

Straubing, 22 December 2004

TEST-REPORT

No. 50305-40687-8

for

**CyMotion Pro
Art. No. M85-20850DEADAA**

Wireless Mouse

Applicant: Cherry GmbH

Test Specification: FCC Code of Federal Regulations,
CFR 47, Part 15,
Sections 15.209 and 15.249

Note:

The test data of this report relate 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. Administrative Data

Test item (EUT)	
Type designation	CyMotion Pro Art. No. M85-20850DEADAA
Version of EUT:	Prototype 3 / RC5 with modification according applicant's documentation
Serial number(s):	---
Type of equipment:	Wireless Mouse
Parts/accessories:	
FCC-ID:	
Technical data	
Frequency range:	2400.0 – 2483.5 MHz
Operational frequencies:	2.412 (lowest frequency) 2.428 (default adjustment) 2.475 (highest frequency)
Type of modulation:	
Pulse frequency:	
Pulse width:	161 µs
Class of emission:	
Antenna:	Integrated PCB-Track
Power supply:	2 x 1.5 AA Alkaline-Battery
Applicant: (full address)	Cherry GmbH Cherrystraße D-91275 Auerbach Germany
Contract identification:	
Contact person:	Mr. Jürgen Meier
Manufacturer:	Cherry GmbH
Application details	
Receipt of EUT:	3 November 2004
Date of test:	November – December 2004
Note:	EUT is part of a bundle including keyboard, mouse and receiver.

2. Identification of 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
Name for contact purposes:	Mr. Johann Roidt
	Phone: (+49) (0)9421 5522-0 Fax: (+49) (0)9421 5522-99

3. Summary

Summary of test results
The tested sample complies with the requirements set forth in the Code of Regulations CFR 47, Part 15, Sections 15.207, 15.209 and 15.249 of the Federal Communication Commission (FCC).

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

4. Operation Mode and Configuration of EUT

Operation Mode

Testmode: Continuous transmission with normal modulation.

Configuration of EUT

Not Applicable

List of ports and cables

<i>Port</i>	<i>Description</i>	<i>Classification¹</i>	<i>Cable type</i>	<i>Cable length</i>
1	Charge port	DC power	Unshielded	< 1 m

List of devices connected to EUT

<i>Item</i>	<i>Description</i>	<i>Type Designation</i>	<i>Serial no. or ID</i>	<i>Manufacturer</i>
1	Charger	AC/DC convertor	---	Cherry GmbH

¹ Ports shall be classified as ac power, dc power or signal/control port

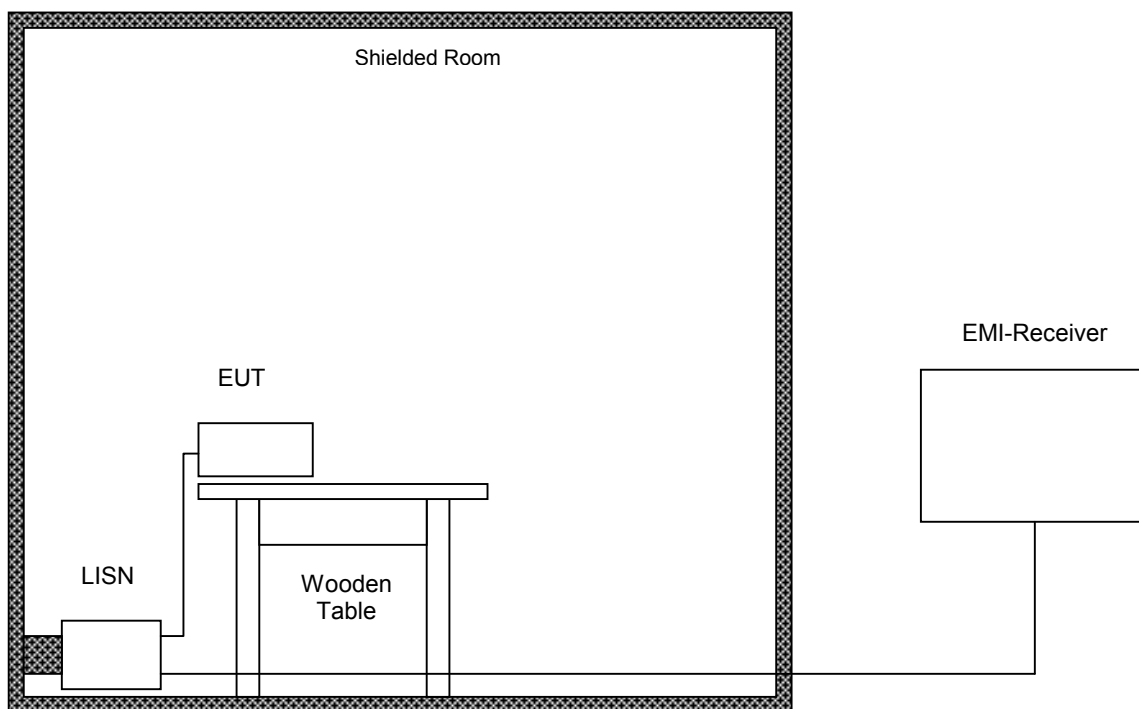
5. Measuring Methods

5.1. Conducted powerline emissions

Rules and Specifications:	Sections 15.107 & 15.207
Guide:	CISPR 22

Measurement Procedure:

In general conducted emission tests in the frequency range 0.15 - 30 MHz are required to be performed with quasi-peak and average detector. To simplify testing the following procedure is used: First the whole spectrum of emission caused by equipment under test (EUT) is recorded with detector set to peak. After that all emission levels having less margin than 20 dB to or exceeding the appropriate limit (in general average limit is 10 dB lower than quasi-peak limit) are retested with detector set to quasi-peak. If average limit is kept 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 has to be recorded.



Test instruments used:

No.	Type	Model	Serial Number	Manufacturer
01	EMI Receiver	ESHS 10	860043/016	Rohde & Schwarz
02	LISN	ESH3-Z5	862770/021	Rohde & Schwarz
03	LISN	ESH-3-Z5	830952/025	Rohde & Schwarz
04	Shielded Room No. 4	---	3FD-100 544	Euroshield

5.2. Field Strength of Emissions, Prescans in a fully-anechoic Room

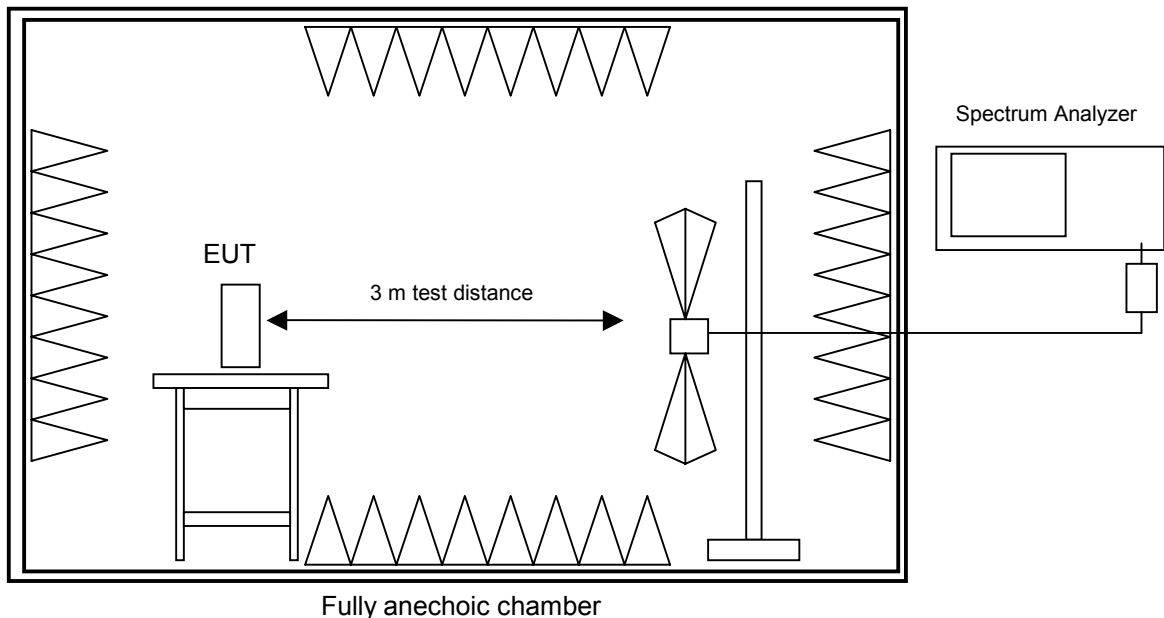
Rules and Specifications:	Sections 15.109, 15.209, 15.249
Guide:	ANSI C63.4-2003

Measurement Procedure:

Radiated emissions are measured over the frequency range from 30 MHz to maximum frequency as specified in 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).

All tests are performed at a test-distance of 3 meters. 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 the tests the EUT is rotated all around to find the maximum levels of emissions. The cables and equipment were placed and moved within the range of position likely to find their maximum emissions.



Test instruments used:

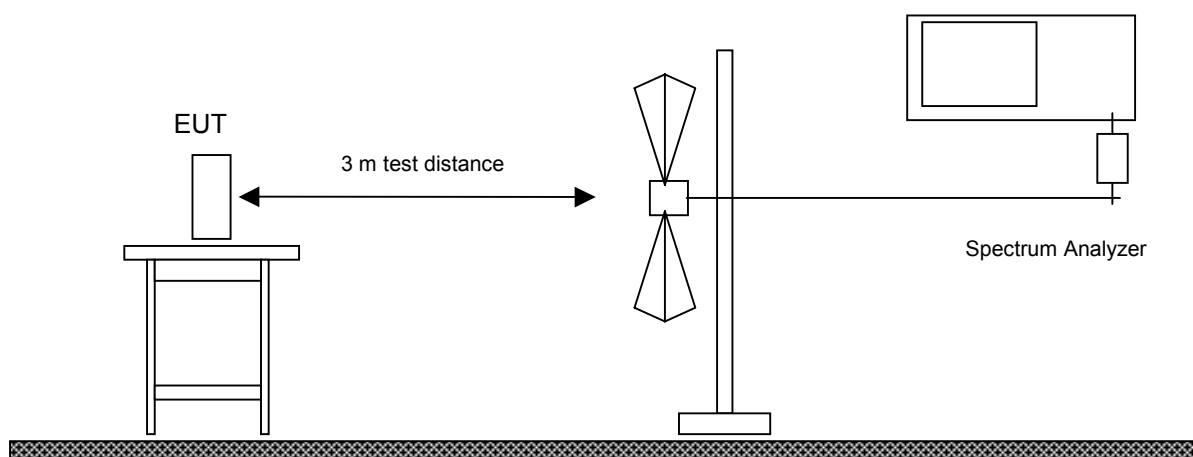
No.	Type	Model	Serial Number	Manufacturer
01	Spectrum Analyzer	FSP 30	100063	Rohde & Schwarz
02	Preamplifier	CPA9231A	3393	Schaffner
03	Biconical antenna	HK 116	829708/006	Rohde & Schwarz
04	Log. periodic antenna	3147	9112-1054	EMCO
05	Horn antenna	3115	9508-4553	EMCO
06	Horn antenna	3160-03	9112-1003	Emco
07	Horn antenna	3160-04	9112-1001	Emco
08	Horn antenna	3160-05	9112-1001	Emco
09	Horn antenna	3160-06	9112-1001	Emco
10	Horn antenna	3160-07	9112-1008	Emco
11	Horn antenna	3160-08	9112-1002	Emco
12	Horn antenna	3160-09	9403-1025	Emco
13	Preamplifier 1-8 GHz	AFS3-00100800-32-LN	847743	Miteq
14	Preamplifier 8-18 GHz	ACO/180-3530	32641	CTT
15	Fully anechoic room	No. 2	1452	Albatross Projects

5.3. Radiated Emission Measurement at Open Area Test Site

Rules and Specifications:	Sections 15.109, 15.209, 15.249
Guide:	ANSI C63.4-2003

Measurement Procedure:

Radiated emissions are measured in the frequency range 30 MHz to 1 GHz
The measurement bandwidth of the test receiver is set to 120 kHz with detector set to quasi-peak.
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 to find the maximum levels of emission. The cables and equipment are placed and moved within the range of position likely to find their maximum emissions.
In general a test-distance of 3 meters is selected. If a test-distance of 10 meters is used the limits are calculated according to 15.31 (d) and (f)(1).
If required preamplifiers are used for the whole frequency range. Special care is taken to avoid overload in transmit mode (using appropriate attenuators and filters if necessary).



Test instruments used:

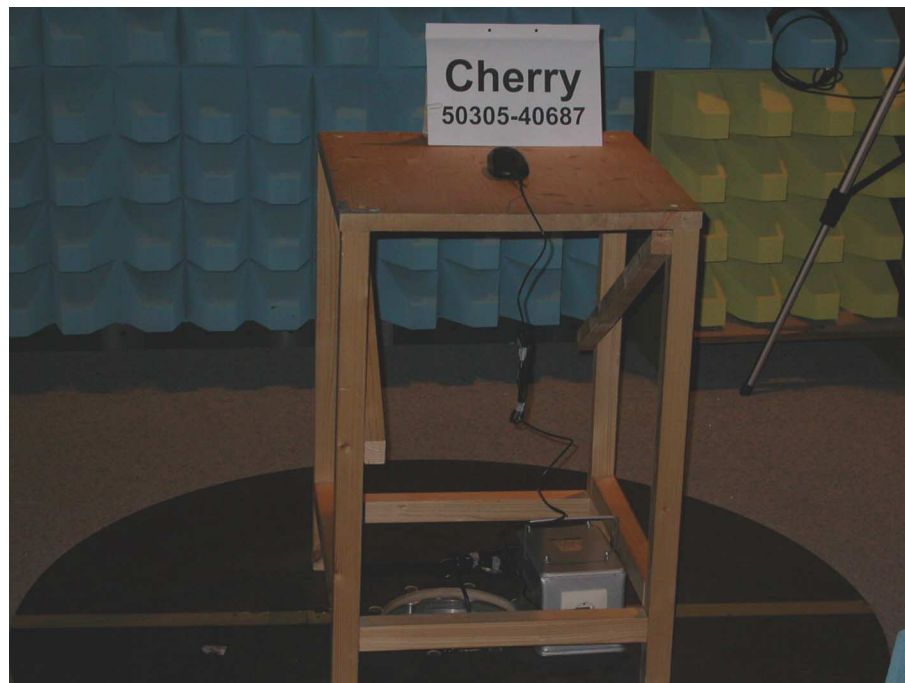
No.	Type	Model	Serial Number	Manufacturer
01	EMI Receiver	ESVP	881414/009	Rohde & Schwarz
141	Biconical antenna	HK 116	829708/006	Rohde & Schwarz
143	Log. periodic antenna	3147	9112-1054	EMCO
145	Horn antenna	3115	9508-4553	EMCO
146	Horn antenna set	3160-03/-09	9112-1003	EMCO
114	Preamplifier 1-8 GHz	AFS3-00100800-32-LN	847743	Miteq
115	Preamplifier 8-18 GHz	ACO/180-3530	32641	CTT
003	Open Field Test Site	No. 1	N/A	Senton

6. Photographs Taken During Testing

Test setup for conducted power line emission measurement



Test setup for radiated emission measurement (fully anechoic room)



**Test setup for radiated emission measurement
(open area test site)**



7. List of Measurements

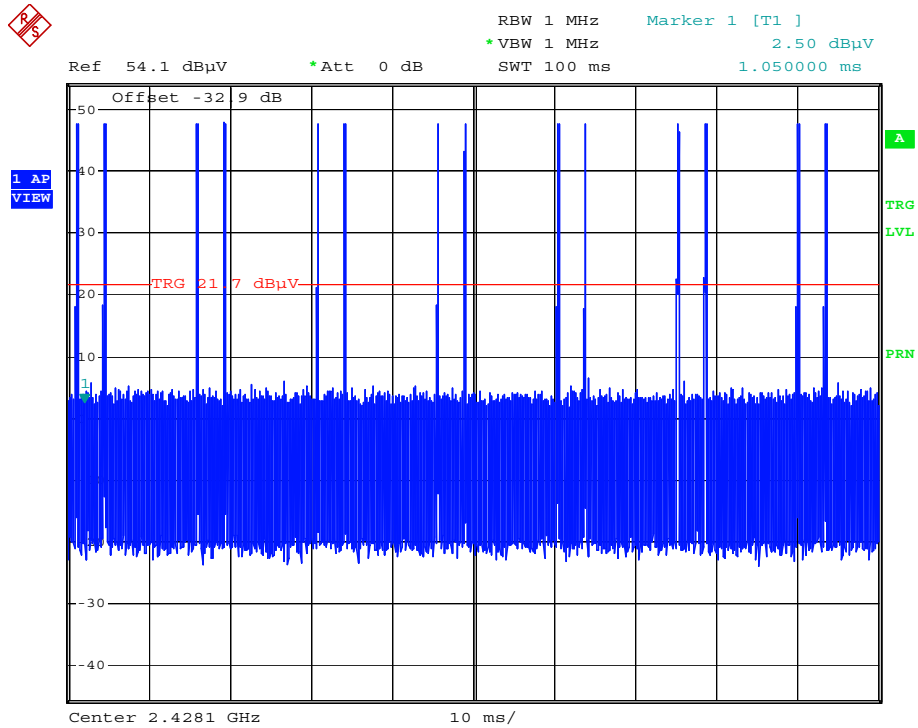
FCC Part 15 Subpart B Class B			
Section(s):	Test	Page	Result
15.35 (b)(c) 15.205 15.207 15.249 (a) 15.249 (d)			
	Duty Cycle Correction	16	
	Restricted Bands		Pass
	AC Powerline Emissions	19	Pass
	Field Strength of Emissions (Fundamental & Harmonics)	20	Pass
	Radiated Spurious Emissions	23	Pass

Duty Cycle Correction

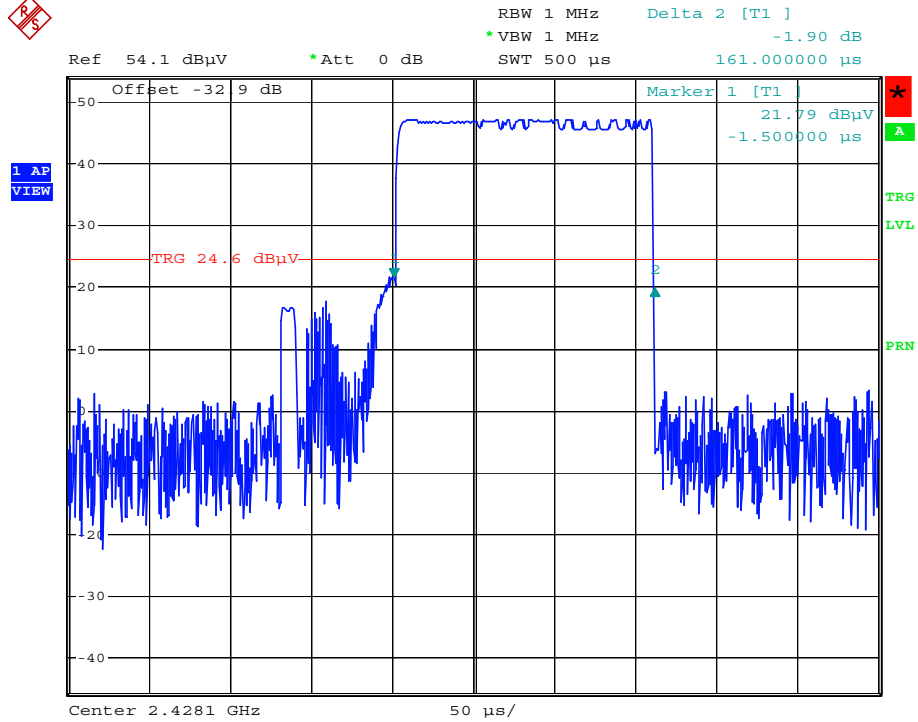
Rules and Specifications:	15.35 (b)(c)
Guide:	ANSI C63.4-2003
ANSI C63.4	When average detector function limits are specified for a pulse modulated transmitter, the average level of emissions may be found by measuring the peak levels of the emissions and correcting them with the duty cycle according to ANSI C64.4, section I4 (10)

$$Duty\ Cycle\ Correction[dB] = 20 \cdot \log\left(\frac{Sum\ of\ the\ Pulse\ Widths}{100ms}\right) = 20 \cdot \log\frac{14 \cdot 161\mu s}{100ms} = -32.94\ dB$$

Duty Cycle Correction - continued



Comment A: Cherry 40687: Duty Cycle
 Date: 3.NOV.2004 11:40:31



Comment A: Cherry 40687: Duty Cycle
 Date: 3.NOV.2004 11:42:45

Conducted Powerline Emission Measurement

Rules and Specifications:	15.107, 15.207		
Guide:	CISPR 22		
Limit:	Frequency of Emission (MHz)	Conducted Limit (dBuV)	
		Quasi-peak	Average
	0.15-0.5 0.5 – 5 5 – 30	66 to 56 56 60	56 to 46 46 50

Test Site:	Radio Lab.
Measurement	Conducted Measurement
Date of Test:	22 November 2004

Frequency (MHz)	Detector	Analyzer Reading (dBμV)	Correction Factor (dB)	Final Value (dBμV)	Limit (dBμV)	Margin (dB)
0.310	QP	39.1	0	39.1	60.0	20.9
0.370	QP	39.0	0	39.0	58.5	19.5
0.490	QP	36.3	0	36.3	56.2	19.9
0.615	QP	39.3	0	39.3	56.0	16.7
0.675	QP	36.3	0	36.3	56.0	19.7
0.920	QP	38.1	0	38.1	56.0	17.9
0.980	QP	37.5	0	37.5	56.0	18.5
1.040	QP	36.5	0	36.5	56.0	19.5

*** = No emissions above noise floor detected

Sample calculation of Final values:

$$\text{Final Value (dB}\mu\text{V)} = \text{Analyzer Reading (dB}\mu\text{V)} + \text{Correction Factor (dB)}$$

Test Results:	Pass
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Field Strength of Emissions

Rules and Specifications:	15.209, 15.249 (a) Radiated Emission Limits		
Guide:	ANSI C63.4-2003		
Limit:	The field strength of emissions from intentional radiators operated in these frequency band shall comply with the following:		
	Fundamental Frequency	Field Strength of Fundamental (millivolts/meter)	Field Strength of Harmonics (microvolts/meter)
	902-928 MHz	50	500
	2400-2483.5 MHz	50	500
	5725-5875 MHz	50	500
	24-24.25 GHz	250	2500

Tested Frequency:	2412 MHz
Test Site:	Open Area Test Site (< 1 GHz), Fully anechoic chamber (> 1 GHz)
Distance:	3 Meter / 1 Meter (> 8 GHz)

Frequency (MHz)	Detector	Antenna Polarization	Analyzer Reading (dBμV)	Correction Factor (dB/m)	Duty Cycle Correction (dB)	Field Strength (dBμV/m)	Limit (dBμV/m)	Margin (dB)
2412.0	PK	Hor	44.45	34.64	-20.00	59.09	94.00	34.91
4824.0	PK	Ver	29.72	32.05	-20.00	41.77	54.00	12.23
7236.0	PK	Ver	19.01	35.99	-20.00	35.00	54.00	19.00

*** = All emissions showed more than 20 dB margin to the limit

Sample calculation of erp values:

$$\text{Field Strength (dBμV/m)} = \text{Analyzer Reading (dBμV)} + \text{Correction Factor (dB/m)}$$

Test Results:	Pass
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Field Strength of Emissions

Rules and Specifications:	15.209, 15.249 (a) Radiated Emission Limits		
Guide:	ANSI C63.4-2003		
Limit:	The field strength of emissions from intentional radiators operated in these frequency band shall comply with the following:		
	Fundamental Frequency	Field Strength of Fundamental (millivolts/meter)	Field Strength of Harmonics (microvolts/meter)
	902-928 MHz	50	500
	2400-2483.5 MHz	50	500
	5725-5875 MHz	50	500
	24-24.25 GHz	250	2500

Tested Frequency:	2428 MHz
Test Site:	Open Area Test Site (< 1 GHz), Fully anechoic chamber (> 1 GHz)
Distance:	3 Meter / 1 Meter (> 8 GHz)

Frequency (MHz)	Detector	Antenna Polarization	Analyzer Reading (dBμV)	Correction Factor (dB/m)	Duty Cycle Correction (dB)	Field Strength (dBμV/m)	Limit (dBμV/m)	Margin (dB)
2428.0	PK	Ver	52.12	31.99	-20.00	64.11	94.00	29.89
4858.0	PK	Ver	32.31	32.08	-20.00	44.39	54.00	9.61
7283.5	PK	Ver	19.50	36.03	-20.00	35.53	54.00	18.47
9712.0	PK	Ver	13.69	40.60	-20.00	34.29	63.50	29.21
12140.8	PK	Ver	15.80	41.86	-20.00	37.66	63.50	25.84

= All emissions showed more than 20 dB margin to the limit

Sample calculation of erp values:

$$\text{Field Strength (dB}\mu\text{V/m)} = \text{Analyzer Reading (dB}\mu\text{V)} + \text{Correction Factor (dB/m)}$$

Test Results:	Pass
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Field Strength of Emissions

Rules and Specifications:	15.209, 15.249 (a) Radiated Emission Limits		
Guide:	ANSI C63.4-2003		
Limit:	The field strength of emissions from intentional radiators operated in these frequency band shall comply with the following:		
	Fundamental Frequency	Field Strength of Fundamental (millivolts/meter)	Field Strength of Harmonics (microvolts/meter)
	902-928 MHz	50	500
	2400-2483.5 MHz	50	500
	5725-5875 MHz	50	500
	24-24.25 GHz	250	2500

Tested Frequency:	2475 MHz
Test Site:	Open Area Test Site (< 1 GHz), Fully anechoic chamber (> 1 GHz)
Distance:	3 Meter / 1 Meter (> 8 GHz)

Frequency (MHz)	Detector	Antenna Polarization	Analyzer Reading (dBμV)	Correction Factor (dB/m)	Duty Cycle Correction (dB)	Field Strength (dBμV/m)	Limit (dBμV/m)	Margin (dB)
2475.0	PK	Ver	50.43	34.86	-20.00	65.29	94.00	28.71
4900.0	PK	Ver	30.38	32.10	-20.00	42.48	54.00	11.52
7349.0	PK	Ver	18.45	36.09	-20.00	34.54	54.00	19.46

= All emissions showed more than 20 dB margin to the limit

Sample calculation of erp values:

Field Strength (dBμV/m) = Analyzer Reading (dBμV) + Correction Factor (dB/m)

Test Results:	Pass
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Spurious Radiation Measurement

Rules and Specifications:	15.209, 15.249 (d) Radiated Emission Limits	
Guide:	ANSI C63.4-2003	
Limit:	Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated at least 50 dB below the level of the fundamental or to the general radiated emission limits below, whichever is the lesser attenuation	
	Frequency of Emission (MHz)	Field Strength (microvolts/meter)
	30 - 88	100
	88 - 216	150
	216 - 960	200
	Above 960	500

Tested Frequency:	
Test Site:	Open Area Test Site (< 1 GHz), Fully anechoic chamber (> 1 GHz)
Distance:	3 Meter

Frequency (MHz)	Detector	Antenna Polarization	Analyzer Reading (dBμV)	Correction Factor (dB/m)	Field Strength (dBμV/m)	Limit (dBμV/m)	Margin (dB)
30 - 26000					***		

*** = All emissions showed more than 20 dB margin to the limit

Note:

Radiated Emissions for 9 kHz – 30 MHz is not applicable. The wave length of the minimum frequency of 6 MHz is 50 m. The EUT provides no ability for a minimal radiation characteristic of 5 m ($\lambda/10$).

Sample calculation of erp values:

$$\text{Field Strength (dB}\mu\text{V/m)} = \text{Analyzer Reading (dB}\mu\text{V)} + \text{Correction Factor (dB/m)}$$

Test Results:	Pass
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8. 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

9. Charts taken during testing

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

Model:
CyMotion Pro

Serial no.:
Mouse

Applicant:
Cherry GmbH

Test site:
Shielded room, cabin no. 1

Tested on:
Linecord
Phase L1

Date of test:
11/22/2004

Operator:
M. Steindl

Test performed:
automatically

File name:

Mode:
- Charging

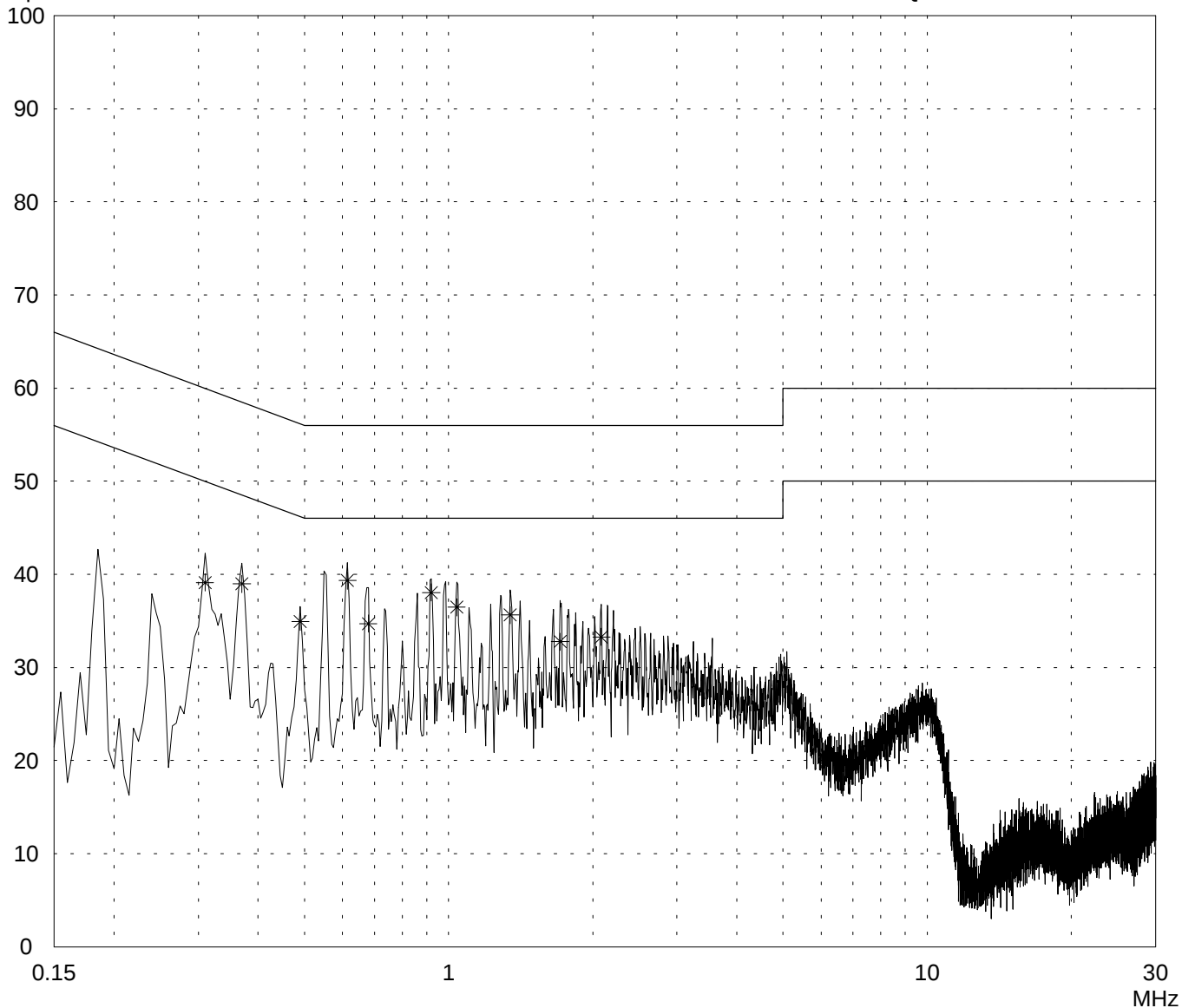
Detector:
Peak / Final Results: QP

Final results:
20 dB Margin

25 Subranges

dB μ V

Limit1: FCC B / QP Limit2: FCC B / AV



Result:
Limit kept

Project file:
50305-40687

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

Model:
CyMotion Pro

Serial no.:
Mouse

Applicant:
Cherry GmbH

Test site:
Shielded room, cabin no. 1

Tested on:
Linecord
Phase N

Date of test:
11/22/2004

Operator:
M. Steindl

Test performed:
semi automatically

File name:

Mode:
- Charging

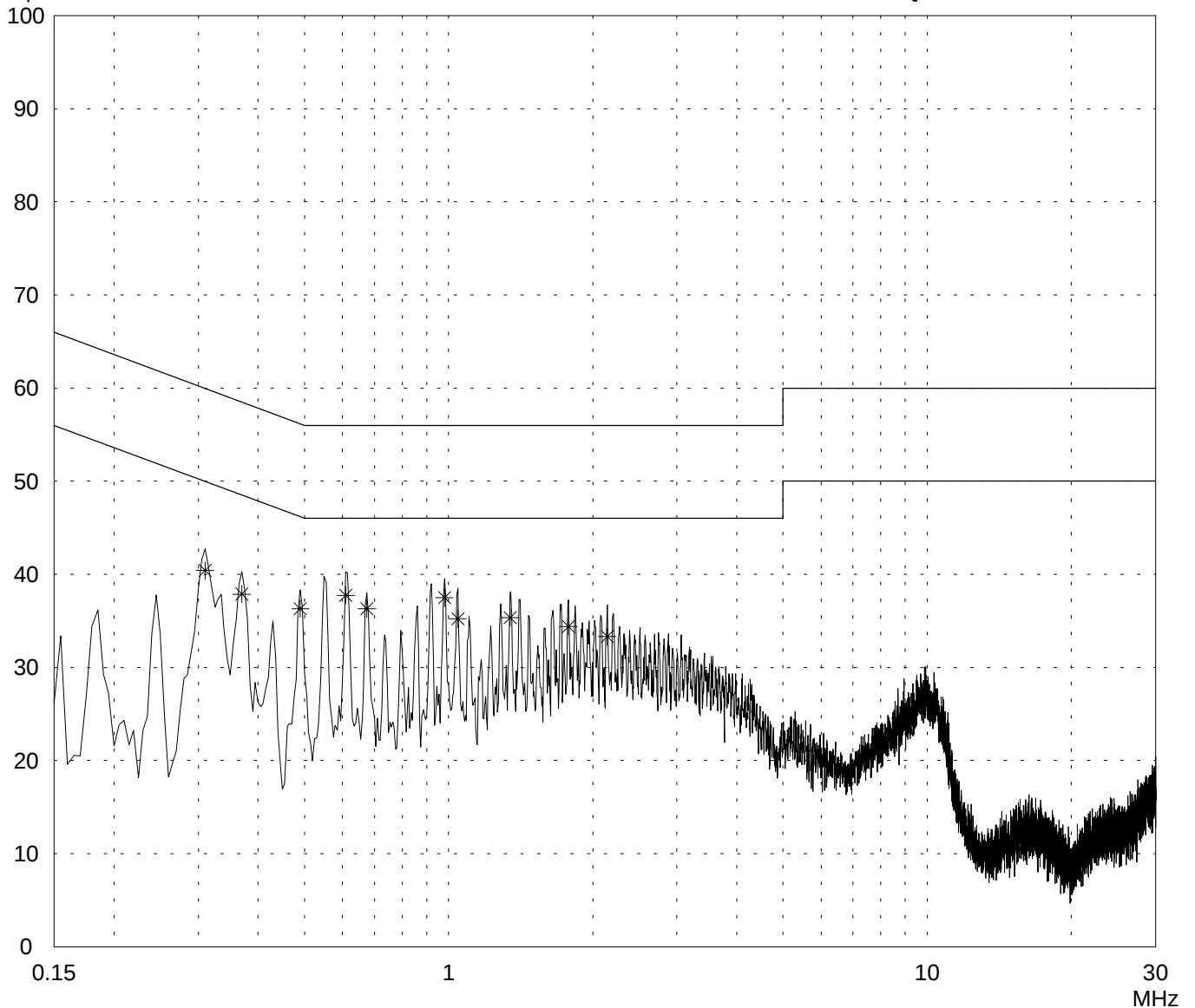
Detector:
Peak / Final Results: QP

Final results:
20 dB Margin

25 Subranges

dB μ V

Limit1: FCC B / QP Limit2: FCC B / AV



Result:
Limit kept

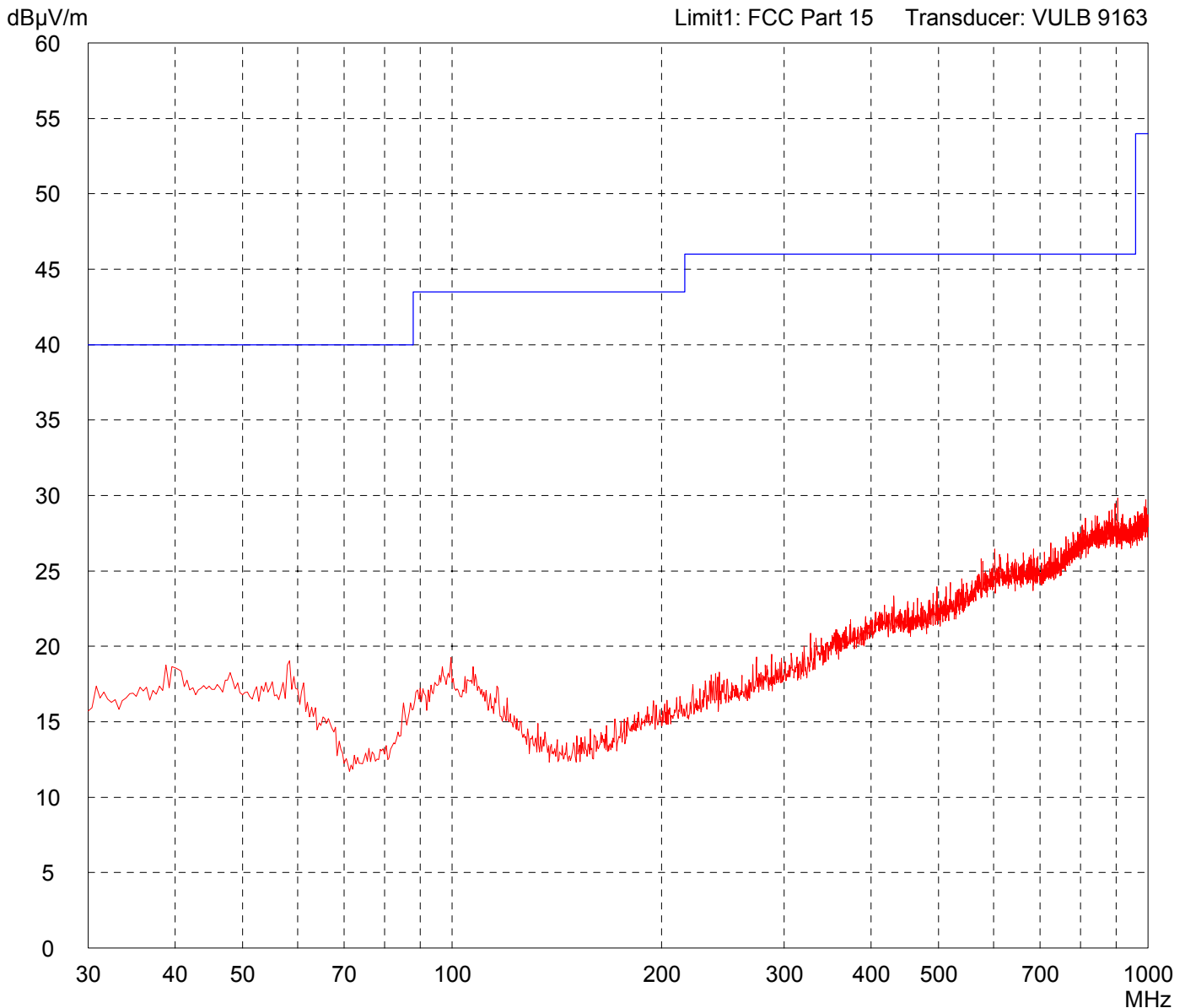
Project file:
50305-40687

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

Model: CYMotion Pro	Comment: - Test Mode: continious transmitting with modulation
Serial no.: Mouse	
Applicant: Cherry GmbH	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Horizontal Polarization	
Date of test: 11/08/2004	Operator: M. Steindl
Test performed: automatically	File name: default.emi

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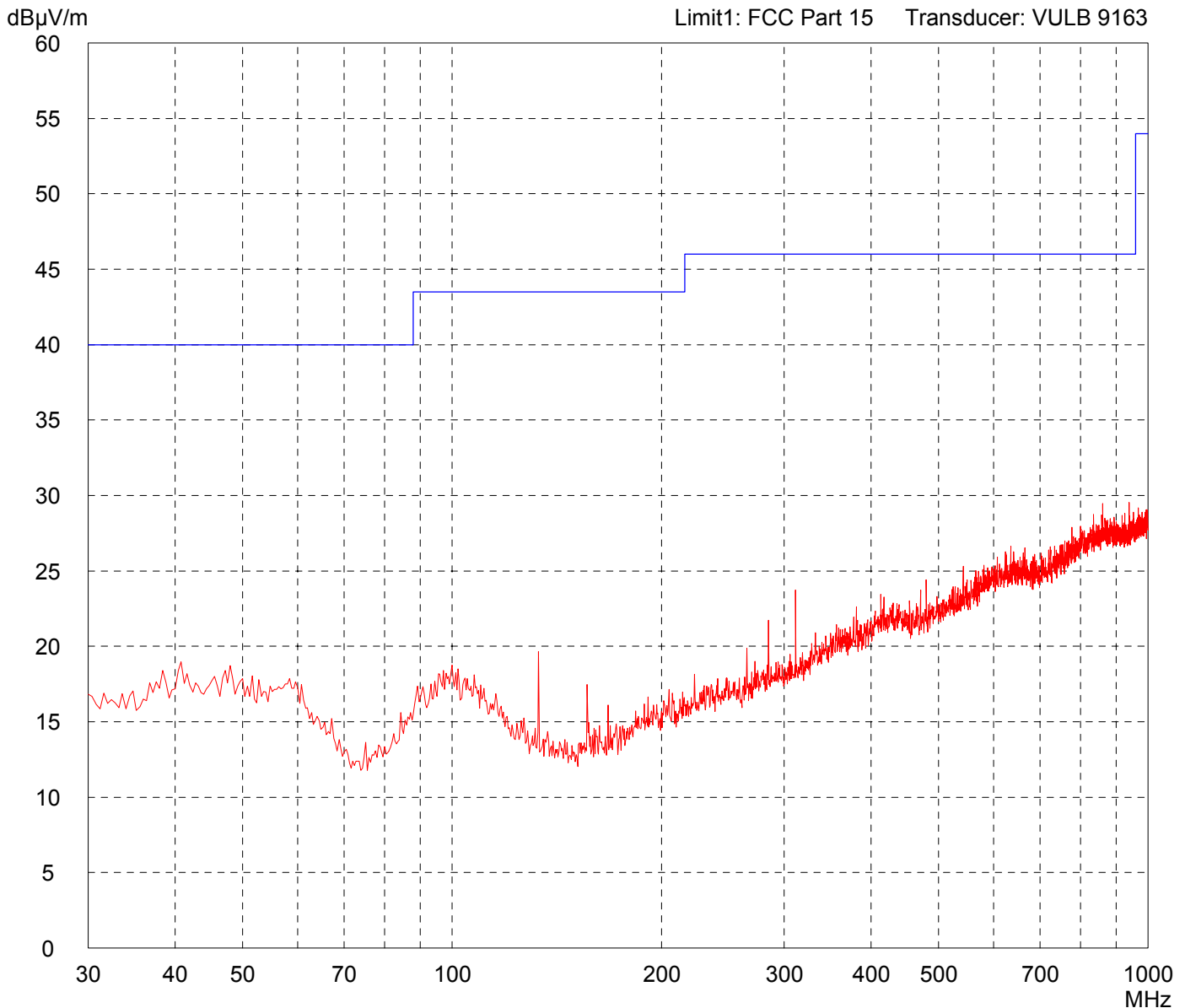


Result: Prescan	Project file: 50305-40687
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Radiated Emission Test 30 MHz - 1 GHz acc. to FCC Part 15 (Fully Anechoic Chamber)

Model: CYMotion Pro	Comment: - Test Mode: continious transmitting with modulation
Serial no.: Mouse	
Applicant: Cherry GmbH	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Vertical Polarization	
Date of test: 11/08/2004	Operator: M. Steindl
Test performed: automatically	File name: default.emi

Detector: Peak	List of values: 10 dB Margin 50 Subranges
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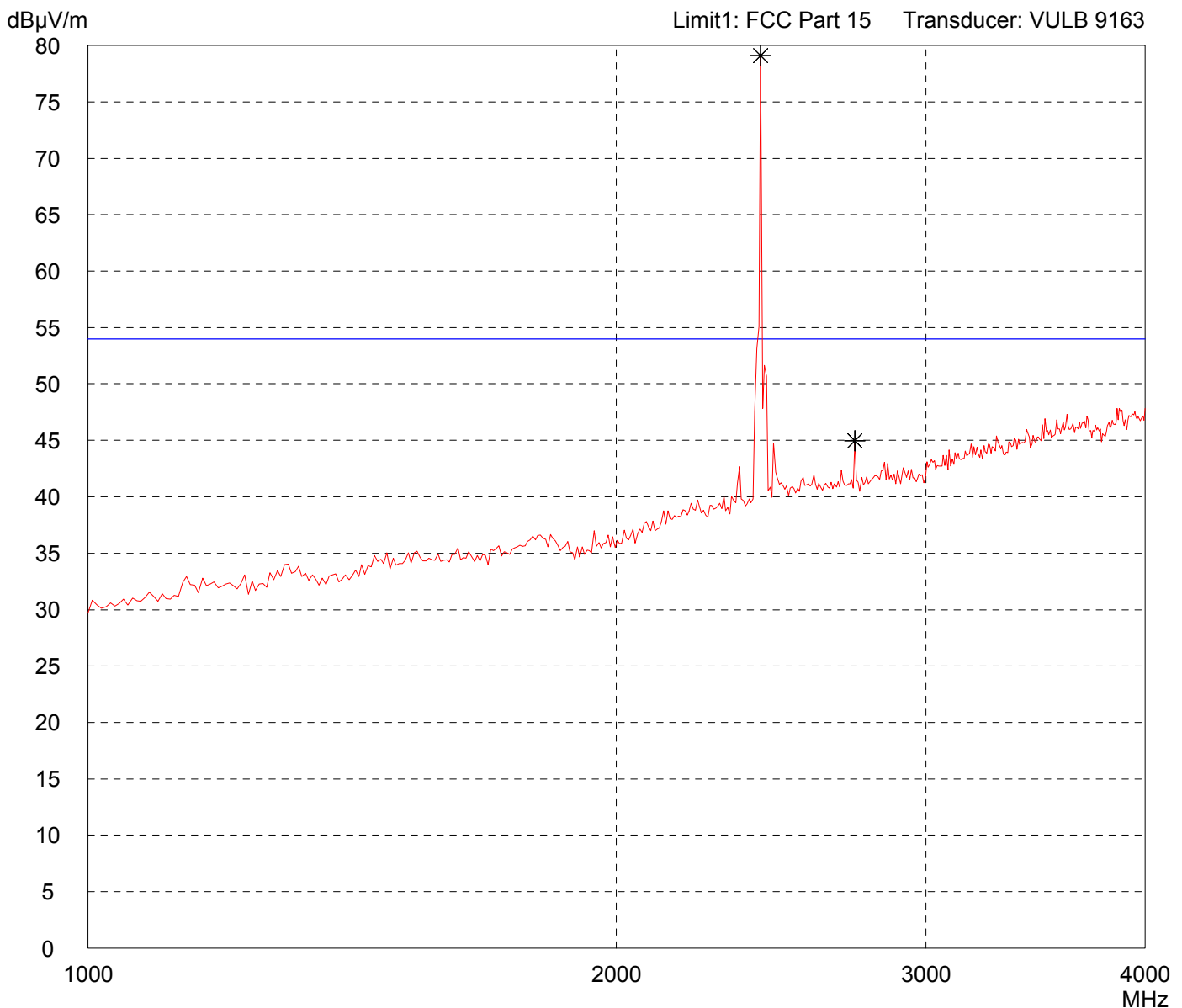
Result: Prescan	Project file: 50305-40687
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Radiated Emission Test 1 GHz - 4 GHz acc. to FCC Part 15 (Fully Anechoic Chamber)

Model: CyMotion Pro	Comment: - Test Mode: continious transmitting with modulation - lowest channel
Serial no.: Mouse	
Applicant: Cherry GmbH	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Horizontal Polarization	
Date of test: 12/06/2004	Operator: M. Steindl
Test performed: automatically	File name: default.emi

Detector: Peak	List of values: Selected by hand
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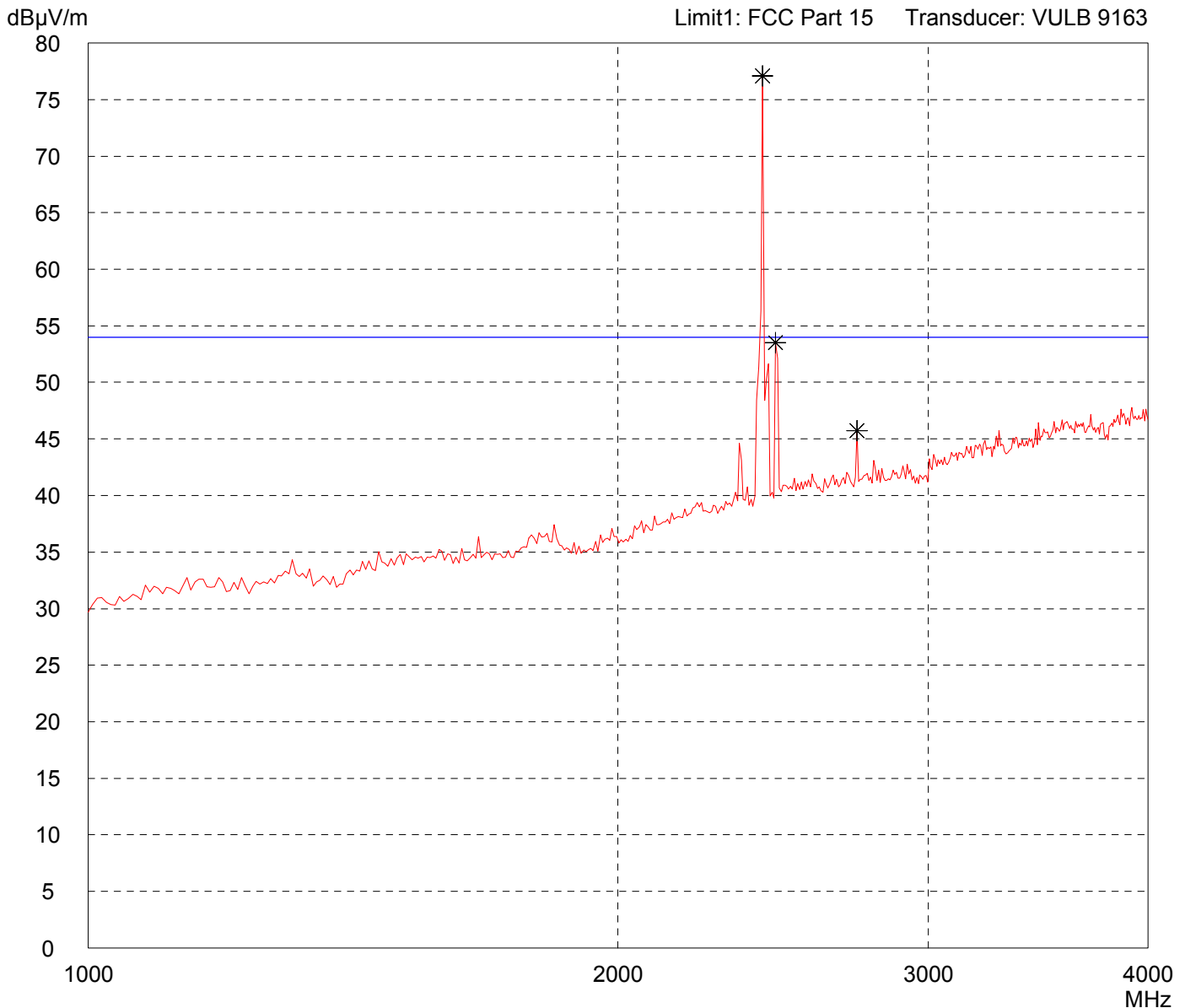


Result: Prescan	Project file: 50305-40687
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Radiated Emission Test 1 GHz - 4 GHz acc. to FCC Part 15 (Fully Anechoic Chamber)

Model: CyMotion Pro	Comment: - Test Mode: continious transmitting with modulation - lowest channel
Serial no.: Mouse	
Applicant: Cherry GmbH	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Vertical Polarization	
Date of test: 12/06/2004	Operator: M. Steindl
Test performed: automatically	File name: default.emi

Detector: Peak	List of values: Selected by hand
--------------------------	--



Result: Prescan	Project file: 50305-40687
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Radiated Emission Test 1 GHz - 4 GHz acc. to FCC Part 15 (EMCO 3115)

Model:
CyMotion Pro

Serial no.:
Maus

Applicant:
Cherry GmbH

Test site:
Fully anechoic room, cabin no. 2

Tested on:
**Test distance 3 metres
Horizontal Polarization**

Date of test:
11/03/2004

Operator:
M. Steindl

Test performed:
automatically

File name:
default.emi

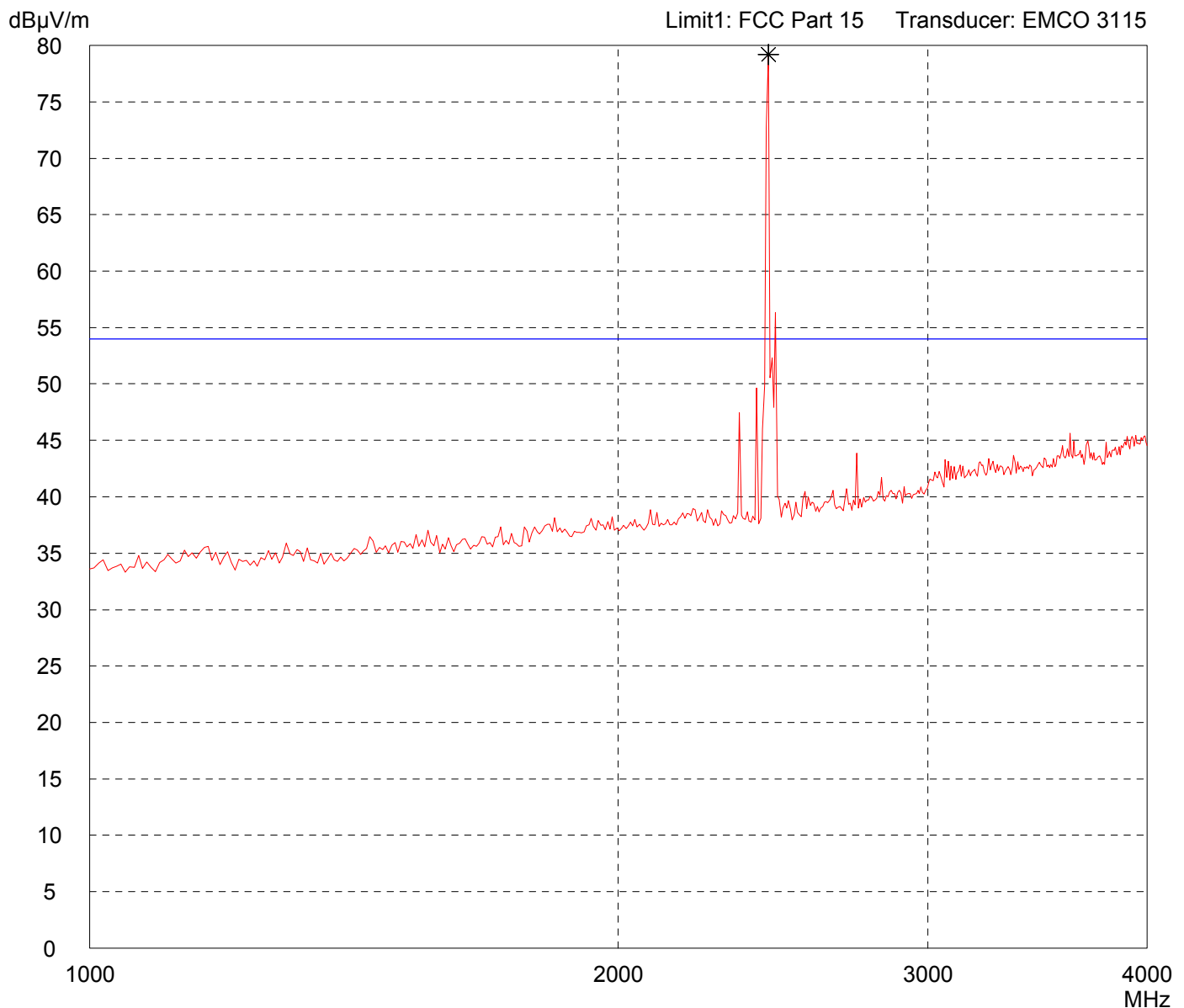
Comment:

- Test Mode: continuous transmitting with modulation

Detector:
Peak

List of values:

Selected by hand



Result:
Prescan

Project file:
50305-40687

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

Model:
CyMotion Pro

Serial no.:
Maus

Applicant:
Cherry GmbH

Test site:
Fully anechoic room, cabin no. 2

Tested on:
**Test distance 3 metres
Vertical Polarization**

Date of test:
11/03/2004

Operator:
M. Steindl

Test performed:
automatically

File name:
default.emi

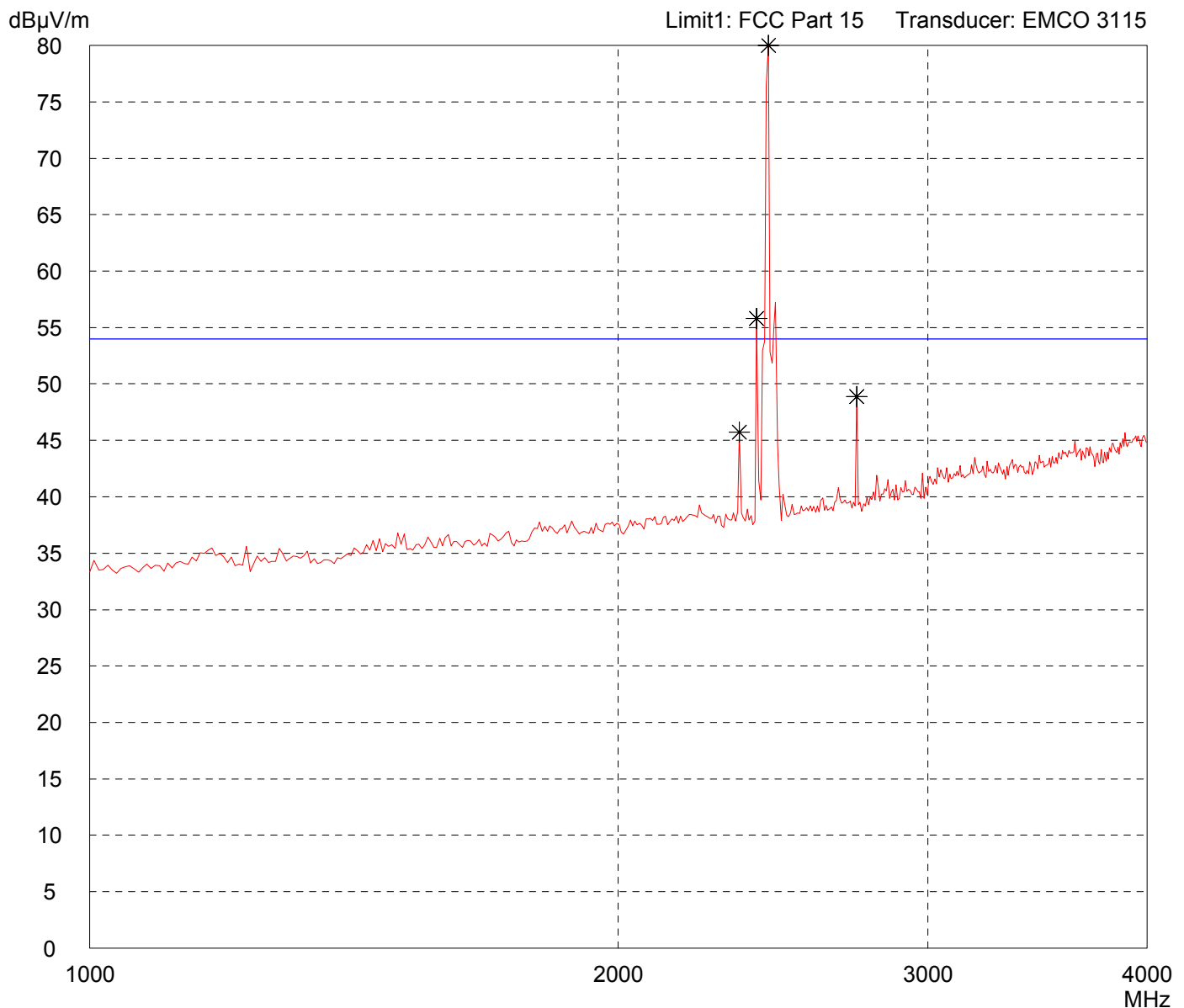
Comment:

- Test Mode: continious transmitting with modulation

Detector:
Peak

List of values:

Selected by hand



Result:
Prescan

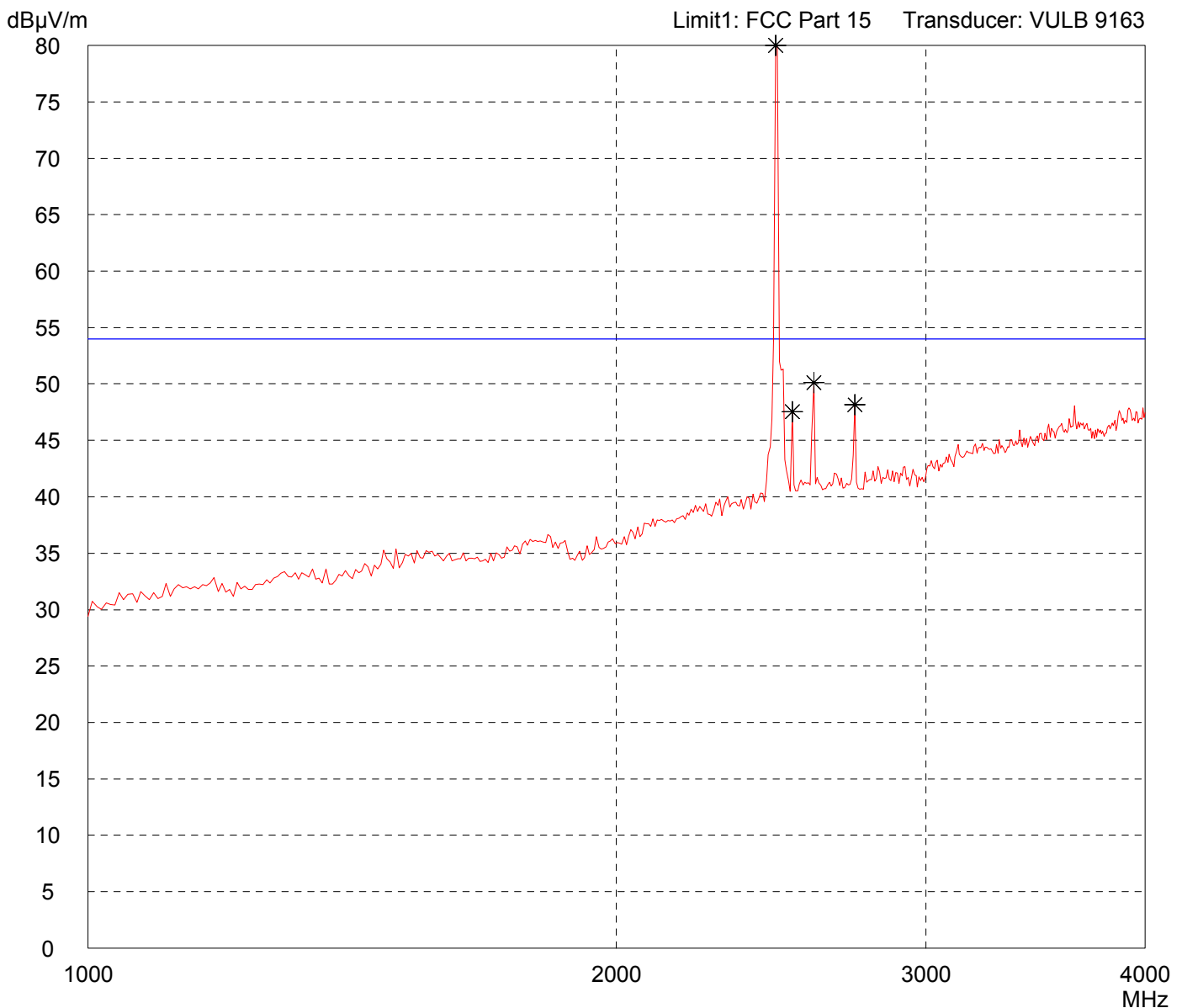
Project file:
50305-40687

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

Model: CyMotion Pro	Comment: - Test Mode: continous transmitting with modulation
Serial no.: Mouse	
Applicant: Cherry GmbH	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Horizontal Polarization	
Date of test: 12/06/2004	Operator: M. Steindl
Test performed: automatically	File name: default.emi

Detector: Peak	List of values: Selected by hand
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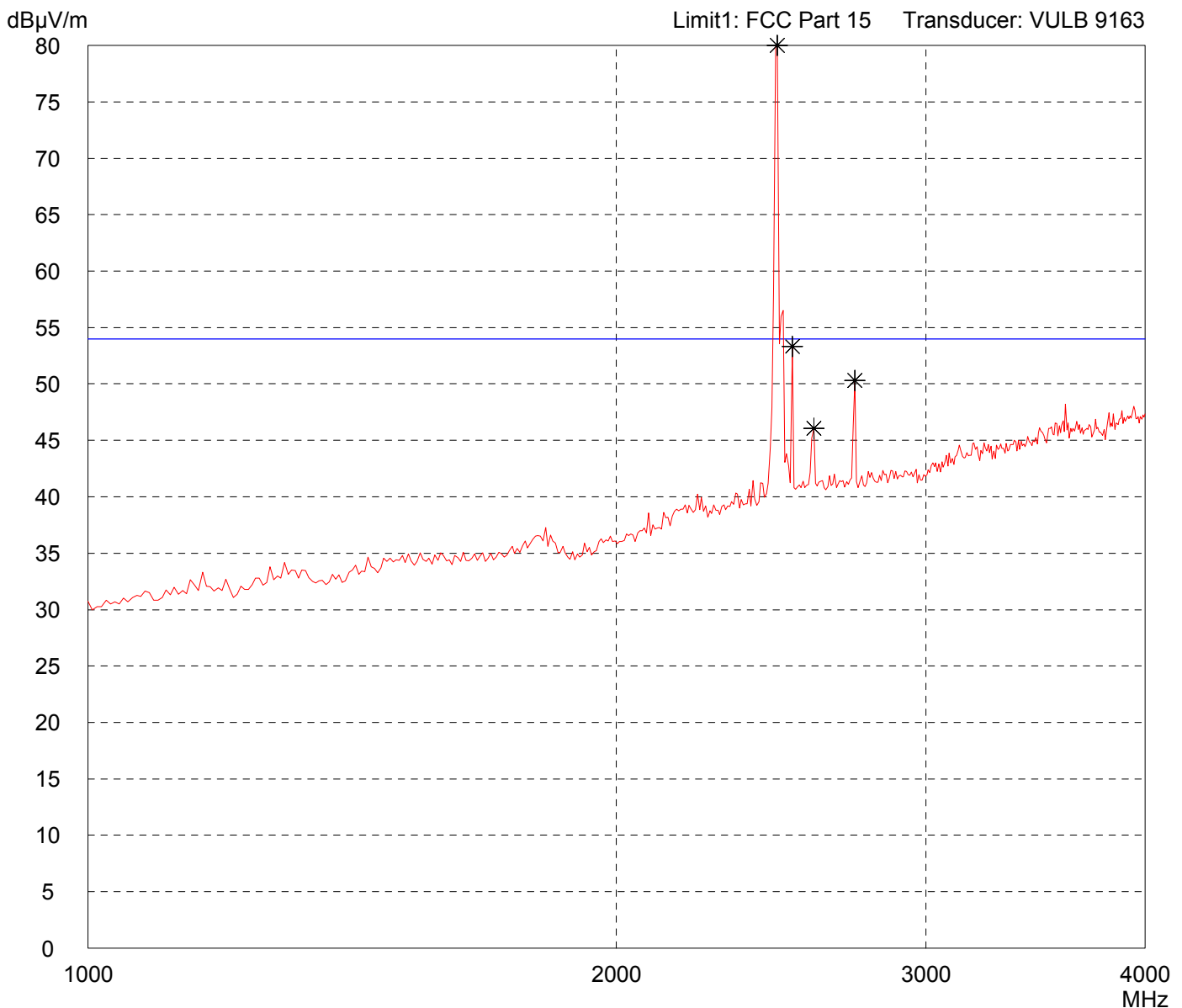


Result: Prescan	Project file: 50305-40687
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Radiated Emission Test 1 GHz - 4 GHz acc. to FCC Part 15 (Fully Anechoic Chamber)

Model: CyMotion Pro	Comment: - Test Mode: continious transmitting with modulation - highest channel
Serial no.: Mouse	
Applicant: Cherry GmbH	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Vertical Polarization	
Date of test: 12/06/2004	Operator: M. Steindl
Test performed: automatically	File name: default.emi

Detector: Peak	List of values: Selected by hand
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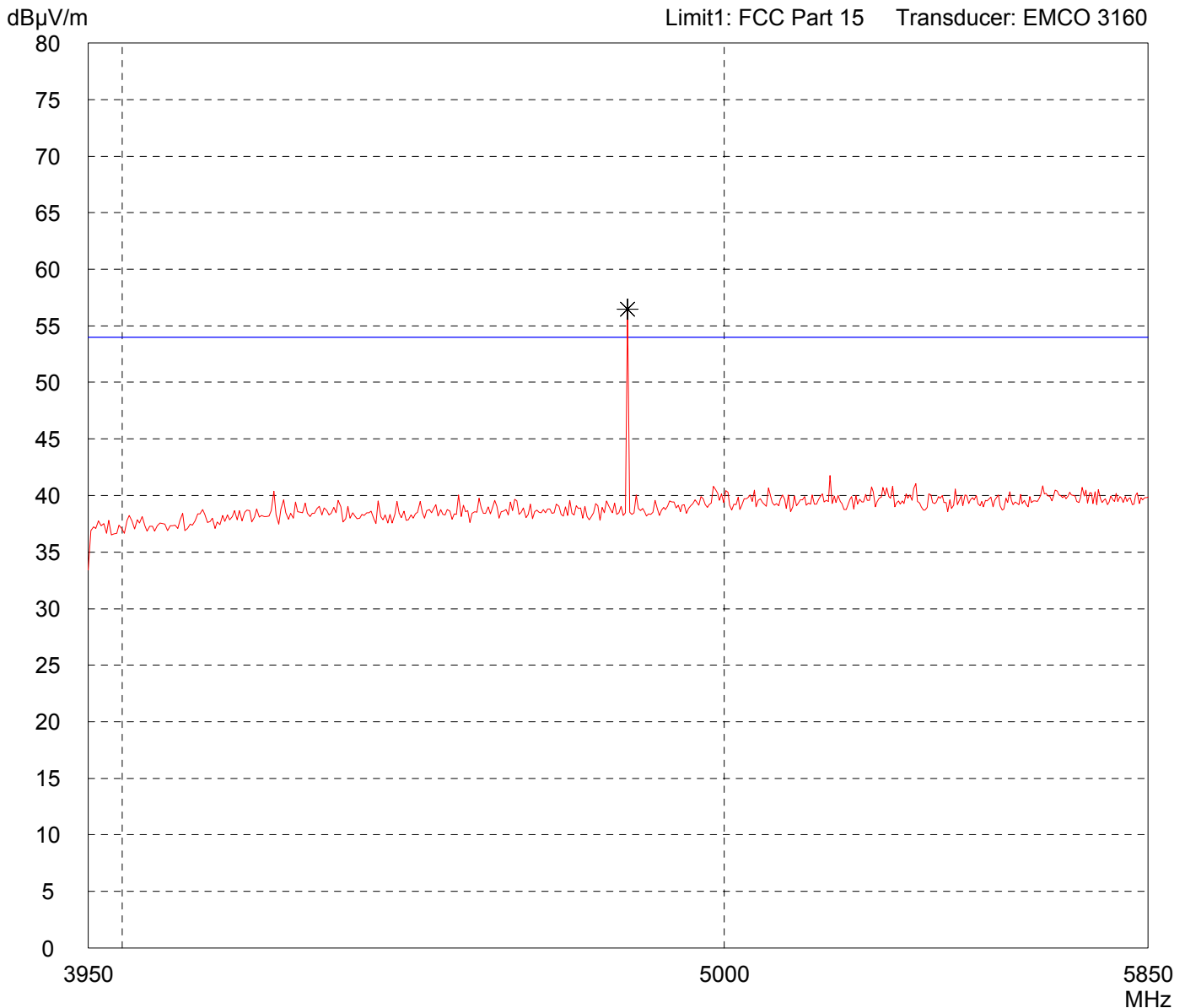


Result: Prescan	Project file: 50305-40687
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Radiated Emission Test 3.95 GHz - 5.85 GHz acc. to FCC Part 15 (EMCO 3160)

Model: CyMotion Pro	Comment: - Test Mode: continious transmitting with modulation - lowest channel
Serial no.: Mouse	
Applicant: Cherry GmbH	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Horizontal Polarization	
Date of test: 12/09/2004	Operator: M. Steindl
Test performed: automatically	File name: default.emi

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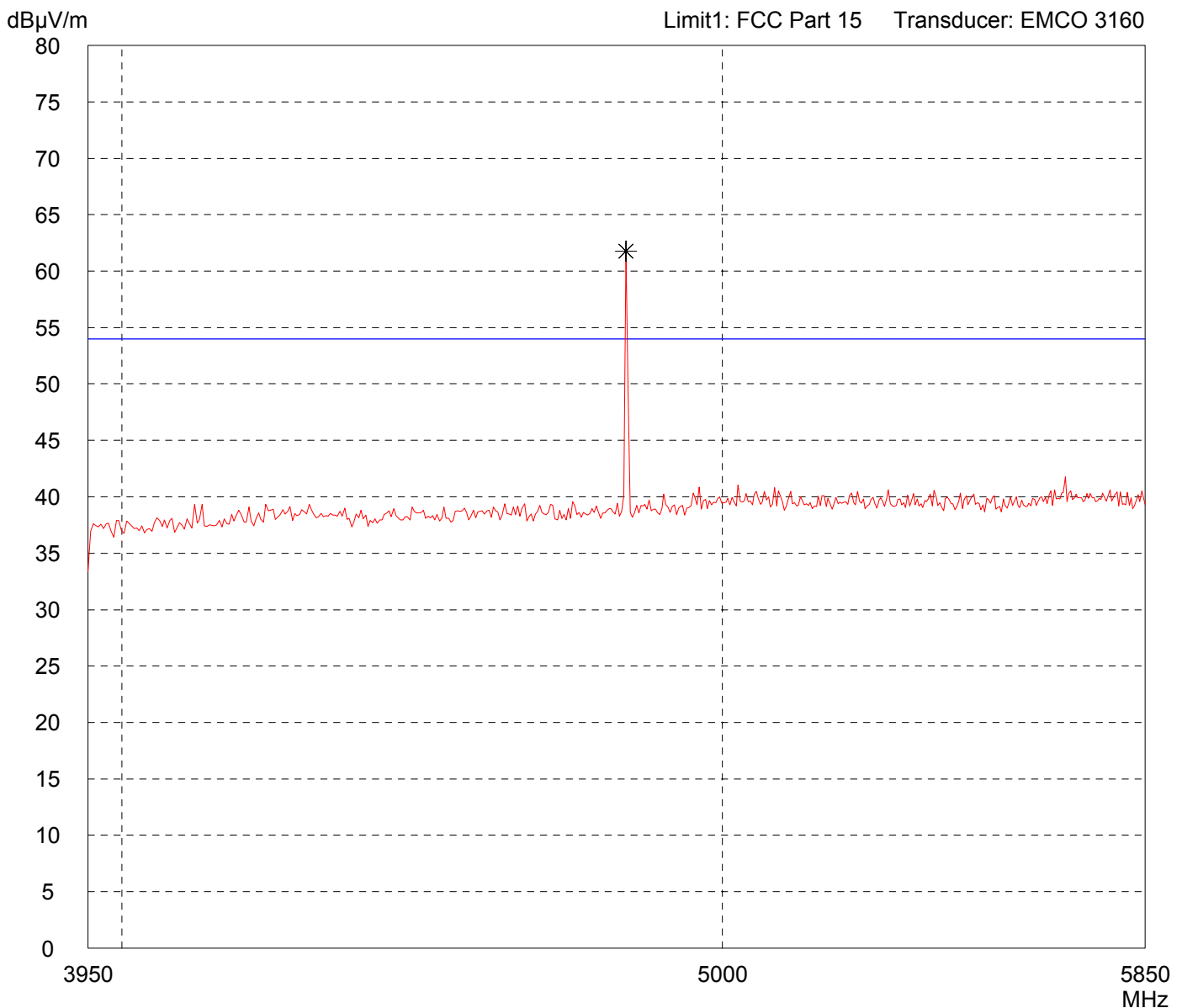


Result: Prescan	Project file: 50305-40687
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Radiated Emission Test 3.95 GHz - 5.85 GHz acc. to FCC Part 15 (EMCO 3160)

Model: CyMotion Pro	Comment: - Test Mode: continious transmitting with modulation - lowest channel
Serial no.: Mouse	
Applicant: Cherry GmbH	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Vertical Polarization	
Date of test: 12/09/2004	Operator: M. Steindl
Test performed: automatically	File name: default.emi

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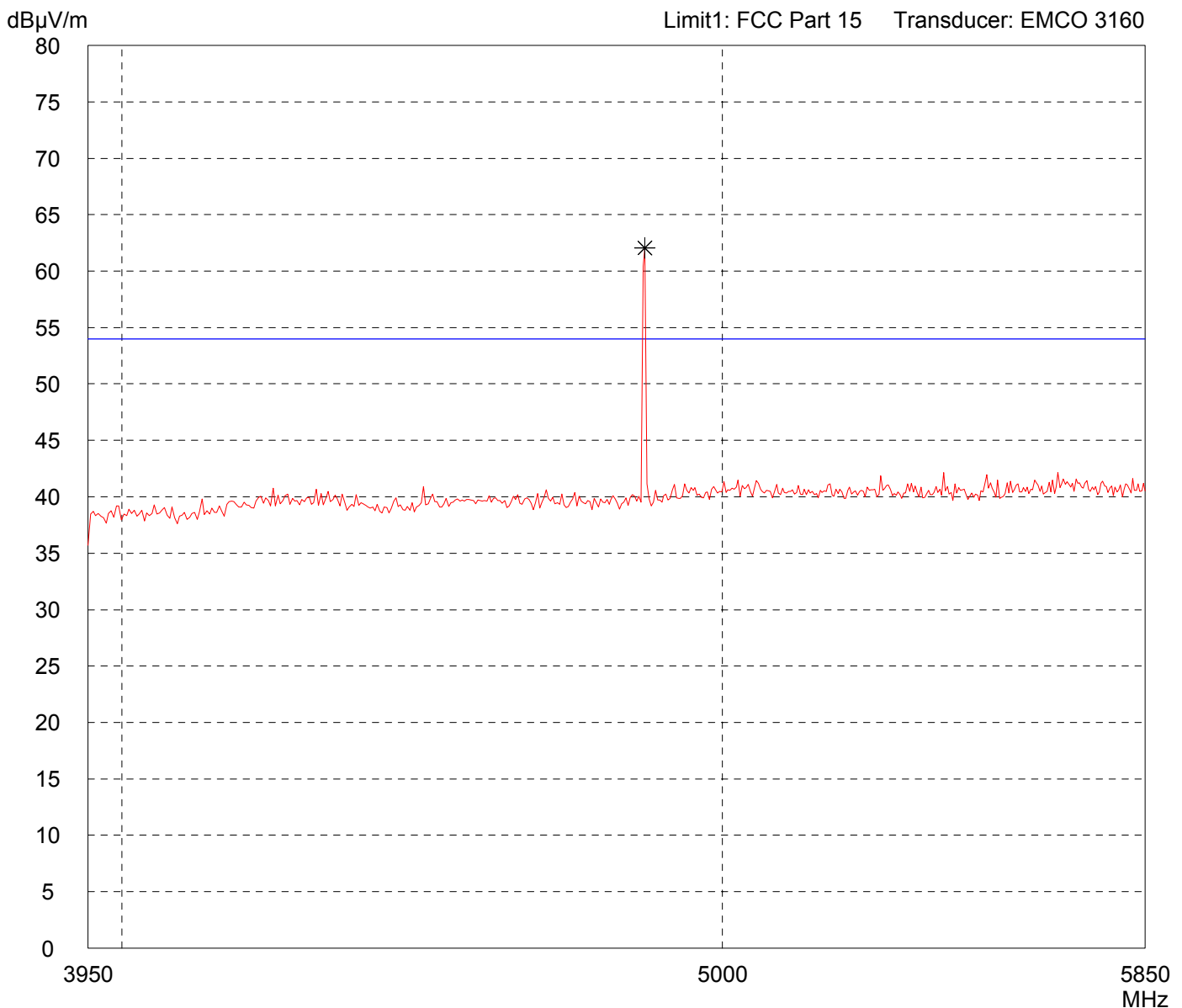


Result: Prescan	Project file: 50305-40687
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Radiated Emission Test 3.95 GHz - 5.85 GHz acc. to FCC Part 15 (EMCO 3160)

Model: CyMotion Pro	Comment: - Test Mode: continious transmitting with modulation - Note: With WHK/M3/13G-10SS high-pass-filter
Serial no.: Maus	
Applicant: Cherry GmbH	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Horizontal Polarization	
Date of test: 11/03/2004	Operator: M. Steindl
Test performed: automatically	File name: default.emi

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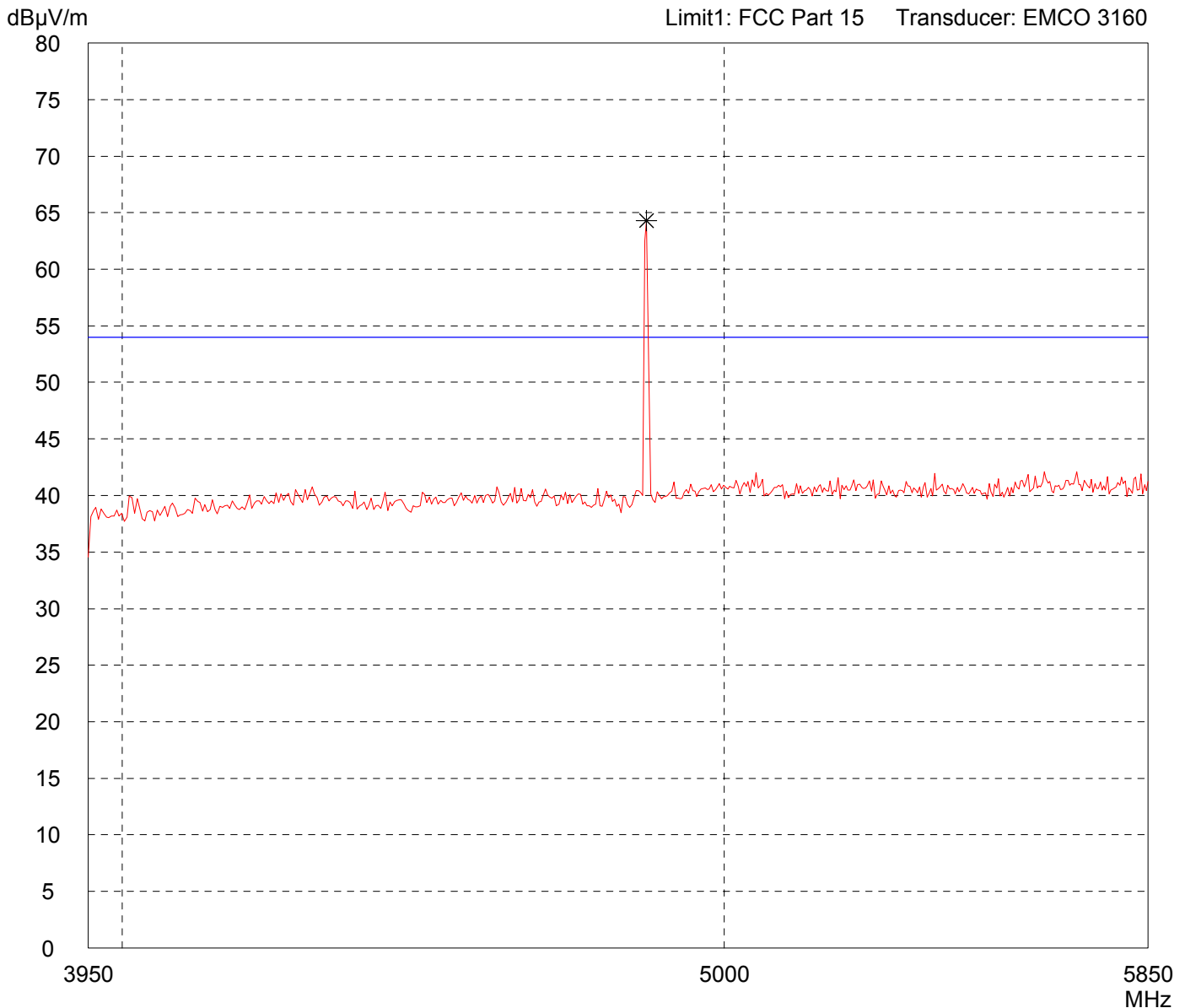


Result: Prescan	Project file: 50305-40687
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Radiated Emission Test 3.95 GHz - 5.85 GHz acc. to FCC Part 15 (EMCO 3160)

Model: CyMotion Pro	Comment: - Test Mode: continious transmitting with modulation - Note: With WHK/M3/13G-10SS high-pass-filter
Serial no.: Maus	
Applicant: Cherry GmbH	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Vertical Polarization	
Date of test: 11/03/2004	Operator: M. Steindl
Test performed: automatically	File name: default.emi

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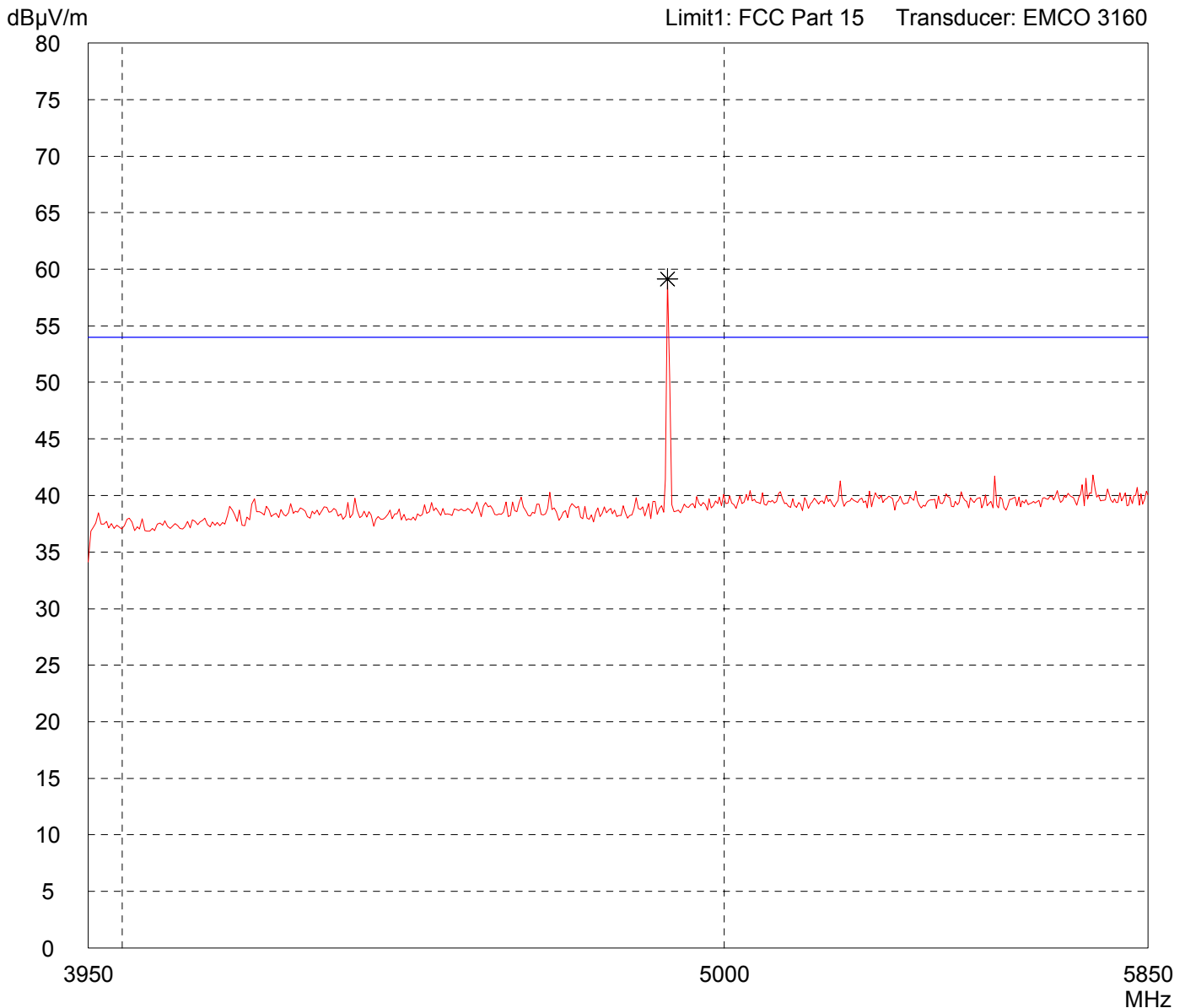


Result: Prescan	Project file: 50305-40687
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Radiated Emission Test 3.95 GHz - 5.85 GHz acc. to FCC Part 15 (EMCO 3160)

Model: CyMotion Pro	Comment: - Test Mode: continious transmitting with modulation - highest channel
Serial no.: Mouse	
Applicant: Cherry GmbH	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Horizontal Polarization	
Date of test: 12/09/2004	Operator: M. Steindl
Test performed: automatically	File name: default.emi

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

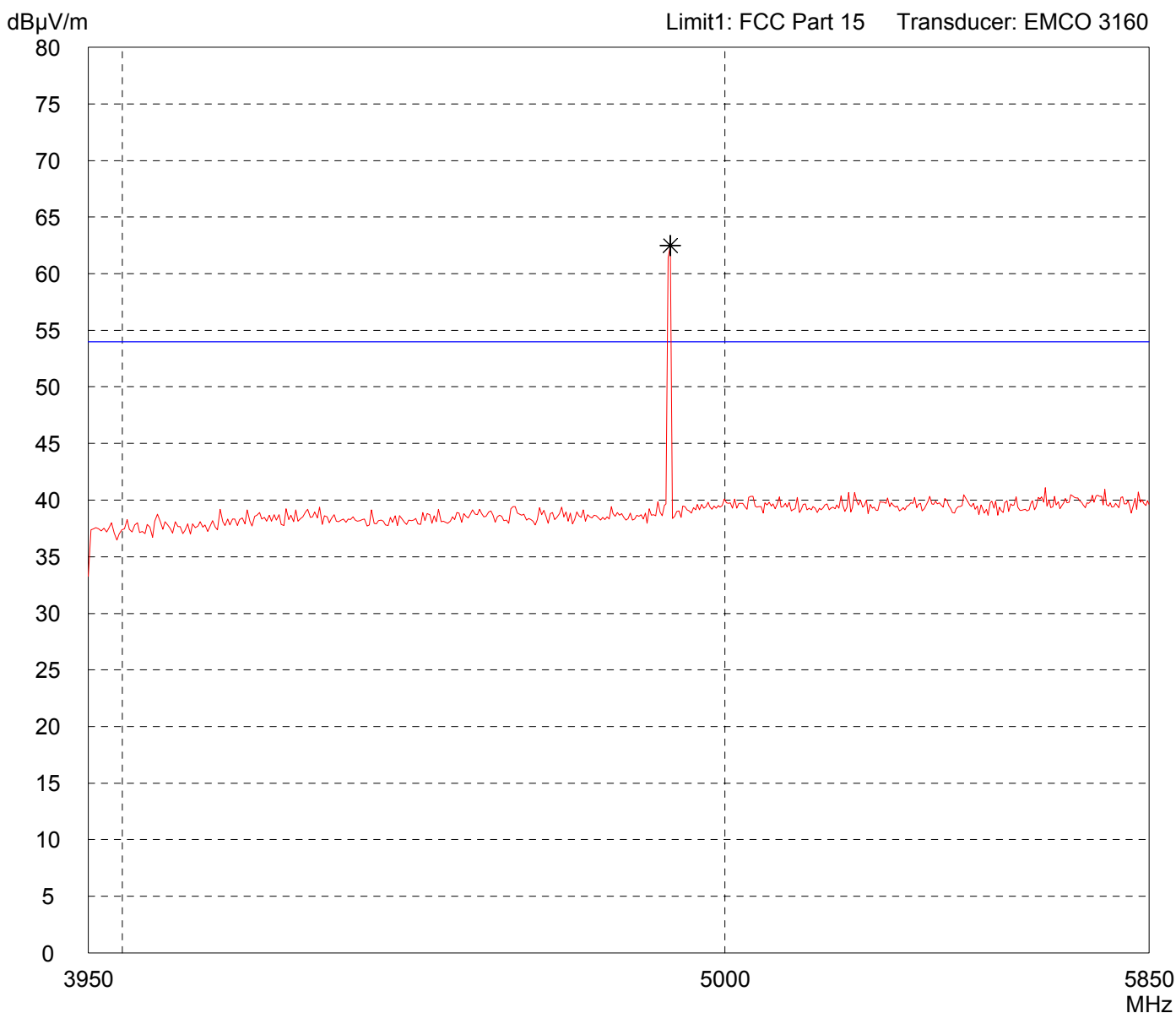


Result: Prescan	Project file: 50305-40687
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Radiated Emission Test 3.95 GHz - 5.85 GHz acc. to FCC Part 15 (EMCO 3160)

Model: CyMotion Pro	Comment: - Test Mode: continious transmitting with modulation - highest channel
Serial no.: Mouse	
Applicant: Cherry GmbH	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Vertical Polarization	
Date of test: 12/09/2004	Operator: M. Steindl
Test performed: automatically	File name: default.emi

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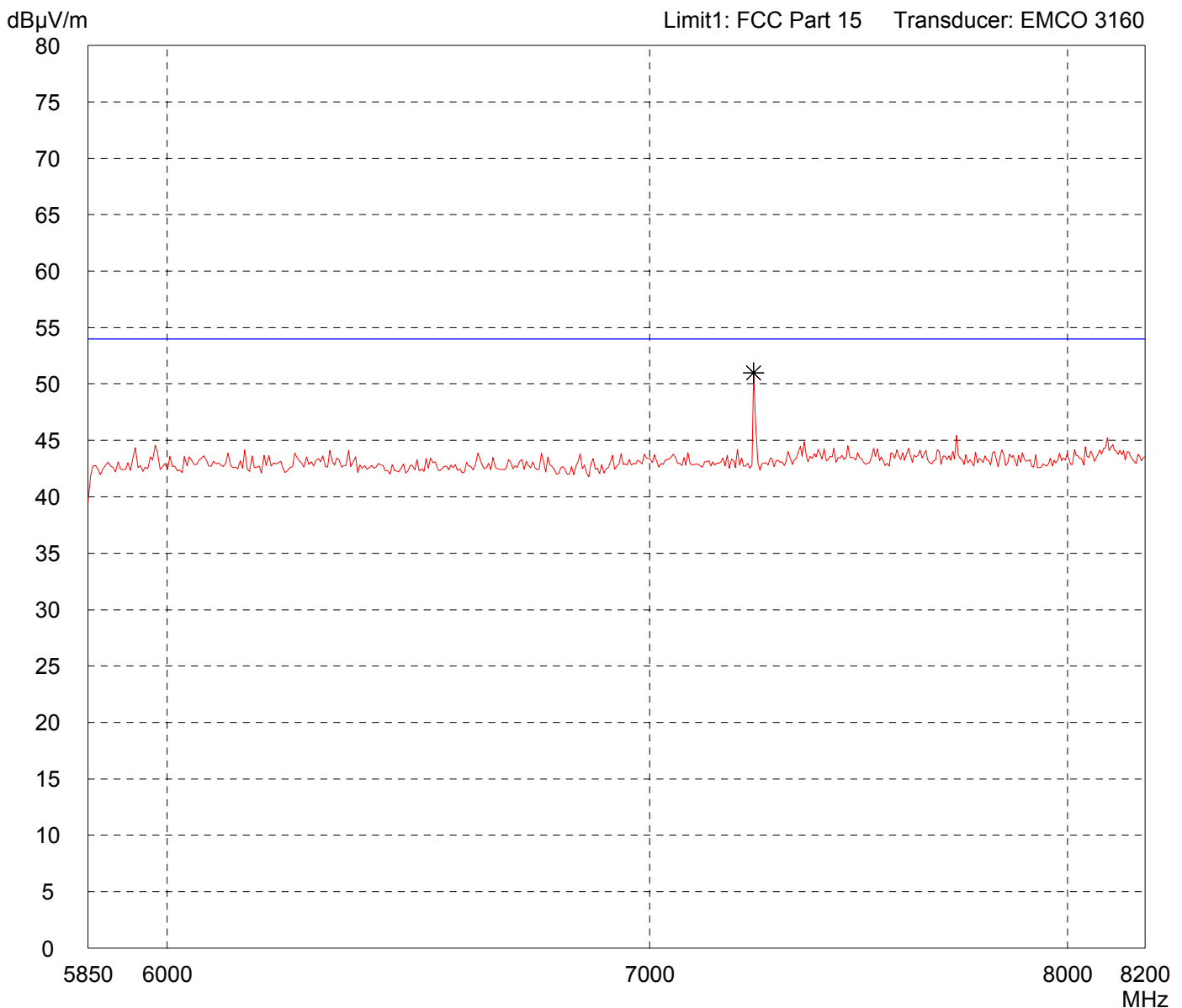


Result: Prescan	Project file: 50305-40687
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Radiated Emission Test 5.85 GHz - 8.2 GHz acc. to FCC Part 15 (EMCO 3160)

Model: CyMotion Pro	Comment: - Test Mode: continious transmitting with modulation - lowest channel
Serial no.: Mouse	
Applicant: Cherry GmbH	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Horizontal Polarization	
Date of test: 12/09/2004	Operator: M. Steindl
Test performed: automatically	File name: default.emi

Detector: Peak	List of values: Selected by hand
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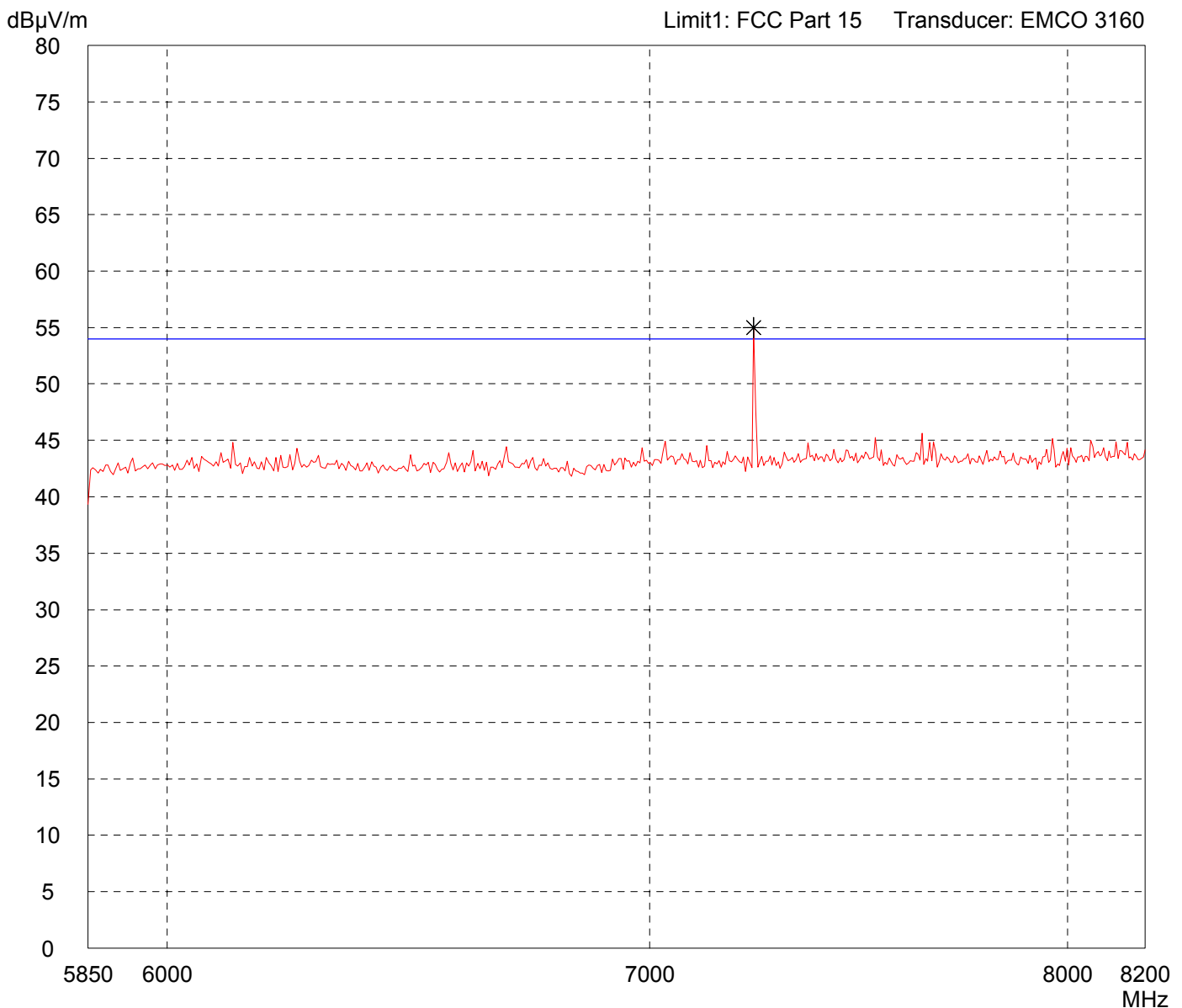


Result: Prescan	Project file: 50305-40687
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Radiated Emission Test 5.85 GHz - 8.2 GHz acc. to FCC Part 15 (EMCO 3160)

Model: CyMotion Pro	Comment: - Test Mode: continious transmitting with modulation - lowest channel
Serial no.: Mouse	
Applicant: Cherry GmbH	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Vertical Polarization	
Date of test: 12/09/2004	Operator: M. Steindl
Test performed: automatically	File name: default.emi

Detector: Peak	List of values: Selected by hand
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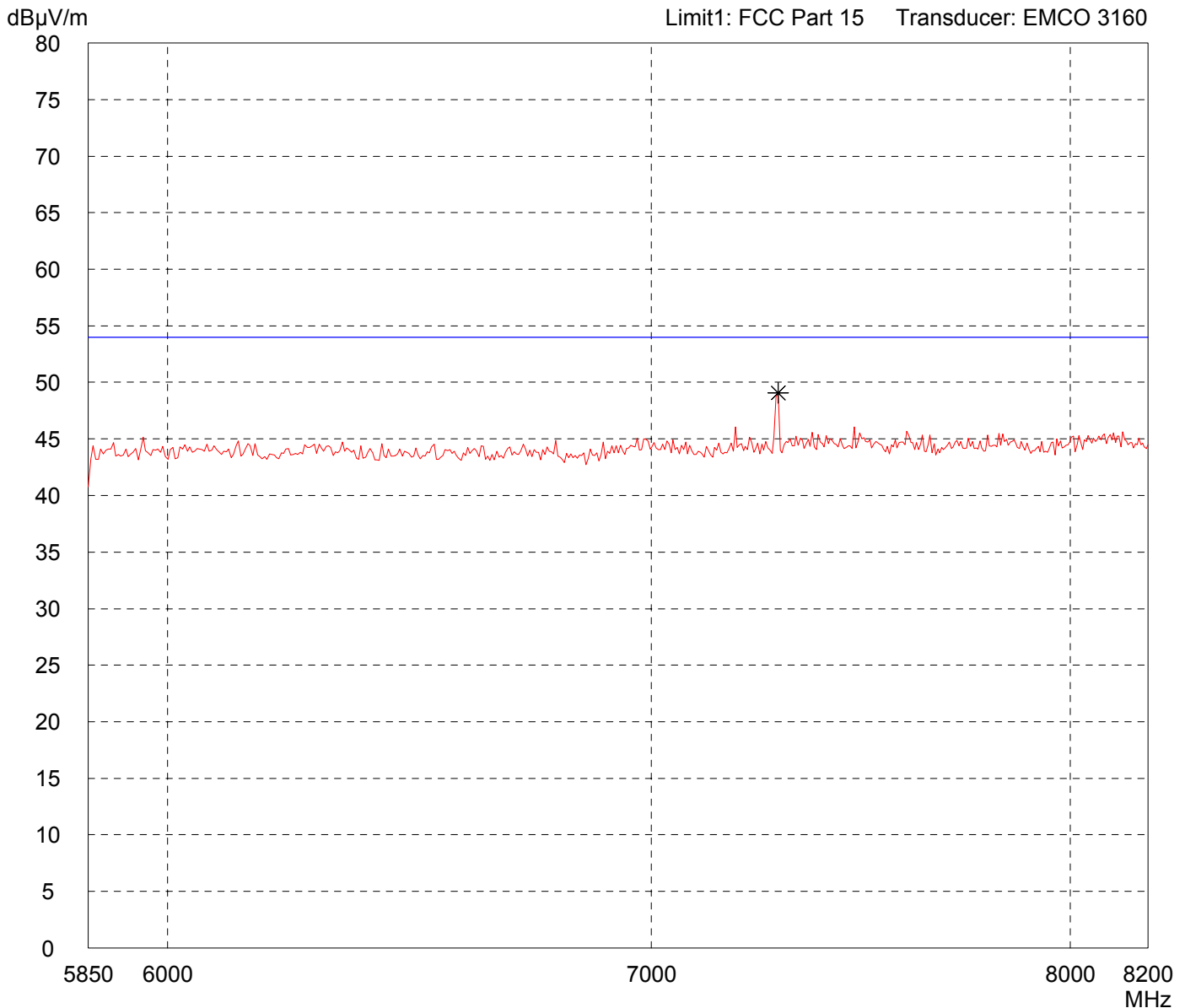


Result: Prescan	Project file: 50305-40687
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Radiated Emission Test 5.85 GHz - 8.2 GHz acc. to FCC Part 15 (EMCO 3160)

Model: CyMotion Pro	Comment: - Test Mode: continious transmitting with modulation - Note: With WHK/M3/13G-10SS high-pass-filter
Serial no.: Maus	
Applicant: Cherry GmbH	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Horizontal Polarization	
Date of test: 11/03/2004	Operator: M. Steindl
Test performed: automatically	File name: default.emi

Detector: Peak	List of values: Selected by hand
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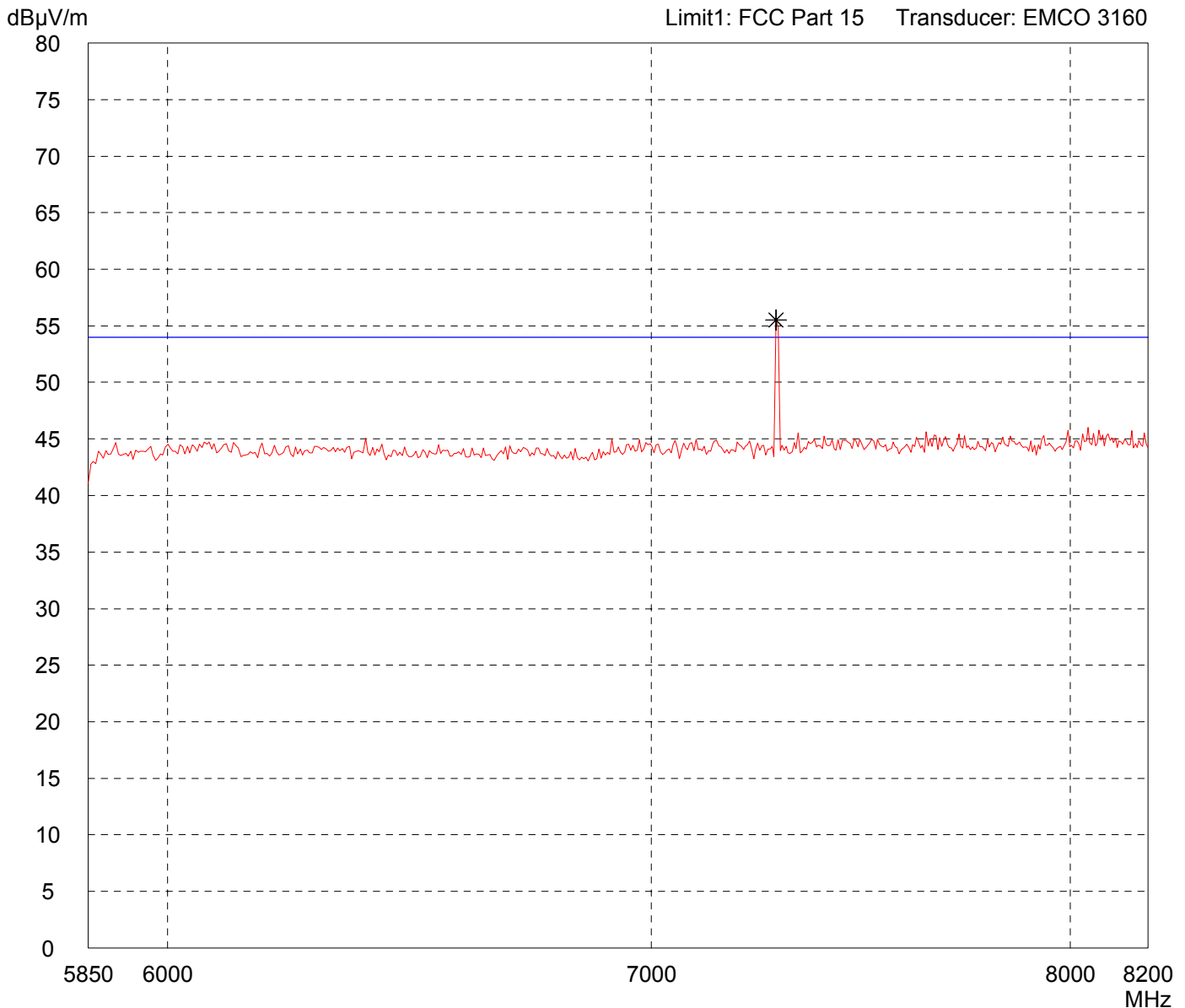


Result: Prescan	Project file: 50305-40687
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Radiated Emission Test 5.85 GHz - 8.2 GHz acc. to FCC Part 15 (EMCO 3160)

Model: CyMotion Pro	Comment: - Test Mode: continious transmitting with modulation - Note: With WHK/M3/13G-10SS high-pass-filter
Serial no.: Maus	
Applicant: Cherry GmbH	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Vertical Polarization	
Date of test: 11/03/2004	Operator: M. Steindl
Test performed: automatically	File name: default.emi

Detector: Peak	List of values: Selected by hand
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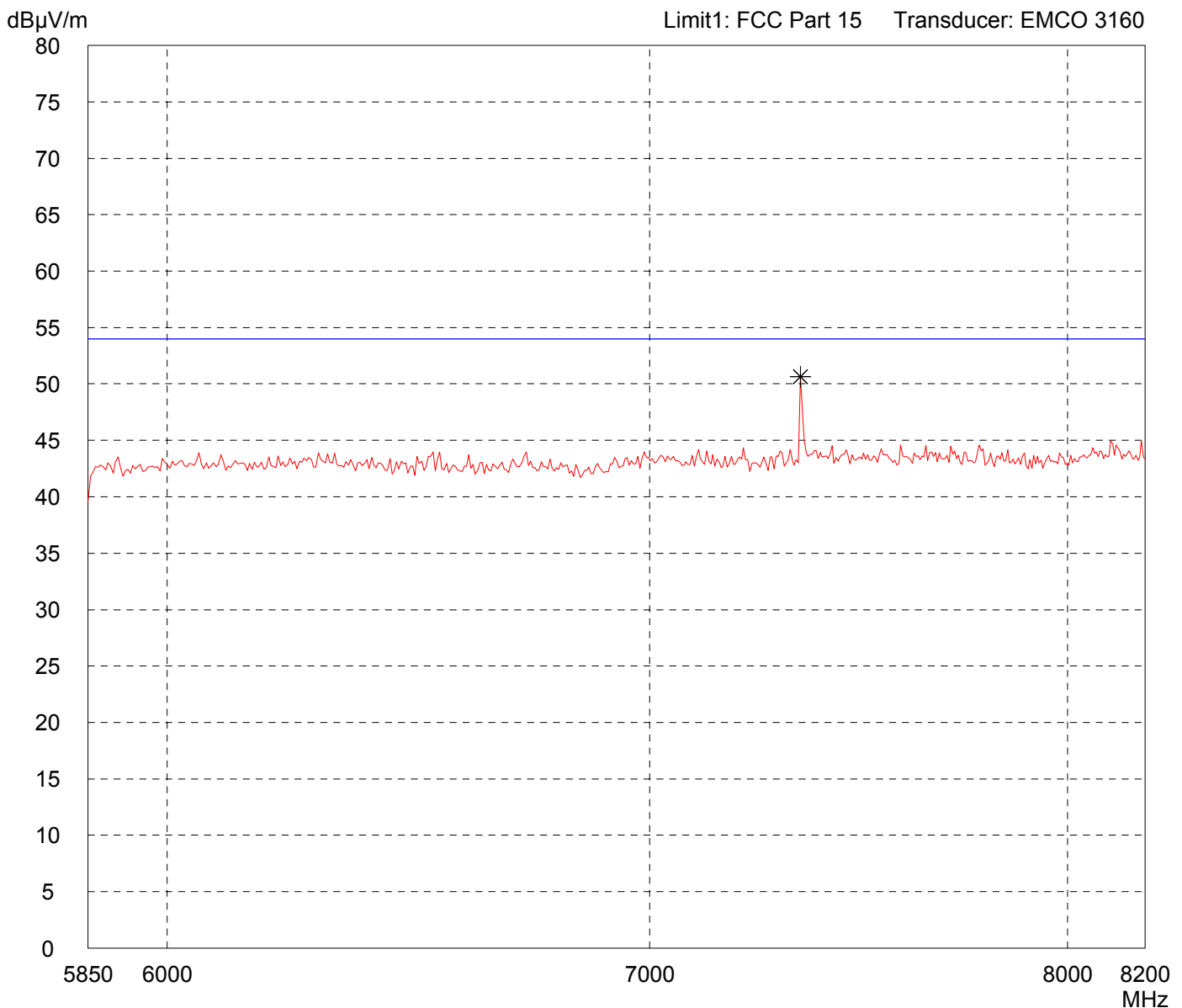


Result: Prescan	Project file: 50305-40687
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Radiated Emission Test 5.85 GHz - 8.2 GHz acc. to FCC Part 15 (EMCO 3160)

Model: CyMotion Pro	Comment: - Test Mode: continious transmitting with modulation - highest channel
Serial no.: Mouse	
Applicant: Cherry GmbH	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Horizontal Polarization	
Date of test: 12/09/2004	Operator: M. Steindl
Test performed: automatically	File name: default.emi

Detector: Peak	List of values: Selected by hand
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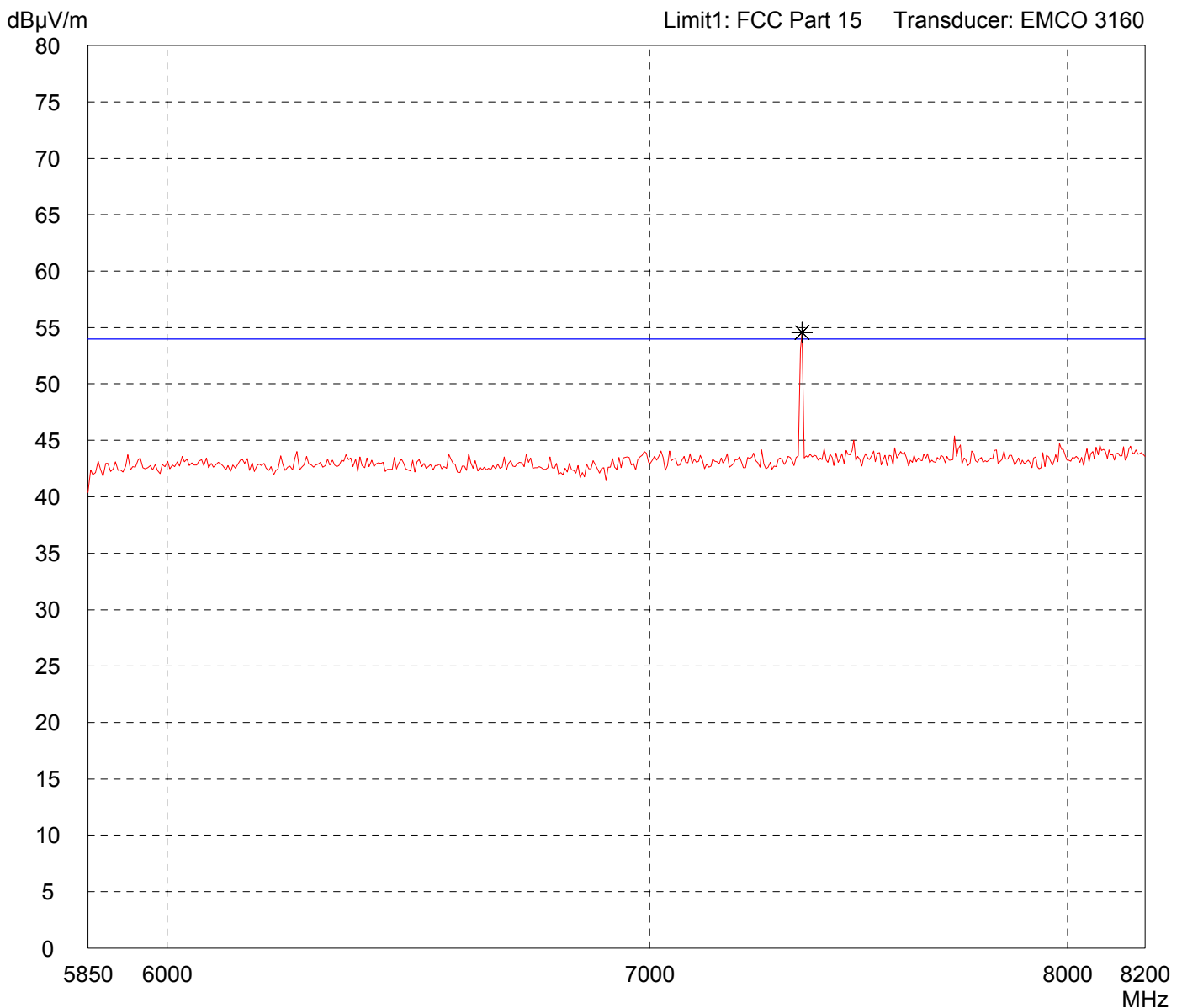


Result: Prescan	Project file: 50305-40687
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Radiated Emission Test 5.85 GHz - 8.2 GHz acc. to FCC Part 15 (EMCO 3160)

Model: CyMotion Pro	Comment: - Test Mode: continious transmitting with modulation - highest channel
Serial no.: Mouse	
Applicant: Cherry GmbH	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Vertical Polarization	
Date of test: 12/09/2004	Operator: M. Steindl
Test performed: automatically	File name: default.emi

Detector: Peak	List of values: Selected by hand
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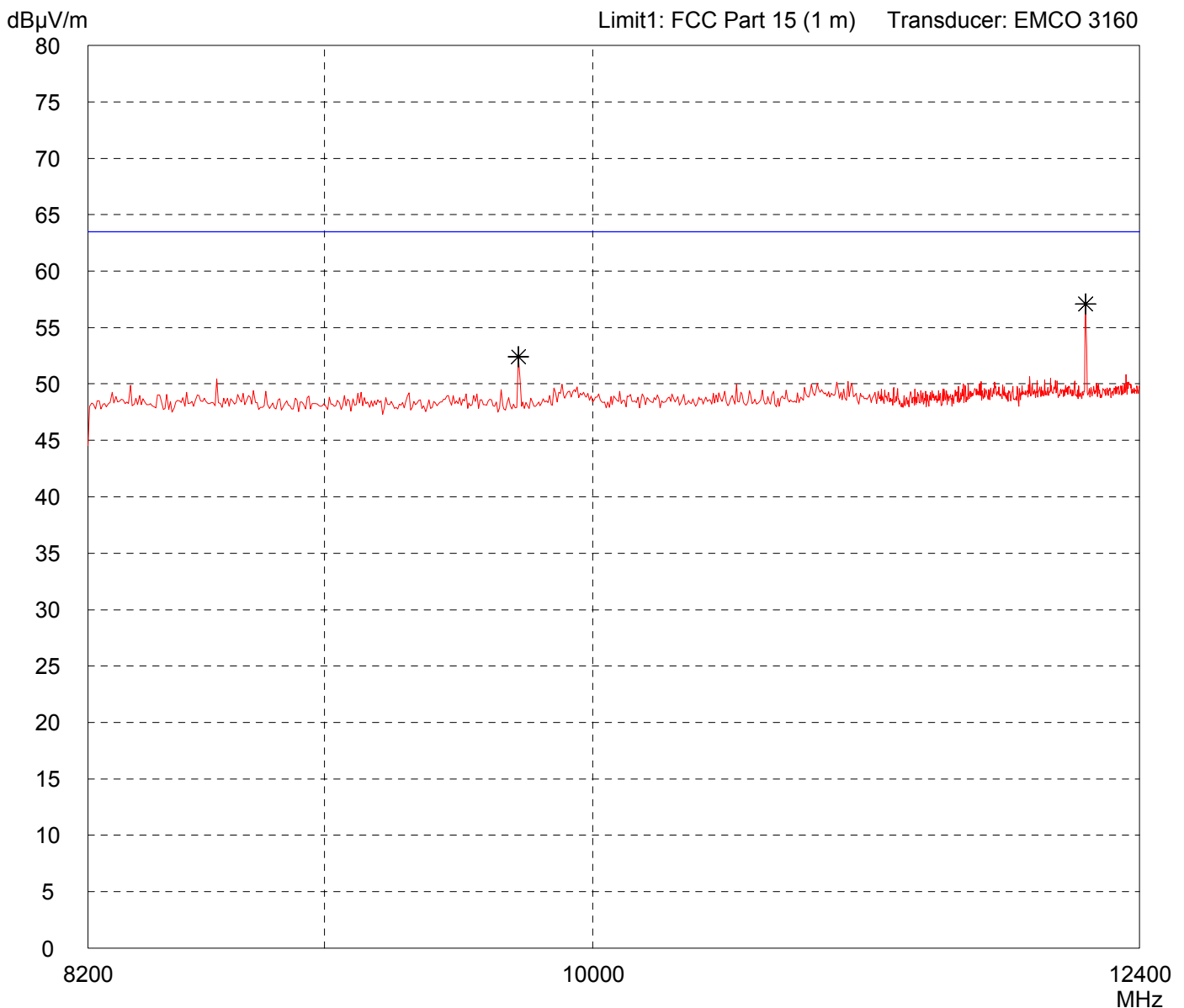


Result: Prescan	Project file: 50305-40687
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Radiated Emission Test 8.2 GHz - 12.4 GHz acc. to FCC Part 15 (EMCO 3160)

Model: CYMotion Pro	Comment: - Test Mode: continious transmitting with modulation - Note: With WHK/M3/13G-10SS high-pass-filter
Serial no.: Mouse	
Applicant: Cherry GmbH	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 1 meter Horizontal Polarization	
Date of test: 11/08/2004	Operator: M. Steindl
Test performed: automatically	File name: default.emi

Detector: Peak	List of values: Selected by hand
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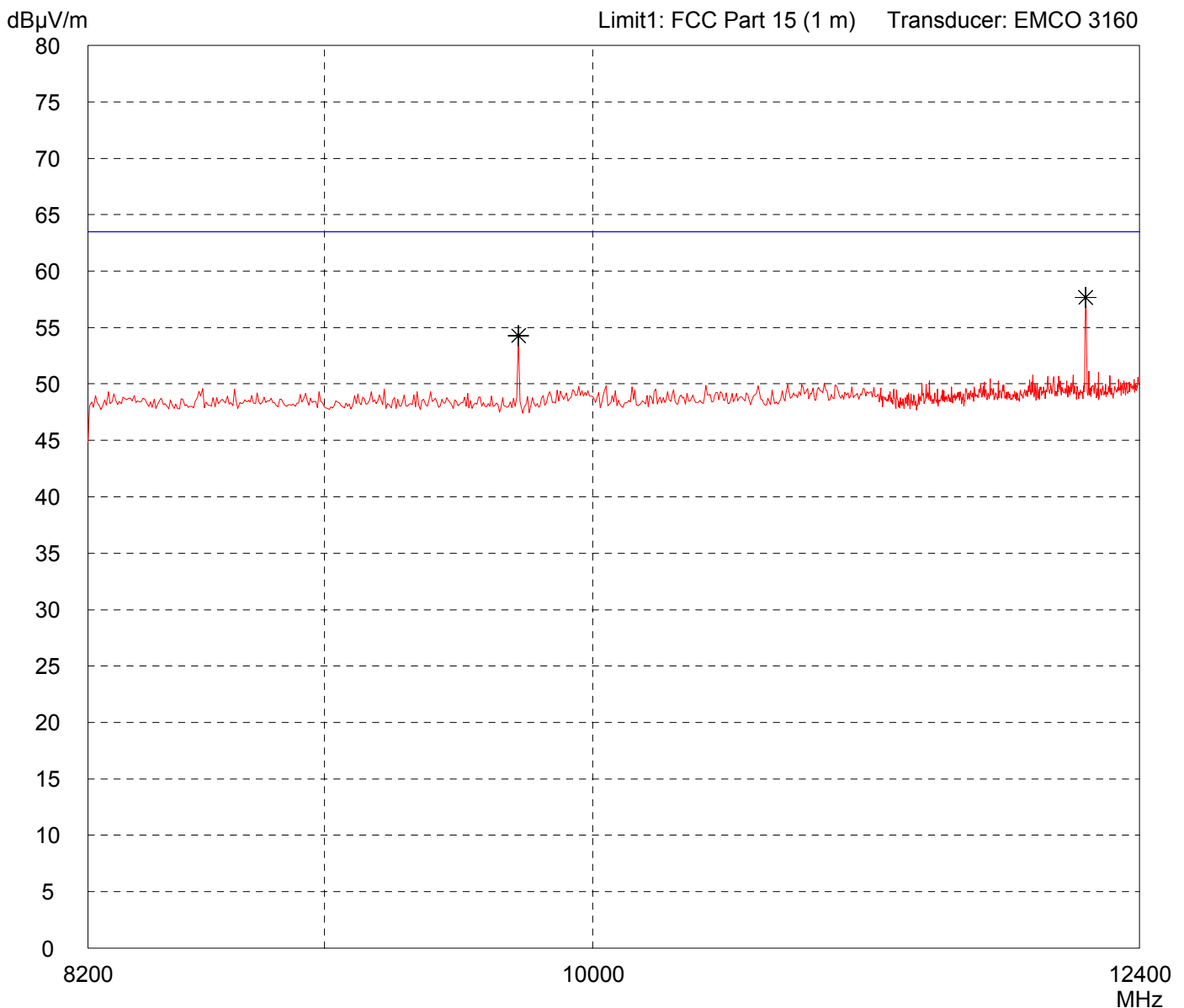


Result: Prescan	Project file: 50305-40687
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Radiated Emission Test 8.2 GHz - 12.4 GHz acc. to FCC Part 15 (EMCO 3160)

Model: CYMotion Pro	Comment: - Test Mode: continious transmitting with modulation - Note: With WHK/M3/13G-10SS high-pass-filter
Serial no.: Mouse	
Applicant: Cherry GmbH	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 1 meter Vertical Polarization	
Date of test: 11/08/2004	Operator: M. Steindl
Test performed: automatically	File name: default.emi

Detector: Peak	List of values: 10 dB Margin 50 Subranges
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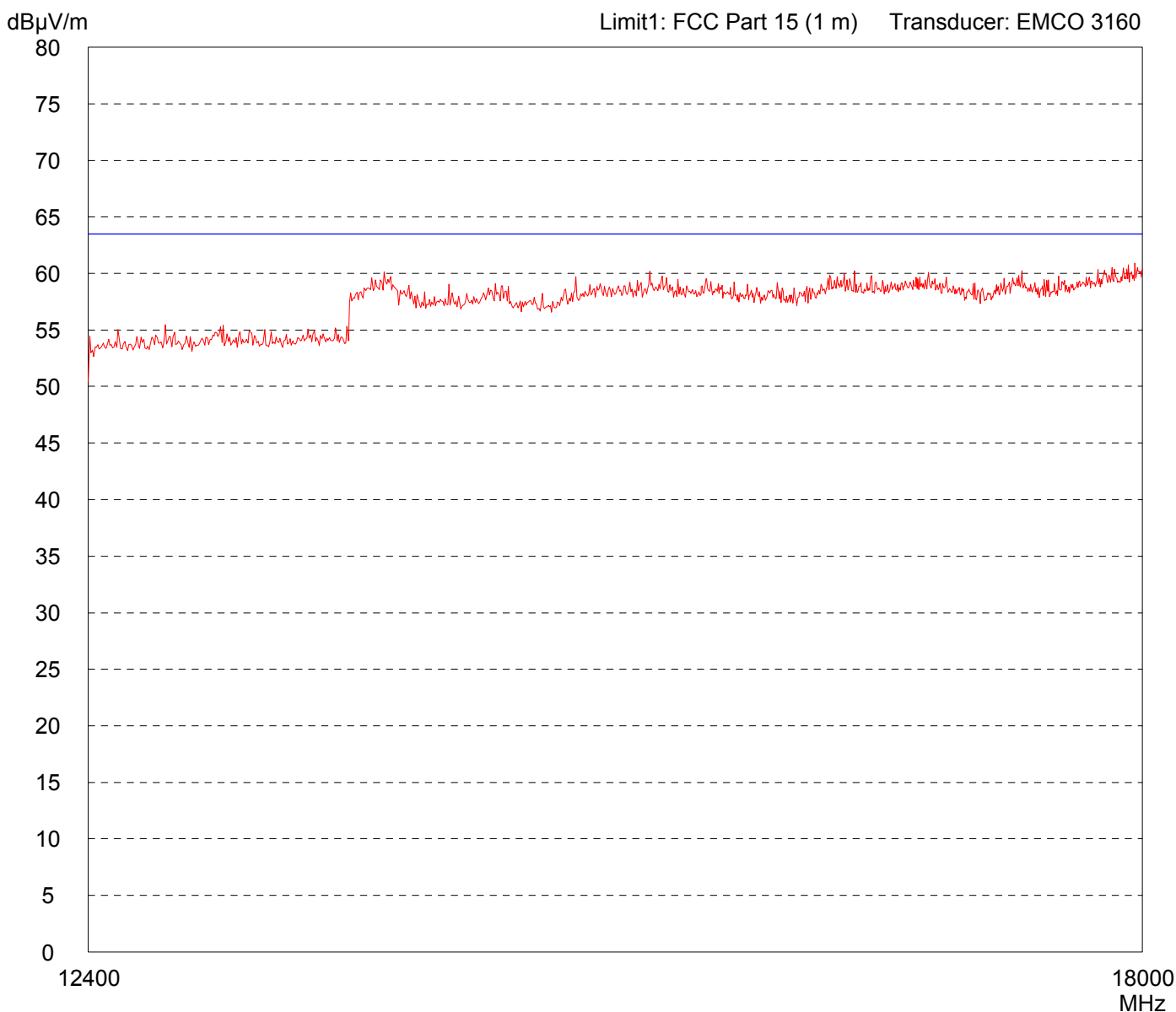
Result: Prescan	Project file: 50305-40687
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Radiated Emission Test 12.4 GHz - 18 GHz acc. to FCC Part 15 (EMCO 3160)

Model: CYMotion Pro	Comment: - Test Mode: continious transmitting with modulation
Serial no.: Mouse	
Applicant: Cherry GmbH	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 1 meter Horizontal Polarization	
Date of test: 11/08/2004	Operator: M. Steindl
Test performed: automatically	File name: default.emi

Detector: Peak	List of values: Selected by hand
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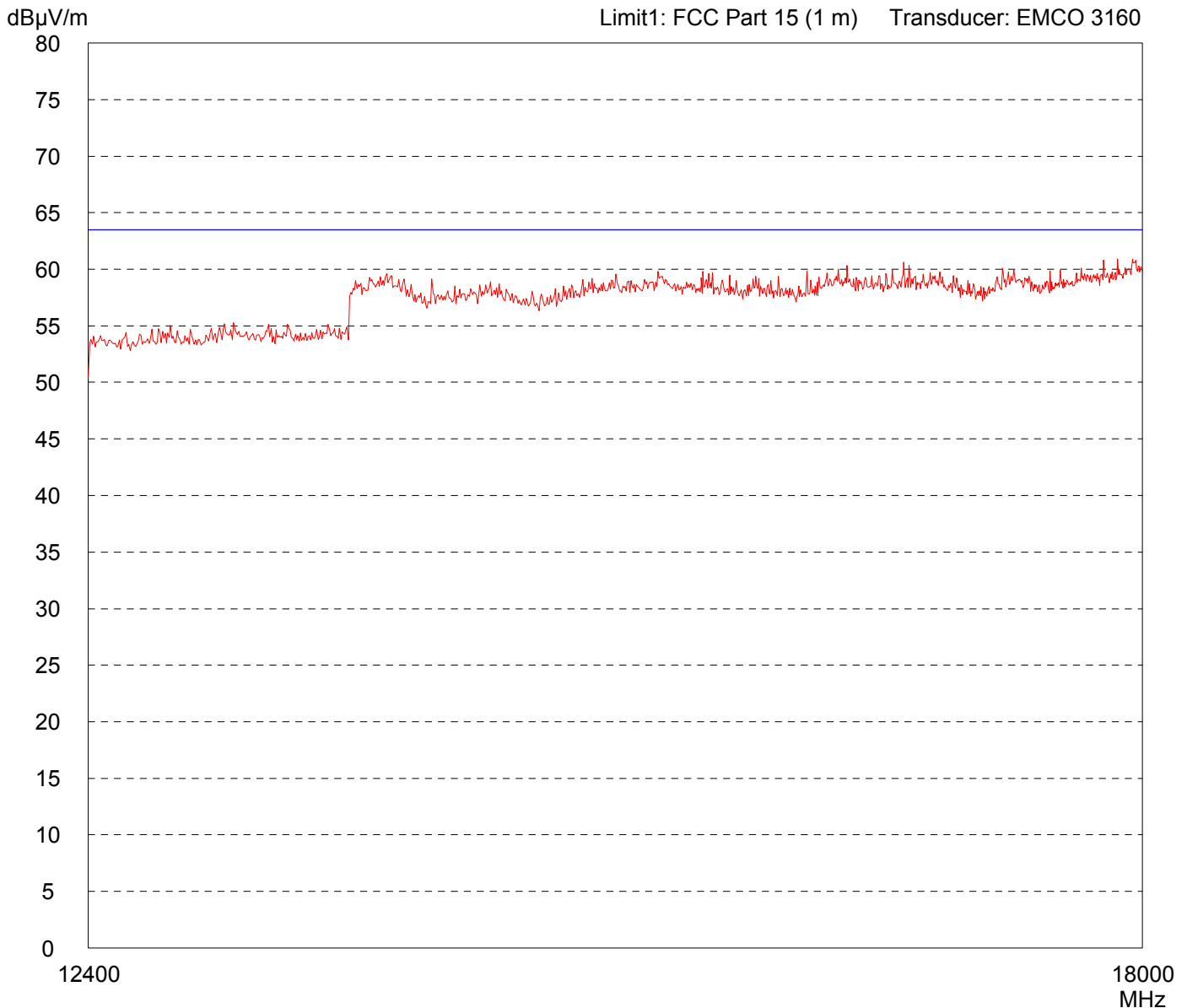


Result: Prescan	Project file: 50305-40687
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Radiated Emission Test 12.4 GHz - 18 GHz acc. to FCC Part 15 (EMCO 3160)

Model: CYMotion Pro	Comment: - Test Mode: continious transmitting with modulation
Serial no.: Mouse	
Applicant: Cherry GmbH	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 1 meter Vertical Polarization	
Date of test: 11/08/2004	Operator: M. Steindl
Test performed: automatically	File name: default.emi

Detector: Peak	List of values: Selected by hand
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Result: Prescan	Project file: 50305-40687
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Radiated Emission Test acc. to FCC Part 15

Model:
CyMotion Pro Funk-Bundle

Serial No.:
Mouse

Applicant:
Cherry GmbH

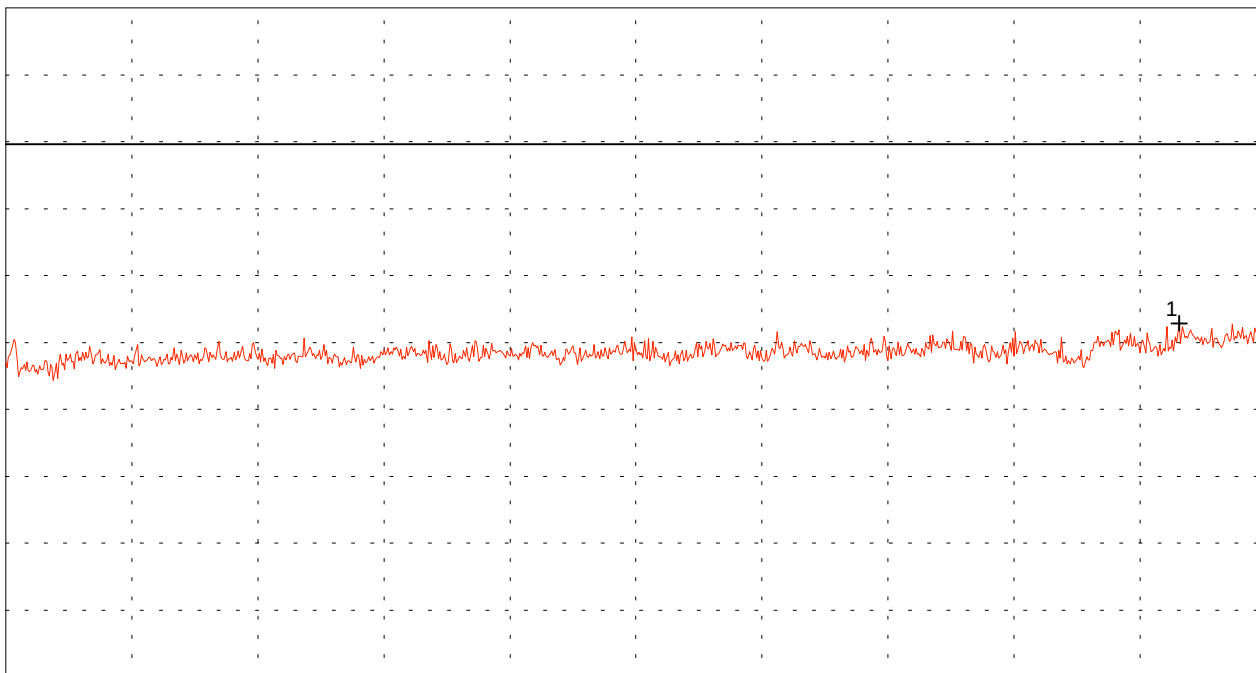
Mode:
- transmitting continuously with modulation

- test distance: 0.5 m
- horizontal

Ref.Level 79.8 dB μ V
5 dB/Div.

ATT 0 dB

Ref. Offset 42.8 dB



Start 18.000 GHz
RBW 1 MHz

VBW 100 kHz

Stop 25.000 GHz
SWP 220 ms

Multi Marker List

No.	Frequency (GHz)	Amplitude (dB μ V)
1	24.517778	56.23

Tested by:
M. Steindl

Date:
11/25/2004

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Radiated Emission Test acc. to FCC Part 15

Model:
CyMotion Pro Funk-Bundle

Serial No.:
Mouse

Applicant:
Cherry GmbH

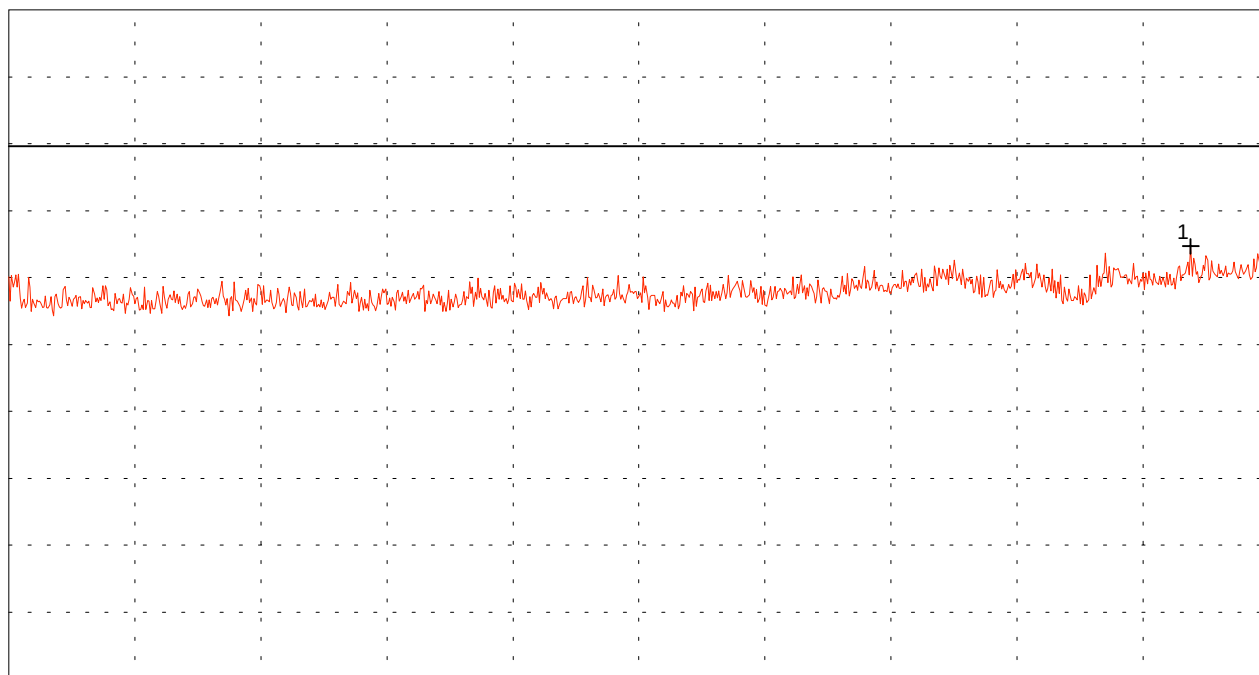
Mode:
- transmitting continuously with modulation

- test distance: 0.5 m
- horizontal

Ref.Level 79.8 dB μ V
5 dB/Div.

ATT 0 dB

Ref. Offset 42.8 dB



Start 18.000 GHz
RBW 1 MHz

VBW 1 MHz

Stop 25.000 GHz
SWP 40 ms

Multi Marker List

No.	Frequency (GHz)	Amplitude (dB μ V)
1	24.564444	62.14

Tested by:
M. Steindl

Date:
11/25/2004

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Radiated Emission Test acc. to FCC Part 15

Model:
CyMotion Pro Funk-Bundle

Serial No.:
Mouse

Applicant:
Cherry GmbH

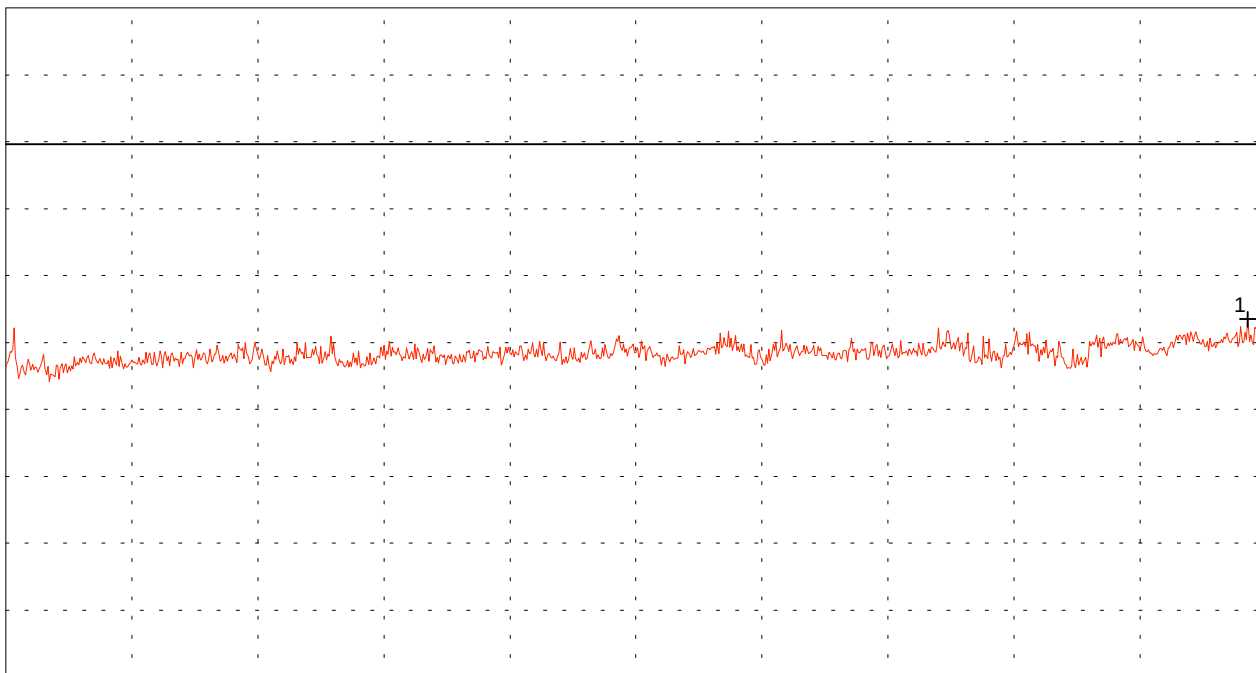
Mode:
- transmitting continuously with modulation

- test distance: 0.5 m
- vertical

Ref.Level 79.8 dB μ V
5 dB/Div.

ATT 0 dB

Ref. Offset 42.8 dB



Start 18.000 GHz
RBW 1 MHz

VBW 100 kHz

Stop 25.000 GHz
SWP 220 ms

Multi Marker List

No.	Frequency (GHz)	Level (dB μ V)
No. 1	24.898889 GHz	56.54 dB μ V

Tested by:
M. Steindl

Date:
11/25/2004

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Radiated Emission Test acc. to FCC Part 15

Model:
CyMotion Pro Funk-Bundle

Serial No.:
Mouse

Applicant:
Cherry GmbH

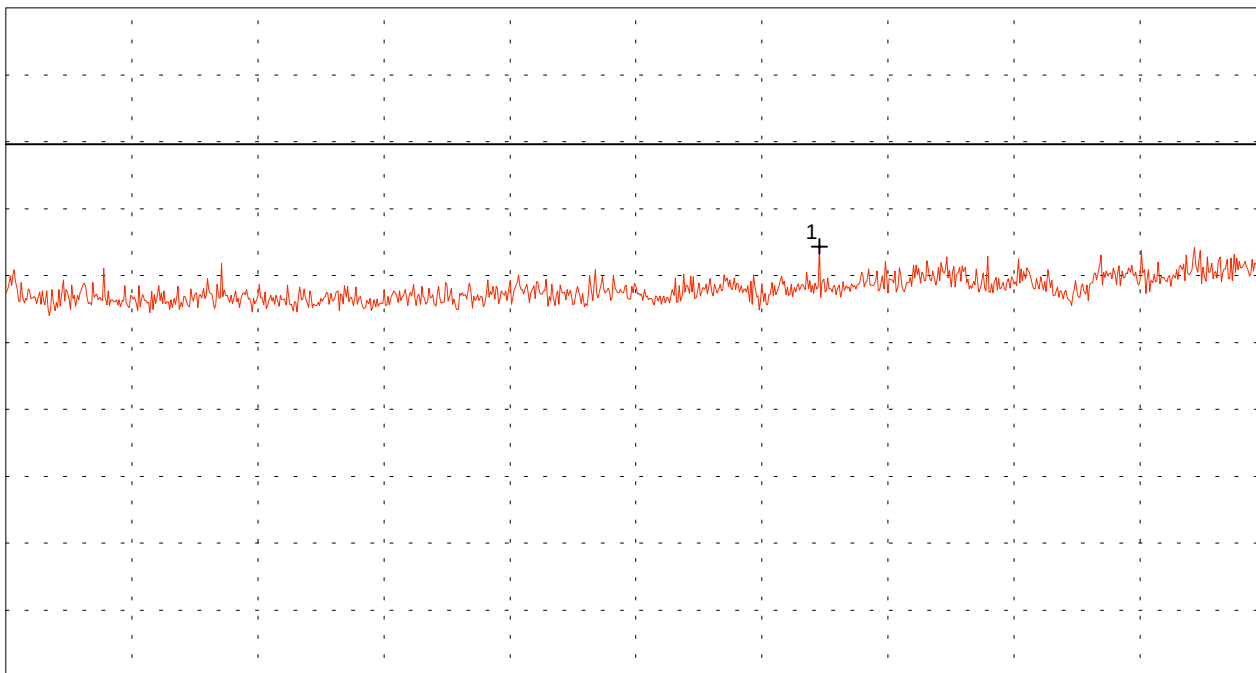
Mode:
- transmitting continuously with modulation

- test distance: 0.5 m
- vertical

Ref.Level 79.8 dB μ V
5 dB/Div.

ATT 0 dB

Ref. Offset 42.8 dB



Start 18.000 GHz
RBW 1 MHz

VBW 1 MHz

Stop 25.000 GHz
SWP 40 ms

Multi Marker List

No.	Frequency (GHz)	Amplitude (dB μ V)
No. 1	22.518889 GHz	61.98 dB μ V

Tested by:
M. Steindl

Date:
11/25/2004

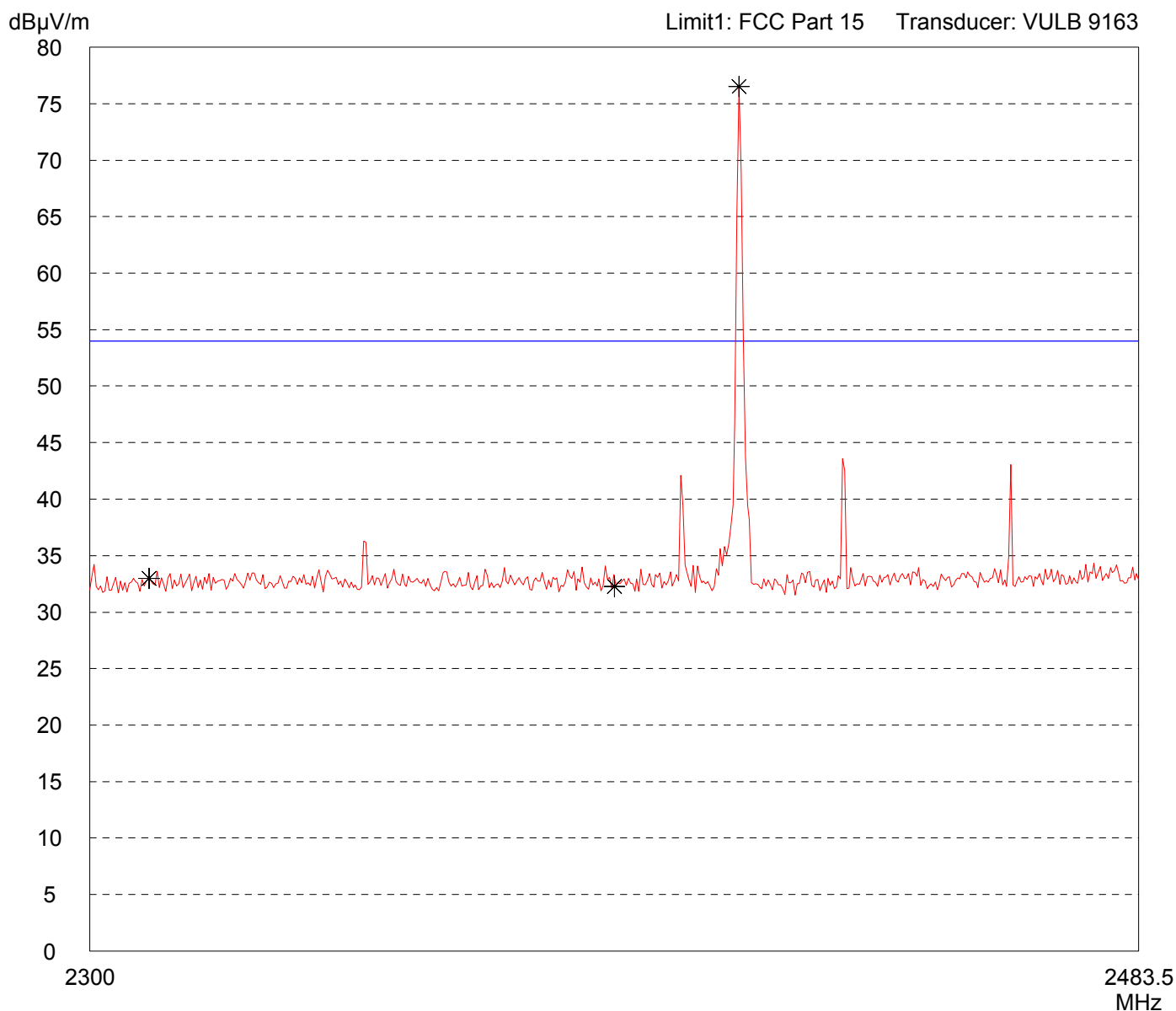
Project-No.:
50305-40687

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Restricted Bands of Emission 2.3 GHz - 2.4835 GHz acc. to FCC Part 15.205

Model: CyMotion Pro	Comment: - Test Mode: continuous transmitting with modulation - lowest channel
Serial no.: Mouse	
Applicant: Cherry GmbH	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Vertical Polarization	
Date of test: 12/06/2004	Operator: M. Steindl
Test performed: automatically	File name: default.emi

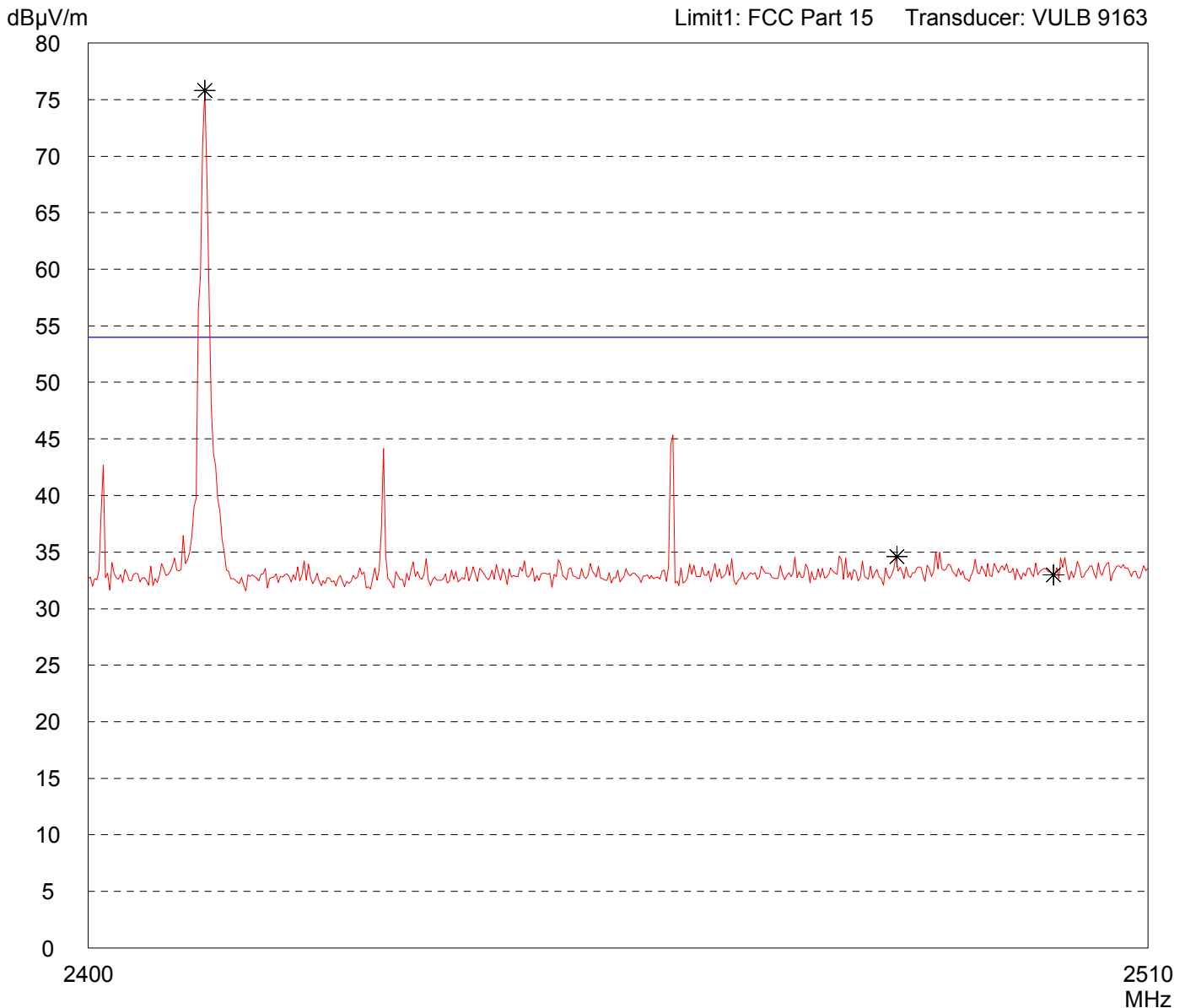
Detector: Peak	List of values: Selected by hand
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Result: Requirement kept	Project file: 50305-40687
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Restricted Bands of Emission 2.4 GHz - 2.51 GHz acc. to FCC Part 15.205

Model: CyMotion Pro		Comment: - Test Mode: continuous transmitting with modulation - lowest channel
Serial no.: Mouse		
Applicant: Cherry GmbH		
Test site: Fully anechoic room, cabin no. 2		
Tested on: Test distance 3 metres Vertical Polarization		
Date of test: 12/06/2004	Operator: M. Steindl	List of values: Selected by hand
Test performed: automatically	File name: default.emi	
Detector: Peak		

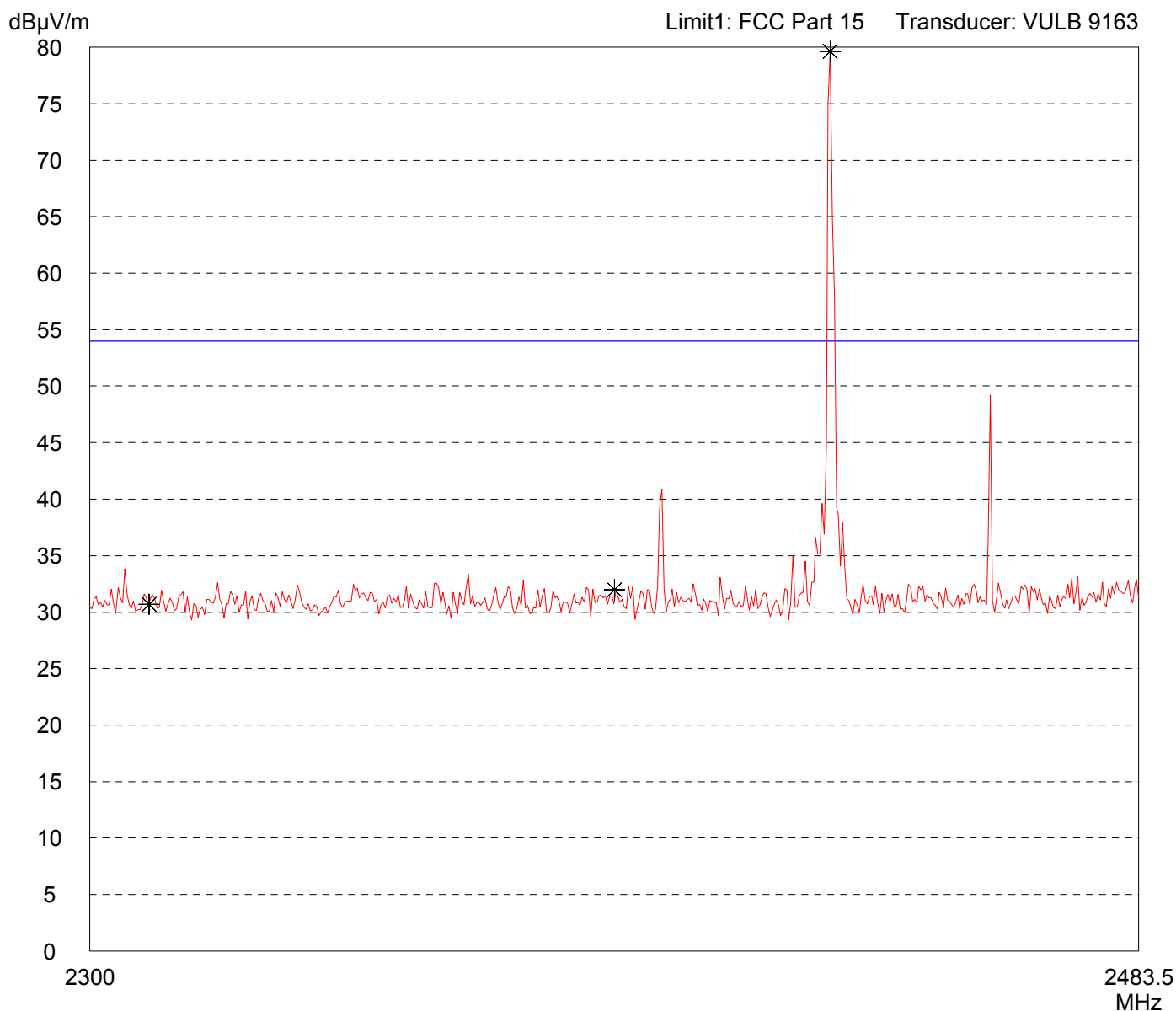


Result: Requirement kept	Project file: 50305-40687	Page of Pages
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Restricted Bands of Emission 2.3 GHz - 2.4835 GHz acc. to FCC Part 15.205

Model: CyMotion Pro	Comment: - Test Mode: continuous transmitting with modulation
Serial no.: Mouse	
Applicant: Cherry GmbH	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Vertical Polarization	
Date of test: 12/06/2004	Operator: M. Steindl
Test performed: automatically	File name: default.emi

Detector: Peak	List of values: Selected by hand
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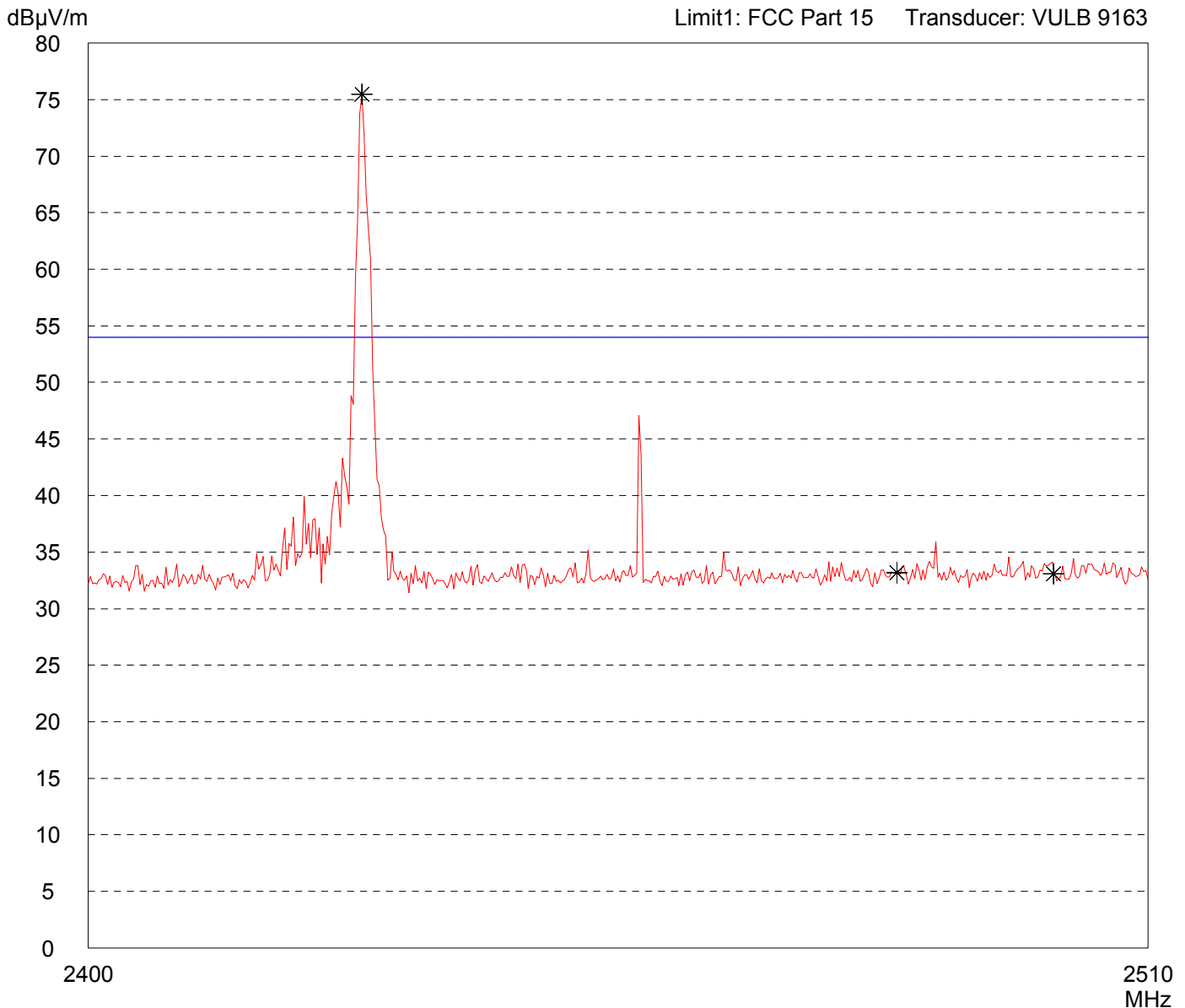


Result: Requirement kept	Project file: 50305-40687
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Restricted Bands of Emission 2.4 GHz - 2.51 GHz acc. to FCC Part 15.205

Model: CyMotion Pro	Comment: - Test Mode: continuous transmitting with modulation
Serial no.: Mouse	
Applicant: Cherry GmbH	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Vertical Polarization	
Date of test: 12/06/2004	Operator: M. Steindl
Test performed: automatically	File name: default.emi

Detector: Peak	List of values: Selected by hand
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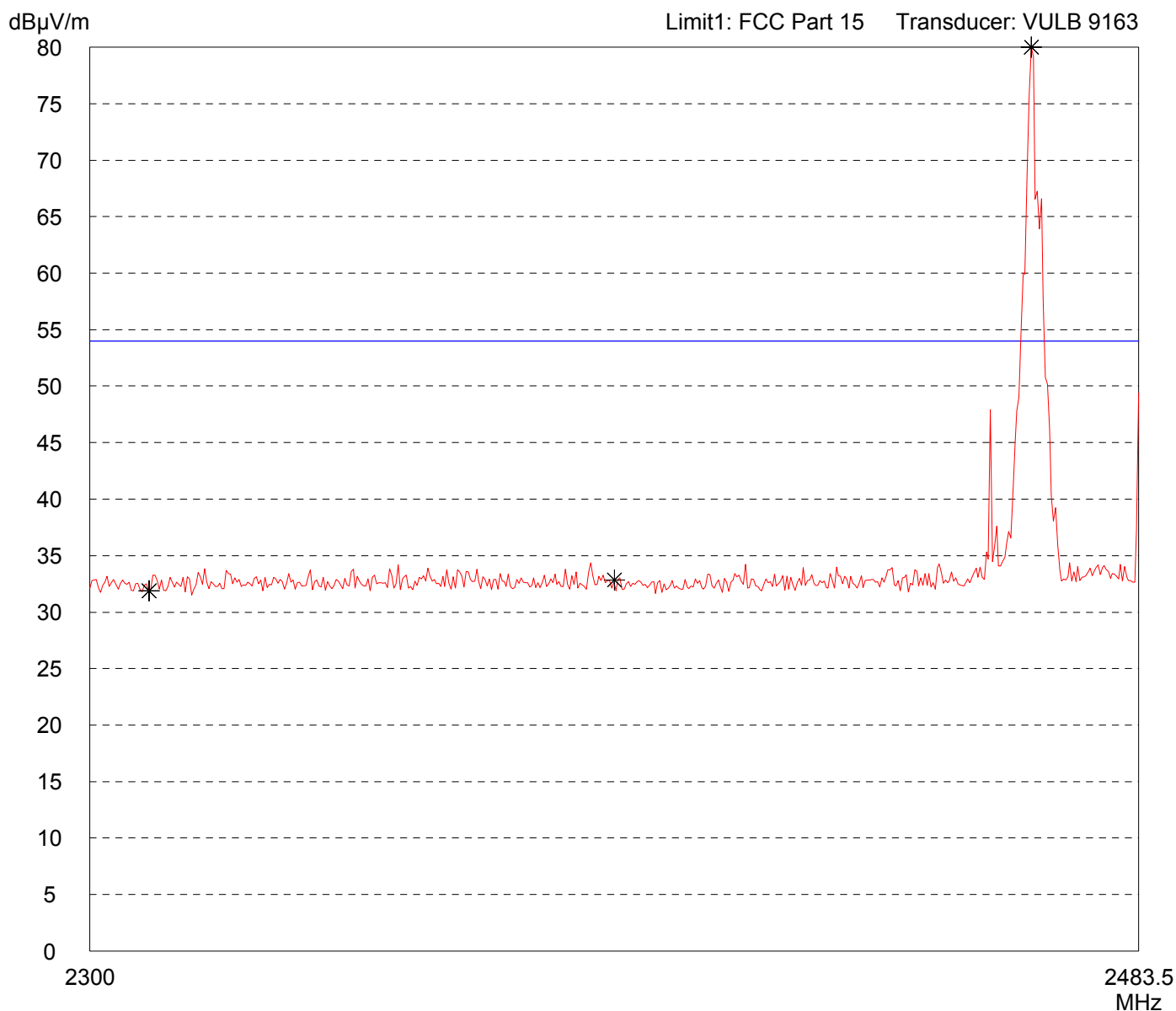


Result: Requirement kept	Project file: 50305-40687
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Restricted Bands of Emission 2.3 GHz - 2.4835 GHz acc. to FCC Part 15.205

Model: CyMotion Pro	Comment: - Test Mode: continuous transmitting with modulation
Serial no.: Mouse	
Applicant: Cherry GmbH	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Vertical Polarization	
Date of test: 12/06/2004	Operator: M. Steindl
Test performed: automatically	File name: default.emi

Detector: Peak	List of values: Selected by hand
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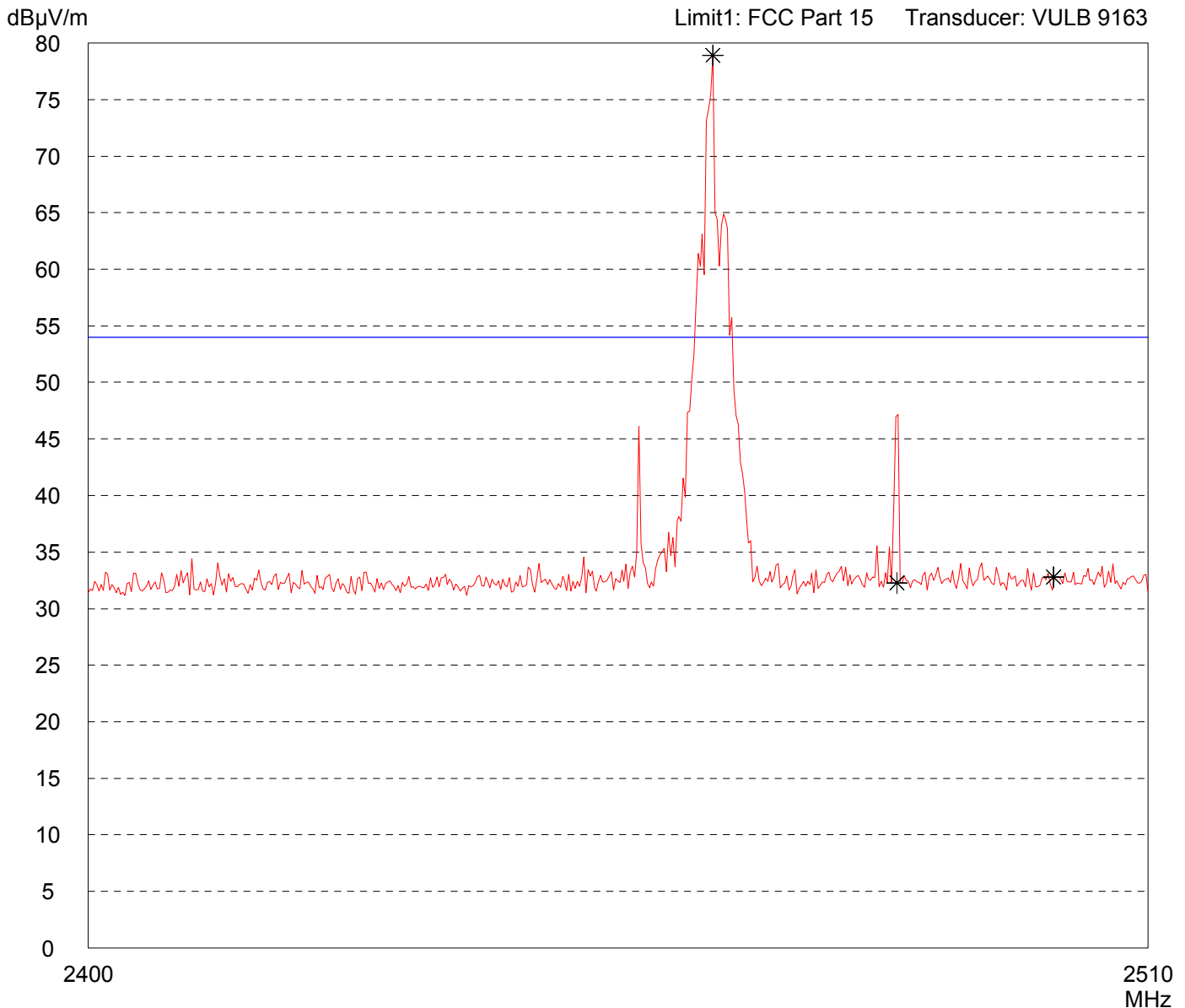


Result: Requirement kept	Project file: 50305-40687
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Restricted Bands of Emission 2.4 GHz - 2.51 GHz acc. to FCC Part 15.205

Model: CyMotion Pro	Comment: - Test Mode: continuous transmitting with modulation
Serial no.: Mouse	
Applicant: Cherry GmbH	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Vertical Polarization	
Date of test: 12/06/2004	Operator: M. Steindl
Test performed: automatically	File name: default.emi

Detector: Peak	List of values: Selected by hand
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Result: Requirement kept	Project file: 50305-40687
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