Senton GmbH
Aeussere Fruehlingstrasse 45
D-94315 Straubing

Straubing, 18 October 2005

T E S T - R E P O R T

No. 50104-050463 (Edition 2)

for

Model 1500

Audio Transmitter & Receiver

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

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]:	Model 1500
Parts[2]:	
Serial number(s):	Prototype
Manufacturer:	Amphony (Deutschland) GmbH
Type of equipment:	Audio Transmitter & Receiver
Version:	
FCC ID:	N/A
Additional parts/accessories:	AC Adaptors for Transmitter & Receiver

Technical data of EUT		
Application frequency range:	5725 – 5875 MHz	
Frequency range:		
Operating frequency:	5800 MHz	
Type of modulation:	FM	
Pulse train:		
Pulse width:		
Number of RF-channels:	1	
Channel spacing:	N.A.	
Designation of emissions[3]:	20M0F3D	
Type of antenna:	Integrated	
Size/length of antenna:	N/A	
Connection of antenna:	☐ detachable	☒ not detachable
Type of power supply:	AC supply	
Specifications for power supply:	nominal voltage: minimum voltage: maximum voltage: nominal frequency:	115 V N/A V N/A V 60 Hz

[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:	Jens Kurrat
Contract identification:	---
Receipt of EUT:	29 July 2005
Date(s) of test:	August to October 2005
Note(s):	

Report details	
Report number:	50104-050463
Edition:	2
Issue date:	18 October 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).

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)
Audio signal 100 mV / 1 kHz at Transmitter input

Configuration(s) of EUT
Stand alone

List of ports and cables

Port	*Description*	*Classification*[4]	*Cable type*	*Cable length*
1	AC power input (via AC adaptor)	ac power	Unshielded	N/A
2	Audio input	signal/control port	Shielded	N/A
3	Audio output	signal/control port	Shielded	

List of devices connected to EUT

Item	*Description*	*Type Designation*	*Serial no. or ID*	*Manufacturer*
1	Not applicable			

List of support devices

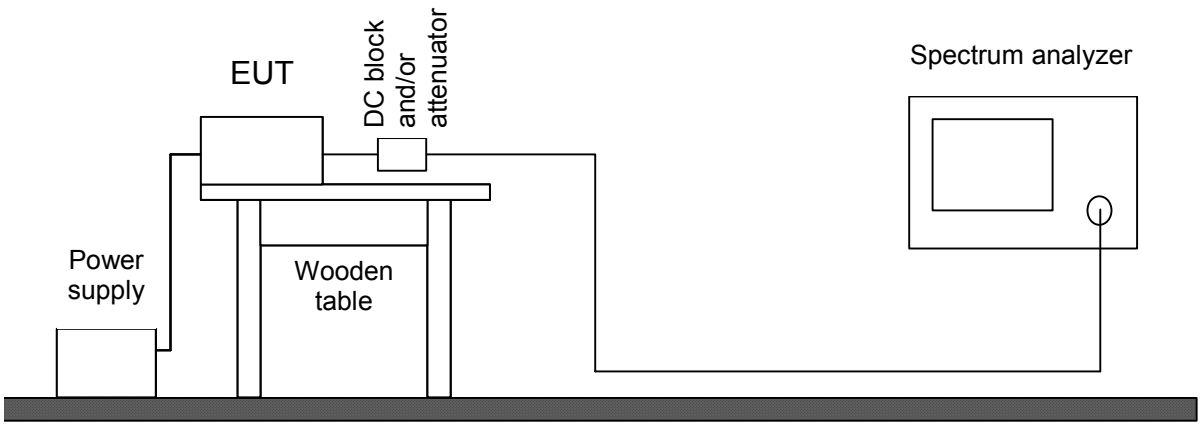
Item	*Description*	*Type Designation*	*Serial no. or ID*	*Manufacturer*
1	Audio generator			

[4] Ports shall be classified as ac power, dc power or signal/control port

6 Measurement Procedures

6.1 Bandwidth Measurements

Measurement Procedure:	
Rules and specifications:	CFR 47 Part 2, section 2.202(a) CFR 47 Part 15, section 15.215(c) ANSI C63.4, annex H.6
Guide:	ANSI C63.4
Measurement setup:	☐ Conducted: See below ☒ Radiated: Radiated Emission in Fully or Semi Anechoic Room (6.3)
If antenna is detachable bandwidth measurements shall be performed at the antenna connector (conducted measurement) when the transmitter is adjusted in accordance with the tune-up procedure, if applicable. The RF output terminals are connected to a spectrum analyzer. If required, a resistive matching network equal to the impedance specified or employed for the antenna is used as well as dc block and appropriate attenuators (50 Ohms). The electrical characteristics of the radio frequency load attached to the output terminals shall be stated, if applicable. If radiated measurements are performed the same test setups and instruments are used as with radiated emission measurements for the appropriate frequency range. The analyzer settings are specified by the test description of the appropriate test record(s).	



Test instruments used for conducted measurements:

Used	Type	Model	Serial No. or ID	Manufacturer
☒	Spectrum Analyzer	FSP 30	100063	Rohde & Schwarz
☐	EMI test receiver	ESPI7	836914/0002	Rohde & Schwarz
☐	EMI test receiver	ESMI	839379/013 839587/006	Rohde & Schwarz
☐	Power meter	NRVS	836856/015	Rohde & Schwarz
☐	Peak power sensor	NRV-Z31	8579604.03	Rohde & Schwarz
☐	Power sensor	NRV-Z52	837901/030	Rohde & Schwarz
☐	Power sensor	NRV-Z4	863828/015	Rohde & Schwarz
☐	DC-block	7006	A2798	Weinschel
☐	Attenuator	4776-10	9412	Narda
☐	Attenuator	4776-20	9503	Narda

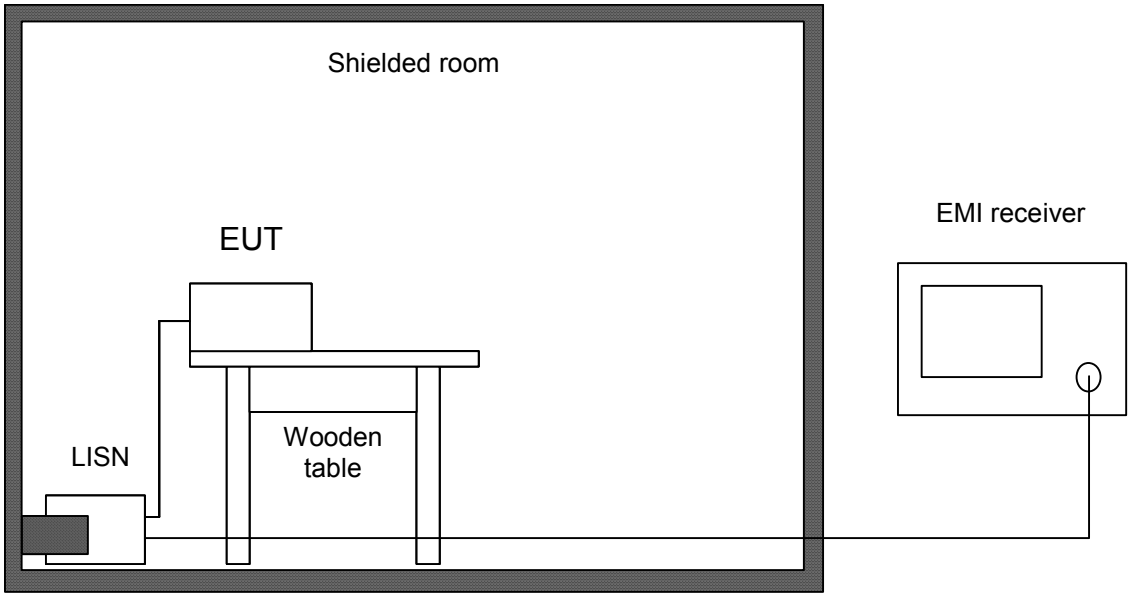
6.2 Conducted AC Powerline Emission

Measurement Procedure:	
Rules and specifications:	CFR 47 Part 15, sections 15.107 and 15.207
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

6.3 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
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.

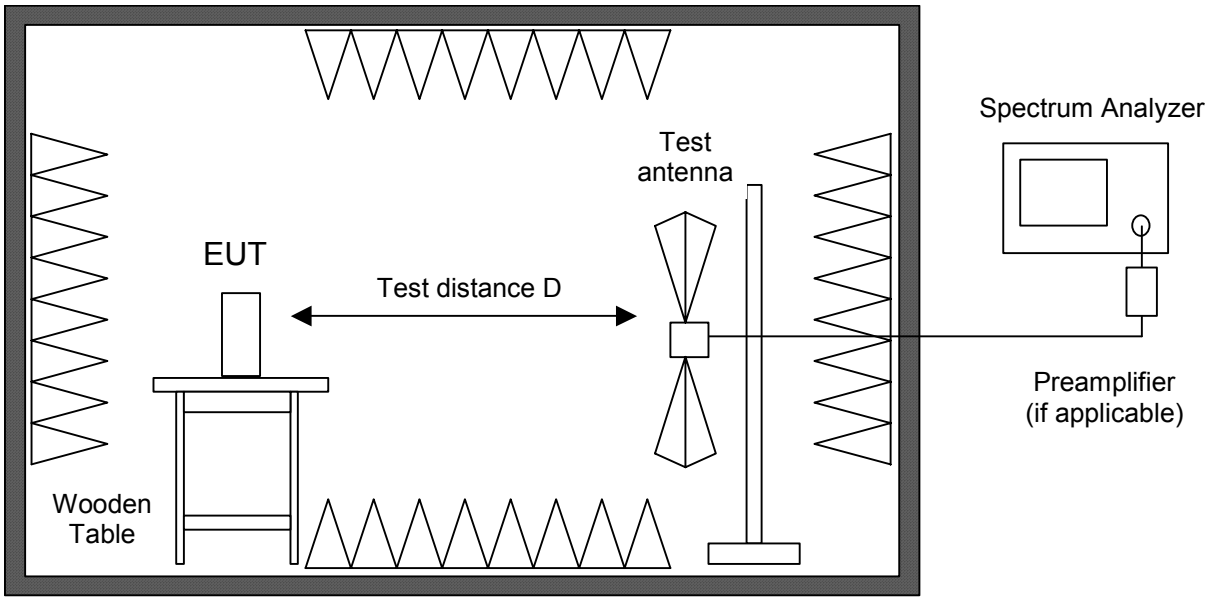
All tests below 18 GHz are performed at a test distance D of 3 meters. For higher frequencies the test distance is reduced (e.g. to 1 meter) due to the sensitivity of the measuring instrument(s) and the test results are calculated according to CFR 47 Part 15 section 15.31(f)(1) using an extrapolation 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

6.4 Radiated Emission at Open Field Test Site

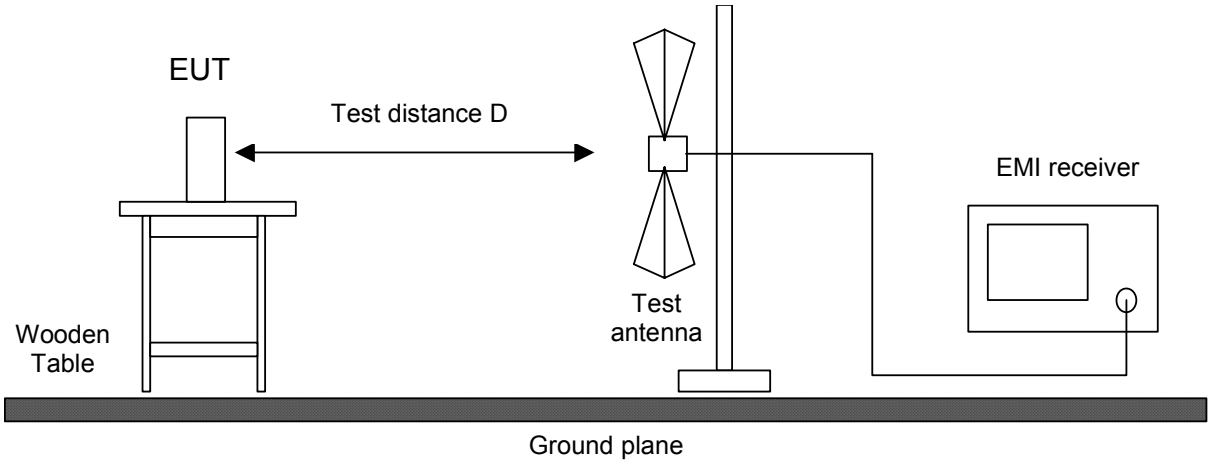
Measurement Procedure:	
Rules and specifications:	CFR 47 Part 15, sections 15.109, 15.215(b) and 15.249
Guide:	ANSI C63.4

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.



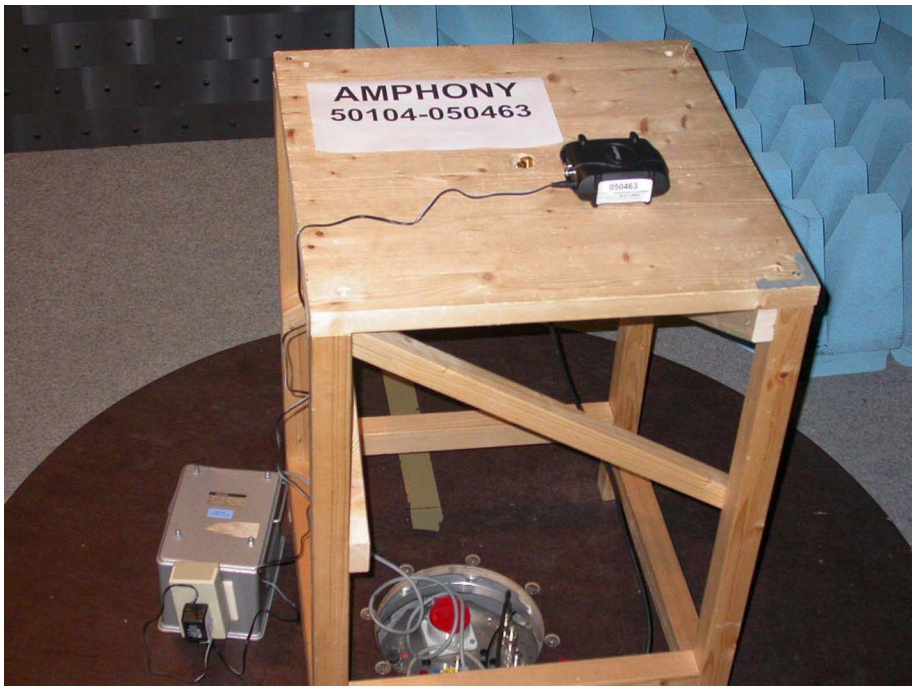
Test instruments used:

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

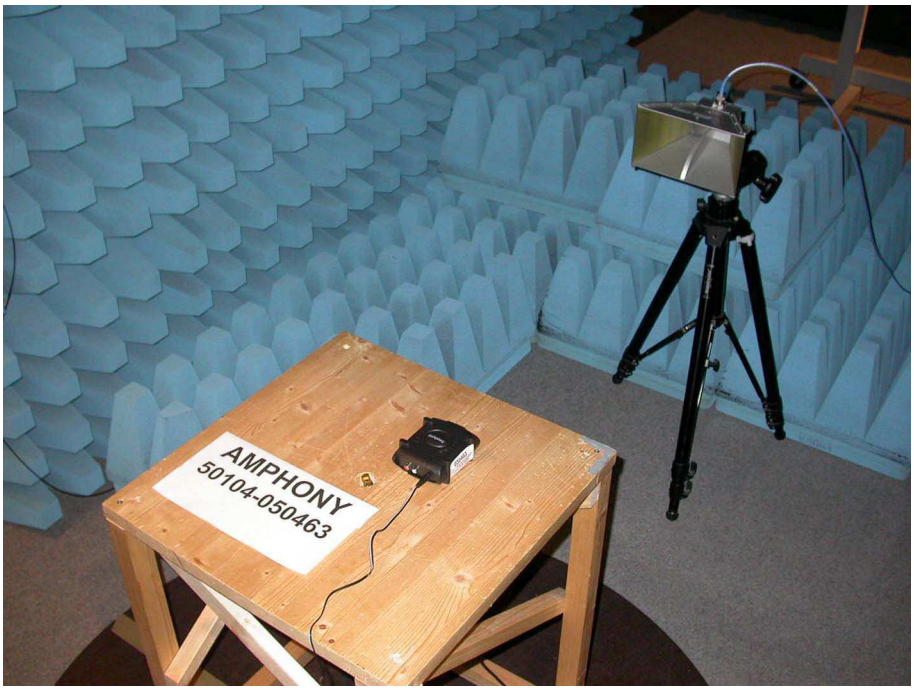
7 Photographs Taken During Testing

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

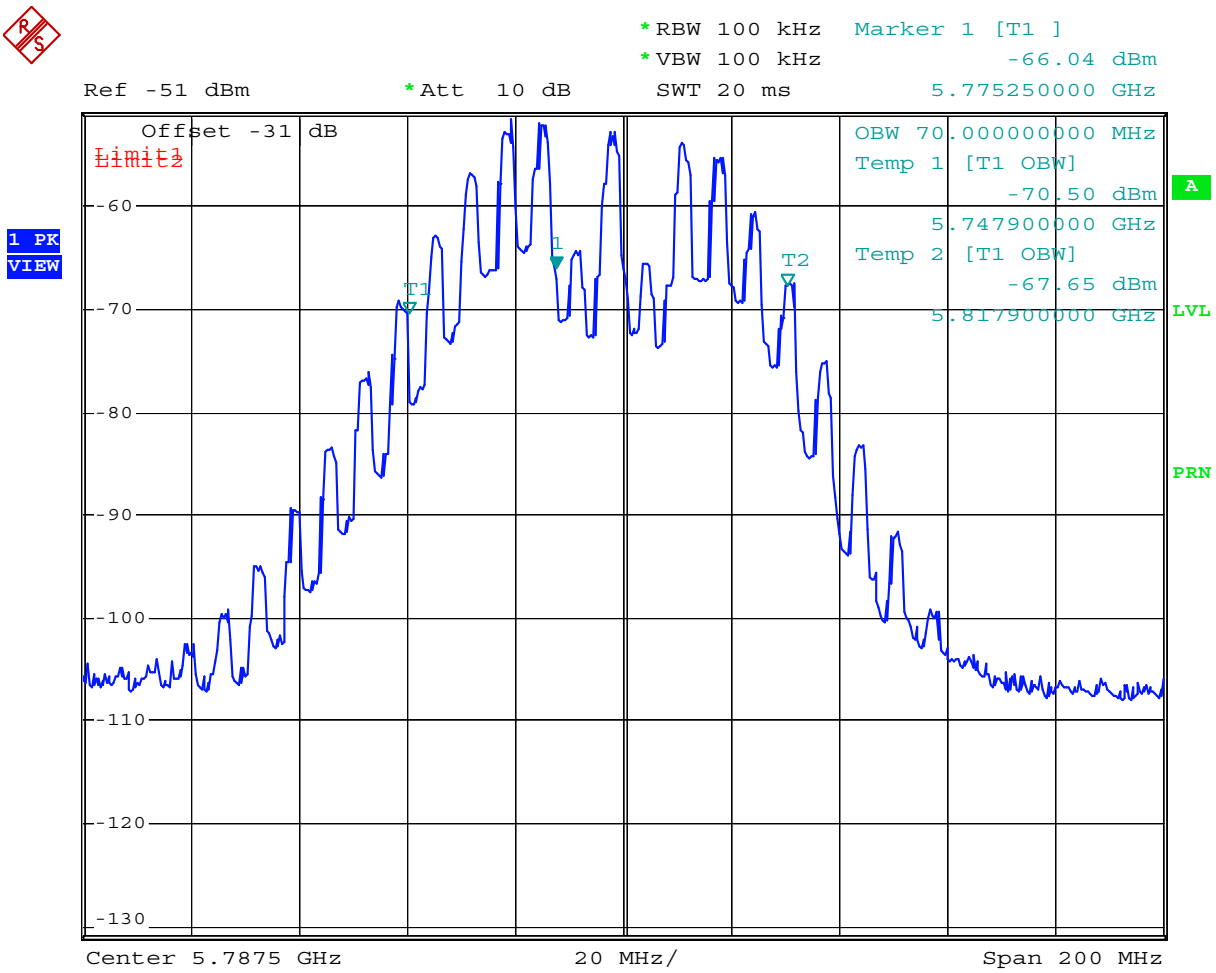
FCC CFR 47 Parts 2 and 15			
Section(s)	*Test*	*Page*	*Result*
2.1046(a)	Conducted output power	---	Not applicable
2.202(a)	Occupied bandwidth	20	Recorded
15.215(c)	Bandwidth of the emission	---	Not applicable
2.201, 2.202	Class of emission	---	Calculated
15.35(c)	Pulse train measurement for pulsed operation	---	Not applicable
15.205(a)	Restricted bands of operation	22	Test passed
15.207	Conducted AC powerline emission 150 kHz to 30 MHz	23	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 6 MHz to 40 GHz	24	Test passed

8.1 Occupied Bandwidth

Rules and specifications:	CFR 47 Part 2, section 2.202(a) ANSI C63.4, annex H.6	
Guide:	ANSI C63.4	
Description:	The occupied bandwidth according to CFR 47 Part 2, section 2.202(a), is measured as the 99% emission bandwidth, i.e. below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5% of the total mean power radiated by a given emission. The occupied bandwidth according to ANSI C63.4, annex H.6; is measured as the frequency range defined by the points that are 26 dB down relative to the maximum level of the modulated carrier. The resolution bandwidth of the spectrum analyzer shall be set to a value greater than 5.0% of the allowed bandwidth. If no bandwidth specifications are given, the following guidelines are used:	
	Fundamental frequency	Minimum resolution bandwidth
	9 kHz to 30 MHz	1 kHz
	30 MHz to 1000 MHz	10 kHz
	1000 MHz to 40 GHz	100 kHz
	The video bandwidth shall be at least three times greater than the resolution bandwidth.	
Measurement procedure:	Bandwidth Measurements (6.1)	

Comment:	
Date of test:	25 October 2005
Test site:	Fully anechoic room, cabin no. 2

Occupied Bandwidth (99 %):



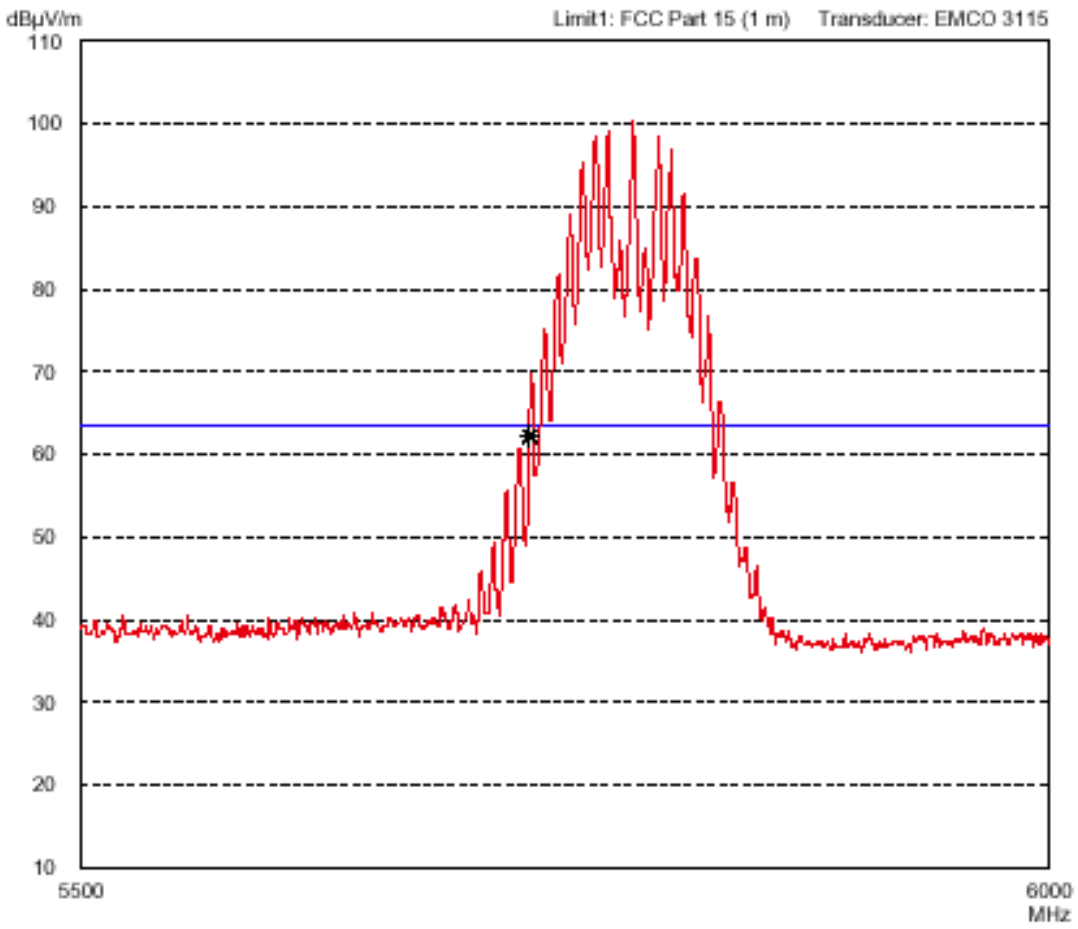
Comment: AMP050463: Occupied Bandwidth
Date: 25.OCT.2005 16:02:28

Occupied Bandwidth (99 %):	**70 MHz**

8.2 Restricted Bands of Operation

Rules and specifications:	CFR 47 Part 15, section 15.205(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 (6.3)

Comment: Date of test: Test site:	 11 August 2005 Fully anechoic room, cabin no. 2
Test distance:	1 meter



Test Result:	Test passed

8.3 Conducted Powerline Emission Measurement 150 kHz to 30 MHz

Rules and specifications:	CFR 47 Part 15, section 15.207				
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 (6.2)				

Comment:	
Date of test:	18 October 2005
Test site:	Shielded room, cabin no. 1

Test Result:	Test passed

Tested on:	Linecord / Live wire

Frequency (MHz)	Detector	Reading Value (dBµV)	Correction Factor (dB)	Final Value (dBµV)	CFR 47 Part 15		RSS-210	
					Limit (dBµV)	Margin (dB)	Limit (dBµV)	Margin (dB)
0.310	Quasi-Peak	32.1	0.0	32.1	60.0	**27.9**		
0.370	Quasi-Peak	29.9	0.0	29.9	58.5	28.6		

Tested on:	Linecord / Neutral wire

Frequency (MHz)	Detector	Reading Value (dBµV)	Correction Factor (dB)	Final Value (dBµV)	CFR 47 Part 15		RSS-210	
					Limit (dBµV)	Margin (dB)	Limit (dBµV)	Margin (dB)
0.320	Quasi-Peak	30.5	0.0	30.5	59.7	**29.2**		

Sample calculation of final values:

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

8.4 Radiated Emission Measurement 6 MHz to 40 GHz

Rules and specifications:	CFR 47 Part 15, sections 15.215(b) and 15.249		
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 (6.3) Radiated Emission at Open Field Test Site (6.4)		

Comment:	
Date of test:	11 August 2005
Test site:	Frequencies ≤ 1 GHz: Open field test site Frequencies > 1 GHz: Fully anechoic room, cabin no. 2
Test distance:	3 meters, 1meter (> 4 GHz)

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)
2896.000	vertical	Peak	9.5	37.8		47.3	54.0	6.7
2902.000	horizontal	Peak	10.1	37.8		48.0	54.0	6.1
5722.000	horizontal	Average	18.4	42.9		61.3	63.5	2.2
5787.500	vertical	Peak	58.4	43.1		101.5	103.5	2.0
5872.000	horizontal	Peak	7.7	43.1		50.8	63.5	12.7
8636.800	vertical	Peak	12.4	43.5		55.9	63.5	7.6
8695.600	vertical	Peak	12.2	43.5		55.7	63.5	7.8
11509.600	vertical	Peak	13.5	45.5		59.0	63.5	4.5
11526.400	vertical	Peak	17.5	45.6		63.1	63.5	**0.4**
11610.400	vertical	Peak	11.8	45.6		57.4	63.5	6.1
12290.800	horizontal	Peak	7.9	46.2		54.1	63.5	9.4
12383.200	horizontal	Peak	7.4	46.2		53.6	63.5	9.9
12400.000	vertical	Peak	7.5	46.2		53.7	63.5	9.8

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	26	Test passed
15.109	Radiated emission 30 MHz to 40 GHz	27	Test passed
15.111(a)	Antenna power conduction emission of receivers 9 kHz to 40 GHz	---	Not applicable

9.1 Conducted Powerline Emission Measurement 150 kHz to 30 MHz

Rules and specifications:	CFR 47 Part 15, section 15.107				
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 (6.2)				

Comment:	
Date of test:	18 October 2005
Test site:	Shielded room, cabin no. 1

Test Result:	Test passed

Tested on:	Linecord / Live wire

Frequency (MHz)	Detector	Reading Value (dBµV)	Correction Factor (dB)	Final Value (dBµV)	CFR 47 Part 15		RSS-210	
					Limit (dBµV)	Margin (dB)	Limit (dBµV)	Margin (dB)
0.295	Quasi-Peak	31.6	31.6	60.4				

Tested on:	Linecord / Neutral wire

No emissions above noise level detected

Sample calculation of final values:

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

9.2 Radiated Emission Measurement 30 MHz to 40 GHz

Rules and specifications:	CFR 47 Part 15, section 15.109 (Class B)		
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 (6.3) Radiated Emission at Open Field Test Site (6.4)		

Comment:	
Date of test:	11 August 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)	Final Value (dBµV/m)	Limit (dBµV/m)	Margin (dB)
12013.600	horizontal	Peak	7.7	46.0	53.6	63.5	9.9
12181.600	vertical	Peak	8.0	46.1	54.1	63.5	**9.4**
12358.000	horizontal	Peak	7.7	46.2	53.9	63.5	9.6

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:

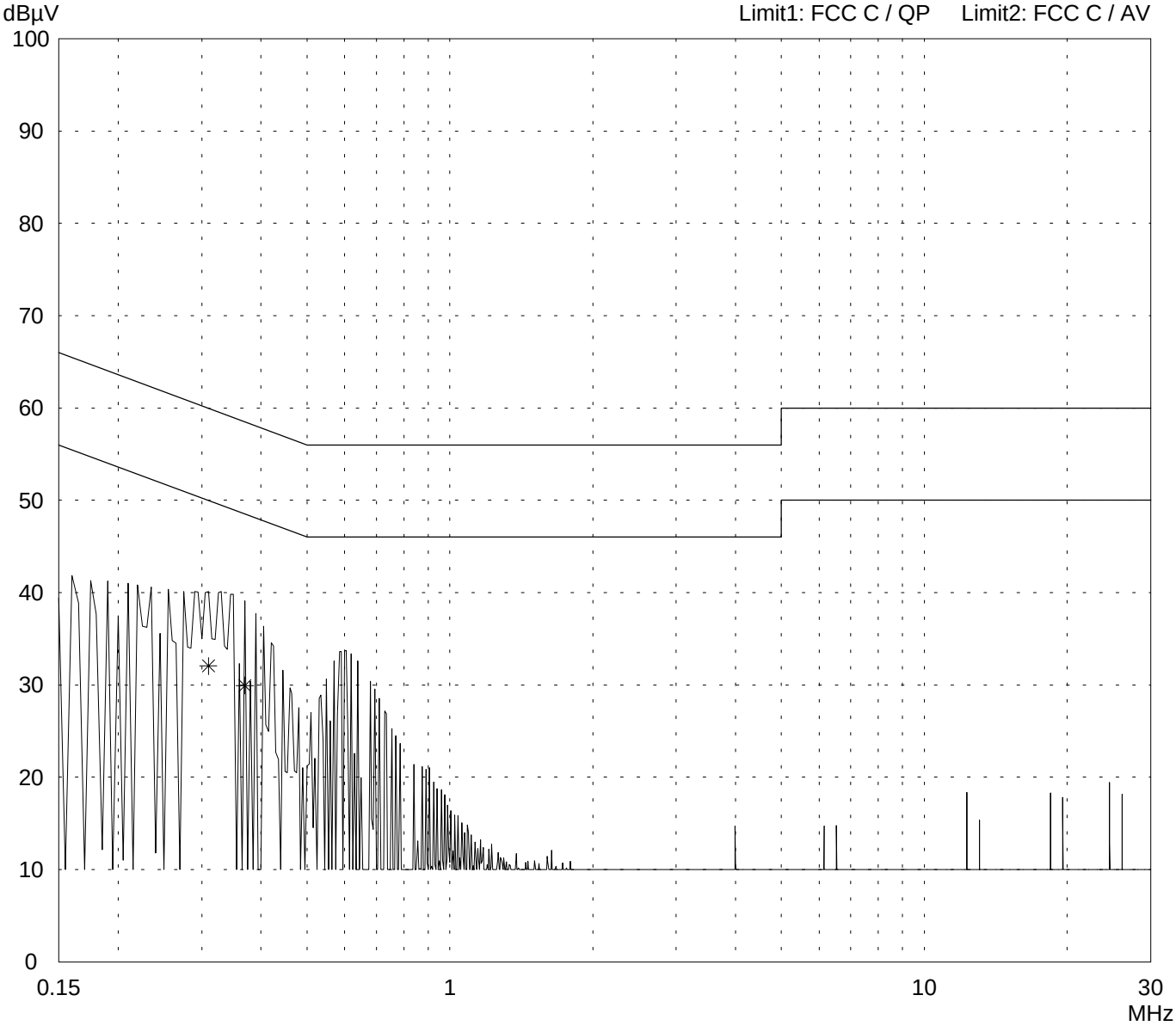
☒	CFR 47 Part 2	Code of Federal Regulations Part 2 (Frequency allocation and radio treaty matters; General rules and regulations) of the Federal Communication Commission (FCC)	October 10, 2004
☒	CFR 47 Part 15	Code of Federal Regulations Part 15 (Radio Frequency Devices) of the Federal Communication Commission (FCC)	September 19, 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

Conducted Emission Test 150 kHz - 30 MHz
according to FCC Part 15 Subpart C

Model: H 1500	Mode:
Serial no.: Transmitter	
Applicant: Amphony Deutschland GmbH	
Test site: Shielded room, cabin no. 1	
Tested on: Linecord	
Date of test: 10/18/2005 — Operator: J. Roidt	
Test performed: automatically — File name:	

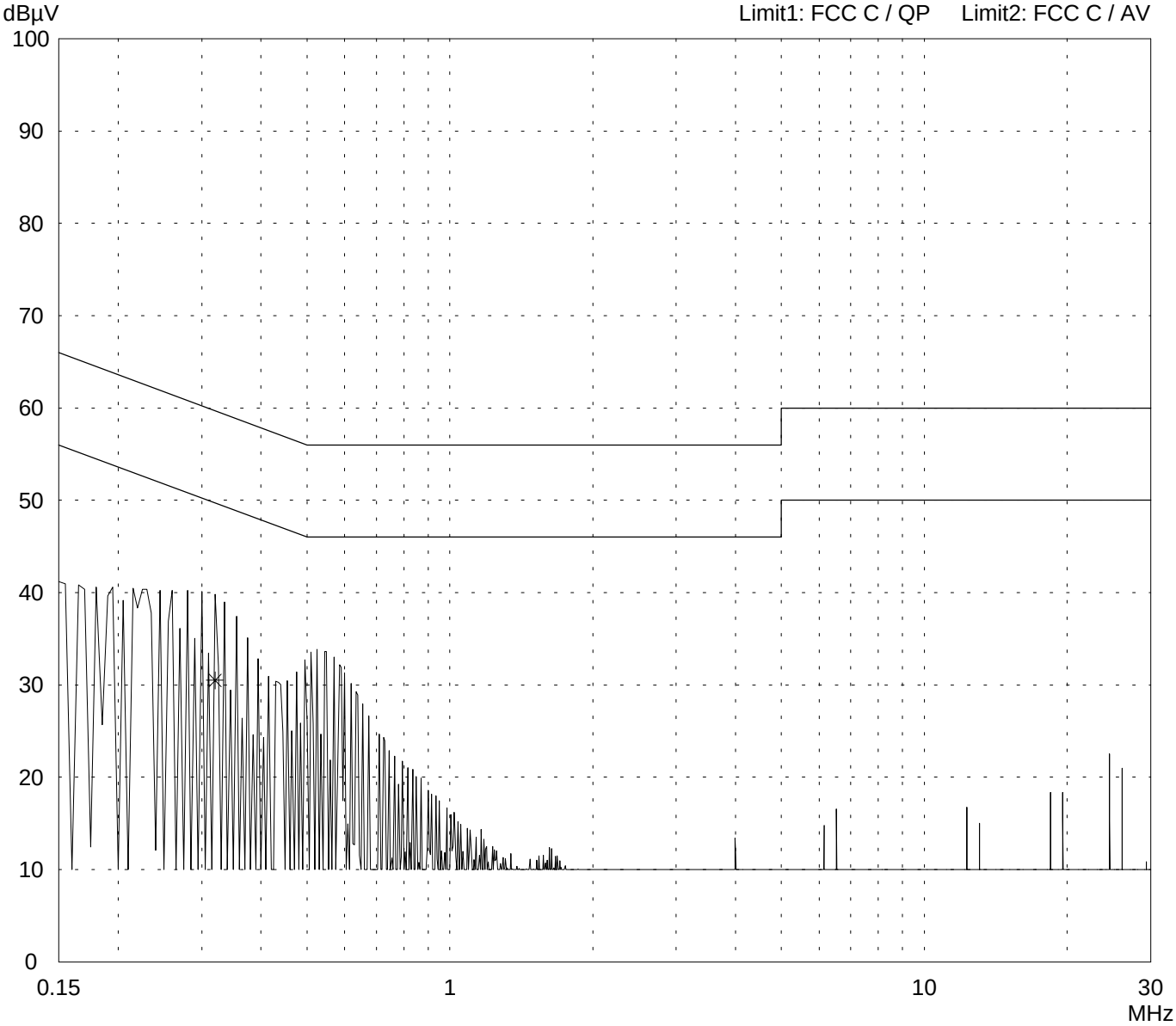
Detector: Peak / Final Results: QP	Final results: 20 dB Margin — 25 Subranges



Result: Limit kept	Project file: 50104-50463-1 — Page of Pages

Conducted Emission Test 150 kHz - 30 MHz
according to FCC Part 15 Subpart C

Model: H 1500	Mode:
Serial no.: Transmitter	
Applicant: Amphony Deutschland GmbH	
Test site: Shielded room, cabin no. 1	
Tested on: Linecord Neutral Wire	
Date of test: 10/18/2005 — Operator: J. Roidt	
Test performed: automatically — File name:	
Detector: Peak / Final Results: QP	Final results: 20 dB Margin — 25 Subranges

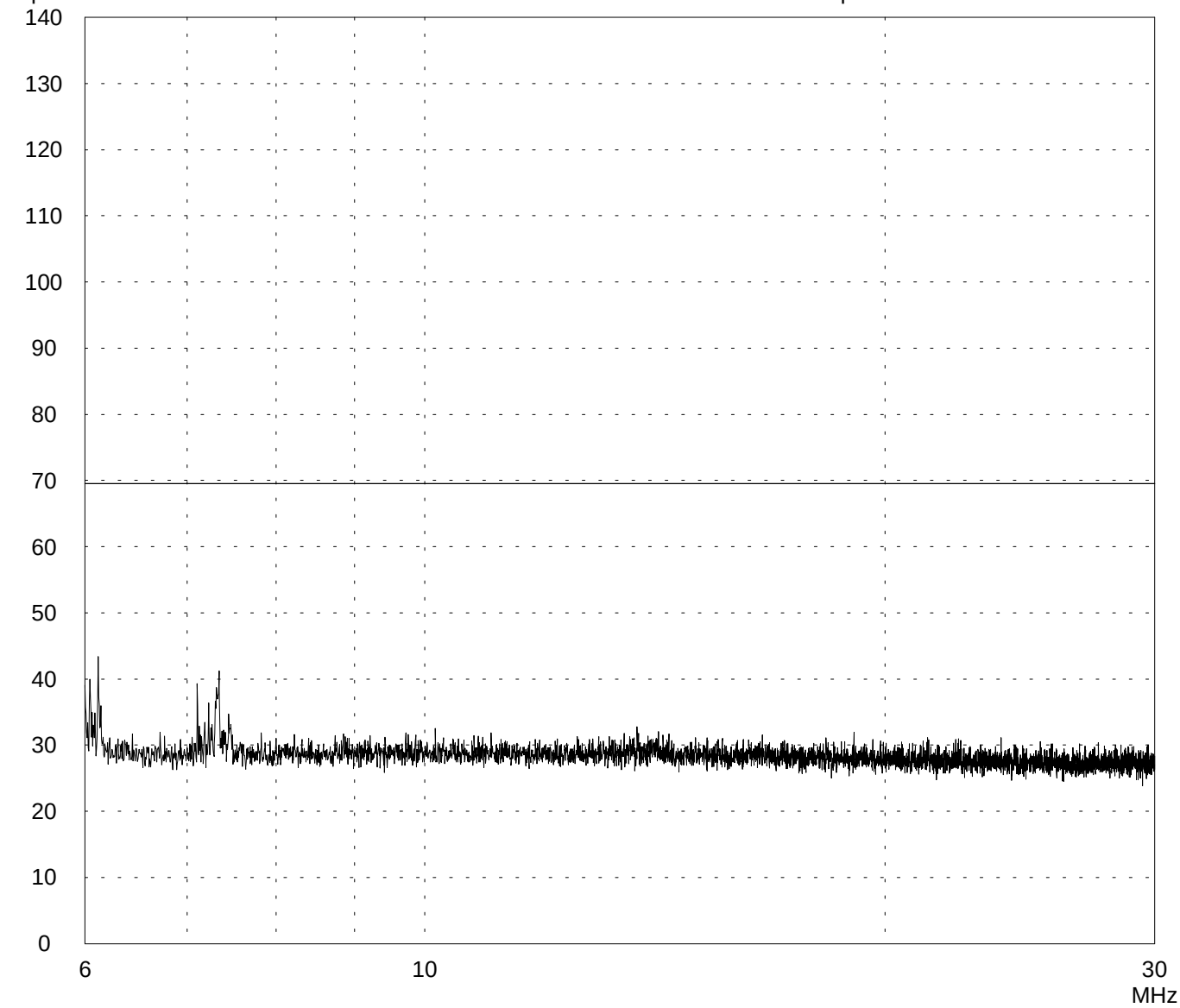


Result: Limit kept	Project file: 50104-50463-1 — Page of Pages

Radiated Emission Test 6 MHz - 30 MHz
according to FCC Part 15 Subpart C

Model: Model 1500	Mode: TX + RX under Test
Serial no.: Prototype	
Applicant: Amphony Deutschland GmbH	
Test site: Shielded room, cabin no. 1	
Tested on: Test distance 3 metres	
Date of test: 11/18/2005 — Operator: J. Roidt	
Test performed: automatically — File name:	
Detector: Peak / Final Results: QP	Final results: 20 dB Margin — 25 Subranges

dBµV/m — Limit1: FCC Subpart C — Transducer: HFH2-Z2

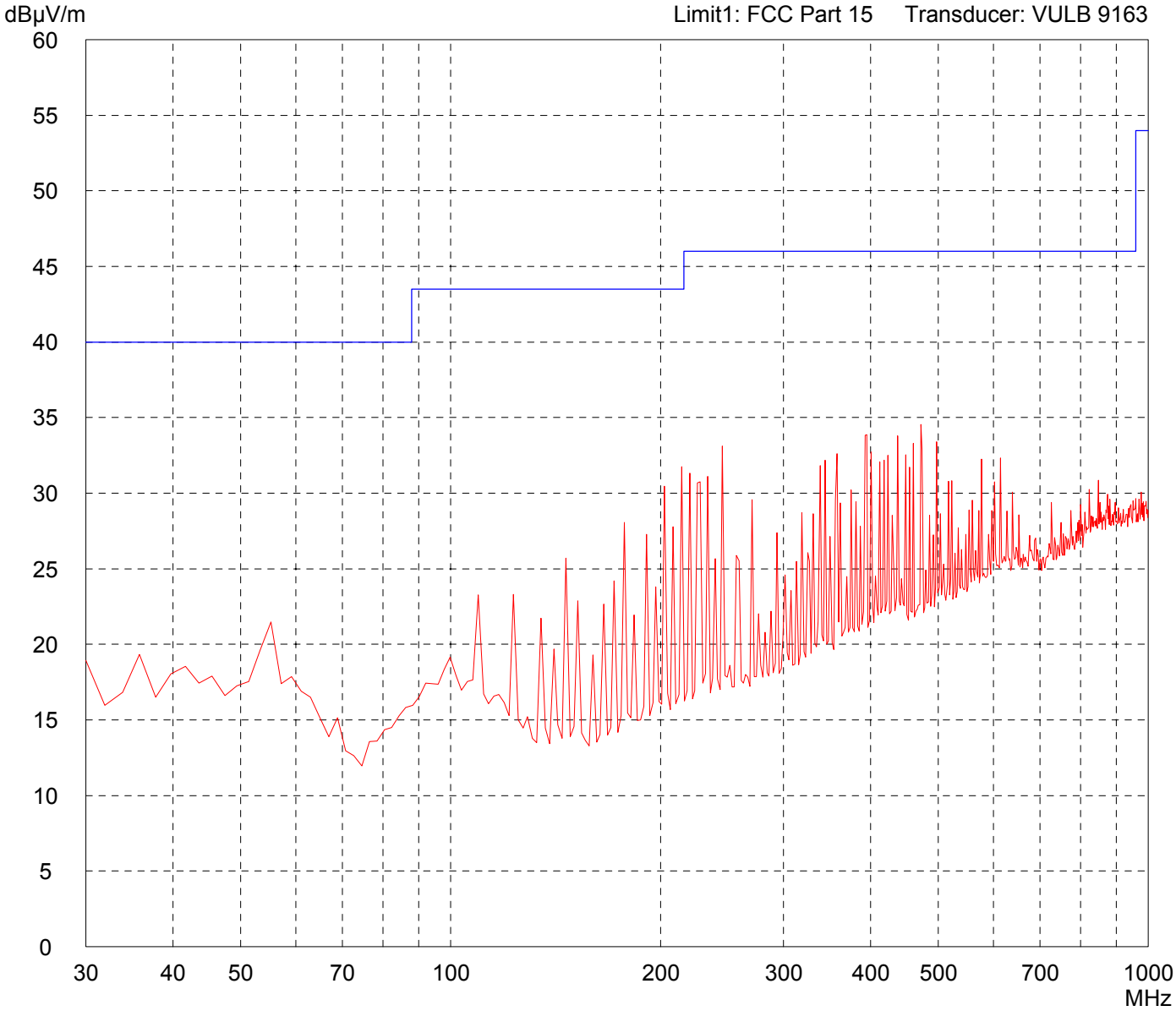


Result: Limit kept	Project file: 50104-05043-1 — Page of Pages

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

Model: Model 1500 Audio TX & RX	Comment:
Serial no.: Transmitter	
Applicant: Amphony Deutschland GmbH	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Horizontal Polarization	
Date of test: 08/11/2005 — Operator: J. Roidt	
Test performed: automatically — File name: default.emi	

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

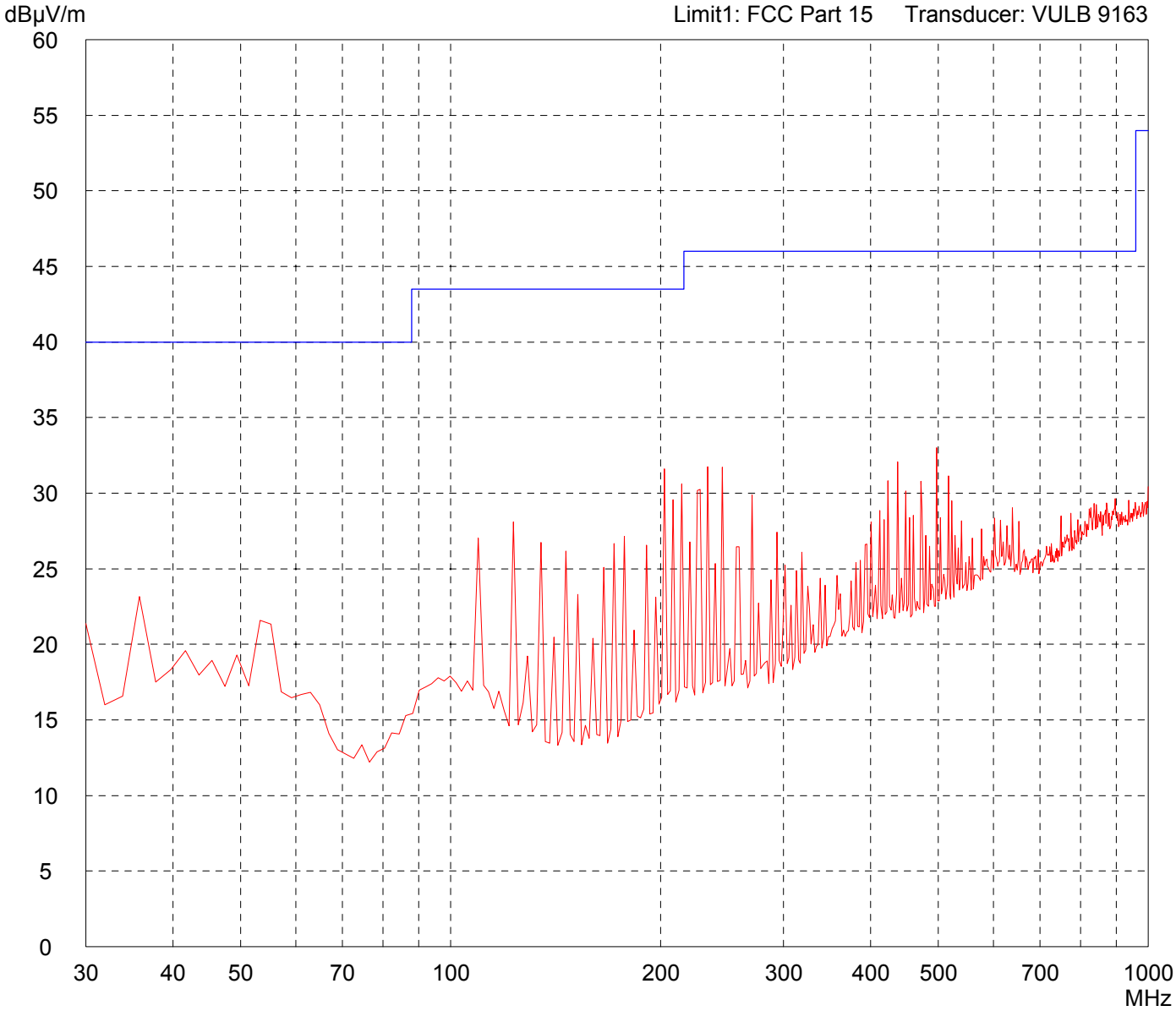


Result: Limit kept	Project file: 50104-50463-1 — Page of Pages

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

Model: Model 1500 Audio TX & RX	Comment:
Serial no.: Transmitter	
Applicant: Amphony Deutschland GmbH	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Vertical Polarization	
Date of test: 08/11/2005 — Operator: J. Roidt	
Test performed: automatically — File name: default.emi	

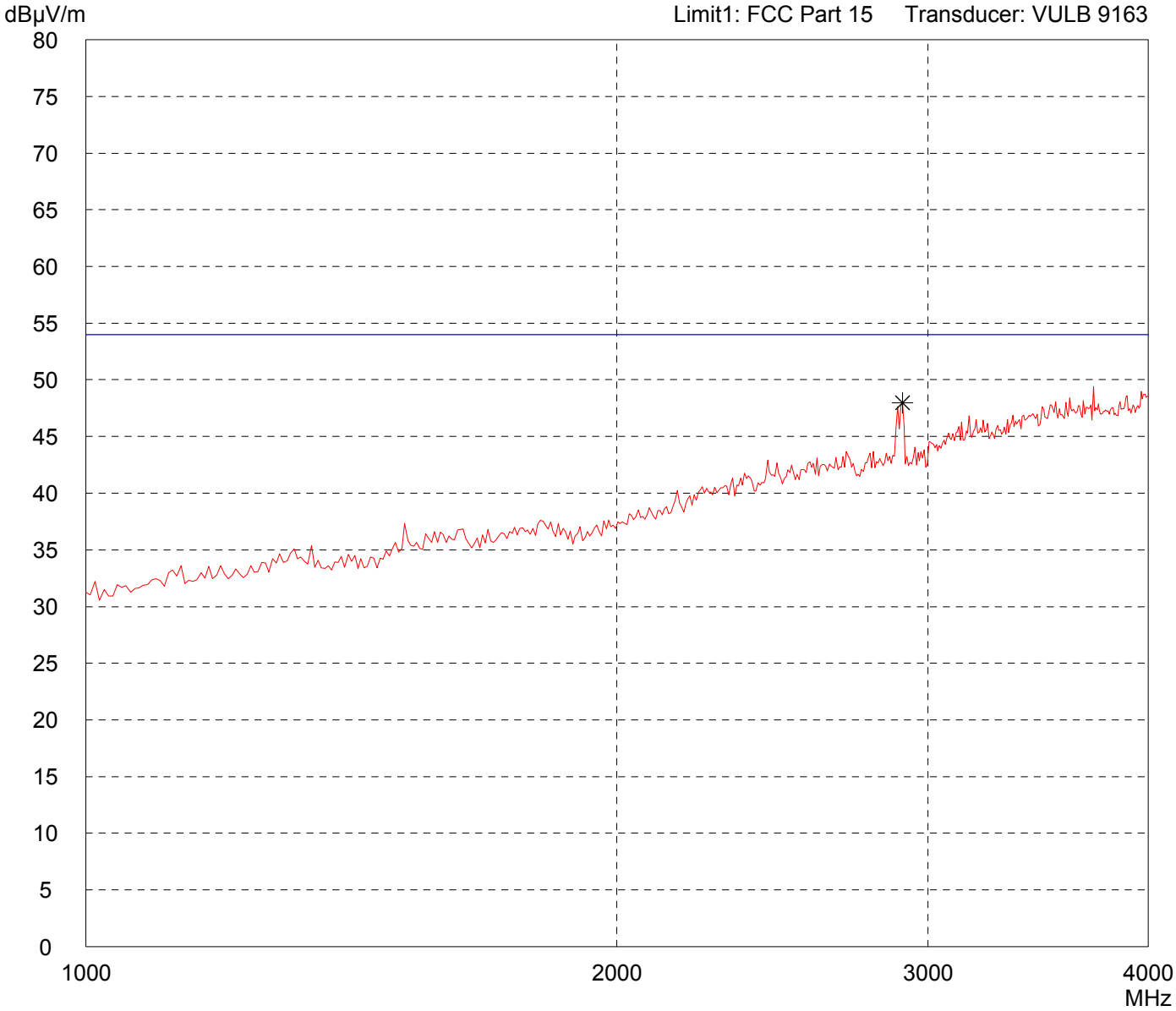
Detector: Peak	List of values: 10 dB Margin — 50 Subranges



Result: Limit kept	Project file: 50104-50463-1 — Page of Pages

Radiated Emission Test 1 GHz - 4 GHz
acc. to FCC Part 15 (Fully Anechoic Chamber)

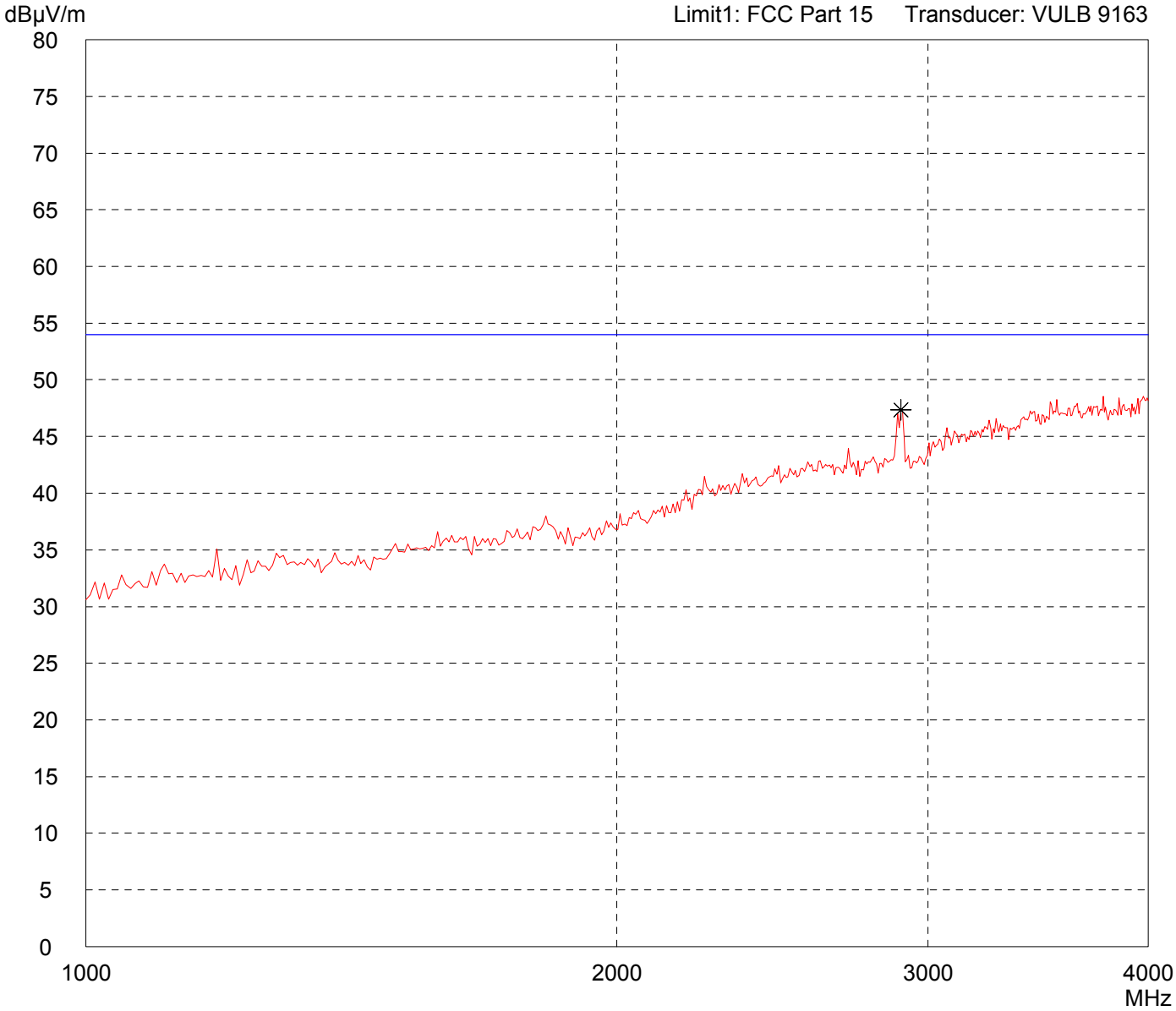
Model: Model 1500 Audio TX & RX	Comment:
Serial no.: Transmitter	
Applicant: Amphony Deutschland GmbH	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Horizontal Polarization	
Date of test: 08/11/2005 — Operator: J. Roidt	
Test performed: automatically — File name: default.emi	
Detector: Peak	List of values: Selected by hand



Result: Limit kept	Project file: 50104-50463-1 Page of Pages

Radiated Emission Test 1 GHz - 4 GHz
acc. to FCC Part 15 (Fully Anechoic Chamber)

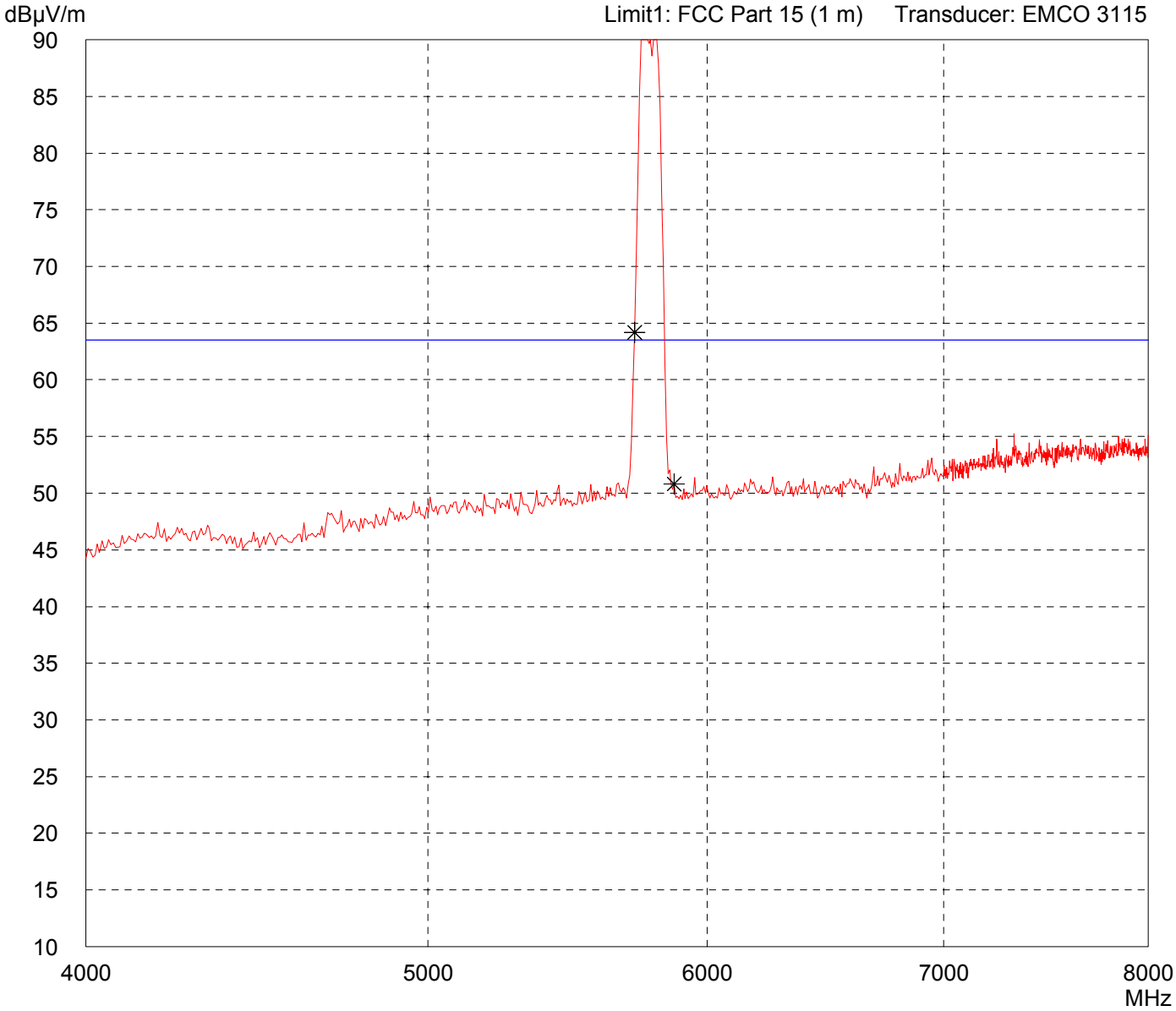
Model: Model 1500 Audio TX & RX	Comment:
Serial no.: Transmitter	
Applicant: Amphony Deutschland GmbH	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Vertical Polarization	
Date of test: 08/11/2005 — Operator: J. Roidt	
Test performed: automatically — File name: default.emi	
Detector: Peak	List of values: Selected by hand



Result: Limit kept	Project file: 50104-50463-1 Page of Pages

Radiated Emission Test 4 GHz - 8 GHz
acc. to FCC Part 15 (Fully Anechoic Chamber)

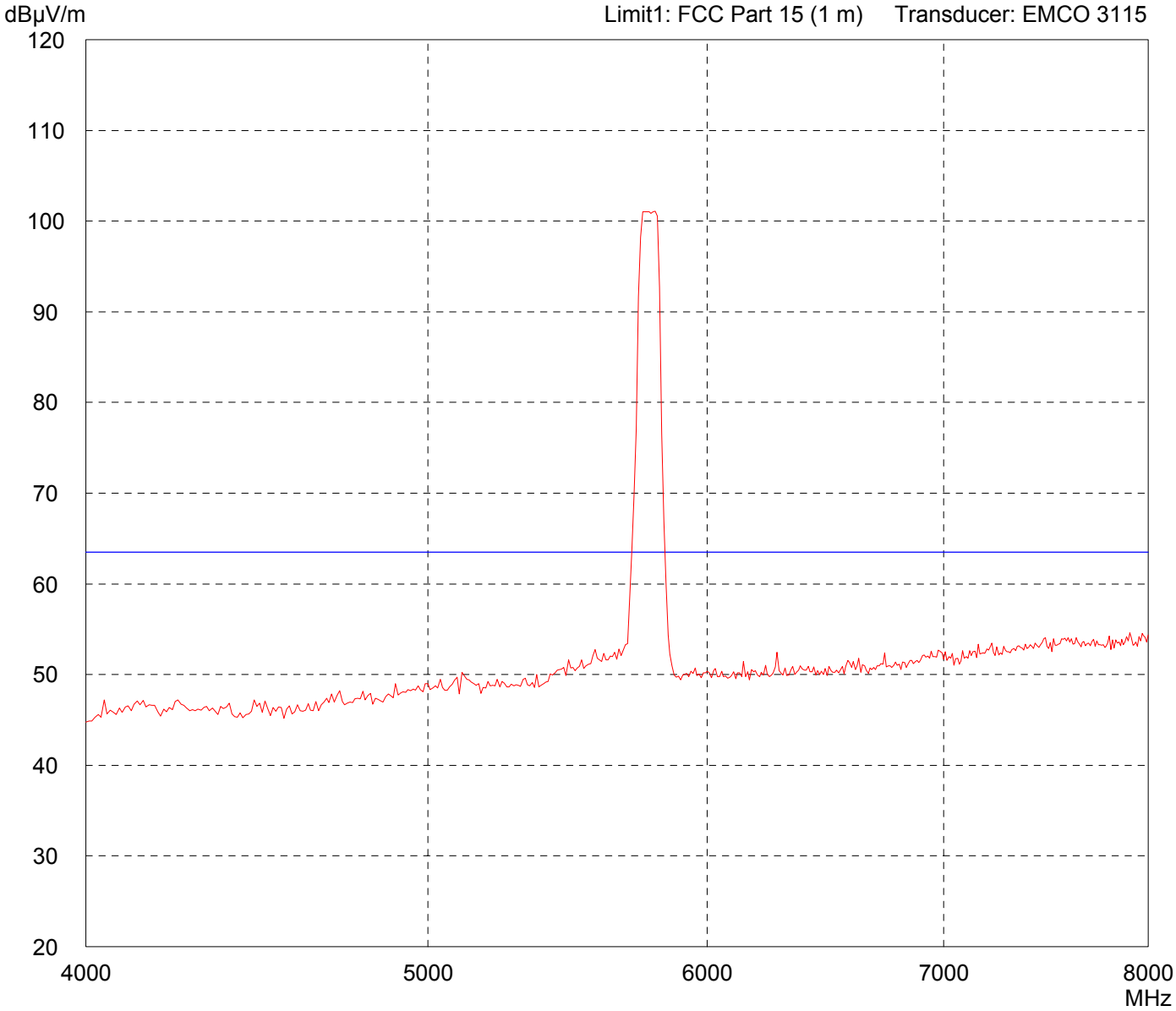
Model: Model 1500 Audio TX & RX	Comment:
Serial no.: Transmitter	
Applicant: Amphony Deutschland GmbH	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 1 metre Horizontal Polarization	
Date of test: 08/11/2005 — Operator: J. Roidt	
Test performed: automatically — File name: default.emi	
Detector: Peak	List of values: Selected by hand



Result: Limit kept	Project file: 50104-50463-1 Page of Pages

Radiated Emission Test 4 GHz - 8 GHz
acc. to FCC Part 15 (Fully Anechoic Chamber)

Model: Model 1500 Audio TX & RX	Comment:
Serial no.: Transmitter	
Applicant: Amphony Deutschland GmbH	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 1 metre Vertical Polarization	
Date of test: 08/11/2005 — Operator: J. Roidt	
Test performed: automatically — File name: default.emi	
Detector: Peak	List of values: Selected by hand



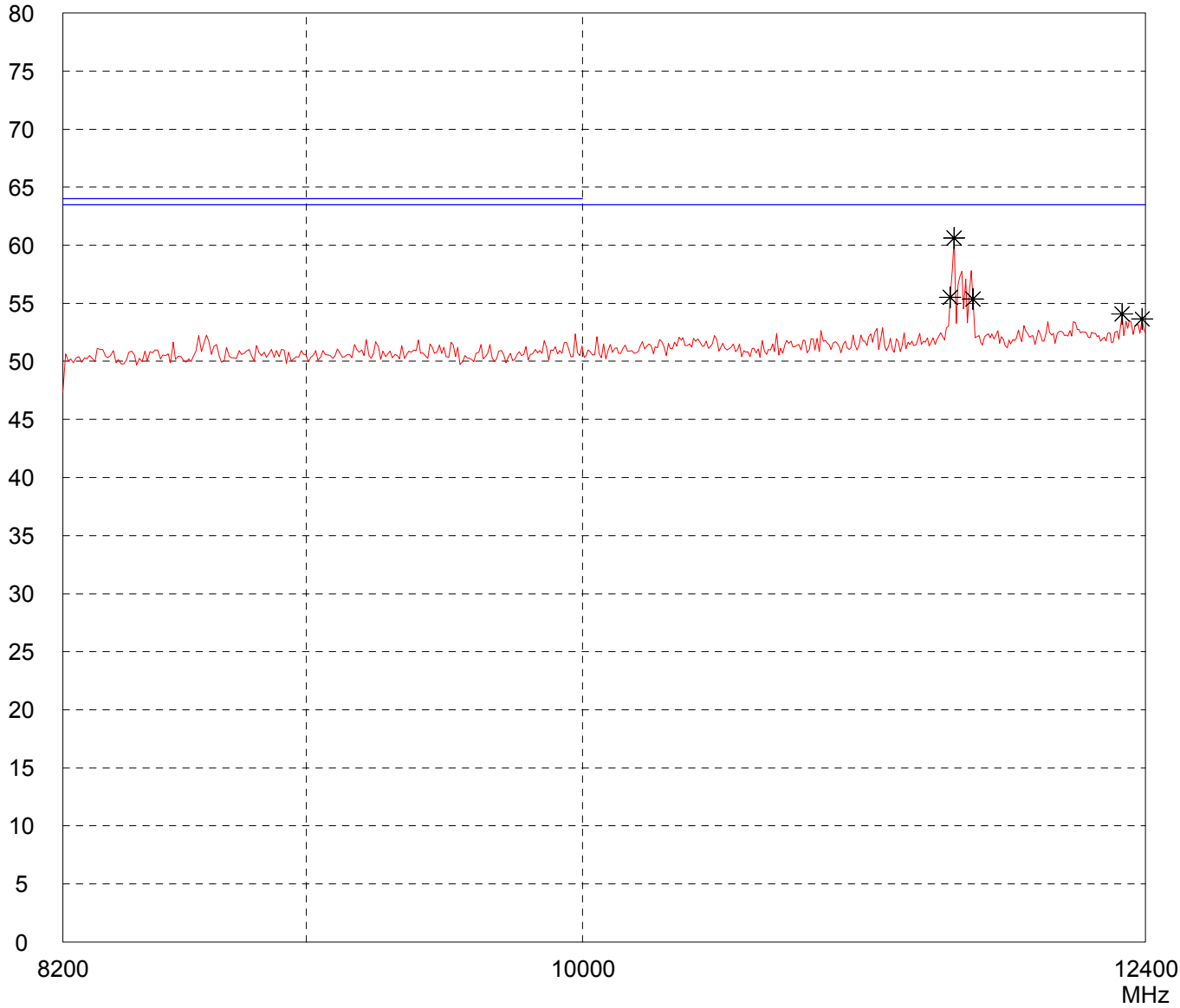
Result: Limit kept	Project file: 50104-50463-1 Page of Pages

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

Model: Model 1500 Audio TX & RX	Comment:
Serial no.: Transmitter	
Applicant: Amphony Deutschland GmbH	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 1 meter Horizontal Polarization	
Date of test: 08/11/2005 — Operator: J. Roidt	
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) — Limit2: FCC part 15 Class A — Transducer: EMCO 3160

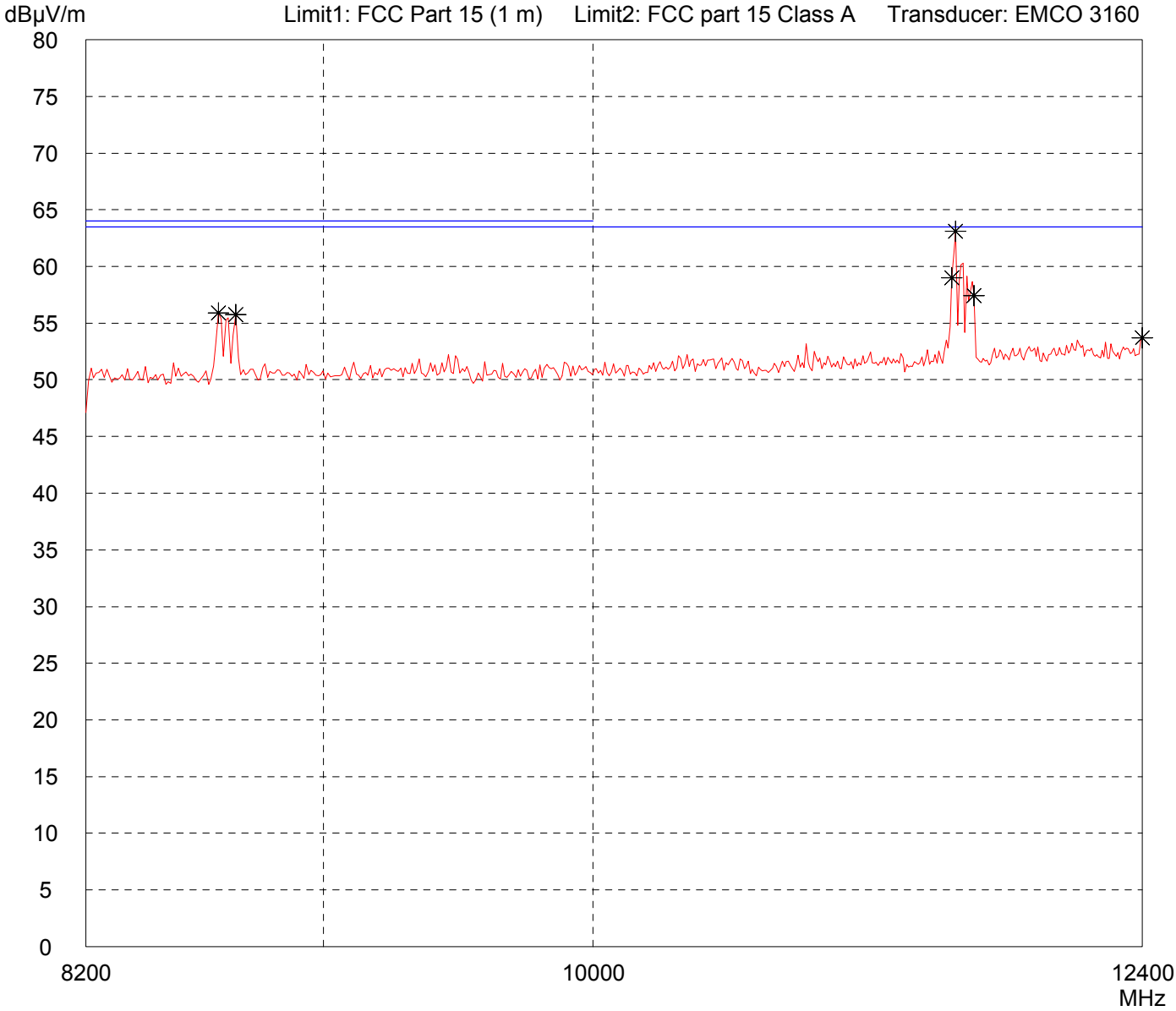


Result: Limit kept	Project file: 50104-50463-1 — Page of Pages

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

Model: Model 1500 Audio TX & RX	Comment:
Serial no.: Transmitter	
Applicant: Amphony Deutschland GmbH	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 1 meter Vertical Polarization	
Date of test: 08/11/2005 — Operator: J. Roidt	
Test performed: automatically — File name: default.emi	

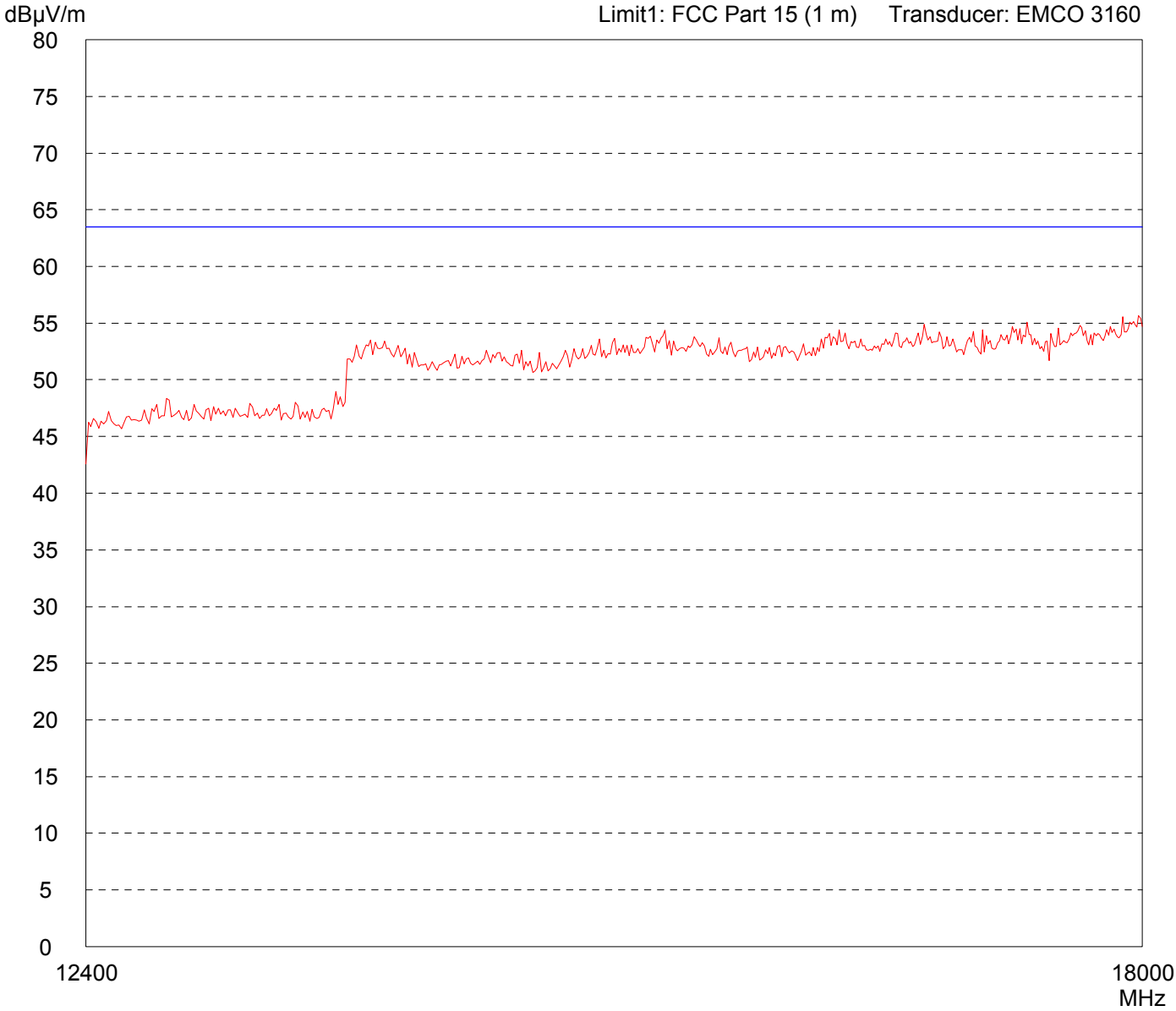
Detector: Peak	List of values: 10 dB Margin — 50 Subranges



Result: Limit kept	Project file: 50104-50463-1 — Page of Pages

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

Model: Model 1500 Audio TX & RX	Comment:
Serial no.: Transmitter	
Applicant: Amphony Deutschland GmbH	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 1 meter Horizontal Polarization	
Date of test: 08/11/2005 — Operator: J. Roidt	
Test performed: by hand — File name: default.emi	
Detector: Peak	List of values: Selected by hand



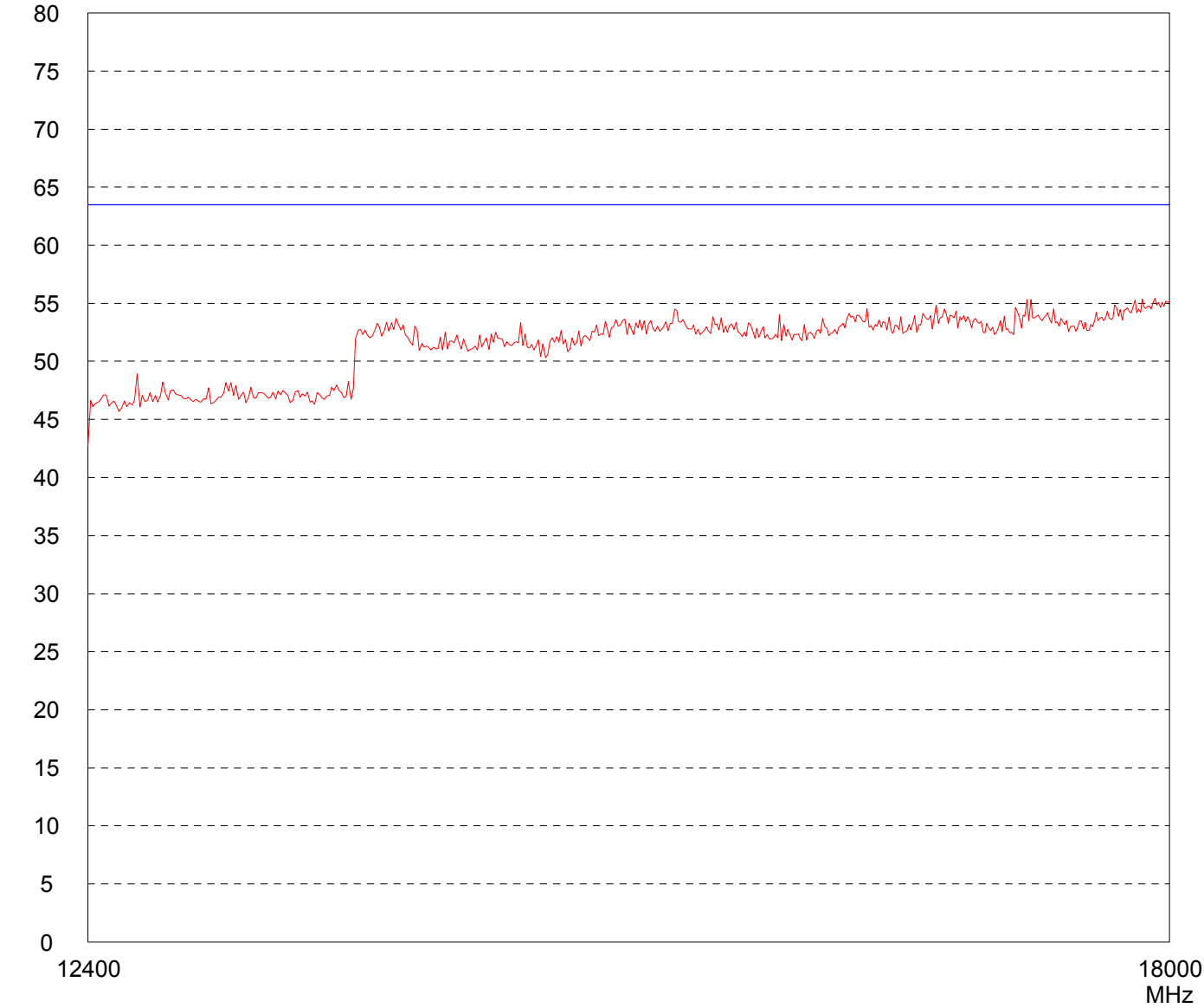
Result: Limit kept	Project file: 50104-50463-1 Page of Pages

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

Model: Model 1500 Audio TX & RX	Comment:
Serial no.: Transmitter	
Applicant: Amphony Deutschland GmbH	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 1 meter Vertical Polarization	
Date of test: 08/11/2005 — Operator: J. Roidt	
Test performed: by hand — File name: default.emi	
Detector: Peak	List of values: Selected by hand

dBµV/m

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

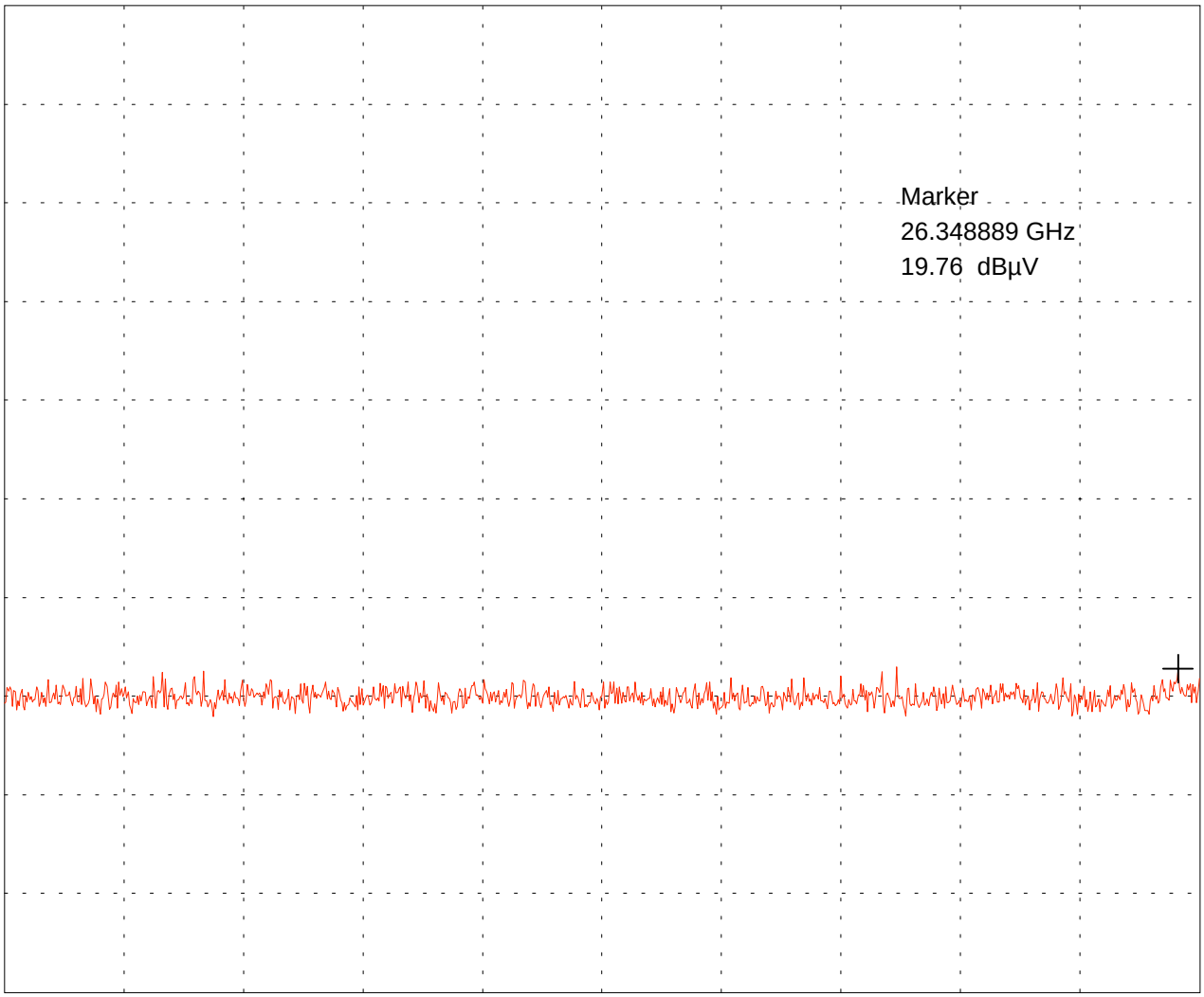


Result: Limit kept	Project file: 50104-50463-1 Page of Pages

Radiated Emissions Test

Model: Model 1500	Mode:
Serial No.: Transmitter	
Applicant: Amphony Deutschland GmbH	

Ref.Level 87 dBµV ATT 0 dB
10 dB/Div.



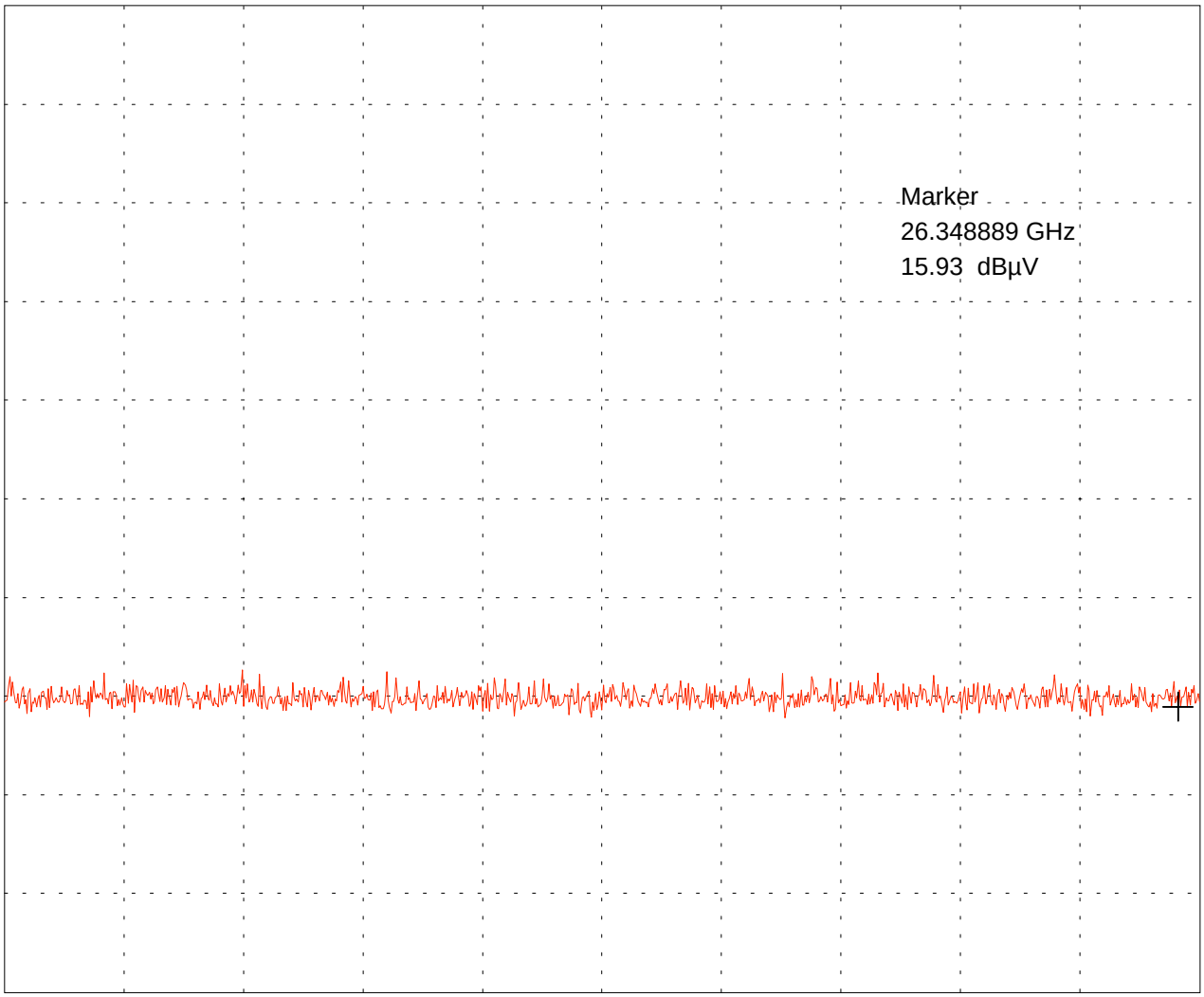
Start 18.000 GHz Stop 26.500 GHz
RBW 100 kHz VBW 100 kHz SWP 2.60 s

Tested by: Johann Roidt	Project-No.: 50104-050603
Date: 18 October 2005	Page of pages

Radiated Emissions Test

Model: Model 1500	Mode:
Serial No.: Transmitter	
Applicant: Amphony Deutschland GmbH	

Ref.Level 87 dBµV ATT 0 dB
10 dB/Div.



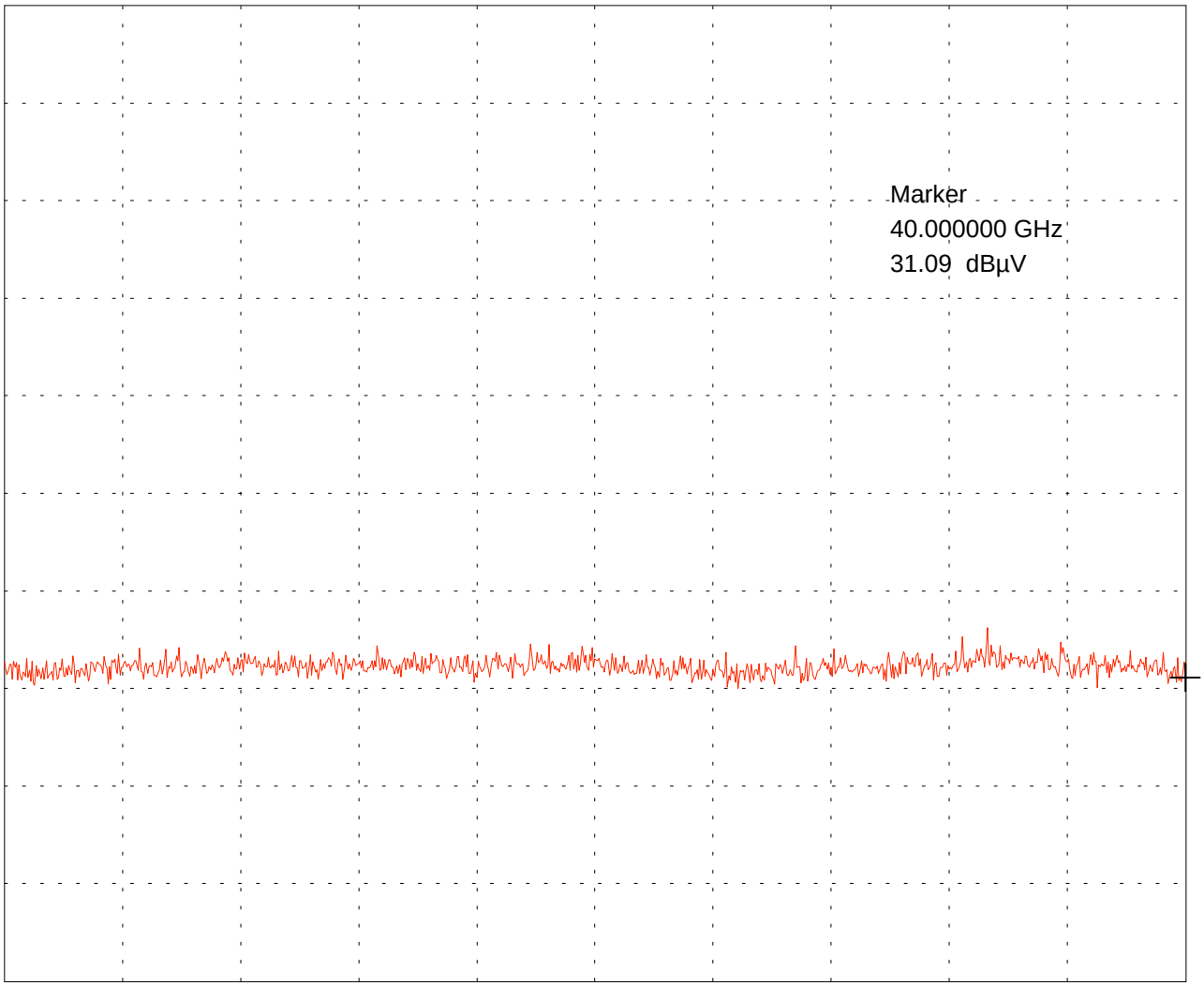
Start 18.000 GHz Stop 26.500 GHz
RBW 100 kHz VBW 100 kHz SWP 2.60 s

Tested by: Johann Roidt	Project-No.: 50104-050603
Date: 18 October 2005	Page of pages

Radiated Emissions Test

Model: Model 1500	Mode: - Horizontal Polarisation
Serial No.: Transmitter	
Applicant: Amphony Deutschland GmbH	

Ref.Level 100 dBµV ATT 0 dB Ref. Offset 26 dB
10 dB/Div.



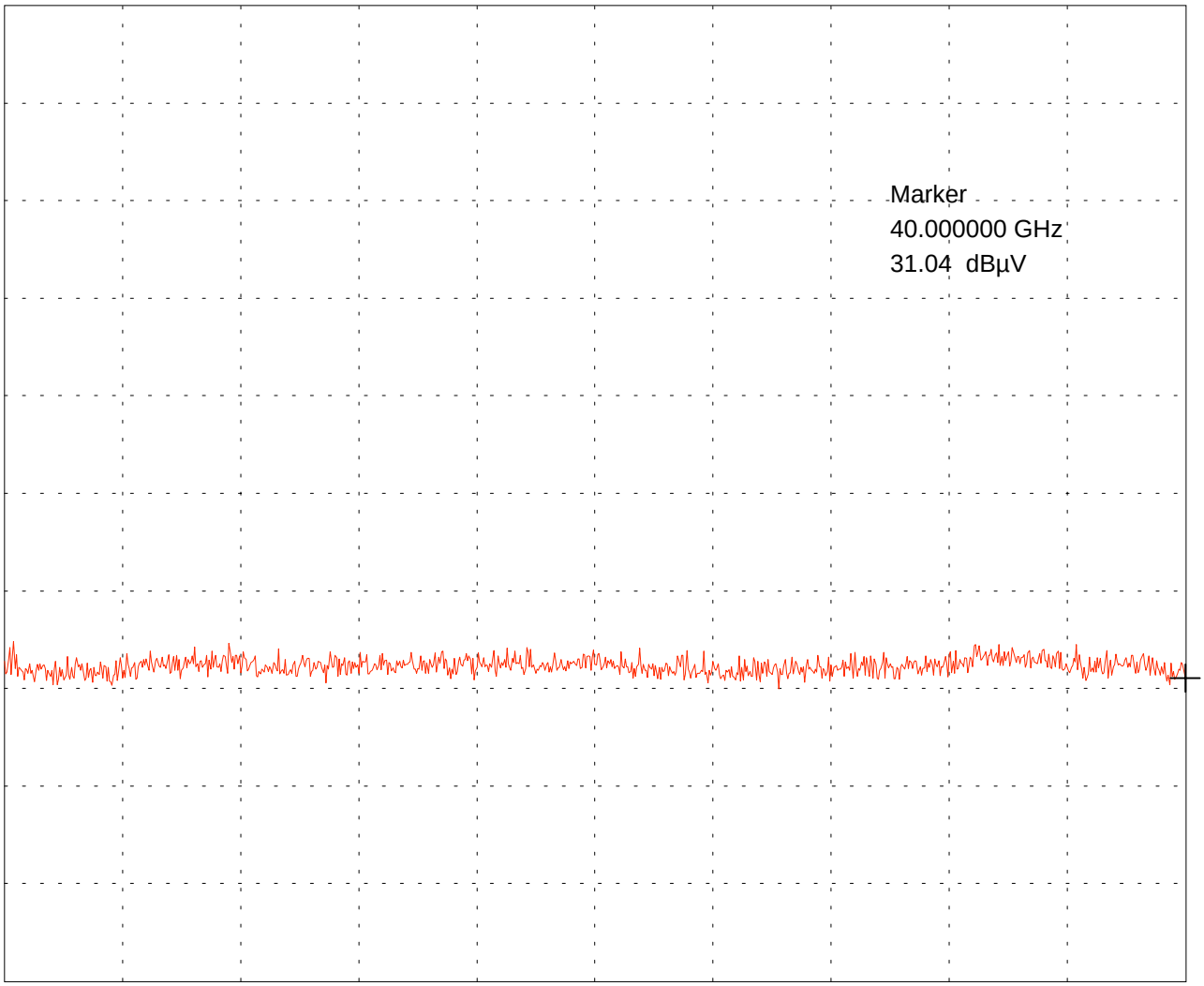
Start 26.500 GHz Stop 40.000 GHz
RBW 100 kHz VBW 100 kHz SWP 4.20 s

Tested by: Johann Roidt	Project-No.: 50104-050603
Date: 18 October 2005	Page of pages

Radiated Emissions Test

Model: Model 1500	Mode: - Vertical Polarisation
Serial No.: Transmitter	
Applicant: Amphony Deutschland GmbH	

Ref.Level 100 dBµV ATT 0 dB Ref. Offset 26 dB
10 dB/Div.



Start 26.500 GHz Stop 40.000 GHz
RBW 100 kHz VBW 100 kHz SWP 4.20 s

Tested by: Johann Roidt	Project-No.: 50104-050603
Date: 18 October 2005	Page of pages