SENTON
EMV-Prüfzentrum EMI/EMC-Testcenter

TEST-REPORT No. 50305-10056-1

Product Description	**Wireless Mouse**
Brand	**Cherry**
Model / Type	**M-3000**
Serial No.	---

Applicant	**Cherry GmbH** **Cherrystrasse** **D-91275 Auerbach / Germany**
Contact	**Mrs. Angelika Gradl**

Order / Date	**January 24, 2001**
Test sample received	**January 30, 2001**

Test Specification	**FCC Rules Part 15, Subpart C, Section 15.249**
	Industry Canada RSS 210, Issue 2,

Test Result	**The tested sample complies with the test specifications**

Tested by		**March 08, 2001**
Johann Roidt		Date

Checked		**March 08, 2001**
Johann Roidt		Date

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.

Table of Contents

1. Operation Mode of EUT 3

2. Changes made to the EUT during this certification test 4

3. Configuration of EUT and peripheral devices 5

4. Measuring Methods 6

Transmitter Parameter TestS (§15.209) 6
Radiated Emissions 0.009 – 30 MHz 7
Radiated Emissions 30 MHz – 1 GHz 8
Radiated Emissions above 1 GHz 9
Procedure for preliminary Radiated Emission Tests 10
Method for comparing spectrum analyzer output to the limit 11
Spectrum analyzer setting for final test 11

5. Photographs taken during testing 12

6. List of Measurements 14

7. Test Results 15

8. Equipment List 18

9. Charts taken during Testing 20

1. Operation Mode of EUT

The EUT was equipped with a test software which allowed independent access to individual RF channels. All tests were performed at lowest and highest RF-channel.

2. Changes made to the EUT during this certification test

No changes have been made to the EUT during this certification test.

3. Configuration of EUT and peripheral devices

Configuration of cables connected to the EUT

Not applicable

Configuration of peripheral devices connected to the EUT

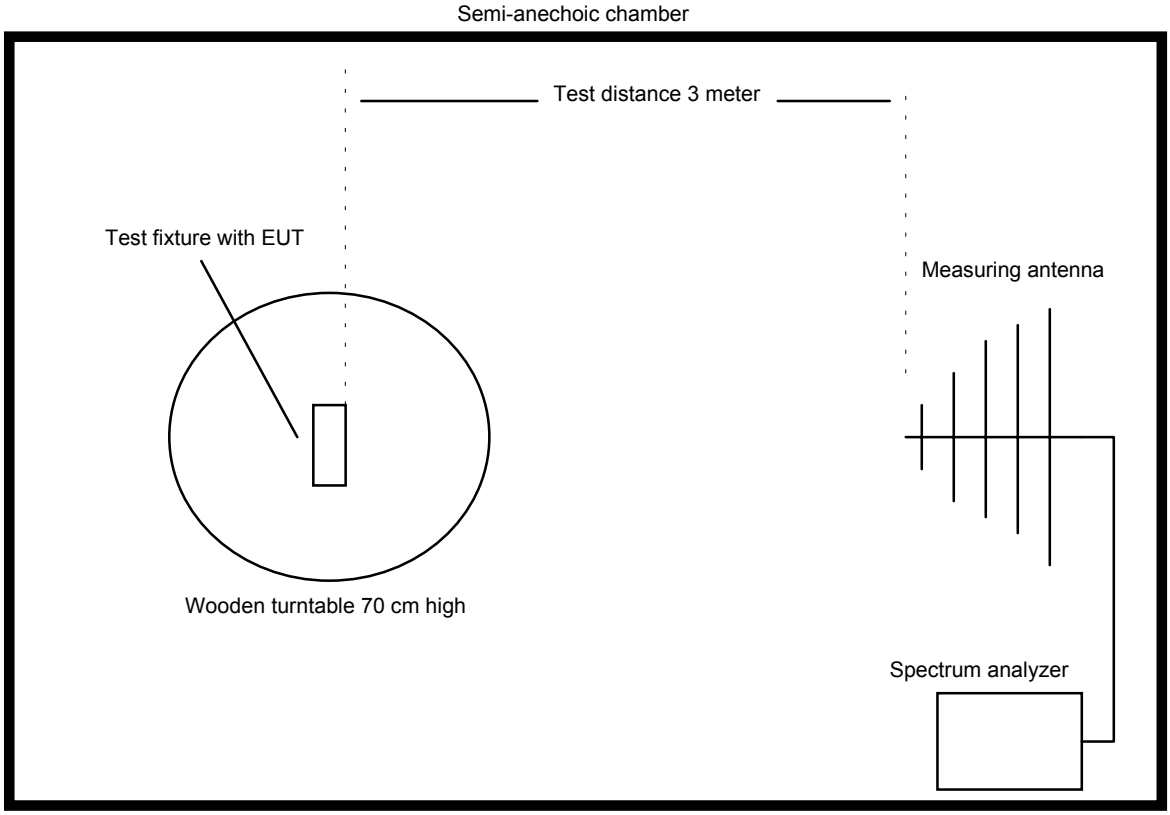
Not applicable

4. Measuring Methods

Transmitter Parameter TestS (§15.209)

All transmitter parameter radiated tests are performed at a test distance of 3 meteters in a semianechoic chamber. During the tests the EUT will be rotated all around and the receiving antenna will be raised and lowered from 1 meter to 4 meter to find the maximum levels of emission. Cables and equipment will be placed and moved within the position likely to find their maximum emissions.
Measurements will be made in horizontal and vertical polarization of the receiving antenna.
The EUT was operating in transmit mode with its internal modulation.

The bandwidth of the emission will be measured with a spectrum analyzer.
Resolution Bandwidth and Video Bandwidth will be set to 10 kHz.



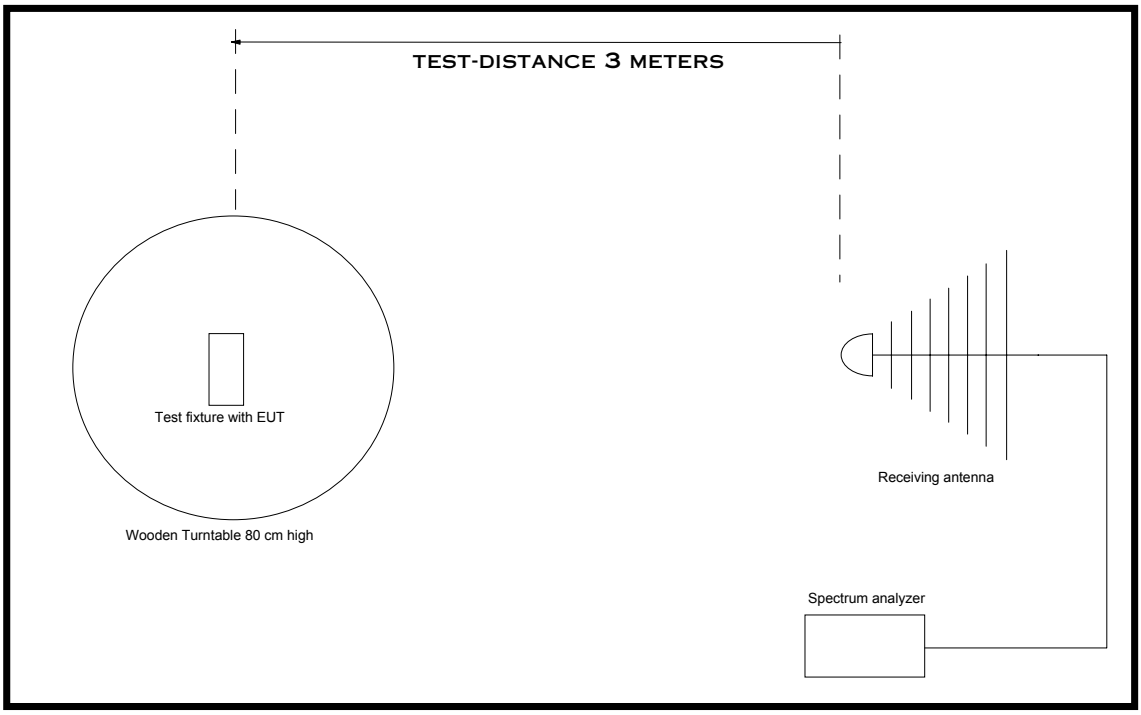
Radiated Emissions 0.009 – 30 MHz

Radiated emissions in the frequency range 0.009 – 30 MHz will be measured initially at a distance of 3 meters. A prescan at 3 meter distance will be performed in a shielded room with the detector of the spectrum analyzer or EMI Receiver set to peak. Final measurement is then performed at 30 meter distance. In case the regulation requires testing at other distances, the result will be extrapolated. The extrapolation factor will be determined by making a second measurement at 10 meter distance. The provisions of 15.31 (d) apply.
According to section 15.209 (d) final measurementis performed with the detector set to Quasi Peak except for the frequency bands 9 – 90 kHz and 110 – 490 kHz where average detector is employed.

Radiated Emissions 30 MHz – 1 GHz (FCC §15.109, RSS-210 Section 7.3)

Radiated emissions in the frequency range 30 – 1000 MHz will be measured at a distance of 3 meter. The bandwidth of the spectrum analyzer will be set to 100 kHz and the detector function set to Quasi Peak.
The test setup will be made in accordance with ANSI C.63.4-1992.
Measurements will be made in horizontal and vertical polarization of the receiving antenna. Prescans will be taken in a semianechoic chamber using a spectrum analyzer with the detector function set to peak. All tests will be performed at a test distance of 3 meters. For final testing an open field test site will be used. During the tests the EUT will be rotated all around and the receiving antenna will be raised and lowered from 1 meter to 4 meterto find maximum levels of emissions.

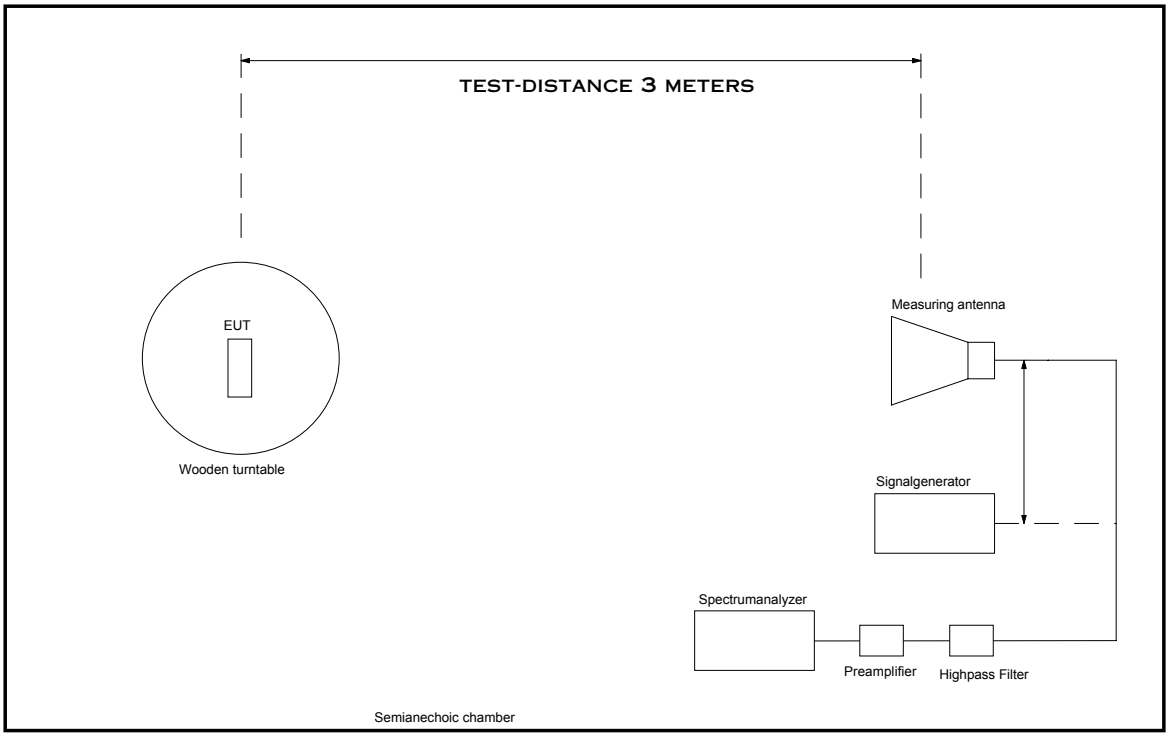
For handheld equipment the tests will be performed in three orthogonal axes.



Radiated Emissions above 1 GHz (FCC §15.109, RSS-210 Section 7.3)

Radiated emissions were measured in the frequency range 1 GHz to 3.15 GHz in transmit mode .The resolution bandwidth and the video bandwidth of the spectrum analyzer was set to 1 MHz. Prescans with video bandwidth 1 MHz (peak mode) were taken to check out the highest levels (with reference to the limits), see 6.4 for details to prescan procedure. Final measurements were performed at the three highest emissions per band. EUT was rotated all around and receiving antenna was raised and lowered to find the maximum levels of emission. Cables and equipment were placed and moved within the range of position likely to find their maximum emissions. Measurements were made in horizontal and vertical polarization.
All tests were performed in a semi-anechoic chamber with a test-distance of 3 meters. For handheld equipment the tests will be performed in three orthogonal axes.
To avoid overload in transmit mode a high pass filter was connected to the input of the preamplifier (in case when a preamplifier was necessary)). In this case a signal generator was used for substitution to eliminate the influence of filter and preamplifier.
Substitution was performed in the following steps:

- antenna cable was disconnected from receiving antenna and connected to signal generator output
- level of signal generator was increased until the reading value of the analyzer was the same as caused by EUT
- level of signal generator was noted
- final value was calculated by converting the signal generator level to dBµV/m and adding the antenna correction factor.



Procedure for preliminary Radiated Emission Tests

The procedure for preliminary radiated emission tests follows section 13.4.1 of ANSI C63.4-1992.
In case the EUT is a handheld device preliminary emission measurements will be performed in three orthogonal axes of the EUT.

Prescans are made in the following frequency range:

0.009 – 30 MHz
30 – 230 MHz
230 – 1000 MHz
1000 – 2600 MHz
2600 – 3950 MHz
3950 – 5850 MHz
5850 – 8200 MHz
8200 – 12400 MHz
12400 – 18000 MHz
18000 – 26500 MHz
26500 – 40000 MHz

with the receiving antenna set to horizontal and vertical polarization.

The following step-by-step procedure will be used:

Monitor the frequency range at a fixed antenna height and EUT azimuth

Rotate the EUT by 360 degrees to maximize the suspected highest azimuth signals. Note the amplitude and frequency of the signals. Orient the EUT azimuth for maximum emission.

Move the antenna over its full allowed range of travel to maximize the emission. If the signal or another one at a different frequency is observed to exceed the previously noted highest amplitude signal by 1 dB or more, return to step 2) with the antenna fixed at this height. Otherwise move the antenna to the height that repeats the highest amplitude observation and proceed.

Identify at least the three highest emissions per band by using the multimarker function of the spectrum analyzer. Make a hardcopy of the spectrum.

Repeat steps 1) through 4) for the other orthogonal axes of the EUT.

Repest steps 1) through 5) for other orthogonal antenna polarization.

Method for comparing spectrum analyzer output to the limit

The following procedure will be used:

Maximize the emission according to 6.4.

Set the spectrum analyzer to **Max Hold**

Wait until the noise is fully maximized.

Put the marker on topof the investigated signal.

Note frequency and level of the investigated signal

Add antenna correction and cable loss to this level and compare it with the limit.

Spectrum analyzer setting for final test

Frequency range	Detector	Resolution Bandwidth	Video Bandwidth	Trace Mode
0.009 – 30 MHz	Quasi Peak	10 kHz	10 kHz	Max Hold
9 – 90 kHz 110 – 490 kHz	Average	10 kHz	100 Hz	Max Hold
30 – 1000 MHz	Quasi Peak	100 kHz	1 MHz	Max Hold
> 1000 MHz	Peak	1 MHz	1 MHz	Max Hold
> 1000 MHz	Average	1 MHz	1 kHz	Max Hold

5. Photographs taken during testing

Radiated emission measurement >30 MHz

6. List of Measurements

FCC Part 15 Subpart C			
Section(s):	**Test**	**Page**	**Result**
	:		
15.207.a	Conducted emissions		Not applicable
15.209	Field strength of emissions (RX Mode)		Not applicable
15.249.c	Field strength of emissions (TX Mode)		Passed

List of Measurements according To Industry Canada RSS-210

Industry Canada RSS-210 Issue 2			
Section(s):	**Test**	**Page(s)**	**Result**
7.4	Conducted emission test 450 kHz - 30 MHz		Not Applicable
7.3	Radiated emission test 30 MHz - 25 GHz		Passed
7.2	Antenna power conducted emissions		Not Applicable

7. Test Results

Field Strength of Emissions according to FCC Rules, Part 15, Subpart C, Section 15.249 Frequency Band > 30 MHz, Fundamental and Harmonics

Model:	M-3000, Lowest RF channel
Type:	Wireless Mouse
Serial No.	---
Applicant:	Cherry GmbH
Test Site:	Open Field Test Site / Semianechoic Chamber
Distance:	3 Meter
Date of Test:	January 30, 2001

Frequency (MHz)	Detector	Antenna Polarization	Analyzer Reading (dBµV)	Correction Factor (dB)	Field Strength (dBµV/m)	Limit dBµV/m	Margin dB
2405.3	Peak	Vertical	52.8	33.9	86.7	94.0	**7.3**
4817.6	Peak	Horizontal	18.3	28.1	46.4	54.0	**7.6**
7215.6	Peak	Horizontal	19.1	30.0	49.1	54.0	**4.9**
9618.6	Peak	Vertical	18.2	34.7	52.9	54.0	**1.1**
12045.3	Peak	Horizontal	16.5	35.0	51.5	54.0	**3.5**

***** = No emissions above noise floor detected**

Sample calculation of field strength values:

Field Strength (dBµV/m) = Analyzer Reading (dBµV) + Correction Factor (dB)
Correction Factor includes Antenna conversion and cable loss

Test equipment used (see equipment list for details):
02, 13, 14, 16, 38, 40 ,42, 57, 64, 67

Field Strength of Emissions according to FCC Rules, Part 15, Subpart C, Section 15.249 Frequency Band > 30 MHz, Fundamental and Harmonics

Model:	M-3000, Highest Channel
Type:	Wireless Mouse
Serial No.	---
Applicant:	Cherry GmbH
Test Site:	Open Field Test Site / Semianechoic Chamber
Distance:	3 Meter
Date of Test:	January 30, 2001

Frequency (MHz)	Detector	Antenna Polarization	Analyzer Reading (dBµV)	Correction Factor (dB)	Field Strength (dBµV/m)	Limit dBµV/m	Margin dB
2480.8	Peak	Vertical	50.1	33.9	84.0	94.0	**10.0**
4965.4	Peak	Vertical	17.3	28.1	42.4	54.0	**11.6**
7445.3	Peak	Vertical	22.5	30.0	52.5	54.0	**1.5**
9922.0	Peak	Vertical	18.1	34.7	52.8	54.0	**1.2**

***** = No emissions above noise floor detected**

Sample calculation of field strength values:

Field Strength (dBµV/m) = Analyzer Reading (dBµV) + Correction Factor (dB)
Correction Factor includes Antenna conversion and cable loss

Test equipment used (see equipment list for details):
02, 13, 14, 16, 38, 40 ,42, 57, 64, 67

8. Equipment List

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

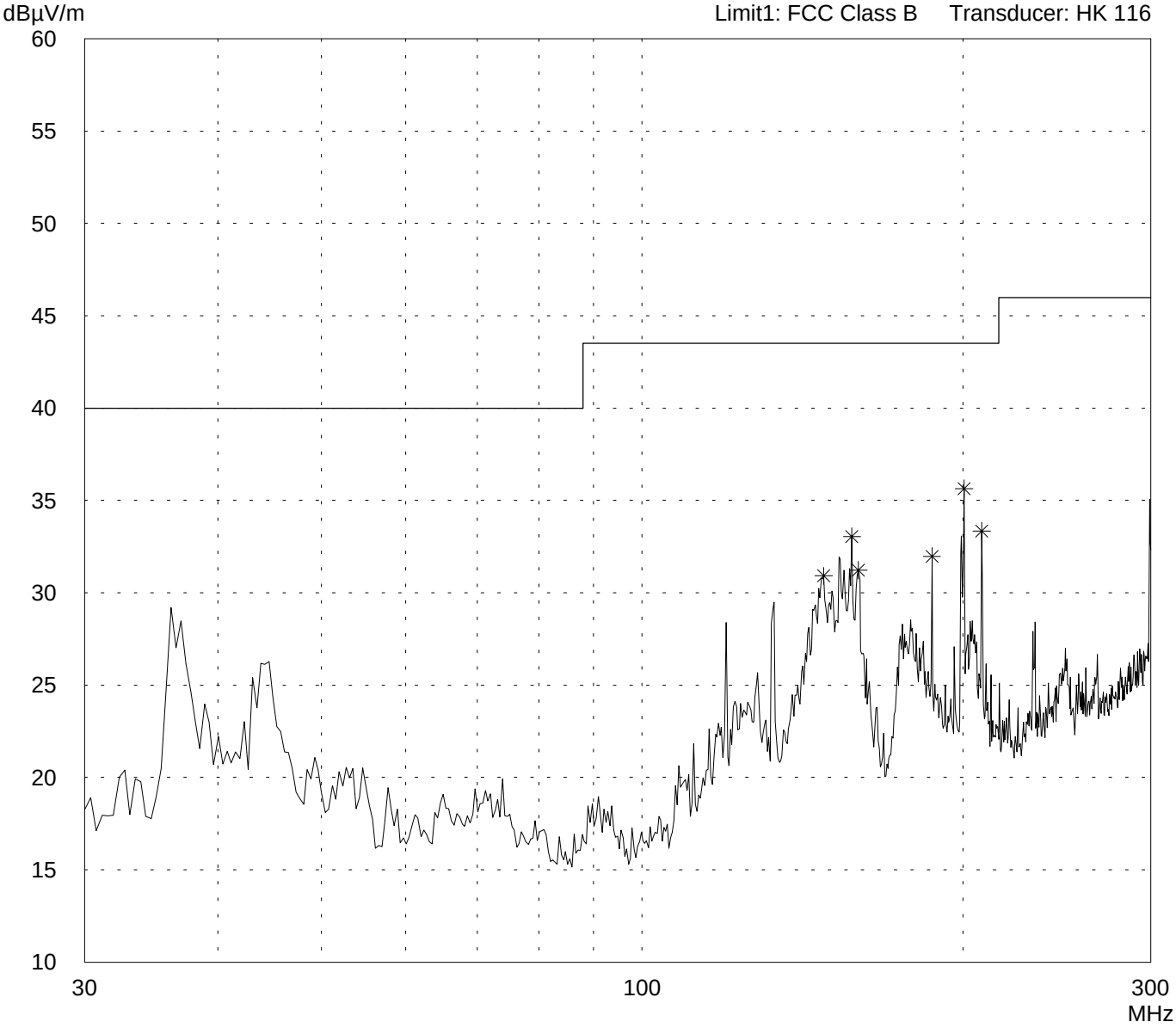
No.	Type	Model	Serial Number	Manufacturer
01	Spectrum Analyzer	R 3261 A	91720155	Advantest
02	Spectrum Analyzer	R 3271	05050023	Advantest
03	Test Receiver	ESH 3	880112/032	Rohde & Schwarz
04	Test Receiver	ESHS 10	860043/016	Rohde & Schwarz
05	Test Receiver	ESV	881414/009	Rohde & Schwarz
06	Test Receiver	ESVP	881120/024	Rohde & Schwarz
07	Audio Analyzer	UPA	862954	Rohde & Schwarz
08	Power Meter	NRVS	836856/015	Rohde & Schwarz
09	Power Sensor	NRV-Z52	837901/030	Rohde & Schwarz
10	Power Sensor	NRV-Z4	863828/015	Rohde & Schwarz
11	Preamplifier	ESV-Z3	860907/004	Rohde & Schwarz
12	Preamplifier	R14601		Advantest
13	Preamplifier	ACX/080-3030	32640	CTT
14	Preamplifier	ACO/180-3530	32641	CTT
15	Signal Generator	SMS	872166/039	Rohde & Schwarz
16	Signal Generator	HP 8673 D	2930A00966	Hewlett Packard
17	Waveform Generator	HP 33120 A	US34005375	Hewlett Packard
18	UHF Attenuator Set	DPU	300771/075	Rohde & Schwarz
19	UHF Attenuator Set	DPU	300788/006	Rohde & Schwarz
20	Pulse Limiter	ESH 3-Z2	1144	Rohde & Schwarz
21	Pulse Limiter	11947 A	3107A00566	Hewlett Packard
22	V-Network	ESH 3-Z5	862770/018	Rohde & Schwarz
23	V-Network	ESH 3-Z5	894785/005	Rohde & Schwarz
24	V-Network	ESH 3-Z5	830952/025	Rohde & Schwarz
25	V-Network	ESH 3-Z6	830722/010	Rohde & Schwarz
26	V-Network	NSLK 8127	8127152	Schwarzbeck
27	V-Network	NNLA 8119	8119148	Schwarzbeck
28	V-Network	SE 01	01	Senton
29	T-Network	ESH 3-Z4	890602/011	Rohde & Schwarz
30	T-Network	ESH 3-Z4	890602/012	Rohde & Schwarz
31	High Impedance Probe	TK 9416	01	Schwarzbeck
32	High Impedance Probe	TK 9416	02	Schwarzbeck
33	Current Probe	ESH 2-Z1	863366/18	Rohde & Schwarz
34	Current Probe	ESV-Z1	862553/3	Rohde & Schwarz

No.	Type	Model	Serial Number	Manufacturer
35	Absorbing Clamp	MDS 21	80911	Lüthi
36	Absorbing Clamp	MDS 21	79690	Lüthi
37	Loop Antenna	HFH2-Z2	882964/1	Rohde & Schwarz
38	Biconical Antenna	HK 116	836239/02	Rohde & Schwarz
39	Biconical Antenna	BBA 9106	A0379 324	Schwarzbeck
40	Log. Periodic Antenna	HL 223	834408/12	Rohde & Schwarz
41	Log. Periodic Antenna	UHALP 9107	9107150	Schwarzbeck
42	Horn Antenna	3115	9508-4553	Emco
43	Horn Antenna	3160-03	9112-1003	Emco
44	Horn Antenna	3160-04	9112-1001	Emco
45	Horn Antenna	3160-05	9112-1001	Emco
46	Horn Antenna	3160-06	9112-1001	Emco
47	Horn Antenna	3160-07	9112-1008	Emco
48	Horn Antenna	3160-08	9112-1002	Emco
49	Horn Antenna	3160-09	9403-1025	Emco
50	Digital multimeter	199	463386	Keithley
51	DC Power Supply	NGSM 32/10	203	Rohde & Schwarz
52	DC Power Supply	NGB	2455	Rohde & Schwarz
53	DC Power Supply	NGA	386	Rohde & Schwarz
54	Temperature Test Chamber	HT4010	07065550	Heraeus
55	Cable	RG214	1309	Senton
56	Cable	150CM_001	1479	Rosenberger
57	Cable	150CM_002	1480	Rosenberger
58	Cable Set EG1	RG214	1189 - 1191	Senton
59	Cable Set Cabine 1	RG214		Senton
60	Cable Set Cabine 2	RG214		Senton
61	Cable Set Cabine 3	RG214		Senton
62	Shielded Room	Nr. 1	1451	Senton
63	Shielded Room	Nr. 2	1452	Senton
64	Semi-anechoic Chamber	Nr. 3	1453	Siemens
65	Shielded Room	Nr. 4	1454	Euroshield
66	Open Area Test Site	EG 1		Senton
67	High pass filter			AT & T

9. Charts taken during Testing

Radiated Emission Test 30 MHz - 300 MHz
according to FCC Part 15 Subpart B Class B

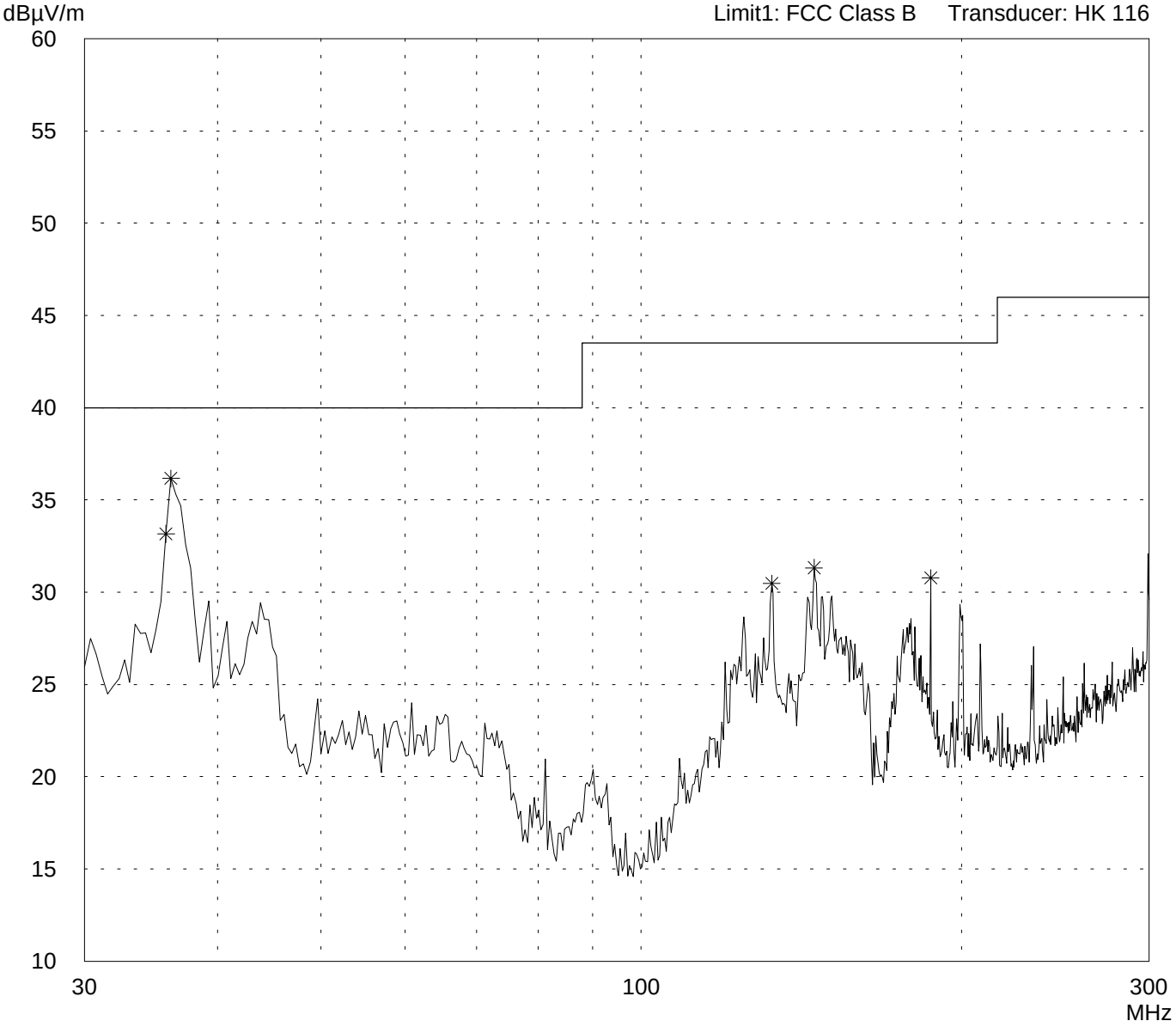
Model: M-3000	Mode: tested in full system
Serial no.: --	
Applicant: Cherry GmbH	
Test site: Semi anechoic room, cabin no. 3	
Tested on: Test distance 3 metres Horizontal Polarization	
Date of test: 02/20/2001 — Operator: K. Roidt	
Test performed: automatically — File name:	
Detector: Peak	List of values: Selected by hand



Result: Prescan	Project file: 50305-10050 — Page of Pages

Radiated Emission Test 30 MHz - 300 MHz
according to FCC Part 15 Subpart B Class B

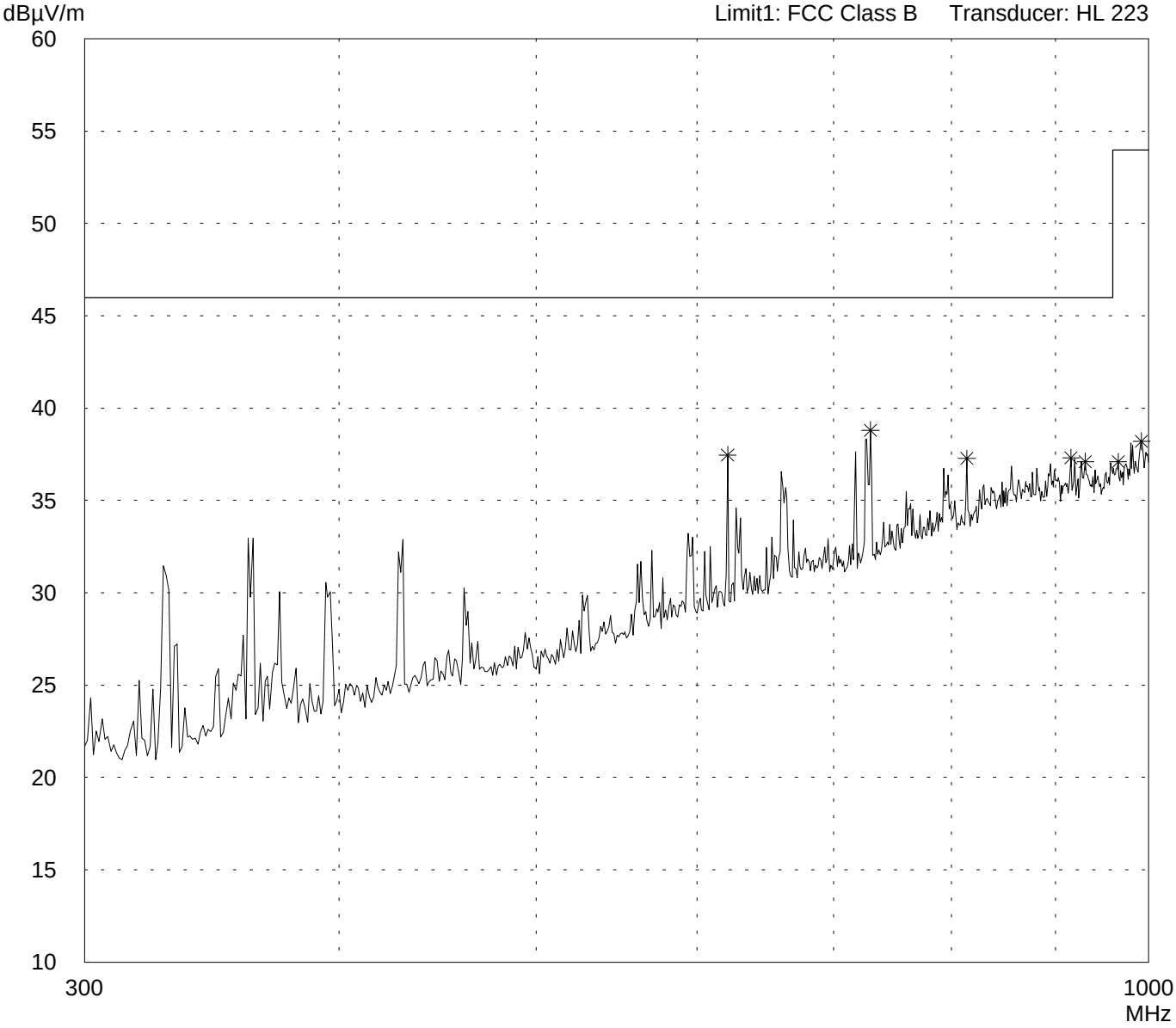
Model: M-3000	Mode: tested in full system
Serial no.: --	
Applicant: Cherry GmbH	
Test site: Semi anechoic room, cabin no. 3	
Tested on: Test distance 3 metres Vertical Polarization	
Date of test: 02/20/2001 / Operator: K. Roidt	
Test performed: automatically / File name:	
Detector: Peak	List of values: Selected by hand



Result: Prescan	Project file: 50305-10050 Page of Pages

Radiated Emission Test 300 MHz - 1 GHz
according to FCC Part 15 Subpart B Class B

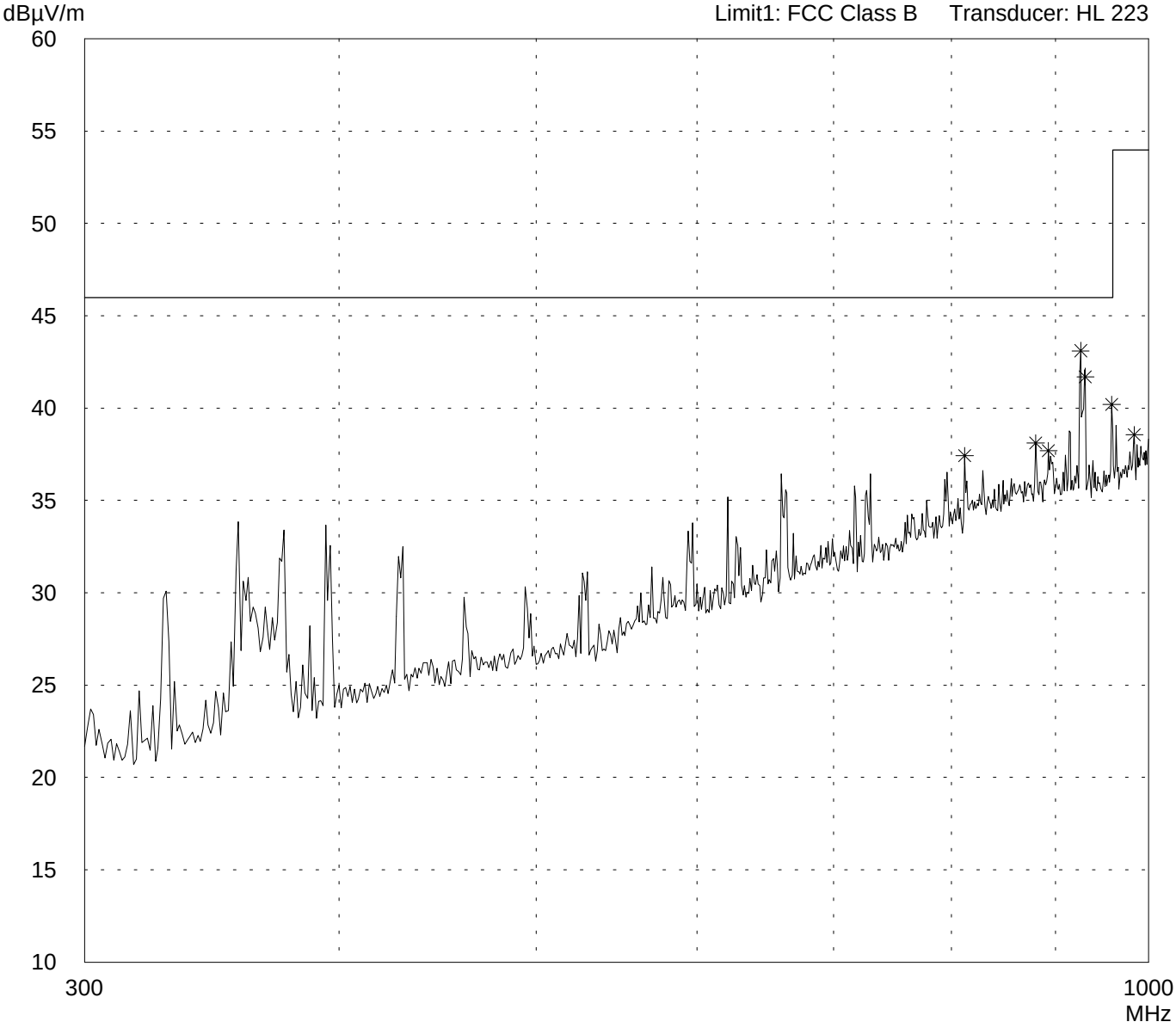
Model: M-3000	Mode: tested in full system
Serial no.: --	
Applicant: Cherry GmbH	
Test site: Semi anechoic room, cabin no. 3	
Tested on: Test distance 3 metres Horizontal Polarization	
Date of test: 02/20/2001 / Operator: K. Roidt	
Test performed: automatically / File name:	
Detector: Peak	List of values: Selected by hand



Result: Prescan	Project file: 50305-10050 Page of Pages

Radiated Emission Test 300 MHz - 1 GHz
according to FCC Part 15 Subpart B Class B

Model: M-3000	Mode: tested in full system
Serial no.: --	
Applicant: Cherry GmbH	
Test site: Semi anechoic room, cabin no. 3	
Tested on: Test distance 3 metres Vertical Polarization	
Date of test: 02/20/2001 / Operator: K. Roidt	
Test performed: automatically / File name:	
Detector: Peak	List of values: Selected by hand

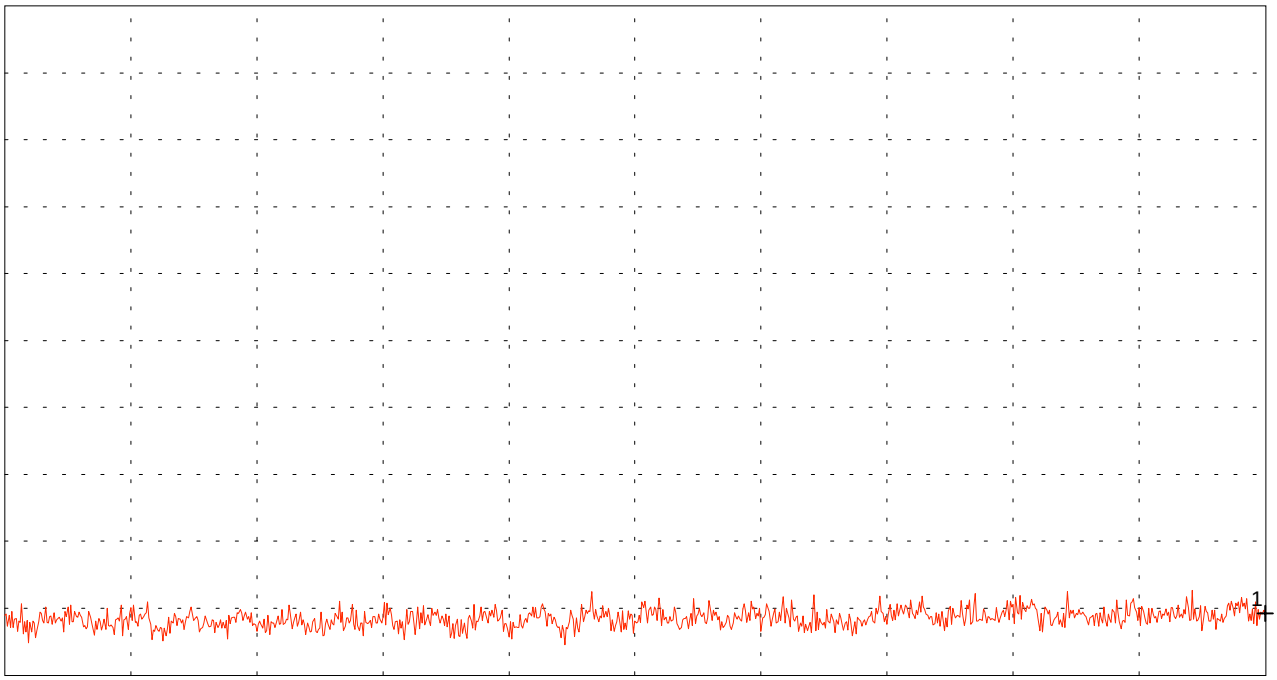


Result: Prescan	Project file: 50305-10050 Page of Pages

Spurious emissions measurement according to FCC 15.249

Model: M-3000 Wireless Mouse	Mode: - Radiated Measurement - Horizontal Polarisation - Lowest Channel selected
Serial No.: ---	
Applicant: Cherry GmbH	

Ref.Level 55 dBµV ATT 0 dB Ref. Offset -30.5 dB
5 dB/Div.



Start 1.000 GHz Stop 2.400 GHz
RBW 1 MHz VBW 1 MHz SWP 20 ms

Multi Marker List

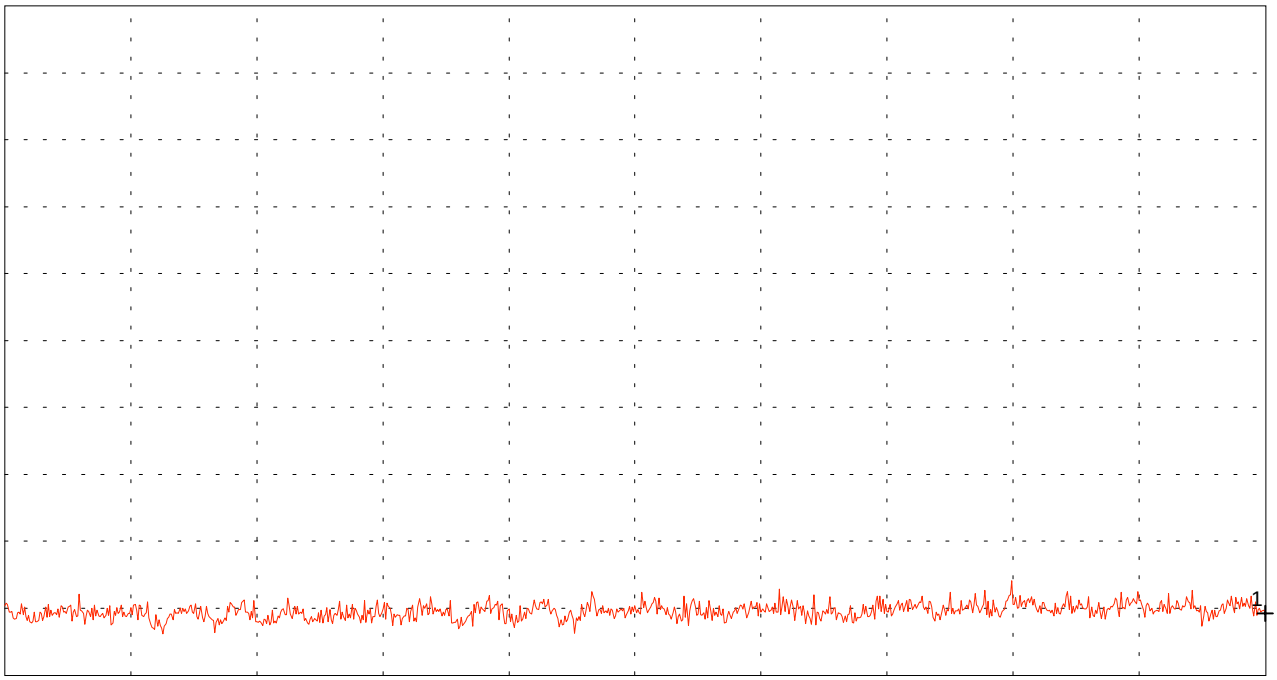
No. 1 2.400000 GHz 9.60 dBµV

Tested by: Johann Roidt	Project-No.: 50305-10056
Date: January 30, 2000	Page of pages

Spurious emissions measurement according to FCC 15.249

Model: M-3000 Wireless Mouse	Mode: - Radiated Measurement - Vertical Polarisation - Lowest Channel selected
Serial No.: ---	
Applicant: Cherry GmbH	

Ref.Level 55 dBµV ATT 0 dB Ref. Offset -30.5 dB
5 dB/Div.



Start 1.000 GHz Stop 2.400 GHz
RBW 1 MHz VBW 1 MHz SWP 20 ms

Multi Marker List

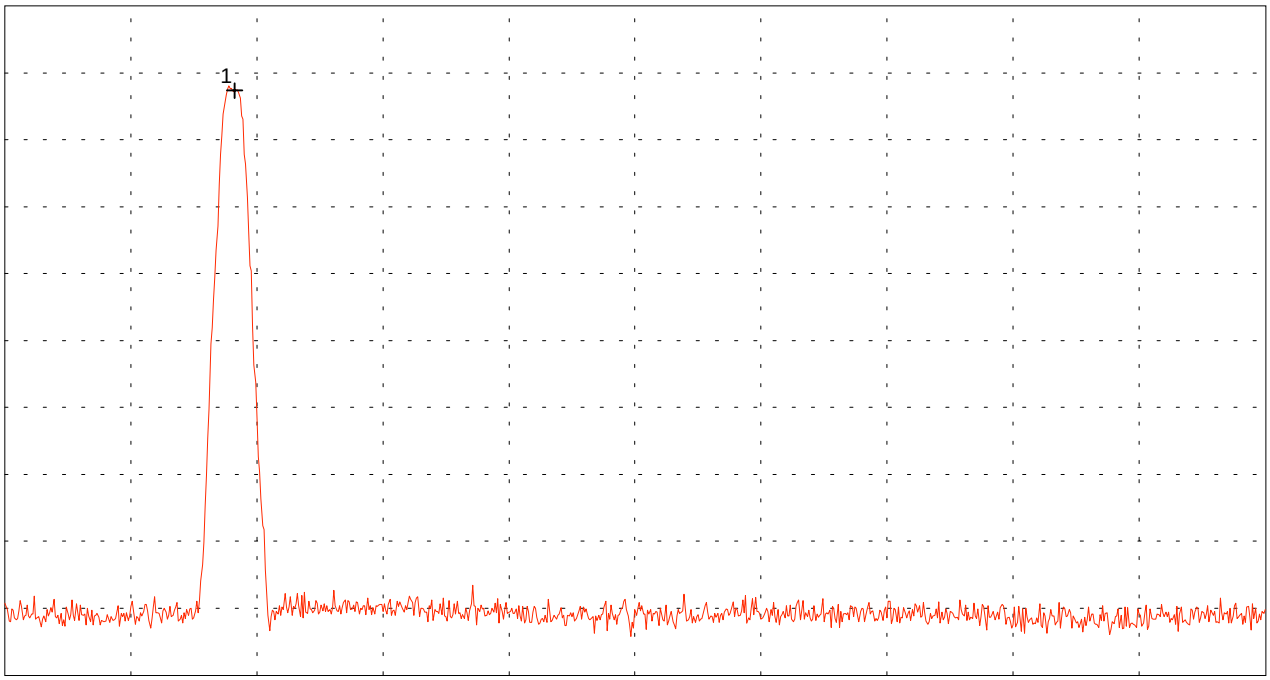
No. 1 2.400000 GHz 9.60 dBµV

Tested by: Johann Roidt	Project-No.: 50305-10056
Date: January 30, 2000	Page of pages

Spurious emissions measurement according to FCC 15.249

Model: M-3000 Wireless Mouse	Mode: - Radiated Measurement - Horizontal Polarisation - Lowest Channel selected
Serial No.: ---	
Applicant: Cherry GmbH	

Ref.Level 55 dBµV ATT 0 dB Ref. Offset -30.5 dB
5 dB/Div.



Start 2.380 GHz Stop 2.520 GHz
RBW 1 MHz VBW 1 MHz SWP 20 ms

Multi Marker List

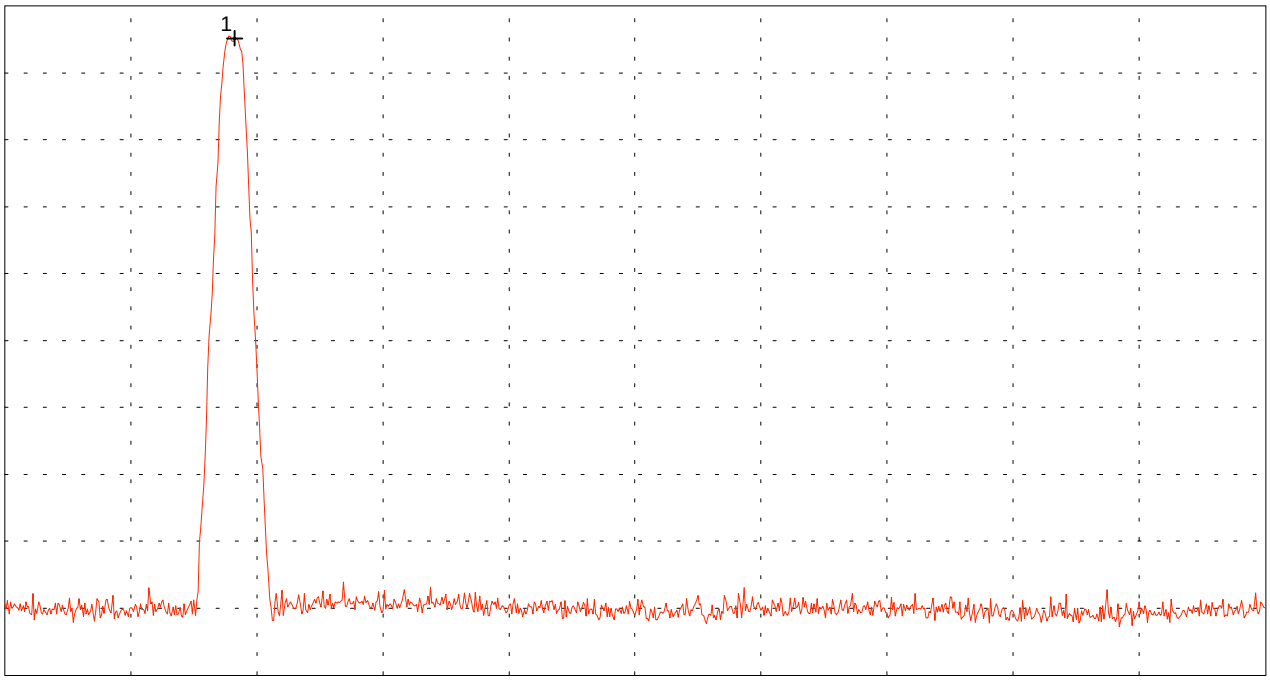
No. 1 2.405511 GHz 48.68 dBµV

Tested by: Johann Roidt	Project-No.: 50305-10056
Date: January 30, 2000	Page of pages

Spurious emissions measurement according to FCC 15.249

Model: M-3000 Wireless Mouse	Mode: - Radiated Measurement - Vertical Polarisation - Lowest Channel selected
Serial No.: ---	
Applicant: Cherry GmbH	

Ref.Level 55 dBµV ATT 0 dB Ref. Offset -30.5 dB
5 dB/Div.



Start 2.380 GHz Stop 2.520 GHz
RBW 1 MHz VBW 1 MHz SWP 20 ms

Multi Marker List

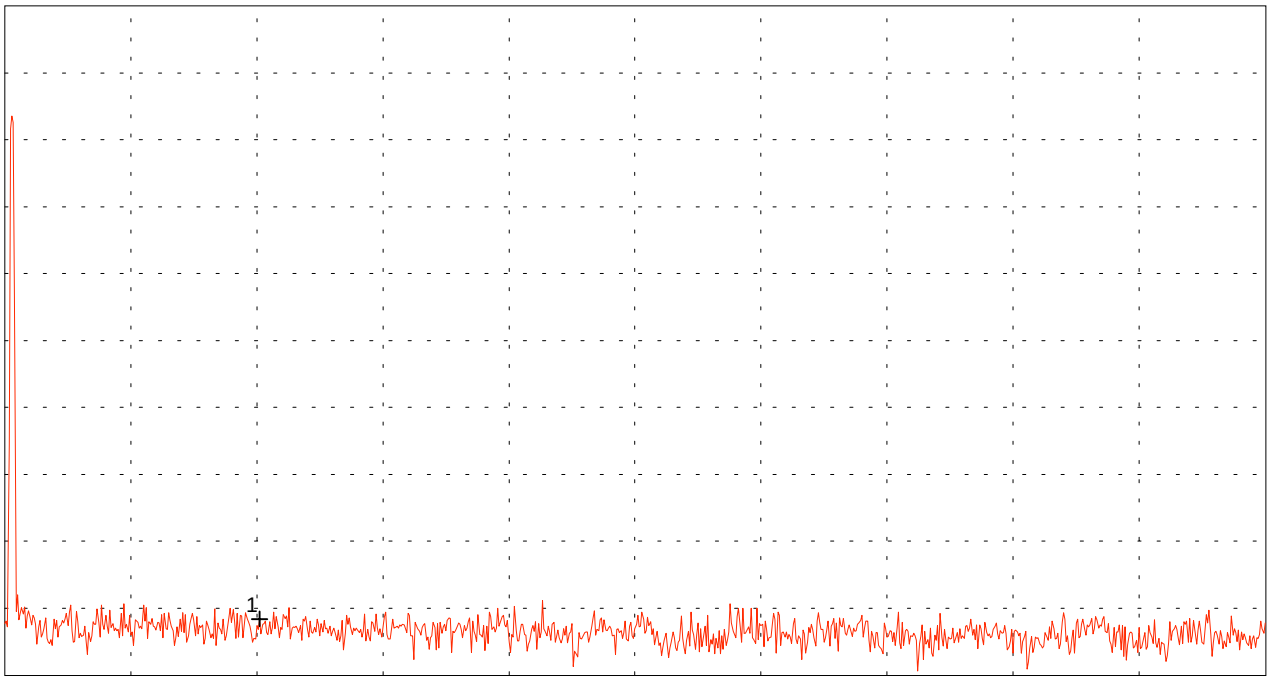
No. 1	2.405511 GHz	52.58 dBµV

Tested by: Johann Roidt	Project-No.: 50305-10056
Date: January 30, 2000	Page of pages

Spurious emissions measurement according to FCC 15.249

Model: M-3000 Wireless Mouse	Mode: - Radiated Measurement - Horizontal Polarisation - Lowest Channel selected
Serial No.: ---	
Applicant: Cherry GmbH	

Ref.Level 55 dBµV ATT 0 dB Ref. Offset -30.5 dB
5 dB/Div.



Start 2.400 GHz Stop 3.950 GHz
RBW 1 MHz VBW 1 MHz SWP 20 ms

Multi Marker List

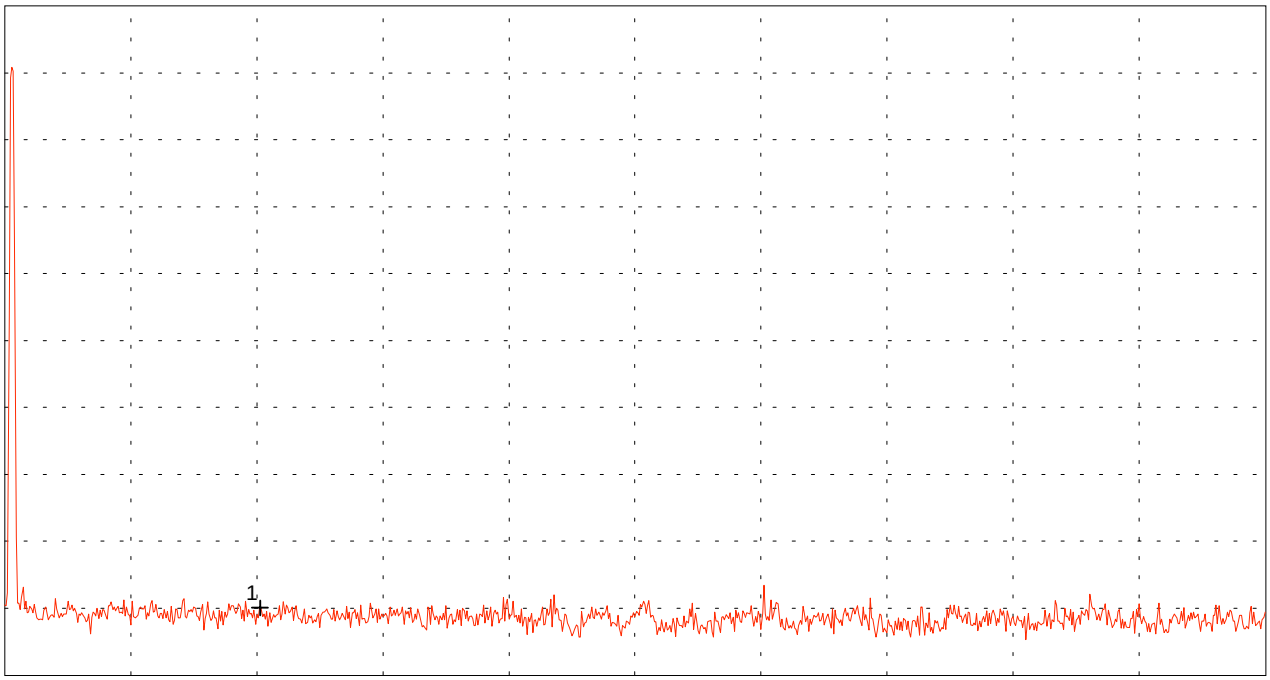
No. 1 2.713444 GHz 9.18 dBµV

Tested by: Johann Roidt	Project-No.: 50305-10056
Date: January 30, 2000	Page of pages

Spurious emissions measurement according to FCC 15.249

Model: M-3000 Wireless Mouse	Mode: - Radiated Measurement - Vertical Polarisation - Lowest Channel selected
Serial No.: ---	
Applicant: Cherry GmbH	

Ref.Level 55 dBµV ATT 0 dB Ref. Offset -30.5 dB
5 dB/Div.



Start 2.400 GHz Stop 3.950 GHz
RBW 1 MHz VBW 1 MHz SWP 20 ms

Multi Marker List

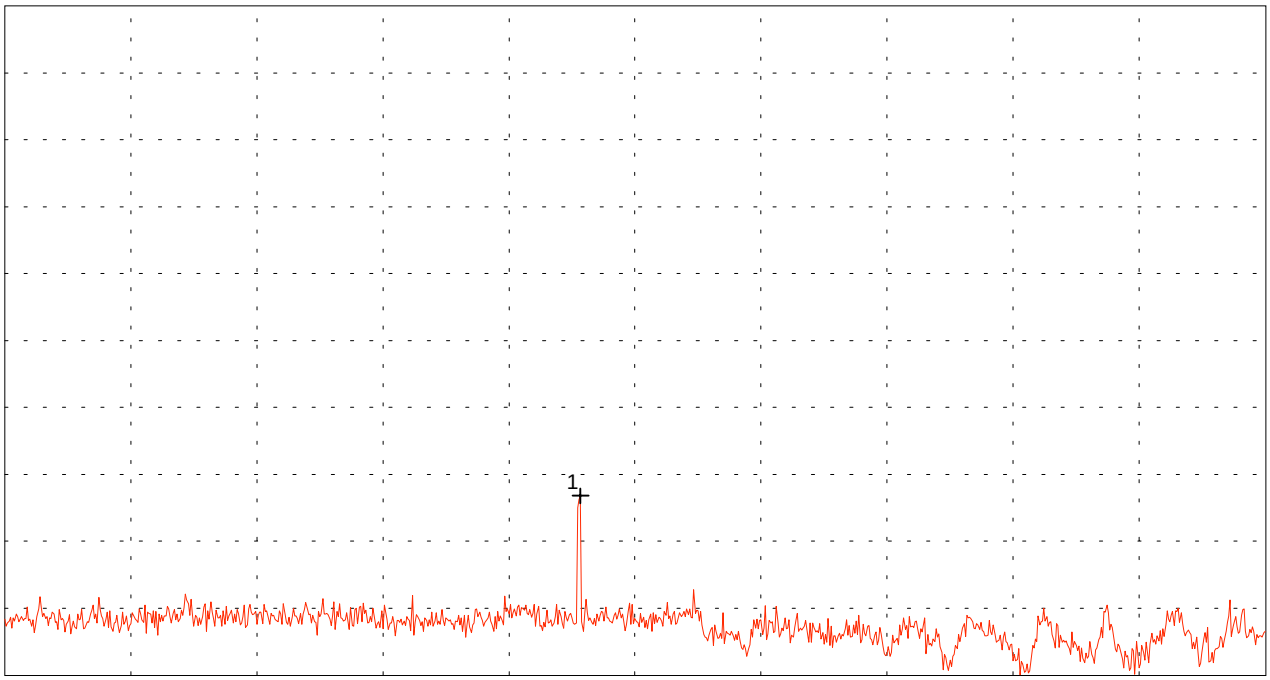
No. 1 2.713789 GHz 10.02 dBµV

Tested by: Johann Roidt	Project-No.: 50305-10056
Date: January 30, 2000	Page of pages

Spurious emissions measurement according to FCC 15.249

Model: M-3000 Wireless Mouse	Mode: - Radiated Measurement - Horizontal Polarisation - Lowest Channel selected
Serial No.: ---	
Applicant: Cherry GmbH	

Ref.Level 55 dBµV ATT 0 dB Ref. Offset -30.5 dB
5 dB/Div.



Start 3.950 GHz Stop 5.850 GHz
RBW 1 MHz VBW 1 MHz SWP 20 ms

Multi Marker List

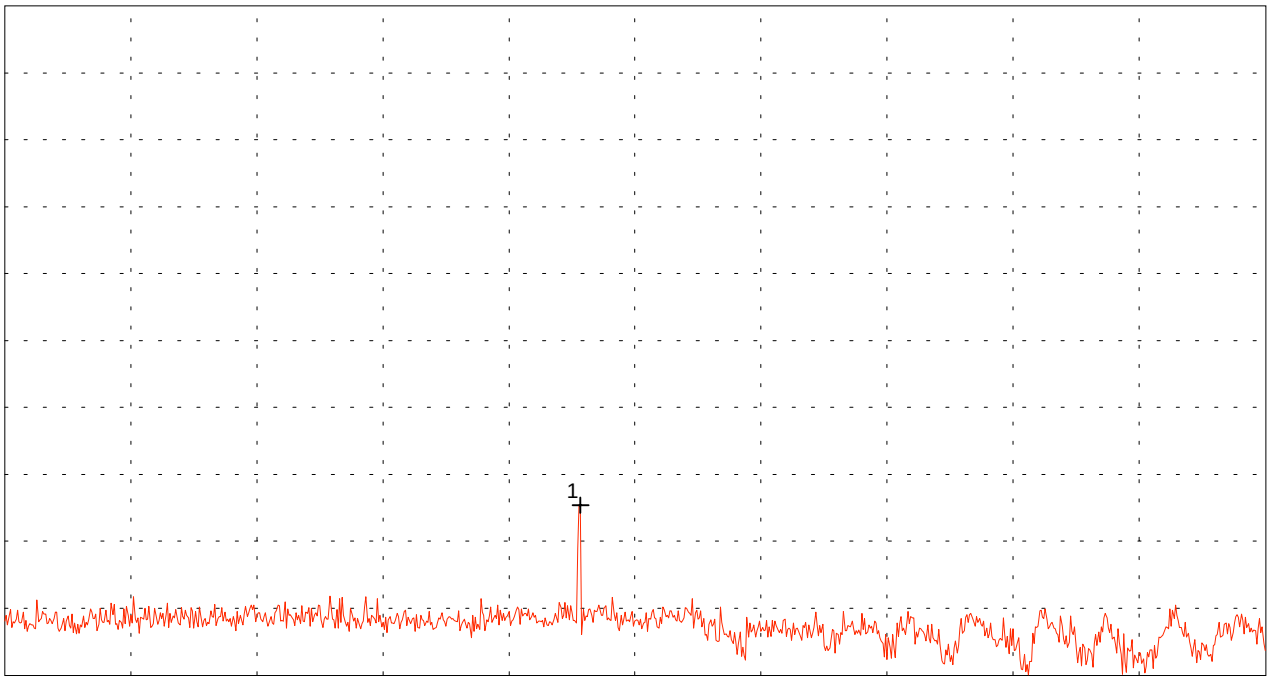
No. 1 4.817667 GHz 18.39 dBµV

Tested by: Johann Roidt	Project-No.: 50305-10056
Date: January 30, 2000	Page of pages

Spurious emissions measurement according to FCC 15.249

Model: M-3000 Wireless Mouse	Mode: - Radiated Measurement - Vertical Polarisation - Lowest Channel selected
Serial No.: ---	
Applicant: Cherry GmbH	

Ref.Level 55 dBµV ATT 0 dB Ref. Offset -30.5 dB
5 dB/Div.



Start 3.950 GHz Stop 5.850 GHz
RBW 1 MHz VBW 1 MHz SWP 20 ms

Multi Marker List

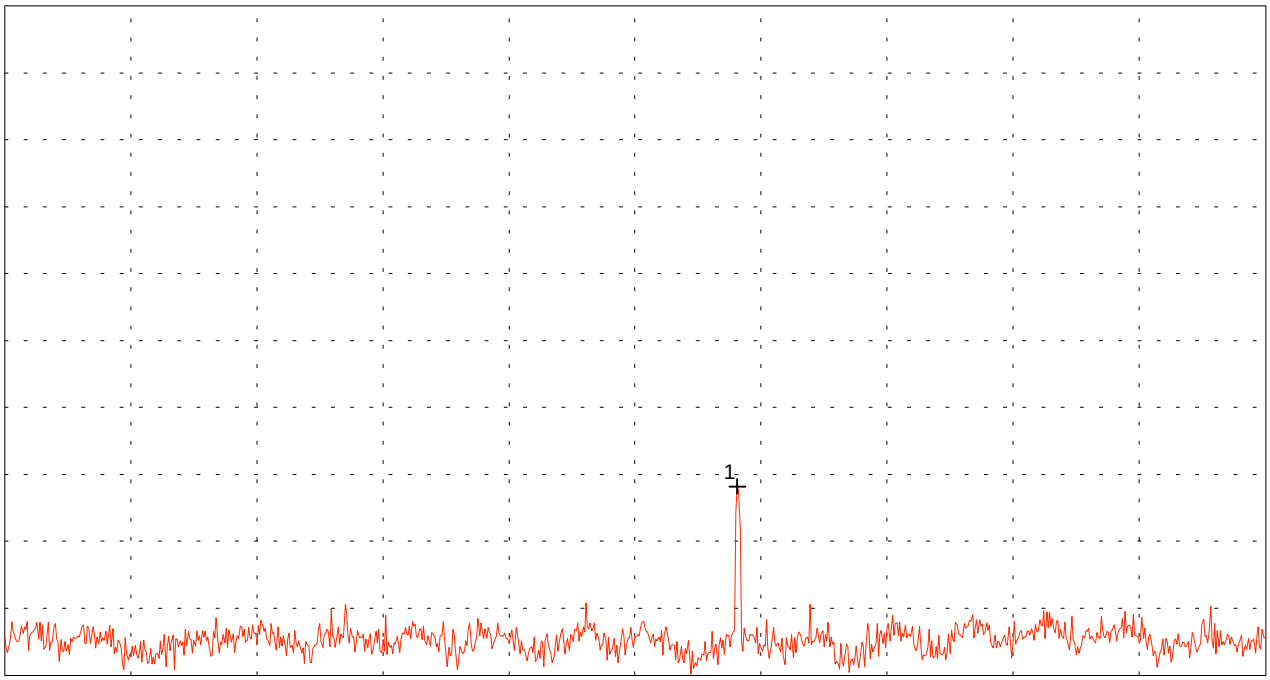
No. 1 4.817667 GHz 17.69 dBµV

Tested by: Johann Roidt	Project-No.: 50305-10056
Date: January 30, 2000	Page of pages

Spurious emissions measurement according to FCC 15.249

Model: M-3000 Wireless Mouse	Mode: - Radiated Measurement - Horizontal Polarisation - Lowest Channel selected
Serial No.: ---	
Applicant: Cherry GmbH	

Ref.Level 55 dBµV ATT 0 dB Ref. Offset -30.5 dB
5 dB/Div.



Start 5.850 GHz Stop 8.200 GHz
RBW 1 MHz VBW 1 MHz SWP 20 ms

Multi Marker List

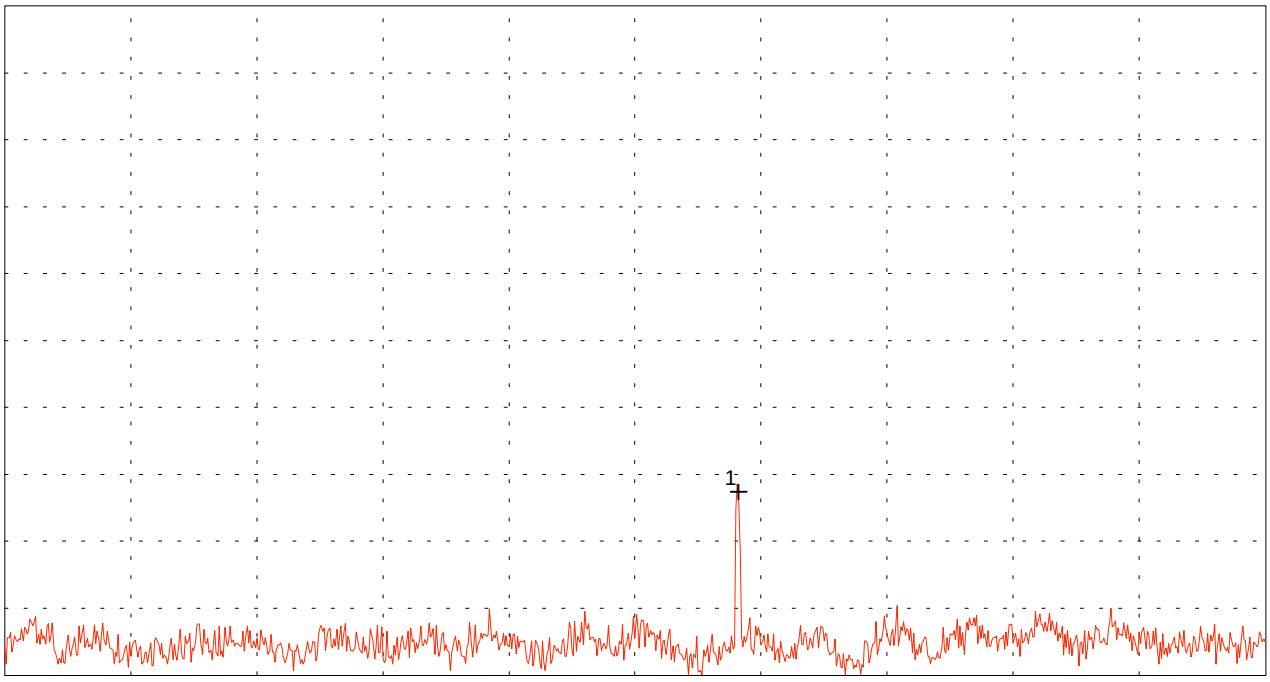
No. 1 7.215611 GHz 19.10 dBµV

Tested by: Johann Roidt	Project-No.: 50305-10056
Date: January 30, 2000	Page of pages

Spurious emissions measurement according to FCC 15.249

Model: M-3000 Wireless Mouse	Mode: - Radiated Measurement - Horizontal Polarisation - Lowest Channel selected
Serial No.: ---	
Applicant: Cherry GmbH	

Ref.Level 55 dBµV ATT 0 dB Ref. Offset -30.5 dB
5 dB/Div.



Start 5.850 GHz Stop 8.200 GHz
RBW 1 MHz VBW 1 MHz SWP 20 ms

Multi Marker List

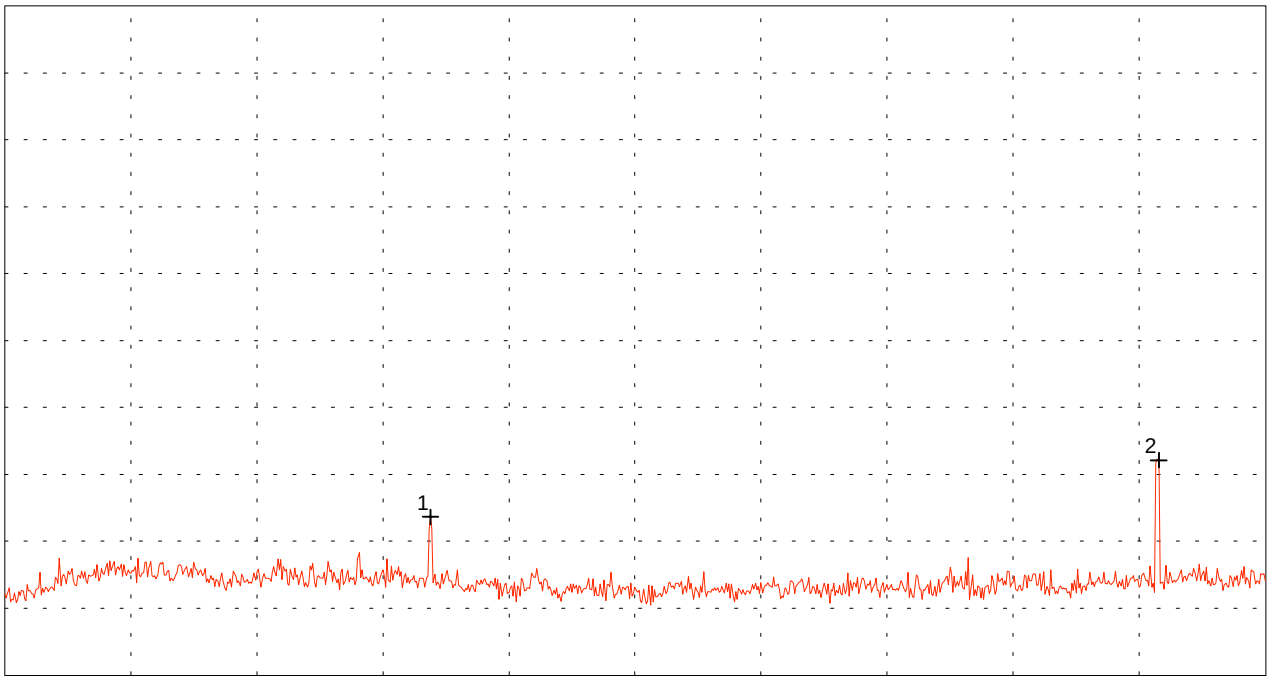
No. 1 7.218222 GHz 18.68 dBµV

Tested by: Johann Roidt	Project-No.: 50305-10056
Date: January 30, 2000	Page of pages

Spurious emissions measurement according to FCC 15.249

Model: M-3000 Wireless Mouse	Mode: - Radiated Measurement - Horizontal Polarisation - Lowest Channel selected
Serial No.: ---	
Applicant: Cherry GmbH	

Ref.Level 50.5 dBµV ATT 0 dB Ref. Offset -35 dB
5 dB/Div.



Start 8.200 GHz Stop 12.400 GHz
RBW 1 MHz VBW 1 MHz SWP 20 ms

Multi Marker List

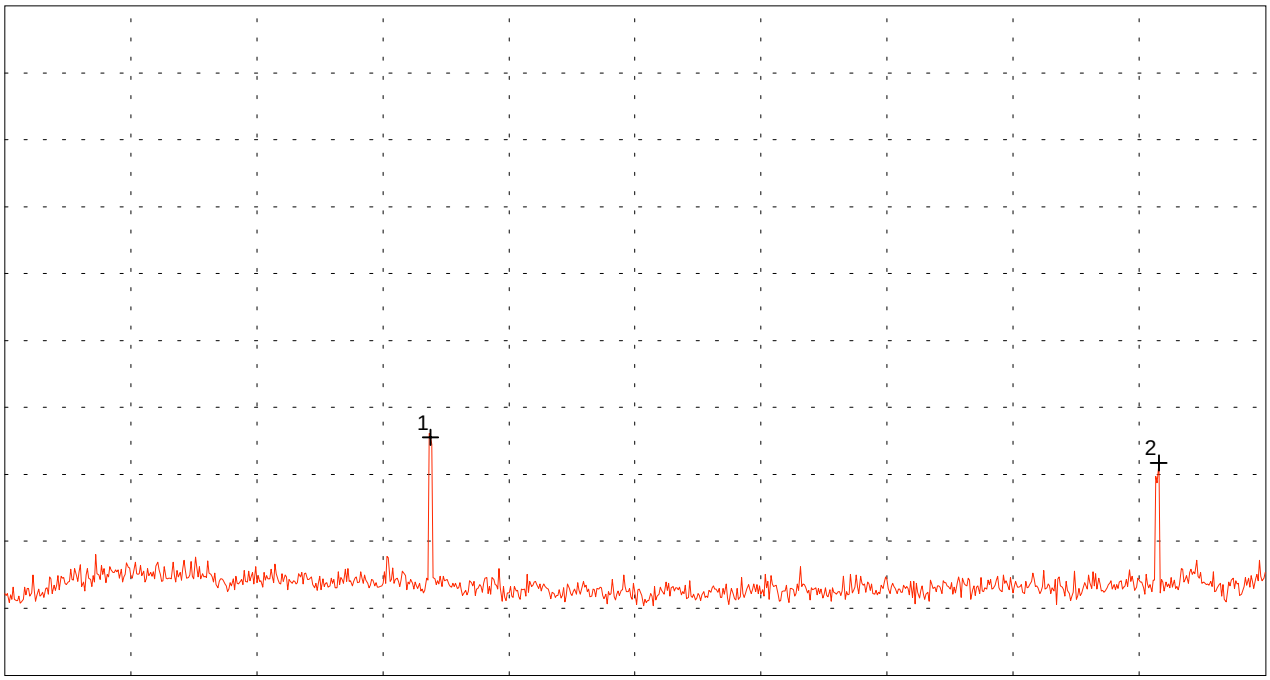
No. 1	9.618667 GHz	12.30 dBµV
No. 2	12.045333 GHz	16.55 dBµV

Tested by: Johann Roidt	Project-No.: 50305-10056
Date: January 30, 2000	Page of pages

Spurious emissions measurement according to FCC 15.249

Model: M-3000 Wireless Mouse	Mode: - Radiated Measurement - Vertical Polarisation - Lowest Channel selected
Serial No.: ---	
Applicant: Cherry GmbH	

Ref.Level 50.5 dBµV ATT 0 dB Ref. Offset -35 dB
5 dB/Div.



Start 8.200 GHz Stop 12.400 GHz
RBW 1 MHz VBW 1 MHz SWP 20 ms

Multi Marker List

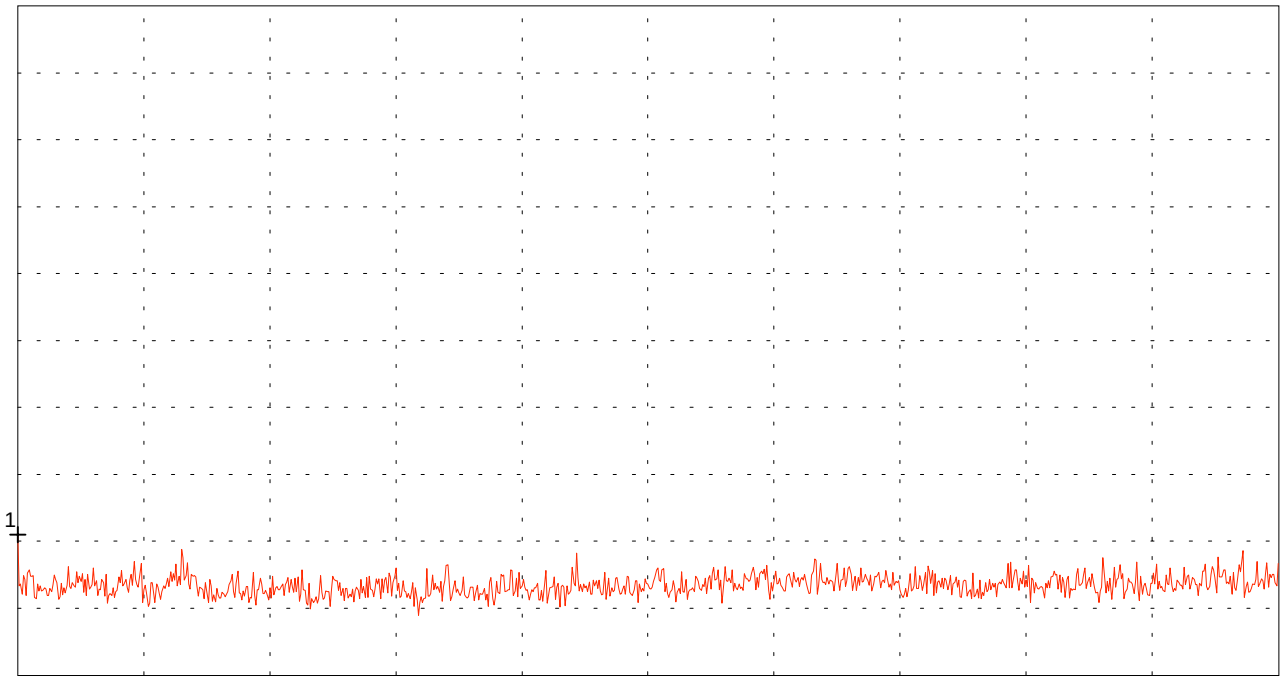
No. 1	9.618667 GHz	18.26 dBµV
No. 2	12.045333 GHz	16.34 dBµV

Tested by: Johann Roidt	Project-No.: 50305-10056
Date: January 30, 2000	Page of pages

Spurious emissions measurement according to FCC 15.249

Model: M-3000 Wireless Mouse	Mode: - Radiated Measurement - Horizontal Polarisation - Lowest Channel selected
Serial No.: ---	
Applicant: Cherry GmbH	

Ref.Level 50.5 dBµV ATT 0 dB Ref. Offset -35 dB
5 dB/Div.



Start 12.400 GHz Stop 18.000 GHz
RBW 1 MHz VBW 1 MHz SWP 40 ms

Multi Marker List

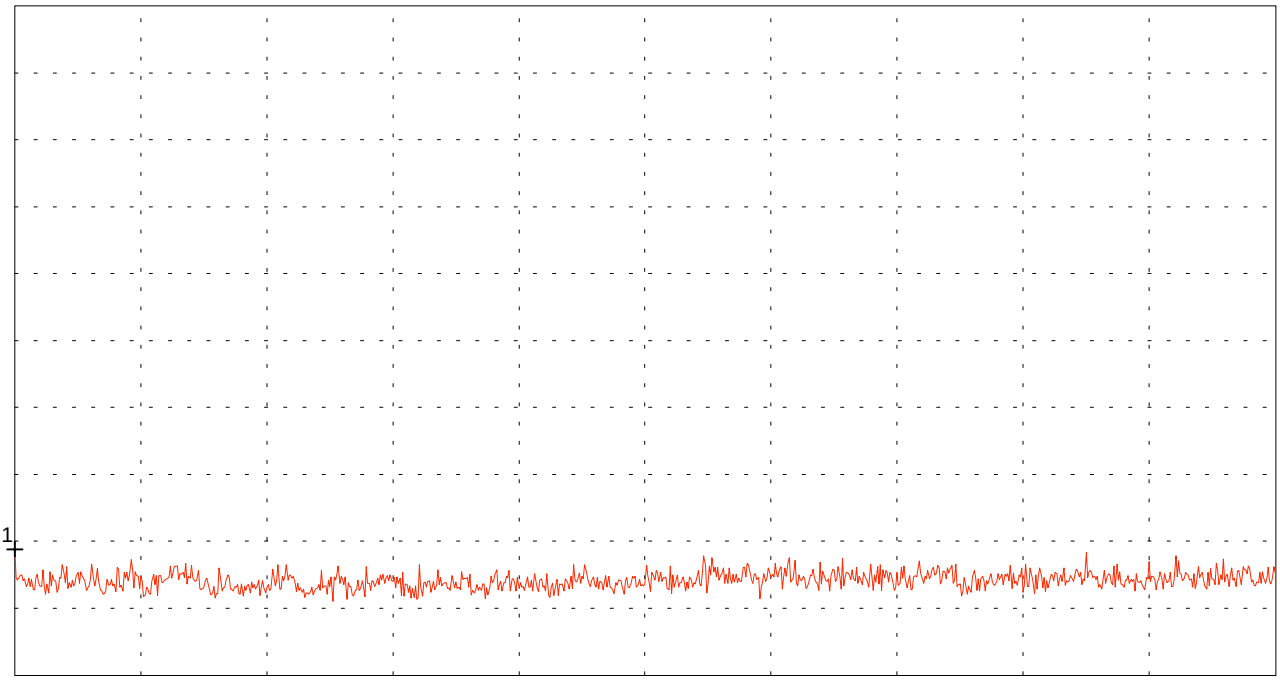
No. 1 12.400000 GHz 10.99 dBµV

Tested by: Johann Roidt	Project-No.: 50305-10056
Date: January 30, 2000	Page of pages

Spurious emissions measurement according to FCC 15.249

Model: M-3000 Wireless Mouse	Mode: - Radiated Measurement - Vertical Polarisation - Lowest Channel selected
Serial No.: ---	
Applicant: Cherry GmbH	

Ref.Level 50.5 dBµV ATT 0 dB Ref. Offset -35 dB
5 dB/Div.



Start 12.400 GHz Stop 18.000 GHz
RBW 1 MHz VBW 1 MHz SWP 40 ms

Multi Marker List

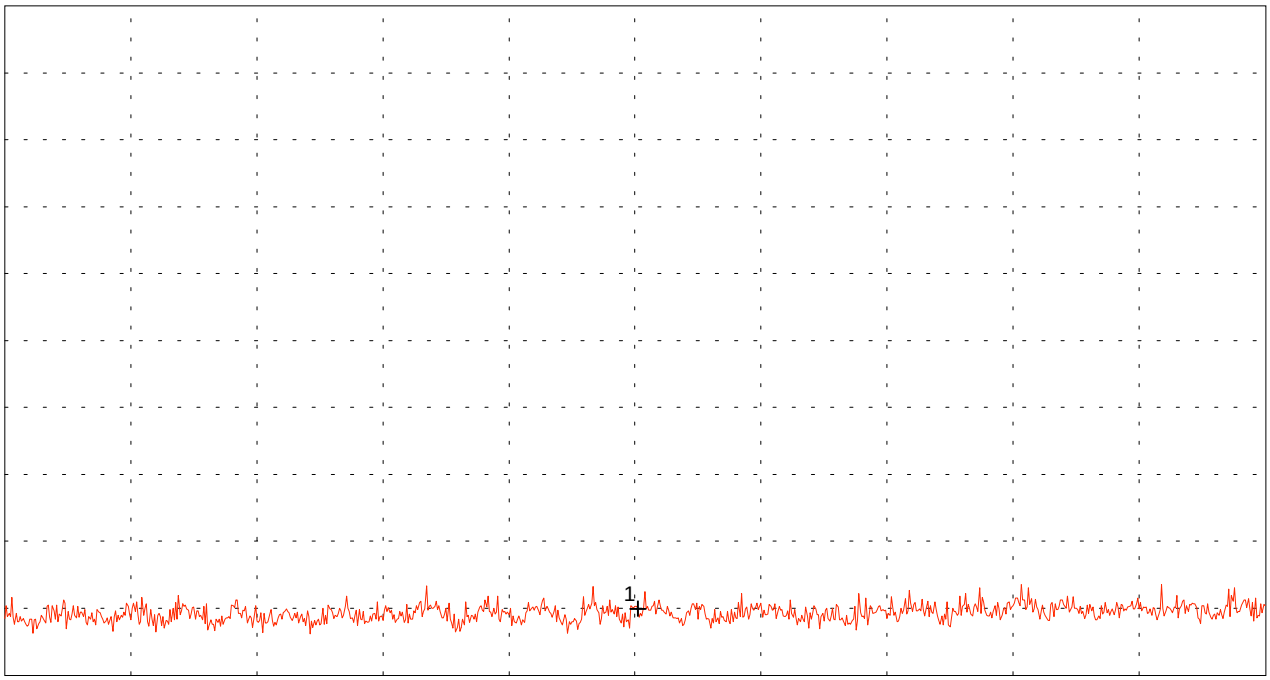
No. 1 12.400000 GHz 9.90 dBµV

Tested by: Johann Roidt	Project-No.: 50305-10056
Date: January 30, 2000	Page of pages

Spurious emissions measurement according to FCC 15.249

Modell: M-3000 Wireless Mouse	Kommentar: - Radiated Measurement - Horizontal Polarisation - Highest Channel selected
Geräte-Nummer: ---	
Auftraggeber: Cherry GmbH	

Ref.Level 55 dBµV ATT 0 dB Ref. Offset -30.5 dB
5 dB/Div.



Start 1.000 GHz Stop 2.400 GHz
RBW 1 MHz VBW 1 MHz SWP 20 ms

Multi-Marker-Liste

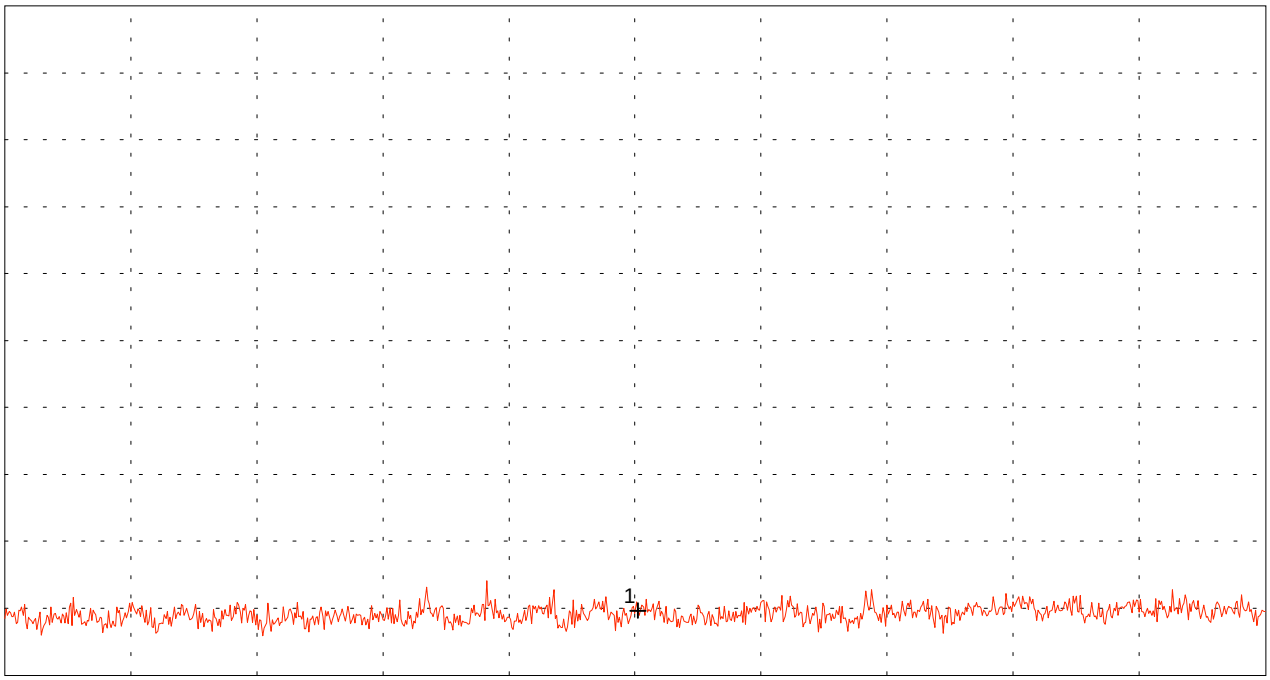
Nr. 1 1.703111 GHz 9.96 dBµV

Prüfer: Johann Roidt	Projekt-Nr.: 50305-10056
Datum: January 30, 2000	Seite von Seiten

Spurious emissions measurement according to FCC 15.249

Modell: M-3000 Wireless Mouse	Kommentar: - Radiated Measurement - Vertical Polarisation - Highest Channel selected
Geräte-Nummer: ---	
Auftraggeber: Cherry GmbH	

Ref.Level 55 dBµV ATT 0 dB Ref. Offset -30.5 dB
5 dB/Div.



Start 1.000 GHz Stop 2.400 GHz
RBW 1 MHz VBW 1 MHz SWP 20 ms

Multi-Marker-Liste

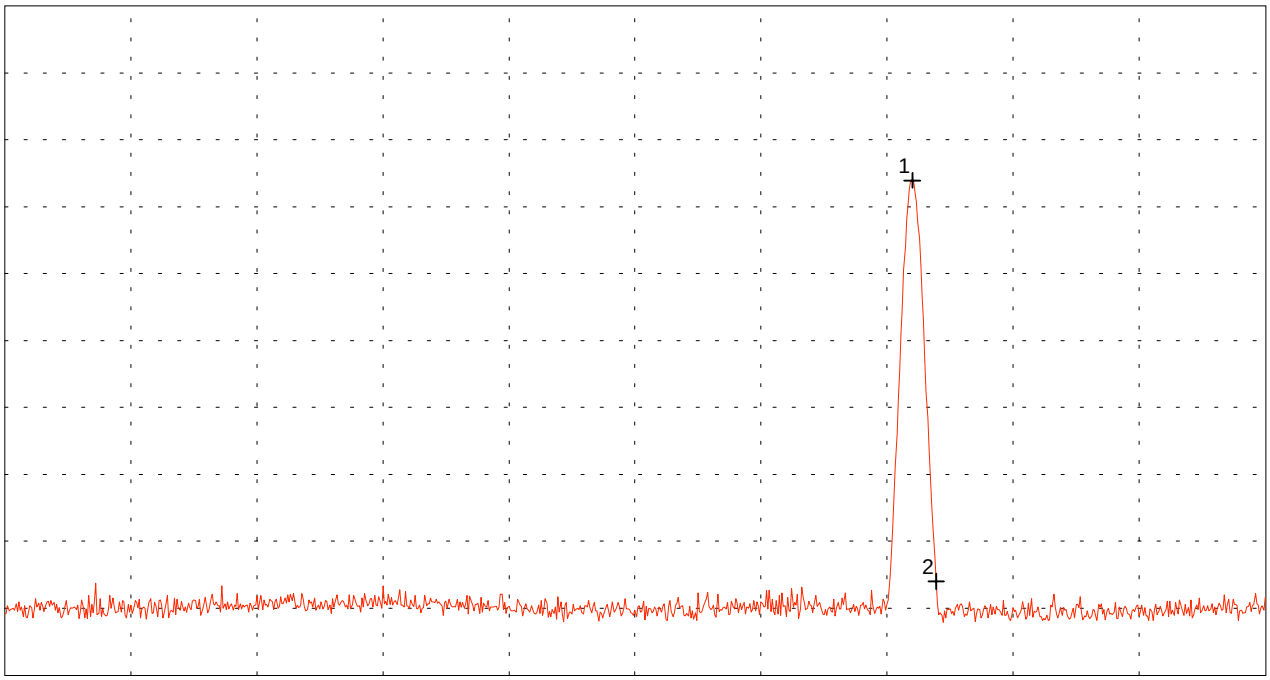
Nr.		
1	1.703111 GHz	9.80 dBµV

Prüfer: Johann Roidt	Projekt-Nr.: 50305-10056
Datum: January 30, 2000	Seite von Seiten

Spurious emissions measurement according to FCC 15.249

Modell: M-3000 Wireless Mouse	Kommentar: - Radiated Measurement - Horizontal Polarisation - Highest Channel selected
Geräte-Nummer: ---	
Auftraggeber: Cherry GmbH	

Ref.Level 55 dBµV ATT 0 dB Ref. Offset -30.5 dB
5 dB/Div.



Start 2.380 GHz Stop 2.520 GHz
RBW 1 MHz VBW 1 MHz SWP 20 ms

Multi-Marker-Liste

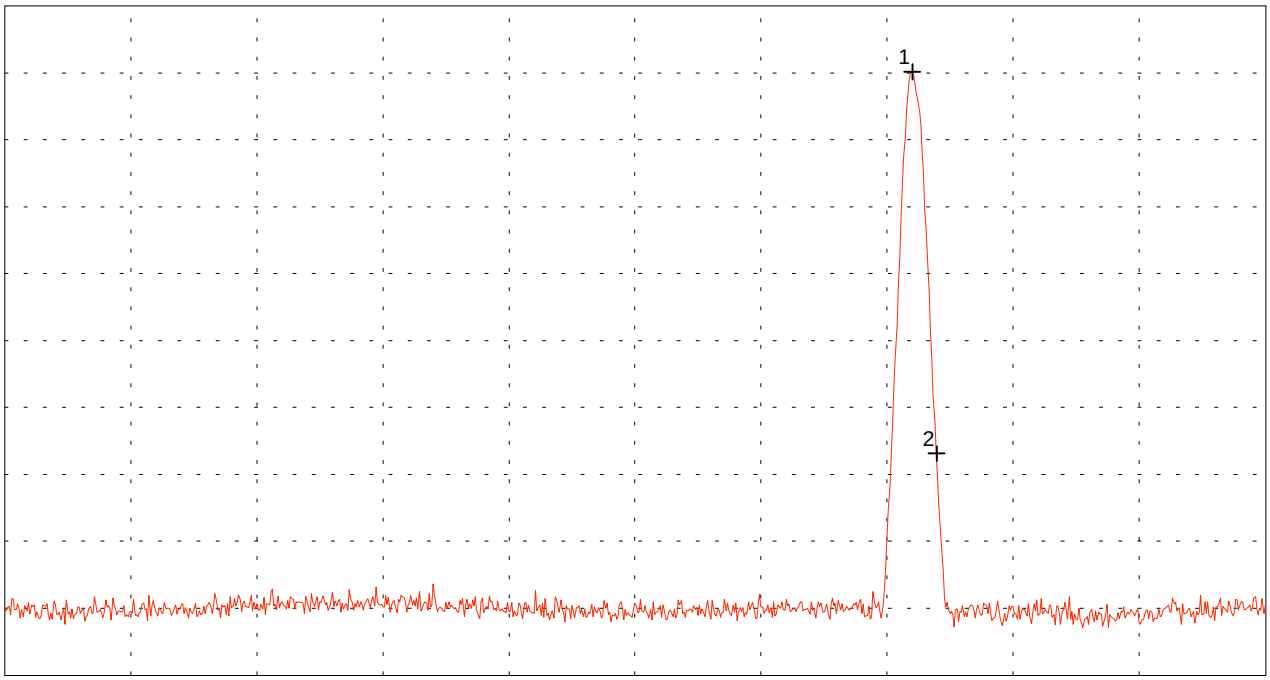
Nr. 1	2.480800 GHz	41.97 dBµV
Nr. 2	2.483444 GHz	11.99 dBµV

Prüfer: Johann Roidt	Projekt-Nr.: 50305-10056
Datum: January 30, 2000	Seite von Seiten

Spurious emissions measurement according to FCC 15.249

Modell: M-3000 Wireless Mouse	Kommentar: - Radiated Measurement - Vertical Polarisation - Highest Channel selected
Geräte-Nummer: ---	
Auftraggeber: Cherry GmbH	

Ref.Level 55 dBµV ATT 0 dB Ref. Offset -30.5 dB
5 dB/Div.



Start 2.380 GHz Stop 2.520 GHz
RBW 1 MHz VBW 1 MHz SWP 20 ms

Multi-Marker-Liste

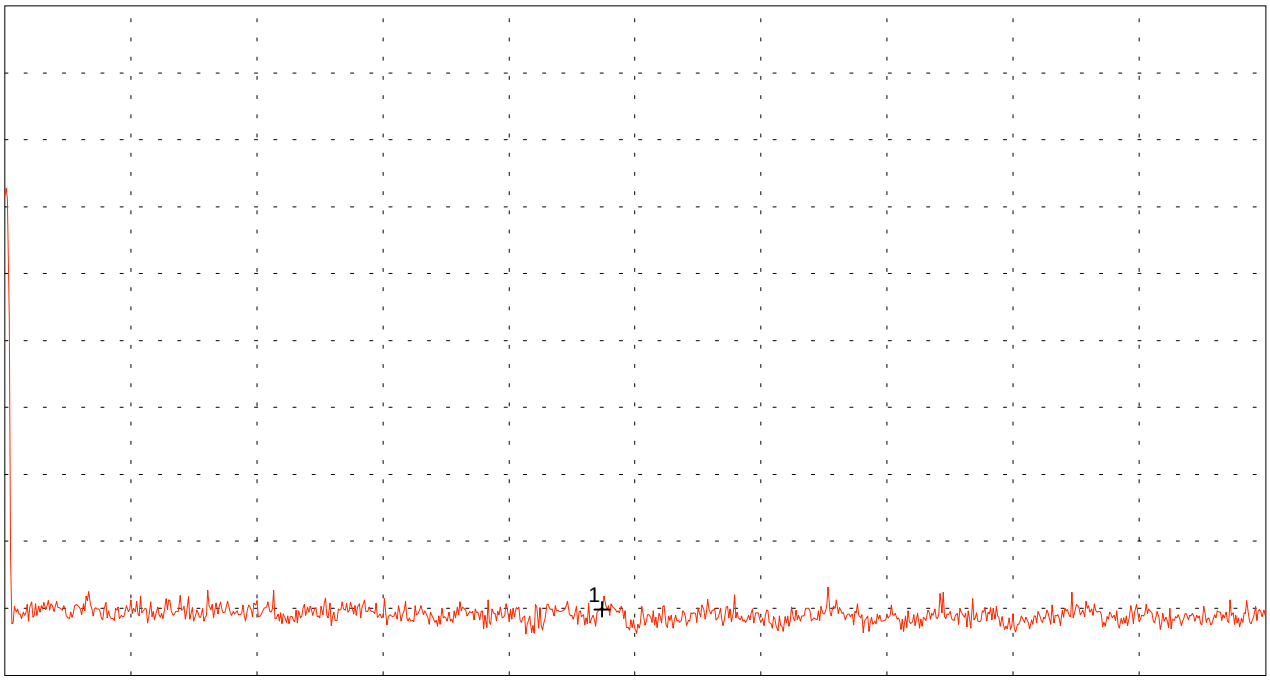
Nr. 1	2.480800 GHz	50.08 dBµV
Nr. 2	2.483500 GHz	21.54 dBµV

Prüfer: Johann Roidt	Projekt-Nr.: 50305-10056
Datum: January 30, 2000	Seite von Seiten

Spurious emissions measurement according to FCC 15.249

Modell: M-3000 Wireless Mouse	Kommentar: - Radiated Measurement - Horizontal Polarisation - Highest Channel selected
Geräte-Nummer: ---	
Auftraggeber: Cherry GmbH	

Ref.Level 55 dBµV ATT 0 dB Ref. Offset -30.5 dB
5 dB/Div.



Start 2.480 GHz Stop 3.950 GHz
RBW 1 MHz VBW 1 MHz SWP 20 ms

Multi-Marker-Liste

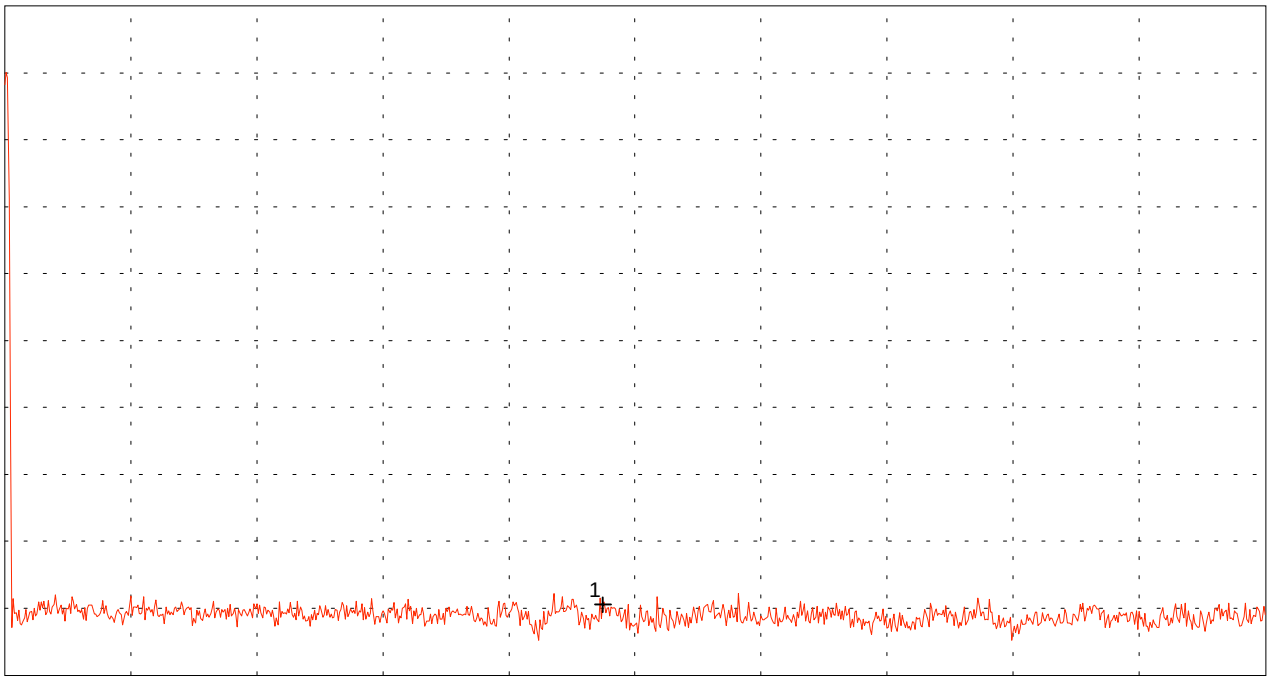
Nr. 1 3.176722 GHz 9.89 dBµV

Prüfer: Johann Roidt	Projekt-Nr.: 50305-10056
Datum: January 30, 2000	Seite von Seiten

Spurious emissions measurement according to FCC 15.249

Modell: M-3000 Wireless Mouse	Kommentar: - Radiated Measurement - Vertical Polarisation - Highest Channel selected
Geräte-Nummer: ---	
Auftraggeber: Cherry GmbH	

Ref.Level 55 dBµV ATT 0 dB Ref. Offset -30.5 dB
5 dB/Div.



Start 2.480 GHz Stop 3.950 GHz
RBW 1 MHz VBW 1 MHz SWP 20 ms

Multi-Marker-Liste

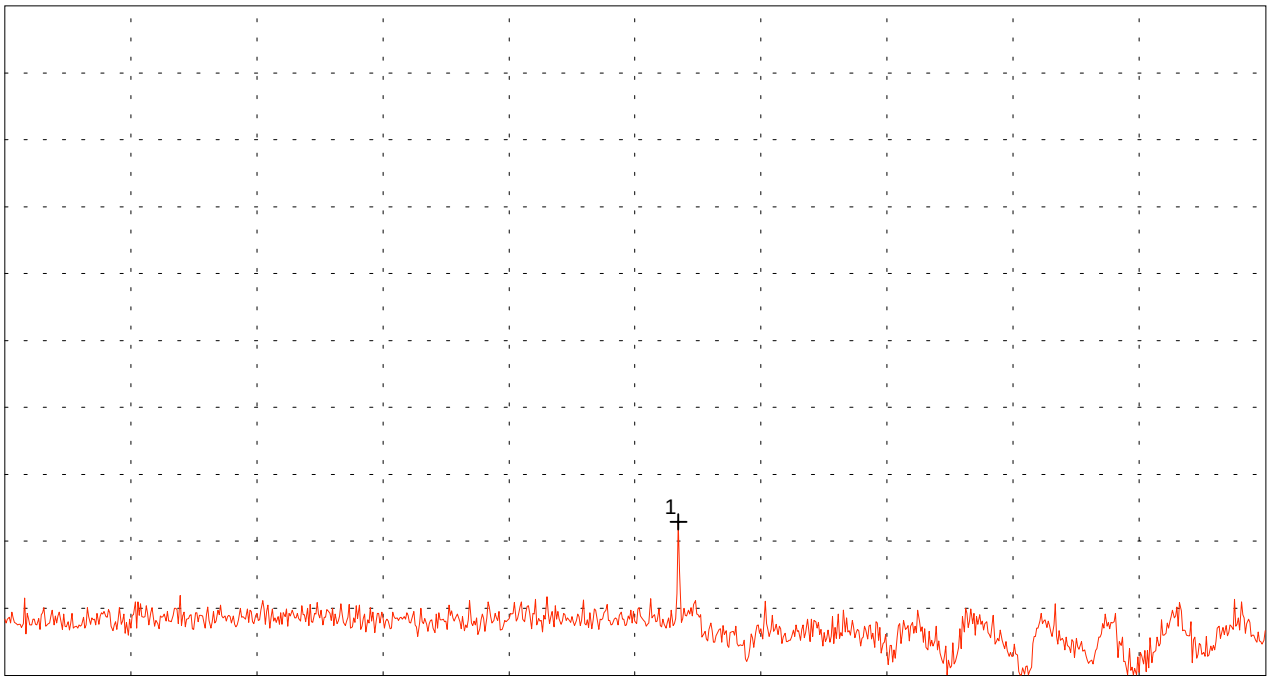
Nr. 1 3.177433 GHz 10.26 dBµV

Prüfer: Johann Roidt	Projekt-Nr.: 50305-10056
Datum: January 30, 2000	Seite von Seiten

Spurious emissions measurement according to FCC 15.249

Model: M-3000 Wireless Mouse	Mode: - Radiated Measurement - Horizontal Polarisation - Highest Channel selected
Serial No.: ---	
Applicant: Cherry GmbH	

Ref.Level 55 dBµV ATT 0 dB Ref. Offset -30.5 dB
5 dB/Div.



Start 3.950 GHz Stop 5.850 GHz
RBW 1 MHz VBW 1 MHz SWP 20 ms

Multi Marker List

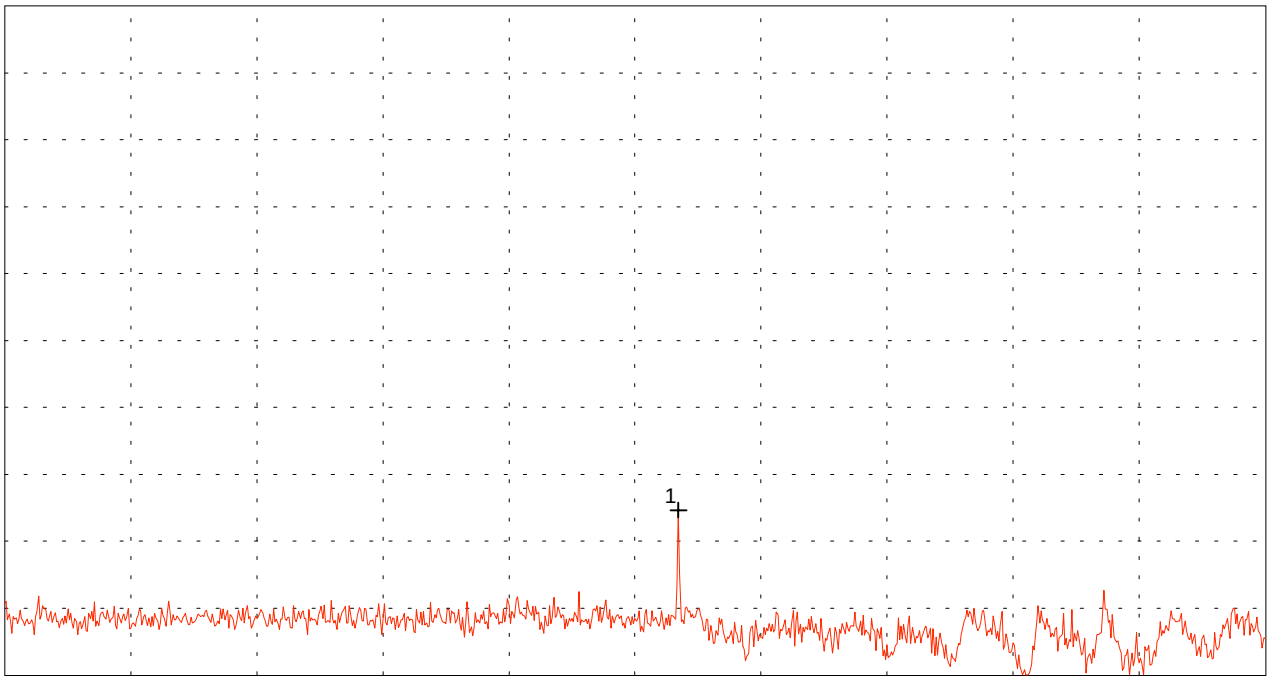
No. 1 4.965444 GHz 16.44 dBµV

Tested by: Johann Roidt	Project-No.: 50305-10056
Date: January 30, 2000	Page of pages

Spurious emissions measurement according to FCC 15.249

Modell: M-3000 Wireless Mouse	Kommentar: - Radiated Measurement - Vertical Polarisation - Highest Channel selected
Geräte-Nummer: ---	
Auftraggeber: Cherry GmbH	

Ref.Level 55 dBµV ATT 0 dB Ref. Offset -30.5 dB
5 dB/Div.



Start 3.950 GHz Stop 5.850 GHz
RBW 1 MHz VBW 1 MHz SWP 20 ms

Multi-Marker-Liste

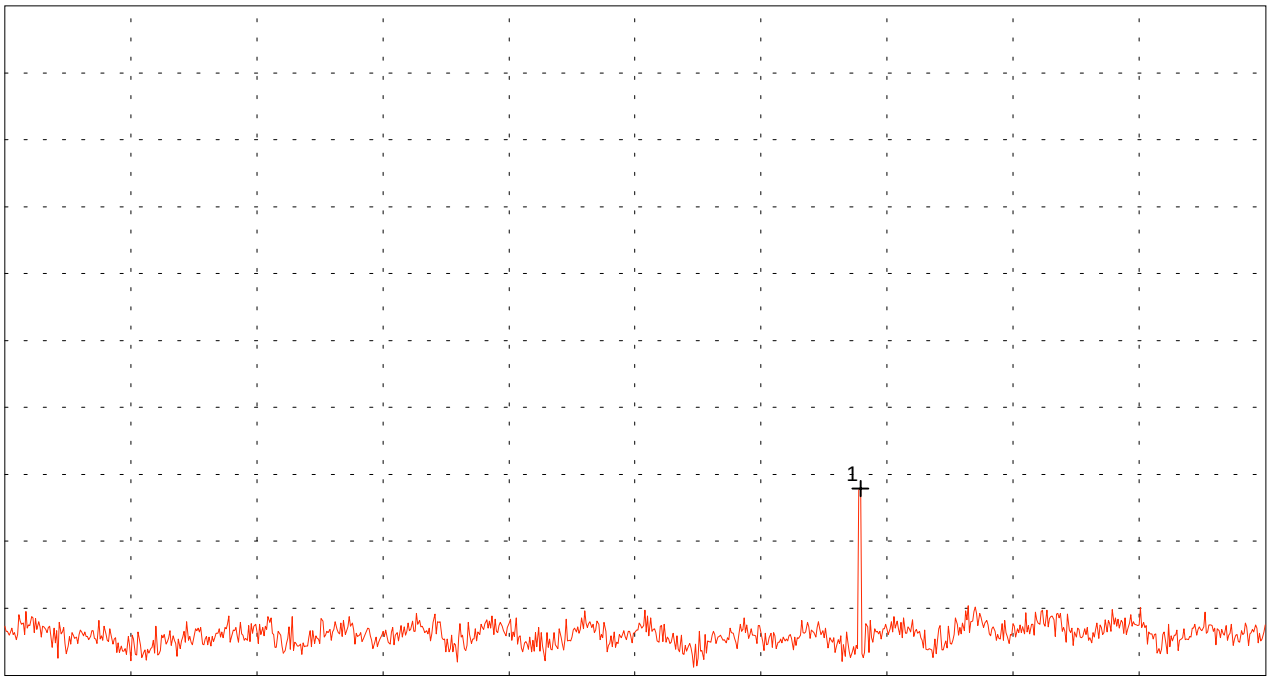
Nr.		
1	4.965444 GHz	17.31 dBµV

Prüfer: Johann Roidt	Projekt-Nr.: 50305-10056
Datum: January 30, 2000	Seite von Seiten

Spurious emissions measurement according to FCC 15.249

Model: M-3000 Wireless Mouse	Mode: - Radiated Measurement - Vertical Polarisation - Highest Channel selected
Serial No.: ---	
Applicant: Cherry GmbH	

Ref.Level 55 dBµV ATT 0 dB Ref. Offset -30.5 dB
5 dB/Div.



Start 5.850 GHz Stop 8.200 GHz
RBW 1 MHz VBW 1 MHz SWP 20 ms

Multi Marker List

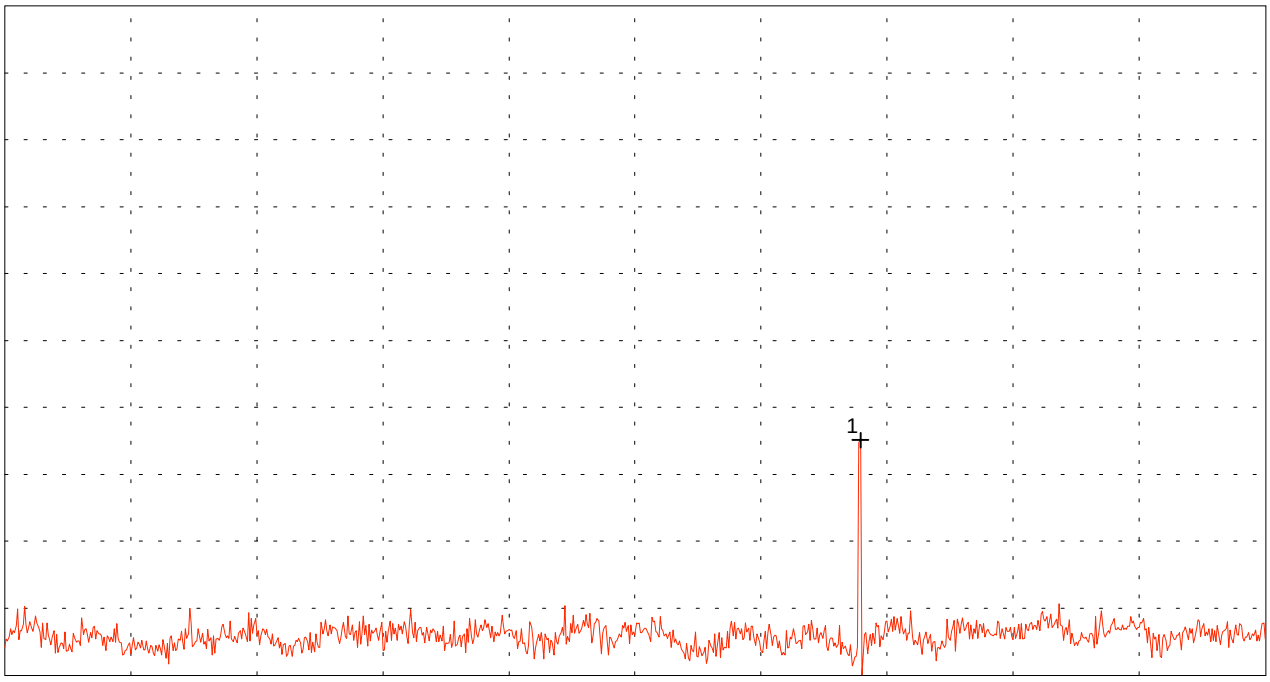
No. 1 7.445389 GHz 18.93 dBµV

Tested by: Johann Roidt	Project-No.: 50305-10056
Date: January 30, 2000	Page of pages

Spurious emissions measurement according to FCC 15.249

Model: M-3000 Wireless Mouse	Mode: - Radiated Measurement - Vertical Polarisation - Highest Channel selected
Serial No.: ---	
Applicant: Cherry GmbH	

Ref.Level 55 dBµV ATT 0 dB Ref. Offset -30.5 dB
5 dB/Div.



Start 5.850 GHz Stop 8.200 GHz
RBW 1 MHz VBW 1 MHz SWP 20 ms

Multi Marker List

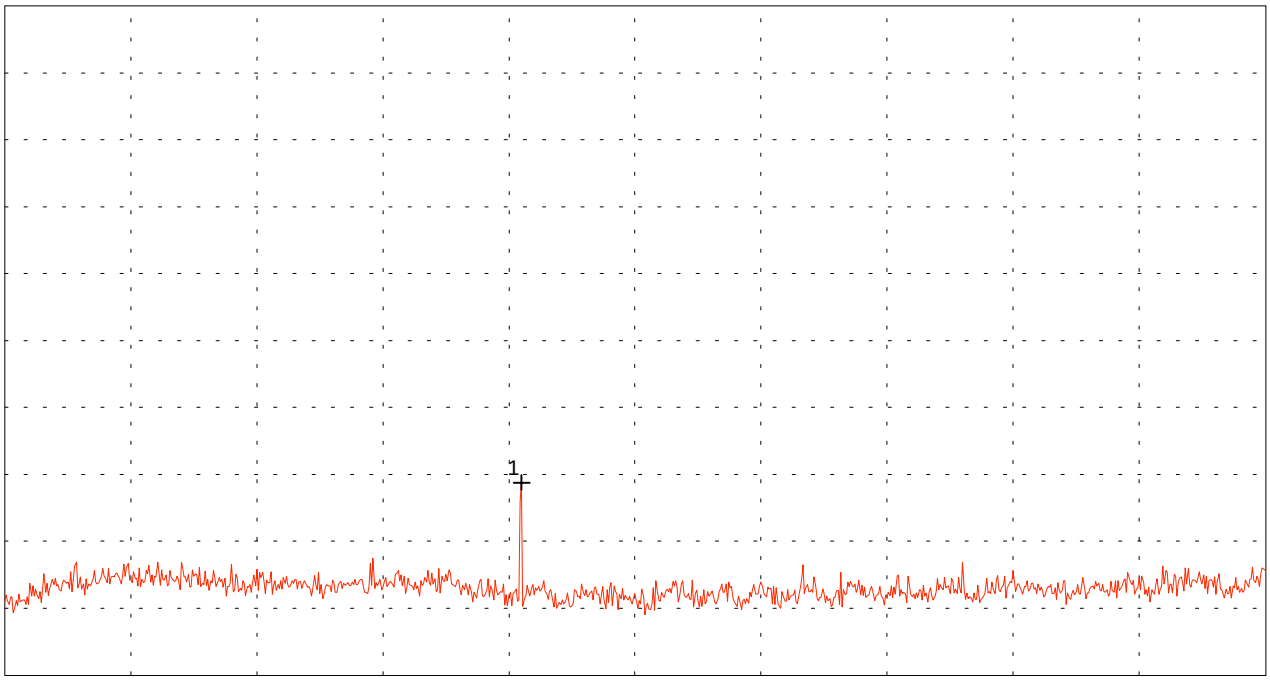
No. 1 7.445389 GHz 22.55 dBµV

Tested by: Johann Roidt	Project-No.: 50305-10056
Date: January 30, 2000	Page of pages

Spurious emissions measurement according to FCC 15.249

Model: M-3000 Wireless Mouse	Mode: - Radiated Measurement - Horizontal Polarisation - Highest Channel selected
Serial No.: ---	
Applicant: Cherry GmbH	

Ref.Level 50.5 dBµV ATT 0 dB Ref. Offset -35 dB
5 dB/Div.



Start 8.200 GHz Stop 12.400 GHz
RBW 1 MHz VBW 1 MHz SWP 20 ms

Multi Marker List

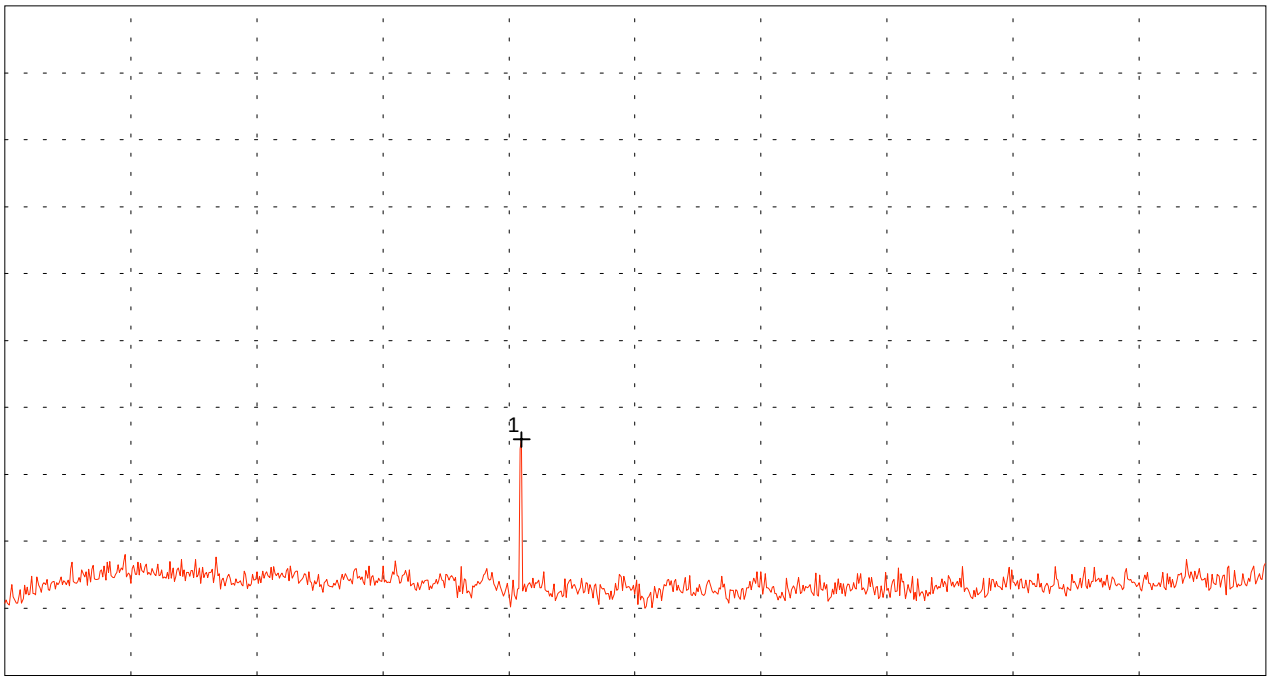
No. 1 9.922000 GHz 14.88 dBµV

Tested by: Johann Roidt	Project-No.: 50305-10056
Date: January 30, 2000	Page of pages

Spurious emissions measurement according to FCC 15.249

Model: M-3000 Wireless Mouse	Mode: - Radiated Measurement - Vertical Polarisation - Highest Channel selected
Serial No.: ---	
Applicant: Cherry GmbH	

Ref.Level 50.5 dBµV ATT 0 dB Ref. Offset -35 dB
5 dB/Div.



Start 8.200 GHz Stop 12.400 GHz
RBW 1 MHz VBW 1 MHz SWP 20 ms

Multi Marker List

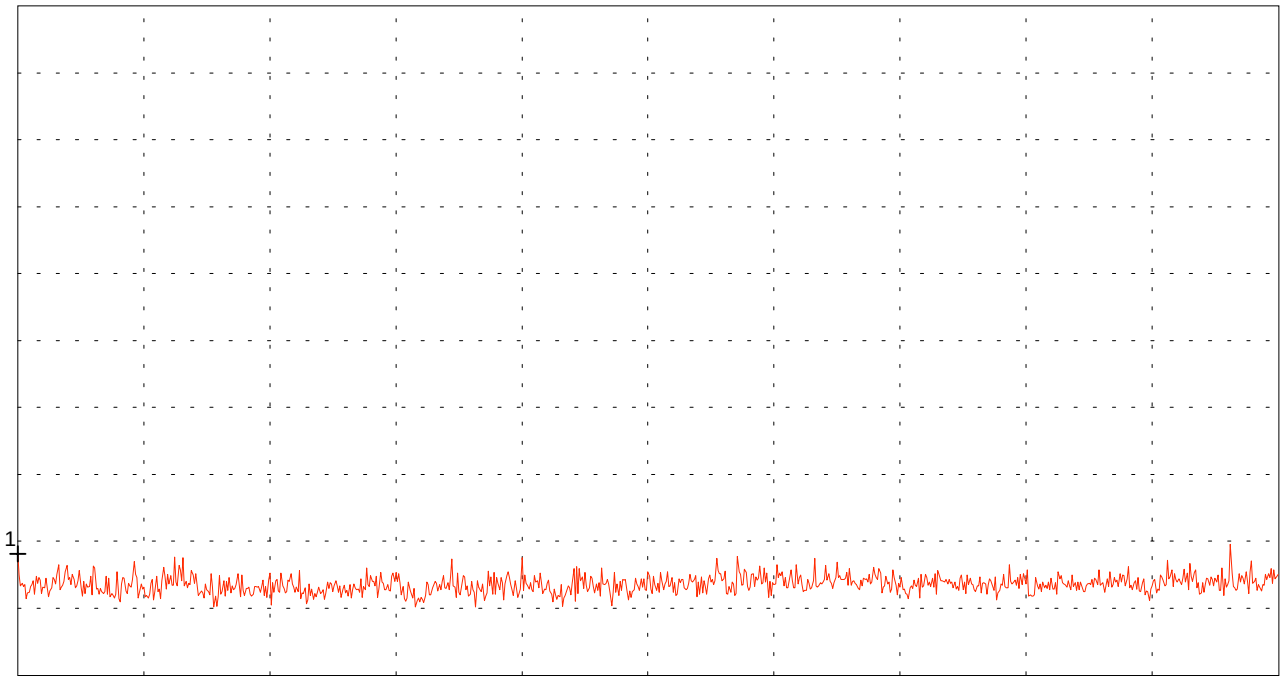
No. 1 9.922000 GHz 18.10 dBµV

Tested by: Johann Roidt	Project-No.: 50305-10056
Date: January 30, 2000	Page of pages

Spurious emissions measurement according to FCC 15.249

Model: M-3000 Wireless Mouse	Mode: - Radiated Measurement - Horizontal Polarisation - Highest Channel selected
Serial No.: ---	
Applicant: Cherry GmbH	

Ref.Level 50.5 dBµV ATT 0 dB Ref. Offset -35 dB
5 dB/Div.



Start 12.400 GHz Stop 18.000 GHz
RBW 1 MHz VBW 1 MHz SWP 40 ms

Multi Marker List

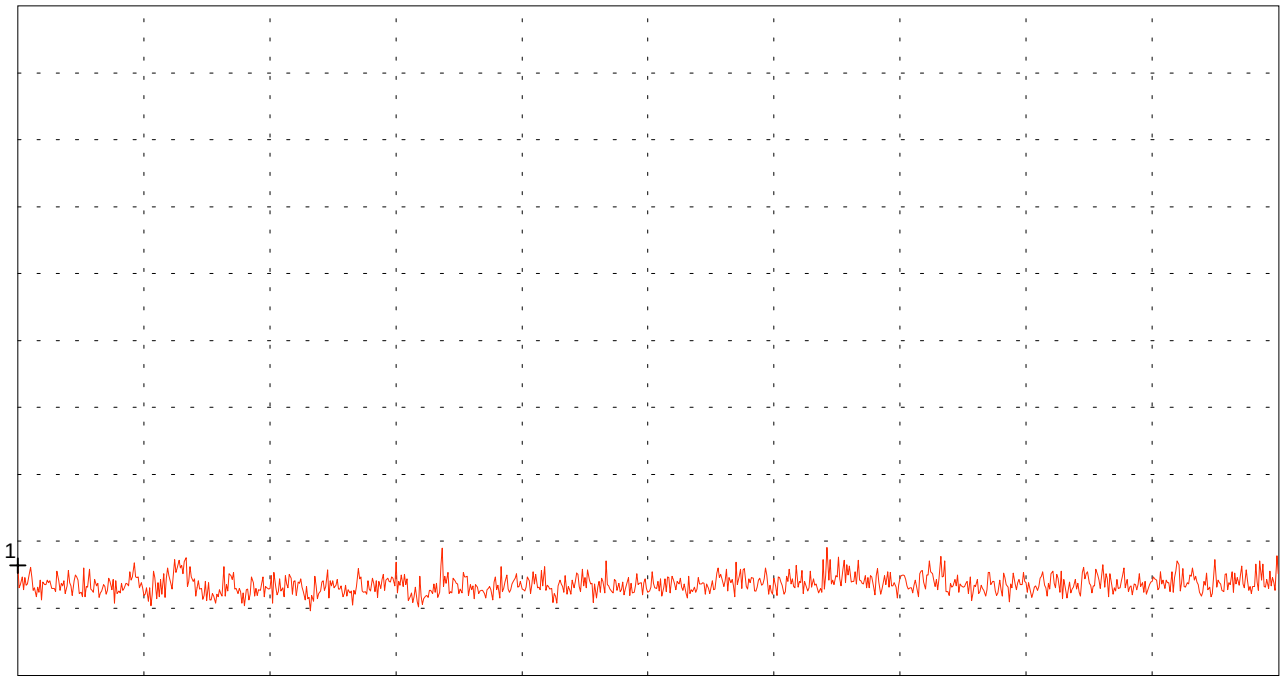
No. 1 12.400000 GHz 9.55 dBµV

Tested by: Johann Roidt	Project-No.: 50305-10056
Date: January 30, 2000	Page of pages

Spurious emissions measurement according to FCC 15.249

Model: M-3000 Wireless Mouse	Mode: - Radiated Measurement - Vertical Polarisation - Highest Channel selected
Serial No.: ---	
Applicant: Cherry GmbH	

Ref.Level 50.5 dBµV ATT 0 dB Ref. Offset -35 dB
5 dB/Div.



Start 12.400 GHz Stop 18.000 GHz
RBW 1 MHz VBW 1 MHz SWP 40 ms

Multi Marker List

No. 1 12.400000 GHz 8.67 dBµV

Tested by: Johann Roidt	Project-No.: 50305-10056
Date: January 30, 2000	Page of pages