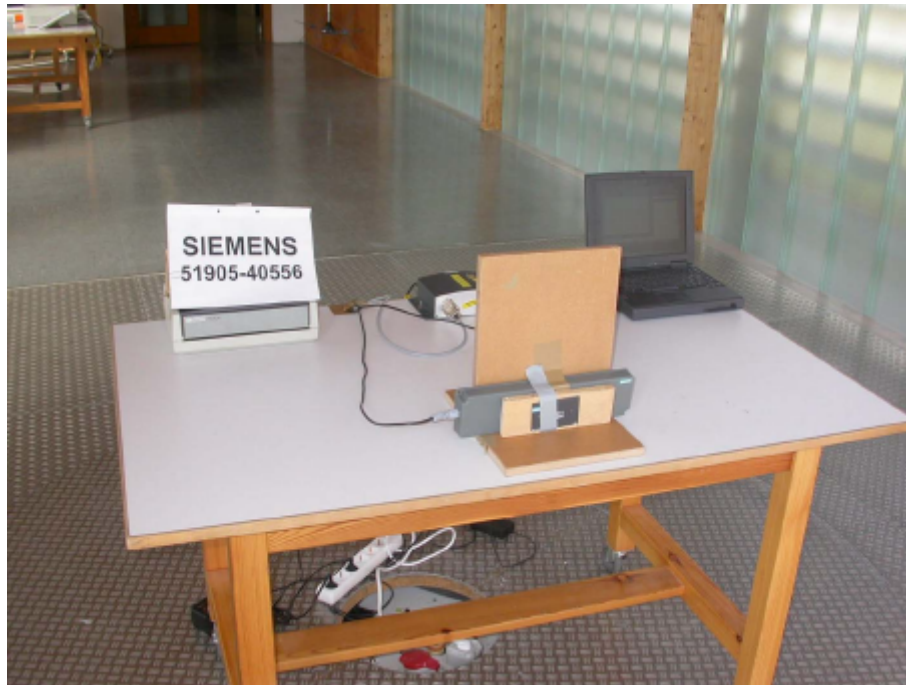


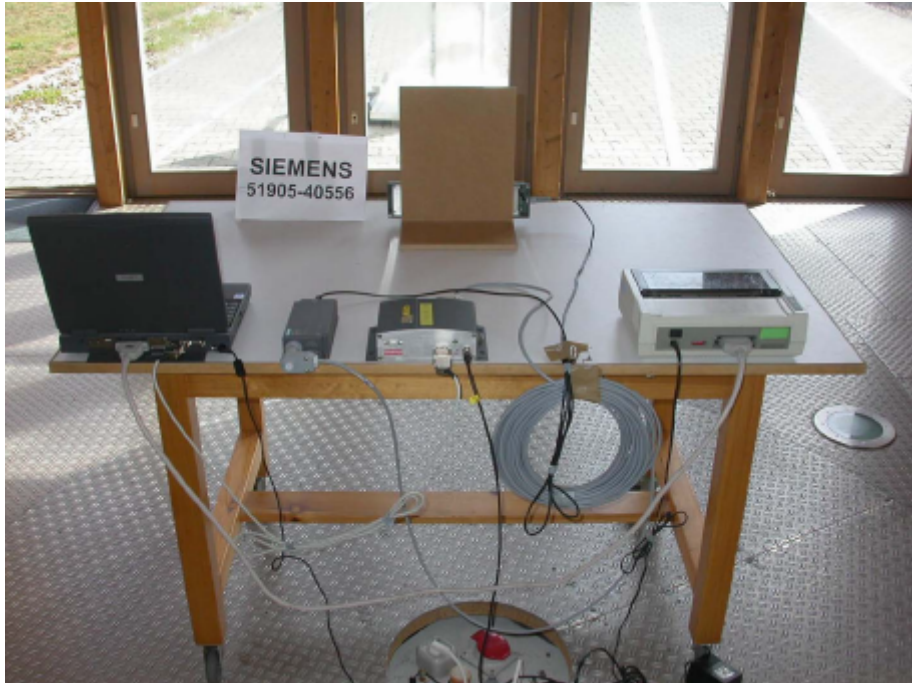
Photos No. 7.4 and 7.5
Test Setup for Radiated Emissions 9 kHz – 30 MHz / 30 - 1000 MHz (prescan)



Photos No. 7.6 and 7.7
Test Setup for Radiated Emissions 30 – 1000 MHz (final scan)



Photos No. 7.8 and 7.9
Test Setup for Radiated Emissions 30 – 1000 MHz (final scan) - continued -



8. List of Measurements**8.1. List of Measurements According To FCC Part 15 Subpart C**

FCC Part 15 Subpart C			
Section(s):	Test	Page(s)	Result
15.207	Conducted emission test 150 kHz - 30 MHz	22	Passed
15.225 (a)(d) 15.209	Field Strength of Emission 9 kHz - 30 MHz	26	Passed
15.225 (d) 15.209	Field Strength of Emission 30 MHz – 1 GHz	27	Passed
15.225 (a)(b)(c)(d)	Spectrum Mask	28	Passed
15.225 (e)	Frequency tolerance of carrier signal	31	Passed

9. Test Results

Conducted Powerline Emission 150kHz – 30 MHz

Rules and Specifications:	Section 15.207		
Guide:	ANSI C63.4		
Limit:	Frequency of Emission (MHz)	Conducted Limit (dBuV)	
		Quasi-peak	Average
	0.15-0.5	66 to 56	56 to 46
	0.5 – 5	56	46
	5 - 30	60	50
Test Site:	Shielded room		
Tested on:	AC supply lines of EUT (Phase L1)		
Date of Test:	24 September 2004		

Frequency [MHz]	Detector	Receiver Reading [dBμV]	Correction Factor [dB]	Final Value [dBμV]	Limit [dBμV]	Margin [dB]
13.560	AV	71.1		71.1	50.0	-21.1
13.560	QP	71.7		71.7	60.0	-11.7

*** = No emissions above noise floor detected

Note:

Carrier frequency excluded from the test. See additional measurements with 50 Ohms termination on page 23.

Sample calculation of Final values:

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

Result:	Test passed (see note)
----------------	------------------------

Conducted Powerline Emission 150kHz – 30 MHz

Rules and Specifications:	Section 15.207		
Guide:	ANSI C63.4		
Limit:	Frequency of Emission (MHz)	Conducted Limit (dBuV)	
		Quasi-peak	Average
	0.15-0.5	66 to 56	56 to 46
	0.5 – 5	56	46
	5 - 30	60	50
Test Site:	Shielded room		
Tested on:	AC supply lines of EUT (antenna port with 50 R load) (Phase L1)		
Date of Test:	24 September 2004		

Frequency [MHz]	Detector	Receiver Reading [dBµV]	Correction Factor [dB]	Final Value [dBµV]	Limit [dBµV]	Margin [dB]
13.560	QP	45.0		45.0	60.0	15.0

*** = No emissions above noise floor detected

Sample calculation of Final values:

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

Result:	Test passed
----------------	-------------

Conducted Powerline Emission 150kHz – 30 MHz

Rules and Specifications:	Section 15.207		
Guide:	ANSI C63.4		
Limit:	Frequency of Emission (MHz)	Conducted Limit (dB μ V)	
		Quasi-peak	Average
	0.15-0.5	66 to 56	56 to 46
	0.5 – 5	56	46
	5 - 30	60	50
Test Site:	Shielded room		
Tested on:	AC supply lines of EUT (Phase N)		
Date of Test:	24 September 2004		

Frequency [MHz]	Detector	Receiver Reading [dB μ V]	Correction Factor [dB]	Final Value [dB μ V]	Limit [dB μ V]	Margin [dB]
13.560	AV	72.8		72.8	50.0	-22.8
13.560	QP	73.0		73.0	60.0	-13.0

*** = No emissions above noise floor detected

Note:

Carrier frequency excluded from the test. See additional measurements with 50 Ohms termination on page 25.

Sample calculation of Final values:

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

Result:	Test passed (see note)
----------------	------------------------

Conducted Powerline Emission 150kHz – 30 MHz

Rules and Specifications:	Section 15.207		
Guide:	ANSI C63.4		
Limit:	Frequency of Emission (MHz)	Conducted Limit (dBuV)	
		Quasi-peak	Average
	0.15-0.5	66 to 56	56 to 46
	0.5 – 5	56	46
	5 - 30	60	50
Test Site:	Shielded room		
Tested on:	AC supply lines of EUT (antenna port with 50 R load) (Phase N)		
Date of Test:	24 September 2004		

Frequency [MHz]	Detector	Receiver Reading [dBμV]	Correction Factor [dB]	Final Value [dBμV]	Limit [dBμV]	Margin [dB]
13.560		46.1		46.1	60.0	13.9

*** = No emissions above noise floor detected

Sample calculation of Final values:

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

Result:	Test passed
----------------	-------------

Fieldstrength of Emission 9 kHz - 30 MHz

Rules and Specifications:	Section 15.209		
Guide:	ANSI C63.4		
Limit:	Frequency of Emission (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
	0.009-0.490	2400/F(kHz)	300
	0.490-1.705	24000/F(kHz)	30
	1.705 – 30	30	30
Test Site:	Open field test site		
Distance:	30 m		
Date of Test:	08 September 2004		

Frequency [MHz]	Detector	Receiver Reading [dBµV] 30 m	Correction [dB]	Fieldstrength [dBµV/m] 30 m	Limit [dBµV/m]	Margin [dB]
13.56	QP	42.8	20.0	62.8	84.0	21.2

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

Sample calculation of field strength values:

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

Result:	Test passed
----------------	-------------

Fieldstrength of Emission 30 MHz - 1 GHz

Rules and Specifications:	15.109, 125.209 Radiated Emission Limits	
Guide:	ANSI C63.4	
Limit:	Frequency of Emission (MHz)	Field Strength (microvolts/meter)
	30 - 88	100
	88 - 216	150
	216 - 960	200
	Above 960	500
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 Polarisation	Receiver Reading [dBµV]	Correction Factor [dB]	Fieldstrength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
235.918	QP	horizontal	14.2	16.8	31.0	46.0	15.0
348.000	QP	horizontal	14.5	17.0	31.5	46.0	14.5
348.400	QP	vertical	14.3	17.0	31.3	46.0	14.7
443.329	QP	horizontal	19.2	19.7	38.9	46.0	7.1
443.400	QP	vertical	18.7	19.7	38.4	46.0	7.6
696.682	QP	vertical	11.6	24.5	36.1	46.0	9.9
697.000	QP	horizontal	8.3	24.5	32.8	46.0	13.2

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

Sample calculation of field strength values:

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

Result:	Test passed
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Spectrum Mask

Rules and Specifications:	15.225 (a)(b)(c)(d)
Date of Test:	08 September 2004

Result:	Test passed (see both next pages)
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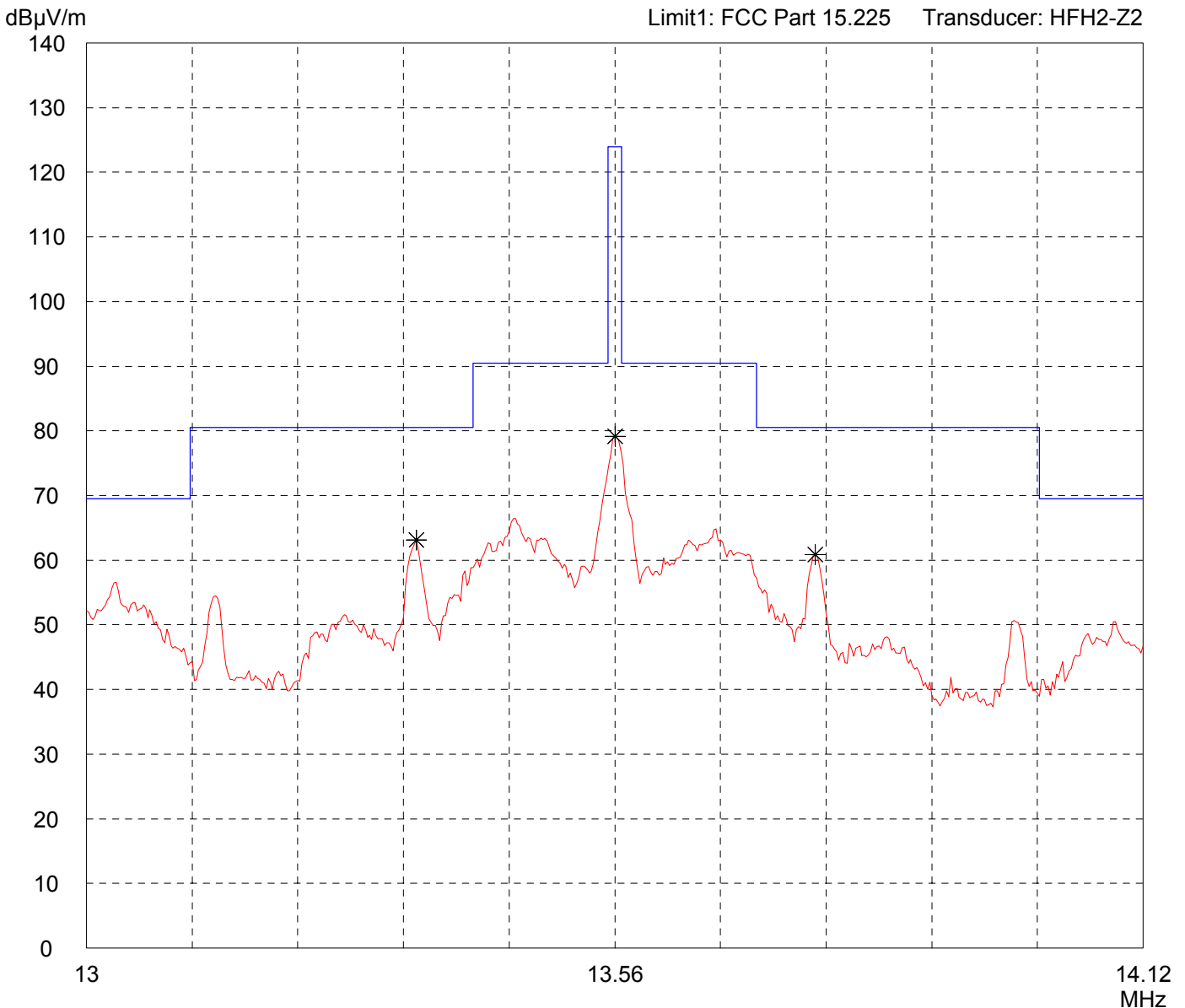
Radiated Emission Test 13 MHz - 14.12 MHz acc. to FCC Part 15.225 (Fully Anechoic Chamber)

Model: MOBY E ANT 4	
Serial no.: Prototype	
Applicant: Siemens AG, Fürth A&D PT 7 D2	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres	
Date of test: 09/08/2004	Operator: T. Eberl
Test performed: by hand	File name: default.emi

Comment: - FCC test setup - TX mode - with TAG - with SLG 75
--

Detector: Peak

List of values: Selected by hand



Result: Limit kept

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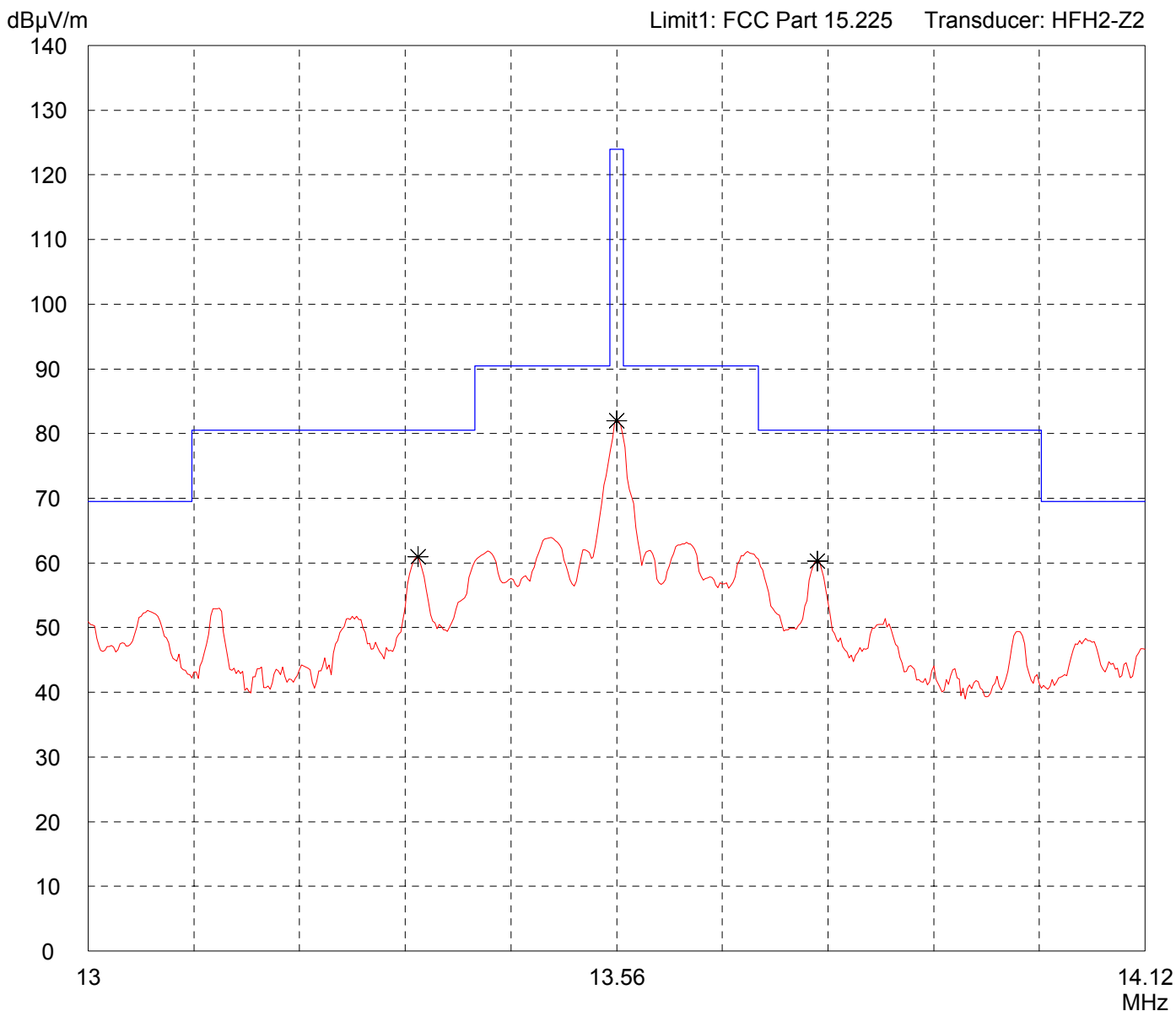
Radiated Emission Test 13 MHz - 14.12 MHz acc. to FCC Part 15.225 (Fully Anechoic Chamber)

Model: MOBY E ANT 4	
Serial no.: Prototype	
Applicant: Siemens AG, Fürth A&D PT 7 D2	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres	
Date of test: 09/08/2004	Operator: T. Eberl
Test performed: by hand	File name: default.emi

Comment: - FCC test setup - TX mode - without TAG - with SLG 75

Detector: Peak

List of values: Selected by hand



Result: Limit kept

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Measurement of Frequency Stability vs Temperature

Rules and Specifications:	15.225 (e)
Limits and Requirements:	The frequency tolerance of the carrier signal shall be maintained within $\pm 0.01\%$ (± 100 ppm) of the operating frequency
Nominal Frequency of EUT:	13.560 MHz
Date of Test	08 September 2004

Temperature Variation Table

Temperature [°C]	Frequency (+20°C) [MHz]	Frequency (Temperature) [MHz]	Tolerance [ppm]	Limit [ppm]
-20	13.559690	13.559745	4	100
-10	13.559690	13.559733	3	100
± 0	13.559690	13.559730	3	100
+10	13.559690	13.559689	0	100
+20	13.559690	13.559690	0	100
+30	13.559690	13.559690	0	100
+40	13.559690	13.559752	5	100
+50	13.559690	13.559805	8	100

Result:	Test passed
----------------	-------------

Measurement of Frequency Stability vs Supply Voltage

Rules and Specifications:	15.225 (e)
Limits and Requirements:	The frequency tolerance of the carrier signal shall be maintained within $\pm 0.01\%$ (± 100 ppm) of the operating frequency
Nominal Frequency of EUT:	13.560 MHz
Date of Test	08 September 2004

Voltage Variation Table

Supply Voltage (V)	Nominal Frequency (MHz)	Frequency Measured (MHz)	Tolerance (ppm)	Limit (ppm)
20.4	13.5596901	13.5597452	4	100
24.0	13.5596901	13.5596901	0	100
27.6	13.5596901	13.5597471	4	100

Result:	Test passed
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10. Referenced Regulations

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

<input checked="" type="checkbox"/>	FCC Part 2	Code of Federal Regulations Part 2 Frequency allocation and radio treaty matters; General rules and regulations	October 01, 2001
<input type="checkbox"/>	FCC Part 15 Subpart A	Code of Regulations Part 15 (Radio Frequency Devices), Subpart A (General) of the Federal Communication Commission (FCC)	July 12, 2004
<input type="checkbox"/>	FCC Part 15 Subpart B	Code of Regulations Part 15 (Radio Frequency Devices), Subpart B (Unintentional Radiators) of the Federal Communication Commission (FCC)	July 12, 2004
<input checked="" type="checkbox"/>	FCC Part 15 Subpart C	Code of Regulations Part 15 (Radio Frequency Devices), Subpart C (Intentional Radiators) of the Federal Communication Commission (FCC)	July 12, 2004
<input type="checkbox"/>	FCC Part 74 Subpart H	Code of Regulations Part 15 (Radio Frequency Devices), Subpart H (Low Power Auxiliary Stations) of the Federal Communication Commission (FCC)	July 12, 2004
<input checked="" type="checkbox"/>	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 January 30, 2004)
<input type="checkbox"/>	RSS-210 Issue 5	Radio Standards Specification RSS-210 Issue 5 for Low Power Licence-Exempt Radiocommunication Devices (All Frequency Bands) of Industry Canada	November 2001
<input type="checkbox"/>	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

11. Additional Test Sheets

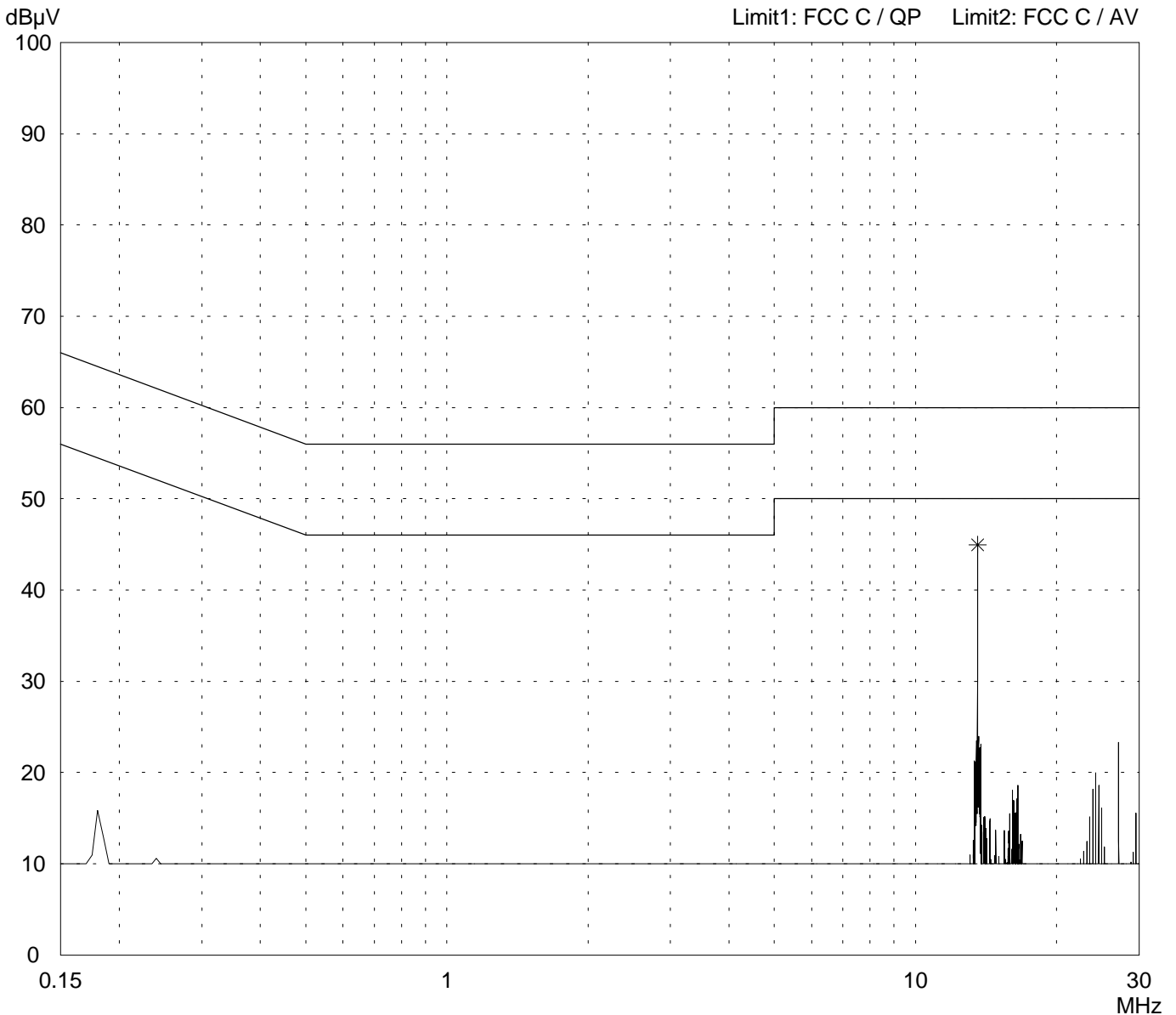
Conducted Emission Test 150 kHz - 30 MHz according to FCC Part 15 Subpart C

Model: MOBY E ANT 4	
Serial no.: Prototype	
Applicant: Siemens AG, Fürth A&D PT 7 D2	
Test site: Shielded room, cabin no. 1	
Tested on: Linecord AC DC power supply Phase L1	
Date of test: 09/24/2004	Operator: T. Eberl
Test performed: automatically	File name:

Mode: - TX mode	
- with TAG	
- with SLG 75	
- antenna port with 50 R load	

Detector: Peak / Final Results: QP

Final results: 20 dB Margin	25 Subranges
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Result: Limit kept

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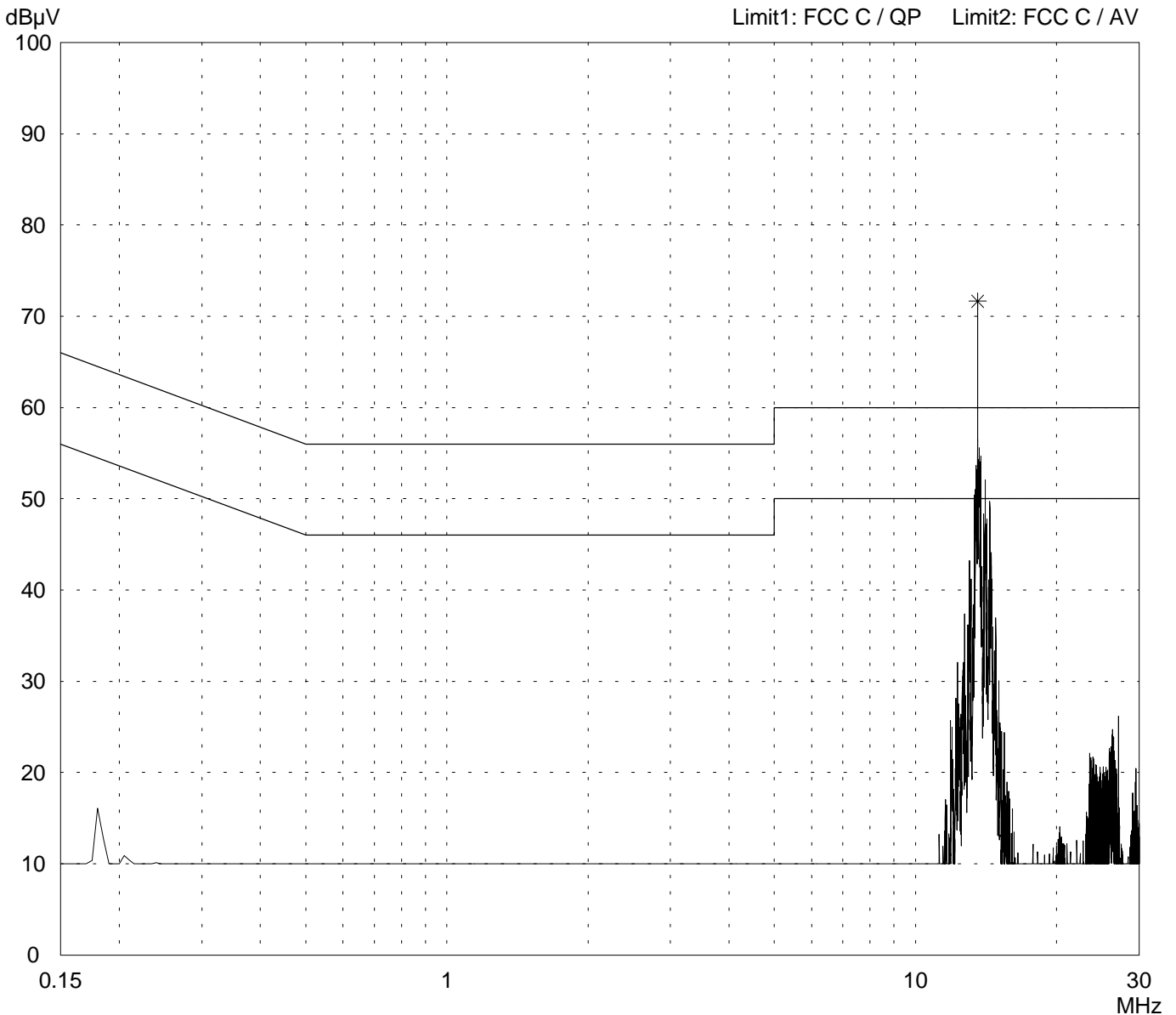
Conducted Emission Test 150 kHz - 30 MHz according to FCC Part 15 Subpart C

Model: MOBY E ANT 4	
Serial no.: Prototype	
Applicant: Siemens AG, Fürth A&D PT 7 D2	
Test site: Shielded room, cabin no. 1	
Tested on: Linecord AC DC power supply Phase L1	
Date of test: 09/24/2004	Operator: T. Eberl
Test performed: automatically	File name:

Mode: - TX mode	
- with TAG	
- with SLG 75	

Detector: Peak / Final Results: QP
--

Final results: 20 dB Margin	25 Subranges
---------------------------------------	---------------------



Result: Limit kept (except carrier)

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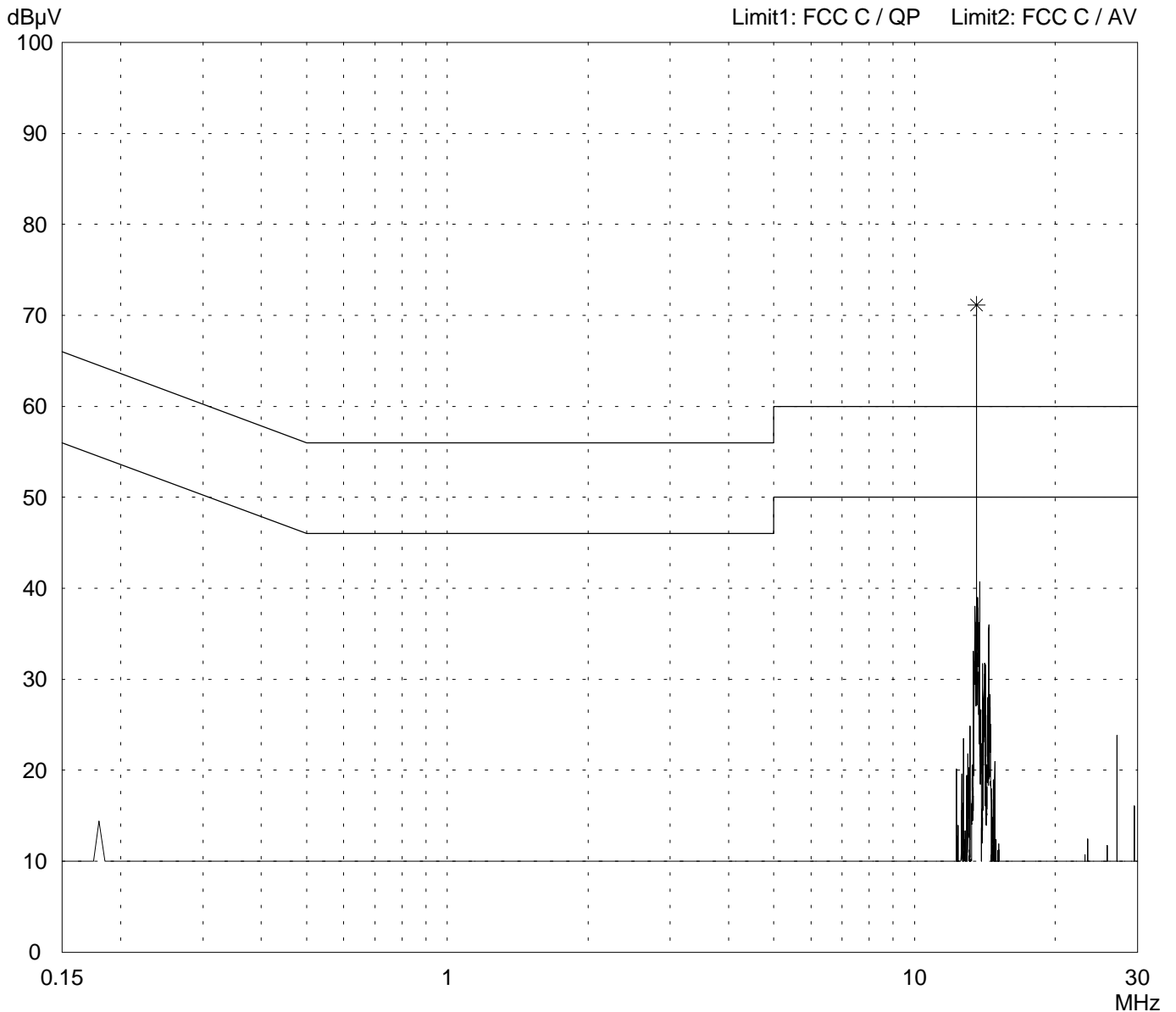
Conducted Emission Test 150 kHz - 30 MHz according to FCC Part 15 Subpart C

Model: MOBY E ANT 4	
Serial no.: Prototype	
Applicant: Siemens AG, Fürth A&D PT 7 D2	
Test site: Shielded room, cabin no. 1	
Tested on: Linecord AC DC power supply Phase L1	
Date of test: 09/24/2004	Operator: T. Eberl
Test performed: automatically	File name:

Mode: - TX mode - with TAG - with SLG 75	
---	--

Detector: Average / Final Results: AV
--

Final results: 20 dB Margin	25 Subranges
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Result: Limit kept (except carrier)
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Conducted Emission Test 150 kHz - 30 MHz according to FCC Part 15 Subpart C

Model:
MOBY E ANT 4

Serial no.:
Prototype

Applicant:
Siemens AG, Fürth A&D PT 7 D2

Test site:
Shielded room, cabin no. 1

Tested on:
**Linecord AC DC power supply
Phase N**

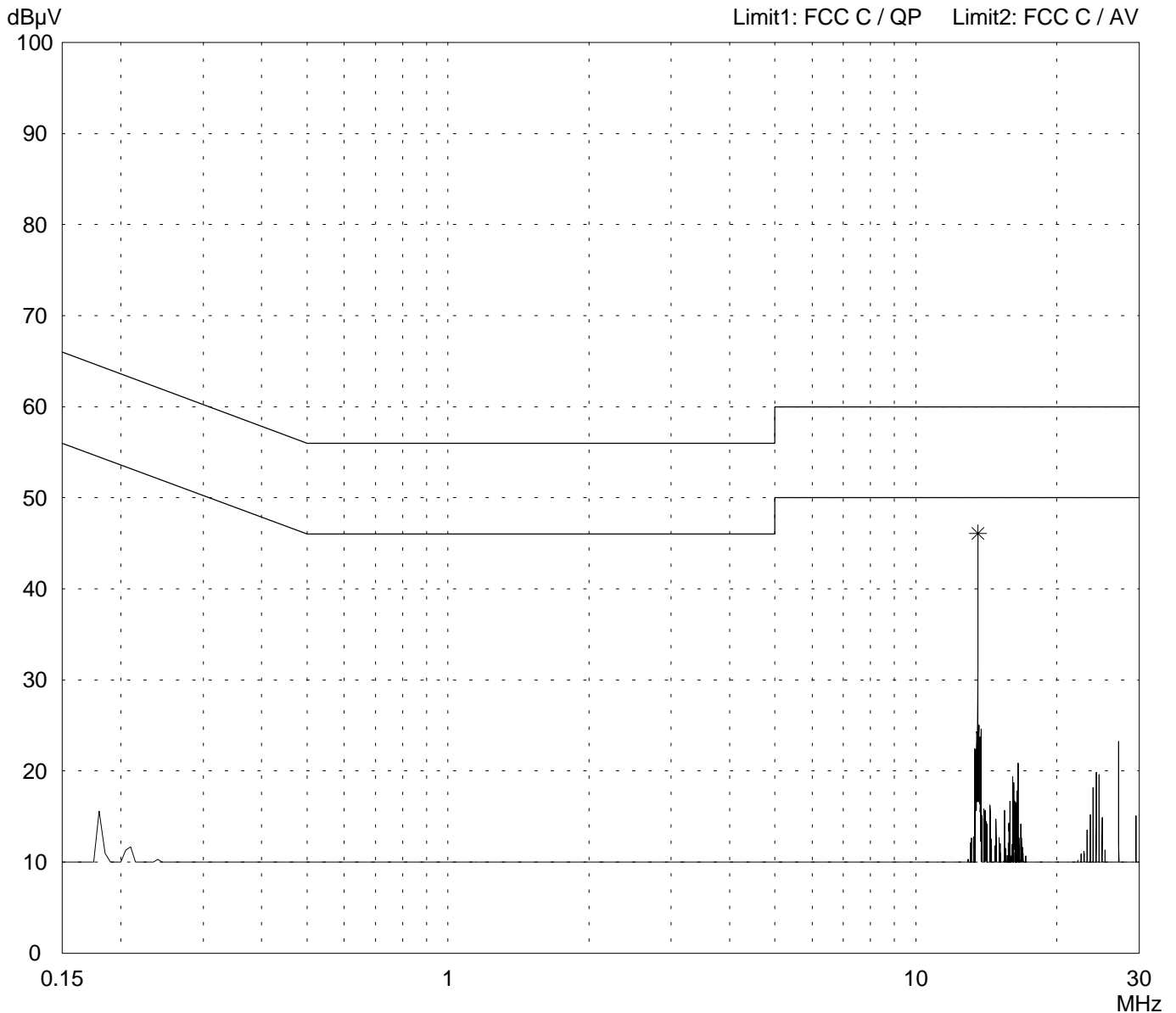
Date of test: **09/24/2004** Operator: **T. Eberl**

Test performed: **automatically** File name:

Mode:
- TX mode
- with TAG
- with SLG 75
- antenna port with 50 R load

Detector:
Peak / Final Results: QP

Final results:
20 dB Margin **25 Subranges**



Result:
Limit kept

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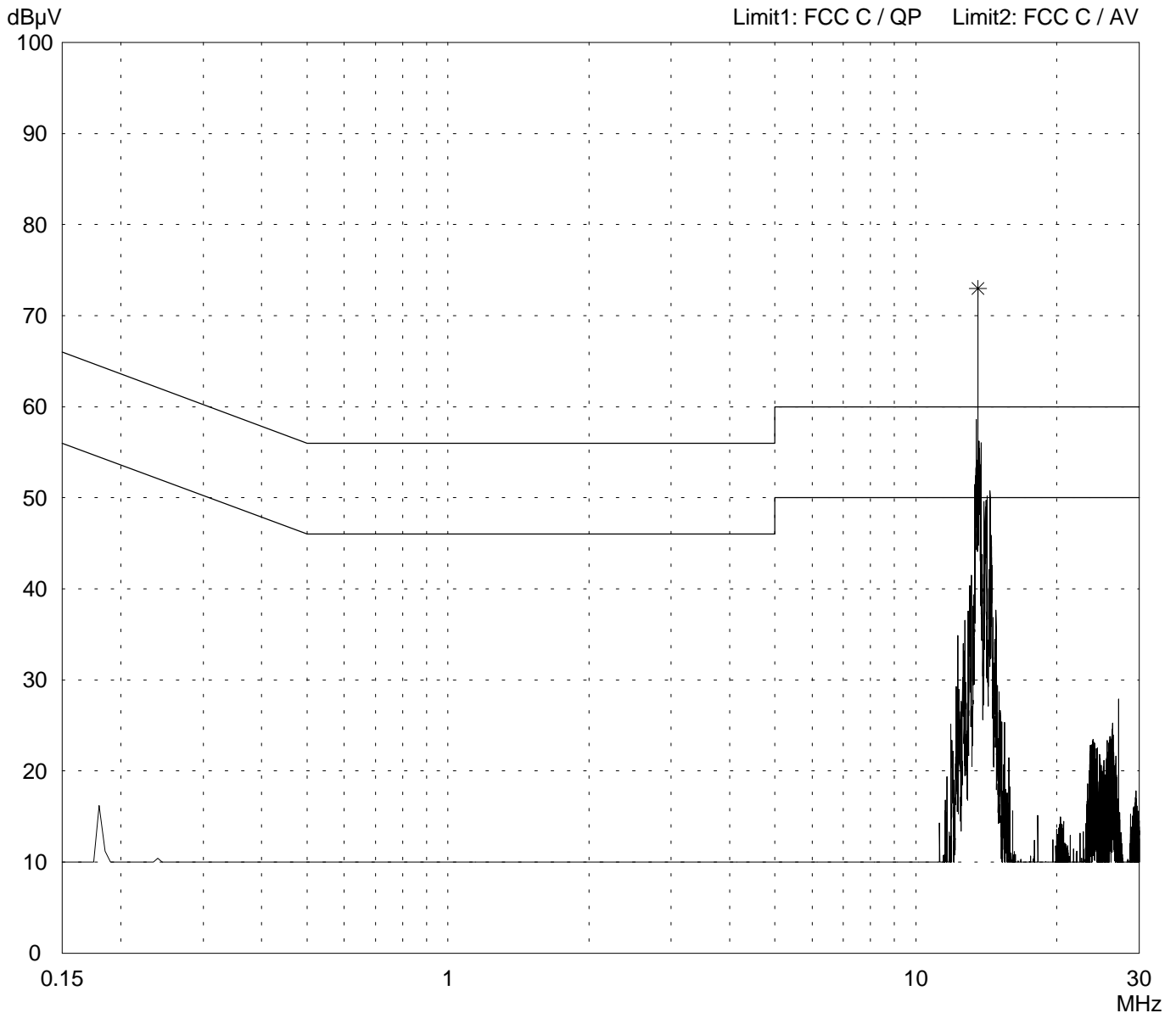
Conducted Emission Test 150 kHz - 30 MHz according to FCC Part 15 Subpart C

Model: MOBY E ANT 4	
Serial no.: Prototype	
Applicant: Siemens AG, Fürth A&D PT 7 D2	
Test site: Shielded room, cabin no. 1	
Tested on: Linecord AC DC power supply Phase N	
Date of test: 09/24/2004	Operator: T. Eberl
Test performed: automatically	File name:

Mode: - TX mode - with TAG - with SLG 75	
---	--

Detector: Peak / Final Results: QP

Final results: 20 dB Margin	25 Subranges
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Result: Limit kept (except carrier)
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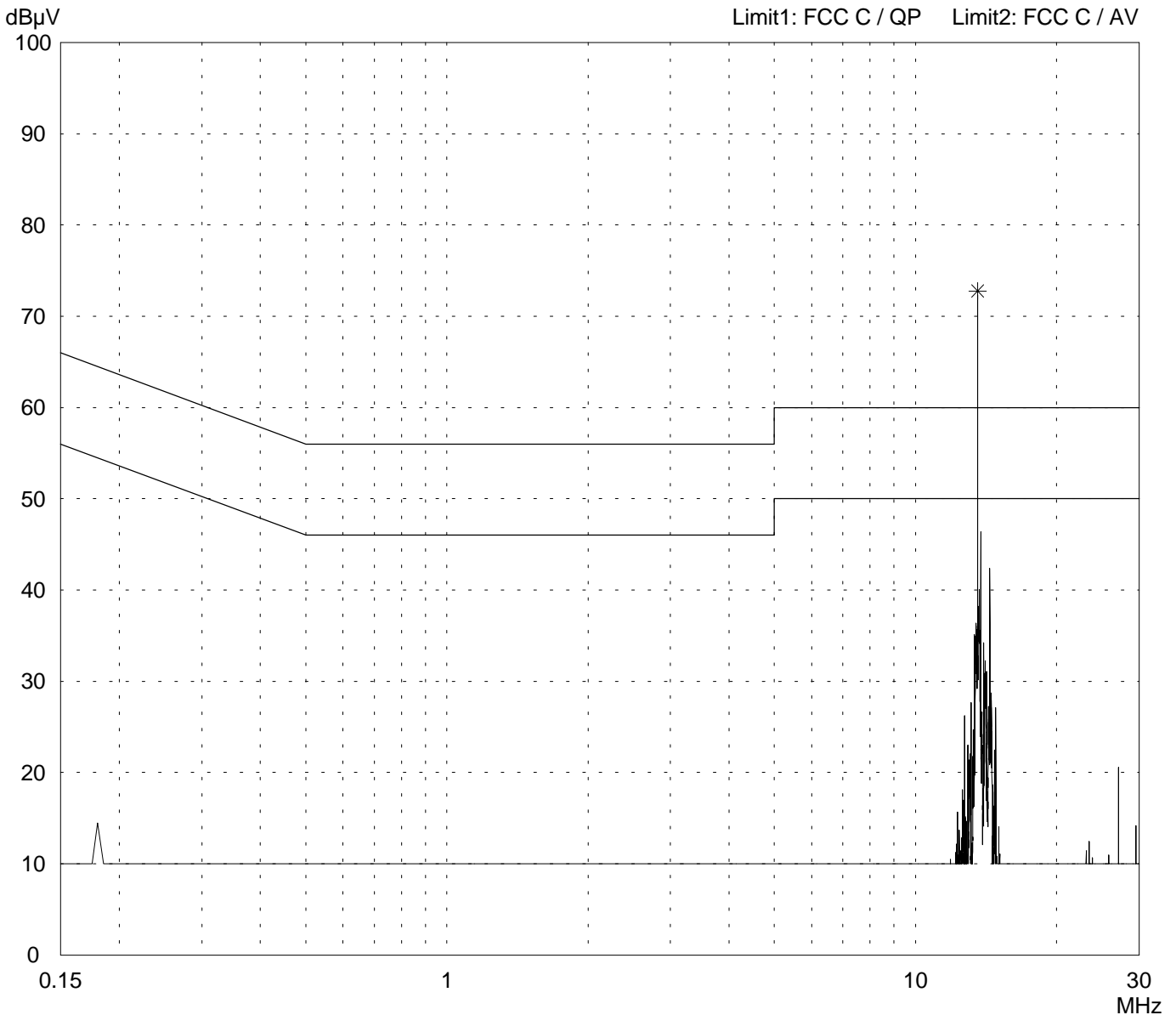
Conducted Emission Test 150 kHz - 30 MHz according to FCC Part 15 Subpart C

Model: MOBY E ANT 4	
Serial no.: Prototype	
Applicant: Siemens AG, Fürth A&D PT 7 D2	
Test site: Shielded room, cabin no. 1	
Tested on: Linecord AC DC power supply Phase N	
Date of test: 09/24/2004	Operator: T. Eberl
Test performed: automatically	File name:

Mode: - TX mode	
- with TAG	
- with SLG 75	

Detector: Average / Final Results: AV	
---	--

Final results: 20 dB Margin	25 Subranges
---------------------------------------	---------------------



Result: Limit kept (except carrier)

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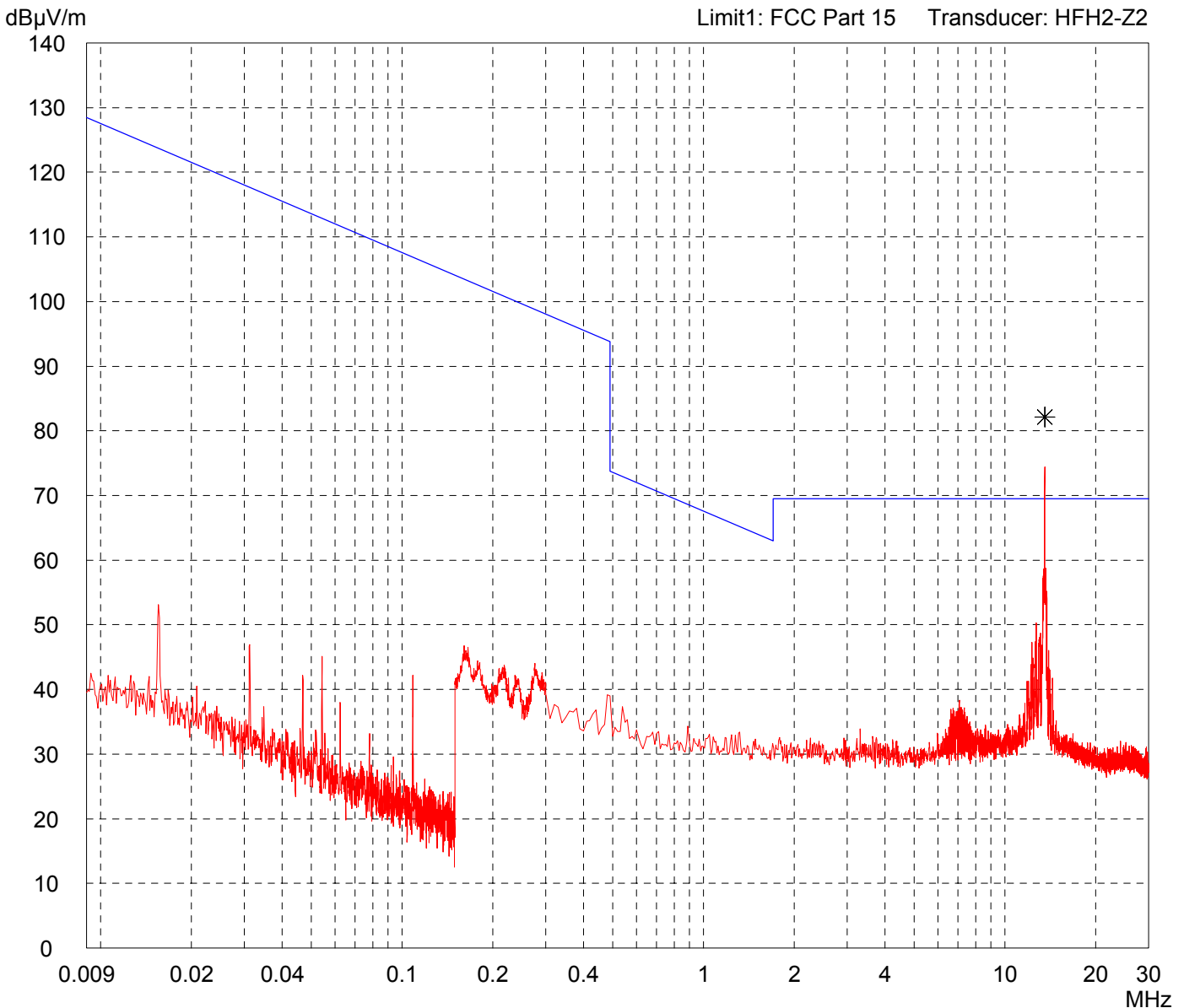
Radiated Emission Test 9 kHz - 30 MHz acc. to FCC Part 15 (Fully Anechoic Chamber)

Model: MOBY E ANT 4	
Serial no.: Prototype	
Applicant: Siemens AG, Fürth A&D PT 7 D2	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Horizontal Polarization	
Date of test: 09/08/2004	Operator: T. Eberl
Test performed: by hand	File name: default.emi

Comment:	
- FCC test setup	
- TX mode	
- without TAG	
- with SLG 75	

Detector: Peak

List of values: 10 dB Margin	50 Subranges
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Result: Prescan

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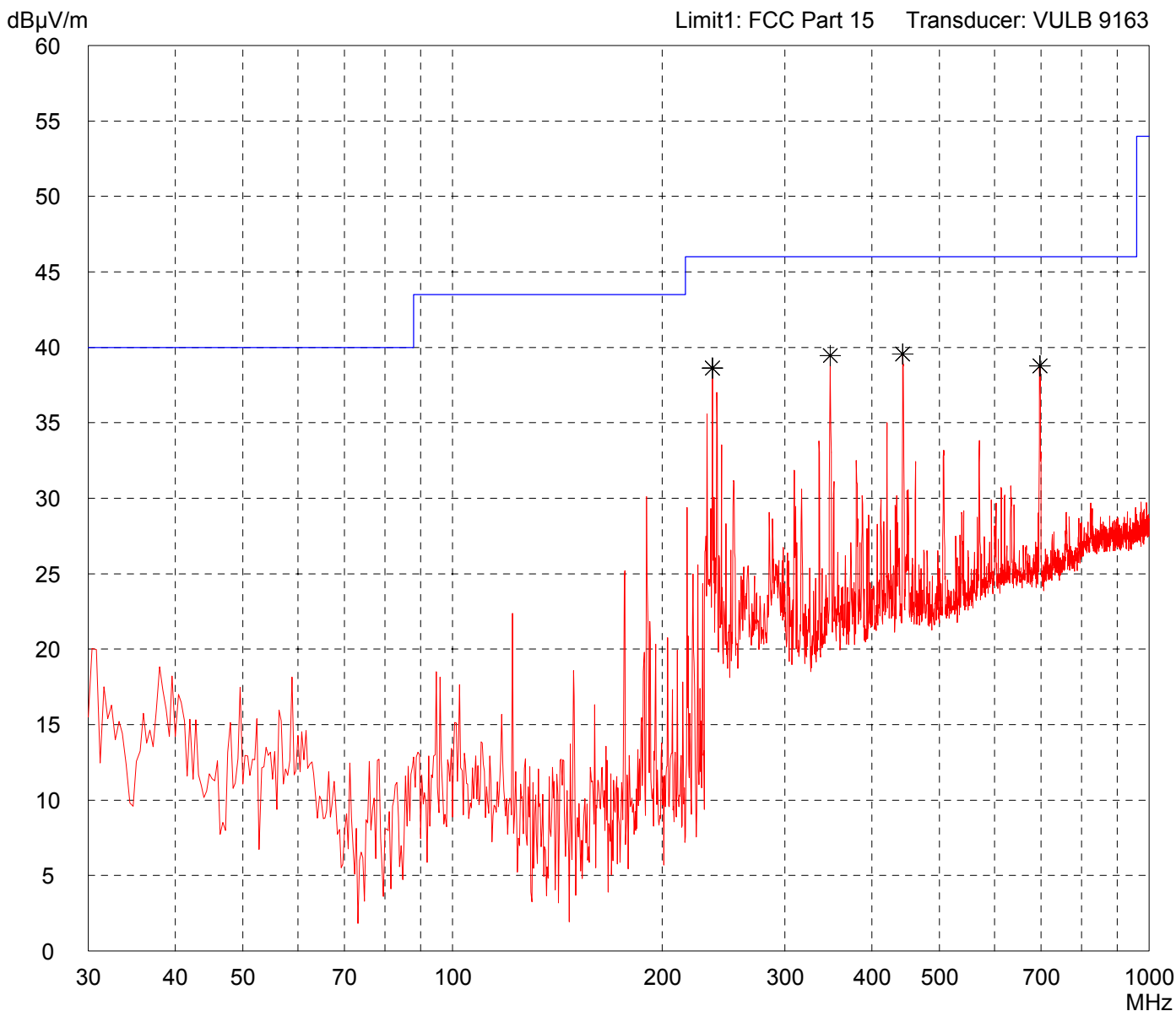
Radiated Emission Test 30 MHz - 1 GHz acc. to FCC Part 15 (Fully Anechoic Chamber)

Model: MOBY E ANT 4	
Serial no.: Prototype	
Applicant: Siemens AG, Fürth A&D PT 7 D2	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Horizontal Polarization	
Date of test: 09/08/2004	Operator: T. Eberl
Test performed: automatically	File name: default.emi

Comment: - FCC test setup - TX mode - with TAG - with SLG 75
--

Detector: Peak

List of values: 10 dB Margin	50 Subranges
--	---------------------



Result: Prescan

Project file: 51905-40556-2	Page of Pages
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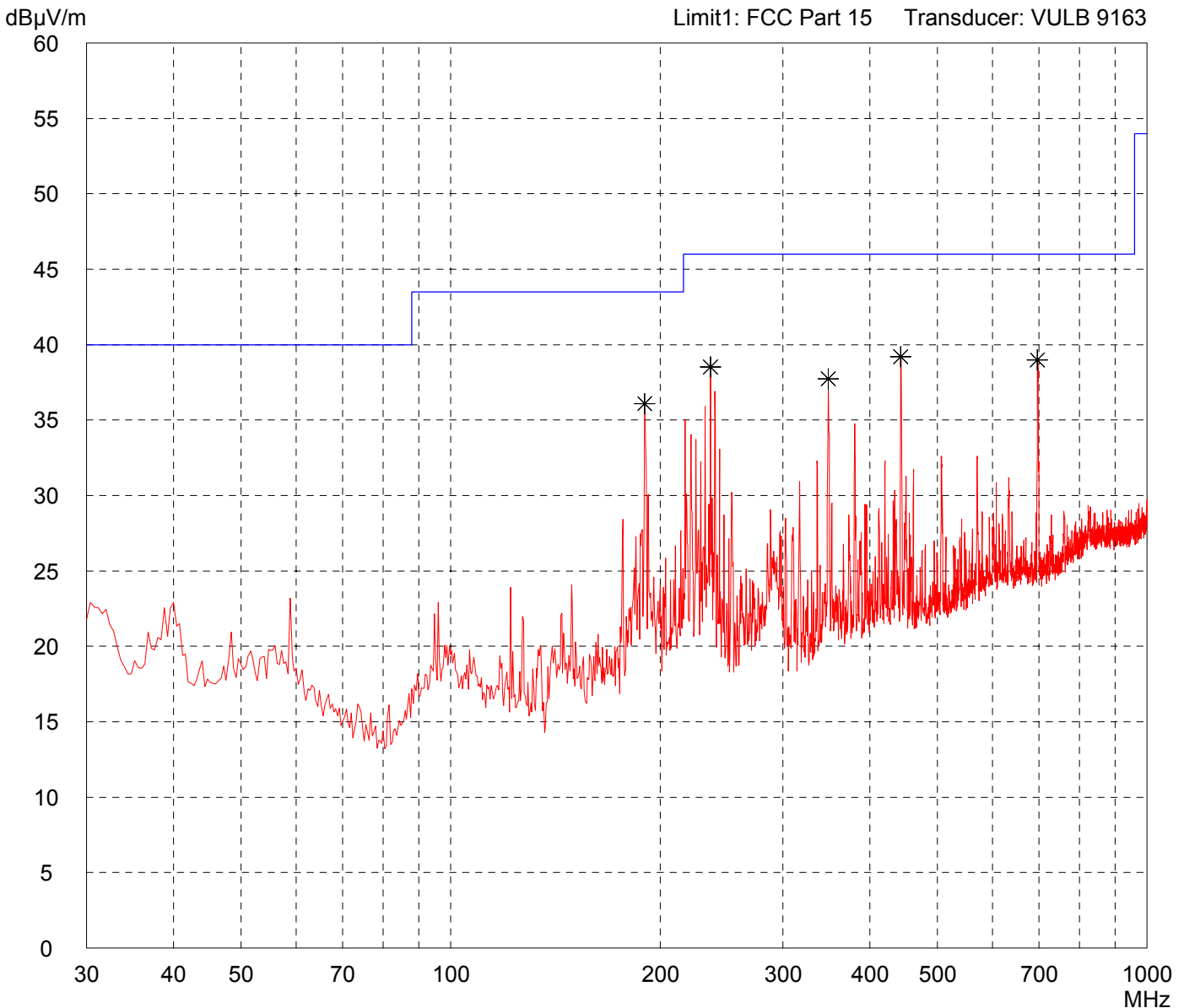
Radiated Emission Test 30 MHz - 1 GHz acc. to FCC Part 15 (Fully Anechoic Chamber)

Model: MOBY E ANT 4	
Serial no.: Prototype	
Applicant: Siemens AG, Fürth A&D PT 7 D2	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Horizontal Polarization	
Date of test: 09/08/2004	Operator: T. Eberl
Test performed: automatically	File name: default.emi

Comment: - FCC test setup - TX mode - without TAG - with SLG 75	
---	--

Detector: Peak

List of values: 10 dB Margin	50 Subranges
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Result: Prescan

Project file: 51905-40556-2	Page of Pages
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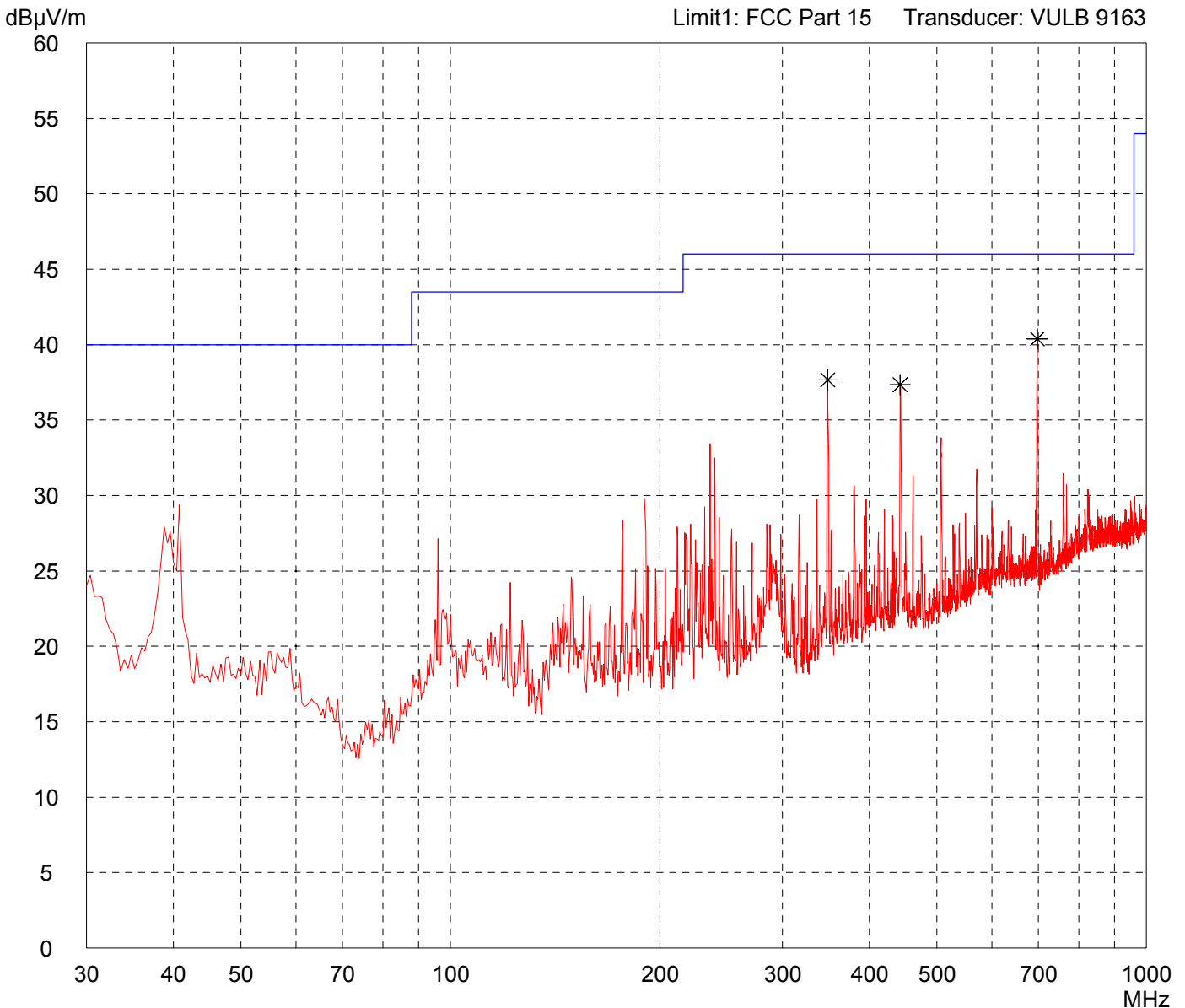
Radiated Emission Test 30 MHz - 1 GHz acc. to FCC Part 15 (Fully Anechoic Chamber)

Model: MOBY E ANT 4	
Serial no.: Prototype	
Applicant: Siemens AG, Fürth A&D PT 7 D2	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Vertical Polarization	
Date of test: 09/08/2004	Operator: T. Eberl
Test performed: automatically	File name: default.emi

Comment:	
- FCC test setup	
- TX mode	
- with TAG	
- with SLG 75	

Detector: Peak

List of values:	
10 dB Margin	50 Subranges



Result: Prescan

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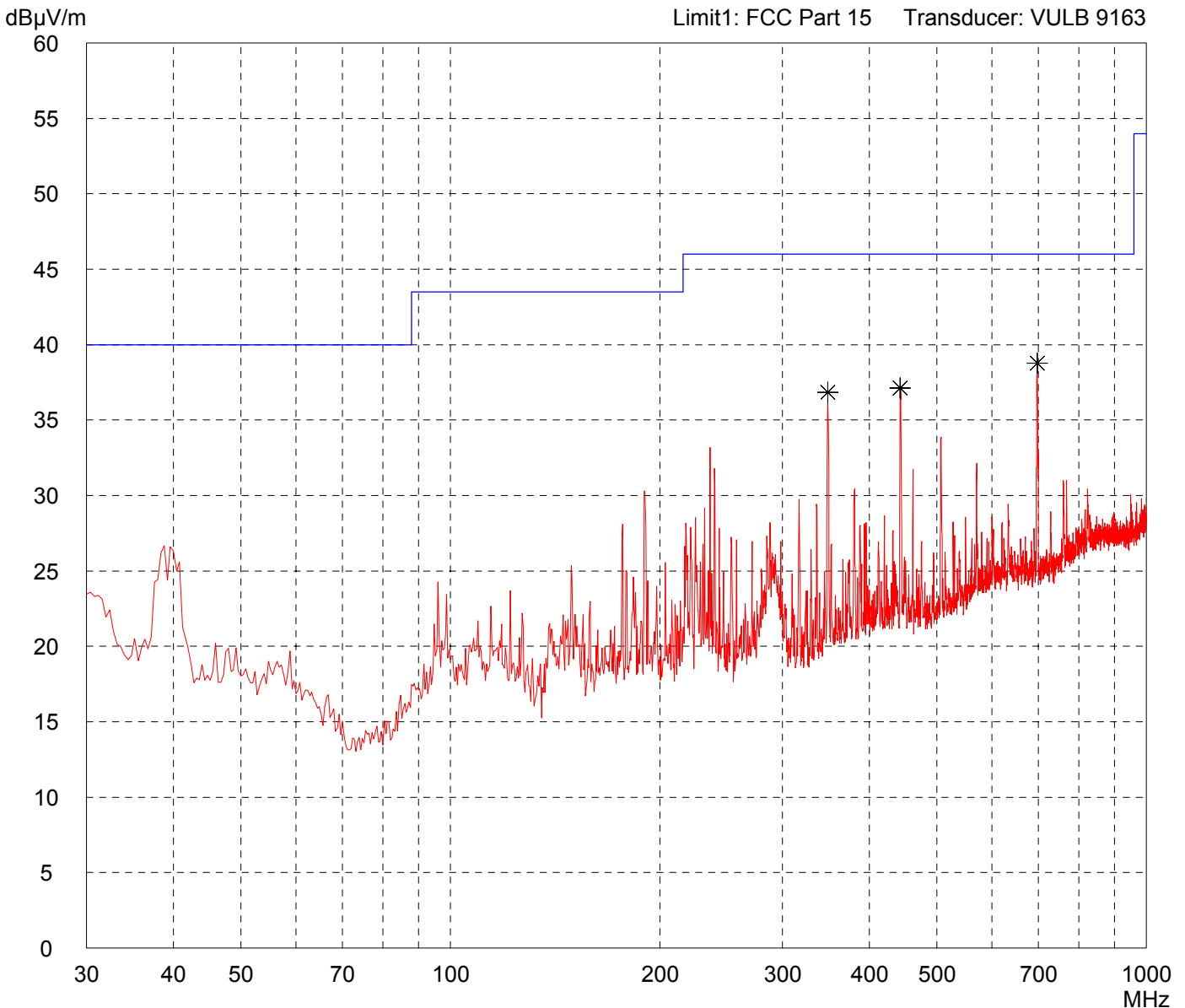
Radiated Emission Test 30 MHz - 1 GHz acc. to FCC Part 15 (Fully Anechoic Chamber)

Model: MOBY E ANT 4	
Serial no.: Prototype	
Applicant: Siemens AG, Fürth A&D PT 7 D2	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Vertical Polarization	
Date of test: 09/08/2004	Operator: T. Eberl
Test performed: automatically	File name: default.emi

Comment:	
- FCC test setup	
- TX mode	
- without TAG	
- with SLG 75	

Detector: Peak

List of values: 10 dB Margin	50 Subranges
--	---------------------



Result: Prescan

Project file: 51905-40556-2	Page of Pages
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