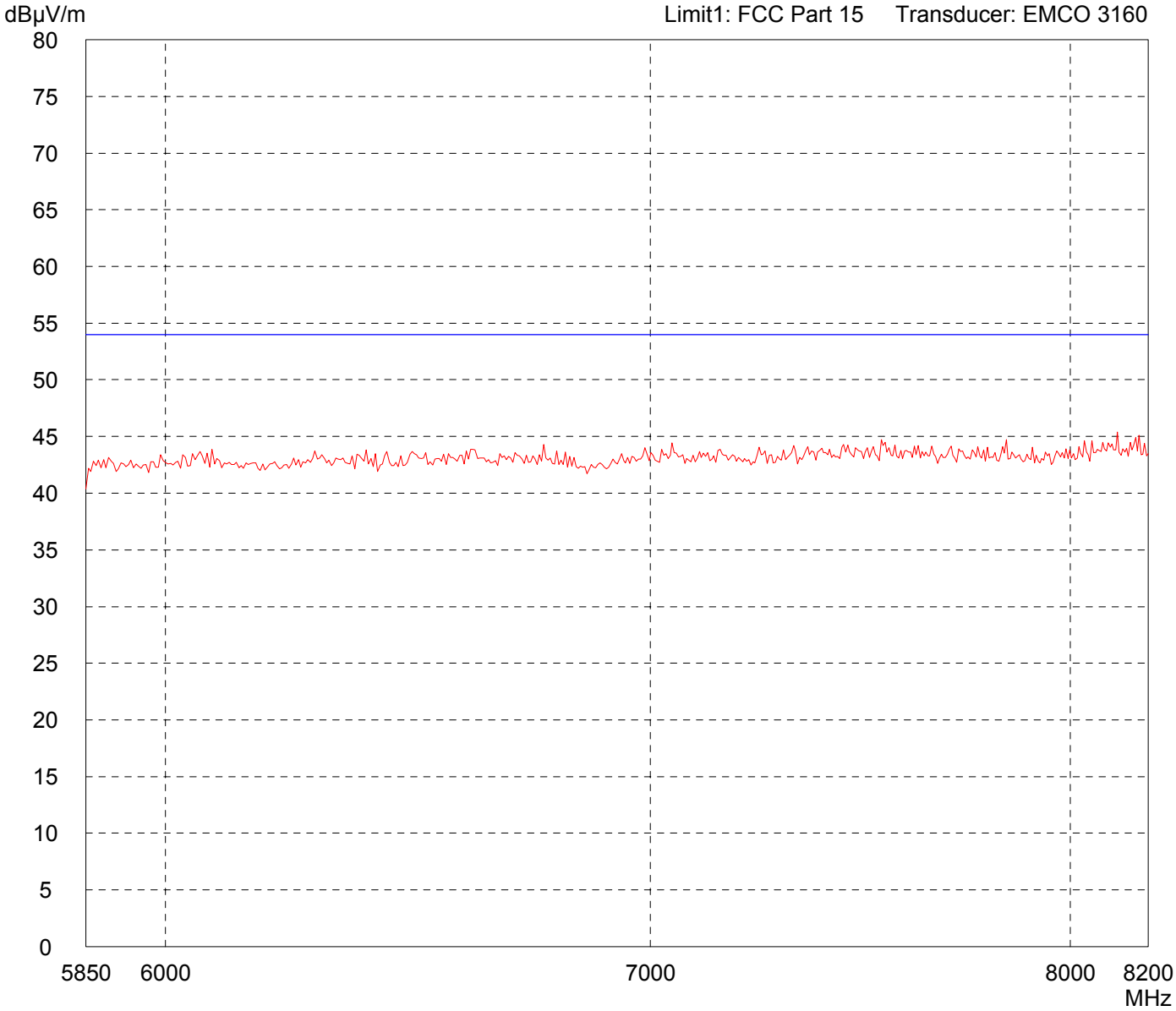


Result: Prescan	Project file: 50104-40281-2 — Page of Pages

Radiated Emission Test 5.85 GHz - 8.2 GHz
acc. to FCC Part 15 (EMCO 3160)

Model: 2500 (H2500) - Headphones	Comment: - 2 x 1.5 V battery supply
Serial no.: 01	
Applicant: Amphony GmbH	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 1 meter Vertical Polarization	
Date of test: 05/14/2004 — Operator: M. Steindl	
Test performed: automatically — File name: default.emi	

Detector: Peak	List of values: 10 dB Margin — 50 Subranges



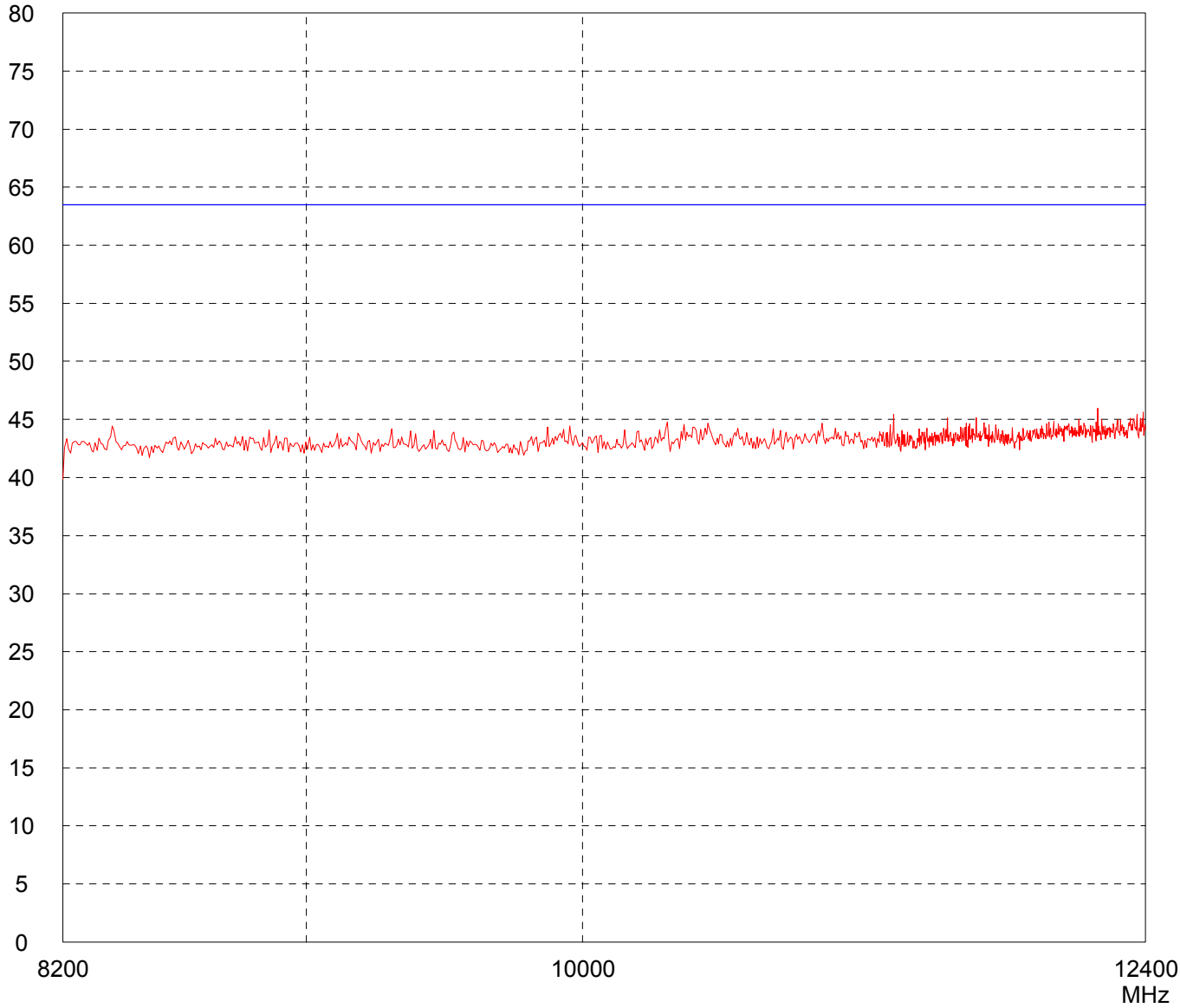
Result: Prescan	Project file: 50104-40281-2 — Page of Pages

Radiated Emission Test 8.2 GHz - 12.4 GHz
acc. to FCC Part 15 (EMCO 3160)

Model: 2500 (H2500) - Headphones	Comment: - 2 x 1.5 V battery supply
Serial no.: 01	
Applicant: Amphony GmbH	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 1 meter Vertical Polarization	
Date of test: 05/14/2004 — Operator: M. Steindl	
Test performed: automatically — File name: default.emi	

Detector: Peak	List of values: 10 dB Margin — 50 Subranges

dBµV/m — Limit1: FCC Part 15 (1 m) — Transducer: EMCO 3160



Result: Prescan	Project file: 50104-40281-2 — Page of Pages

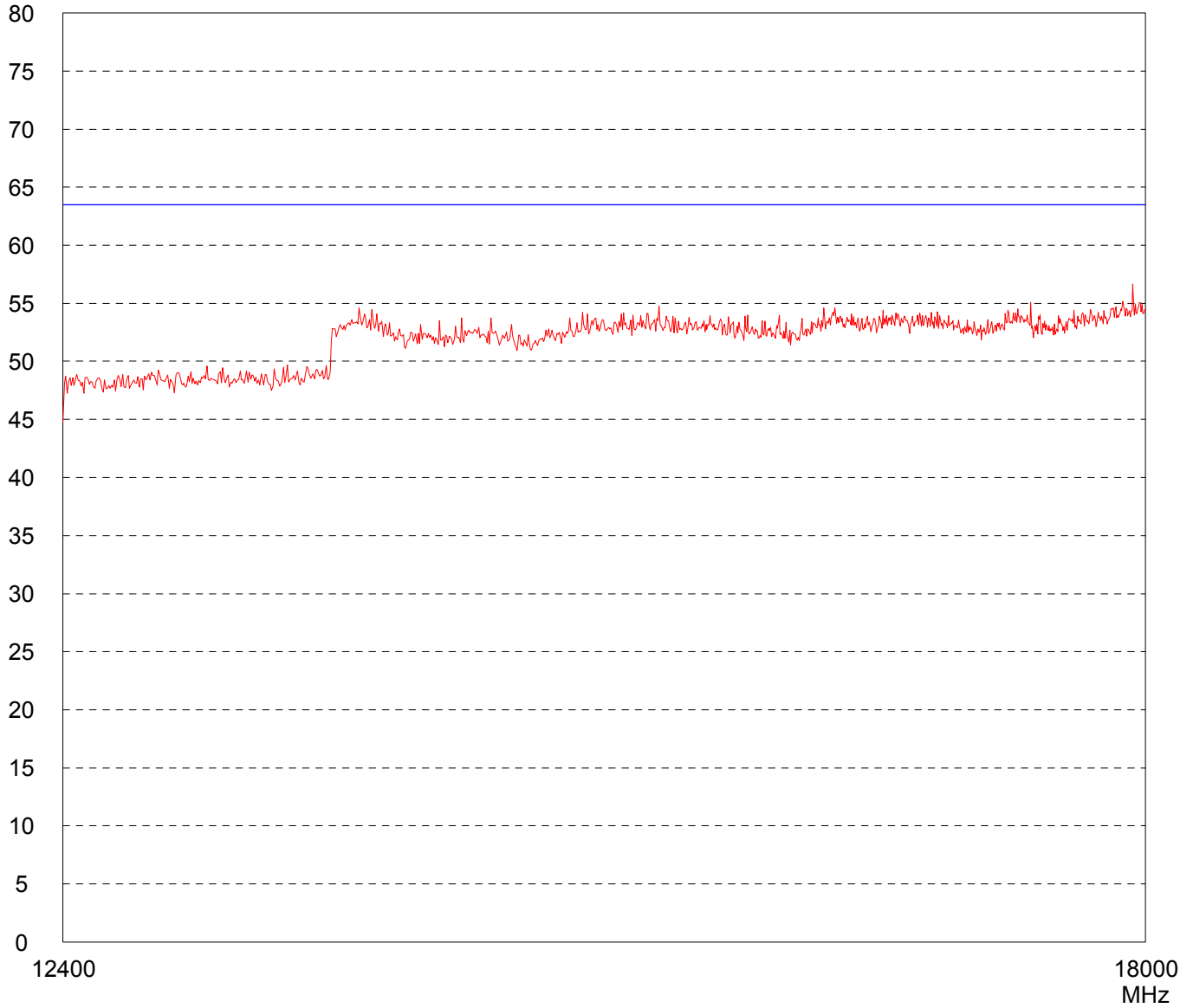
Radiated Emission Test 12.4 GHz - 18 GHz
acc. to FCC Part 15 (EMCO 3160)

Model: 2500 (H2500) - Headphones	Comment: - 2 x 1.5 V battery supply
Serial no.: 01	
Applicant: Amphony GmbH	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 1 meter Vertical Polarization	
Date of test: 05/14/2004 — Operator: M. Steindl	
Test performed: automatically — File name: default.emi	

Detector: Peak	List of values: Selected by hand

dBµV/m

Limit1: FCC Part 15 (1 m) Transducer: EMCO 3160

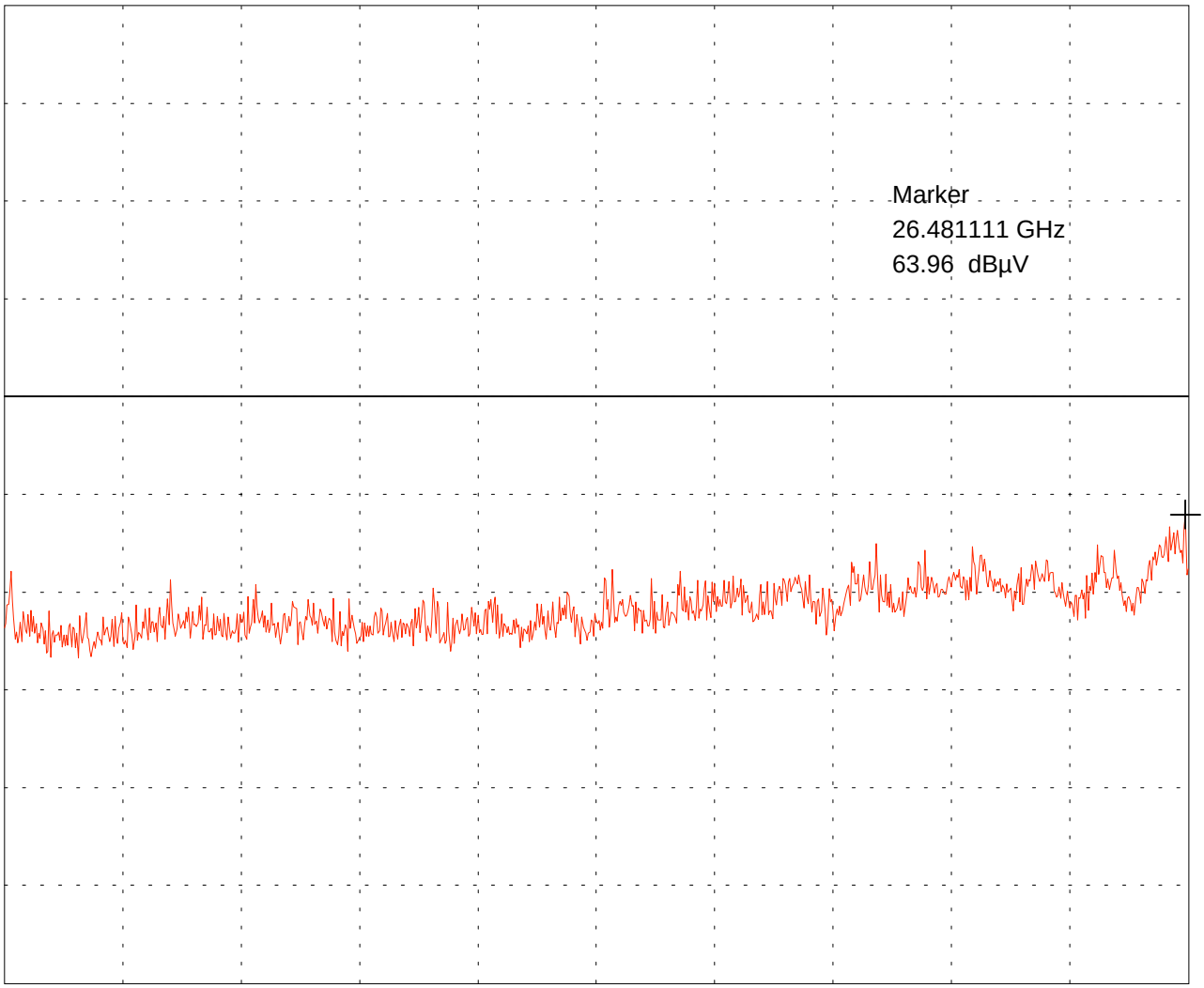


Result: Prescan	Project file: 50104-40281-2 Page of Pages

Radiated Emission Test 18 GHz - 26.5 GHz acc. to FCC Part 15.225

Model: 2500 (H2500) - Headphones	Mode: - 2 x 1.5 V battery supply - test distance: 0.5 m - polarisation: vertical
Serial No.: 01	
Applicant: Amphony GmbH	

Ref.Level 90 dBµV ATT 0 dB Ref. Offset 43 dB
5 dB/Div.



Start 18.000 GHz Stop 26.500 GHz
RBW 1 MHz VBW 1 MHz SWP 40 ms

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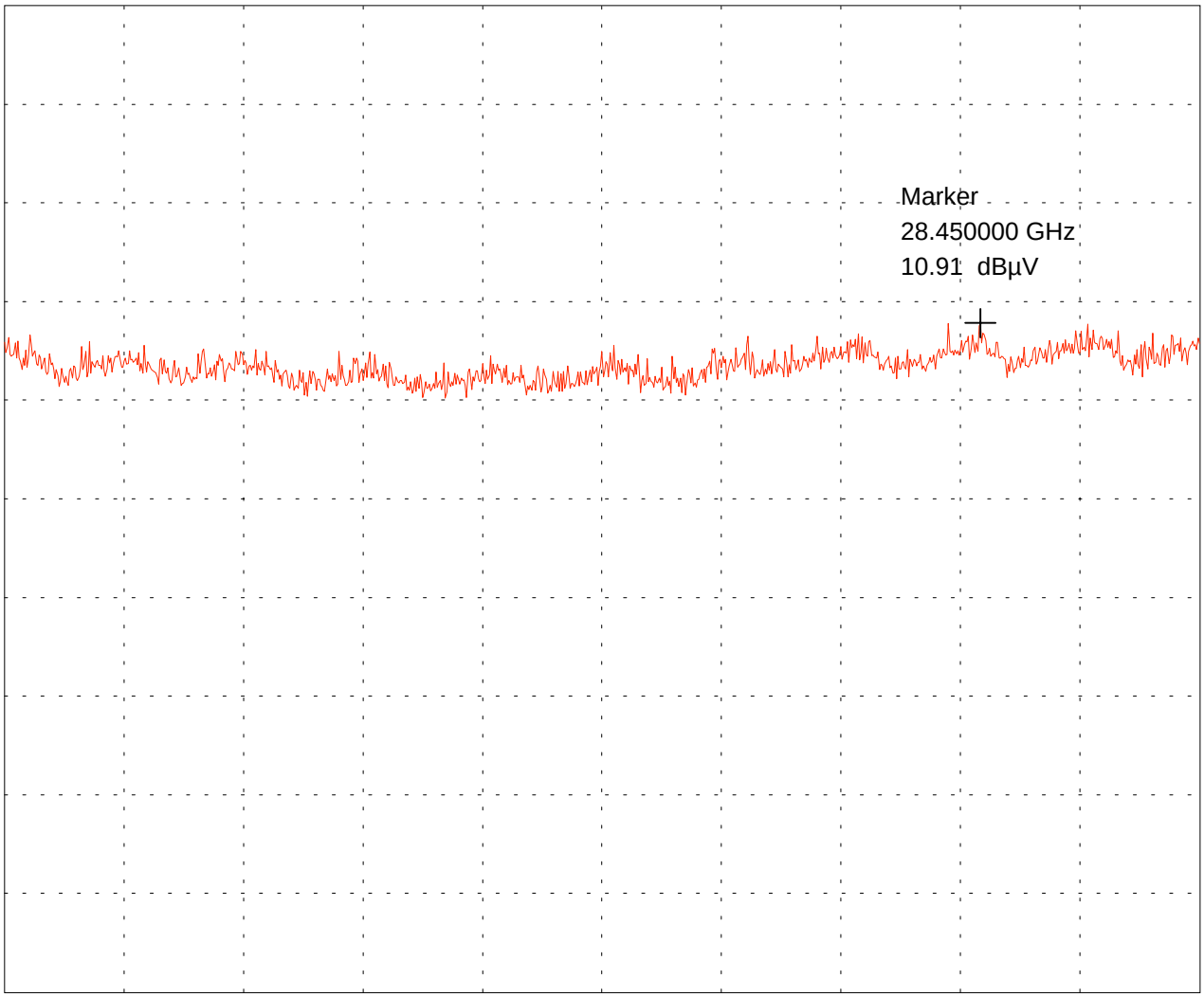
Radiated Emission Test 26 GHz - 29 GHz acc. to FCC Part 15.225

Model: 2500 (H2500) - Headphones	Mode: - 2 x 1.5 V battery supply - test distance: 0.25 m - polarisation: vertical
Serial No.: 01	
Applicant: Amphony GmbH	

Ref.Level 27 dBµV ATT 0 dB
5 dB/Div.



Start 26.000 GHz Stop 29.000 GHz
RBW 1 MHz VBW 100 kHz SWP 100 ms

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