SENTON

■ EMV-Prüfzentrum ■ EMI/EMC-Testcenter ■

Straubing, 15 September 2004

T E S T - R E P O R T

No. 50823-40401

for

70RX-S1

UHF Receiver Module

Applicant:	HM-Funktechnik GmbH
Test Specifications:	FCC Code of Federal Regulations, CFR 47, Part 15, Subpart B Class B Sections 15.107, 15.109 and 15.111 Industry Canada Radio Standards Specification RSS-210 Issue 5, Section 7 (Category I Receiver)

Table of Contents

1. Administrative Data

Test item (EUT)	
Type designation	70RX-S1
Version of EUT:	As delivered
Serial number(s):	---
Type of equipment:	Receiver for Radio Remote Control Unit
Parts/accessories:	Receiver Unit with SMA antenna jack
FCC-ID:	---
Technical data	
Frequency range:	420.000- 510.000 MHz
Operational frequencies:	---
Type of modulation:	F1D
Pulse frequency:	---
Pulse width:	---
Class of emission:	---
Antenna:	SMA antenna jack
Power supply:	DC 5 V
Applicant: (full address)	HM-Funktechnik GmbH Zum Handenberg 3 D-66620 Primstal
Contract identification:	---
Contact person:	Mr. Stöhr
Manufacturer:	Applicant
Application details	
Receipt of EUT:	06 September 2004
Date of test:	September 2004
Note:	---

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, Subpart B Class B** **Sections 15.107, 15.109 and 15.111** of the Federal Communication Commission (FCC) and the **Radio Standards Specification RSS-210 Issue 5, Section 7 (Category I Receiver)** of Industry Canada (IC).

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

4. Operation Mode and Configuration of EUT

Operation Mode
FCC test setup

Configuration of EUT
All radiated measurements were made with a 50 R antenna load

List of ports and cables

Port	*Description*	*Classification*[1]	*Cable type*	*Cable length*
1	DC–supply	DC power supply	unshielded	1.5 m
2	Data out	control	unshielded	1.5 m

List of devices connected to EUT

Item	*Description*	*Type Designation*	*Serial no. or ID*	*Manufacturer*
1	Test board	---		HM-Funktechnik

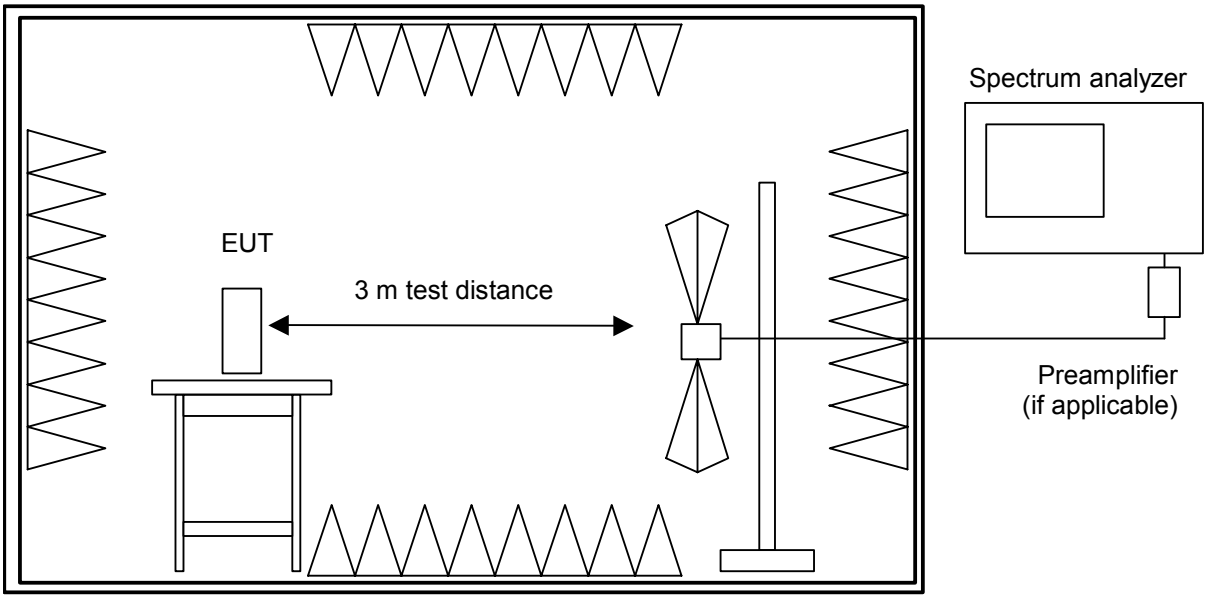
[1] Ports shall be classified as ac power, dc power or signal/control port

5. Measuring Methods

5.1. Radiated spurious emissions in fully-anechoic room

Rules and Specifications:	CFR 47 Part 15 section 15.109 IC RSS-210 Issue 5 section 7.3
Guide:	ANSI C63.4

Measurement Procedure:
Radiated emissions are measured over the frequency range from 30 MHz to the 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. For final testing below 1 GHz an open-area test-site is used and the plots recorded in the fully-anechoic room are indicated as prescans. During the tests the EUT is rotated all around to find the maximum levels of emissions. The cables and equipment are placed and moved within the range of position likely to find their maximum emissions. If required preamplifiers are used for the whole frequency range. Special care is taken to avoid overload (using appropriate attenuators and filters if necessary).



Fully anechoic room

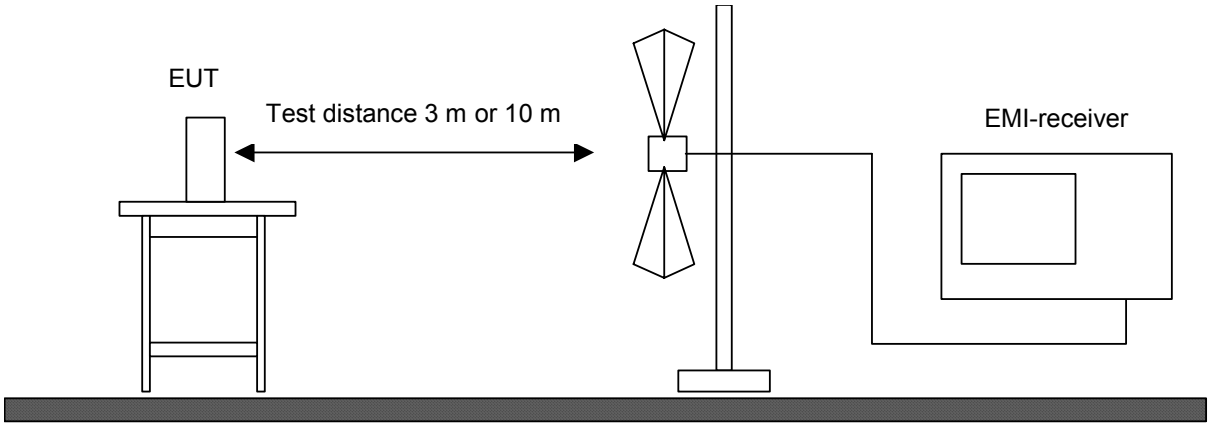
Test instruments used:

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

5.2. Radiated spurious emissions at Open Area Test Site

Rules and Specifications:	CFR 47 Part 15 section 15.109 IC RSS-210 Issue 5 section 7.3
Guide:	ANSI C63.4

Measurement Procedure:
Radiated emissions at open area test site 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 (using appropriate attenuators and filters if necessary).



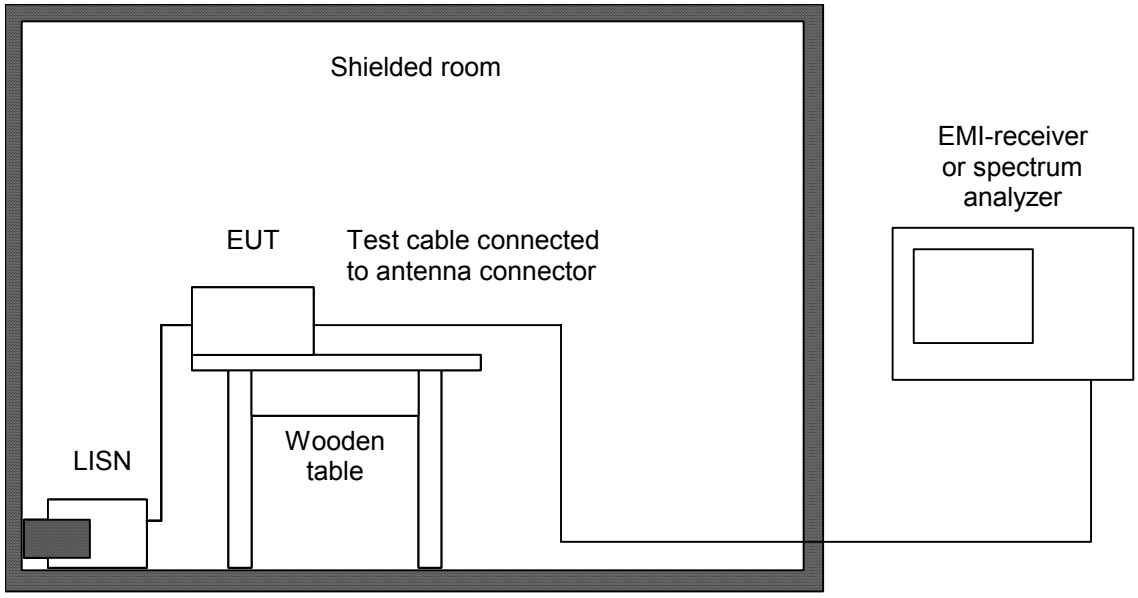
Test instruments used:

No.	Type	Model	Serial Number	Manufacturer
01	EMI Receiver	ESVP	881414/009	Rohde & Schwarz
02	Biconical antenna	HK 116	842204/001	Rohde & Schwarz
03	Log. periodic antenna	HL 223	841516/023	Rohde & Schwarz
08	Open Field Test Site	No. 1	N/A	Senton

5.3. Antenna power conduction emissions of receivers

Rules and Specifications:	CFR 47 Part 15 section 15.111(a) IC RSS-210 Issue 5 section 7.2
Guide:	ANSI C63.4

Measurement Procedure:
The receiver antenna terminal is connected to the spectrum analyzer via a resistive matching network equal to the impedance specified or employed for the antenna (if the impedance is 50 Ohms appropriate attenuators are used). The power at the antenna terminal is measured in the frequency range as specified in section 15.33. The peak detector of the spectrum analyzer is selected and resolution as well as video bandwidth are set to 100 kHz (below 1 GHz) or 1 MHz (above 1 GHz). If required preamplifiers are used. Special care is taken to avoid overload (using appropriate attenuators and filters if necessary).



Test instruments used:

No.	Type	Model	Serial Number	Manufacturer
01	Spectrum Analyzer	FSP 30	100063	Rohde & Schwarz
02	DC-block	7006	A2798	Weinschel
03	Preamplifier	CPA9231A	3393	Schaffner
04	Preamplifier 1-8 GHz	AFS3-00100800-32-LN	847743	Miteq
05	Preamplifier 8-18 GHz	ACO/180-3530	32641	CTT
06	Shielded Room No. 4	---	3FD-100 544	Euroshield

6. Photographs Taken During Testing

Test setup for radiated spurious emissions test (fully anechoic room)

Test setup for radiated spurious emissions test (open area test site)

Test setup for radiated spurious emissions test (open area test site) - continued -

7. List of Measurements

FCC Part 15 Subpart B Class B			
Section(s):	**Test**	**Page(s)**	**Result**
15.107	Conducted AC powerline emissions	---	Not Applicable[2]
15.109	Radiated spurious emissions		Passed
15.111(a)	Antenna power conduction emissions of receivers		Passed

IC RSS-210 Issue 5			
Section(s):	**Test**	**Page(s)**	**Result**
7.4	Receiver AC Wireline Conducted Emissions	---	Not Applicable[2]
7.3	Receiver Spurious Emissions (Radiated)		Passed
7.2	Receiver Spurious Emissions (Antenna Conducted)		Passed

[2] EUT supplied by battery.

Radiated Spurious Emissions Measurement

Rules and Specifications:	CFR 47 Part 15 section 15.109 IC RSS-210 Issue 5 section 7.3
Guide:	ANSI C63.4
Limit:	Except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

Frequency of Emission (MHz)	Field Strength (microvolts/meter)
30 - 88	100
88 - 216	150
216 - 960	200
Above 960	500

Operation mode:	RX mode / test sample 1 / **420.0000 MHz**
Test Site:	Open Area Test Site (< 1 GHz), Fully anechoic chamber (> 1 GHz)
Distance:	3 meters
Date of Test:	08 September 2004

Frequency (MHz)	Detector	Antenna Polarization	Reading Value (dBµV)	Correction Factor (dB/m)	Field Strength (dBµV/m)	Limit (dBµV/m)	Margin (dB)
375.000	Quasi-Peak	horizontal	25.0	17.6	42.6	46.0	3.4

Sample calculation of field strength values:

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

Test Results:	Passed

Radiated Spurious Emissions Measurement

Rules and Specifications:	CFR 47 Part 15 section 15.109 IC RSS-210 Issue 5 section 7.3
Guide:	ANSI C63.4
Limit:	Except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

Frequency of Emission (MHz)	Field Strength (microvolts/meter)
30 - 88	100
88 - 216	150
216 - 960	200
Above 960	500

Operation mode:	RX mode / test sample 2 / **456.9250 MHz**
Test Site:	Open Area Test Site (< 1 GHz), Fully anechoic chamber (> 1 GHz)
Distance:	3 meters
Date of Test:	08 September 2004

Frequency (MHz)	Detector	Antenna Polarization	Reading Value (dBµV)	Correction Factor (dB/m)	Field Strength (dBµV/m)	Limit (dBµV/m)	Margin (dB)
411.930	Quasi-Peak	horizontal	16.3	19.0	35.3	46.0	10.7

Sample calculation of field strength values:

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

Test Results:	Passed

Radiated Spurious Emissions Measurement

Rules and Specifications:	CFR 47 Part 15 section 15.109 IC RSS-210 Issue 5 section 7.3
Guide:	ANSI C63.4
Limit:	Except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

Frequency of Emission (MHz)	Field Strength (microvolts/meter)
30 - 88	100
88 - 216	150
216 - 960	200
Above 960	500

Operation mode:	RX mode / test sample 3 / **510.0000 MHz**
Test Site:	Open Area Test Site (< 1 GHz), Fully anechoic chamber (> 1 GHz)
Distance:	3 meters
Date of Test:	08 September 2004

(MHz)			(dBµV)	(dB/m)	(dBµV/m)	(dBµV/m)	(dB)
465.000	Quasi-Peak	horizontal	23.2	20.1	43.3	46.0	2.7

Sample calculation of field strength values:

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

Test Results:	Passed

Antenna power conduction emissions of receivers

Rules and Specifications:	CFR 47 Part 15 section 15.111(a) IC RSS-210 Issue 5 section 7.2		
Guide:	ANSI C63.4		
Limit:	Frequency of Emission (MHz)	Antenna power conduction limits for receivers	
		CFR 47 Part 15	RSS-210
	30 MHz - 1GHz	2 nW (-57 dBm)	2 nW (-57 dBm)
	above 1GHz	2 nW (-57 dBm)	5 nW (-53 dBm)

Operation mode:	RX mode / test sample 1 / **420.0000 MHz**
Test Site:	Shielded room, cabin no. 2
Tested on:	Antenna connector
Date of Test:	03 September 2004

Frequency (MHz)	Detector	Reading Value (dBm)	Correction Factor (dB)	Final Value (dBm)	CFR 47 Part 15		RSS-210	
					Limit (dBm)	Margin (dB)	Limit (dBm)	Margin (dB)
462.100	Peak	-91.81	1.26	-90.55	-57.00	33.6	-57.00	33.6

Sample calculation of final values:

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

Test Results:	Passed

Antenna power conduction emissions of receivers

Rules and Specifications:	CFR 47 Part 15 section 15.111(a) IC RSS-210 Issue 5 section 7.2		
Guide:	ANSI C63.4		
Limit:	Frequency of Emission (MHz)	Antenna power conduction limits for receivers	
		CFR 47 Part 15	RSS-210
	30 MHz - 1GHz	2 nW (-57 dBm)	2 nW (-57 dBm)
	above 1GHz	2 nW (-57 dBm)	5 nW (-53 dBm)

Operation mode:	RX mode / test sample 2 / **456.9250 MHz**
Test Site:	Shielded room, cabin no. 2
Tested on:	Antenna connector
Date of Test:	03 September 2004

Frequency (MHz)	Detector	Reading Value (dBm)	Correction Factor (dB)	Final Value (dBm)	CFR 47 Part 15		RSS-210	
					Limit (dBm)	Margin (dB)	Limit (dBm)	Margin (dB)
412.000	Peak	-84.66	1.24	-83.42	-57.00	26.4	-57.00	26.4

Sample calculation of final values:

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

Test Results:	Passed

Antenna power conduction emissions of receivers

Rules and Specifications:	CFR 47 Part 15 section 15.111(a) IC RSS-210 Issue 5 section 7.2		
Guide:	ANSI C63.4		
Limit:	Frequency of Emission (MHz)	Antenna power conduction limits for receivers	
		CFR 47 Part 15	RSS-210
	30 MHz - 1GHz	2 nW (-57 dBm)	2 nW (-57 dBm)
	above 1GHz	2 nW (-57 dBm)	5 nW (-53 dBm)

Operation mode:	RX mode / test sample 3 / **510.0000 MHz**
Test Site:	Shielded room, cabin no. 2
Tested on:	Antenna connector
Date of Test:	03 September 2004

Frequency (MHz)	Detector	Reading Value (dBm)	Correction Factor (dB)	Final Value (dBm)	CFR 47 Part 15		RSS-210	
					Limit (dBm)	Margin (dB)	Limit (dBm)	Margin (dB)
464.300	Peak	-83.21	1.26	-81.95	-57.00	25.0	-57.00	25.0

Sample calculation of final values:

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

Test Results:	Passed

8. Referenced Regulations

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

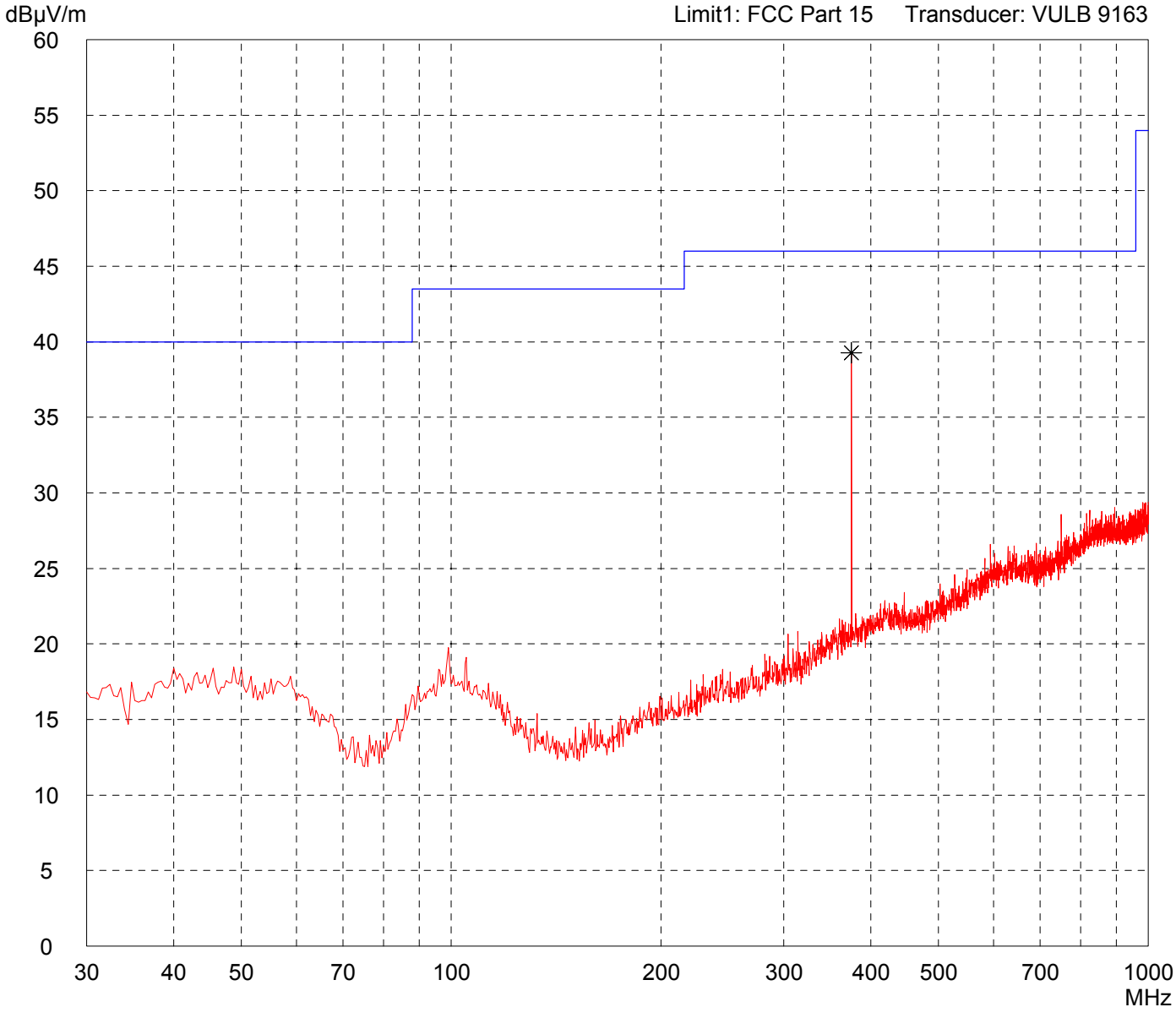
☒	CFR 47 Part 2	Code of Federal Regulations Part 2 (Frequency Allocations And Radio Treaty Matters, General Rules And Regulations) of the Federal Communication Commission (FCC)	October 1, 2001
☐	CFR 47 Part 15 Subpart A	Code of Federal Regulations Part 15 (Radio Frequency Devices), Subpart A (General) of the Federal Communication Commission (FCC)	March 13, 2003
☒	CFR 47 Part 15 Subpart B	Code of Federal Regulations Part 15 (Radio Frequency Devices), Subpart B (Unintentional Radiators) of the Federal Communication Commission (FCC)	March 13, 2003
☐	CFR 47 Part 15 Subpart C	Code of Federal Regulations Part 15 (Radio Frequency Devices), Subpart C (Intentional Radiators) of the Federal Communication Commission (FCC)	March 13, 2003
☒	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 - 40 GHz	2003
☒	RSS-210	Radio Standards Specification RSS-210 Issue 5 for Low Power Licence-Exempt Radiocommuniction Devices of Industry Canada	November 2001
☐	TIA/EIA-603	Land Mobile FM or PM Communications Equipment Measurement and Performance Standards	February 1993
☐	TIA/EIA-603-1	Addendum to TIA/EIA-603	March 4, 1998

9. Charts taken during testing

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

Model: 70RX-S1	Comment: - RX mode - Frequency range : 420.000 - 423.187 MHz - f = 420.000 MHz
Serial no.: Sample 1	
Applicant: HM-Funktechnik GmbH	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Horizontal Polarization	
Date of test: 09/03/2004 — Operator: T. Eberl	
Test performed: automatically — File name: default.emi	

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



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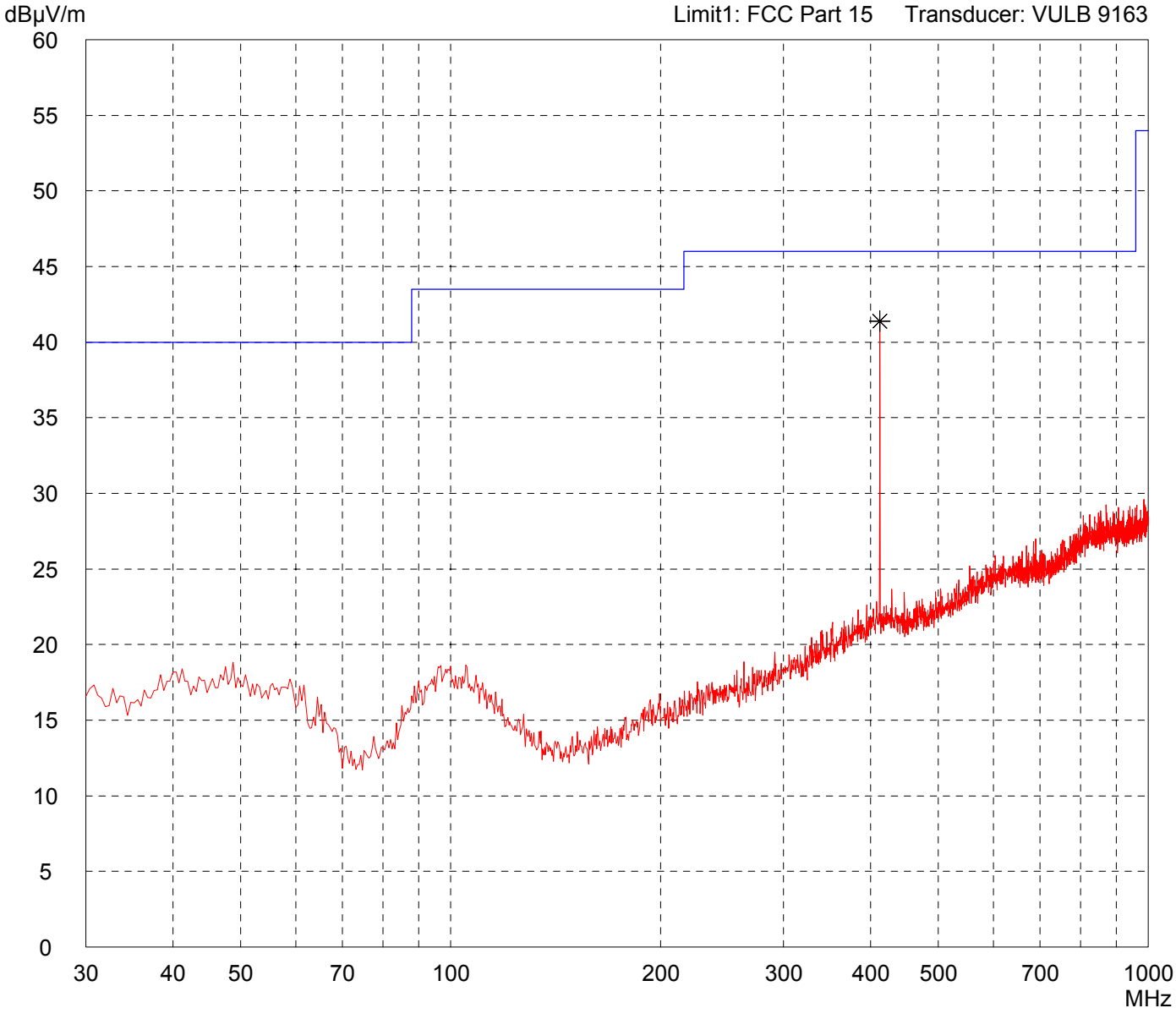
Radiated Emission Test 30 MHz - 1 GHz
acc. to FCC Part 15 (Fully Anechoic Chamber)

Model: 70RX-S1	Comment:
Serial no.: Sample 2	- RX mode
Applicant: HM-Funktechnik GmbH	- Frequency range : 456.9250 - 460.1125 MHz
Test site: Fully anechoic room, cabin no. 2	- f = 456.9250 MHz
Tested on: Test distance 3 metres Horizontal Polarization	
Date of test: 09/03/2004 / Operator: T. Eberl	
Test performed: automatically / File name: default.emi	

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

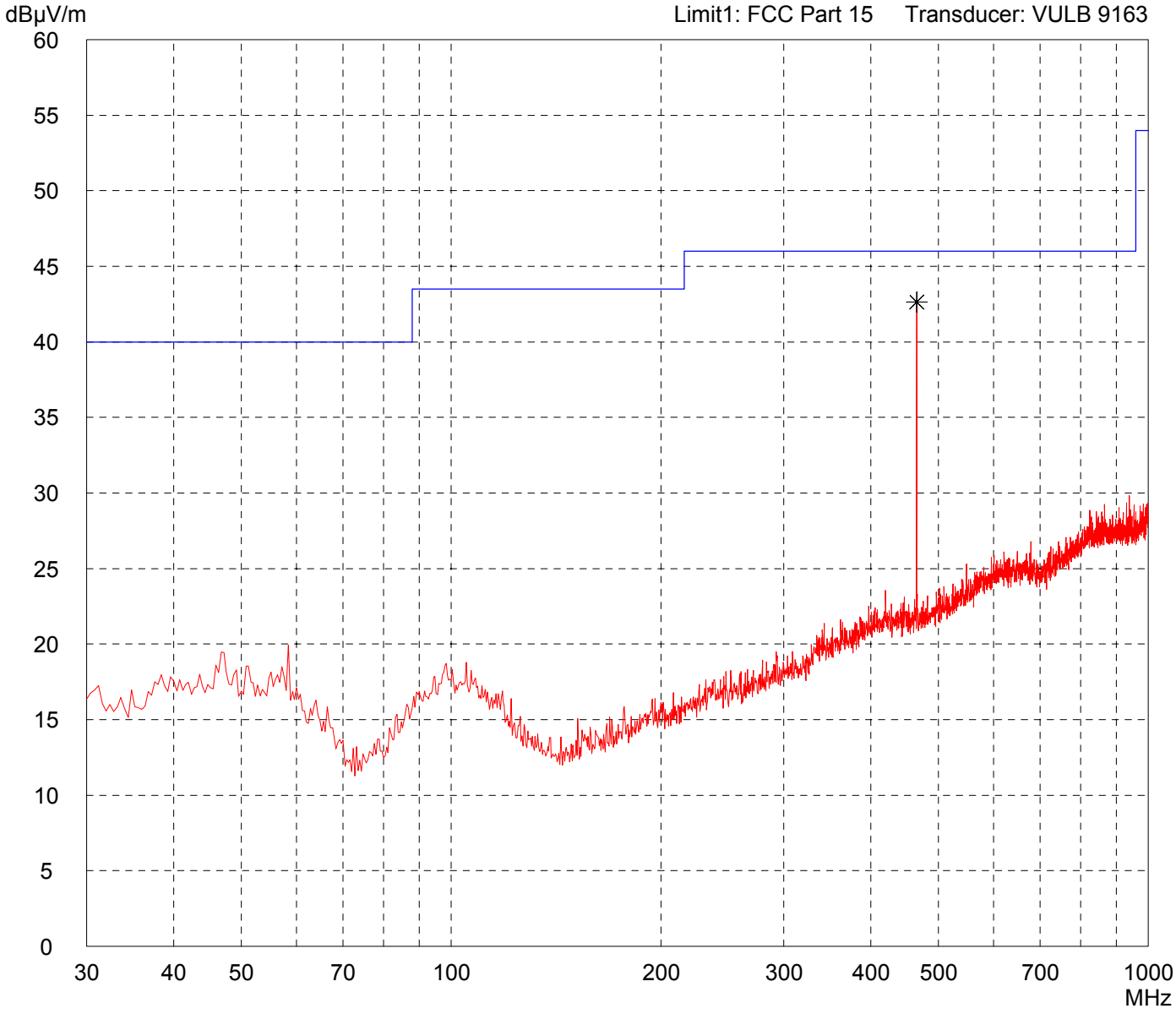


Result: Limit kept	Project file: 50823-40401 Page of Pages

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

Model: 70RX-S1	Comment:
Serial no.: Sample 3	- RX mode
Applicant: HM-Funktechnik GmbH	- Frequency range : 506.8125 - 510.0000 MHz
Test site: Fully anechoic room, cabin no. 2	- f = 510.0000 MHz
Tested on: Test distance 3 metres Horizontal Polarization	
Date of test: 09/03/2004 / Operator: T. Eberl	
Test performed: automatically / File name: default.emi	

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

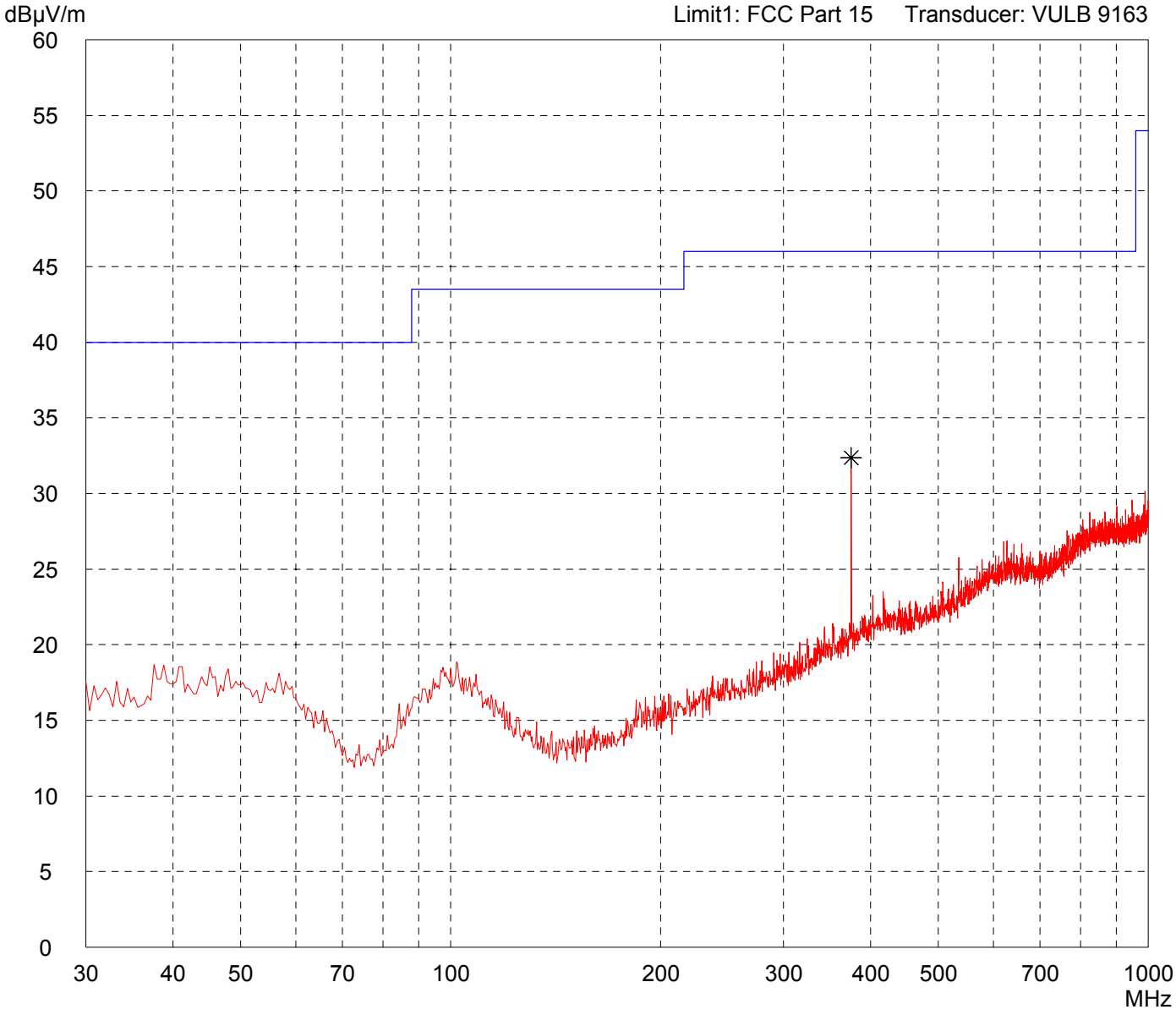


Result: Limit kept	Project file: 50823-40401 Page of Pages

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

Model: 70RX-S1	Comment:
Serial no.: Sample 1	- RX mode
Applicant: HM-Funktechnik GmbH	- Frequency range : 420.000 - 423.187 MHz
Test site: Fully anechoic room, cabin no. 2	- f = 420.000 MHz
Tested on: Test distance 3 metres Vertical Polarization	
Date of test: 09/03/2004 / Operator: T. Eberl	
Test performed: automatically / File name: default.emi	

Detector: Peak	List of values: Selected by hand



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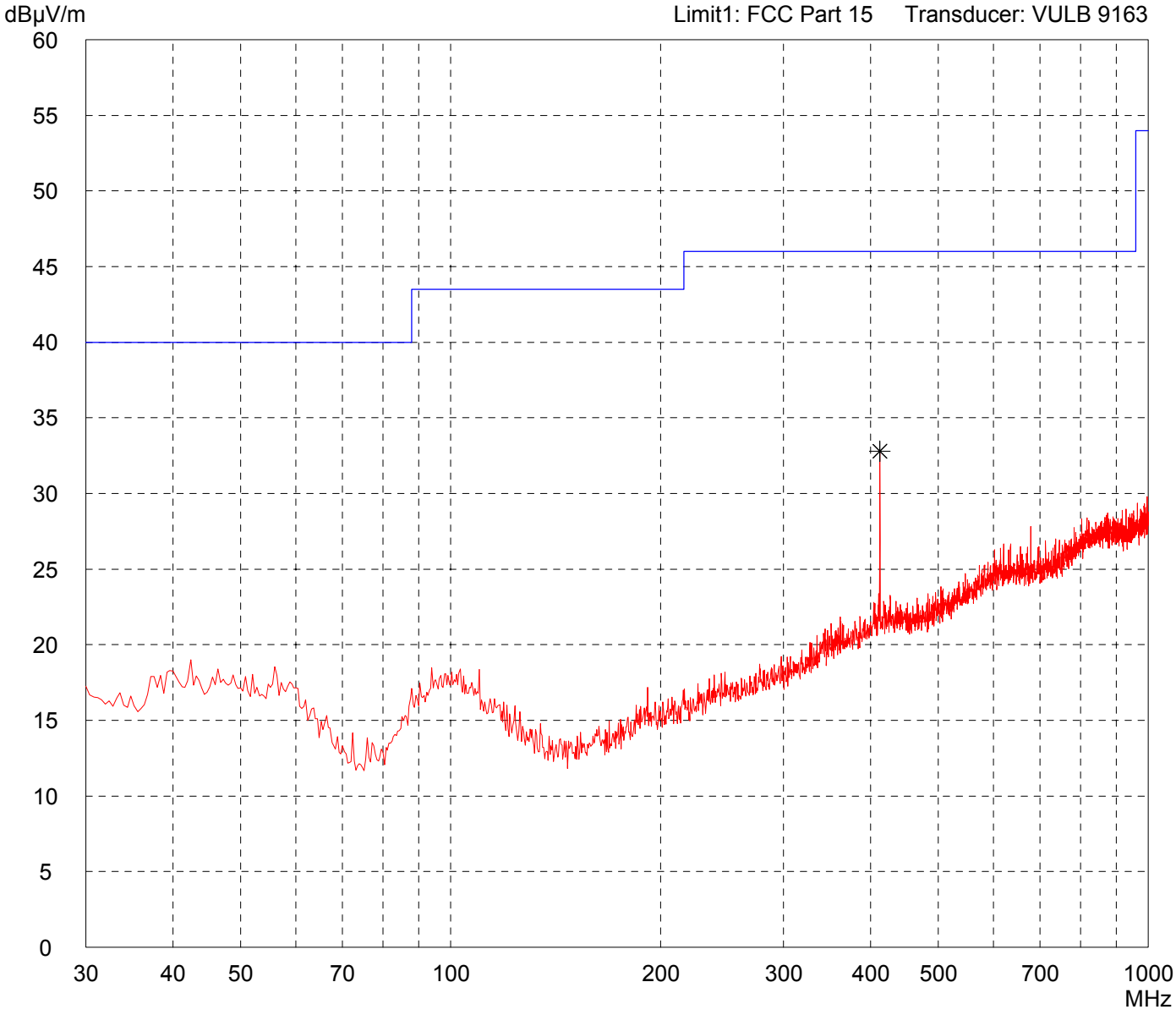
Radiated Emission Test 30 MHz - 1 GHz
acc. to FCC Part 15 (Fully Anechoic Chamber)

Model: 70RX-S1	Comment:
Serial no.: Sample 2	- RX mode
Applicant: HM-Funktechnik GmbH	- Frequency range : 456.9250 - 460.1125 MHz
Test site: Fully anechoic room, cabin no. 2	- f = 456.9250 MHz
Tested on: Test distance 3 metres Vertical Polarization	
Date of test: 09/03/2004 / Operator: T. Eberl	
Test performed: automatically / File name: default.emi	

Detector: Peak	List of values: Selected by hand



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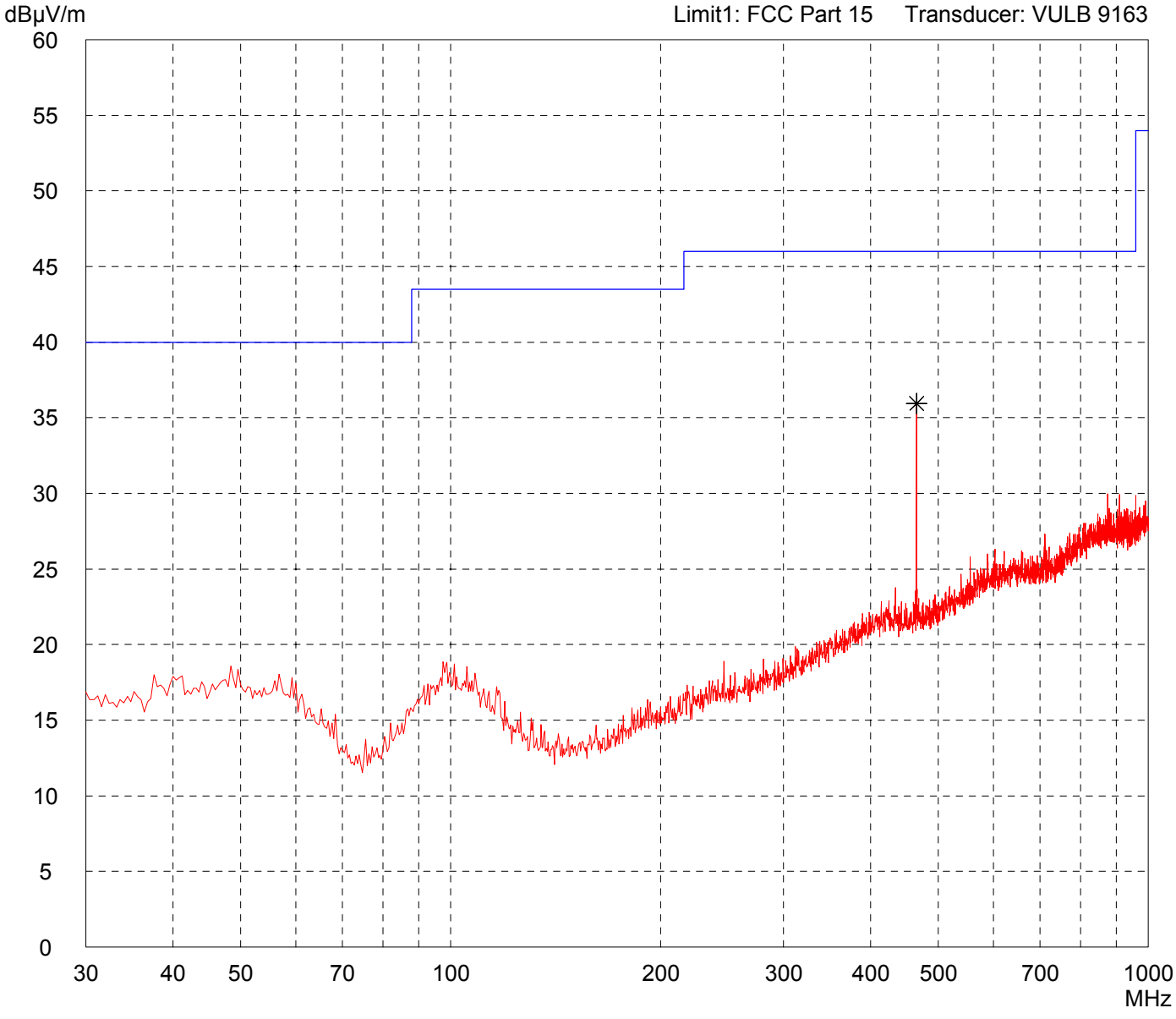
Radiated Emission Test 30 MHz - 1 GHz
acc. to FCC Part 15 (Fully Anechoic Chamber)

Model: 70RX-S1	Comment:
Serial no.: Sample 3	- RX mode
Applicant: HM-Funktechnik GmbH	- Frequency range : 506.8125 - 510.0000 MHz
Test site: Fully anechoic room, cabin no. 2	- f = 510.0000 MHz
Tested on: Test distance 3 metres Vertical Polarization	
Date of test: 09/03/2004 / Operator: T. Eberl	
Test performed: automatically / File name: default.emi	

Detector: Peak	List of values: Selected by hand

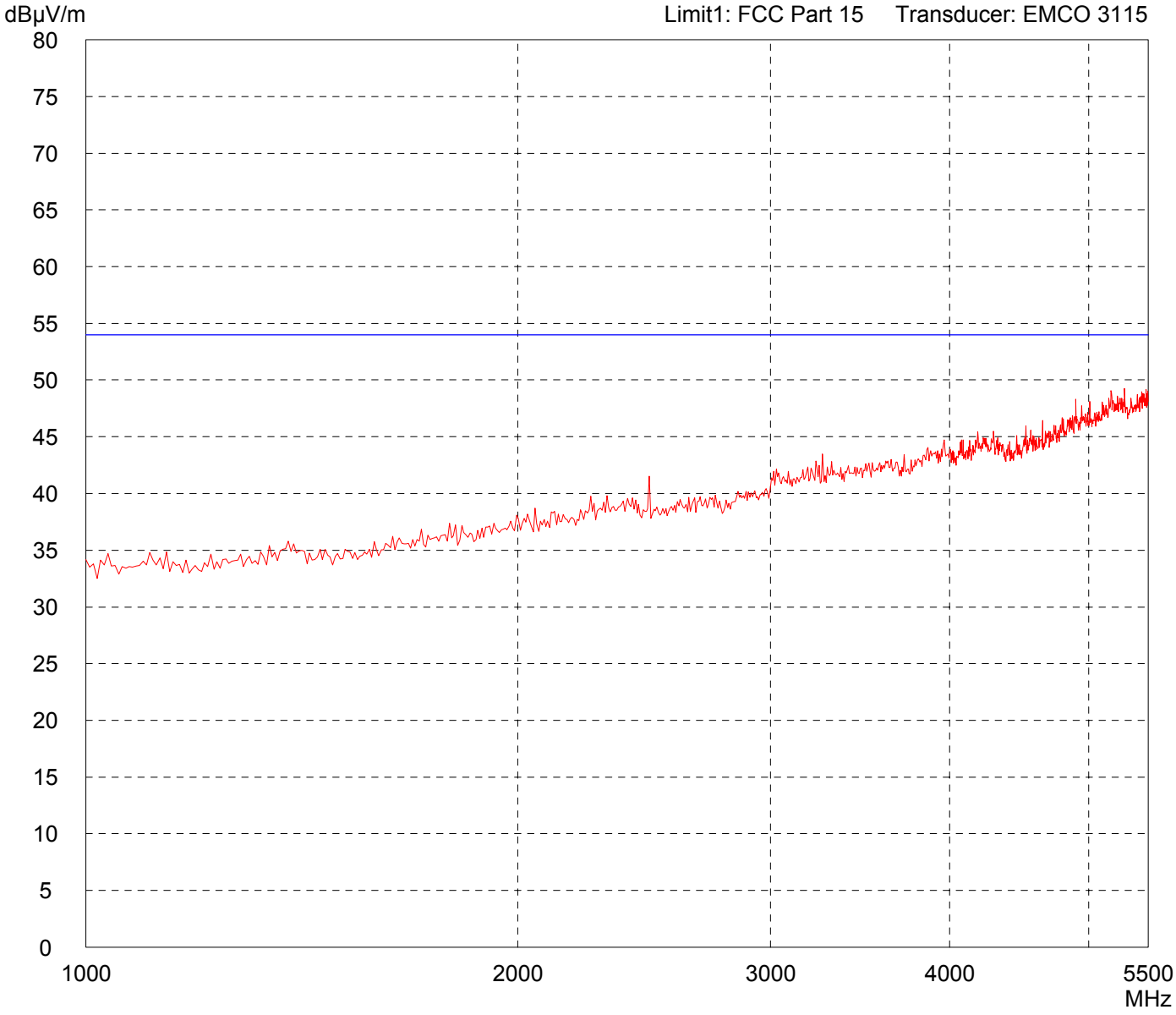


Result: Limit kept	Project file: 50823-40401 Page of Pages

Radiated Emission Test 1 GHz - 5.5 GHz
acc. to FCC Part 15 (EMCO 3115)

Model: 70RX-S1	Comment:
Serial no.: Sample 1	- RX mode
Applicant: HM-Funktechnik GmbH	- Frequency range : 420.0000-423.1875 MHz
Test site: Fully anechoic room, cabin no. 2	- f = 420.0000 MHz
Tested on: Test distance 3 metres Horizontal Polarization	
Date of test: 09/03/2004 / Operator: T. Eberl	
Test performed: automatically / File name: default.emi	

Detector: Peak	List of values: Selected by hand



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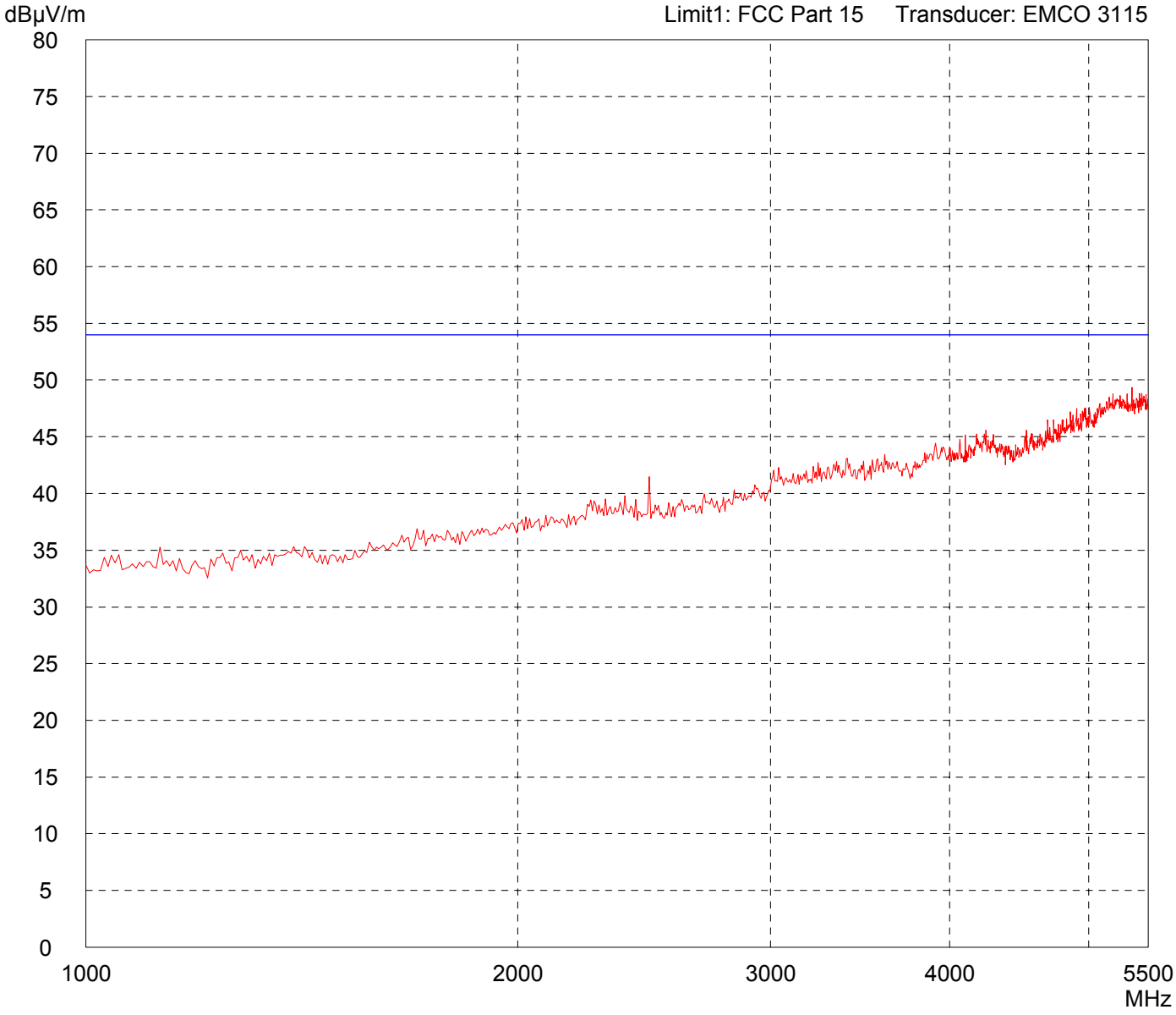
Radiated Emission Test 1 GHz - 5.5 GHz
acc. to FCC Part 15 (EMCO 3115)

Model: 70RX-S1	Comment: - RX mode - Frequency range : 456.9250-460.1125 MHz - f = 456.9250 MHz
Serial no.: Sample 2	
Applicant: HM-Funktechnik GmbH	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Horizontal Polarization	
Date of test: 09/03/2004 — Operator: T. Eberl	
Test performed: automatically — File name: default.emi	

Detector: Peak	List of values: Selected by hand



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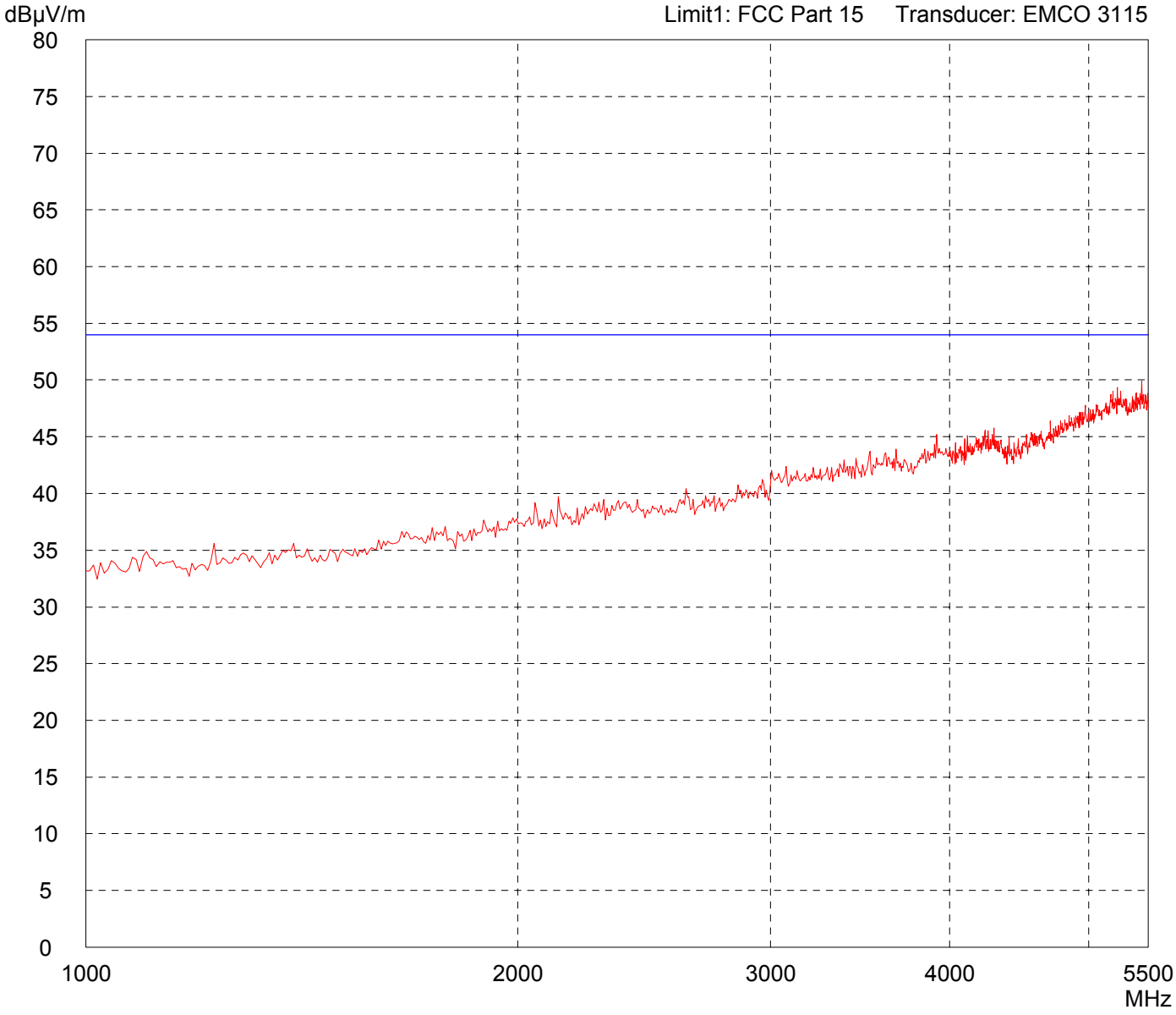
Radiated Emission Test 1 GHz - 5.5 GHz
acc. to FCC Part 15 (EMCO 3115)

Model: 70RX-S1	Comment:
Serial no.: Sample 3	- RX mode
Applicant: HM-Funktechnik GmbH	- Frequency range : 506.8125 - 510.0000 MHz
Test site: Fully anechoic room, cabin no. 2	- f = 510.0000 MHz
Tested on: Test distance 3 metres Horizontal Polarization	
Date of test: 09/03/2004 / Operator: T. Eberl	
Test performed: automatically / File name: default.emi	

Detector: Peak	List of values: Selected by hand

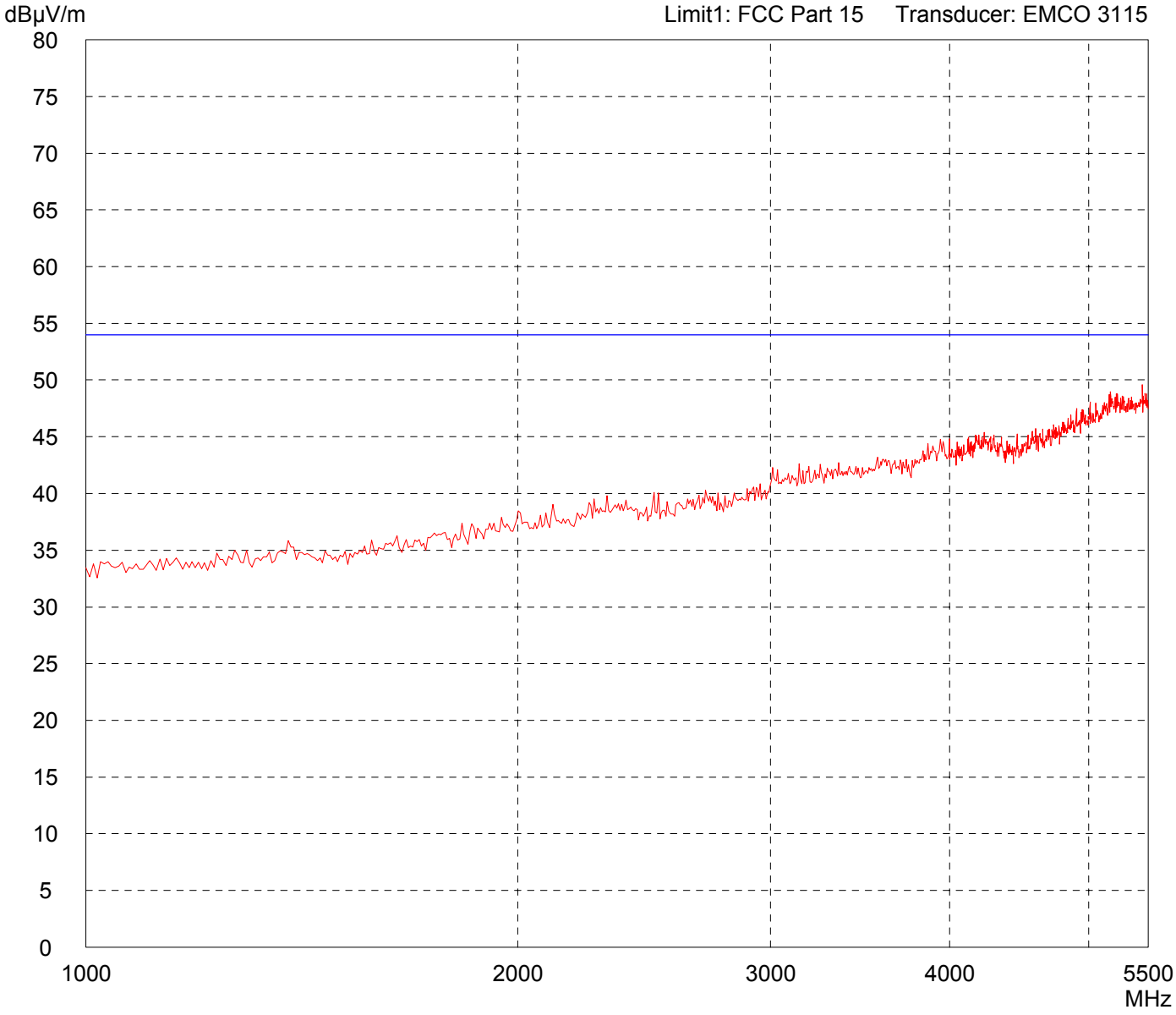


Result: Limit kept	Project file: 50823-40401 Page of Pages

Radiated Emission Test 1 GHz - 5.5 GHz
acc. to FCC Part 15 (EMCO 3115)

Model: 70RX-S1	Comment: - RX mode - Frequency range : 420.0000-423.1875 MHz - f = 420.0000 MHz
Serial no.: Sample 1	
Applicant: HM-Funktechnik GmbH	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Vertical Polarization	
Date of test: 09/03/2004 — Operator: T. Eberl	
Test performed: automatically — File name: default.emi	

Detector: Peak	List of values: Selected by hand

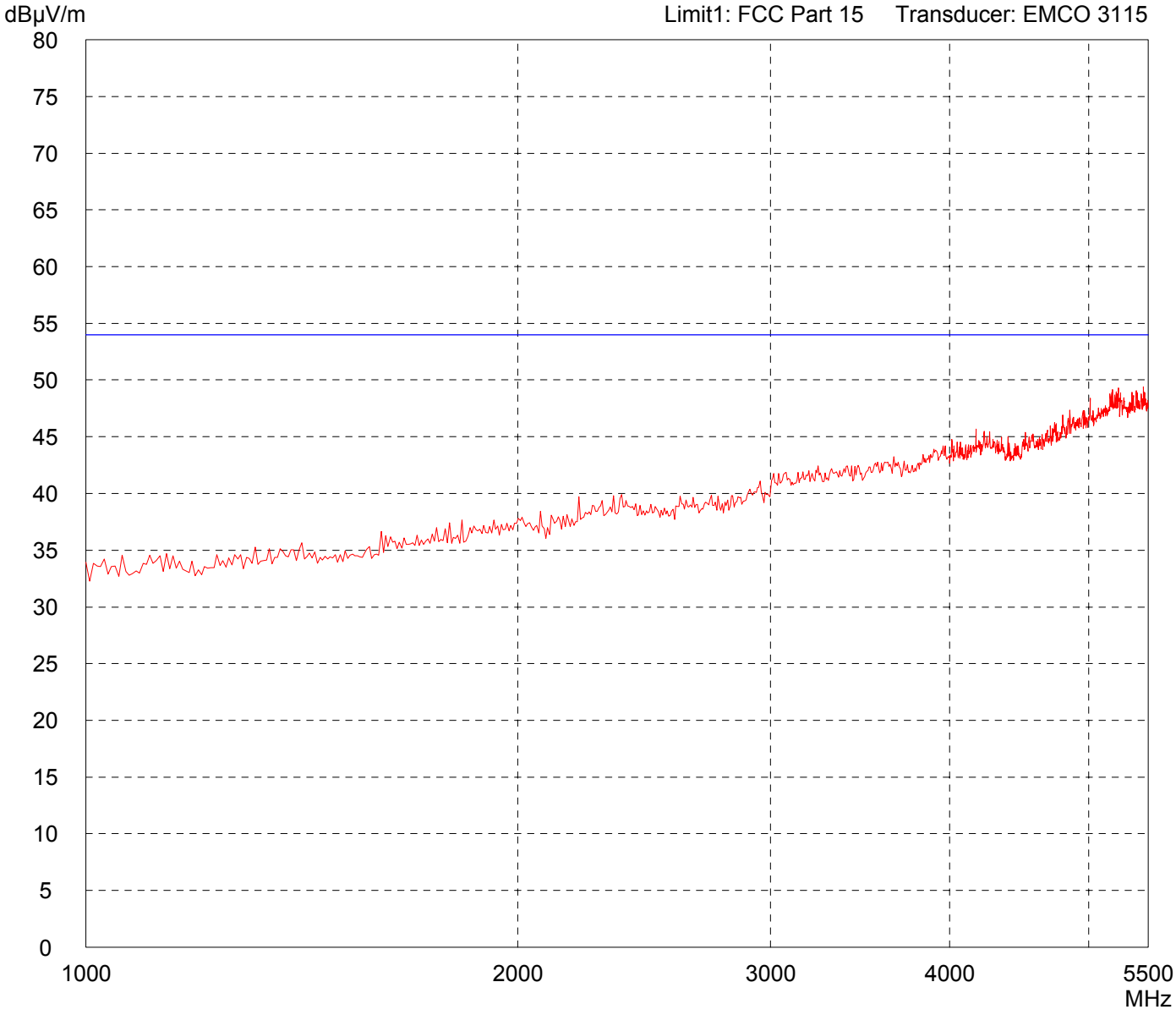


Result: Limit kept	Project file: 50823-40401 Page of Pages

Radiated Emission Test 1 GHz - 5.5 GHz
acc. to FCC Part 15 (EMCO 3115)

Model: 70RX-S1	Comment:
Serial no.: Sample 2	- RX mode
Applicant: HM-Funktechnik GmbH	- Frequency range : 456.9250-460.1125 MHz
Test site: Fully anechoic room, cabin no. 2	- f = 456.9250 MHz
Tested on: Test distance 3 metres Vertical Polarization	
Date of test: 09/03/2004 / Operator: T. Eberl	
Test performed: automatically / File name: default.emi	

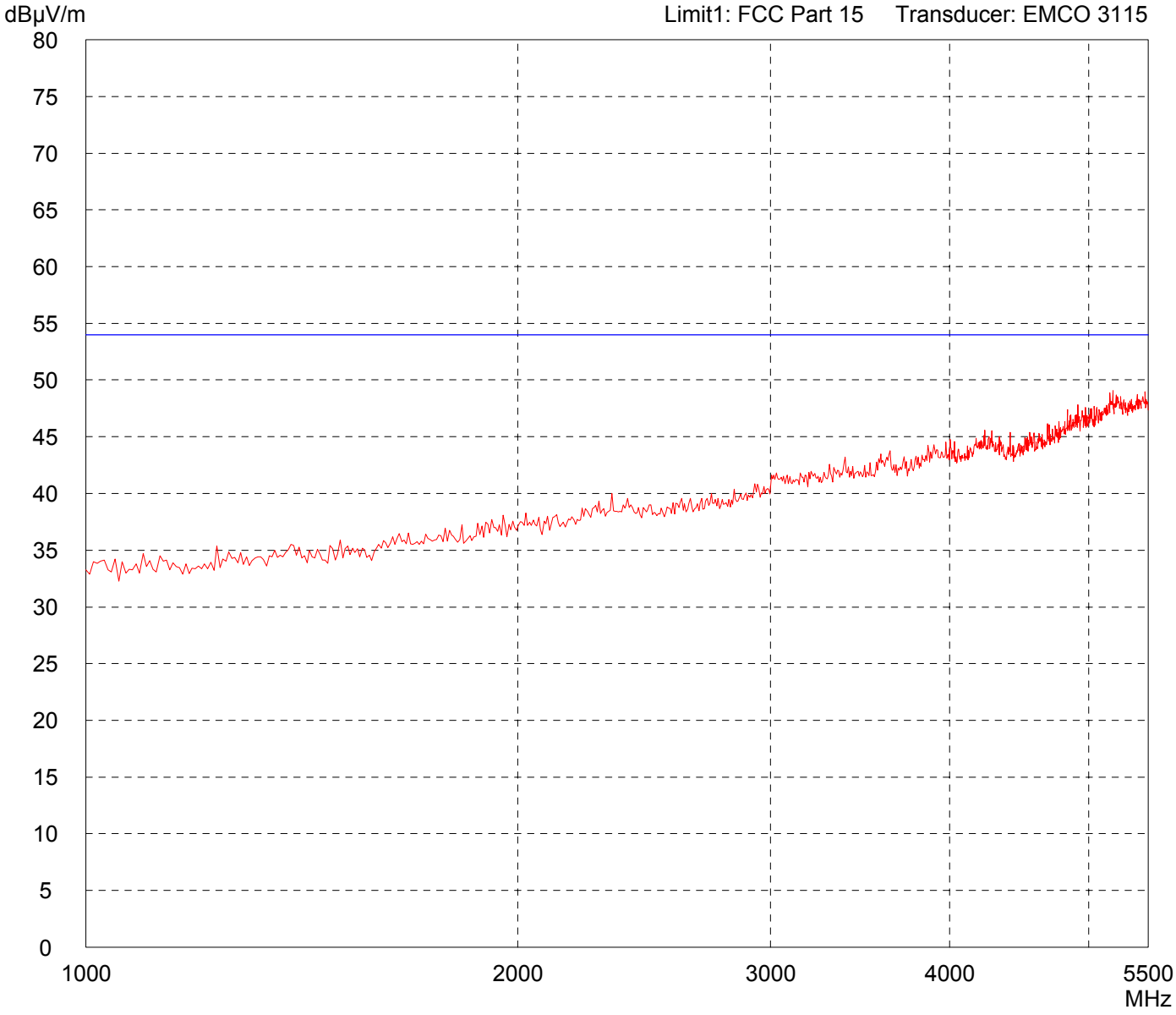
Detector: Peak	List of values: Selected by hand



Result: Limit kept	Project file: 50823-40401 Page of Pages

Radiated Emission Test 1 GHz - 5.5 GHz
acc. to FCC Part 15 (EMCO 3115)

Model: 70RX-S1	Comment:
Serial no.: Sample 3	- RX mode
Applicant: HM-Funktechnik GmbH	- Frequency range : 506.8125 - 510.0000 MHz
Test site: Fully anechoic room, cabin no. 2	- f = 510.0000 MHz
Tested on: Test distance 3 metres Vertical Polarization	
Date of test: 09/03/2004 / Operator: T. Eberl	
Test performed: automatically / File name: default.emi	
Detector: Peak	List of values: Selected by hand

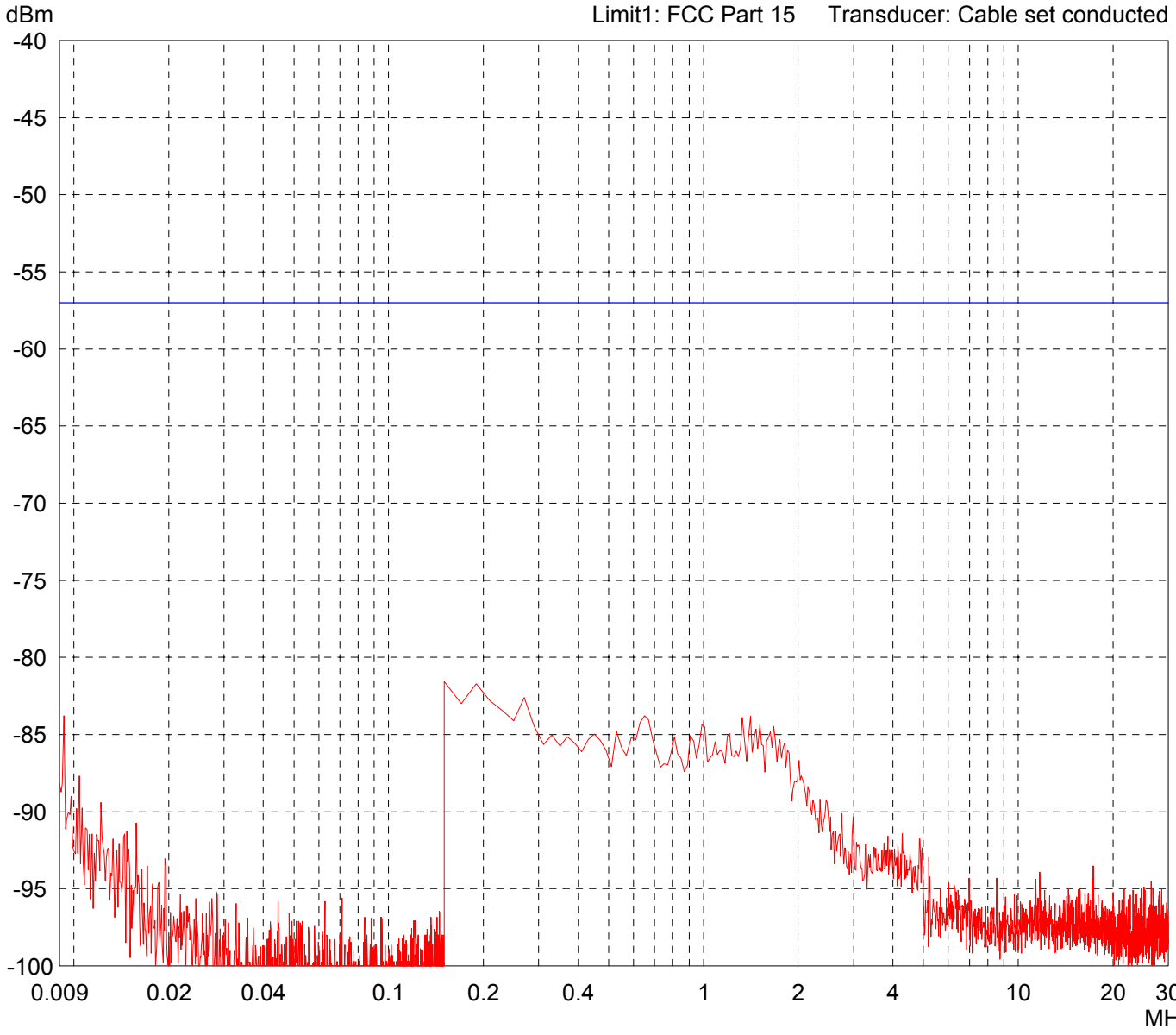


Result: Limit kept	Project file: 50823-40401 Page of Pages

Conducted Emission Test 9 kHz - 30 MHz
acc. to FCC Part 15 (Fully Anechoic Chamber)

Model: 70RX-S1	Comment:
Serial no.: Sample 1	- RX mode
Applicant: HM-Funktechnik GmbH	- Frequency range :420.000 - 423.1875 MHz
Test site: Fully anechoic room, cabin no. 2	- f = 420.0000 MHz
Tested on: Antenna connector	- measurement at antenna port
Date of test: 09/03/2004 / Operator: T. Eberl	
Test performed: by hand / File name: default.emi	

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

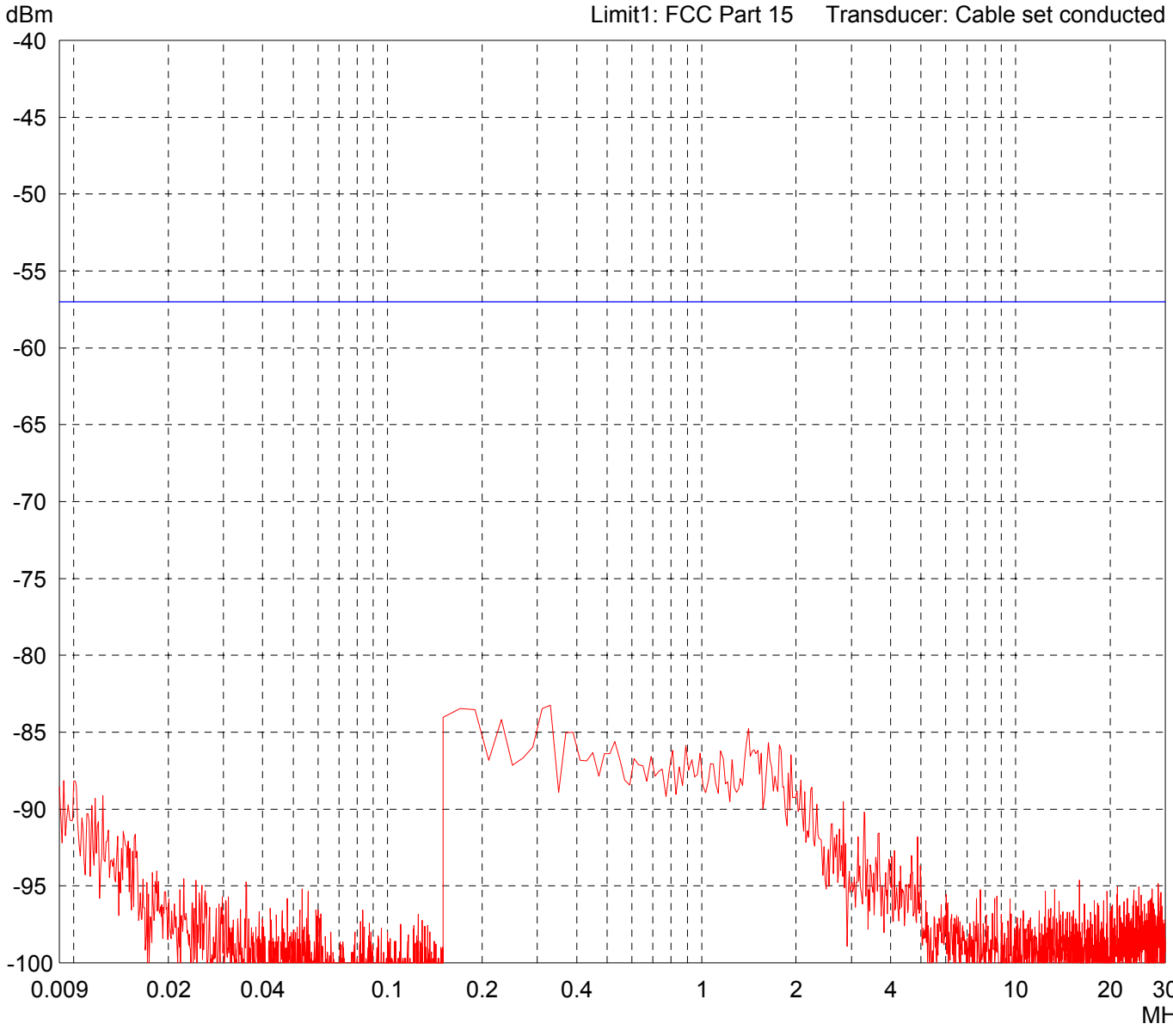


Result: Limit kept	Project file: 50823-40401 Page of Pages

Conducted Emission Test 9 kHz - 30 MHz
acc. to FCC Part 15 (Fully Anechoic Chamber)

Model: 70RX-S1	Comment:
Serial no.: Sample 2	- RX mode
Applicant: HM-Funktechnik GmbH	- Frequency range :456.9250 - 460.1125 MHz
Test site: Fully anechoic room, cabin no. 2	- f = 456.9250 MHz
Tested on: Antenna connector	- measurement at antenna port
Date of test: 09/03/2004 / Operator: T. Eberl	
Test performed: by hand / File name: default.emi	

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

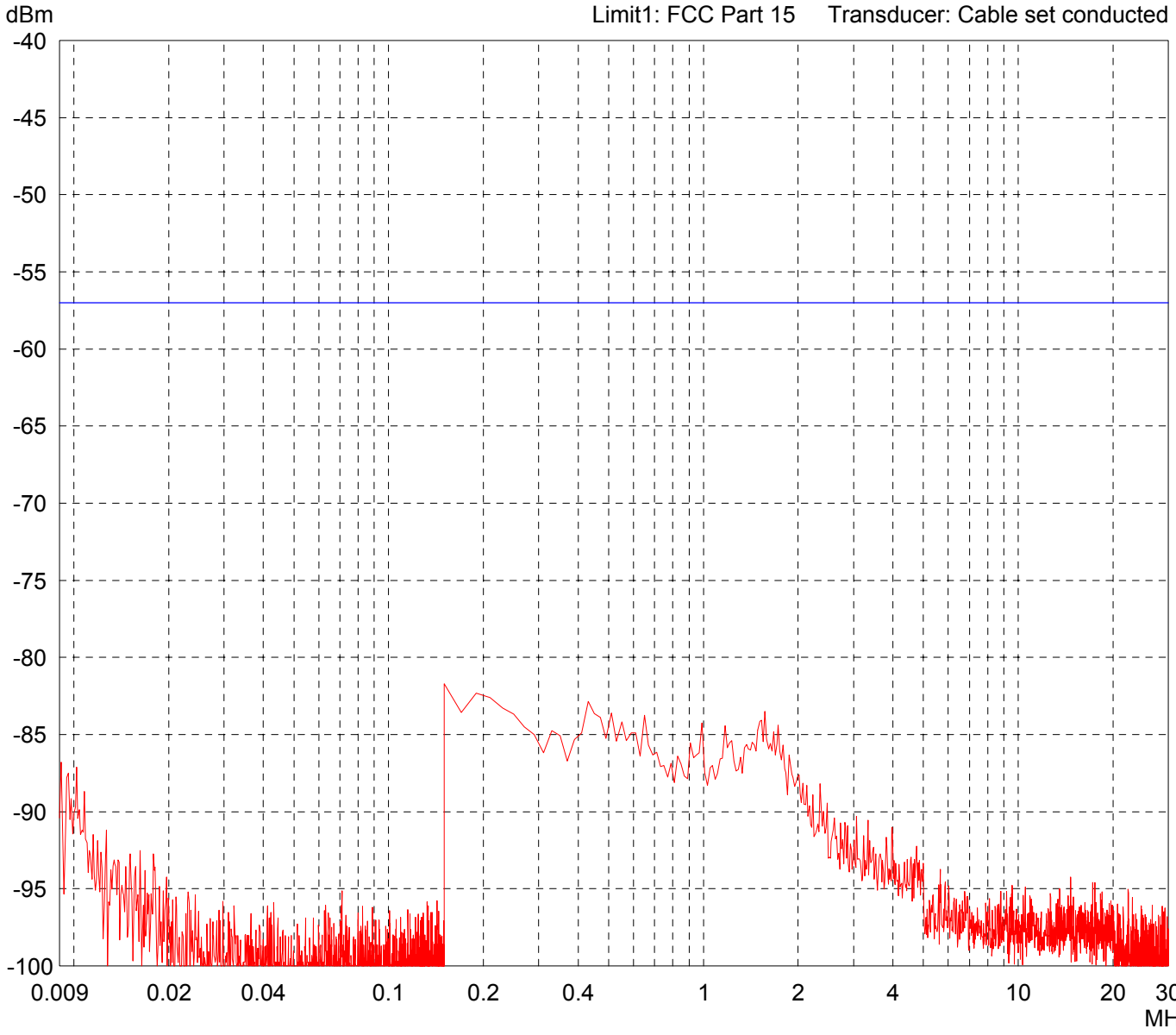


Result: Limit kept	Project file: 50823-40401 Page of Pages

Conducted Emission Test 9 kHz - 30 MHz
acc. to FCC Part 15 (Fully Anechoic Chamber)

Model: 70RX-S1	Comment:
Serial no.: Sample 3	- RX mode
Applicant: HM-Funktechnik GmbH	- Frequency range : 506.8125 - 510.0000 MHz
Test site: Fully anechoic room, cabin no. 2	- f = 510.000MHz
Tested on: Antenna connector	- measurement at antenna port
Date of test: 09/03/2004 / Operator: T. Eberl	
Test performed: by hand / File name: default.emi	

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

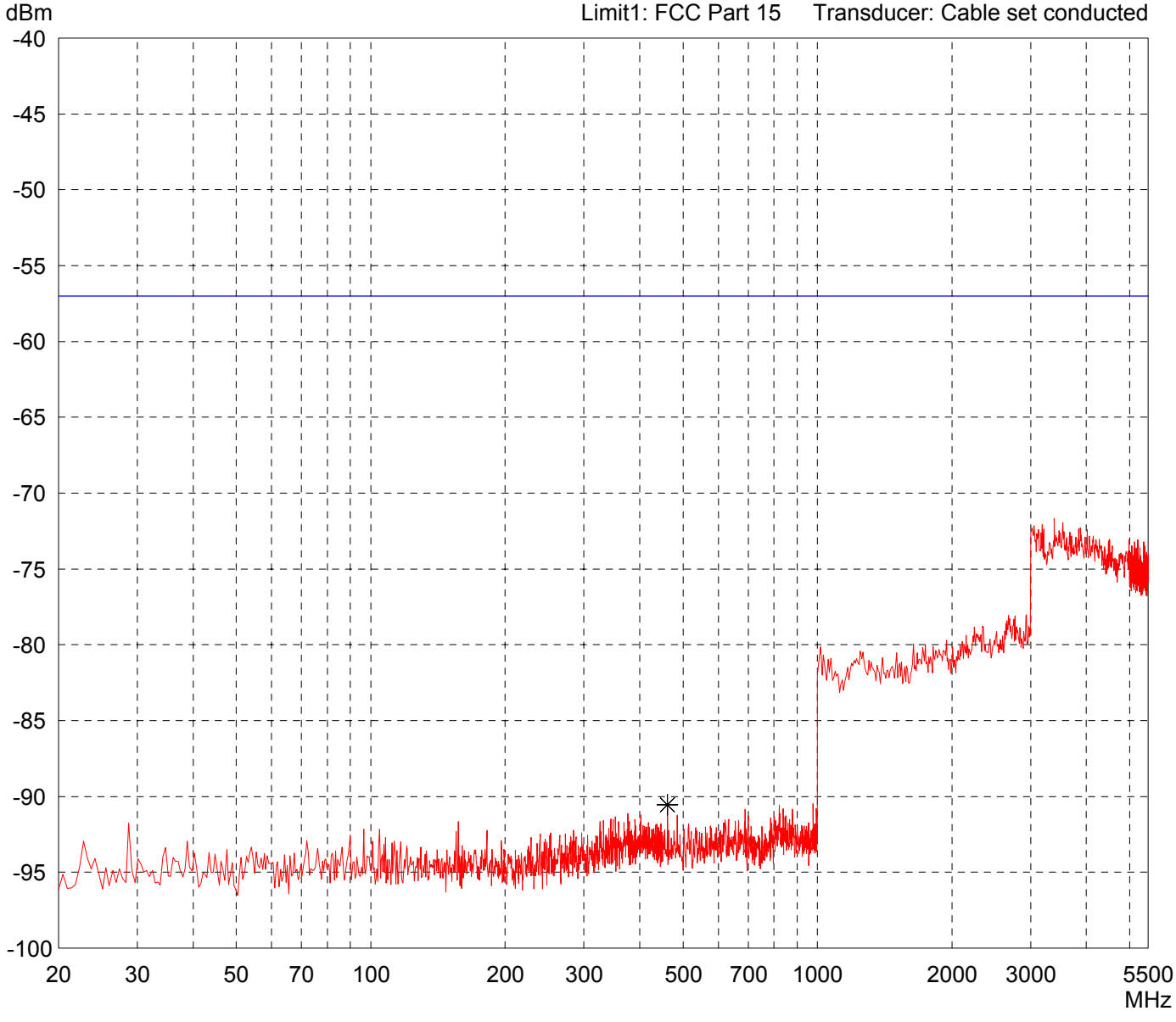


Result: Limit kept	Project file: 50823-40401 Page of Pages

Conducted Emission Test 20 MHz - 5.5 GHz
acc. to FCC Part 15 (Fully Anechoic Chamber)

Model: 70RX-S1	Comment:
Serial no.: Sample 1	- RX mode
Applicant: HM-Funktechnik GmbH	- Frequency range :420.000 - 423.1875 MHz
Test site: Fully anechoic room, cabin no. 2	- f = 420.0000 MHz
Tested on: Antenna connector	- measurement at antenna port
Date of test: 09/03/2004 / Operator: T. Eberl	
Test performed: by hand / File name: default.emi	

Detector: Peak	List of values: Selected by hand

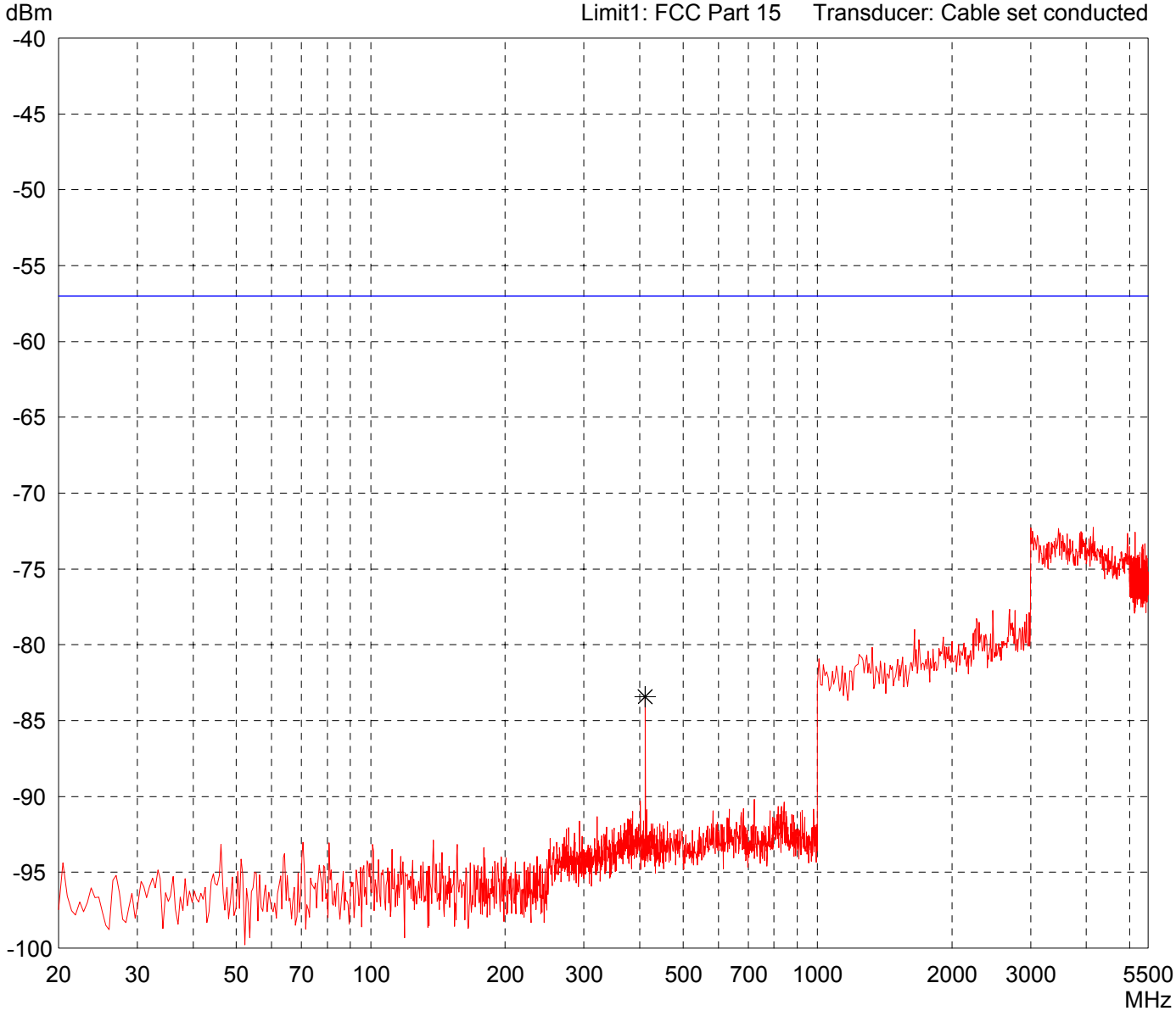


Result: Limit kept	Project file: 50823-40401 Page of Pages

Conducted Emission Test 20 MHz - 5.5 GHz
acc. to FCC Part 15 (Fully Anechoic Chamber)

Model: 70RX-S1	Comment:
Serial no.: Sample 2	- RX mode
Applicant: HM-Funktechnik GmbH	- Frequency range :456.9250 - 460.1125 MHz
Test site: Fully anechoic room, cabin no. 2	- f = 456.9250 MHz
Tested on: Antenna connector	- measurement at antenna port
Date of test: 09/03/2004 / Operator: T. Eberl	
Test performed: by hand / File name: default.emi	

Detector: Peak	List of values: Selected by hand

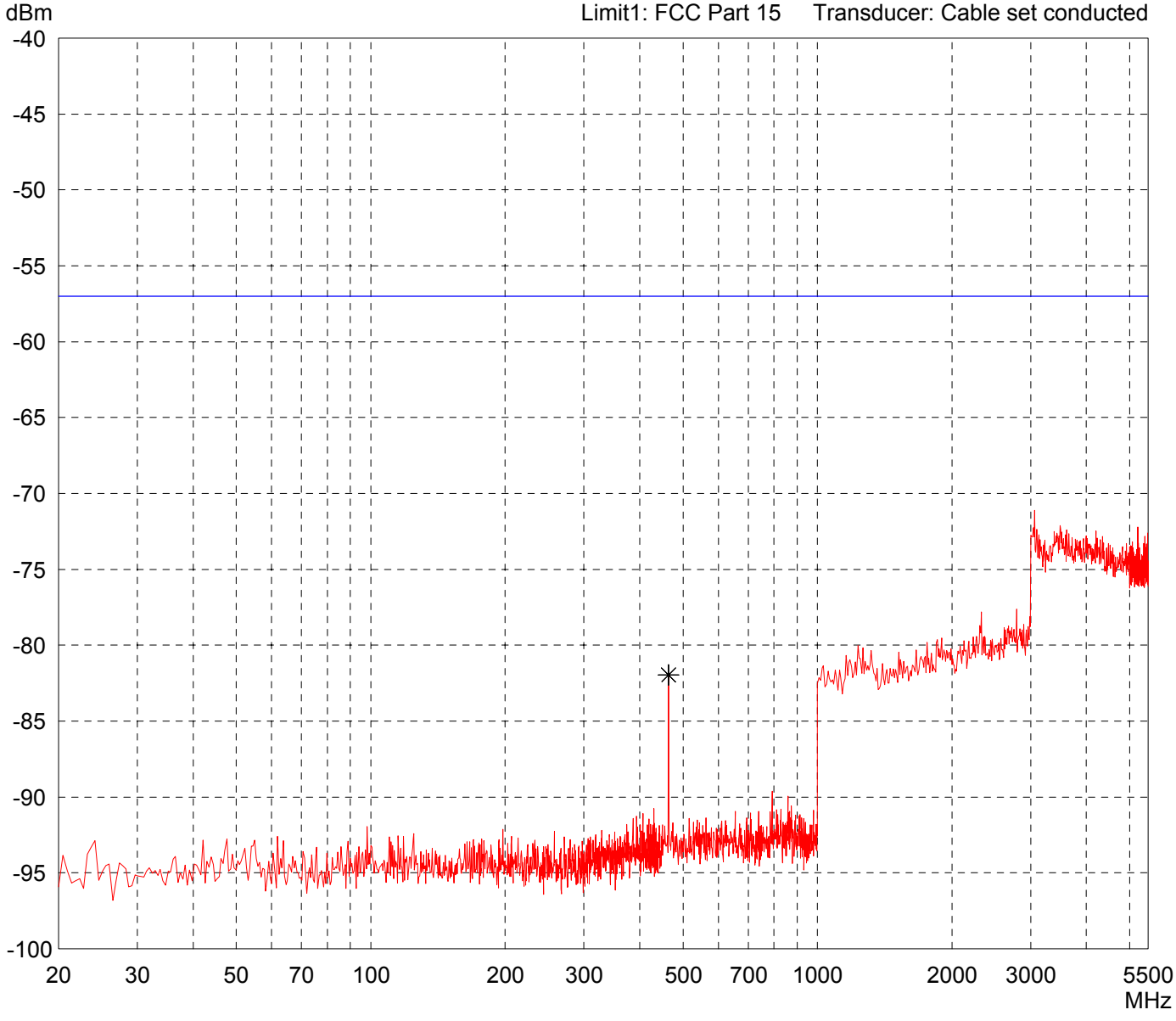


Result: Limit kept	Project file: 50823-40401 Page of Pages

Conducted Emission Test 20 MHz - 5.5 GHz
acc. to FCC Part 15 (Fully Anechoic Chamber)

Model: 70RX-S1	Comment:
Serial no.: Sample 3	- RX mode
Applicant: HM-Funktechnik GmbH	- Frequency range : 506.8125 - 510.0000 MHz
Test site: Fully anechoic room, cabin no. 2	- f = 510.000MHz
Tested on: Antenna connector	- measurement at antenna port
Date of test: 09/03/2004 / Operator: T. Eberl	
Test performed: by hand / File name: default.emi	

Detector: Peak	List of values: Selected by hand



Result: Limit kept	Project file: 50823-40401 Page of Pages