SENTON

■ EMV-Prüfzentrum ■ EMI/EMC-Testcenter ■

Straubing, September 22, 2003

T E S T - R E P O R T

No. 50831-30561-1

for

SAF

Transponder-Write-Station

Applicant:	Hermos Informatik GmbH
Test Specification:	FCC Code of Federal Regulations, CFR 47, Part 15, Section 15.209

Table of Contents

1. Administrative Data 3
2. Identification of Test Laboratory 4
3. Operation Mode of EUT 5
4. Configuration 6
5. Measuring Methods 7
   5.1. Conducted powerline emissions 7
   5.2. Field Strength of Emissions, Prescans in a fully-anechoic Room 9
   5.3. Radiated Emission Measurement at Open Area Test Site 10
6. Photographs Taken During Testing 11
7. List of Measurements 16
8. Referenced Regulations 20

Charts taken during testing 21

1. Administrative Data

Test item (EUT)	
Type designation	SAF
Serial number(s):	00-0001 SAF
Type of equipment:	Transponder-Read/Write-Station
Parts/accessories:	
FCC-ID:	N5GSAF
Technical data	
Frequency range	134.2 kHz
Operational frequencies	134.2 kHz
Type of modulation	
Pulse frequency	N/A
Pulse width	N/A
Antenna	Integrated
Power supply	DC 24 V
Applicant: (full address)	Hermos Informatik GmbH Gartenstrasse 19 D 95490 Mistelgau Germany
Contract identification:	---
Contact person:	Mr. Lothar Düngfelder
Manufacturer:	Hermos Informatik GmbH
Application details	
Receipt of EUT:	13th August 2003
Date of test:	September 2003
Note:	
Responsible for testing:	Mr. Martin Steindl
Responsible for test report:	Mr. Martin Steindl

2. Identification of Test Laboratory

DETAILS OF THE TEST LABORATORY	
COMPANY NAME:	Senton GmbH EMI/EMC Test Center
ADDRESS:	Aeussere Fruehlingsstrasse 45 D-94315 Straubing Germany
LABORATORY ACCREDITATION:	DAR-Registration No. TTI-P-G 062/94-01
FCC TEST SITE LISTING	
INDUSTRY CANADA TEST SITE REGISTRATION	IC 3050
NAME FOR CONTACT PURPOSES:	Mr. Johann Roidt
TELEPHONE: (+49) (0)9421 5522-0	FAX: (+49) (0)9421 5522-99

PERSONNEL INVOLVED IN THIS TEST REPORT	
TECHNICAL DIRECTOR:	 Mr. Johann Roidt
RESPONSIBLE FOR TESTING:	Mr. Martin Steindl
RESPONSIBLE FOR TEST REPORT:	Mr. Martin Steindl/Johann Roidt

SUMMARY OF TEST RESULTS
The tested sample complies with the requirements set forth in the **Code of Regulations CFR 47, Part 15, Section 15.109**

3. Operation Mode of EUT

The EUT reads an ID-code from a barcode and writes its data to an transponder.

4. Configuration

Configuration of the EUT
Not applicable

Cables connected to the EUT
• DC 24 V power connector • Ethernet-Adapter

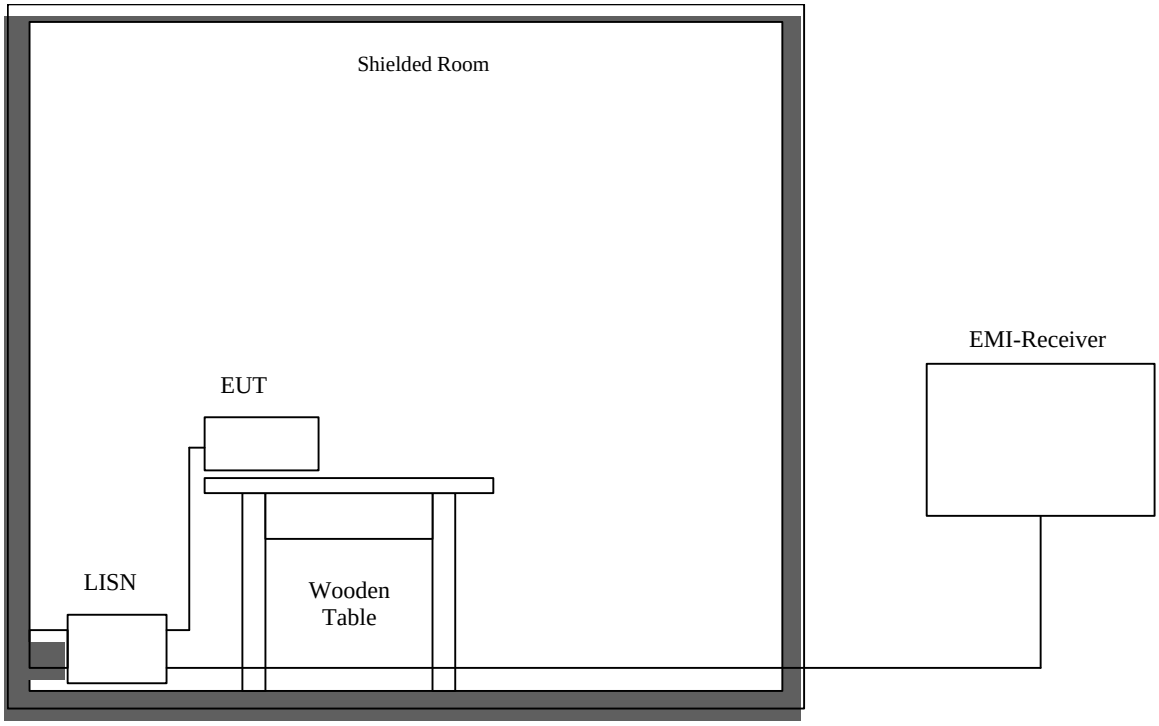
Peripheral devices connected to the EUT
Not applicable

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.



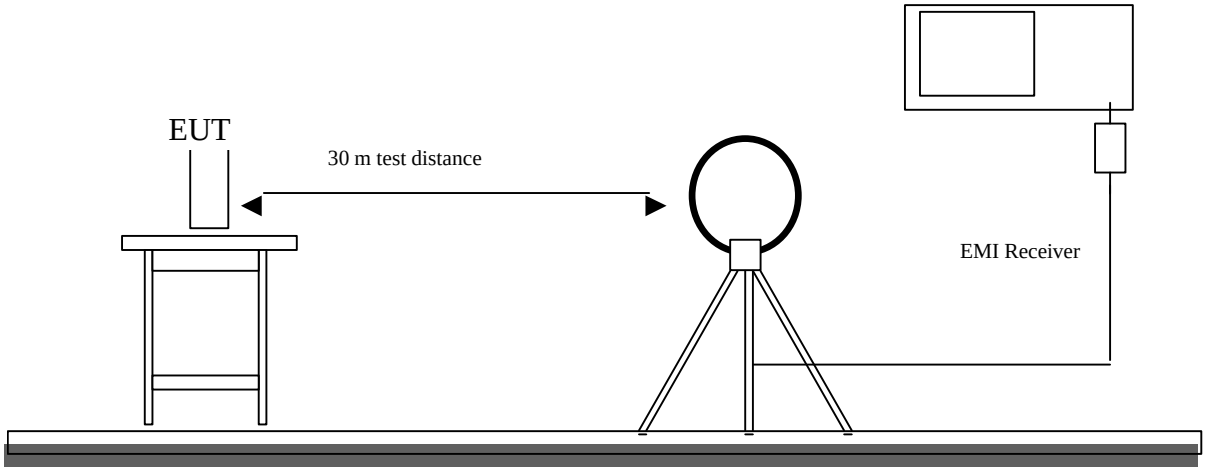
Test instruments used:

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. Radiated Emission Measurement 9 kHz – 30 MHz

Rules and Specifications:	Sections 15.109 & 15.209
Guide:	ANSI C63.4 1997

Measurement Procedure:
Radiated emissions in the frequency range 9 kHz – 30 MHz were measured initially at a distance of 3 meters. A prescan at 3 meter distance were performed in a shielded room with the detector of the spectrum analyzer or EMI Receiver set to peak. 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. 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 is determined by making a second measurement at 10 meter distance. In cases of very low emissions measurements are performed at shorter distances and results are extrapolated to the required 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.



Test instruments used:

No.	Type	Model	Serial Number	Manufacturer
01	Test receiver	ESH 3	880112/032	Rohde & Schwarz
02	Loop antenna	HFH2-Z2	882964/1	Rohde & Schwarz
03	Open Field Test Site	No. 1	N/A	Senton

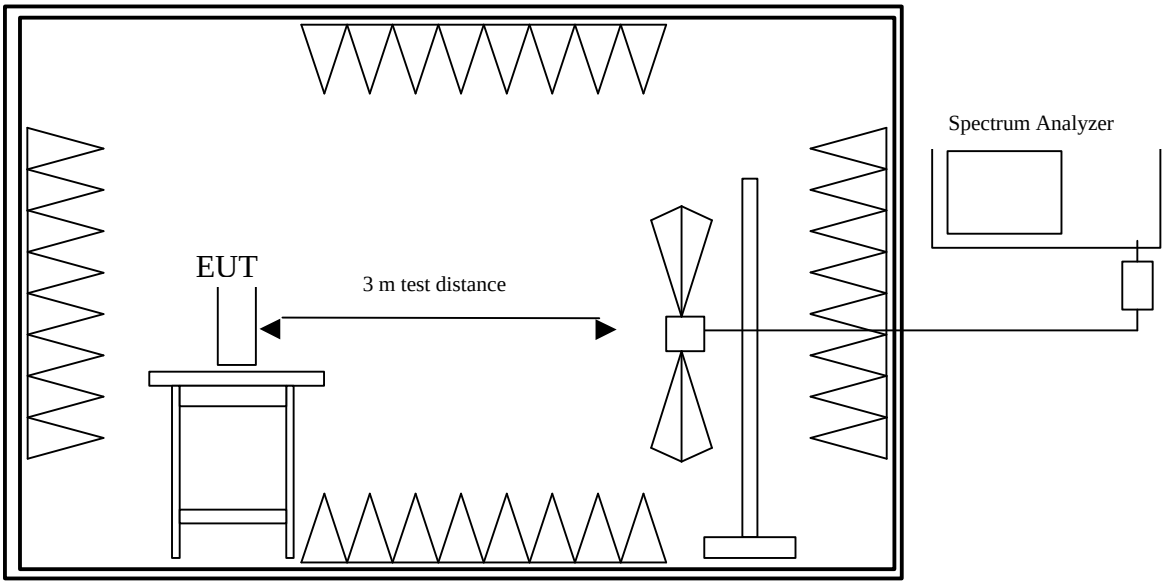
5.3. Field Strength of Emissions, Prescans in a fully-anechoic Room

Rules and Specifications:	Sections 15.109 & 15.209
Guide:	ANSI C63.4 1997

Measurement Procedure:

Radiated emissions are measured over the frequency range from 30 MHz to the 5th harmonic of the maximum frequency of the EUT.

Measurements were 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 bandwidth set to 100 kHz. All tests were 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 an open-area test-site was used. 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.



Fully anechoic chamber

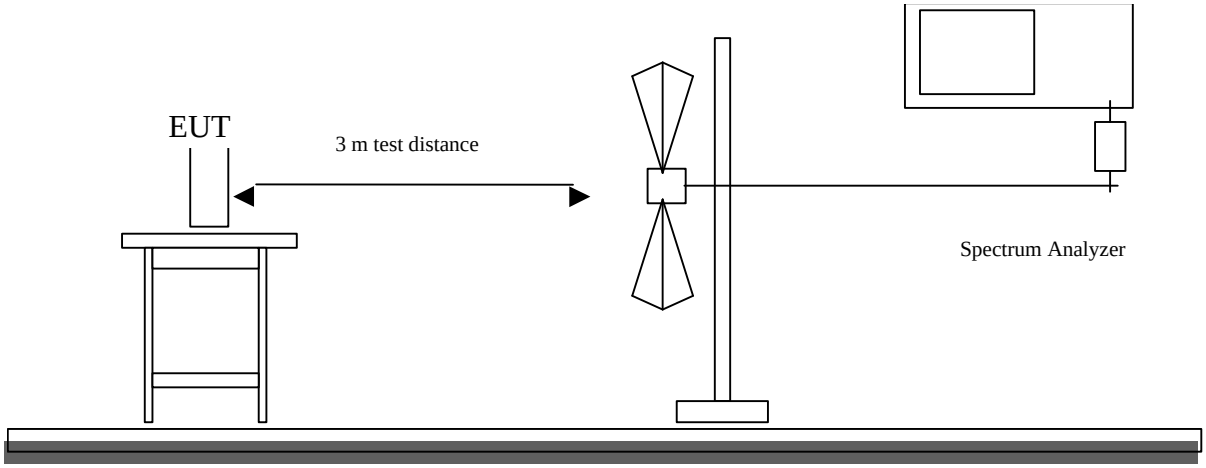
Test instruments used:

No.	Type	Model	Serial Number	Manufacturer
01	Spectrum Analyzer	FSP 30	100063	Rohde & Schwarz
113	Preamplifier	CPA9231A	3393	Schaffner
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	Fully anechoic room	No. 2	1452	Albatross Projects

5.4. Radiated Emission Measurement at Open Area Test Site

Rules and Specifications:	Sections 15.109 & 15.209
Guide:	ANSI C63.4 1997

Measurement Procedure:
Radiated emissions are measured in the frequency range 1 GHz to 8 GHz. Resolution and video bandwidth of the spectrum analyzer are set to 1 MHz. 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. Additional measurements are performed at critical frequencies with reduced span. 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. All tests are performed in a fully-anechoic chamber with a test-distance of 3 meters. 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


HERMOS
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Test setup for radiated emission measurement (fully anechoic room)

Test setup for radiated emission measurement (open-area test-side)

7. List of Measurements

FCC Part 15			
Section(s):	**Test**	**Page(s)**	**Result**
15.205	Restricted Bands		Pass
15.207	AC Powerline Emissions	---	Pass
15.109	Radiated Spurious emissions	---	Pass

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.
Distance:	Conducted Measurement
Date of Test:	26 March 2003

Frequency (MHz)	Detector	Analyzer Reading (dBµV)	Correction Factor (dB)	Final Value (dBµV)	Limit (dBµV)	Margin (dB)
0.150 - 30	QP	**				

**** = All measurements show more than 20 dB margin to the limit**

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

Sample calculation of Final values:

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

Test Results:	Pass	

Fieldstrength of Emission 9 kHz – 30 MHz

Rules and Specifications:	15.109, 125.209 Radiated Emission Limits		
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)	Measurement Distance (meters)
	0.009.0.490 0.490-1.705 1.705 – 30	2400/F(kHz) 24000/F(kHz) 30	300 30 30

Tested Frequency:	
Test Site:	Open Area Test Site
Distance:	30 Meter

Frequency (MHz)	Detector	Antenna Polarization	Analyzer Reading (dBµV)	Correction Factor (dB/m)	Field Strength (dBµV/m)	Limit (dBµV/m)	Margin (dB)
0.1342	AV		39.8	20	59.8	65.00	**-5.2**
0.2684	AV		-23.9	20	-3.9	59.00	**-62.9**
0.4026	AV		-31.9	20	-11.9	55.50	**-67.4**
0.805	Q.P		-22.7	20	-2.7	29.50	**-32.2**

***** = 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	

Fieldstrength of Emission 30 MHz – 1 GHz

Rules and Specifications:	15.109, 125.209 Radiated Emission Limits
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

Tested Frequency:	794,300 MHz
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)
132,6	QP	Hor	23,2	13,2	36,4	43,5	**-7,1**
157,5	QP	Hor	23,0	14,1	37,1	43,5	**-6,4**
171,8	QP	Hor	26,6	14,9	41,5	43,5	**-2,0**
186,1	QP	Hor	22,9	15,8	38,7	43,5	**-4,8**
265,4	QP	Hor	21,5	18,0	39,5	46,0	**-6,5**
397,9	QP	Hor	19,3	18,6	37,9	46,0	**-8,1**

***** = 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	

8. Referenced Regulations

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

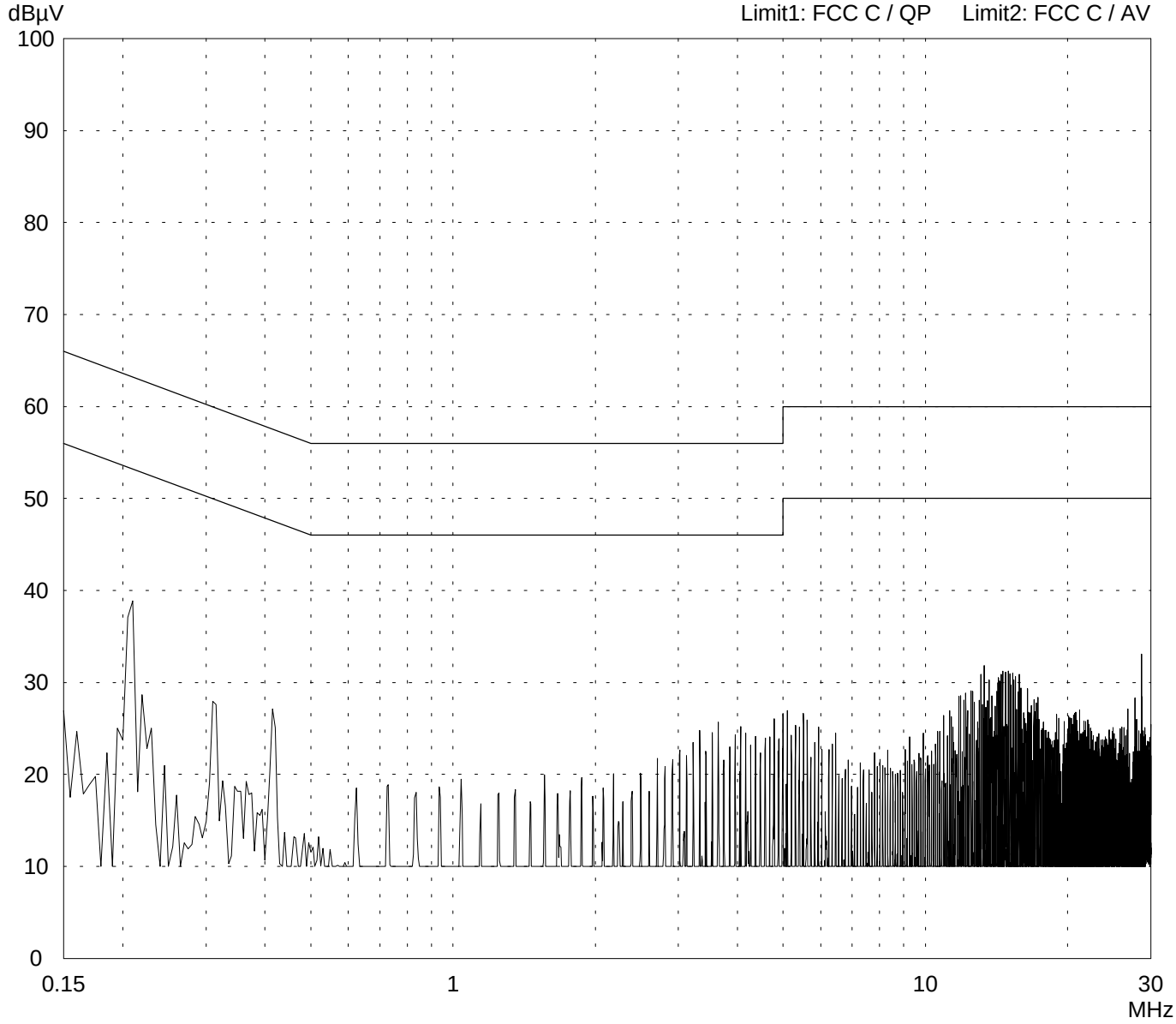
☒	CFR 47 Part 2	Code of Federal Regulations Part 2 (Frequency Allocations And Radio Treaty Matters, General Rules And Regulations) of the Federal Communication Commission (FCC)	October 1, 2001
☐	CFR 47 Part 15 Subpart A	Code of Federal Regulations Part 15 (Radio Frequency Devices), Subpart A (General) 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	October, 1992
☐	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

Charts taken during testing

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

Model: Transponderschreibstation SAF	Mode: - AC 115 V power supply - reading barcode continiously - reading/writing tag continiously
Serial no.: 00-0001-SAF	
Applicant: Hermos Informatik GmbH	
Test site: Shielded room, cabin no. 2	
Tested on: Linecord Phase L1	
Date of test: 09/01/2003 — Operator: M. Steindl	
Test performed: automatically — File name:	

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



Result: Limit kept	Project file: 50831-30561 — Page of Pages

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

Model: Transponderschreibstation SAF	Mode: - AC 115 V power supply - reading barcode continiously - reading/writing tag continiously
Serial no.: 00-0001-SAF	
Applicant: Hermos Informatik GmbH	
Test site: Shielded room, cabin no. 2	
Tested on: Linecord Phase L1	
Date of test: 09/01/2003 — Operator: M. Steindl	
Test performed: automatically — File name:	

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

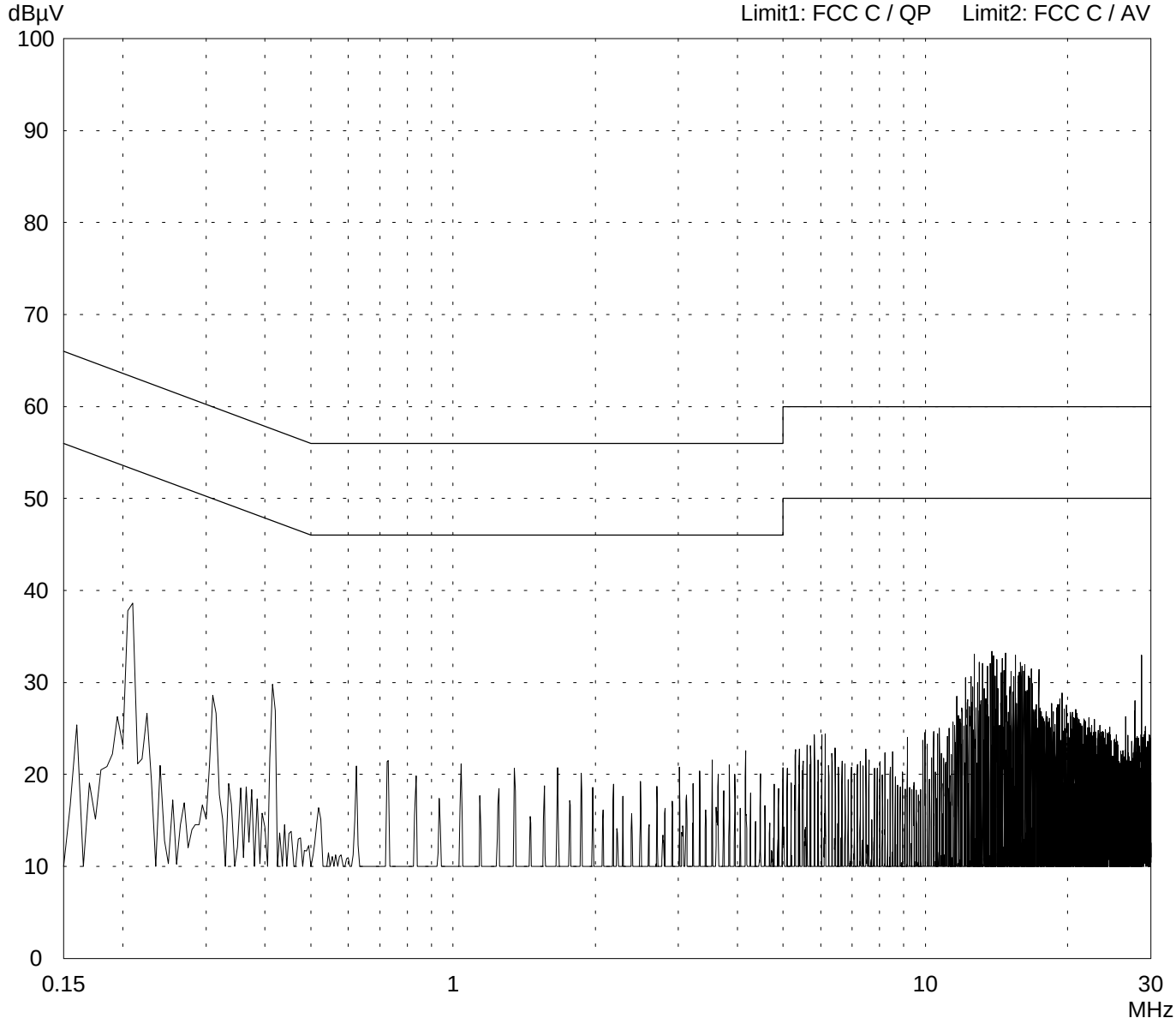
Frequency MHz	*Reading dBµV*	*Correction factor dB*	*Value dBµV*	*Limit dBµV*	*Limit exceeded*
no results					

Result: Limit kept	Project file: 50831-30561 — Page of Pages

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

Model: Transponderschreibstation SAF	Mode: - AC 115 V power supply - reading barcode continiously - reading/writing tag continiously
Serial no.: 00-0001-SAF	
Applicant: Hermos Informatik GmbH	
Test site: Shielded room, cabin no. 2	
Tested on: Linecord Phase N	
Date of test: 09/01/2003 — Operator: M. Steindl	
Test performed: automatically — File name:	

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



Result: Limit kept	Project file: 50831-30561 — Page of Pages

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

Model: Transponderschreibstation SAF	Mode: - AC 115 V power supply - reading barcode continiously - reading/writing tag continiously
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Applicant: Hermos Informatik GmbH	
Test site: Shielded room, cabin no. 2	
Tested on: Linecord Phase N	
Date of test: 09/01/2003 — Operator: M. Steindl	
Test performed: automatically — File name:	

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

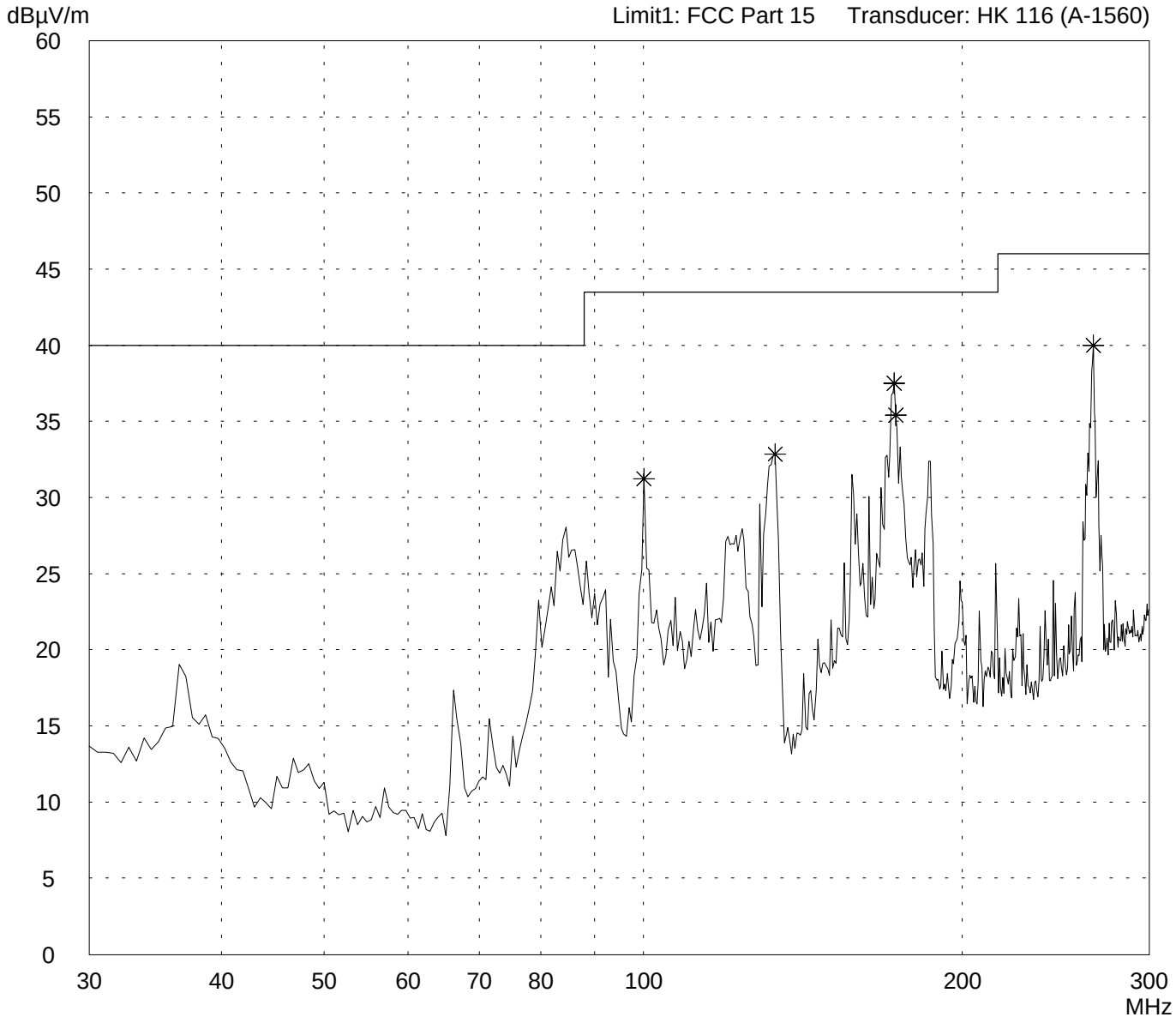
Frequency MHz	*Reading dBµV*	*Correction factor dB*	*Value dBµV*	*Limit dBµV*	*Limit exceeded*
no results					

Result: Limit kept	Project file: 50831-30561 — Page of Pages

Radiated Emission Test 30 MHz - 300 MHz
acc. to FCC Part 15 (Fully Anechoic Chamber)

Model: Transponderschreibstation SAF	Comment: - AC 115 V power supply - reading barcode continiously - reading tag continiously
Serial no.: 00-0001-SAF	
Applicant: Hermos Informatik GmbH	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Vertical Polarization	
Date of test: 09/01/2003 / Operator: M. Steindl	
Test performed: automatically / File name: default.emi	

Detector: Peak	List of values: Selected by hand



Result: Prescan	Project file: 50831-30561 Page of Pages

Radiated Emission Test 30 MHz - 300 MHz
acc. to FCC Part 15 (Fully Anechoic Chamber)

Model: Transponderschreibstation SAF	Comment: - AC 115 V power supply - reading barcode continiously - reading tag continiously
Serial no.: 00-0001-SAF	
Applicant: Hermos Informatik GmbH	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Vertical Polarization	
Date of test: 09/01/2003 / Operator: M. Steindl	
Test performed: automatically / File name: default.emi	

Detector: Peak	List of values: Selected by hand

Frequency [MHz]	*Reading [dBµV]*	*Correction factor [dB]*	*Value [dBµV/m]*	*Limit [dBµV/m]*	*Limit exceeded*
100.200000	19.60	11.62	31.22	43.50	
133.140000	19.33	13.52	32.85	43.50	
172.560000	23.00	14.51	37.51	43.50	
173.100000	20.86	14.55	35.40	43.50	
265.980000	19.37	20.63	40.00	46.00	

Result: Prescan	Project file: 50831-30561

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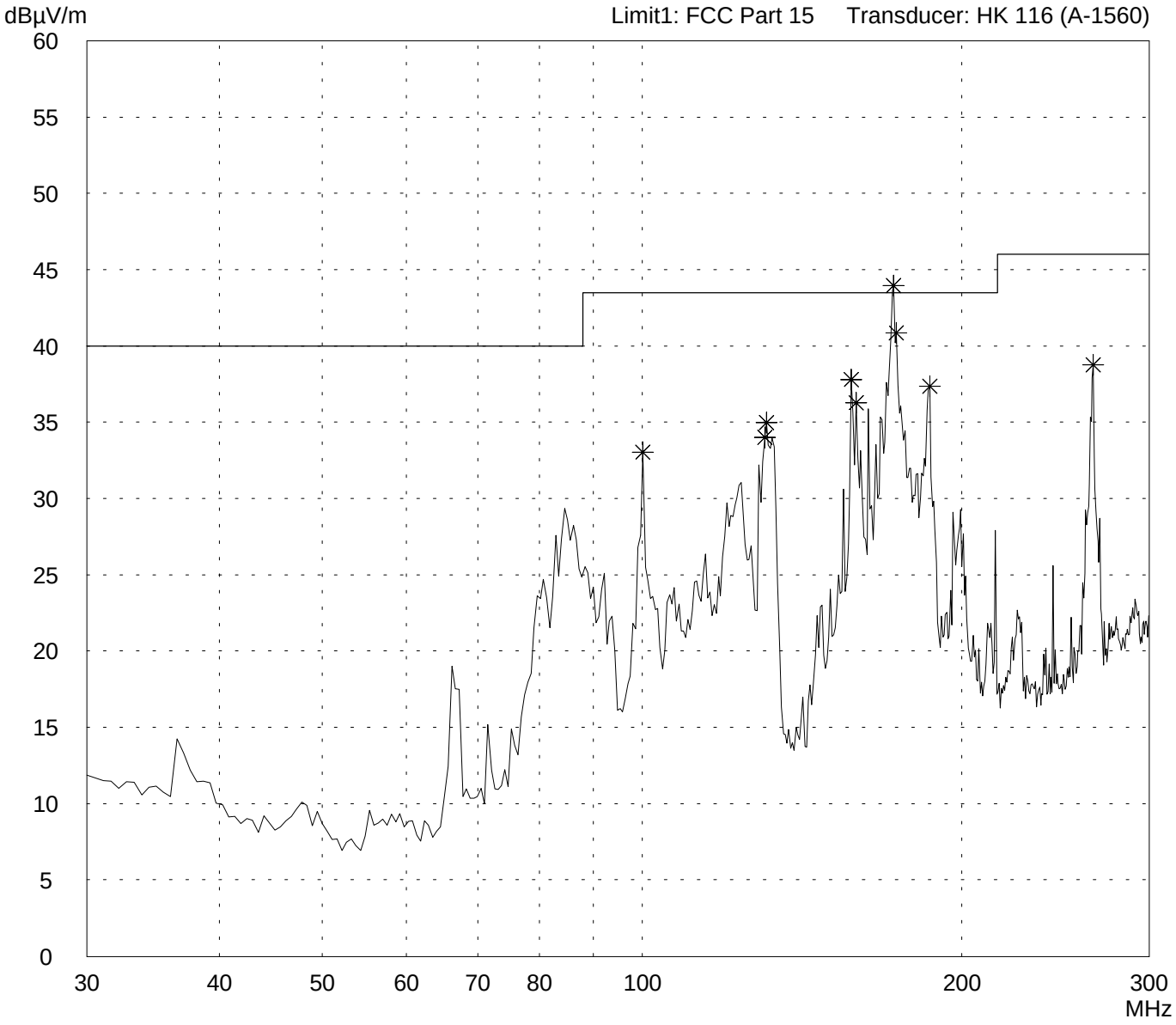
Radiated Emission Test 30 MHz - 300 MHz
acc. to FCC Part 15 (Fully Anechoic Chamber)

Model: Transponderschreibstation SAF	Comment: - AC 115 V power supply - reading barcode continiously - reading tag continiously
Serial no.: 00-0001-SAF	
Applicant: Hermos Informatik GmbH	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Horizontal Polarization	
Date of test: 09/01/2003 — Operator: M. Steindl	
Test performed: automatically — File name: default.emi	

Detector: Peak	List of values: Selected by hand



Result: Prescan	Project file: 50831-30561 — Page of Pages

Radiated Emission Test 30 MHz - 300 MHz
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Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Horizontal Polarization	
Date of test: 09/01/2003 / Operator: M. Steindl	
Test performed: automatically / File name: default.emi	

Detector: Peak	List of values: Selected by hand

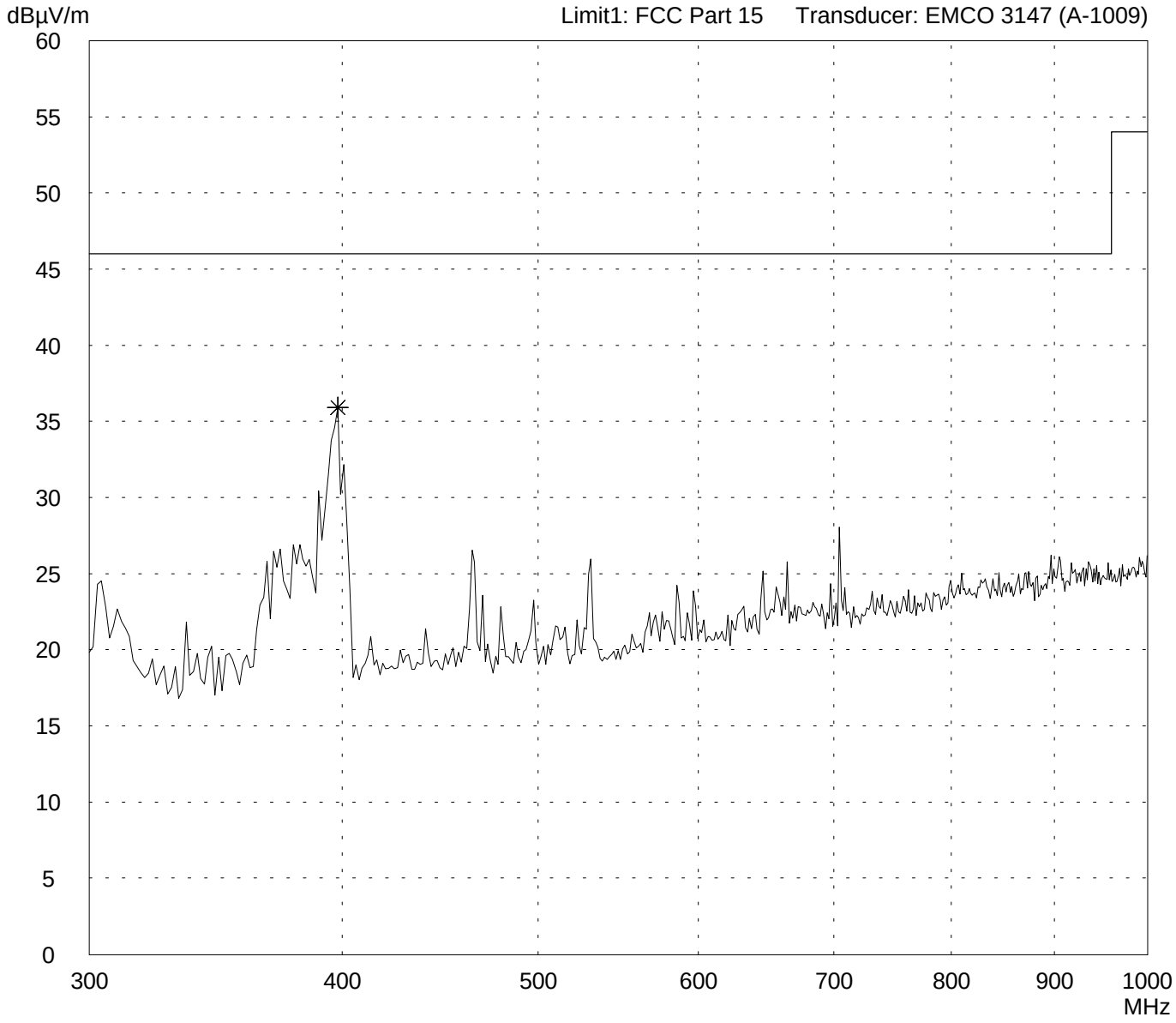
Frequency [MHz]	*Reading [dBµV]*	*Correction factor [dB]*	*Value [dBµV/m]*	*Limit [dBµV/m]*	*Limit exceeded*
100.200000	21.43	11.62	33.05	43.50	
130.440000	20.63	13.36	33.99	43.50	
130.980000	21.57	13.39	34.96	43.50	
157.440000	23.45	14.35	37.80	43.50	
159.060000	21.93	14.35	36.28	43.50	
172.560000	29.42	14.51	43.94	43.50	*
173.640000	26.26	14.58	40.84	43.50	
186.600000	22.34	15.00	37.35	43.50	
265.980000	18.13	20.63	38.76	46.00	

Result: Prescan	Project file: 50831-30561 Page of Pages

Radiated Emission Test 300 MHz - 1 GHz
acc. to FCC Part 15 (Fully Anechoic Chamber)

Model: Transponderschreibstation SAF	Comment: - AC 115 V power supply - reading barcode continiously - reading tag continiously
Serial no.: 00-0001-SAF	
Applicant: Hermos Informatik GmbH	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Horizontal Polarization	
Date of test: 09/01/2003 / Operator: M. Steindl	
Test performed: automatically / File name: default.emi	

Detector: Peak	List of values: Selected by hand



Result: Prescan	Project file: 50831-30561 Page of Pages

Radiated Emission Test 300 MHz - 1 GHz
acc. to FCC Part 15 (Fully Anechoic Chamber)

Model: Transponderschreibstation SAF	Comment: - AC 115 V power supply - reading barcode continiously - reading tag continiously
Serial no.: 00-0001-SAF	
Applicant: Hermos Informatik GmbH	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Horizontal Polarization	
Date of test: 09/01/2003 / Operator: M. Steindl	
Test performed: automatically / File name: default.emi	

Detector: Peak	List of values: Selected by hand

Frequency [MHz]	*Reading [dBµV]*	*Correction factor [dB]*	*Value [dBµV/m]*	*Limit [dBµV/m]*	*Limit exceeded*
398.000000	18.04	17.89	35.93	46.00	

Result: Prescan	Project file: 50831-30561

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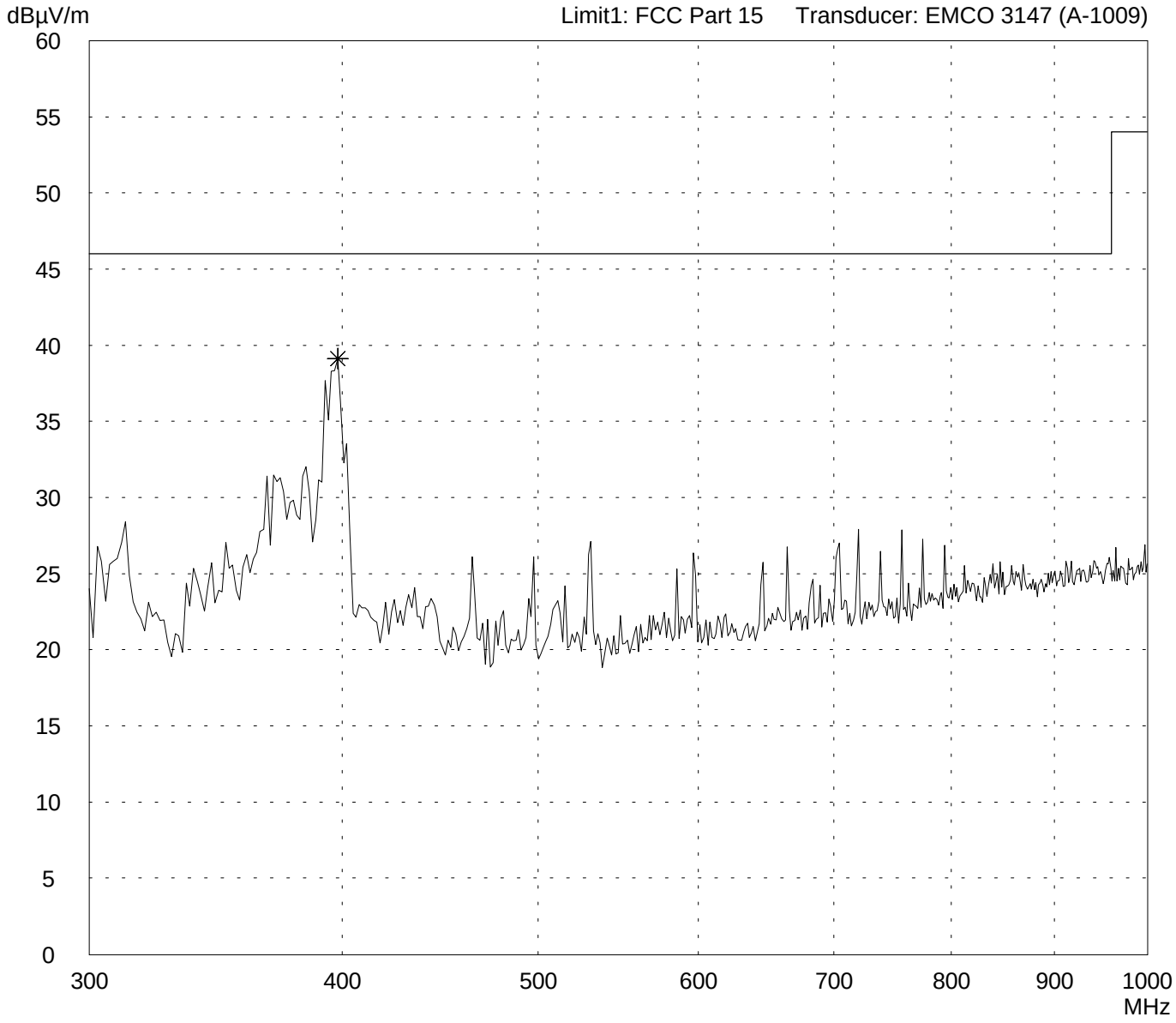
Radiated Emission Test 300 MHz - 1 GHz
acc. to FCC Part 15 (Fully Anechoic Chamber)

Model: Transponderschreibstation SAF	Comment: - AC 115 V power supply - reading barcode continiously - reading tag continiously
Serial no.: 00-0001-SAF	
Applicant: Hermos Informatik GmbH	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Vertical Polarization	
Date of test: 09/01/2003 / Operator: M. Steindl	
Test performed: automatically / File name: default.emi	

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



Result: Prescan	Project file: 50831-30561 Page of Pages

Radiated Emission Test 300 MHz - 1 GHz
acc. to FCC Part 15 (Fully Anechoic Chamber)

Model: Transponderschreibstation SAF	Comment: - AC 115 V power supply - reading barcode continiously - reading tag continiously
Serial no.: 00-0001-SAF	
Applicant: Hermos Informatik GmbH	
Test site: Fully anechoic room, cabin no. 2	
Tested on: Test distance 3 metres Vertical Polarization	
Date of test: 09/01/2003 / Operator: M. Steindl	
Test performed: automatically / File name: default.emi	

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

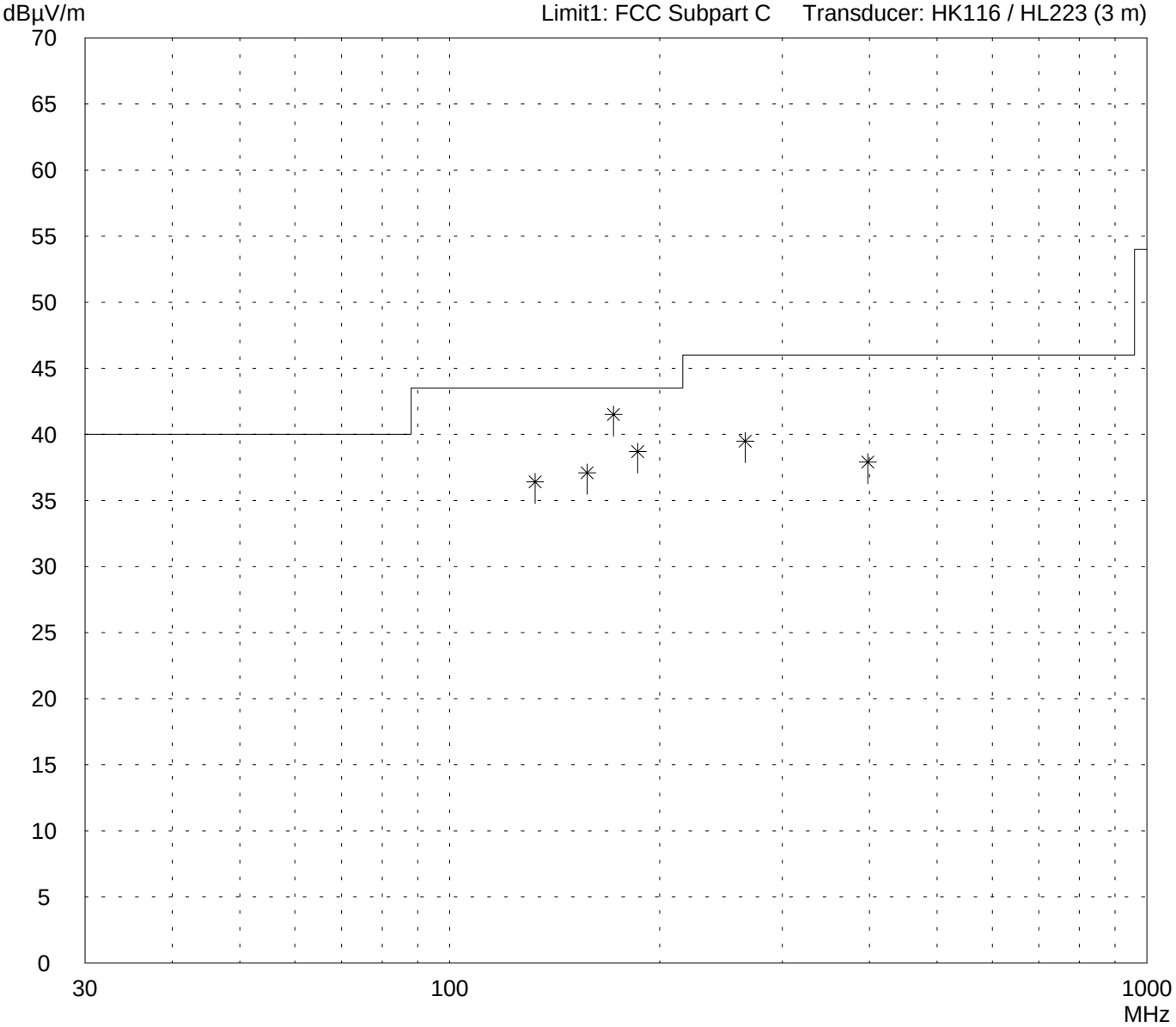
Frequency [MHz]	*Reading [dBµV]*	*Correction factor [dB]*	*Value [dBµV/m]*	*Limit [dBµV/m]*	*Limit exceeded*
398.000000	21.23	17.89	39.12	46.00	

Result: Prescan	Project file: 50831-30561 Page of Pages

Radiated Emission Test 30 MHz - 1 GHz
according to FCC Part 15 Subpart C

Model: Transponderschreibstation SAF	Mode: - AC 115 V power supply - reading barcode continiously - reading/writeing tag continiously
Serial no.: 00-0001-SAF	
Applicant: Hermos Informatik GmbH	
Test site: Open area test-site I	
Tested on: Test distance 3 meters Horizontal Polarization	
Date of test: 09/01/2003 — Operator: M. Steindl	
Test performed: by hand — File name:	

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



Result: Limit kept	Project file: 50831-30561 Page of Pages

Radiated Emission Test 30 MHz - 1 GHz
according to FCC Part 15 Subpart C

Model:
Transponderschreibstation SAF

Serial no.:
00-0001-SAF

Applicant:
Hermos Informatik GmbH

Test site:
Open area test-site I

Tested on:
Test distance 3 meters
Horizontal Polarization

Date of test: 09/01/2003

Operator: M. Steindl

Test performed: by hand

File name:

Mode:
- AC 115 V power supply

- reading barcode continiously
- reading/writeing tag continiously

Detector:
Quasi-Peak

List of values:
Selected by hand

Frequency MHz	*Reading dBµV*	*Correction factor dB*	*Value dBµV/m*	*Limit dBµV/m*	*Limit exceeded*
132.6	23.2	13.2	36.4	43.5	
157.5	23.0	14.1	37.1	43.5	
171.8	26.6	14.9	41.5	43.5	
186.1	22.9	15.8	38.7	43.5	
265.4	21.5	18.0	39.5	46.0	
397.9	19.3	18.6	37.9	46.0	

Result:
Limit kept

Project file:
50831-30561

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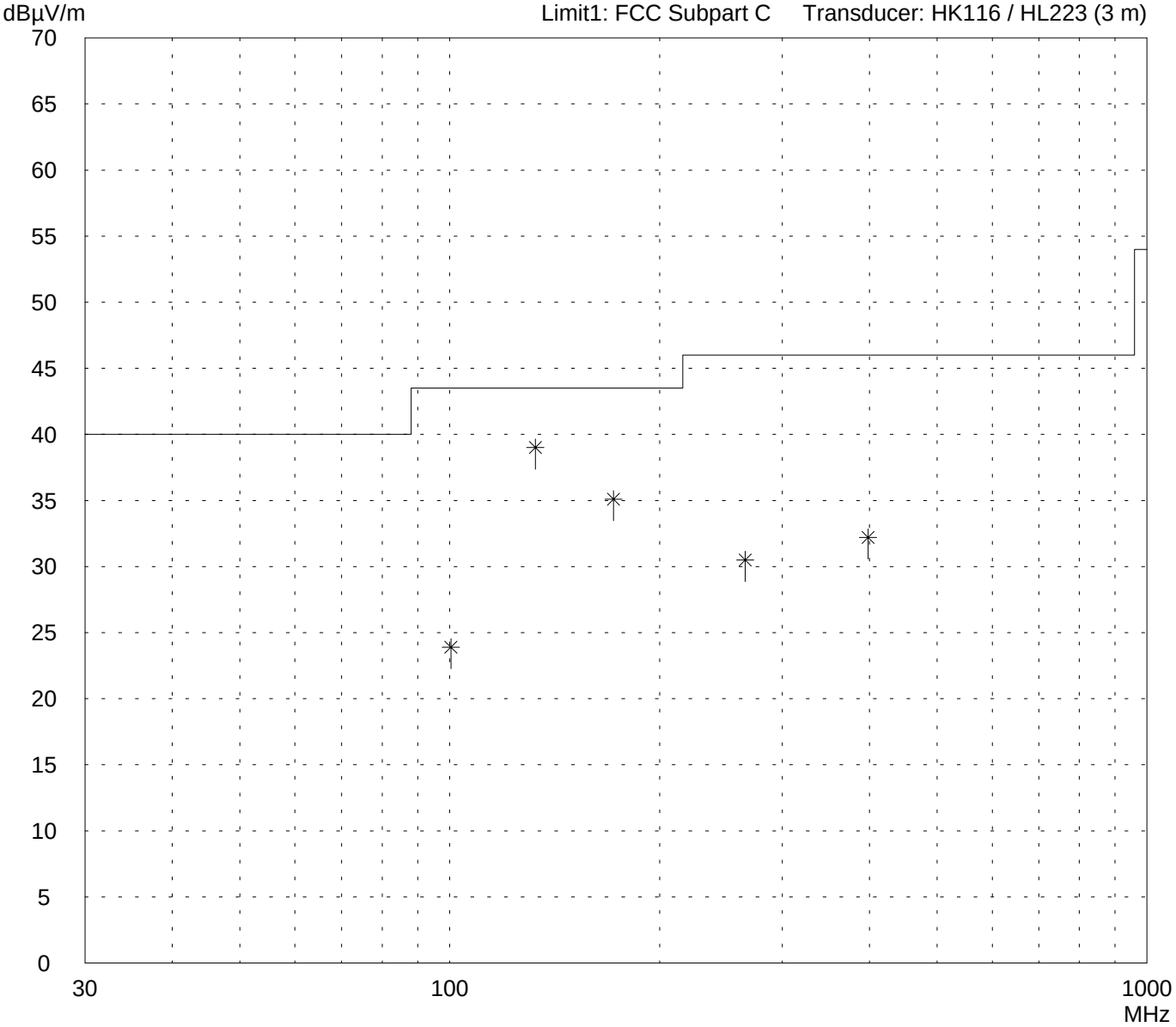
Radiated Emission Test 30 MHz - 1 GHz
according to FCC Part 15 Subpart C

Model: Transponderschreibstation SAF	Mode: - AC 115 V power supply - reading barcode continiously - reading/writeing tag continiously
Serial no.: 00-0001-SAF	
Applicant: Hermos Informatik GmbH	
Test site: Open area test-site I	
Tested on: Test distance 3 meters Vertical Polarization	
Date of test: 09/01/2003 — Operator: M. Steindl	
Test performed: by hand — File name:	

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



Result: Limit kept	Project file: 50831-30561 Page of Pages

Radiated Emission Test 30 MHz - 1 GHz
according to FCC Part 15 Subpart C

Model:
Transponderschreibstation SAF

Serial no.:
00-0001-SAF

Applicant:
Hermos Informatik GmbH

Test site:
Open area test-site I

Tested on:
Test distance 3 meters
Vertical Polarization

Date of test: 09/01/2003

Operator: M. Steindl

Test performed: by hand

File name:

Mode:
- AC 115 V power supply

- reading barcode continiously
- reading/writeing tag continiously

Detector:
Quasi-Peak

List of values:
Selected by hand

Frequency MHz	*Reading dBµV*	*Correction factor dB*	*Value dBµV/m*	*Limit dBµV/m*	*Limit exceeded*
100.4	13.2	10.7	23.9	43.5	
132.7	25.8	13.2	39.0	43.5	
171.8	20.2	14.9	35.1	43.5	
265.3	12.5	18.0	30.5	46.0	
398.0	13.6	18.6	32.2	46.0	

Result:
Limit kept

Project file:
50831-30561

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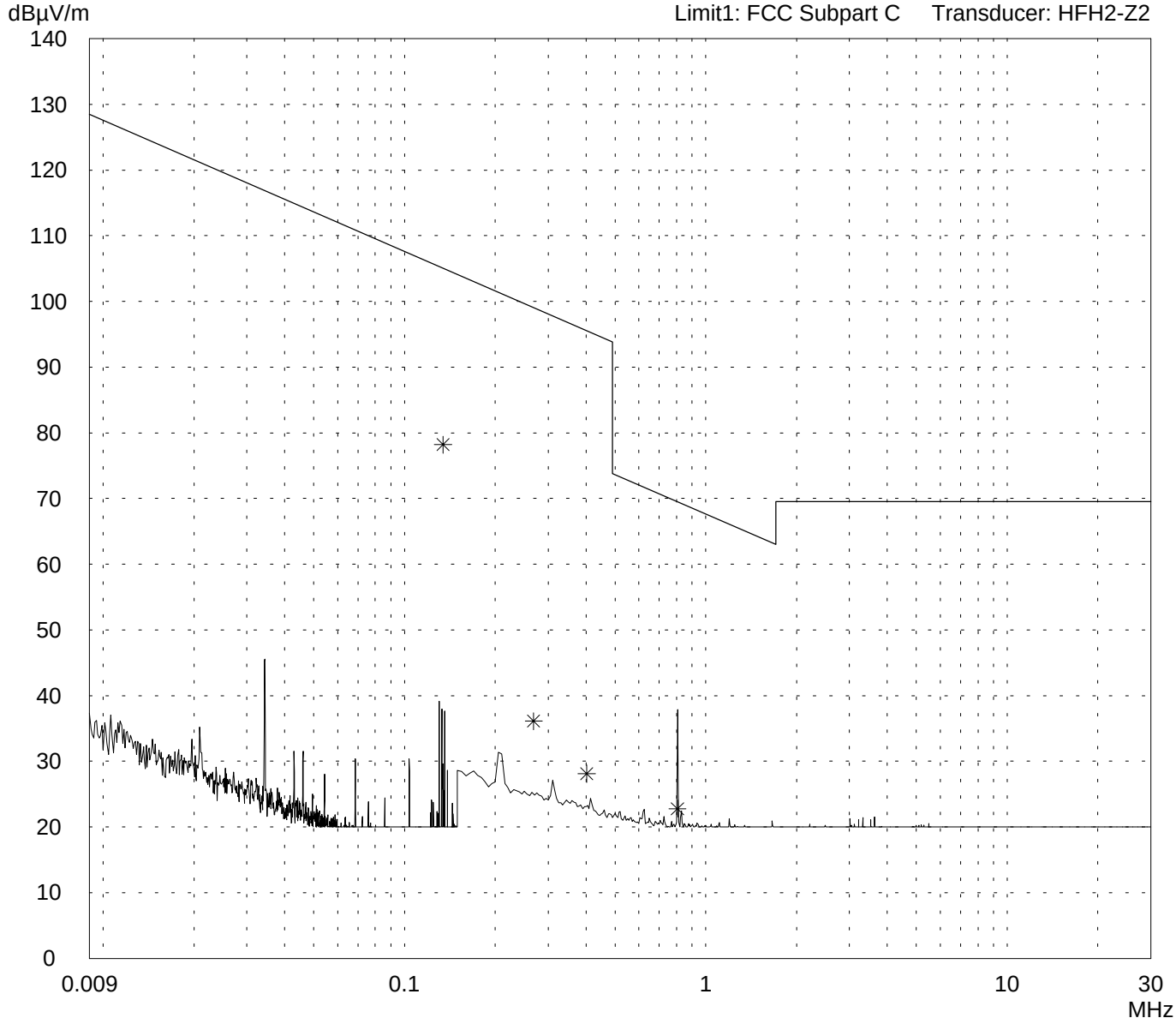
Radiated Emission Test 9 kHz - 30 MHz
according to FCC Part 15 Subpart C

Model: Transponderschreibstation SAF	Mode: - AC 115 V power supply - reading barcode continiously - reading tag continiously
Serial no.: 00-0001-SAF	
Applicant: Hermos Informatik GmbH	
Test site: Shielded room, cabin no. 2	
Tested on: Test distance 3 metres	
Date of test: 09/01/2003 / Operator: M. Steindl	
Test performed: automatically / File name:	

Detector: Average / Final Results: AV	Final results: Selected by hand



Result: Limit kept	Project file: 56831-30561 Page of Pages

Radiated Emission Test 9 kHz - 30 MHz
according to FCC Part 15 Subpart C

Model: Transponderschreibstation SAF	Mode: - AC 115 V power supply - reading barcode continiously - reading tag continiously
Serial no.: 00-0001-SAF	
Applicant: Hermos Informatik GmbH	
Test site: Shielded room, cabin no. 2	
Tested on: Test distance 3 metres	
Date of test: 09/01/2003 / Operator: M. Steindl	
Test performed: automatically / File name:	

Detector: Average / Final Results: AV	Final results: Selected by hand

Frequency MHz	*Reading dBµV*	*Correction factor dB*	*Value dBµV/m*	*Limit dBµV/m*	*Limit exceeded*
0.1342	58.2	20.0	78.2	105.0	
0.2684	16.1	20.0	36.1	99.0	
0.4026	8.1	20.0	28.1	95.5	
0.8052	2.8	20.0	22.8	69.5	

Result: Limit kept	Project file: 56831-30561

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