

Straubing, May 23, 2002

TEST-REPORT

No. 55411-20136

for

atis-PLB

Inductive Reader 125 kHz

Applicant: Gantner Pigeon Systems GmbH

Purpose of testing: To show compliance with

FCC Code of Federal Regulations,
Part 15 Subpart C Section §15.209

Industry Canada Radio Standards
Specification RSS-210 Issue 4,
Section 6.1 (Category I Equipment)

Note:

The test data of this report relate only to the individual item which has been tested. This report shall not be reproduced except in full extent without the written approval of the testing laboratory.

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1. Administrative Data

Equipment Under Test (EUT):	atis-PLB
Serial number(s):	0001
Type of equipment:	Inductive Reader 125 kHz
Parts/accessories:	---
FCC-ID:	---
Applicant: (full address)	Gantner Pigeon Systems GmbH Montafonerstr. 8 6780 Schruns / AUSTRIA
Contract identification:	Order no. 22600396
Contact person:	Dr. Brüser
Manufacturer:	Gantner Pigeon Systems GmbH
Receipt of EUT:	March, 2002
Date of test:	April, 2002
Note:	---
Responsible for testing:	Thomas Eberl
Responsible for test report:	Thomas Eberl (cj)

2. Identification of Test Laboratory

Test Laboratory: Senton GmbH EMI/EMC Test Center
(full address): Aeussere Fruehlingstrasse 45
D-94315 Straubing
Germany

Contact person: Mr. Johann Roidt

Communication: Telephone (+49) 0 94 21 / 55 22-0
Fax (+49) 0 94 21 / 55 22-99
eMail: Office@senton.de

FCC registration number: 90926
Industry Canada file number: IC 3050

3. Summary of Test Results

The tested sample complies with the requirements set forth in the

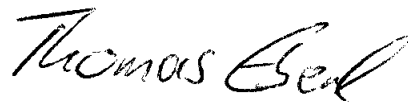
**FCC Part 15 Subpart C Section §15.209 (intentional radiators)
of the Federal Communication Commission (FCC).**

and the

**Radio Standards Specification RSS-210 Issue 4, Section 6.1 for Low Power
Licence-Exempt Radiocommunication Devices (all frequency bands).**



Johann Roidt
Technical Manager



Thomas Eberl
Test Engineer

4. Operation Mode of EUT

Reading Tag continuously

5. Configuration of EUT and Peripheral Devices

Configuration of cables of EUT

shielded interface cable at atis-AB1 and IKS 101 converter

Configuration of peripheral devices connected to EUT

PC: Fujitsu Liteline

Printer: HP 2225C

6. Measuring Methods

6.1. Conducted Emission 0.45 MHz - 30 MHz (§15.207) / RSS-210 Section 6.6)

Conducted emissions were measured in the frequency range 0.45 MHz to 30 MHz. The bandwidth of the EMI-Receiver was set to 9 kHz and the detector-function was set to CISPR quasi-peak.

The test setup was made in accordance with ANSI C63.4-1992.

Measurements were performed on phase and neutral lines of the power-cords of the tested system. Preliminary scans were taken with the detector-function of the EMI-receiver set to peak to determine the conducted EMI-profile of the EUT. At the final test the cables and equipment were placed and moved within the range of positions likely to find their maximum emissions.

See figure 1 for the measurement setup.

Test equipment used (see equipment list for details):

04, 22, 23, 60, 63

6.2. Radiated Emission 9 kHz -30 MHz (FCC §15.209, §15.205.a,b / RSS-210 Section 6.3)

Radiated emissions in the frequency range 9 kHz – 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 measurement is 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.

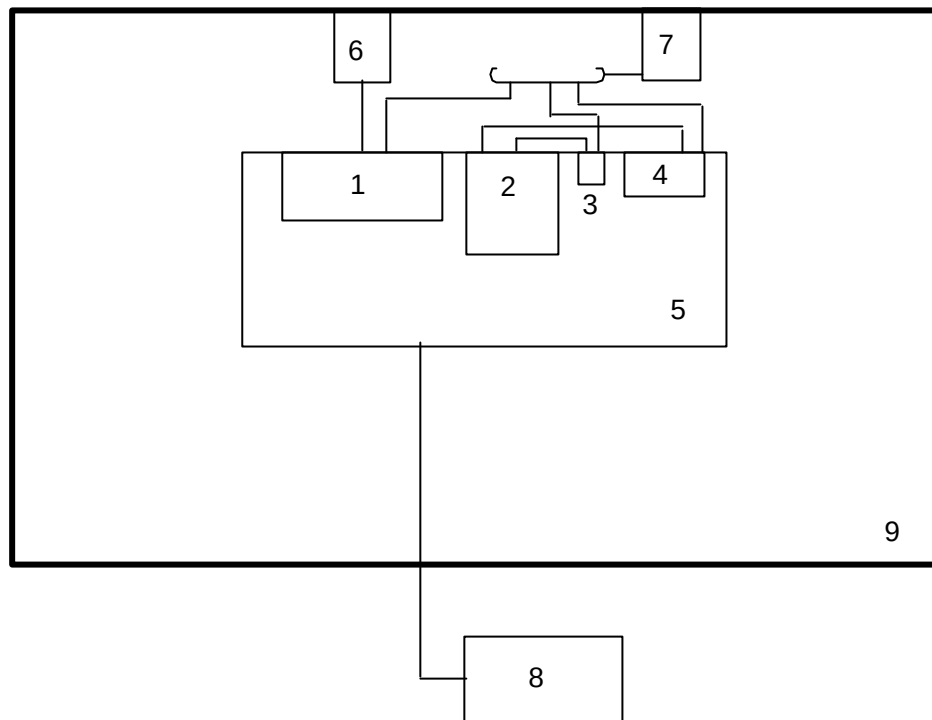


Figure 1: Example of measurement setup for conducted emission test

- | | | | |
|----------|--------------|----------|-------------------------------|
| 1 | EUT | 6 | LISN for EUT |
| 2 | Laptop | 7 | LISN for peripheral device(s) |
| 3 | Power supply | 8 | Test receiver |
| 4 | Printer | 9 | Shielded room |
| 5 | Wooden table | | |

6.3. Radiated Emission 30 MHz - 1 GHz ((FCC §15.209, §15.205.a,b / RSS-210 Section 6.3)

Radiated emissions are measured over the frequency range from 30 MHz to 1 GHz. The bandwidth of the EMI-receiver is set to 120 kHz and the detector-function is set to CISPR quasi-peak.

The test setup is made in accordance with ANSI C63.4-1992.

Measurements are made in both the horizontal and vertical planes of polarization.

Preliminary scans are taken in a semi-anechoic room using a spectrum analyzer with the detector function 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.

All tests are performed at a test-distance of 3 meters.

For final testing an open-area test-site is used. During the tests the EUT is rotated all around and the receiving-antenna is raised and lowered from 1 meter to 4 meters to find the maximum levels of emissions. The cables and equipment is placed and moved within the range of position likely to find their maximum emissions.

See figure 2 for the measurement setup.

Test equipment used (see equipment list for details):

01, 02, 05, 12, 38, 39, 40, 41, 58, 61, 64, 66

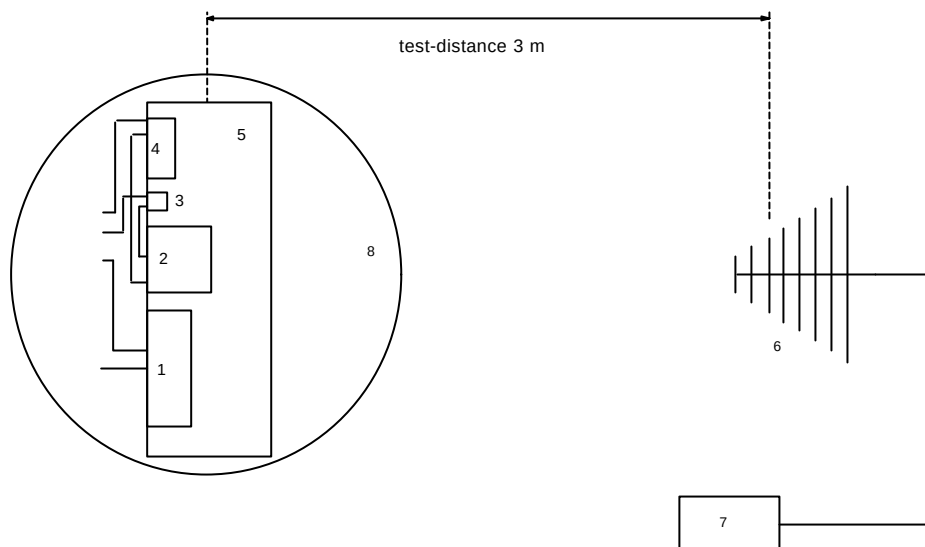


Figure 2: Measurement setup for radiated emission test below 1 GHz

- | | | | |
|---|--------------|---|---------------------|
| 1 | EUT | 6 | Measurement antenna |
| 2 | Laptop | 7 | Test receiver |
| 3 | Power supply | 8 | Turn table |
| 4 | Printer | | |
| 5 | Wooden table | | |

7. 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 3271	05050023	Advantest
02	EMI Test Receiver	ESMI	839379/013 839587/006	Rohde & Schwarz
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	Attenuator 20 dB	4776-20	9503	Narda
19	Attenuator 10 dB	4776-10	9412	Narda
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	842204/001	Rohde & Schwarz
39	Biconical Antenna	HK 116	836239/02	Rohde & Schwarz
40	Log. Periodic Antenna	HL 223	841516/023	Rohde & Schwarz
41	Log. Periodic Antenna	HL 223	834408/12	Rohde & Schwarz
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	200CM_001	1357	Rosenberger
57	Cable	150CM_001	1479	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	No. 1	1451	Senton
63	Shielded Room	No. 2	1452	Senton
64	Semi-anechoic Chamber	No. 3	1453	Siemens
65	Shielded Room	No. 4	1454	Euroshield
66	Open Area Test Site	EG 1		Senton
67	Test fixture			Senton

8. Photographs Taken During Testing

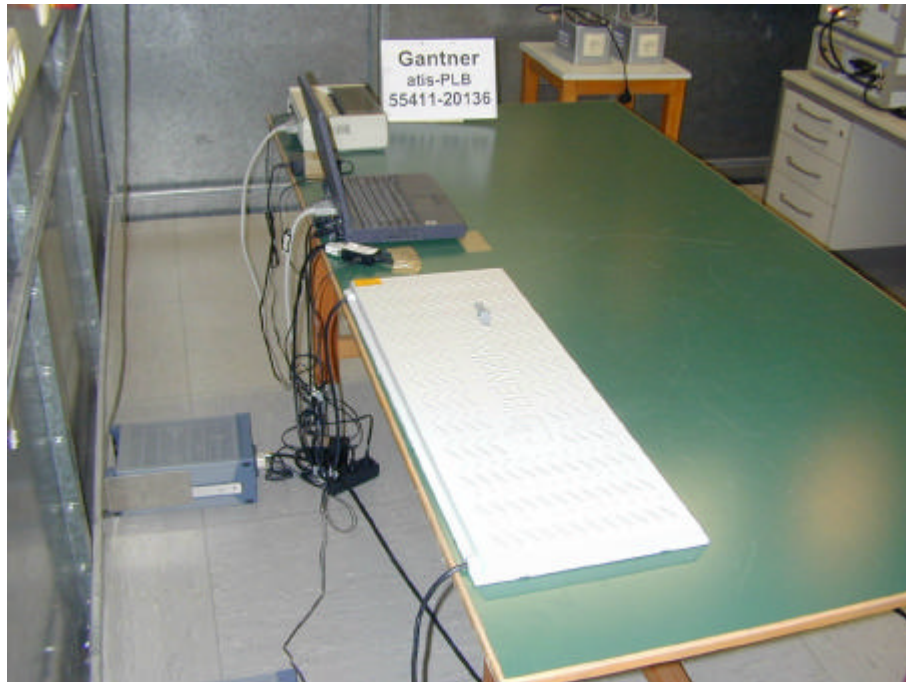
Photo No. 8.1 - 8.2

Test setup for conducted emission test 450 kHz - 30 MHz



Photo No. 8.3

Test setup for conducted emission test 450 kHz - 30 MHz



Photos No. 8.4 - 8.5

**Test setup for radiated emission pre-test 30 MHz - 1 GHz
(semi anechoic room)**



Photos No. 8.6 - 8.7

**Test setup for radiated emission pre-test 30 MHz - 1 GHz
(semi anechoic room)**



Photos No. 8.8 - 8.9

**Test setup for radiated emission final test 30 MHz - 1 GHz
(open area test site)**



Photos No. 8.10 - 8.11

**Test setup for radiated emission final test 30 MHz - 1 GHz
(open area test site)**



9. List of Measurements

9.1. 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 450 kHz - 30 MHz		Passed
§15.231.b §15.209 §15.205.a,b	Radiated emission test 9 kHz - 30 MHz		Passed
§15.231.b §15.209 §15.205.a,b	Radiated emission test 30 MHz – 1 GHz		Passed

9.2. List of Measurements According To Industry Canada RSS-210

Industry Canada RSS-210 Issue 4			
Section(s):	Test	Page(s)	Result
6.6	Conducted emission test 450 kHz - 30 MHz		Passed
6.1.1.b 6.3	Radiated emission test 9 kHz - 30 GHz		Passed
6.1.1.b 6.3	Radiated emission test 30 MHz - 1 GHz		Passed

10. Referenced Regulations

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

☒	FCC Part 15 Subpart A	Code of Regulations Part 15 (Radio Frequency Devices), Subpart A (General) of the Federal Communication Commission (FCC)	October 20, 1997
☒	FCC Part 15 Subpart B	Code of Regulations Part 15 (Radio Frequency Devices), Subpart B (Unintentional Radiators) of the Federal Communication Commission (FCC)	October 20, 1997
☒	FCC Part 15 Subpart C	Code of Regulations Part 15 (Radio Frequency Devices), Subpart C (Intentional Radiators) of the Federal Communication Commission (FCC)	October 20, 1997
☒	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 4 for Low Power Licence-Exempt Radiocommunication Devices (all frequency bands)	December 2000

11. Test Results

**Measurement of Conducted Emissions according to FCC Rules,
Part 15, Subpart C, Section 15.207
Frequency Band 0.45 - 30 MHz**

Model: atis-PLB
Type: Inductive Reader
Serial No. ---
Applicant: Gantner Electronic GmbH
Tested on Linecord EUT
Test Site: Shielded Room No. 2
Date of Test: 04/10/2002

Frequency (MHz)	Detector	Analyzer Reading (dB μ V)	Correction Factor (dB)	Value (dB μ V)	Limit (dB μ V)	Margin (dB)
0.515	QP	27.8	0	27.8	48	20.2
0.575	QP	28.1	0	28.1	48	19.9
0.64	QP	28	0	28	48	20.0
0.755	QP	24.3	0	24.3	48	23.7
12	QP	31.8	0	31.8	48	16.2
13.5	QP	28.1	0	28.1	48	19.9
18	QP	34.3	0	34.3	48	13.7
19.5	QP	34.5	0	34.5	48	13.5
20.5	QP	33.4	0	33.4	48	14.6
22.5	QP	32.2	0	32.2	48	15.8

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

**Measurement of Conducted Emissions according to FCC Rules,
Part 15, Subpart C, Section 15.207
Frequency Band 0.45 - 30 MHz**

Model: atis-PLB
Type: Inductive Reader
Serial No. ---
Applicant: Gantner Electronic GmbH
Tested on Linecord AE
Test Site: Shielded Room No. 2
Date of Test: 04/10/2002

Frequency (MHz)	Detector	Analyzer Reading (dBμV)	Correction Factor (dB)	Value (dBμV)	Limit (dBμV)	Margin (dB)
0.53	QP	31.1	0	31.1	48	16.9
0.535	QP	34	0	34	48	14.0
1.705	QP	27.7	0	27.7	48	20.3
5.125	QP	38.1	0	38.1	48	9.9
6.035	QP	40.1	0	40.1	48	7.9
10.5	QP	38.8	0	38.8	48	9.2
12	QP	41.4	0	41.4	48	6.6

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 15.209
Frequency Band > 30 MHz**

Model: atis-PLB
Type: Receiver
Serial No. 10
Applicant: Gantner Electronic GmbH
Test Site: Open Field Test Site
Distance: 10 Meter
Date of Test: 04/10/2002

Frequency (MHz)	Detector	Antenna Pol.	Analyzer Reading (dBμV)	Correction Factor (dB)	Field Strength (dBμV/m)	Limit 10m (dBμV/m)	Margin (dB)
0.125	QP	V	37.7	20	57.7	125.7	68.0

*** = No emissions above noise floor detected

Sample calculation of field strength values:

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

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

12. Additional Data Sheets

Conducted Emission Test 450 kHz - 30 MHz according to FCC Part 15 Subpart C

Model:
atis-PLB

Serial no.:
--

Applicant:
Gantner Electronic GmbH

Test site:
Shielded room, cabin no. 2

Tested on:
Linecord EUT
Phase L1

Date of test: 04/10/2002 Operator: T. Eberl

Test performed: automatically File name:

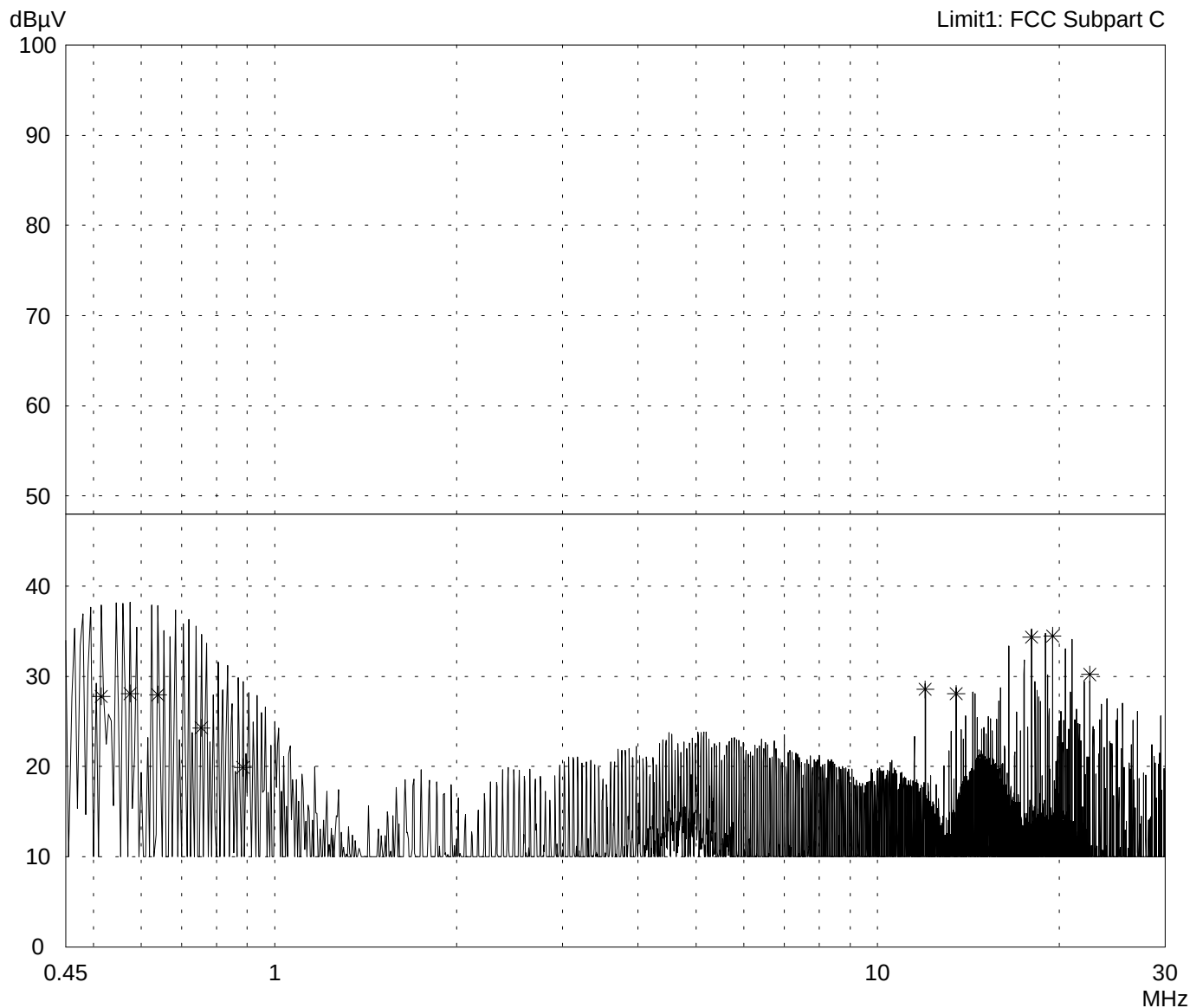
Mode:
- TX mode

- with TAG

- FCC test setup

Detector:
Peak / Final Results: QP

Final results:
20 dB Margin 25 Subranges



Result:
Limit kept

Project file:
55411-20136 Page of Pages

Conducted Emission Test 450 kHz - 30 MHz
according to FCC Part 15 Subpart C

Model: atis-PLB	Mode: - TX mode - with TAG - FCC test setup
Serial no.: --	
Applicant: Gantner Electronic GmbH	
Test site: Shielded room, cabin no. 2	
Tested on: Linecord EUT Phase L1	
Date of test: 04/10/2002 Operator: T. Eberl	
Test performed: automatically File name:	

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

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Result: Limit kept	Project file: 55411-20136	Page	of	Pages
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Conducted Emission Test 450 kHz - 30 MHz according to FCC Part 15 Subpart C

Model:
atis-PLB

Serial no.:
--

Applicant:
Gantner Electronic GmbH

Test site:
Shielded room, cabin no. 2

Tested on:
Linecord EUT
Phase N

Date of test: 04/10/2002 Operator: T. Eberl

Test performed: automatically File name:

Mode:
- TX mode

- with TAG

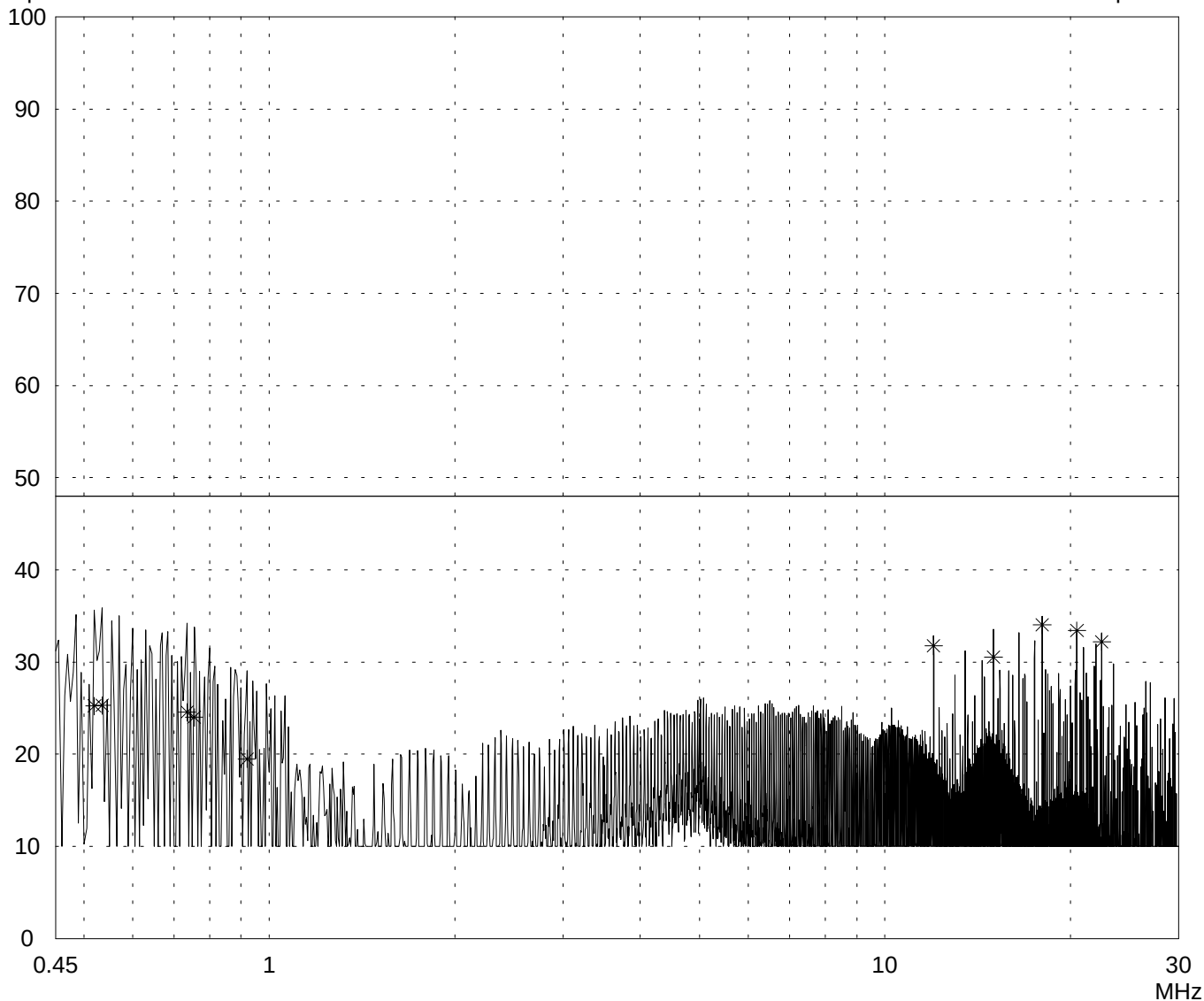
- FCC test setup

Detector:
Peak / Final Results: QP

Final results:
20 dB Margin 25 Subranges

dB μ V

Limit1: FCC Subpart C



Result:
Limit kept

Project file:
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Conducted Emission Test 450 kHz - 30 MHz
according to FCC Part 15 Subpart C

Model: atis-PLB	Mode: - TX mode - with TAG - FCC test setup
Serial no.: --	
Applicant: Gantner Electronic GmbH	
Test site: Shielded room, cabin no. 2	
Tested on: Linecord EUT Phase N	
Date of test: 04/10/2002 Operator: T. Eberl	
Test performed: automatically File name:	

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

<i>Frequency MHz</i>	<i>Reading dBμV</i>	<i>Correction factor dB</i>	<i>Value dBμV</i>	<i>Limit dBμV</i>	<i>Limit exceeded</i>
0.520	25.2		25.2	48.0	
0.535	25.3		25.3	48.0	
0.735	24.6		24.6	48.0	
0.755	24.0		24.0	48.0	
0.920	19.5		19.5	48.0	
12.000	31.8		31.8	48.0	
15.005	30.5		30.5	48.0	
18.005	34.0		34.0	48.0	
20.505	33.4		33.4	48.0	
22.505	32.2		32.2	48.0	

Result: Limit kept	Project file: 55411-20136	Page	of	Pages
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Conducted Emission Test 450 kHz - 30 MHz according to FCC Part 15 Subpart C

Model:
atis-PLB

Serial no.:
--

Applicant:
Gantner Electronic GmbH

Test site:
Shielded room, cabin no. 2

Tested on:
Linecord AE
Phase L1

Date of test: 04/10/2002 Operator: T. Eberl

Test performed: automatically File name:

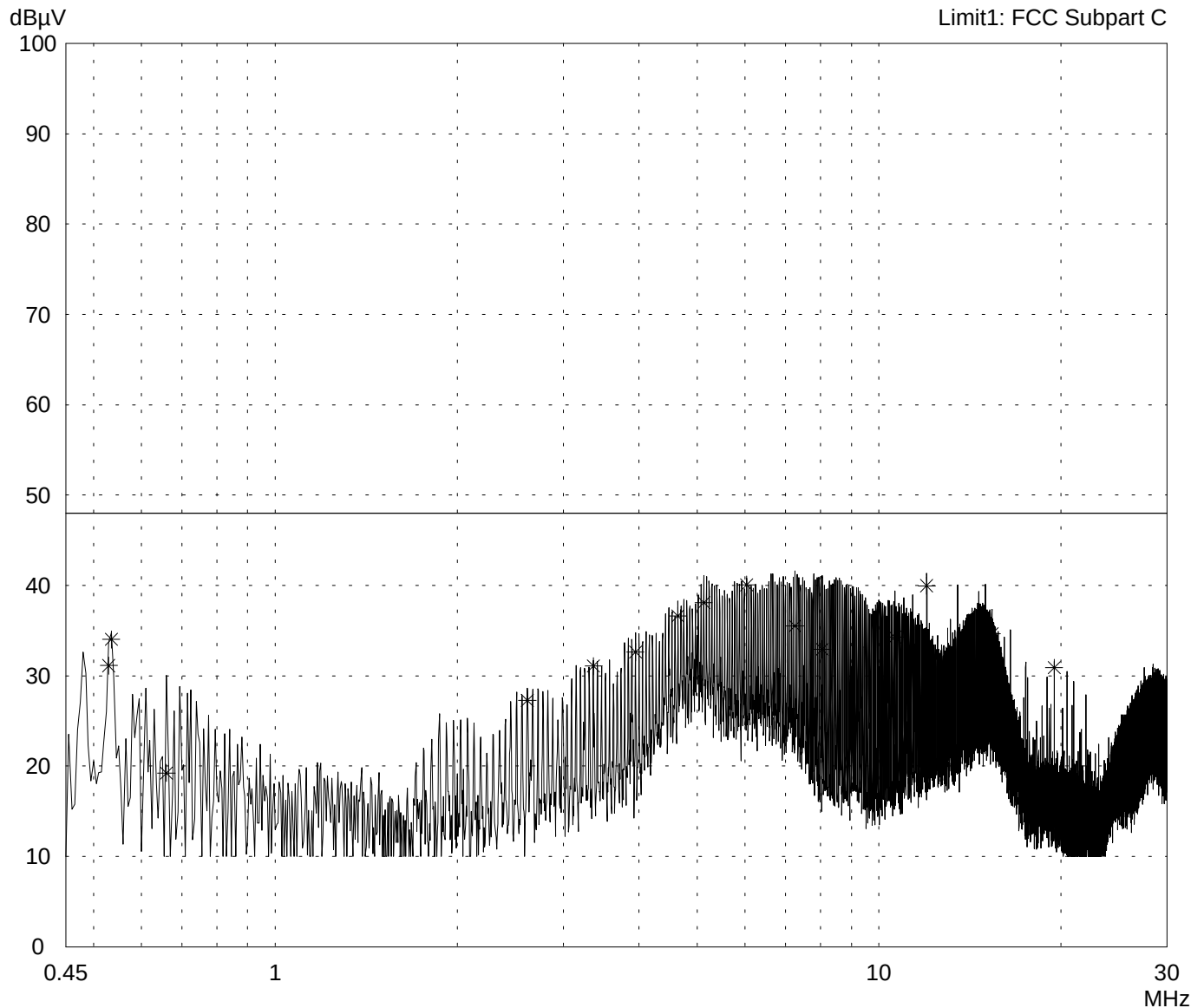
Mode:
- TX mode

- with TAG

- FCC test setup

Detector:
Peak / Final Results: QP

Final results:
20 dB Margin 25 Subranges



Result:
Limit kept

Project file:
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Conducted Emission Test 450 kHz - 30 MHz according to FCC Part 15 Subpart C

Model: atis-PLB	Mode: - TX mode
Serial no.: --	- with TAG
Applicant: Gantner Electronic GmbH	- FCC test setup
Test site: Shielded room, cabin no. 2	
Tested on: Linecord AE Phase L1	
Date of test: 04/10/2002	Operator: T. Eberl
Test performed: automatically	File name:

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

<i>Frequency MHz</i>	<i>Reading dBµV</i>	<i>Correction factor dB</i>	<i>Value dBµV</i>	<i>Limit dBµV</i>	<i>Limit exceeded</i>
0.530	31.1		31.1	48.0	
0.535	34.0		34.0	48.0	
0.660	19.2		19.2	48.0	
2.615	27.3		27.3	48.0	
3.365	31.1		31.1	48.0	
3.950	32.6		32.6	48.0	
4.645	36.6		36.6	48.0	
5.125	38.1		38.1	48.0	
6.035	40.1		40.1	48.0	
7.260	35.5		35.5	48.0	
8.060	32.9		32.9	48.0	
10.625	34.3		34.3	48.0	
12.000	40.0		40.0	48.0	
15.000	33.2		33.2	48.0	
15.380	34.6		34.6	48.0	
19.505	30.9		30.9	48.0	
28.465	24.6		24.6	48.0	

Result: Limit kept	Project file: 55411-20136
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Conducted Emission Test 450 kHz - 30 MHz according to FCC Part 15 Subpart C

Model:
atis-PLB

Serial no.:
--

Applicant:
Gantner Electronic GmbH

Test site:
Shielded room, cabin no. 2

Tested on:
Linecord AE
Phase N

Date of test: 04/10/2002 Operator: T. Eberl

Test performed: automatically File name:

Mode:
- TX mode

- with TAG

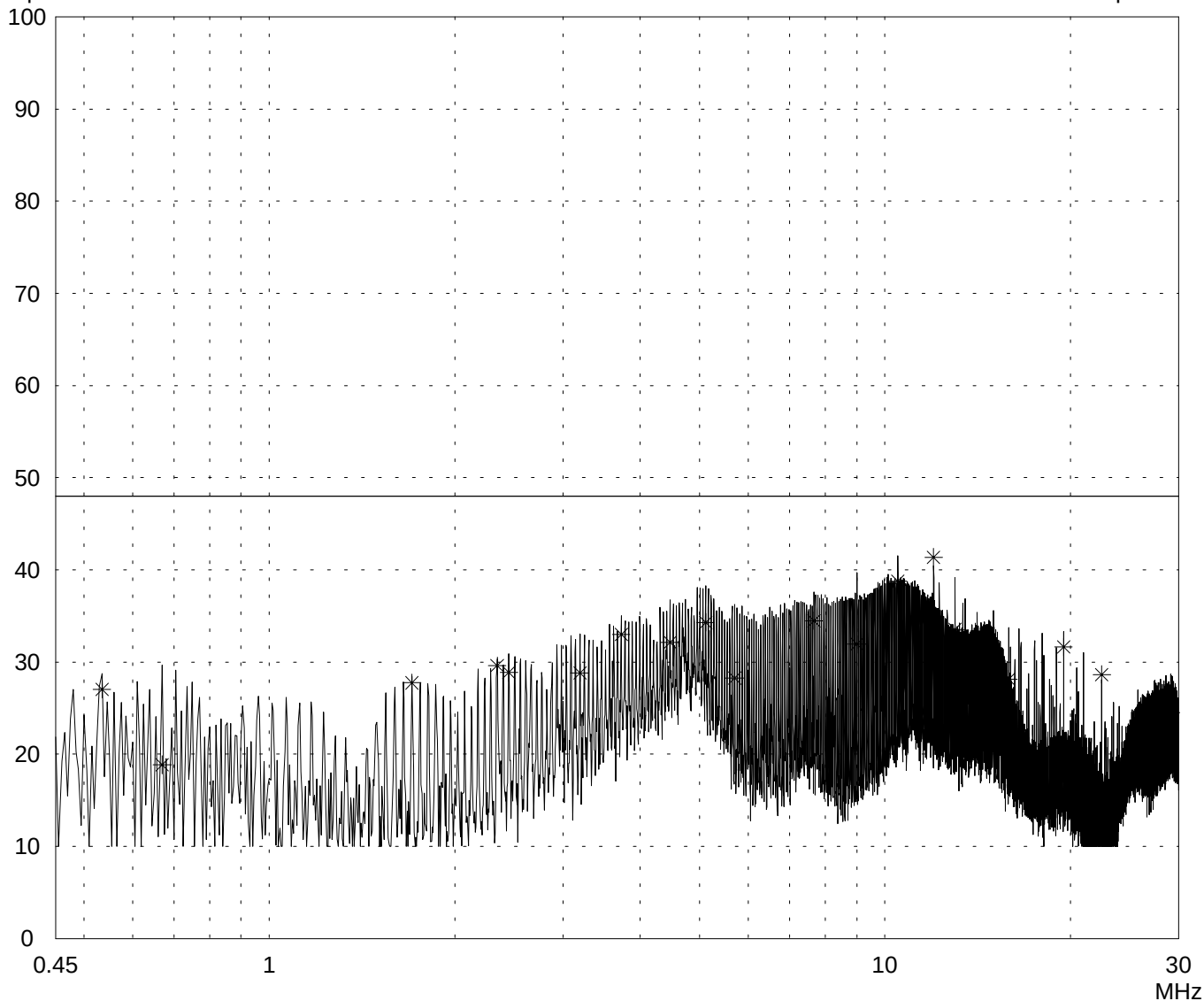
- FCC test setup

Detector:
Peak / Final Results: QP

Final results:
20 dB Margin 25 Subranges

dB μ V

Limit1: FCC Subpart C



Result:
Limit kept

Project file:
55411-20136

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Conducted Emission Test 450 kHz - 30 MHz according to FCC Part 15 Subpart C

Model: atis-PLB	Mode: - TX mode
Serial no.: --	- with TAG
Applicant: Gantner Electronic GmbH	- FCC test setup
Test site: Shielded room, cabin no. 2	
Tested on: Linecord AE Phase N	
Date of test: 04/10/2002	Operator: T. Eberl
Test performed: automatically	File name:

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

<i>Frequency MHz</i>	<i>Reading dBµV</i>	<i>Correction factor dB</i>	<i>Value dBµV</i>	<i>Limit dBµV</i>	<i>Limit exceeded</i>
0.535	27.0		27.0	48.0	
0.670	18.8		18.8	48.0	
1.705	27.7		27.7	48.0	
2.345	29.6		29.6	48.0	
2.450	28.9		28.9	48.0	
3.195	28.8		28.8	48.0	
3.730	33.0		33.0	48.0	
4.475	32.1		32.1	48.0	
5.115	34.3		34.3	48.0	
5.700	28.3		28.3	48.0	
7.675	34.5		34.5	48.0	
9.005	31.9		31.9	48.0	
10.500	38.8		38.8	48.0	
12.000	41.4		41.4	48.0	
13.000	33.5		33.5	48.0	
15.880	28.2		28.2	48.0	
19.505	31.6		31.6	48.0	
22.505	28.6		28.6	48.0	
29.110	24.5		24.5	48.0	

Result: Limit kept	Project file: 55411-20136
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Radiated Emission Test 9 kHz - 30 MHz according to FCC Part 15 Subpart C

Model:
atis - PLB

Serial no.:
--

Applicant:
Gantner Electronic GmbH

Test site:
Shielded room, cabin no. 2

Tested on:
Test distance 3 metres antenna parallel to EUT

Date of test: 04/15/2002
Operator: T. Eberl

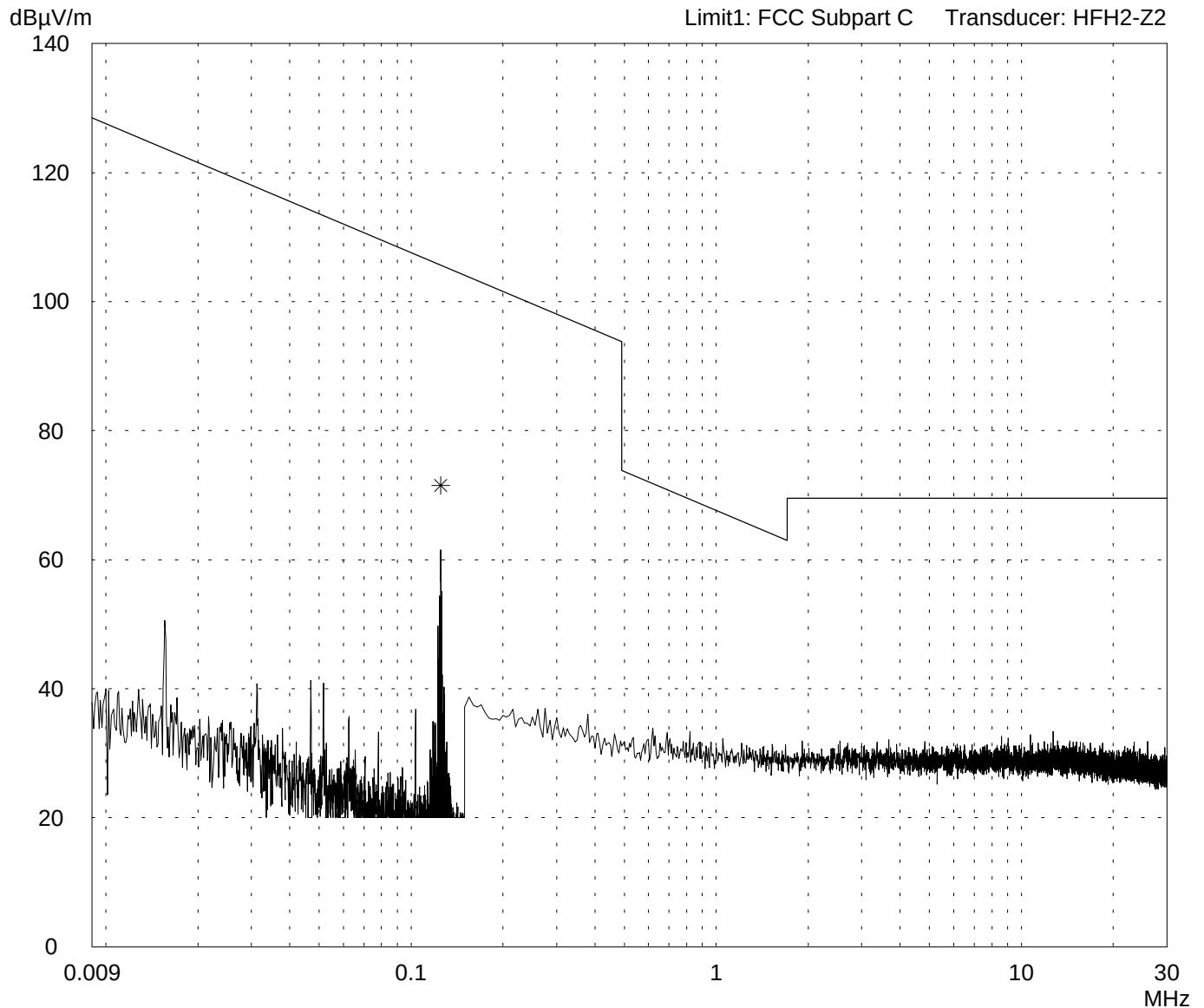
Test performed: automatically
File name:

Mode:
- TX mode

- FCC test setup

Detector:
Peak / Final Results: QP

Final results:
Selected by hand



Result:
Prescan

Project file:
55411-20136

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Frequency range refer to restricted bands acc. to FCC part 15.205

Model:
atis-PLB

Serial No.:

Applicant:
Gantner Electronic GmbH

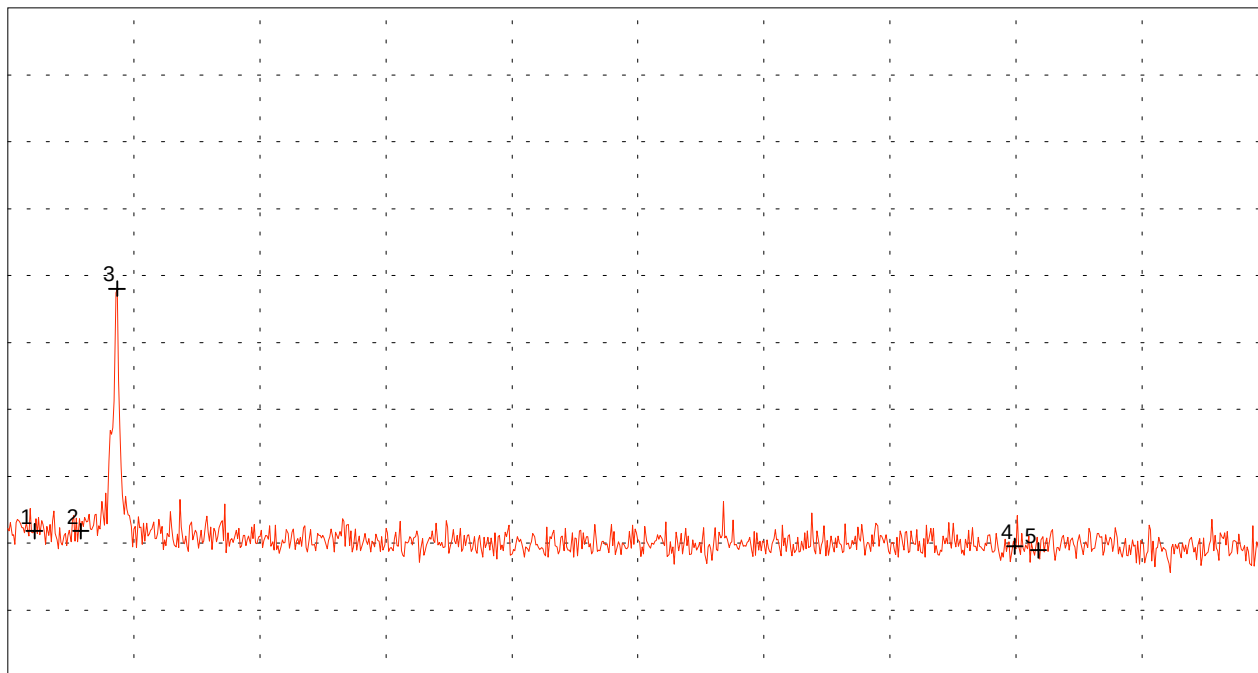
Mode:

- TX mode

- FCC test setup

Ref.Level 97 dB μ V/m
10 dB/Div.

ATT 35 dB



Start 80.000 kHz
RBW 196 Hz

VBW 10 kHz

Stop 600.000 kHz
SWP 42 s

Multi Marker List

No. 1	90.978 kHz	18.79 dB μ V/m
No. 2	110.044 kHz	18.82 dB μ V/m
No. 3	125.067 kHz	55.05 dB μ V/m
No. 4	495.422 kHz	16.53 dB μ V/m
No. 5	505.244 kHz	15.95 dB μ V/m

Tested by:
Thomas Eberl

Date:
04/15/02

Project-No.:
55411-20136

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

Model:
atis-PLB

Serial no.:
--

Applicant:
Gantner Electronic GmbH

Test site:
Semi anechoic room, cabin no. 3

Tested on:
Test distance 3 meters
Horizontal Polarization

Date of test: 04/02/2002 Operator: T. Eberl

Test performed: automatically File name:

Mode:
- TX mode

- with TAG

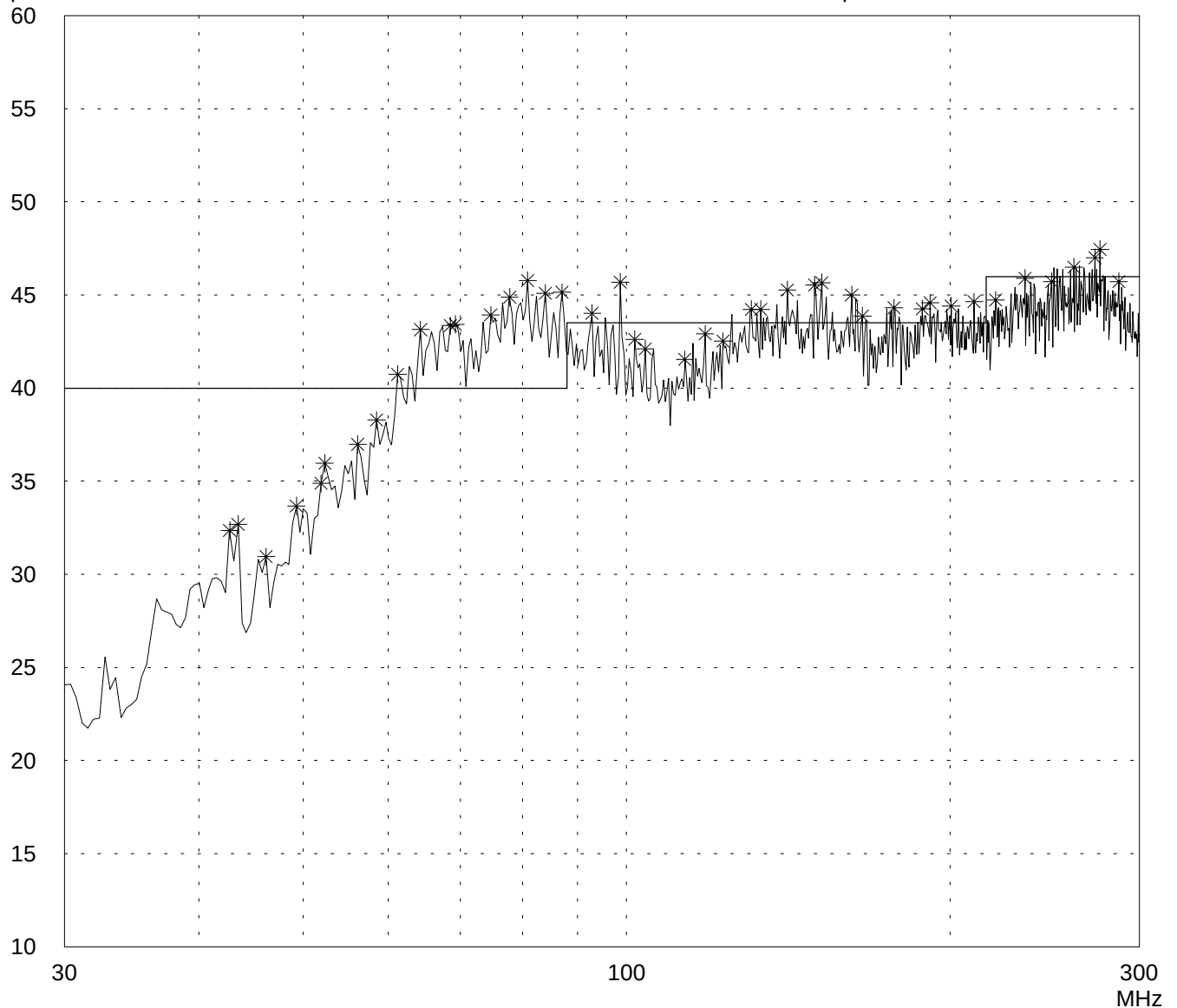
- FCC test setup

Detector:
Peak

List of values:
10 dB Margin 50 Subranges

dB μ V/m

Limit1: FCC Subpart C Transducer: HK 116



Result:
Prescan

Project file:
55411-20136

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Radiated Emission Test 295 MHz - 1 GHz according to FCC Part 15 Subpart C

Model:
atis-PLB

Serial no.:
--

Applicant:
Gantner Electric GmbH

Test site:
Semi anechoic room, cabin no. 3

Tested on:
Test distance 3 meters
Horizontal Polarization

Date of test: 04/02/2002 Operator: T. Eberl

Test performed: automatically File name:

Mode:
- TX mode

- with TAG

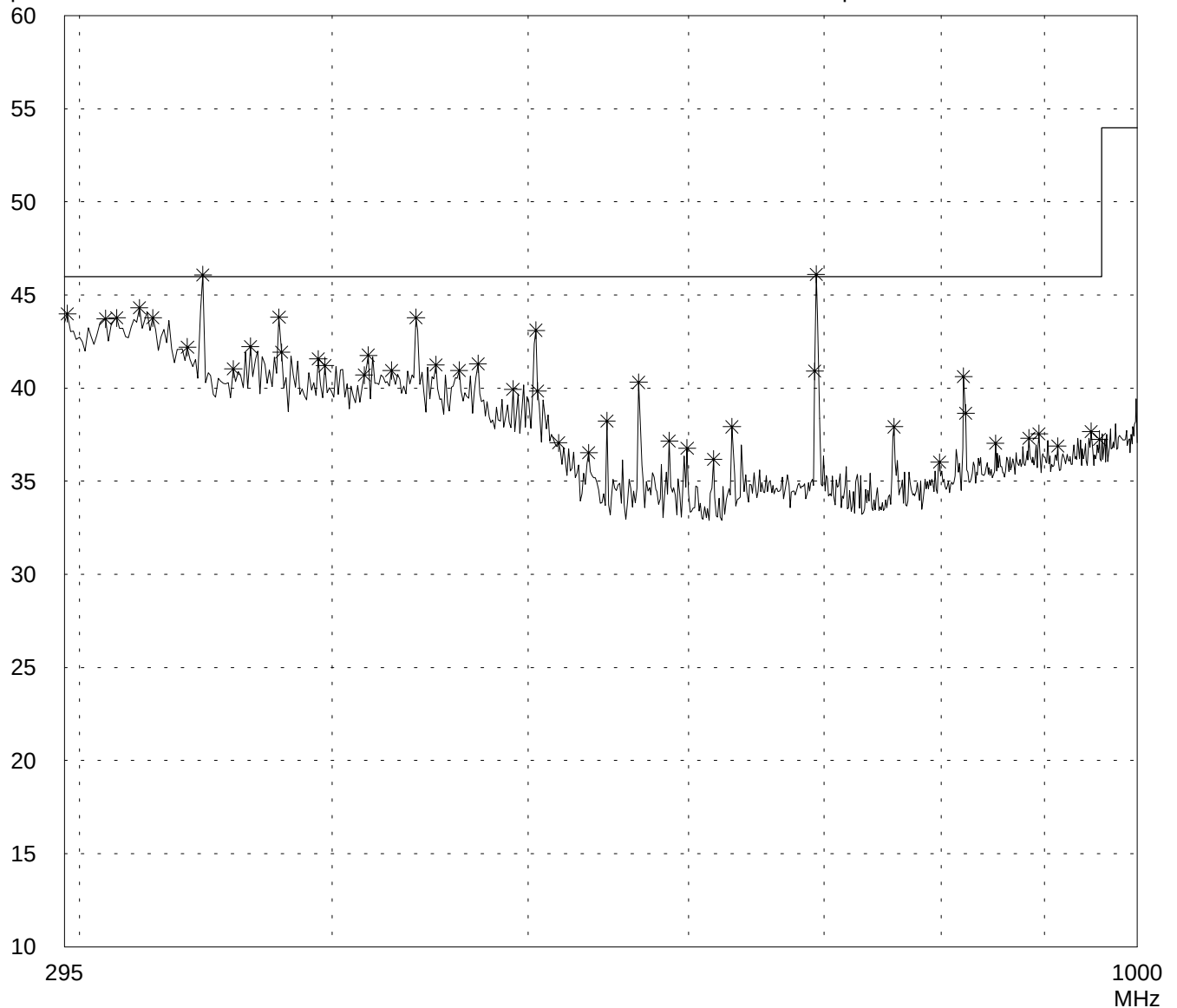
- FCC test setup

Detector:
Peak

List of values:
10 dB Margin 50 Subranges

dB μ V/m

Limit1: FCC Subpart C Transducer: HL 223



Result:
Prescan

Project file:
55411-20136

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

Model:
atis-PLB

Serial no.:
--

Applicant:
Gantner Electric GmbH

Test site:
Semi anechoic room, cabin no. 3

Tested on:
Test distance 3 meters
Vertical Polarization

Date of test: 04/02/2002 Operator: T. Eberl

Test performed: automatically File name:

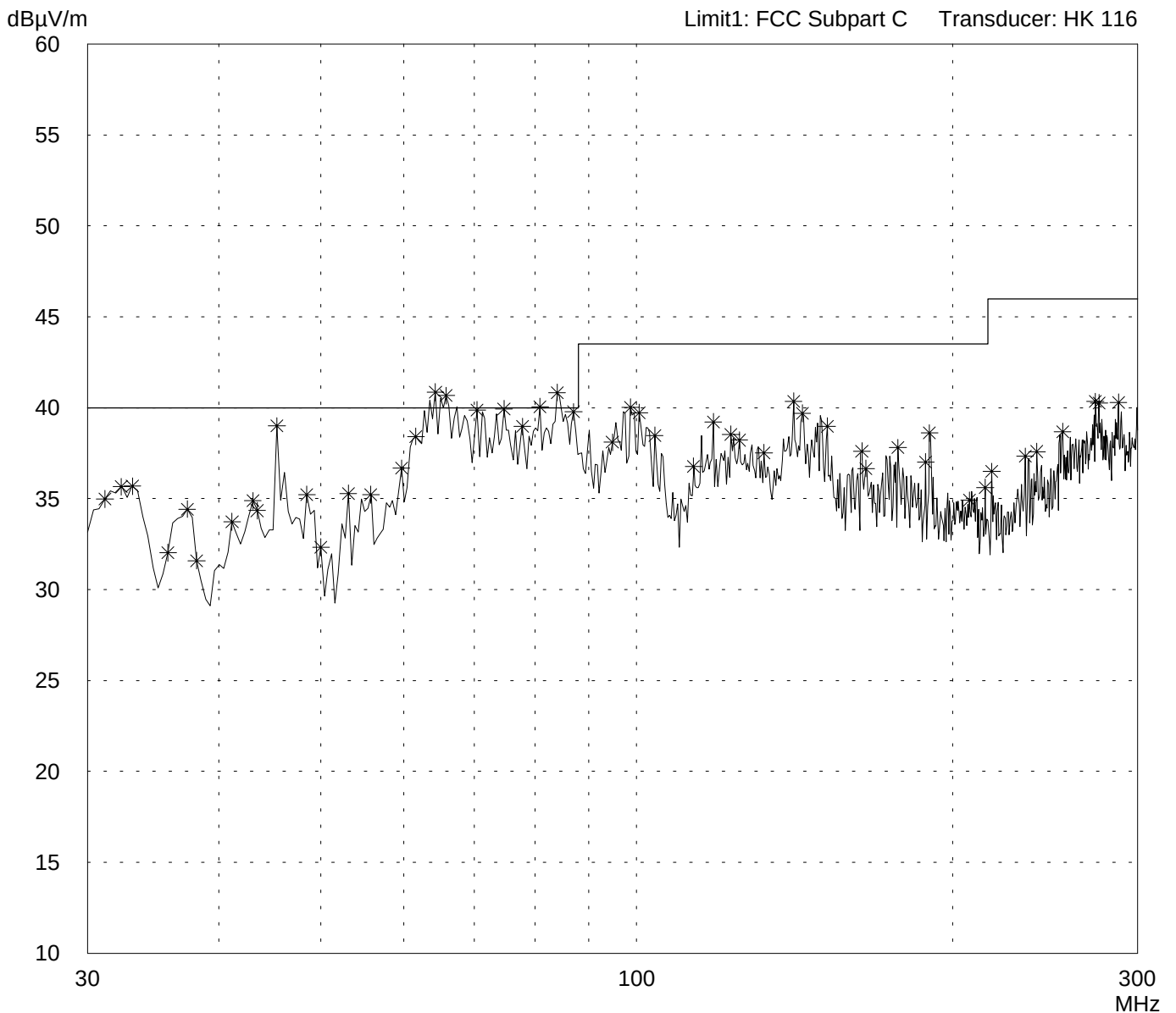
Mode:
- TX mode

- with TAG

- FCC test setup

Detector:
Peak

List of values:
10 dB Margin 50 Subranges



Result:
Prescan

Project file:
55411-20136

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Radiated Emission Test 295 MHz - 1 GHz according to FCC Part 15 Subpart C

Model:
atis-PLB

Serial no.:
--

Applicant:
Gantner Electric GmbH

Test site:
Semi anechoic room, cabin no. 3

Tested on:
Test distance 3 meters
Vertical Polarization

Date of test: 04/02/2002
Operator: T. Eberl

Test performed: automatically
File name:

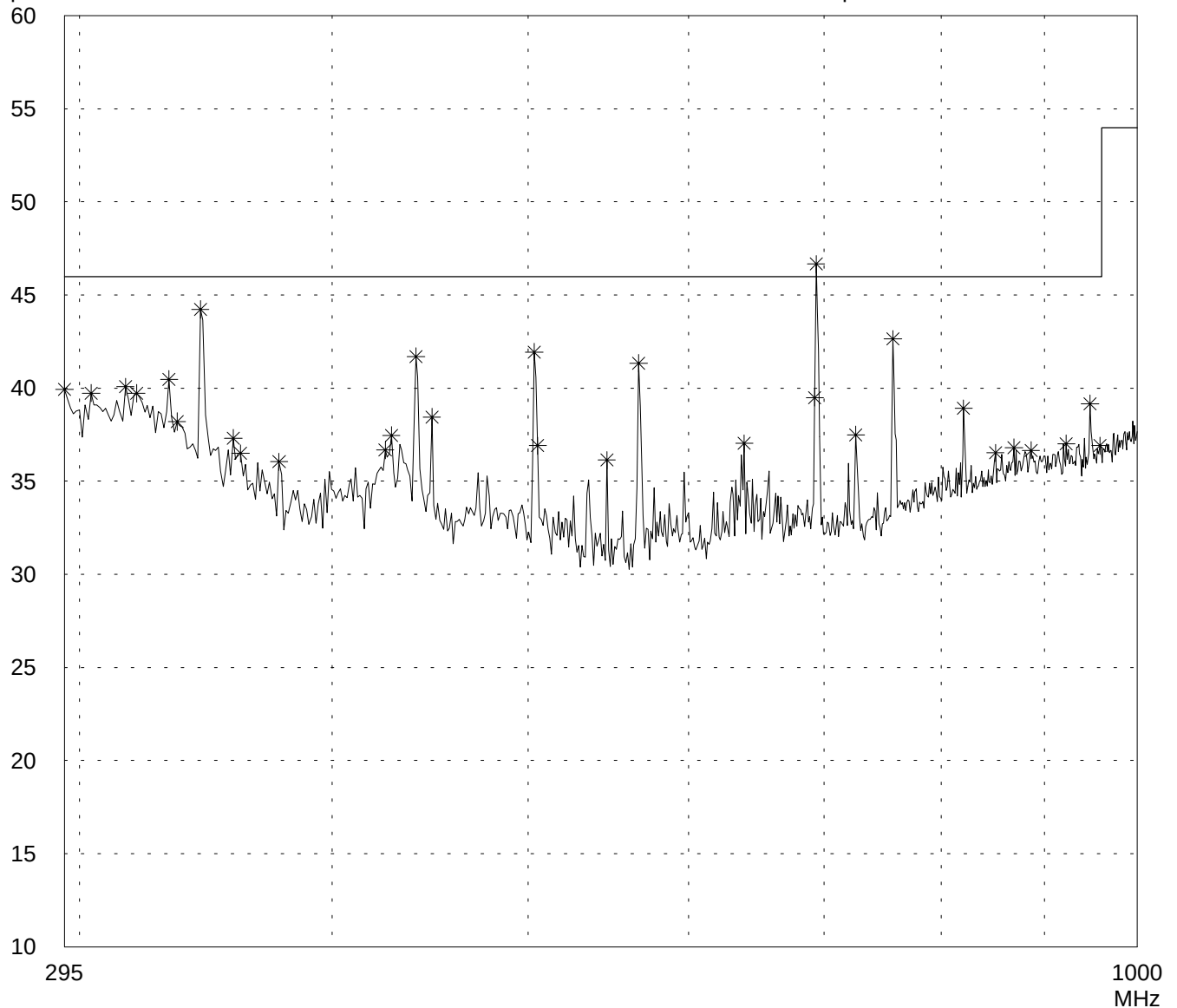
Mode:
- TX mode
- with TAG
- FCC test setup

Detector:
Peak

List of values:
10 dB Margin 50 Subranges

dB μ V/m

Limit1: FCC Subpart C Transducer: HL 223



Result:
Prescan

Project file:
55411-20136

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

Model:
atis-PLB

Serial no.:
--

Applicant:
Gantner Electronic GmbH

Test site:
Open area test-site I

Tested on:
Test distance 3 meters
Horizontal Polarization

Date of test:
04/08/2002

Operator:
T. Eberl

Test performed:
by hand

File name:

Mode:

- TX mode

- with TAG

- FCC test setup

Detector:
Quasi-Peak

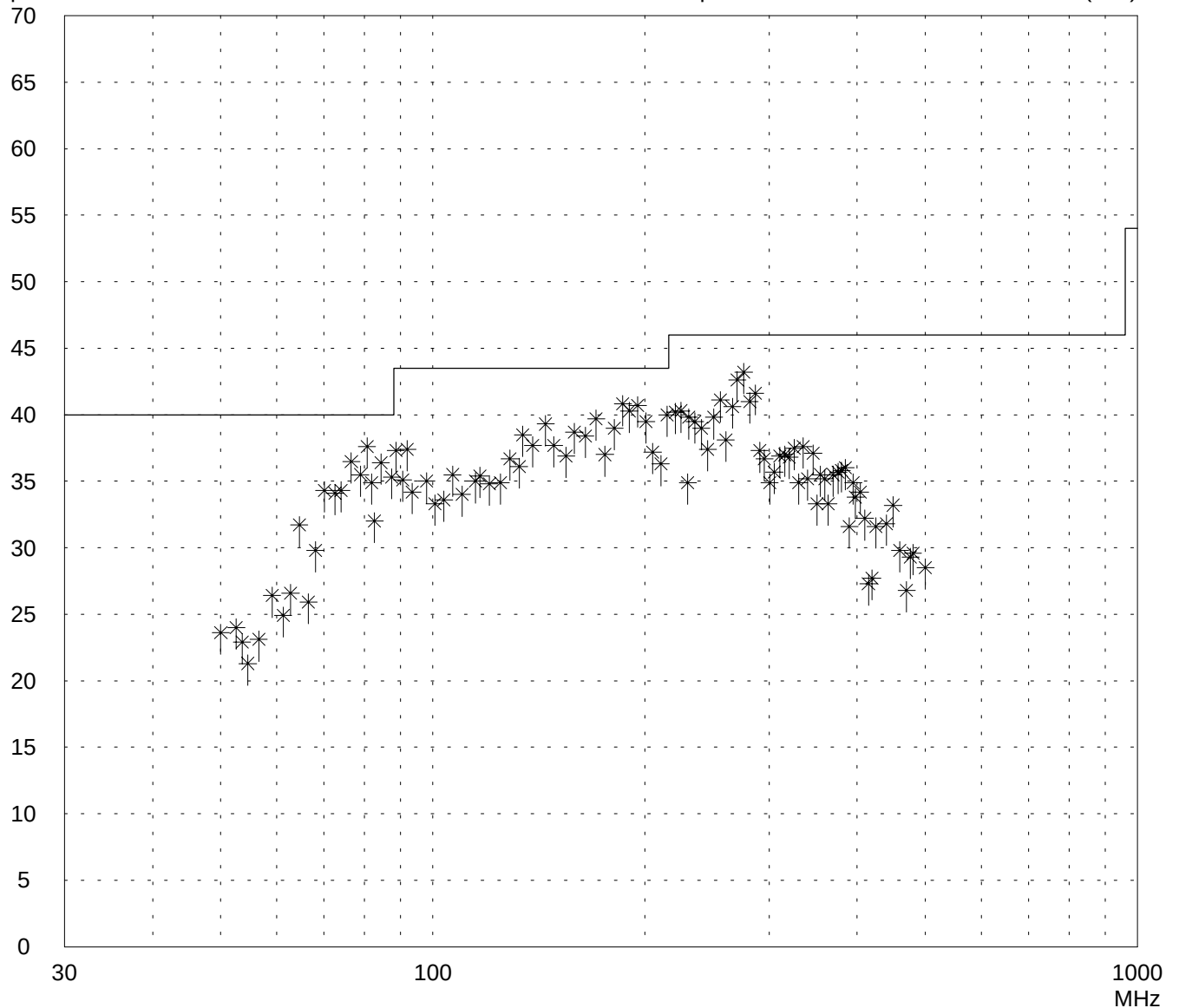
List of values:

Selected by hand

$\text{dB}\mu\text{V/m}$

Limit1: FCC Subpart C

Transducer: HK116 / HL223 (3 m)



Result:
Limit kept

Project file:
55411-20136

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

Model:
atis-PLB

Serial no.:
--

Applicant:
Gantner Electronic GmbH

Test site:
Open area test-site I

Tested on:
Test distance 3 meters
Horizontal Polarization

Date of test: 04/08/2002 Operator: T. Eberl

Test performed: by hand File name:

Mode:
- TX mode

- with TAG

- FCC test setup

Detector:
Quasi-Peak

List of values:
Selected by hand

<i>Frequency MHz</i>	<i>Reading dBμV</i>	<i>Correction factor dB</i>	<i>Value dBμV/m</i>	<i>Limit dBμV/m</i>	<i>Limit exceeded</i>
50.00	12.0	11.6	23.6	40.0	
52.60	12.6	11.4	24.0	40.0	
53.60	11.6	11.3	22.9	40.0	
54.60	10.0	11.3	21.3	40.0	
56.60	12.0	11.1	23.1	40.0	
59.10	15.4	11.0	26.4	40.0	
61.30	14.0	10.9	24.9	40.0	
62.80	15.7	10.9	26.6	40.0	
64.60	20.8	10.9	31.7	40.0	
66.60	15.1	10.8	25.9	40.0	
68.10	19.0	10.8	29.8	40.0	
70.10	23.5	10.8	34.3	40.0	
72.60	23.3	10.8	34.1	40.0	
74.10	23.5	10.8	34.3	40.0	
76.60	25.6	10.9	36.5	40.0	
78.90	24.6	10.9	35.5	40.0	
80.60	26.7	10.9	37.6	40.0	
81.90	23.9	11.0	34.9	40.0	
82.60	21.0	11.0	32.0	40.0	
84.38	25.3	11.1	36.4	40.0	
87.40	24.0	11.3	35.3	40.0	
88.60	26.0	11.3	37.3	43.5	
90.60	23.6	11.5	35.1	43.5	
91.90	25.8	11.6	37.4	43.5	
93.50	22.5	11.7	34.2	43.5	
97.90	23.0	12.0	35.0	43.5	
100.60	21.0	12.3	33.3	43.5	
103.70	20.9	12.7	33.6	43.5	
106.60	22.5	13.0	35.5	43.5	
110.00	20.6	13.4	34.0	43.5	
114.90	21.0	14.0	35.0	43.5	
116.60	21.3	14.1	35.4	43.5	
120.20	20.3	14.5	34.8	43.5	
124.70	20.0	14.9	34.9	43.5	
128.60	21.6	15.1	36.7	43.5	
132.60	20.7	15.4	36.1	43.5	

Result:
Limit kept

Project file:
55411-20136 Page of Pages

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

Model: atis-PLB	Mode: - TX mode
Serial no.: --	- with TAG
Applicant: Gantner Electronic GmbH	- FCC test setup
Test site: Open area test-site I	
Tested on: Test distance 3 meters Horizontal Polarization	
Date of test: 04/08/2002	Operator: T. Eberl
Test performed: by hand	File name:

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

<i>Frequency MHz</i>	<i>Reading dBµV</i>	<i>Correction factor dB</i>	<i>Value dBµV/m</i>	<i>Limit dBµV/m</i>	<i>Limit exceeded</i>
134.20	23.0	15.5	38.5	43.5	
138.60	22.0	15.7	37.7	43.5	
144.50	23.3	16.0	39.3	43.5	
148.50	21.5	16.2	37.7	43.5	
154.50	20.5	16.4	36.9	43.5	
158.70	22.2	16.5	38.7	43.5	
164.50	21.6	16.8	38.4	43.5	
170.50	22.5	17.2	39.7	43.5	
175.40	19.5	17.5	37.0	43.5	
181.00	21.0	18.0	39.0	43.5	
186.00	22.6	18.2	40.8	43.5	
190.00	21.8	18.5	40.3	43.5	
195.20	22.0	18.7	40.7	43.5	
200.70	20.5	19.0	39.5	43.5	
205.00	18.0	19.2	37.2	43.5	
210.50	17.0	19.3	36.3	43.5	
215.00	20.5	19.5	40.0	43.5	
220.80	20.5	19.7	40.2	46.0	
225.00	20.5	19.8	40.3	46.0	
230.00	15.0	19.9	34.9	46.0	
230.90	19.8	20.0	39.8	46.0	
235.40	19.4	20.1	39.5	46.0	
240.40	18.8	20.2	39.0	46.0	
245.50	17.0	20.4	37.4	46.0	
250.40	19.3	20.5	39.8	46.0	
255.90	20.0	21.1	41.1	46.0	
260.40	16.5	21.6	38.1	46.0	
266.00	18.5	22.1	40.6	46.0	
270.40	20.0	22.6	42.6	46.0	
276.10	20.1	23.1	43.2	46.0	
281.60	17.4	23.6	41.0	46.0	
286.60	17.5	24.1	41.6	46.0	
290.90	12.8	24.5	37.3	46.0	
295.40	11.8	24.9	36.7	46.0	
300.60	15.9	19.0	34.9	46.0	
305.10	16.5	19.2	35.7	46.0	

Result: Limit kept	Project file: 55411-20136
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Radiated Emission Test 30 MHz - 1 GHz according to FCC Part 15 Subpart C

Model:
atis-PLB

Serial no.:
--

Applicant:
Gantner Electronic GmbH

Test site:
Open area test-site I

Tested on:
Test distance 3 meters
Horizontal Polarization

Date of test: 04/08/2002 Operator: T. Eberl

Test performed: by hand File name:

Mode:
- TX mode

- with TAG

- FCC test setup

Detector:
Quasi-Peak

List of values:
Selected by hand

<i>Frequency MHz</i>	<i>Reading dBµV</i>	<i>Correction factor dB</i>	<i>Value dBµV/m</i>	<i>Limit dBµV/m</i>	<i>Limit exceeded</i>
310.80	17.5	19.4	36.9	46.0	
315.60	17.4	19.6	37.0	46.0	
320.50	17.0	19.8	36.8	46.0	
325.50	17.5	20.0	37.5	46.0	
330.50	14.8	20.1	34.9	46.0	
335.30	17.3	20.3	37.6	46.0	
340.10	14.7	20.5	35.2	46.0	
346.40	16.4	20.7	37.1	46.0	
350.60	12.5	20.8	33.3	46.0	
354.40	14.5	21.0	35.5	46.0	
360.00	14.0	21.2	35.2	46.0	
364.00	12.0	21.3	33.3	46.0	
370.00	14.0	21.5	35.5	46.0	
376.00	14.0	21.7	35.7	46.0	
380.10	14.0	21.8	35.8	46.0	
385.10	14.0	22.0	36.0	46.0	
390.10	9.5	22.1	31.6	46.0	
395.10	12.6	22.3	34.9	46.0	
398.00	11.5	22.3	33.8	46.0	
404.00	11.7	22.5	34.2	46.0	
410.10	9.5	22.7	32.2	46.0	
415.00	4.5	22.8	27.3	46.0	
420.00	4.8	22.9	27.7	46.0	
425.10	8.5	23.1	31.6	46.0	
440.00	8.3	23.5	31.8	46.0	
450.00	9.5	23.7	33.2	46.0	
460.00	5.8	24.0	29.8	46.0	
470.20	2.6	24.2	26.8	46.0	
476.00	5.0	24.3	29.3	46.0	
480.00	5.2	24.4	29.6	46.0	
500.00	3.6	24.9	28.5	46.0	

Result:
Limit kept

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

Model:
atis-PLB

Serial no.:
--

Applicant:
Gantner Electronic GmbH

Test site:
Open area test-site I

Tested on:
Test distance 3 meters
Vertical Polarization

Date of test:
04/08/2002

Operator:
T. Eberl

Test performed:
by hand

File name:

Mode:

- TX mode

- with TAG

- FCC test setup

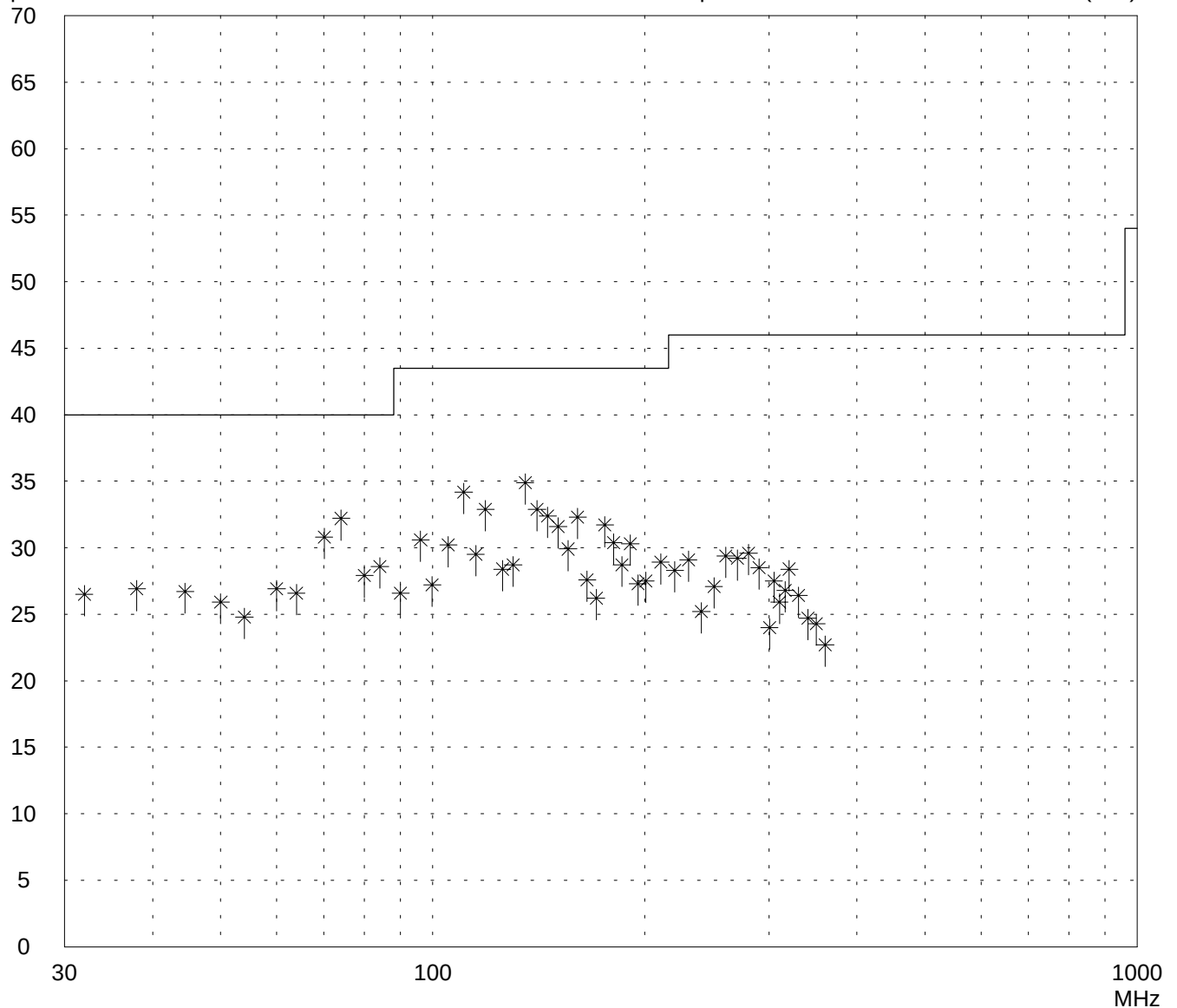
Detector:
Quasi-Peak

List of values:

Selected by hand

dB μ V/m

Limit1: FCC Subpart C Transducer: HK116 / HL223 (3 m)



Result:
Limit kept

Project file:
55411-20136

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

Model:
atis-PLB

Serial no.:
--

Applicant:
Gantner Electronic GmbH

Test site:
Open area test-site I

Tested on:
Test distance 3 meters
Vertical Polarization

Date of test: 04/08/2002
Operator: T. Eberl

Test performed: by hand
File name:

Mode:
- TX mode

- with TAG

- FCC test setup

Detector:
Quasi-Peak

List of values:
Selected by hand

Frequency MHz	Reading dBμV	Correction factor dB	Value dBμV/m	Limit dBμV/m	Limit exceeded
32.0	11.8	14.7	26.5	40.0	
38.0	13.6	13.3	26.9	40.0	
44.5	14.5	12.2	26.7	40.0	
50.0	14.3	11.6	25.9	40.0	
54.0	13.5	11.3	24.8	40.0	
60.0	16.0	10.9	26.9	40.0	
64.0	15.7	10.9	26.6	40.0	
70.1	20.0	10.8	30.8	40.0	
74.1	21.4	10.8	32.2	40.0	
80.0	17.0	10.9	27.9	40.0	
84.1	17.5	11.1	28.6	40.0	
90.0	15.2	11.4	26.6	43.5	
96.1	18.7	11.9	30.6	43.5	
99.8	15.0	12.2	27.2	43.5	
105.2	17.4	12.8	30.2	43.5	
110.6	20.7	13.5	34.2	43.5	
115.1	15.5	14.0	29.5	43.5	
118.8	18.5	14.4	32.9	43.5	
125.5	13.5	14.9	28.4	43.5	
130.0	13.5	15.2	28.7	43.5	
135.2	19.4	15.5	34.9	43.5	
140.6	17.1	15.8	32.9	43.5	
145.6	16.3	16.1	32.4	43.5	
150.6	15.3	16.3	31.6	43.5	
155.6	13.5	16.4	29.9	43.5	
160.5	15.8	16.5	32.3	43.5	
165.6	10.7	16.9	27.6	43.5	
170.6	9.0	17.2	26.2	43.5	
175.5	14.2	17.5	31.7	43.5	
180.5	12.5	17.9	30.4	43.5	
185.5	10.5	18.2	28.7	43.5	
190.7	11.8	18.5	30.3	43.5	
195.5	8.5	18.8	27.3	43.5	
200.5	8.5	19.0	27.5	43.5	
210.5	9.6	19.3	28.9	43.5	
220.5	8.6	19.7	28.3	46.0	

Result:
Limit kept

Project file:
55411-20136
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Radiated Emission Test 30 MHz - 1 GHz according to FCC Part 15 Subpart C

Model:
atis-PLB

Serial no.:
--

Applicant:
Gantner Electronic GmbH

Test site:
Open area test-site I

Tested on:
Test distance 3 meters
Vertical Polarization

Date of test: 04/08/2002 Operator:
T. Eberl

Test performed: by hand File name:

Mode:
- TX mode

- with TAG

- FCC test setup

Detector:
Quasi-Peak

List of values:
Selected by hand

<i>Frequency MHz</i>	<i>Reading dBμV</i>	<i>Correction factor dB</i>	<i>Value dBμV/m</i>	<i>Limit dBμV/m</i>	<i>Limit exceeded</i>
230.5	9.1	20.0	29.1	46.0	
240.5	5.0	20.2	25.2	46.0	
250.6	6.5	20.6	27.1	46.0	
260.6	7.8	21.6	29.4	46.0	
270.6	6.6	22.6	29.2	46.0	
280.6	6.1	23.5	29.6	46.0	
290.6	4.0	24.5	28.5	46.0	
300.6	5.0	19.0	24.0	46.0	
305.0	8.3	19.2	27.5	46.0	
310.4	6.5	19.4	25.9	46.0	
316.5	7.2	19.6	26.8	46.0	
320.5	8.6	19.8	28.4	46.0	
330.5	6.3	20.1	26.4	46.0	
340.5	4.2	20.5	24.7	46.0	
350.5	3.5	20.8	24.3	46.0	
360.5	1.5	21.2	22.7	46.0	

Result:
Limit kept

Project file:
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